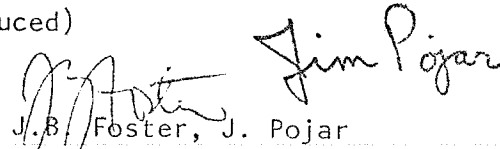


APPLICATION FOR ECOLOGICAL RESERVE

1. Legal description of the area (or general "Metes and bounds" description)
  
2. Geographical location (relate to nearest settlement, mountain, river, etc.)  
Tumbo Island, NE of Saturna Island, Strait of Georgia
  
3. Indicate the biogeoclimatic zone of which the reserve is representative.  
CDFa (Gulf Islands Biotic Area)
  
4. Approximate total acreage.  
105 ha (260 acres)
  
5. Purpose of the reserve.  
Conservation of an island that is probably the most outstanding remaining area, containing nearly complete range of more or less undisturbed ecosystems characteristic of the Gulf Islands. Rich flora and fauna; as well, a haven for rare, endangered, and biogeographically interesting species.
  - (a) Primary (state acreage)  
105 ha (260 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.
 

<i>Pseudotsuga menziesii</i>	<i>Quercus garryana</i>
<i>Thuja plicata</i>	<i>Acer macrophyllum</i>
<i>Pinus contorta</i>	<i>Acer glabrum</i>
<i>Abies grandis</i>	<i>Salix scouleriana</i>
<i>Juniperus scopulorum</i>	<i>Populus nigra</i> (introduced)
<i>Taxus brevifolia</i>	
<i>Cornus nuttallii</i>	
<i>Arbutus menziesii</i>	

Signature


  
J.B. Foster, J. Pojar

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

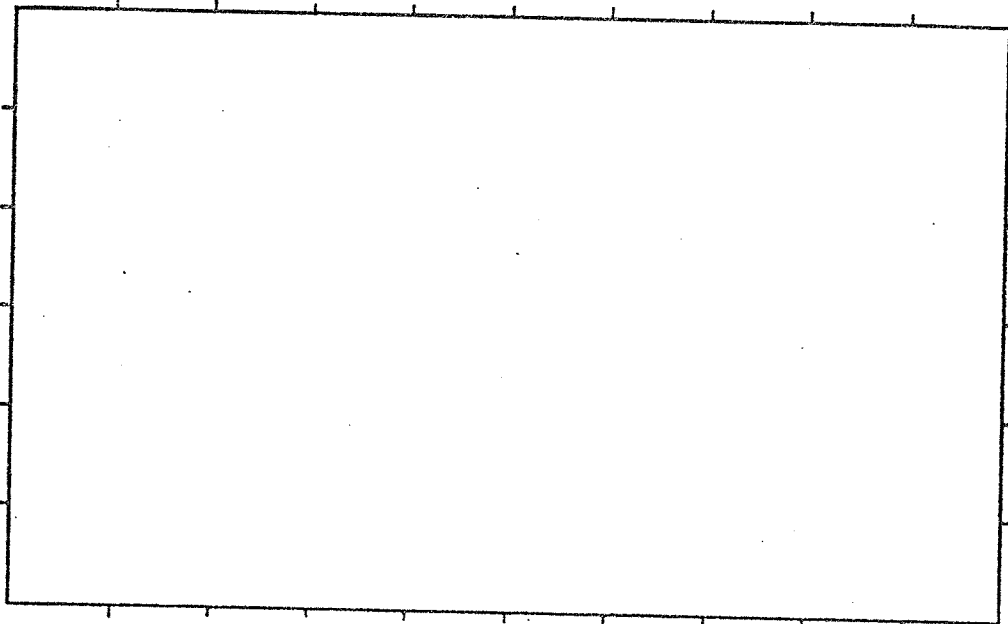
Serial Number

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

For Data Centre Use only

1. 1. Name of surveyor ..... \*J.B. Foster, \*J. Pojar
2. Address of surveyor ..... \*Ecological Reserves Unit, Land Management Branch  
 ..... B.C. Dept. of Environment, Victoria, B.C. V8V 1X5  
 .....
3. Check Sheet completed (a) on site ..... (b) from records ..... X
4. Date Check Sheet completed ..... Aug. 30, 1976

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



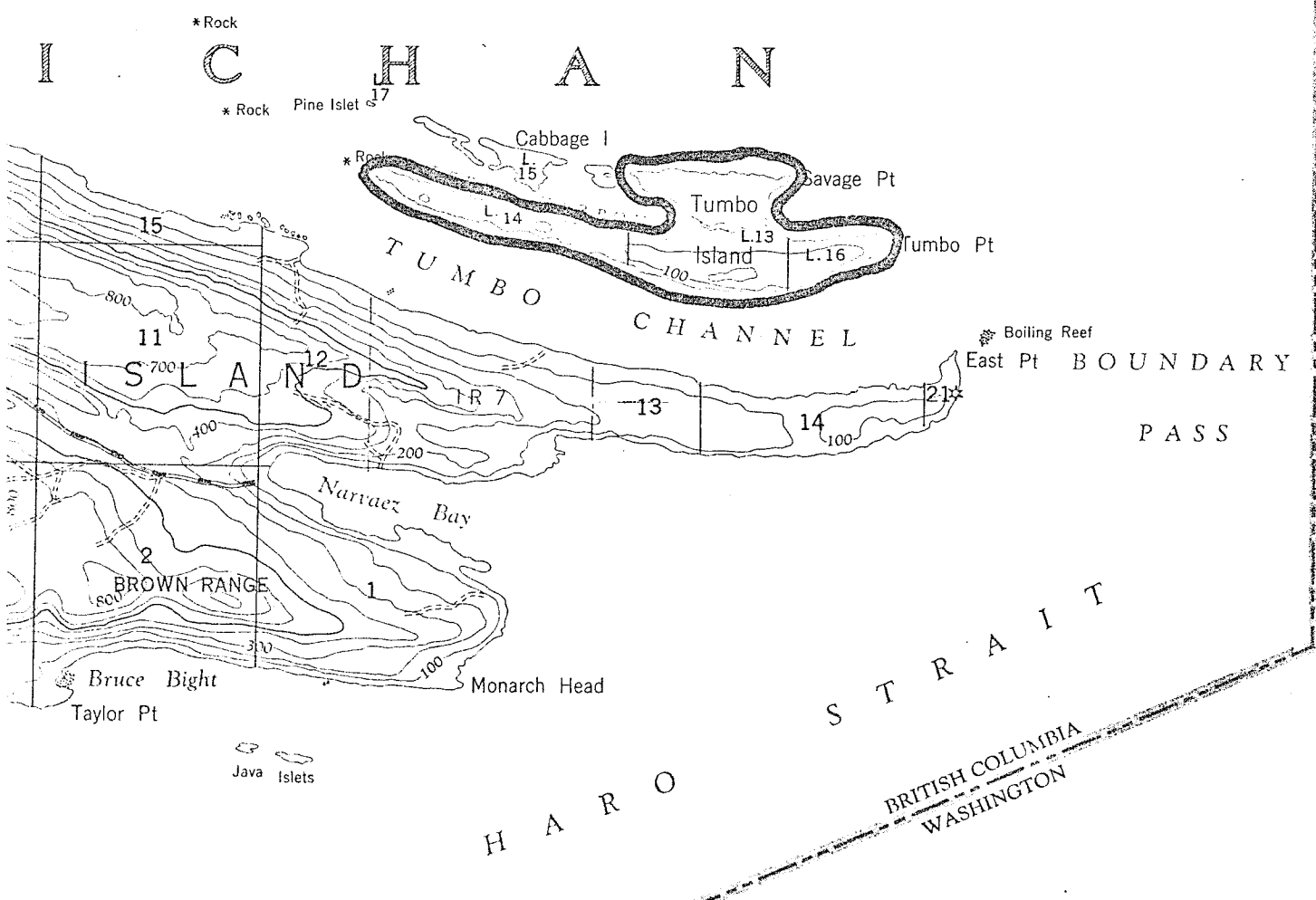
\* For "IBP Area", read IBP Area and/or IBP Subdivision.

R  
G  
I  
A

GALIANO ISLAND  
92<sup>B</sup>/14 EAST HALF

Scale 1:50,000

I  
C  
H  
A  
N



H  
A  
R  
O

S  
T  
R  
A  
I  
T

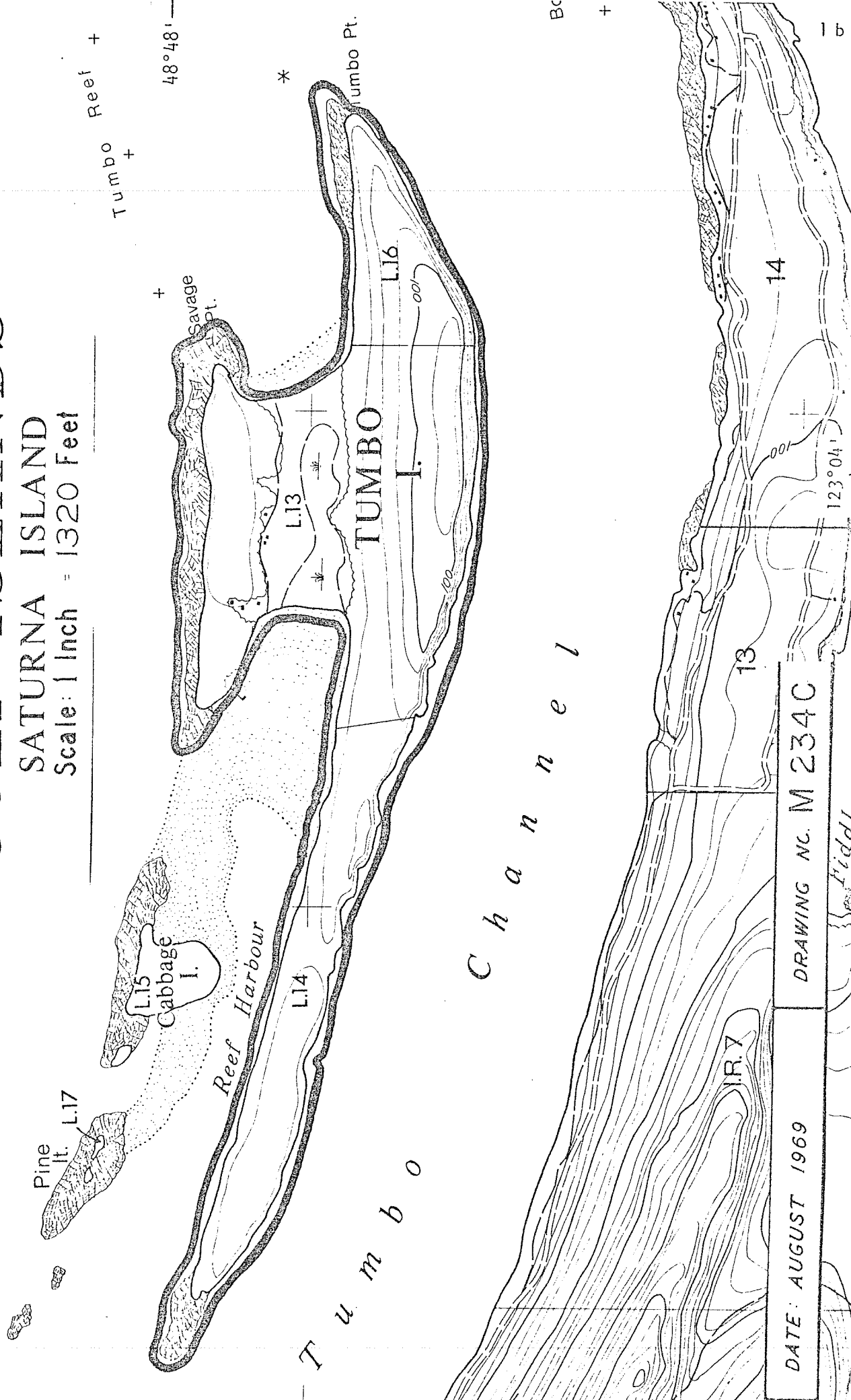
BRITISH COLUMBIA  
WASHINGTON

DEPARTMENT OF LANDS, FORESTS, AND  
 WATER RESOURCES  
 SURVEYS & MAPPING BRANCH  
 TOPOGRAPHIC DIVISION

GULF ISLANDS

SATURNA ISLAND

Scale: 1 Inch = 1320 Feet



DRAWING NO. M 234C

DATE: AUGUST 1969

*W. J. Fiddell*

3. Location of IBP Area\*

1. Latitude..... 48° 47.4-47.9' N Longitude..... 123° 02.9-06.1' W

2. Country ..... Canada

State or Province ..... British Columbia County ..... Gulf Islands

(State or Province ..... County .....)

4. Administration

National I. Official category ..... Private land

2. Address of administration ..... Folio #12012.000; District Lot #13, 14, 16;  
 Lot Plan 2423, 260 acres;  
 Point Developments Ltd.  
 850 Fort Street, Victoria, B.C. (as of 1975)

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) ..... 105 ha (260 acres)

2. Altitude (state units of measurement) Maximum 39 m  
 Minimum ± sea level

6. Climate

Nearest climatological station :

1. Name ..... Pender Island

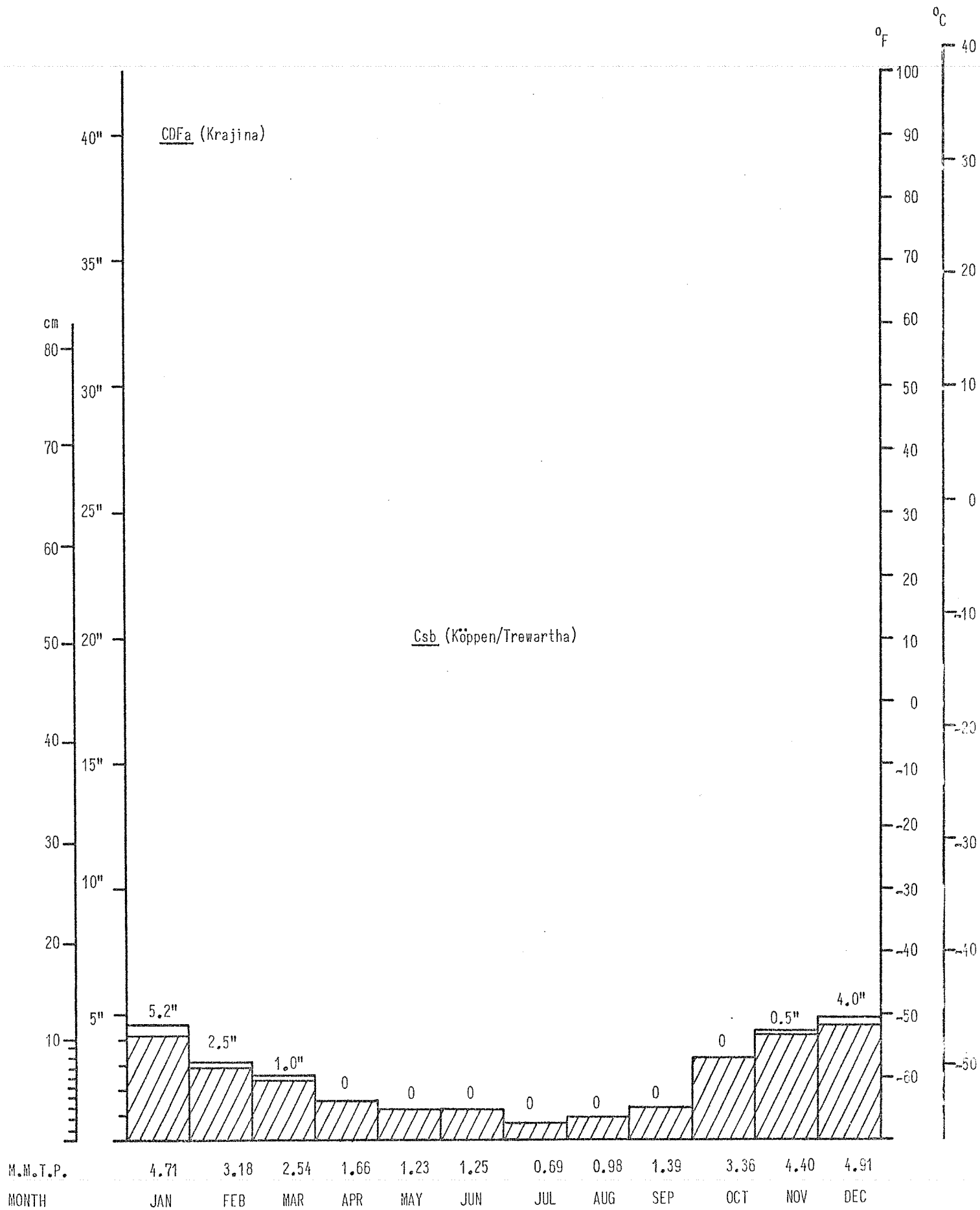
2. Climatological station on IBP Area\*? Yes ..... No X

3. If (2) not, distance from edge of IBP Area\* (state units) ..... 15 km (9.5 mi.)

4. Direction from IBP Area\* ..... West

5. Additional data sheet attached? Yes X No .....

PENDER ISLAND 48°49'N, 123°17'W, 50' ASL. Record: 37-41 years (adjusted).  
 A.M.T.P. 30.30", A.M.S.F. 13.2", snow % A.M.T.P.: 4.36.



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	A	1	7	a	<i>Pseudotsuga menziesii</i> - <i>Thuja plicata</i> - <i>Gaultheria shallon</i> - <i>Berberis nervosa</i> - <i>Rhytidiadelphus loreus</i>	
2	1	A	1	7	a	<i>Pseudotsuga</i> - <i>Arbutus menziesii</i> - <i>Gaultheria shallon</i>	
3	1	A	1	7	a	<i>Pseudotsuga</i> - <i>Arbutus</i> - <i>Sanicula crassicaulis</i> - <i>Festuca occidentalis</i>	
4	1 2	A A	1 1	6 7 2 4	a b d	<i>Arbutus</i> - <i>Pseudotsuga</i> - <i>Quercus garryana</i> - <i>Holodiscus discolor</i>	
5	2	A	2	1		<i>Quercus</i> - <i>Geranium molle</i> - <i>Bromus</i> spp. - <i>Elymus glaucus</i>	
6	1	M	2	1		<i>Festuca</i> - <i>Bromus</i> - <i>Aira</i> - <i>Trifolium</i> - <i>Geranium</i> - <i>Rhacomitrium</i> - <i>Polytrichum</i> - rock outcrop	
7	3	C	1	3		<i>Parmelia</i> ( <i>taractica</i> , <i>saxatilis</i> ) - <i>Ochrolechia</i> spp. - <i>Physcia</i> spp. - ( <i>Umbilicaria phaea</i> ) - exposed rock	
8	2	G	2	1		<i>Elymus mollis</i> - <i>Lathyrus japonicus</i> - <i>Achillea millefolium</i> - driftwood	
9	1	M	2	2		<i>Salicornia pacifica</i> - <i>Distichlis spicata</i> - <i>Triglochin maritimum</i>	
10	1	M	2	2/1		<i>Deschampsia caespitosa</i> - <i>Juncus balticus</i> - <i>Potentilla pacifica</i>	
11	1	L	1	2		<i>Typha latifolia</i> - <i>Hippuris vulgaris</i> - <i>Juncus oxymers</i>	
12	1	M	2	2		<i>Eleocharis palustris</i> - <i>Oenanthe sarmentosa</i> - <i>Cotula coronopifolia</i>	
13	1	M	2	1		<i>Anthoxanthum odoratum</i> - <i>Juncus effusus</i> - <i>Ranunculus repens</i> - <i>Plantago lanceolata</i> - <i>Hypochaeris radicata</i>	
14	2	G	2	2		<i>Myosurus minimus</i> - <i>Lepidium virginicum</i> - <i>Deschampsia danthonioides</i> (vernal pools & seepage areas)	
15							
16							
17							
18							
19							
20							

Please give information about further communities on a separate sheet.

SOME COMMON SPECIES OF TUMBO ISLAND PLANT COMMUNITIES, E.R.P. # 258:

1. *Pseudotsuga - Thuja - Gaultheria - Berberis - Rhytidiadelphus*  
(Douglas-fir forest on deep soils):

trees:	<i>Pseudotsuga menziesii</i>	<i>Alnus rubra</i>
	<i>Thuja plicata</i>	<i>Taxus brevifolia</i>
	<i>Abies grandis</i>	<i>Cornus nuttallii</i>
	<i>Acer macrophyllum</i>	
shrubs:	<i>Gaultheria shallon</i>	<i>Lonicera ciliosa</i>
	<i>Berberis nervosa</i>	<i>Rosa nutkana</i>
	<i>Rubus ursinus</i>	
herb	<i>Osmorhiza chilensis</i>	<i>Tiarella trifoliata</i>
layer:	<i>Trientalis latifolia</i>	<i>Melica subulata</i>
	<i>Polystichum munitum</i>	<i>Trillium ovatum</i>
	<i>Achlys triphylla</i>	<i>Calypso bulbosa</i>
moss	<i>Rhytidiadelphus loreus</i>	<i>Eurhynchium oreganum</i>
layer:	<i>Hylocomium splendens</i>	

2. *Pseudotsuga - Arbutus - Gaultheria* (Douglas-fir forest on shallow soils):

trees:	<i>Pseudotsuga menziesii</i>	<i>Arbutus menziesii</i>
shrubs:	<i>Gaultheria shallon</i>	<i>Holodiscus discolor</i>
	<i>Berberis nervosa</i>	<i>Osmaronia cerasiformis</i>
	<i>Rosa gymnocarpa</i>	<i>Lonicera ciliosa</i>
	<i>Symphoricarpos albus, S. mollis</i>	<i>Rubus ursinus</i>
herb	<i>Sanicula crassicaulis</i>	<i>Lilium columbianum</i>
layer:	<i>Calypso bulbosa</i>	<i>Linnaea borealis</i>
	<i>Corallorhiza maculata</i>	<i>Arenaria macrophylla</i>
	<i>Trientalis latifolia</i>	<i>Galium aparine</i>
	<i>Lonicera hispidula</i>	<i>Melica subulata</i>
	<i>Festuca occidentalis</i>	<i>Hieracium albiflorum</i>
	<i>Fragaria virginiana</i>	<i>Goodyera oblongifolia</i>

3. *Pseudotsuga - Arbutus - Sanicula - Festuca* (dry open forest):

trees:	<i>Pseudotsuga menziesii</i>	<i>Arbutus menziesii</i>
shrubs:	<i>Holodiscus discolor</i>	<i>Ribes sanguineum</i>
	<i>Symphoricarpos albus</i>	( <i>Shepherdia canadensis</i> )
	<i>Rosa gymnocarpa</i>	<i>Berberis nervosa</i>
herb	<i>Sanicula crassicaulis</i>	<i>Fragaria virginiana</i>
layer:	<i>Festuca occidentalis</i>	<i>Achillea millefolium</i>
	<i>Elymus glaucus</i>	<i>Erythronium oregonum</i>
	<i>Poa pratensis</i>	<i>Arenaria macrophylla</i>
	<i>Luzula campestris</i>	<i>Vicia americana</i>

4. *Arbutus - Pseudotsuga - Quercus - Holodiscus* (parkland-vernal meadow complex, on steep slopes; shallow soils):

trees:	<i>Arbutus menziesii</i>	<i>Quercus garryana</i>
	<i>Pseudotsuga menziesii</i>	
shrubs:	<i>Holodiscus discolor</i>	<i>Berberis aquifolium</i>
	<i>Symphoricarpos albus, S. mollis</i>	



herb	<i>Sanicula crassicaulis</i>	<i>Lomatium utriculatum</i>
layer:	<i>Sanicula bipinnatifida</i>	<i>Zygadenus venenosus</i>
	<i>Vicia sativa, V. hirsuta</i>	<i>Hypochaeris radicata</i>
	<i>Ranunculus occidentalis</i>	<i>Lupinus bicolor</i>
	<i>Achillea millefolium</i>	<i>Trifolium tridentatum</i>
	<i>Galium aparine</i>	<i>Collinsia parviflora</i>
	<i>Erythronium oregonum</i>	<i>Montia perfoliata</i>
	<i>Fritillaria lanceolata</i>	<i>Geranium molle</i>
	<i>Camassia quamash</i>	<i>Carex inops</i>
	<i>Delphinium menziesii</i>	<i>Bromus mollis, B. carinatus</i>
	<i>Dodecatheon hendersonii</i>	<i>Elymus glaucus</i>
	<i>Cerastium arvense</i>	<i>Festuca bromoides</i>

5. *Quercus* - *Geranium* - *Bromus* - *Elymus* (Garry oak parkland on deep soils):

trees:	<i>Quercus garryana</i>	
herb	<i>Geranium molle</i>	<i>Trifolium tridentatum, T. oliganthum</i>
layer:	<i>Bromus mollis, B. rigidus</i>	<i>Alchemilla occidentalis</i>
	<i>Elymus glaucus</i>	<i>Ranunculus occidentalis</i>
	<i>Festuca bromoides</i>	<i>Delphinium menziesii</i>
	<i>Poa pratensis</i>	<i>Lupinus bicolor</i>
	<i>Carex inops</i>	<i>Cerastium arvense</i>
	<i>Luzula campestris</i>	<i>Medicago lupulina</i>
	<i>Hypochaeris radicata</i>	<i>Vicia sativa</i>
	<i>Trifolium microcephalum</i>	<i>Rumex acetosella</i>

6. *Festuca* - *Bromus* - *Aira* - *Trifolium* - *Geranium* - *Rhacomitrium* - *Polytrichum* (vernal grass-forb-meadow association, soil pocket - rock outcrop complex):

herb	<i>Festuca bromoides, F. megalura</i>	<i>Erythronium oregonum</i>
layer:	<i>Bromus mollis, B. rigidus</i>	<i>Fritillaria lanceolata</i>
	<i>Aira praecox, A. caryophylla</i>	<i>Camassia quamash</i>
	<i>Stipa sp.</i>	<i>Achillea millefolium</i>
	<i>Carex inops</i>	<i>Hypochaeris radicata</i>
	<i>Panicum capillare</i>	<i>Saxifraga integrifolia</i>
	<i>Trifolium tridentatum</i>	<i>Delphinium menziesii</i>
	<i>Trifolium oliganthum, T. microcephalum</i>	<i>Lupinus bicolor</i>
	<i>Geranium molle</i>	<i>Lotus micranthus</i>
	<i>Erodium cicutarium</i>	<i>Medicago lupulina</i>
	<i>Ranunculus occidentalis</i>	<i>Vicia sativa, V. hirsuta</i>
	<i>Cerastium arvense</i>	<i>Collinsia grandiflora</i>
	<i>Stellaria media</i>	<i>Sedum spathulifolium</i>
	<i>Lepidium virginicum var. menziesii</i>	<i>Sedum lanceolatum var. nesioticum</i>
	<i>Alchemilla occidentalis</i>	<i>Eriophyllum lanatum</i>
	<i>Montia fontana, M. glauca, M. linearis</i>	<i>Selaginella wallacei</i>
	<i>Myosurus minimus</i>	<i>Spergularia rubra</i>
	<i>Plagiobothrys scouleri</i>	<i>Sagina occidentalis</i>
	<i>Plantago bigelovii</i>	<i>Galium aparine</i>
	<i>Allium acuminatum</i>	<i>Brodiaea coronaria</i>
	<i>Teesdalia nudicaulis</i>	<i>Heuchera micrantha</i>
	<i>Calandrinia ciliata</i>	<i>Rumex acetosella</i>
	<i>Mimulus alsinoides, M. guttatus</i>	
moss	<i>Rhacomitrium canescens, R. heterostichum, R. lanuginosum</i>	
layer:	<i>Polytrichum piliferum, P. juniperinum</i>	
	<i>Tortula spp.</i>	

8. *Elymus* - *Lathyrus* - *Achillea* - driftwood (on sandy beach with strong ocean spray):
- |                             |                             |
|-----------------------------|-----------------------------|
| <i>Elymus mollis</i>        | <i>Achillea millefolium</i> |
| <i>Lathyrus japonicus</i>   | <i>Rumex acetosella</i>     |
| <i>Cakile edentula</i>      | <i>Vicia gigantea</i>       |
| <i>Ambrosia chamissonis</i> |                             |
9. *Salicornia* - *Distichlis* - *Triglochin* (salt marsh):
- |                             |                          |
|-----------------------------|--------------------------|
| <i>Salicornia pacifica</i>  | <i>Plantago maritima</i> |
| <i>Distichlis spicata</i>   | <i>Glaux maritima</i>    |
| <i>Triglochin maritimum</i> | <i>Puccinellia</i> sp.   |
10. *Deschampsia* - *Juncus* - *Potentilla* (relict brackish grass-forb meadow):
- |                               |                               |
|-------------------------------|-------------------------------|
| <i>Deschampsia caespitosa</i> | <i>Distichlis spicata</i>     |
| <i>Juncus balticus</i>        | <i>Agrostis exarata</i>       |
| <i>Potentilla pacifica</i>    | <i>Hordeum brachyantherum</i> |
11. *Typha* - *Hippuris* - *Juncus* (freshwater marsh):
- |                          |                    |
|--------------------------|--------------------|
| <i>Typha latifolia</i>   | <i>Sium suave</i>  |
| <i>Hippuris vulgaris</i> | <i>Lemna minor</i> |
| <i>Juncus oxymeris</i>   |                    |
12. *Eleocharis* - *Oenanthe* - *Cotula* (freshwater marsh):
- |                             |                           |
|-----------------------------|---------------------------|
| <i>Eleocharis palustris</i> | <i>Rumex occidentalis</i> |
| <i>Oenanthe sarmentosa</i>  | <i>Mentha arvensis</i>    |
| <i>Cotula coronopifolia</i> | <i>Sium suave</i>         |
| <i>Ruppia maritima</i>      | <i>Agrostis exarata</i>   |
| <i>Lemna minor</i>          | <i>Hippuris vulgaris</i>  |
13. *Anthoxanthum* - *Juncus* - *Ranunculus* - *Plantago* - *Hypochaeris* (pasture-land):
- |  |   |
|--|---|
| shrubs: (occasional thickets)                  | <i>Ribes divaricatum</i> , <i>R. sanguineum</i>   |
| <i>Rosa nutkana</i>                            | <i>Berberis aquifolium</i>                        |
| <i>Symphoricarpos albus</i> , <i>S. mollis</i> | ( <i>Cytisus scoparius</i> )                      |
| <i>Rubus procerus</i>                          |   |
| herb   | <i>Anthoxanthum odoratum</i>                      |
| layer:   | <i>Juncus effusus</i>                             |
|  | <i>Ranunculus repens</i> , <i>R. occidentalis</i> |
|  | <i>Plantago lanceolata</i> , <i>P. major</i>      |
|  | <i>Hypochaeris radicata</i>                       |
|  | <i>Pteridium aquilinum</i>                        |
|  | <i>Marrubium vulgare</i>                          |
|  | <i>Vicia sativa</i>                               |
|  | <i>Poa pratensis</i>                              |
|  | <i>Holcus lanatus</i>                             |
|  | <i>Deschampsia caespitosa</i>                     |
|  | <i>Agrostis</i>                                   |
|  | <i>Spiranthes romanzoffiana</i>                   |
|  | <i>Carex macloviana</i>                           |
14. *Myosurus* - *Lepidium* - *Deschampsia* (vernal pool/seepage vegetation):
- |  |  |
|--|--|
| <i>Myosurus minimus</i>                          | <i>Stellaria media</i>                       |
| <i>Lepidium virginicum</i> var. <i>menziesii</i> | <i>Trisetum canescens</i>                    |
| <i>Deschampsia danthonioides</i>                 | <i>Agrostis microphylla</i>                  |
| <i>Festuca bromoides</i> , <i>F. megalura</i>    | <i>Aira praecox</i> , <i>A. caryophyllea</i> |
| <i>Montia perfoliata</i>                         | <i>Matricaria matricarioides</i>             |
| <i>Plantago bigelovii</i>                        | ( <i>Cotula coronopifolia</i> )              |
| <i>Plagiobothrys scouleri</i>                    | <i>Veronica arvensis</i>                     |
| <i>Alchemilla occidentalis</i>                   |  |

7.  
(cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	F <sub>5</sub>	orthic dystric brunisol
2	F <sub>4</sub> /F <sub>5</sub>	orthic dystric brunisol
3	F <sub>3</sub>	lithic dystric brunisol
4	F <sub>3</sub>	lithic dystric or sombric brunisol
5	F <sub>4</sub>	orthic sombric brunisol (deep soil)
6	F <sub>3</sub>	lithic sombric brunisol
7	I <sub>2</sub>	rock
8	I <sub>2</sub>	sandy saline regosol
9	I <sub>2</sub>	rego humic gleysol
10	O/P <sub>2</sub>	terrific humisol, humic gleysol
11	P <sub>2</sub>	gleysol
12	P <sub>2</sub>	gleysol
13	F <sub>4</sub> /P <sub>2</sub>	gleyed brunisol, humic gleysol
14	I <sub>2</sub>	mud and organic matter, accumulated in shallow depressions or crevices in rock
15		
16		Bedrock is sandstone and conglomerate belonging
17		to Nanaimo formations (of upper Cretaceous age).
18		
19		
20		



9. Landscape

1. General Landscape (give brief description) ..... Island composed of two parallel, east-west, sandstone ridges, low but steep-sided; and a low-lying connecting area (tombolo) of grassland, marsh, and open forest.

2. Relief Type

	Flat	Undulating (0)-200 m.	Hilly 200-1000 m.	Mountainous > 1000 m.	%
Sharply dissected					
Gently dissected	15	85			100
Incised					
Skeletonised					
%	15	85			100%

3. Special landscape features (list) ..... sandstone sea cliffs, tombolo, low cuestas, fretted rock

10. Coastline of IBP Area\*

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
90%			10%				

3. Physiography. % of coast

Cliffed	Sloping	Flat
40%	50%	10%

4. Special Coastal Features (list) ..... sand/gravel beach, protected silt/sand beach, tide pools, nearby reefs, sandstone sea cliffs & ledges, sheltered anchorage

5. Tide. Maximum range (state units of measurement) ..... ca. 3.5 m

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	X	X
Running		

--- vernal pools

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps	X			X
Ponds	X			X
Lakes				

3. Running Water

	Permanent	Intermittent
Springs, cold		
Springs, hot		
Streams		
Rivers		

4. Special freshwater features .....  
 very interesting freshwater (maybe slightly brackish) marsh  
 .....

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

2. Salt and Brackish

Estuary	Salt lake	Salt pool	Lagoon	Ocean		
				X		

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	X		X		X		X	X	X		
Reptilia												
Amphibia												
Pisces												
Insecta		X										

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

Peromyscus maniculatus saturatus (or something similar).

.....  
 Avifauna is particularly interesting; year-round observations  
 .....  
 required for enumeration of all rare species.  
 .....

.....  
 See page 8 a .  
 .....  
 .....

14. Outstanding Floral and Faunal Features (Cont'd)

1. None.....
2. Fauna

Tumbo Island Vertebrates, April 20-21, 1976:

The saltwater lagoons facing Cabbage Island harboured a good concentration of migrant and resident waterbirds: 2 red-throated loons, 50 red-necked grebes, 10 horned grebes, 35 double-crested cormorants, 50 pelagic cormorants, 200 buffle-heads, 40 harlequin, 15 old squaw, 2 velvet scoters, 400 surf scoters, 300 white-winged scoters, 12 greater scaup ducks, 12 guillemots.

In region of marsh I saw 4 ring-necked ducks, 12 mallards, 6 shovellers, 2 red-breasted mergansers, 6 killdeer, 10 yellow-legs, 2 great blue herons, 4 bald eagles (and nest on Tumbo I. opposite Cabbage I.), 3 blue grouse, 1 red-tailed hawk (acting as if had nest), 4 yellow-rumped warblers, 20 robins, 10 red-winged blackbirds, 7 hummingbirds, 8 short-billed marsh wrens, 8 orange-crowned warblers, 15 white-crowned sparrows, 10 song sparrows, 4 pileated woodpeckers, 1 downy woodpecker, 1 red-breasted nuthatch, 1 black-throated gray warbler, 100 crows, a few winter wrens and golden-crowned kinglets.

Five river otter and two coast deer were seen; sign indicates both are abundant. One horse and 20 sheep seen.

J.B.F.



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		X					
shrubs		X										
herbs	X	X	X	X	X	X	X					
grass	X	X	X		X		X					
Gymnospermae		X										
Pteridophyta		X										
Bryophyta												
Lichens and Algae		X										

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

*Myosurus minimus*, *Plantago bigelovii*, *Plagiobothrys scouleri*,  
*Erythronium oregonum*, *Lepidium virginicum* var. *menziesii* (littoral  
endemic, Puget Trough), *Juniperus scopulorum*, *Quercus garryana*,  
and several others. More collecting is needed.

15. Exceptional Interest of IBP Area\*

Outstanding biological diversity; rich flora and fauna, wide range  
of habitats from xeric to hydric and resultant complex vegetation  
and faunal associations. Adjacent marine environment very productive.

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						
Damming* <del>XXXXXXXX</del> Damage	X	X		X		
Other soil disturbance						
Grazing*	X	X		X		
Selective flora disturbance	X	X				
Logging	X					
Plantation						
Hunting	X	X			X	
Removal of predators	X			X		
Pesticides						
Introductions — plants	X	X		?		
Introductions — animals	X					
Fire	X			X		
Intermittent <del>XXXXXXXX</del> habitation	X	X			X	
Recreation and tourism	X	X			X	
Research						
Mining exploration of small coal seam in late 1800's	X					

-some selective logging

-Japanese oyster (Crassostrea gigas)

- several buildings

- limited because of denied access

3. Additional details on each type of impact attached?

X\*  
Yes ..... No .....

16.

Significant Human Impact (Cont'd)

## 3. Additional details on:

grazing - at the time of our visits, there was evidence of grazing by sheep, and we saw one horse on the island. Cattle were not seen, but may have been pastured here in the past. Effects of horse grazing are most evident in central wet pasture. Sheep overgrazing is not yet severe, but should be stopped as soon as possible to retain and rehabilitate the showy native spring flora.

damming - there is evidence from the vegetation that the central marsh was at one time a salt marsh, open to tidal waters from the west. Old aerial photos support this notion. The high energy beach at the east end of the island has formed a natural levee, with drainage of the marsh to the west. The western front of the marsh was evidently dyked at some time in the past, raising the water level perhaps 1 m or so, and freshening the water regime. Water continues to drain to the west through a flood gate in the middle of the dyke. The pond and marsh thus are closed to surface tidal waters, although a salt-water wedge must push up from below at high tide. The historical change in the marsh vegetation could probably be documented by soil and pollen analysis. Analysis of the continuing change would make an interesting study in vegetation dynamics.

J.P.

17.

Conservation Status (required)

\*)to rehabilitate after cessation of domestic grazing

	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

Much pertinent information in Roemer, H.L. 1972. Forest vegetation and environments on the Saanich Peninsula, Vancouver Island. Ph.D. thesis, Dept. of Biology, Univ. of Victoria, Victoria, B.C.

- List major biological/geographical references for the IBP Area. Williams, M.Y., and R.W. Pillsbury. 1958. The Gulf Islands of British Columbia. Can.Geogr. Jour. Vol. LVI No. 6:185-201.  
Sheet attached? Yes  No
- List main maps available for the IBP Area. 92 B/14E (Galiano Island) (1:50,000) B.C. M 234 C, #10 (Gulf Islands) (1:12,500)  
List attached? Yes  No
- Aerial photographs for the IBP Area available? BC 262:116-118; 5261:156-158; 7407:171-172.  
For whole area  For part of area  None

19.

Other Relevant Information

Tumbo Island has been identified by a Natural Areas Inventory (commissioned by Nature Conservancy of Canada and Islands Trust) as the most outstanding natural area within the Islands Trust area (islands of the Strait of Georgia, Howe Sound, and Haro Strait). See attached information. The Ecological Reserves Unit concurs.

Signed Jim Pojar J.B. Foster  
(Surveyor)  
Jim Pojar, J.B. Foster

NAME: Tumbo & Cabbage IslandsNUMBER: 1PRIORITY: Very HighMAP UNIT: 1-X-4, 2-X-5FILE NO. 4 & 5SIZE & LOCATION: These islands lie to the north east of Saturna Island.OWNERSHIP: Folio #12012.000 District Lot #13, 14, 16, Lot Plan 2423, 260 acres; Point Developments Ltd., 850 Fort St. Victoria, B.C.

Folio #12013 District Lot #15 - 11.00 acres; A.R. Wiebe Lands Ltd., 32086 South Fraser Way, Clearbrook, B.C.

SOURCES OF INFORMATION: Field CheckPHOTOGRAPHIC REFERENCE: Prints: 6(2,4,5,6,7,8,9,10,11, 12,13,14,15,16,17,18, 19,20,21), 7(2,3), 15(18,19)  
Slides: p. 11,12NATURAL FEATURES: Vegetation, Wildlife, Marine, Aesthetic, CulturalDESCRIPTION: Tumbo Island is considered by us to be the most outstanding natural area within the Islands Trust area. Vegetation, wildlife, recreational features, adjacent marine environment and historic values are all highly significant.

The island is composed of two parallel east-west ridges: a low lying northern one less than  $\frac{1}{2}$  mile long and a longer southern ridge about  $1\frac{1}{2}$  miles long which rises to approximately 125 feet in elevation. Conditions on these two ridges vary from very shallow soils supporting scattered grasslands and open stands of arbutus and Douglas-fir to relatively moist and deep soils supporting cedar and dense thickets of alder.

Of particular interest however, is the low lying area of approximately 50 acres connecting the two ridges. Conditions vary from grasslands with open stands of Douglas-fir and large individual Garry oak to an extensive marsh with small areas of standing fresh water. Thirty species of birds were seen on Tumbo Island on July 29th (not a favorable time of year to expect many birds). These included numerous Bald Eagles, Red-tailed Hawk, Virginia Rail, and an unidentified Dowitcher. Canada Geese and a variety of ducks visit the area during migration. Several dozen plants were identified including a wide range of grasses, shrubs, sedges, and rushes.

Two beaches, one to the west, one to the east, enclose the marsh area. The relatively exposed (high energy) eastern beach is composed of sands and gravels and is well suited to sunbathing, swimming and driftwood collecting. The western beach faces a protected, fairly shallow bay composed of finer materials such as silts and fine sands. Five species of clams as well as oysters were seen in the bay which

DESCRIPTION: (continued)

is sometimes referred to as Reef Harbour.

Reef Harbour is bounded by Tumbo Island to the south and by Cabbage Island and a small number of islets and reefs to the north. It affords good protection to pleasure boats which frequently spend the night in the bay.

Cabbage Island does not exhibit the dramatic biologic variety of Tumbo but is important partially due to its proximity to Tumbo. It is thickly forested with aspen, lodgepole pine, Douglas-fir, and arbutus. Moister sites in the interior of the island feature cedar and alder while juniper is found on dryer sites. It has an attractive and interesting shoreline composed of fine sand beaches on the south side and with irregular bedrock exposures along its north shore. These bedrock exposures continue westward as small islets and reefs with interesting marine life for about  $\frac{1}{2}$  mile.

Although both Cabbage and Tumbo Islands are privately owned, Cabbage has traditionally been used as a picnic and camping spot by boaters and residents of Saturna.

Both islands have extensive and fairly significant Archaeologic sites.

EVALUATION:

Biologically Tumbo Island is one of the most interesting areas in the Strait of Georgia. Except for livestock grazing, the terrestrial wildlife and vegetation values have remained relatively undisturbed because the public has been denied access over the years. Cabbage and Tumbo Islands along with associated islets and reefs should not be considered in isolation from one another. The following recommendations are suggested for the Tumbo-Cabbage Island area:

- (1) Guarantee public access to Cabbage Island for recreational uses such as camping, preferably by aquisition of the island by the Crown.
- (2) Establish adequate services on the islands such as toilets, water fire protection and garbage control.
- (3) The Islands Trust should watch Tumbo Island closely in the event that future owners may develop the island for expanded residential, commercial or institutional purposes.
- (4) Tumbo Island and the associated marine environment should be studied for biologic significance by an appropriate agency such as the Ecological Reserves Committee.
- (5) In the long term, Tumbo Island should be established as a reserve. The findings of the suggested study above should indicate the type of reserve ( Ecological Reserve, no public access or Nature Reserve, limited public access).

*D.R. Benn et al.*