

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.)
 Climax forest between Tsusiat Lake, Hobiton Lake and Squalicum Lake
3. Indicate the biogeoclimatic zone of which the reserve is representative.
 The wetter subzone of the coastal western hemlock zone (CWHb)
4. Approximate total acreage.
 3500 acres (area A: 1000 acres)
 (area B: 2500 acres)
5. Purpose of the reserve.
 - (a) Primary (state acreage)
 To preserve climax Picea sitchensis - Abies amabilis - Thuja plicata - Tsuga heterophylla forest and its different variations.
 - (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.

V.J. Krajina, J.P. Kimmins
 Signature and Karel Klinka
 I.B.P. Surveyor

INTERNATIONAL BIOLOGICAL PROGRAMME

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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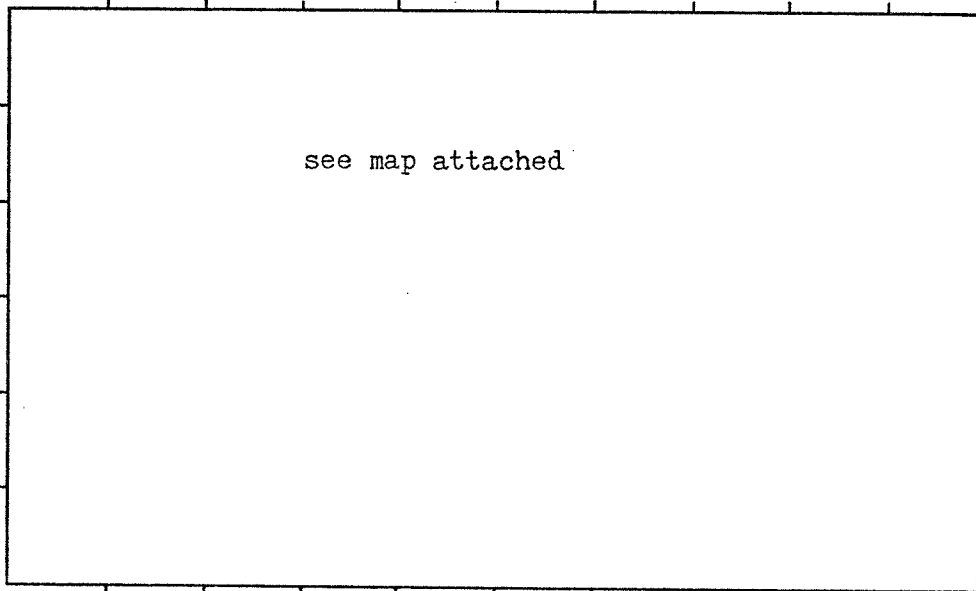
For Data
Centre Use
only

1. 1. Name of surveyor V.J. Krajina ¹⁾, J.P. Kimmins, ²⁾ and Karel Klinka ¹⁾
 2. Address of surveyor 1) Department of Botany, University of British
 Columbia, Vancouver, B.C.

 2) Faculty of Forestry, University of British
 Columbia, Vancouver, B.C.

 3. Check Sheet completed (a) on site (b) from records
 4. Date Check Sheet completed ...November 15, 1972.....

2. 1. Name of IBP Area Climax forest between Tsusiat Lake, Hobiton Lake
 and Squaticum Lake, Vancouver Island
 2. Name of IBP Subdivision (or serial letter)
 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.

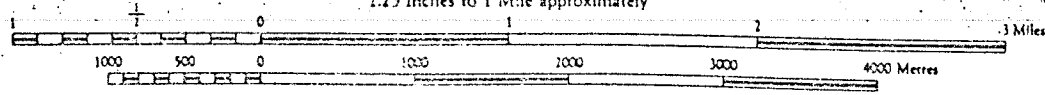


* For " IBP Area ", read IBP Area and/or IBP Subdivision.



WEST COAST TRAIL

Scale 1:50,000
1.25 Inches to 1 Mile approximately



3. Location of IBP Area*

1. Latitude 48° $43-46^{\circ}$ N Longitude 124° $47-51^{\circ}$ W
2. Country Canada
- State or Province British Columbia County Juan de Fuca Provincial
Forest
(State or Province County

4. Administration

- National 1. Official category Crown Lands
2. Address of administration Department of Lands, Forests and
Water Resources,
Parliament Buildings
Victoria, B.C.
Canada

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) Total: 3500 acres
Section A: 1000 acres
Section B: 2500 acres
2. Altitude (state units of measurement) Maximum $2510'$ (755 m)
- Minimum $<100'$ (<30 m)

6. Climate

Nearest climatological station :

1. Name Pachena Point
2. Climatological station on IBP Area*? Yes No
3. If (2) not, distance from edge of IBP Area* (state units) 11-12 mi.
4. Direction from IBP Area* West
5. Additional data sheet attached? Yes No X

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	2	1	2	2		Lobelietum dortmannae	
2	1	B	2	2	a	Carico (obnuptae) - Maletum fuscae	
3	1	A	1	7	a	Carico (obnuptae) - Lysichitono (americani)- Thujetum plicatae	
4	1	A	1	7	a	Rhytiadelpho (lorei) - Blechno (spicantis) - Piceo (sitchensis) - Thujetum plicatae	
5	2	1	2	3		Nupharetum polysepali	
6	1	0	1	1		Kalmio (polifoliae) - Plantagino (maritimae) - Sphagnetum papillosae	
7	2	1	2	3		Dulichio (arundinacei) - Brasenio (schreberi) - Nupharetum polysepali	
8	1	0	1	2		Rhacomitrietum lanuginosi	
9	1	M	2	2		Trichophoretum caespitosi	
10	1	N	2	1		Menyantho (trifoliatae) - Sanguisorbetum menziesii	
11	2	H	2	1		Verrucarietum maurae	
12	1	A	1	7	a	Gaultherio (shallonis) - Vaccinio (parvifolii - ovati) Tsugetum heterophyllae	
13	1	A	1	7	a	Tiarelllo (trifoliatae) - Polysticho (muniti) - Piceo (sitchensis) - Abieto (amabilis) - Thujetum plicatae	
14	1	A	1	7	a	Rhytiadelpho (lorei) - Plagiothecio (undulati) - Vaccinio (alaskaensis) - Tsugetum heterophyllae	
15							
16							
17							
18							
19							
20							

Please give information about further communities on a separate sheet.

7.
cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	AC ?	Subaqueous Dy
2	AGC O-P ₂	black muck, Gleysol
3	AGC O-P ₂	black muck, Gleysol
4	AB(G)C F ₅ -P ₂	Humic Podzol (slightly gleyed)
5	AC ?	Subaqueous Dy
6	AC O	Peat Bog (Fibrisol)
7	AC ?	Subaqueous Dy - Gyttja
8	AC O	Peat Bog (Fibrisol)
9	A(G)C O-P ₂	Low Moor - Gleysol (Mesisol)
10	AGC O-P ₂	Low Moor - Mesisol
11	C ?	Igneous rocks
12	ABC F ₅	Humic Podzol
13	ABGC P ₂	Gleyed Humic Podzol
14		
15		
16		
17		
18		
19		
20		

9. Landscape

1. General Landscape (give brief description) Gentle hills and lakes which used to be under sea where especially fine grained marine mud was richly deposited. Soils are therefore rich and support especially Sitka spruce and western redcedar.

2. Relief Type

	Flat	Undulating (0)-200 m.	Hilly 200-1000 m.	Mountainous > 1000 m.	%
Sharply dissected					
Gently dissected	10	50	40		100
Incised					
Skeletonised					
%	10	50	40		100%

3. Special landscape features (list) are mentioned under 1.

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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
<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)

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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	X	
Running	X	X

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps	X		X	
Ponds	X		X	
Lakes	X			X

3. Running Water

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

4. Special freshwater featuresthree lakes with outstanding beauties.....

12. Salt and Brackish Water within IBP Area* ?

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 X Lake X River X Stream X

2. Salt and Brackish

Estuary	Salt lake	Salt pool	Lagoon	Ocean		
X				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											
Reptilia		X										
Amphibia		X										
Pisces		X										
Insecta	X											

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

Fauna should be studied in greater details.

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

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

Brasenia schreberi (abundantly growing in the summit lakes between Tsusiat and Hobiton Lakes)

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15. Exceptional Interest of IBP Area*

Unique ecosystems. This area is excellent for understanding under which ecological conditions western redcedar, Sitka spruce and Pacific silver fir grow successfully while western hemlock develops poorly and requires there large quantities of decaying wood.

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16. Significant Human Impact

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

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			?			
Removal of predators					X	
Pesticides					X	
Introductions — plants					X	
Introductions — animals					X	
Fire					X	
Permanent habitation					X	
Recreation and tourism			X			
Research			?			

3. Additional details on each type of impact attached?

X
 Yes No

17. Conservation Status

	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

1. List major biological/geographical references for the IBP Area.

Sheet attached? Yes No^X.....

2. List main maps available for the IBP Area.

List attached? Yes No

3. Aerial photographs for the IBP Area available?

For whole area^X..... For part of area None

19. Other Relevant Information

There is a need to develop a narrow path between the two lakes (Tsusiak and Hobiton) which should be used by tourists and canoeists who should not walk outside of the path. This is imperative especially at the summit pass ponds where the ecosystem may be easily destroyed by wandering people.

Signed V.J. Krajina, J.P. Kimmins and
Karel Klinka.....
(Surveyor)

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.)

Cheewat Lake and the climax forest to the southeast of the lake (western slopes of Carmanah Mtn.)

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

The wetter subzone of the coastal western hemlock zone (CWHb)

4. Approximate total acreage.

ca. 600 acres

5. Purpose of the reserve.

Outstanding growth of western redcedar, Sitka spruce and Pacific silver fir

- (a) Primary (state acreage)

600 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.

This area might be a part of the Pacific Rim National Park. However, it should be well preserved from public for research purposes.

Signature V.J. Krajina, J.P. Kimmins
and Karel Klinka

T. R. P. SURVEYOR

INTERNATIONAL BIOLOGICAL PROGRAMME

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

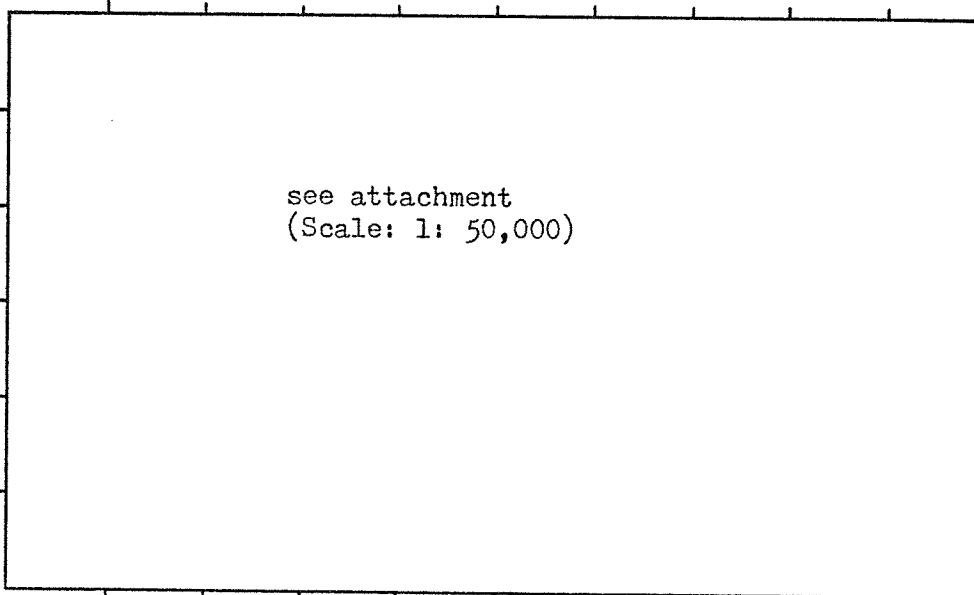
Serial Number

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1. 1. Name of surveyor V.J. Krajina, ¹⁾ J.P. Kimmins, ²⁾ and Karel Klinka ¹⁾
2. Address of surveyor 1) Department of Botany, University of British Columbia, Vancouver, B.C.;
- 2) Faculty of Forestry, University of British Columbia, Vancouver, B.C.
3. Check Sheet completed (a) on siteX..... (b) from records
4. Date Check Sheet completed November 15, 1972.....

2. 1. Name of IBP Area Cheewhat Lake and the climax forest to the south-east of the lake, western slopes of Carmanah Mtn.
2. Name of IBP Subdivision (or serial letter)
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.

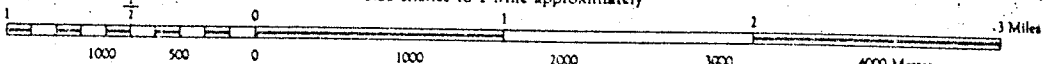


* For "IBP Area", read IBP Area and/or IBP Subdivision.



WEST COAST TRAIL

Scale 1:50,000
1.25 Inches to 1 Mile approximately



3. Location of IBP Area*

1. Latitude 48° $42-43^{\circ}$ N Longitude 124° 45° W
2. Country Canada
- State or Province British Columbia County Juan de Fuca Provincial
Forest
- (State or Province County)

4. Administration

- National 1. Official category Crown Lands (?National Park)
2. Address of administration B.C. Department of Lands, Forests
and Water Resources,
Parliament Buildings
Victoria, B.C.
Canada

International Class

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

5. Characteristics of IBP Area*

1. Surface area (state units of measurement) 600 acres
2. Altitude (state units of measurement) Maximum 1100 feet (330 m)
- Minimum 100 feet (<30 m)

6. Climate

Nearest climatological station :

1. Name Pachena Point
2. Climatological station on IBP Area*? Yes No
3. If (2) not, distance from edge of IBP Area* (state units) 15-16 mi.
4. Direction from IBP Area* West
5. Additional data sheet attached? Yes No X

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	Polysticho (muniti) - Tiarello (trifoliatae-laciniatae) Abieto (amabilis) - Thujetum plicatae	
2	1	A	1	7	a	Rhytiadelpho (lorei) - Vaccinio (alaskaensis) - Tsugetum heterophyllae	
3	1	A	1	7	a	Carico (obnuptae) - Lysichitono (americani) - Thujetum plicatae	
4	2	1	2	3		Brasenio (schreberi) - Nupharetum polysepali	
5	2	1	2	2		Lobelietum dortmannae	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Please give information about further communities on a separate sheet

7.
cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	ABGC F ₅ -P ₂	Gleyed Humic Podzol
2	ABC F ₅	Humic Podzol
3	AGC P ₂	Gleysol (with black muck)
4	A(G)C ?P ₂	Subaqueous: Dy
5	A(G)C ?P ₂	Subaqueous: Dy
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

9. Landscape

1. General Landscape (give brief description) a hill above a lake in Cfb climate
 (after Köppen)

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)
 Rich soils are developed from glacio-fluvial deposits.

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
<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	X	
Running	X	

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps				
Ponds				
Lakes	X		?	?

3. Running Water

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

4. Special freshwater features

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12. Salt and Brackish Water within IBP Area*

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

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

1. Fresh X Lake X River X 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	X										
Aves	X											
Reptilia		X										
Amphibia		X										
Pisces	X											
Insecta	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										
herbs	X										
grass	X										
Gymnospermae	X										
Pteridophyta	X										
Bryophyta	X										
Lichens and Algae	X										

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

Brasenia schreberi in Cheewhat Lake.

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15. Exceptional Interest of IBP Area*

Magnificent trees (western redcedar: 210' high, 172" DBH; Pacific SILVER FIR: 210' high; 60" DBH; Sitka spruce: 210' high, 86" DBH) in the sword fern sites should be preserved in a special Ecological Reserve. The above mentioned western redcedar is probably 2000 years old.

16. Significant Human Impact

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

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			?			
Removal of predators					X	
Pesticides					X	
Introductions — plants					X	
Introductions — animals					X	
Fire					X	
Permanent habitation					X	
Recreation and tourism			?			
Research			?			

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

1. List major biological/geographical references for the IBP Area.

Sheet attached? Yes No

2. List main maps available for the IBP Area.

List attached? Yes No

3. Aerial photographs for the IBP Area available?

For whole area^X..... For part of area None

19. Other Relevant Information

This area should be preserved from any disturbance even by tourists. It complements the area, proposed in the application no. 92, by completely different soils (glacio-fluvial till) which promote better growth of Sitka spruce, western redcedar and Pacific silver fir.

Signed V.J. Krajina, P.J. Kimmins and
Karel Klínka
(Surveyor)