

APPLICATION FOR ECOLOGICAL RESERVE

1. Legal description of the area (or general "Metes and bounds" description)

The proposed area is bounded by the Fraser River, a drainage ditch and natural stream, and the Canadian National Railway.

2. Geographical location (relate to nearest settlement, mountain, river, etc.)

Surrey Bend; floodplain of the Fraser River between Barnston and Douglas Islands, southwest of Pitt Meadows.

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

CDFb*, Puget Sound Lowlands Biotic Area

4. Approximate total acreage.

267 ha (660 acres)

5. Purpose of the reserve. Conservation of one of the most valuable remaining natural areas in the Lower Fraser Valley; extensive and complex wetland and floodplain vegetation (including probably the best undisturbed peat bog remaining in the Lower Fraser Valley); Puget Sound Lowlands fauna.

(a) Primary (state acreage)

267 ha (660 acres)

(b) Others if any (state acreage)

(c) Buffer areas (state acreage)

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.

Pinus contorta

Betula papyrifera

Populus trichocarpa

Thuja plicata

(*Tsuga heterophylla*)

(*Picea sitchensis*)

Pyrus fusca

Rhamnus purshiana

Salix lasiandra, S. scouleriana

} tall shrubs

} small trees

*This area is so close to the CWHa that it could be found in the future studies, that it belongs to it.

Signature *Jim Pojar*
J.B.Foster, J. Pojar, L.K.Wade,
A.Burbidge, K.I.Beamish, M.North

I.B.P. Surveyor

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

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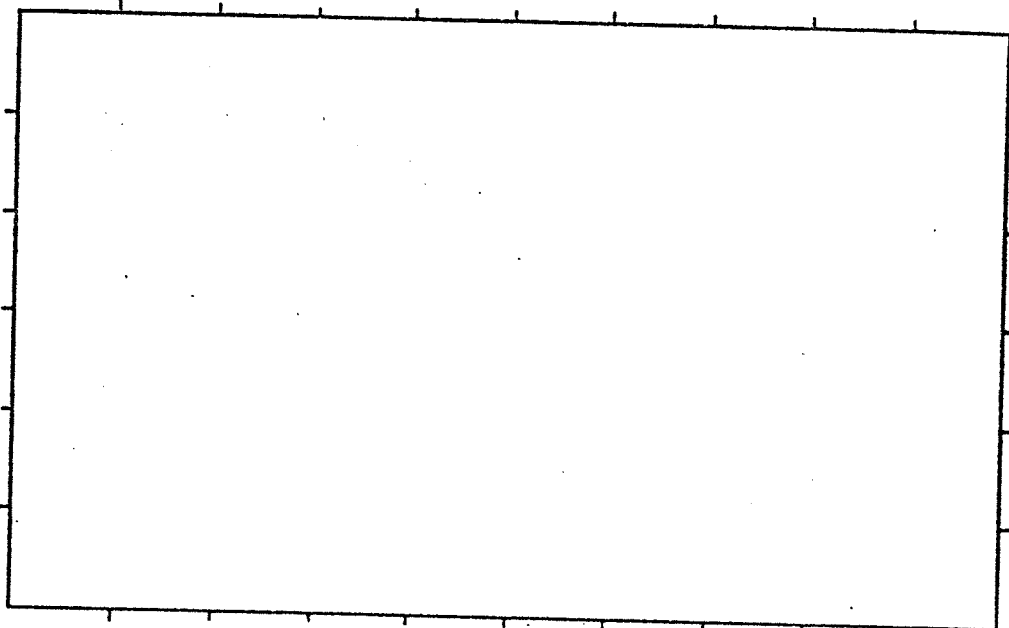
For Data Centre Use only

1.

1. Name of surveyor J.B. Foster*, J. Pojar*, L.K. Wade**, A. Burbidge***, K.I. Beamish****, M. North*****
2. Address of surveyor *Ecological Reserves Unit, Victoria, B.C. V8V1X5
 **Capilano College, North Vancouver, B.C.
 ***Western Australian Wildlife Research Centre, Wanneroo, W.A.
 ****Dept. of Botany, Univ. of B.C., Vancouver, B.C. V6T 1W5
 *****Dept. of Geography, Univ. of B.C., Vancouver, B.C. V6T 1W5
3. Check Sheet completed (a) on site X (b) from records X
4. Date Check Sheet completed Oct. 13, 1976

2.

1. Name of IBP Area Surrey Bend
2. Name of IBP Subdivision (or serial letter) CDFb^{*}; Puget Sound Lowlands Biotic Area
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.

* This area is so close to the CWha that it could be found in the future studies, that it belongs to it.

3. Location of IBP Area*

1. Latitude 49° 11.55-12.8' N Longitude 122° 43.95-46.1' W
 2. Country Canada
 State or Province British Columbia County Surrey
 (State or Province County)

4. Administration

National 1. Official category Private (?) + Municipal Land
 2. Address of administration Municipality of Surrey, B.C.

International Class

3.

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) 267 ha
 2. Altitude (state units of measurement) Maximum 5 m
 Minimum ± sea level

6. Climate

Nearest climatological station :

1. Name Pitt Meadows (Lougheed)
 2. Climatological station on IBP Area*? Yes No X
 3. If (2) not, distance from edge of IBP Area* (state units) 3 km
 4. Direction from IBP Area* NE
 5. Additional data sheet attached? Yes X No

PORT MANN

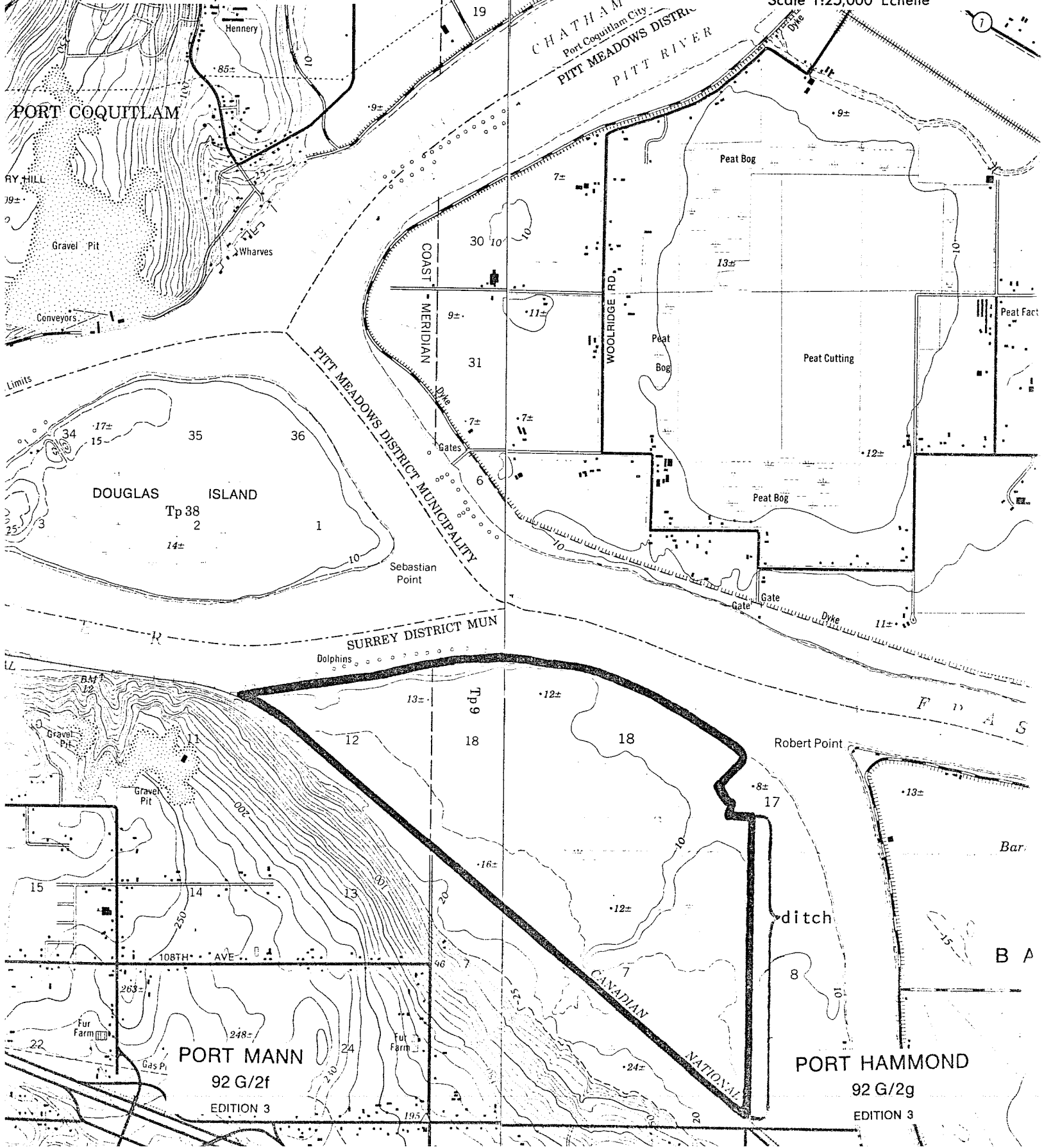
NEW WESTMINSTER DISTRICT
BRITISH COLUMBIA

Scale 1:25,000 Échelle

PORT HAMMOND

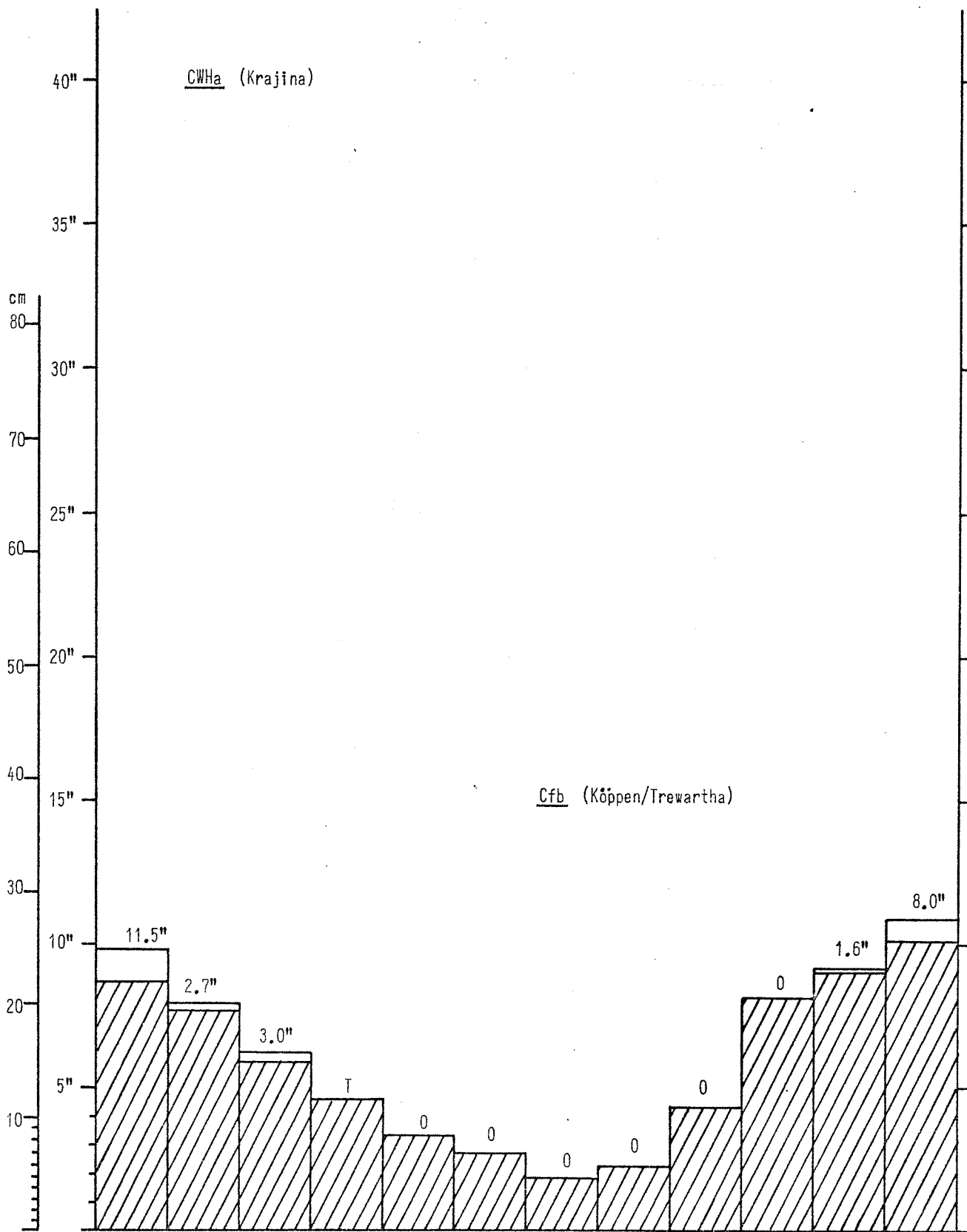
NEW WESTMINSTER DISTRICT
BRITISH COLUMBIA
EAST OF COAST MERIDIAN - EST DU MÉRIDIEN CÔTÉ

Scale 1:25,000 Échelle



PORT MANN
92 G/2f
EDITION 3

PORT HAMMOND
92 G/2g
EDITION 3



M.M.T.P. months . 9.94 JAN 7.94 FEB 6.21 MAR 4.55 APR 3.38 MAY 2.65 JUN 1.79 JUL 2.25 AUG 4.35 SEP 8.02 OCT 9.17 NOV 10.96 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 or 1	B F	1 1	3 2	d	<i>Ledum groenlandicum</i> - <i>Kalmia polifolia</i> - <i>Vaccinium (myrtilloides, oxycoccus)</i> - <i>Sphagnum</i> spp.	-
2	1 1	D A	1 1	2 7	a a	<i>Pinus contorta</i> - <i>Ledum</i> - <i>Vaccinium myrtilloides</i> - <i>Sphagnum</i> - <i>Pleurozium schreberi</i>	
3	1	A	1	7	a	<i>Pinus</i> - <i>Spiraea douglasii</i> - <i>Ledum</i> - <i>Lysichitum americanum</i>	
4	1 1	D D	1 2	2 2	a a	<i>Pinus</i> - <i>Betula</i> - <i>Spiraea</i> - <i>Phalaris</i> - <i>Lysichitum</i>	.
5	1	D	2	2	a	<i>Betula</i> - <i>Spiraea</i> - <i>Phalaris</i>	
6	1	B	2	2	a	(<i>Salix lasiandra</i>) - <i>Spiraea</i> - <i>Phalaris</i> - <i>Lysichitum</i>	
7	1	L	1	2		<i>Phalaris</i> - <i>Scirpus microcarpus</i> - <i>Carex sitchensis</i> - <i>Oenanthe sarmentosa</i>	
8	1	B	2	1	a	<i>Salix (lasiandra, hookeriana)</i> - <i>Pyrus fusca</i> - <i>Physocarpus capitatus</i> - <i>Cornus stolonifera</i>	
9	1	A	2	1		<i>Populus trichocarpa</i> - <i>Alnus rubra</i> - <i>Rubus spectabilis</i> - <i>Symphoricarpos albus</i>	
10							

SOME COMMON SPECIES OF THE PLANT COMMUNITIES OF E.R.P. # 270 (SURREY BEND):

1. *Ledum* - *Kalmia* - *Vaccinium* (*myrtilloides*, *oxycoccus*) - *Sphagnum* spp.
(peat bog):
- | | | |
|-------------|---|---|
| shrubs: | <i>Ledum groenlandicum</i>
<i>Kalmia polifolia</i> | <i>Vaccinium myrtilloides</i> , <i>V. uliginosum</i> |
| herb layer: | <i>Vaccinium oxycoccus</i>
<i>Rubus chamaemorus</i> | <i>Trientalis arctica</i>
(<i>Pteridium aquilinum</i>) |
| moss layer: | <i>Sphagnum</i> spp. (abundant)
<i>Pogonatum alpinum</i> | <i>Cladina rangiferina</i> |
2. *Pinus* - *Ledum* - *Vaccinium myrtilloides* - *Sphagnum* - *Pleurozium*
(bog forest):
- | | | |
|-------------|--|--|
| trees: | <i>Pinus contorta</i> | |
| shrubs: | <i>Ledum groenlandicum</i>
(<i>Gaultheria shallon</i>) | <i>Vaccinium myrtilloides</i> , <i>V. uliginosum</i> |
| herb layer: | <i>Rubus chamaemorus</i>
<i>Vaccinium oxycoccus</i>
<i>Pteridium aquilinum</i> | (<i>Maianthemum dilatatum</i>)
<i>Trientalis arctica</i> |
| moss layer: | <i>Sphagnum</i> spp.
<i>Pleurozium schreberi</i>
<i>Dicranum fuscescens</i> | <i>Pogonatum alpinum</i>
(<i>Eurhynchium oreganum</i>)
<i>Hylocomium splendens</i> |
3. *Pinus* - *Spiraea* - *Ledum* - *Lysichitum*:
- | | | |
|-------------|--|----------------------------------|
| trees: | <i>Pinus contorta</i> | |
| shrubs: | <i>Spiraea douglasii</i>
<i>Ledum groenlandicum</i> | <i>Vaccinium myrtilloides</i> |
| herb layer: | <i>Lysichitum americanum</i>
<i>Oenanthe sarmentosa</i> | (<i>Maianthemum dilatatum</i>) |
| moss layer: | <i>Mnium</i> spp.
<i>Sphagnum squarrosum</i> | |
4. *Pinus* - *Betula* - *Spiraea* - *Phalaris* - *Lysichitum*:
- | | | |
|-------------|---|--|
| trees: | <i>Pinus contorta</i>
<i>Betula papyrifera</i> | (<i>Thuja plicata</i>) |
| shrubs: | <i>Spiraea douglasii</i>
<i>Rubus spectabilis</i> | <i>Vaccinium ovalifolium</i> |
| herb layer: | <i>Phalaris arundinacea</i>
<i>Lysichitum americanum</i> | <i>Oenanthe sarmentosa</i>
<i>Athyrium filix-femina</i> |
5. *Betula* - *Spiraea* - *Phalaris*:
- | | | |
|-------------|--|---|
| trees: | <i>Betula papyrifera</i>
<i>Thuja plicata</i> | (<i>Tsuga heterophylla</i>) |
| shrubs: | <i>Spiraea douglasii</i>
<i>Pyrus fusca</i>
<i>Rubus spectabilis</i>
<i>Vaccinium ovalifolium</i> | <i>Gaultheria shallon</i>
<i>Myrica gale</i>
<i>Rhamnus purshiana</i> |
| herb layer: | <i>Phalaris arundinacea</i>
<i>Lysichitum americanum</i>
<i>Oenanthe sarmentosa</i> | <i>Athyrium filix-femina</i>
<i>Dryopteris austriaca</i> |

(E.R.P. # 270 - SURREY BEND):

6. (*Salix lasiandra*) - *Spiraea* - *Phalaris* - *Lysichitum* (shrub fen):

shrubs:	<i>Spiraea douglasii</i>	<i>Myrica gale</i>
	<i>Salix lasiandra</i>	<i>Rubus spectabilis</i>
	<i>Pyrus fusca</i>	
herb	<i>Phalaris arundinacea</i>	<i>Cinna latifolia</i>
layer:	<i>Lysichitum americanum</i>	<i>Calamagrostis canadensis</i>
	<i>Oenanthe sarmentosa</i>	<i>Carex canescens</i>

7. *Phalaris* - *Scirpus* - *Carex* - *Oenanthe* (fen):

herb	<i>Phalaris arundinacea</i>	<i>Polygonum lapathifolium</i>
layer:	<i>Scirpus microcarpus</i>	<i>Lysimachia thyrsiflora</i>
	<i>Carex sitchensis</i>	<i>Galium trifidum</i>
	<i>Calamagrostis canadensis</i>	<i>Oenanthe sarmentosa</i>
	<i>Poa palustris</i>	<i>Epilobium watsonii</i>
	<i>Glyceria ? grandis</i>	<i>Lysichitum americanum</i>

8. *Salix* (*lasiandra*, *hookeriana*) - *Pyrus fusca* - *Physocarpus capitatus* - *Cornus stolonifera* (streambank thickets):

tall	<i>Salix lasiandra</i> , <i>S. hookeriana</i> , <i>S. sitchensis</i> , <i>S. rigida</i>	
shrubs:	<i>Pyrus fusca</i>	<i>Physocarpus capitatus</i>
medium	<i>Cornus stolonifera</i>	
shrubs:	<i>Symphoricarpos albus</i>	<i>Spiraea douglasii</i>

9. *Populus* - *Alnus* - *Rubus spectabilis* - *Symphoricarpos* (floodplain forest):

trees:	<i>Populus trichocarpa</i>	(<i>Thuja plicata</i>)
	<i>Alnus rubra</i>	(<i>Picea sitchensis</i>)
tall	<i>Acer circinatum</i>	<i>Pyrus fusca</i>
shrubs:	<i>Rhamnus purshiana</i>	<i>Corylus cornuta</i>
medium	<i>Rubus spectabilis</i>	<i>Rosa nutkana</i>
shrubs:	<i>Symphoricarpos albus</i>	<i>Sambucus racemosa</i>
	<i>Lonicera involucrata</i>	
herb	<i>Athyrium filix-femina</i>	<i>Galium triflorum</i>
layer:	<i>Tolmiea menziesii</i>	<i>Festuca subulata</i>
	<i>Carex deweyana</i> , <i>C. sitchensis</i>	<i>Equisetum arvense</i>
	<i>Glechoma hederacea</i>	<i>Oenanthe sarmentosa</i>
	<i>Ranunculus repens</i>	

7.
(cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	0	? fibrisol
2	0	? fibrisol - mesisol
3	0	? humisol
4	P ₂ /0	humic gleysol - humisol
5	P ₂ /0	humic gleysol
6	P ₂ /0	humic gleysol
7	P ₂	gleysol
8	P ₂ /I ₂	gleysol; gleyed regosol
9	I ₂	silty floodplain regosol
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

11. Freshwater within IBP Area*

1.

	Permanent	Intermittent
General		
Standing	X	X
Running	X	X

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps	X	X	X	X
Ponds				
Lakes				

3. Running Water

	Permanent	Intermittent
Springs, cold		
Springs, hot		
Streams	X	X
Rivers		

4. Special freshwater features
 bog, fen, swamp, marsh

12. Salt and Brackish Water within IBP Area*

	Permanent	Intermittent	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		

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	X						X				
Aves	X	X						X	X	X		
Reptilia												
Amphibia		X						X				
Pisces		X						X				
Insecta		X						X				

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

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4. Flora

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

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

Rubus chamaemorus (Cloudberry) - a northern relict

Such wetland communities can be termed "rare and endangered" vegetation in southwestern B.C.

15. Exceptional Interest of IBP Area*

A relatively undisturbed, natural "island" in an otherwise industrial residential - agricultural landscape. One of the largest remaining natural areas in the Lower Fraser Valley. Excellent habitat for Puget Sound Lowlands fauna, especially waterbirds and wetland mammals. Extensive and complex floodplain and wetland vegetation, including probably the best undisturbed peat bog remaining in the Lower Fraser Valley. Plays an important "sponging" role in the hydrology of annual Fraser River flood.

16. Significant Human Impact

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

2. Particular

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

- some selective logging + clearing + burning

- Finnish-Canadian Fish & Game Club has constructed some flimsy blinds, as well as several wood duck boxes

*The wet terrain and thick vegetation make this a relatively inaccessible area, even though it is so close to population centres.

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	X	
Fauna			X	X			X			X	X	
Non-living			X	X					X	X	X	

18. References

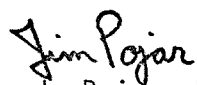
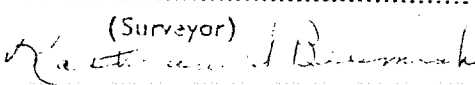
- List major biological/geographical references for the IBP Area.
Sheet attached? Yes No
- List main maps available for the IBP Area.
92 G/2f (Port Mann) (1:25,000)
List attached? Yes No 92 G/2g (Port Hammond) (1:25,000)
- Aerial photographs for the IBP Area available?
 B.C. 5063:34-36 (20 chn.)
For whole area For part of area None

19. Other Relevant Information

The Very high natural values of Surrey Bend, combined with geotechnically restrictive conditions of landform, soils, and hydrology, should without question prohibit any industrial development or encroachment on this area.

Nevertheless, this bog is evidently much younger than the Camosun bog near U.B.C. (V.J. Krajina).

See also additional information on p. 12 and 13.


 J.B. Foster, J. Pojar, L.K. Wade,
 A. Burbidge, K.I. Beamish, M. North
 Signed _____
 (Surveyor)


B SURREY BEND

The area known as the Surrey Bend would make an excellent ecological reserve from a number of standpoints.

- (a) It contains a variety of more-or-less untouched ecosystem types typical of the lower Fraser Valley (eg. high moor Sphagnum bog Populus trichocarpa - dominated riparian associations, post-bog succession forest associations, bog edge - Spiraea douglasii - dominated associations).

These vegetation types occur in intermixed patterns and form a rather complex mosaic, ideal for research and educational use. Very few if any similar situations now exist in the Fraser Valley, and untouched Sphagnum bog vegetation is becoming increasingly rare. From this standpoint it would be hard to visualize a better ecological reserve. Moreover, in some of the lower Fraser Valley bogs, including Surrey Bend, Rubus chamaemorus is abundant. This species, common in bogs of the boreal forest, is apparently widely disjunct in our area and not found south of us. A unique feature of this kind should be preserved.

- (b) The area, although apparently slated for industrial use, is in the "hazard lands" category, being subject to periodic flooding and in effect acting as a buffer area during flood periods. It would appear that industrial development of the area would be short-sighted even from an economic standpoint, and extremely short-sighted from an ecological viewpoint.

other major considerations:

- not Crown Land, but municipal land in Surrey.
- Second Century Fund might be the logical approach.

K. Wade

K. Beamish.

Comments on the advisability of protecting the entire
Surrey Bend from any further development.

1. The Surrey Bend is the last remaining sizeable area of natural vegetation immediately adjacent to the Fraser River in the lower part of the Valley. Both upstream and downstream from this area the natural vegetation has been replaced either by cultivated farms or by housing, industry, etc. The Surrey Bend thus offers us the last 'laboratory' for the study of the natural interactions between the river and the vegetation-soil system. To my knowledge no studies have yet been made of such 'natural' systems though work is in process on the effect of different land-use practices on the river quality. There would seem to be an excellent case to be made for maintaining the Surrey Bend as a permanent base-line to give context to the studies of present land use interactions with the river.
2. Intuitively I would anticipate that there is considerable exchange of both water and dissolved chemicals between the river and the groundwater of the Surrey Bend area. This exchange may be seasonally reversing.* At low water there may be seepage through the bank and channel into the river from the high water table of the bog. Such an input of water with dissolved chemicals may be of increasing significance in maintaining the downstream flow of the river, both in quantity and quality. (The increasing significance is due to the fact that all other adjacent water tables are now subject to considerable alteration from their 'natural' states.) At high water the movement of water may be reversed, and the watertable of the Surrey Bend and the bog itself may receive substantial amounts of river water through seepage from the channel. This direction of movement presumably would reduce the total in channel flow and aid in maintaining the river within its channel.
3. Extending the last point made above to an extreme flood situation, (a 'hundred year' flood) the Surrey Bend is now crucial to any attempt to minimise downstream flood damage. It is the last sizeable piece of land at river level which could be flooded without any loss of life or property. As such it is of potentially great value to all floodplain settlement downstream and should be maintained in its natural state in perpetuity.

Submitted by M. North
Geography Department, U.B.C.
27 September 1976

*The problem of establishing direction and scale of groundwater flow is only now being investigated.