

APPLICATION FOR ECOLOGICAL RESERVE

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

Unnamed Ridge North of the headwaters of the Nanaimo River

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

Vancouver Island, ca. 50 km Southwest of Nanaimo, unnamed Ridge, "Pea" Mountain, North of the headwaters of the Nanaimo River

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

Subalpine Mountain Hemlock Zone

4. Approximate total acreage.

ca. 236 hectares

5. Purpose of the reserve.

The purpose of this reserve is to protect the habitat and recently discovered colony of the rare Vancouver Island Marmot

(a) Primary (state acreage) ca. 50 hectares

The immediate area used by this population of Vancouver Island Marmots for feeding, protection and hibernation in burrows.

(b) Others if any (state acreage)

Superb parkland, rocky and avalanche slope meadows which are rare on Vancouver Island and form the food source for the marmots.

(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>Tsuga mertensiana</i>	(<i>Juniperis communis</i>)
<i>Chamaecyparis noothkatensis</i>	(<i>Thuja plicata</i>)
<i>Abies amabilis</i>	(<i>Tsuga heterophylla</i>)
<i>Abies lasiocarpa</i>	
<i>Alnus sinuata</i>	

Signature *D. Foster Judy Carson*
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

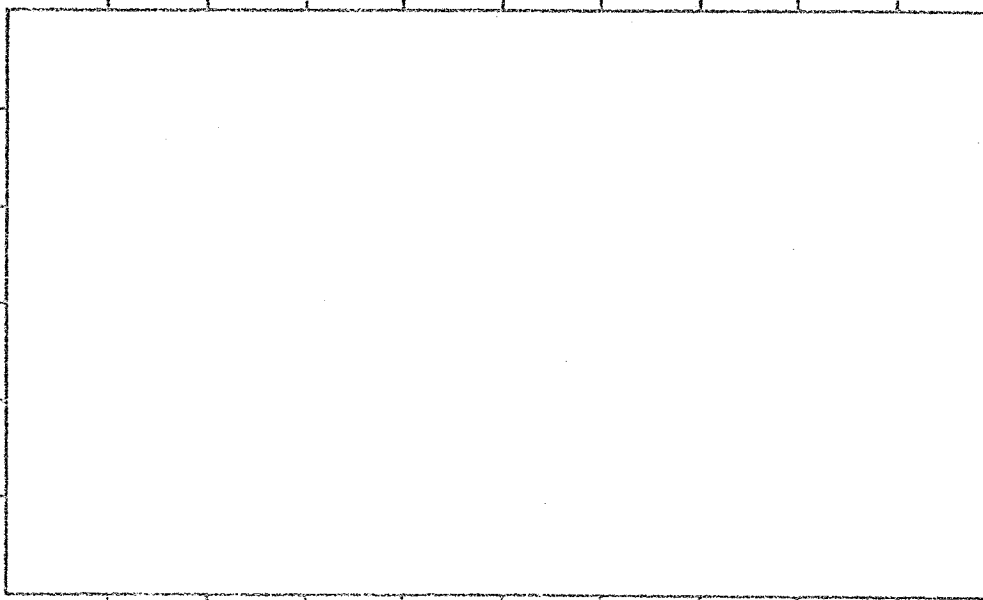
Serial Number

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For Data Centre Use only

1. 1. Name of surveyor T. Carson, J. B. Foster, H. Roemer
2. Address of surveyor Ecological Reserves Unit, Land Management Branch
Ministry of the Environment
Parliament Buildings, Victoria, B. C.
3. Check Sheet completed (a) on site (b) from records X
4. Date Check Sheet completed October 11, 1978

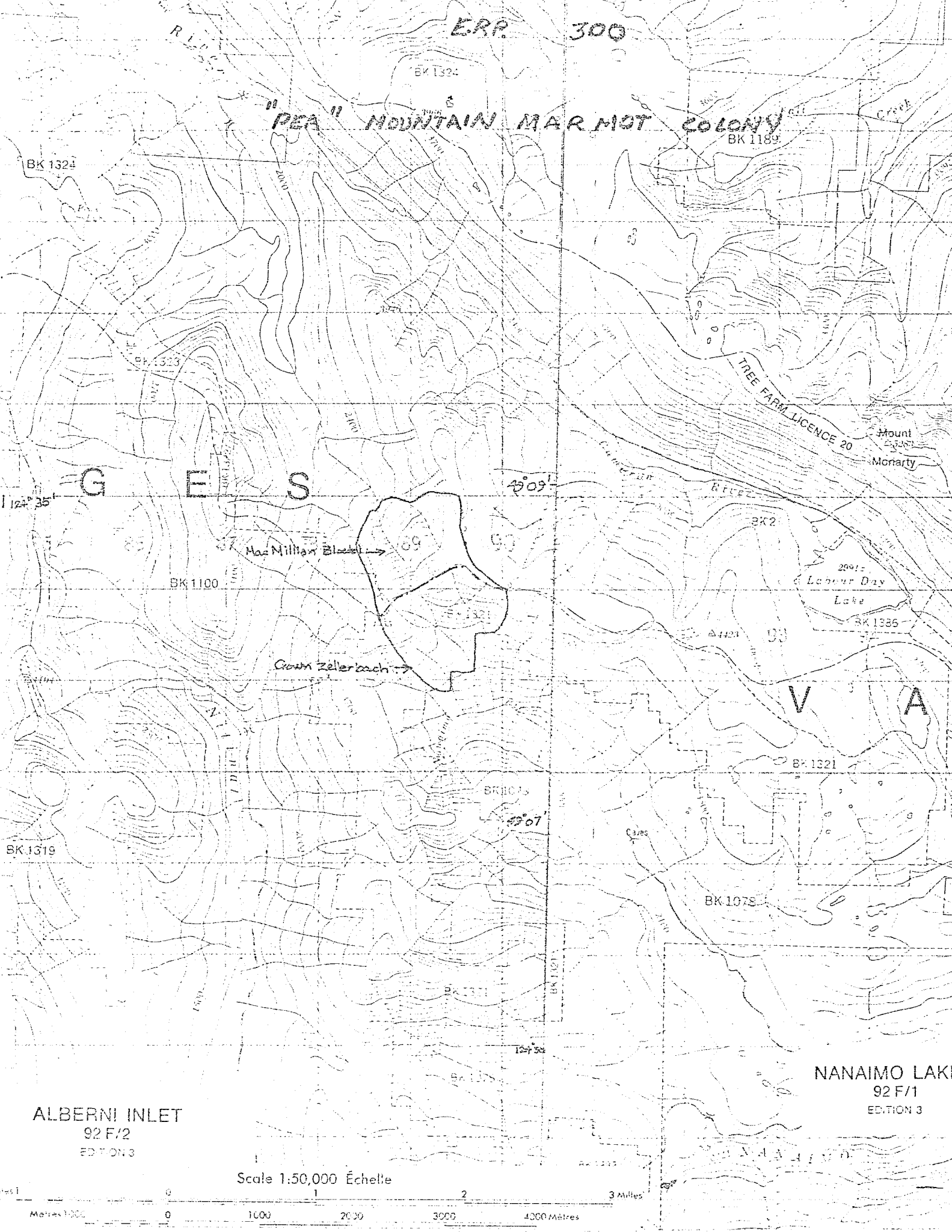
2. 1. Name of IBP Area "Pea" Mountain Marmot Colony
2. Name of IBP Subdivision (or serial letter) Mountain Hemlock
3. Map of IBP Area* showing boundaries attached? Yes X No
4. Sketch map of IBP Area*. Please mark direction of north, the scale and grid numbers where applicable.



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

ERP 300

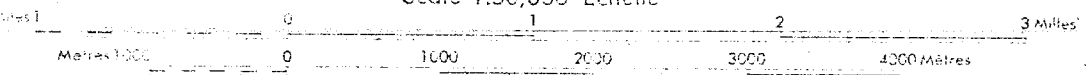
DEA MOUNTAIN MARMOT COLONY



ALBERNI INLET
92 F/2
EDITION 3

NANAIMO LAKE
92 F/1
EDITION 3

Scale 1:50,000 Échelle



3. Location of IBP Area*

1. Latitude 49 ° 07.8' - 09' N Longitude 124 ° 30.2' - 31.5' W
2. Country Canada
 State or Province British Columbia County Nanaimo
 (State or Province County)

4. Administration

- National 1. Official category Crown Grant Land
2. Address of administration Crown Zellerbach Canada Ltd.
New Westminster, B. C.
MacMillan Bloedel Ltd.
1075 West Georgia Street, Vancouver, 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) 236 hectares
2. Altitude (state units of measurement) Maximum 1359 m (4455 feet)
 Minimum 823.5 m (2700 feet)

6. Climate

Nearest climatological station :

1. Name Port Alberni
2. Climatological station on IBP Area*? Yes No X....
3. If (2) not, distance from edge of IBP Area* (state units) 29 km
4. Direction from IBP Area* NW
5. Additional data sheet attached? Yes No

ÉLÉMENT et STATION	JANV	FÉV	MARS	AVR	MAI	JUIN	JUIL	AOÛT	SEPT	OCT	NOV	DÉC	ANS	Type de Normale
PORT ALBERNI	LATITUDE 49 14 N LONGITUDE 124 48 W ELEVATION 195 FT ASL													
TEMP. MOYENNE QUOTIDIENNE (DEG F)	33.1	36.6	40.5	46.4	53.8	58.4	63.9	63.4	58.1	49.5	40.6	36.3	48.4	3
TEMPERATURE MAX. QUOTIDIENNE MOYENNE	37.4	42.7	49.0	56.9	65.8	69.8	77.5	76.2	69.8	57.0	45.8	40.3	57.4	3
TEMPERATURE MIN. QUOTIDIENNE MOYENNE	28.8	30.5	31.9	35.8	41.7	47.1	50.3	50.6	46.3	41.9	35.4	32.2	39.4	3
TEMPERATURE MAXIMALE	60	64	74	87	92	99	106	103	96	82	69	62	106	1
NOMBRE D'ANNEES EN RECORD	42	43	42	43	43	43	44	43	43	44	43	43		
TEMPERATURE MINIMALE	-7	4	7	18	22	32	38	37	25	18	9	4	-7	1
NOMBRE D'ANNEES EN RECORD	42	43	43	43	43	43	44	43	43	44	43	43		
NOMBRE DE JOURS DE GEL	21	17	16	8	2	0	0	0	*	2	11	16	93	4
HAUTEUR DE PLUIE MOYENNE (POUCES)	10.53	7.91	7.97	5.51	2.41	1.64	1.43	1.43	2.89	9.37	12.05	12.31	75.45	8
CHUTE DE NEIGE MOYENNE	8.9	7.7	3.1	0.3	0.0	0.0	0.0	0.0	0.0	1	3.2	8.7	31.9	8
PRECIPITATION TOTALE MOYENNE	11.42	8.68	8.28	5.54	2.41	1.64	1.43	1.43	2.89	9.37	12.37	13.18	78.64	8
PLUIE MAXIMUM EN 24 HEURES	4.16	4.86	4.14	3.00	2.48	1.88	2.77	1.53	2.27	3.59	5.50	4.95	5.50	1
NOMBRE D'ANNEES EN RECORD	41	42	42	43	43	43	42	43	41	44	42	42		
CHUTE DE NEIGE MAXIMUM EN 24 HEURES	24.0	28.0	16.0	0.5	0.0	0.0	0.0	0.0	0.0	2.5	10.0	23.0	28.0	1
NOMBRE D'ANNEES EN RECORD	42	42	42	43	43	43	42	43	42	44	43	42		
PRECIPITATION MAXIMUM EN 24 HEURES	4.16	4.86	4.14	3.00	2.48	1.88	2.77	1.53	2.27	3.59	5.50	4.95	5.50	1
NOMBRE D'ANNEES EN RECORD	41	42	42	43	43	43	42	43	41	44	42	42		
NOMBRE DE JOURS AVEC PLUIE MESURABLE	14	13	14	12	10	9	6	6	8	14	17	16	139	4
NOMBRE DE JOURS AVEC NEIGE MESURABLE	5	3	1	*	0	0	0	0	0	*	1	3	13	4
NBRE DE JRS AVEC PRECIPITATION NSLE.	18	15	15	12	10	9	6	6	8	14	17	17	147	4

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>Tsuga mertensiana</i> - <i>Chamaecyparis nootkatensis</i> - <i>Vaccinium ovalifolium</i> - <i>Rhytidiopsis robusta</i> - <i>Dicranum fuscescens</i> forest	
2	1	A	1	7	a	<i>Abies amabilis</i> - <i>Tsuga mertensiana</i> - (<i>Chamaecyparis nootkatensis</i>) <i>Vaccinium ovalifolium</i> - <i>Rhytidiopsis robusta</i> - <i>Dicranum fuscescens</i> forest	
3	1	D	1	4	a	<i>Abies lasiocarpa</i> - (<i>Tsuga mertensiana</i>) - <i>Arnica latifolia</i> - parkland	
4	1	B	1	6		<i>Tsuga mertensiana</i> - <i>Chamaecyparis nootkatensis</i> - <i>Vaccinium deliciosum</i> - <i>Phyllodoce empetriiformis</i> - <i>Cassiope mertensiana</i>	
5	1	B	1	6		<i>Phyllodoce empetriiformis</i> - <i>Cassiope mertensiana</i> heath	
6	1	B	2	1	a	<i>Alnus sinuata</i> - (<i>Chamaecyparis nootkatensis</i>) - <i>Veratrum eschscholtzii</i> - <i>Senecia triangularis</i>	slide track
7	1	M	2	1		<i>Carex nigricans</i> - <i>Juncus drummondii</i> snowbed	
8	2	H	1			<i>Allium crenulatum</i> - <i>Rhacomitrium canescens</i> - rock crevice	
						continued on page 3A	

Please give information about further communities on a separate sheet

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		
9	1	N	2	2		<i>Pteridium aquilinum</i> - <i>Lilium columbianum</i>	
						<i>Bromus marginatus</i> meadow	
10	1	N	2	1		<i>Veratrum eschsholtzii</i> - <i>Senecio triangularis</i>	
						- <i>Valeriana sitchensis</i> meadow	
11	1	N	2	1		<i>Hercleum lanatum</i> - <i>Cirsium edule</i> -	
						<i>Carex spectabilis</i> - Meadow	
12	2	G	6	2	2	<i>Penstemon davidsonii</i> - <i>Phlox diffusa</i> -	
						<i>Saxifraga bronchialis</i> - <i>Cladonia</i> spp.	
13	1	N	2	1		<i>Eriophyllum lanatum</i> - <i>Anaphalis</i>	
						<i>margaritacea</i> - <i>Castilleja miniata</i> -	
						<i>Campunula rotundifolia</i> dry meadow	

Please give information about further vegetation communities...

7.
(cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	F ₅	Lithic - Humo - Ferric Podzol
2	F ₅	Humo - Ferric Podzol
3	F ₄	Dystric Brunisol
4	O/F ₅	Folisol
5	O/F ₅	Folisol
6	I ₂	Regosol
7	0	Gleyed Folisol
8	O/F ₅	Folisol
9	F ₅	Dystric Brunisol
10	F ₄	Gleyed Dystric Brunisol
11	I ₂	Regosol
12	I ₂	Regosol
13	I ₂	Regosol
14		
15		
16		
17		
18		
19		
20		

9. Landscape

1. General Landscape (give brief description) ... Arrête-like ridge with steep
35° - 70° slopes (avalanche tracks)

2. Relief Type

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

3. Special landscape features (list) ... Arrête, Avalanche track

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		
Running	X	X

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps				
Ponds		X	X	
Lakes				

3. Running Water

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

4. Special freshwater features

.....

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*) Headwaters of the Nanaimo River

1. Fresh Lake River Stream

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		X		X		
Aves	X	X		X								
Reptilia												
Amphibia												
Pisces												
Insecta	X											

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

Marmota vancouverensis - The endemic Vancouver Island Marmot -

This colony has between 9 - 15 individuals, 2 young (infant) marmots.....
were observed July 8, 1978

.....
.....
.....
.....

4. Flora

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

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

Allium crenulatum

.....

.....

15. Exceptional Interest of IRP Area*

This area supports one of the five known Vancouver Island Marmot colony locations. The Vancouver Island Marmot is an endemic, extremely rare and threatened animal. There are perhaps less than 70 individuals in the world and three of the colonies are threatened by logging and ski development. The "Pea" Mountain colony was previously unknown and appears to be undisturbed. The habitat of the V.I. marmot includes extremely lush forb meadows on steep avalanche slopes. The meadows and vegetation found at Pea Mountain is unusual on Vancouver Island and is very patchy in occurrence.

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						
Drainage						
Other soil disturbance						
Grazing						
Selective flora disturbance						
Logging			?			
Plantation						
Hunting	X	X	?			
Removal of predators						
Pesticides						
Introductions --- plants						
Introductions --- animals						
Fire	X					
Permanent habitation						
Recreation and tourism						
Research			X			

3. Additional details on each type of impact attached?

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 Heard, D. C. 1977. Behaviour of Vancouver Island Marmots. MSC Thesis, University of British Columbia. Branch.

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

Sheet attached? Yes No

2. List main maps available for the IBP Area. Alberni Inlet 92/F/2
1:50,000

List attached? Yes No

3. Aerial photographs for the IBP Area available? BC 7765: 235,236

For whole areaX..... For part of area None

19. Other Relevant Information

It is extremely important to protect this population of Vancouver Island Marmots and their habitat. This species of marmot is very rare and in danger of extinction if viable populations are not preserved. This E.R.P. falls within both Crown Zellerbach and MacMillan Bloedel forested land. Since there are no timber values associated with the proposal, it would be in the best interests of the marmots, the timber companies involved, and the public, if this land were donated to the Crown for Ecological Reserve purposes.

Signed B. Jester Grady Carson
(Surveyor)

PARTIAL SPECIES LIST "PEA" MOUNTAIN

MARMOT COLONY

E.R.P 300

Abies amabilis

Abies lasiocarpa

Achlys triphylla

Achillea millefolia

Actaea rubra

Adiantum pedatum

Agoseris aurantiaca

Agrostis thurberiana

R * Allium crenulatum

Anaphalis margaritacea

Anemone narcissiflora sub. sp. alaskana

Antennaria neglecta

Aquilegia formosa

Arabis glabra

Arcto staphylos uva-ursi

Arenaria macrophylla

Arenaria rubella

Arnica latifolia

Aruncus sylvester

Asarum caudatum

Aster cf. foliaceus

B * Aster paucicapitatus

Boykinia elata

Bromus marginatus

Bromus vulgaris

Calamagrostis canadensis

Campunula rotundifolia

Carex mertensiana

Carex scirpoidea

Carex spectabilis

Carex sp. (vignea)

Castilleja sp.

Castilleja miniata

Chamaenyparis nootkatensis

Cirsium edule

Cryptogramma crispa

Danthonia intermedia

Dicentra formosa

Dodecatheon pauciflora

Elymus glaucus

Erigeron peregrinus

Eriophyllum lanatum

Erythronium grandiflorum

Festuca brachyphylla

Fragaria vesca

Fragaria virginiana

Galium triflorum

Heracleum lanatum

Heuchera glabra

Hieracium albiflorum

* Hippuris montana

Juniperis communis

Juncus drummondii

Lathyrus nevadensis

Leptarhena pyrolifolia

Y* Lewisia columbiana

Lilium columbianum

Lithophragma parviflora

Lomatium martindalei

Luina hypoleuca

Lupinus arcticus

Luzula multiflora

Melica subulata

Microsteris gracilis

Mimulus lewisii

Mimulus tilingii

Mitella breweri

Montia parvifolia

Montia sibirica

Orobanche uniflora

Osmorhiza chilensis

Pachystima myrsinites

Parnassia fimbriata

Penstemon davidsonii

B Penstemon nemorosus

Penstemon serrulatus

Phacelia heterophylla

Phleum alpinum

Pinguicula macroceras

Phlox diffusa

Platanthera dilata

Platanthera unalaskensis ssp. elata

Poa gracillima

Polystichum lonchitis

Polypodium hesperium

Potentilla diversifolia

Prunella vulgaris

Ranunculus unciatus
Ribes lacustre
Romanzoffia sitchensis

Sanicula graveolens
Saxifraga ferruginea
Saxifraga mertensiana
Saxifraga rufidula
Saxifraga tolmiei
Scirpus caespitosus
Sedum divergens
Senecio triangularis

— Smilacina racemosa

Stenanthium occidentale

y — Suksdorfia ranunculifolia (* for Vancouver Island)

y — Symphoricarpos mollis var. hesperius

Tellima grandiflora

— Thalictrum occidentale

Tofieldia glutinosa

Trisetum spicatum

Valeriana sitchensis

Veratrum eschscholtzii

Veronica wormskoldii

Viola adunca

Viola glabella

*species of significant botanical interest.

"Pea" Mountain

E.R.P. #300

Ecological Reserve Proposal #300 at "Pea" Mountain is located on an unnamed ridge north of the headwaters of the Nanaimo River. The proposal contains approximately 236 hectares of land granted to Crown Zellerbach and McMillan Bloedel for forestry purposes.

The primary purpose of this reserve is to protect a recently discovered population of Vancouver Island Marmots and their habitat. The total population of Vancouver Island Marmots number possibly less than 70 and these individuals are known to exist in 5 locations and less than 10 colonies.

1. Heather Mountain
2. Haley Lake
3. Green Mountain
4. Mt. Washington
5. "Pea" Mountain

Early records indicate that the marmots existed in about 25 active colonies. Their numbers have declined in the past few years to the point where this endemic species is in danger of extinction. Existing colonies are threatened or disturbed: The Mount Washington colony is directly in line with a proposed ski development, Green Mountain already supports a ski development and Haley Lake, Heather and "Pea" Mountain are owned by Forest Companies which allow hunting in their areas and have the option to develop these sites.

It would be very sad if the extinction of the only species of mammal (except a shrew) confined entirely to Canada was eradicated due to human negligence and lack of protection.

The marmots habitat on Vancouver Island is very restricted and patchy in occurrence. Marmots require lush forb meadows to supply enough nutrition to maintain them through their long (8 month) period of hibernation. Since the mountain growing season is so short, marmots must continually forage when the opportunity is present. A restricted food source is one of the factors keeping marmot colonies historically small.

The lush meadows found on "Pea" Mountain probably have resulted from a fire and continual avalanches and the steep mountain slopes. These meadows are relatively rare on Vancouver Island. Most other areas comparable are neither forested or at higher elevations have no vegetation. The rare plants found at "Pea" Mountain include Allium crenulatum, Aster paucicapitatus, Hippuris montana, Lewisia columbiana and Susksdorffia ranunculifolia.

Timber within the Ecological Reserve Proposal has little value, as it is either inaccessible, small or has already been harvested. The land could be given back to the Crown for Ecological Reserve purposes at little cost to the companies involved. The companies involved could certainly benefit public image by such a donation. Present management of the Haley Lake colony is unsatisfactory. The gate guard himself tells of instances of hunters and dogs still entering the area. Protection of the marmots needs to be permanent under a regulatory body if we want this species to survive in Canada.

APPLICATION FOR ECOLOGICAL RESERVE

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

Unnamed Ridge North of the headwaters of the Nanaimo River

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

Vancouver Island, ca. 50 km Southwest of Nanaimo, unnamed Ridge, "Pea" Mountain, North of the headwaters of the Nanaimo River

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

Subalpine Mountain Hemlock Zone

4. Approximate total acreage.

ca. 236 hectares

5. Purpose of the reserve.

The purpose of this reserve is to protect the habitat and recently discovered colony of the rare Vancouver Island Marmot

(a) Primary (state acreage) ca. 50 hectares

The immediate area used by this population of Vancouver Island Marmots for feeding, protection and hibernation in burrows.

(b) Others if any (state acreage)

Superb parkland, rocky and avalanche slope meadows which are rare on Vancouver Island and form the food source for the marmots.

(c) Buffer areas (state acreage)

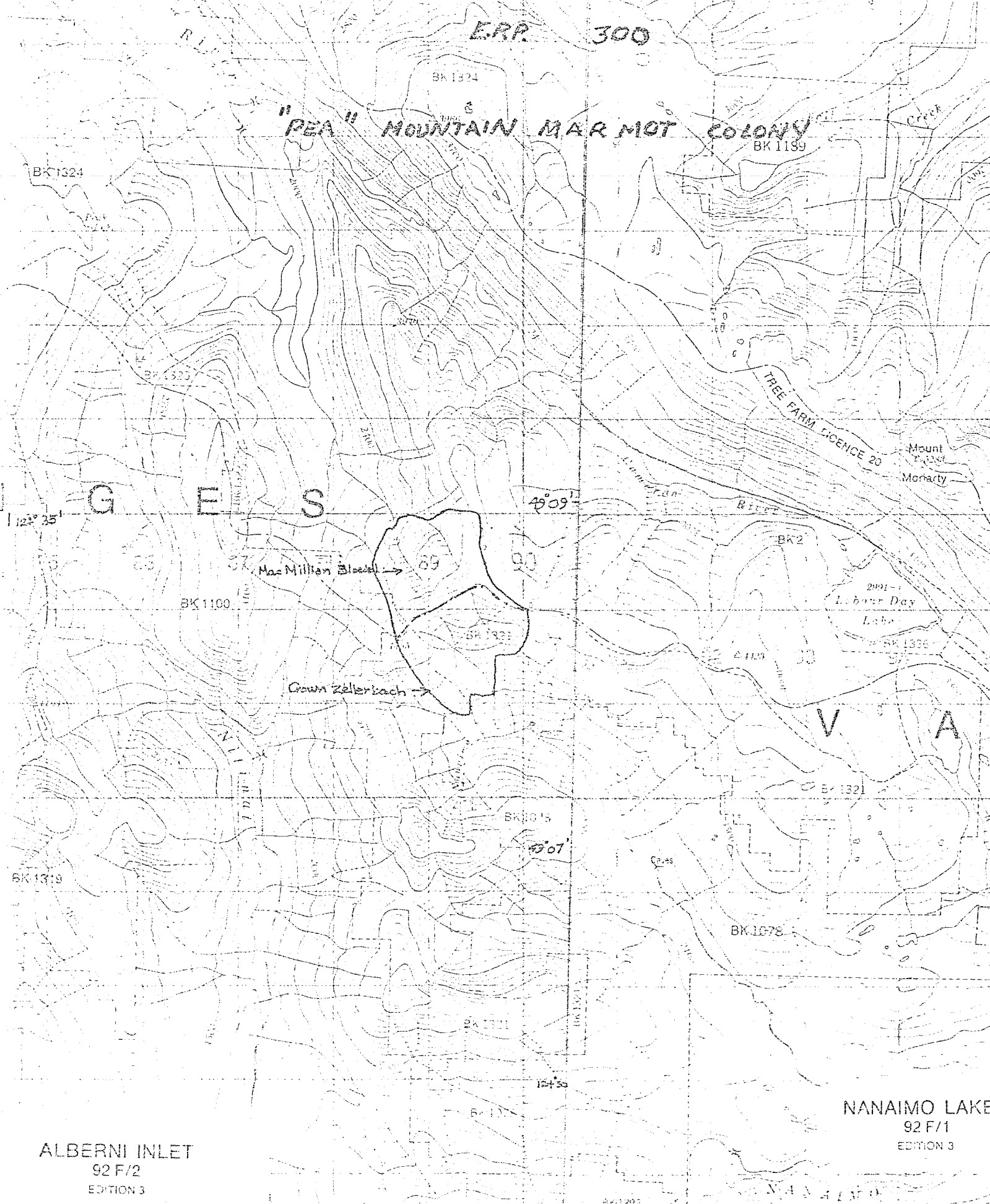
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<i>Abies lasiocarpa</i>	
<i>Alnus sinuata</i>	

Signature

D. Justin Judy Carson

I.B.P. Surveyor



Scale 1:50,000 Échelle

