

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.)

Junction of the Toad and Racing Rivers (Toad Hotsprings Game Reserve Proposal)

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

The boreal white and black spruce (BWBS) zone and the subalpine spruce - willow - birch (SWB) zone

4. Approximate total acreage.

20,200 acres

5. Purpose of the reserve.

(a) Primary (state acreage)

8,100 acres

(b) Others if any (state acreage)

12,100 acres including buffer area

(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.

Timber values are very low for this area even though the following species are present:

Picea glauca

Populus balsamifera

Populus tremuloides

Abies lasiocarpa

Pinus contorta

Signature

R M Annas
R. M. Annas

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

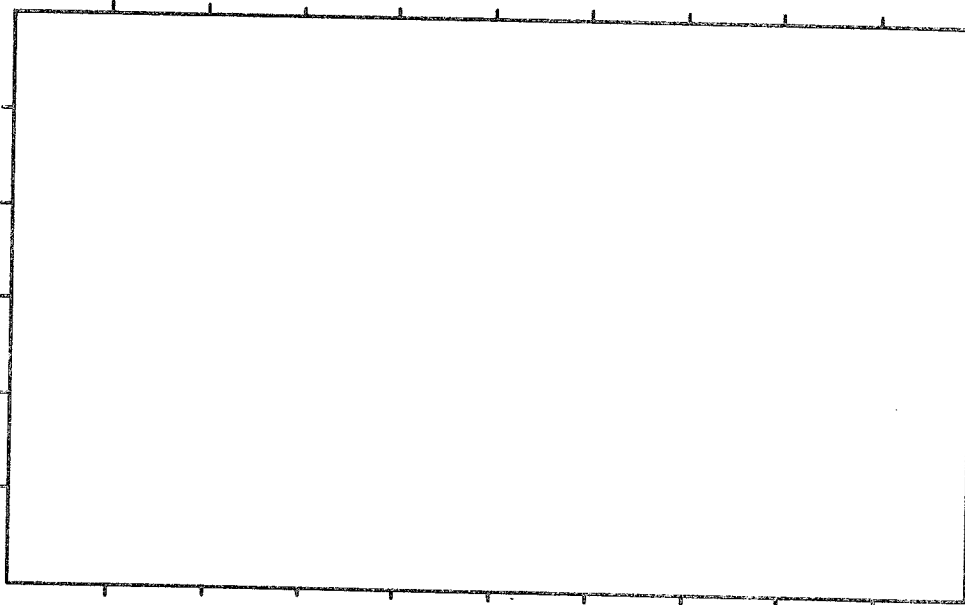
Serial Number

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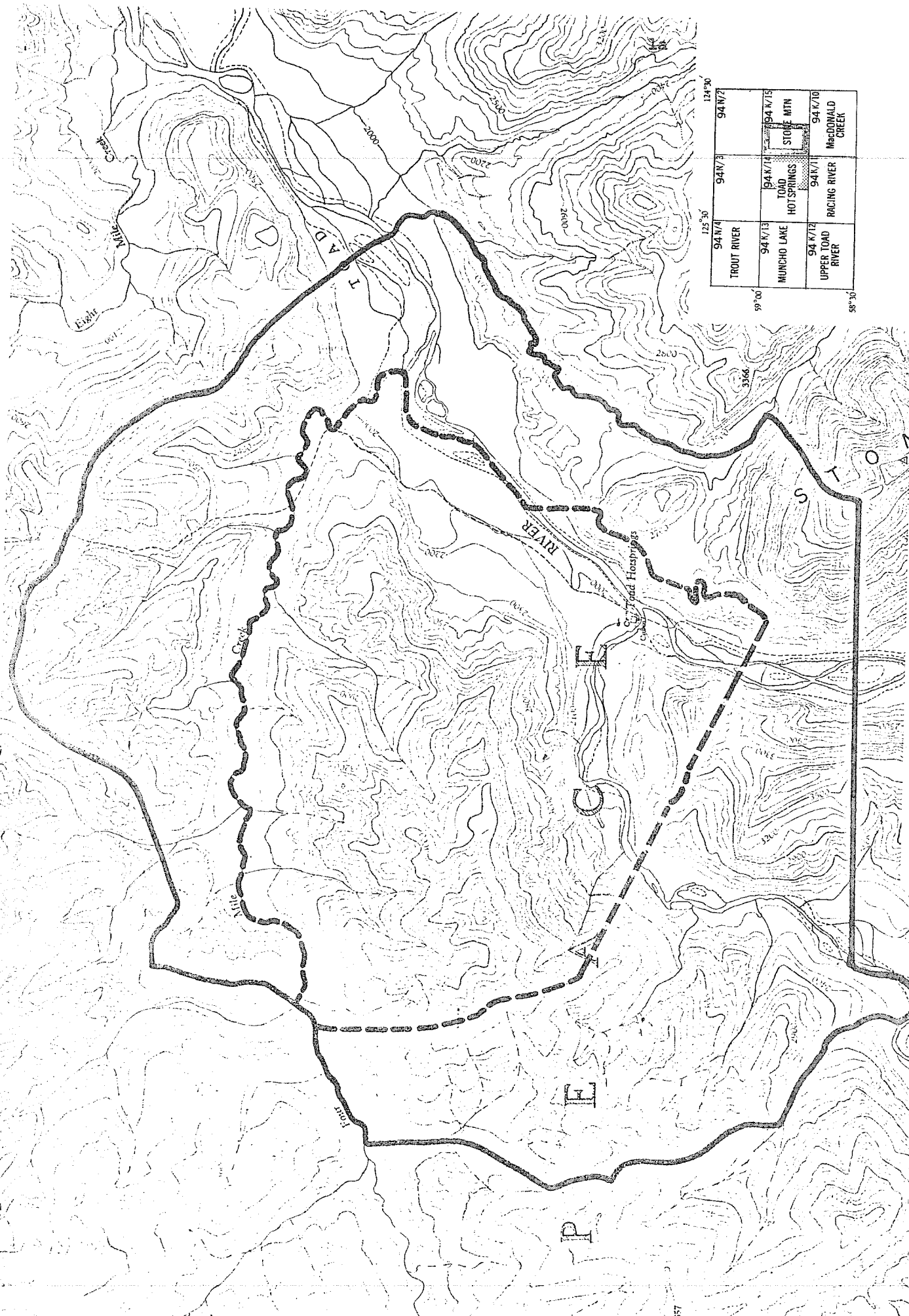
For Data
Centre Use
only

1. 1. Name of surveyor **R. M. Annas**
2. Address of surveyor **Department of Botany**
- **University of British Columbia**
- **Vancouver, B. C., Canada**
3. Check Sheet completed (a) on site **X** (b) from records **X**
4. Date Check Sheet completed **October 22, 1974**

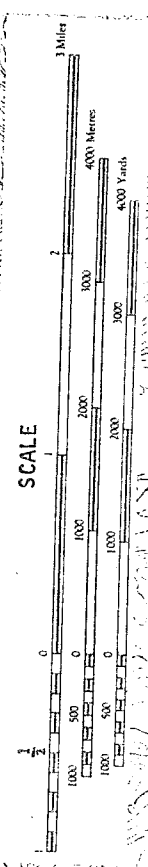
2. 1. Name of IBP Area **Toad Hotsprings Game Reserve**
2. Name of IBP Subdivision (or serial letter) **BWBS, SWB**
3. Map of IBP Area* showing boundaries attached? Yes **X** No
4. Sketch map of IBP Area*. Please mark direction of north, the scale and grid numbers where applicable.



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



94 N/4	94 N/3	94 N/2
94 N/1	94 N/1	94 N/1
94 K/13	94 K/14	94 K/15
MUNCHO LAKE	TOAD HOTSPRINGS	TOAD STORE MTN
94 K/12	94 K/11	94 K/10
UPPER TOAD RIVER	RACING RIVER	MACDONALD CREEK



TOAD HOTSPRINGS
 94 K/14 EAST HALF
 FIRST EDITION

Δ 5657

3. Location of IBP Area*

1. Latitude 58° 54' - 58° 58' N Longitude 125° 00' - 125° 13' W

2. Country Canada

State or Province British Columbia County Fort Nelson

(State or Province County)

4. Administration

National 1. Official category Crown Land

2. Address of administration British Columbia Department of Lands, Forests, and Water Resources,
Parliament Buildings,
Victoria, 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) 20,200 acres

2. Altitude (state units of measurement) Maximum 5,500 ft. (1676 m)
 Minimum 2,000 ft. (610 m)

6. Climate

Nearest climatological station :

1. Name Fort Nelson

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

3. If (2) not, distance from edge of IBP Area* (state units) 90 mi.

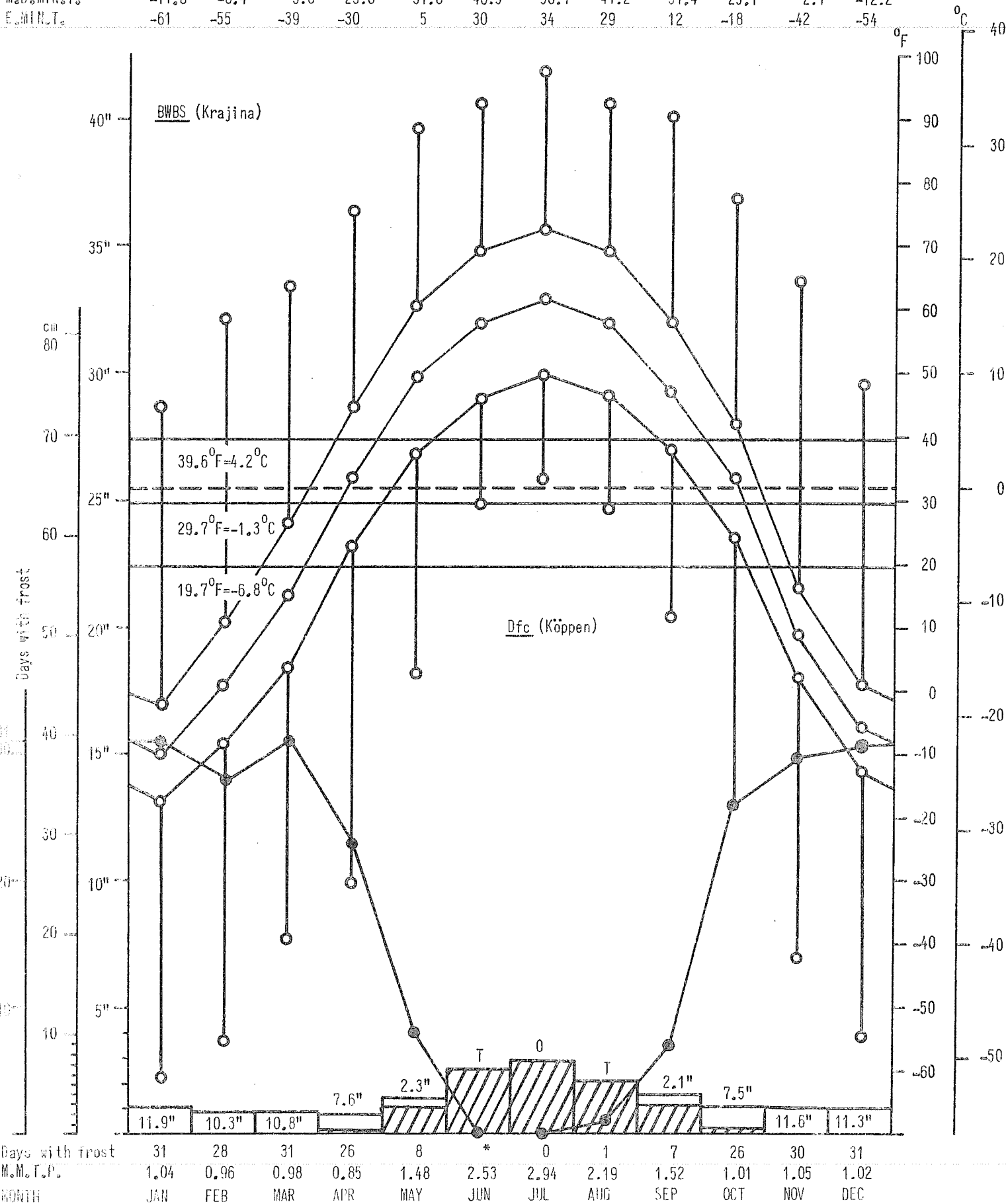
4. Direction from IBP Area* East

5. Additional data sheet attached? Yes X No

FORT NELSON AIRPORT 58°50'N, 122°35'W, 1230' ASL. Record: 30-34 years.

Months' above 50°F: 3, below 32°F: 5, A.M.T.P.: 17.57", A.M.S.F.: 75.4", snow % A.M.T.P.: 42.91, days with frost, yearly: 213.

E. MAX. T.	45	59	64	76	89	93	98	93	91	78	65	49
M.O. MAX. T.	-1.9	11.0	27.2	45.2	61.0	69.6	73.4	70.2	58.3	43.0	17.0	1.6
M.D. T.	-9.8	1.3	15.5	34.1	49.4	58.1	62.1	58.7	47.9	34.1	9.9	-5.3
M.O. MIN. T.	-17.6	-8.4	3.8	23.0	37.8	46.5	50.7	47.2	37.4	25.1	2.7	-12.2
E. MIN. T.	-61	-55	-39	-30	5	30	34	29	12	-18	-42	-54



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	C	1	3		<u>Dryas drummondii</u> - <u>Epilobium latifolium</u> association	
2	2	G	1	1		<u>Equisetum hyemale</u> association	
3	1	B	2	1	a	<u>Salix interior</u> association	
4	1	A	2	1		<u>Populus balsamifera</u> - <u>Alnus tenuifolia</u> - <u>Salix bebbiana</u> - <u>Viburnum edule</u> - <u>Hibes oxycanthoides</u> ass.	
5	1	A	1	7	a	<u>Picea glauca</u> - <u>Alnus tenuifolia</u> - <u>Equisetum pratense</u> ass.	
6	1	A	2	1		<u>Populus tremuloides</u> - <u>Rosa acicularis</u> - <u>Viburnum edule</u> - <u>Amelanchier alnifolia</u> - <u>Aralia nudicaulis</u> ass.	
7	1	A	1	7	a	<u>Picea glauca</u> - <u>Alnus crispa</u> - moss assoc.	
8	1	A	1	7	a	<u>Picea mariana</u> - moss (<u>Pleurozium schreberi</u> , <u>Ptilium crista-castrensis</u> , <u>Hylocomium splendens</u>) ass.	
9	1	M	2	1		<u>Dryas integrifolia</u> - <u>Anemone narcissiflora</u> - <u>Salix reticulata</u> ass.	
10	1	A	1	7	a	<u>Picea glauca</u> - <u>Abies lasiocarpa</u> - <u>Betula glandulosa</u> - <u>Lupinus arcticus</u> ass.	
11	1	B	2	1	a	<u>Betula glandulosa</u> - <u>Salix</u> spp. - <u>Ledum groenlandicum</u> - <u>Vaccinium vitis-idaea</u> ass.	
12	1	M	2	1		<u>Artemisia frigida</u> - <u>Calamagrostis purpurascens</u> - <u>Poa glauca</u> - <u>Androsace septentrionalis</u> ass.	
13	1	M	2	1		<u>Hierochloa alpina</u> ass.	
14	?	?	?	?	?	<u>Chara vulgaris</u> ass.	
15	1	M	2	2		<u>Ranunculus cymbalaria</u> - <u>Triglochin palustre</u> ass.	
16	1	M	2	1		<u>Festuca altaica</u> - <u>Saxifraga tricuspidata</u> ass.	
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 I ₂	Recent gravel bar land type, Regosol
2	AC I ₂	Cumulic Regosol on recent bar land type
3	AC I ₂	Cumulic Regosol
4	AC I ₂	Cumulic Regosol
5	AC I ₂	Cumulic Regosol
6	A(B)C F ₄	Brunisol
7	ABC F ₅	Brunisol
8	ABC F ₅	Dystric Brunisol → Mini Podzol
9	AC F ₁	Rendzina
10	A(B)C F ₄	Brunisol
11	A O	Organic
12	ABC F ₅	Brunisol
13	AC F ₃	Ranker
14	AGC P ₁	Subaqueous Gleysol
15	ABC S ₂	Solenetz
16	ABC F ₅	Alpine Brunisol
17		
18		
19		
20		

9. Landscape

1. General Landscape (give brief description) Mountains cut by two rivers with narrow flood plains and some older alluvial terraces.

2. Relief Type

	Flat	Undulating (0)-200 m.	Hilly 200-1000 m.	Mountainous > 1000 m.	%
Sharply dissected				10	10
Gently dissected	10			80	90
Incised					
Skeletonised					
%	10			90	100%

3. Special landscape features (list) Includes rocky faces suitable for stone sheep escape habitat plus grassy slopes near the salt lick.

10. Coastline of IBP Area* **NONE**

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*

	Permanent	Intermittent
General	X	
Standing		
Running	X	

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps				
Ponds				
Lakes				

3. Running Water

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

4. Special freshwater features **hotsprings**

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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	X	<input type="checkbox"/>

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

1. Fresh Lake River Stream

2. Salt and Brackish **NONE**

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	X		
Aves								X				
Reptilia												
Amphibia								X				
Pisces	X											
Insecta		X						X				

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

Alces americana andersoni

Ovis dalli stonoi

Corvus canadensis

Ursus arctos horribilis

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

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

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15. Exceptional Interest of IBP Area*

A unique area in that the ground surrounding the hot springs is a natural salt lick resulting in exceptionally large concentrations of moose (probably unique to western Canada) and large concentrations of stone sheep and elk. A potentially extremely important area for the study and observation of the above animals. This area also has exceptional grass communities in the subalpine zone above the hot springs as well as a very wide range of representative forest, subalpine and alpine communities and is, therefore, very important botanically and even more so zoologically.

16. Significant Human Impact

1. General : None in entire IBP Area*
 None in part of IBP Area*
 Impact on entire IBP Area* **X hunting and grazing of horses**

2. Particular

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

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.

94 K/14 East half

94 K/15 West Half

List attached? Yes No

3. Aerial photographs for the IBP Area available?

For whole area For part of area None

19. Other Relevant Information

Shooting should be prohibited in the area surrounding these hot springs since the animals in their quest for mineral salts lose fear of man and become exceptionally vulnerable. The boundaries of this proposed reserve should be large enough that hunters will not be able to decimate the animals by waiting at the edge of the reserve for animals travelling to and from the salt lick. This area in the past has escaped the notice of the general public and therefore has remained reasonably close to its original state. Access has been a problem in the past (mainly by packhorse), however, with the advent of light-weight outboard water jet engines, riverboats are now going down the Toad River to these hot springs and it is doubtful that hunting pressure will remain at the previous low level for more than one or two years.

Signed

 R. M. Annas
 Surveyor