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KOOTENAY PLAINS

ECOLOGICAL RESERVE

Management Plan

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Alberta
ENVIRONMENTAL PROTECTION

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APPROVAL STATEMENT

The Kootenay Plains Ecological Reserve Management Plan is the official policy of the Government of Alberta for the management of the Reserve. The plan provides the direction for management of the Reserve consistent with the provisions of the *Wilderness Areas, Ecological Reserves and Natural Areas Act*. Approval of this plan reflects the Government's commitment to protect the ecological resources of the Reserve for present and future generations while providing compatible research, educational, recreational and tourism opportunities.

Assitant Deputy Minister
Natural Resources Service

Nov 22/96

Date

Assistant Deputy Minister
Land and Forest Service

Nov 29/96.

Date

KOOTENAY PLAINS ECOLOGICAL RESERVE

MANAGEMENT PLAN SUMMARY

PART I - BACKGROUND INFORMATION

SYSTEMS CONTEXT

Ecological Reserves are areas selected as representative or special natural landscapes which are protected as examples of functioning ecosystems, as gene pools for research and for education and heritage appreciation purposes.

Kootenay Plains is designated as an Ecological Reserve to protect a portion of the land in Alberta that represents the Montane area of the Rocky Mountains.

OVERVIEW

The overview section of the plan presents information on the history of the Reserve, the biophysical and historical resources, existing land and recreational uses, and the management issues that were identified by the public. All of this background information sets the scene for the plan.

PART II - MANAGEMENT DIRECTION

VALUES, GOALS, AND OBJECTIVES

Kootenay Plains Ecological Reserve is important as the only provincially protected area representative of the Montane Sub-Region of the Rocky Mountain Natural Region in Central Alberta.

The Ecological Reserve will be managed as a unique area important for the protection and maintenance of the biodiversity of the Montane Sub-Region. Human activities will focus on education and be governed by the need to protect the natural and cultural resources of the site.

Detailed Protection, Heritage Appreciation, Outdoor Recreation and Tourism Objectives for the Ecological Reserve are included in the plan.

MANAGEMENT GUIDELINES

The management guidelines outline how the Reserve will be managed to ensure the goals and objectives for the site will be achieved. A few examples of the Guidelines follow:

Vegetation Management

Rare and Uncommon Plants - areas not to be disturbed.

Fire Management - all wild fires to be suppressed.

Prescribed Burning - controlled fires used as an ecological tool.

MANAGEMENT GUIDELINES (cont.)

Weed Control - weed conditions monitored, mechanical or biological control methods emphasized if necessary.

Plant Collection by Natives - collection for ceremonial activities permitted.

Fauna Management

Inventory and Monitoring - inventories of amphibians, spring birds, summer small mammals, selected insects, winter large mammals are priorities.

Wildlife Reintroductions - encourages reintroductions of species previously found in the Reserve.

Wildlife Viewing - identifies locations where viewing will be encouraged.

Atmospheric Monitoring

Weather conditions will be monitored.

Management of Historic Resources

Assessment of historic building to define specific actions.

Monitoring Programs

Impact of visitors and management actions monitored to ensure protection of the ecosystem.

Heritage Appreciation Management

Themes - identifies the messages to be presented about the Reserve.

Methods - information will be presented to public primarily through signs and written materials at Staging Areas and adjacent campgrounds.

Outdoor Recreation Management

Recreation Activities - emphasizes hiking, photography, wildlife viewing and nature appreciation. Equestrian riding and mountain biking permitted to cross the Reserve on designated trails only.

Tourism Management

Tourism activities accommodated in the Reserve and encouraged to support the protection and heritage appreciation objectives for the Reserve.

IMPLEMENTATION

A list of priorities for implementation is presented and includes:

Baseline studies of selected fauna, historic resources, lands added to the Reserve in 1995, vegetation conditions.

Monitoring of rare vegetation, aspen encroachment in grasslands, human impacts, trail use, weather conditions, wetlands.

Maintenance of trails, staging areas, and bridges.

Improvements in boundary marking and signs.

Trail signs for directions and safety.

Preparation of a Communications Plan to improve public information.

Review of zoning in the David Thompson Corridor Plan for lands adjacent to the Reserve.

Meetings with Tourist Operators, TransAlta Utilities and Stoney Indian Bands about cooperative management initiatives.

Volunteers will be encouraged to actively participate in management, monitoring and research activities. Consideration will be given to formation of a Cooperating Association to assist with management of the Ecological Reserve.

TABLE OF CONTENTS

	Page
Summary	
1.0 Introduction	
.1 Scope of the Plan	1
.2 Public Involvement	1
.3 Plan Organization	2
 PART I: BACKGROUND INFORMATION	
1.0 Systems Context	
.1 Ecological Reserves in Alberta	
.1 Legislative Framework	3
.2 The Role of Ecological Reserves	4
.2 Role of Kootenay Plains Ecological Reserve	5
2.0 Overview	
.1 Location and Regional Setting	6
.2 Legal Status and Area	7
.3 Boundary Definition	7
.4 History of Reserve Designation	7
.5 Biophysical and Cultural Resources	8
.1 Bedrock Geology	8
.2 Surficial Geology	9
.3 Soils	10
.4 Climate	10
.5 Hydrology	11
.6 Vegetation	12
.7 Fauna	16
.8 Visual Landscape (Aesthetics)	20
.9 Paleontology	20
.10 Archaeology	20
.11 Historic Resources	22
.12 Special Features Summary	23
.6 Land Uses	
.1 Dispositions & Improvements	24
.2 Recreation	25
.3 Surrounding Land Uses	25
.4 Research	26
.5 Environmental Education	26

	Page
3.0 Management Issues	
.1 Boundaries	27
.1 Missed Significant Features	27
.2 East Boundary	27
.3 N.W. Boundary	27
.4 Access Road to Stoney Indian Land	28
.2 Water Development Lease	28
.3 Boat Access	28
.4 Random Camping	28
.5 Staging Areas	28
.6 Recreation Trails	28
.7 Fishing	29
.8 Buffer Zone for Surrounding Lands	29
.9 Ceremonial Activities	29
.10 Public Information	29
.11 Archaeological Sites	29
.12 Historic Buildings	29
.13 Vegetation Management	30
.14 Wildlife Management	30
.15 Boundary Marking	30
.16 Rehabilitation of Disturbed Sites	30
.17 Other Access	30
.18 Offers of Assistance	30

PART II: MANAGEMENT DIRECTION

1.0 Values, Goals and Objectives	31
.1 Values	31
.2 Goals	32
.3 Objectives	33
.1 Protection	33
.2 Heritage Appreciation	34
.3 Outdoor Recreation	34
.4 Tourism	35

2.0	Management Guidelines	Page
.1	Vegetation Management	35
-	Rare and Uncommon Plants	36
-	Fire Management	36
-	Prescribed Burning	36
-	Weed Control	37
-	Insect & Disease Control	37
-	Reclamation	37
-	Plant Collection by Natives	37
-	Inventory and Monitoring	38
.2	Faunal Management	38
-	Inventory and Monitoring	38
-	Hunting/Trapping	39
-	Bears/Cougars	39
-	Wildlife Reintroductions	40
-	Wildlife Viewing	41
.3	Aquatic Management	41
-	Fisheries	41
-	Wetlands	42
.4	Geologic and Geomorphic Management	43
.5	Atmospheric Management	43
.6	Management of Historic Resources	43
.7	Aesthetics	44
.8	Monitoring Programs	44
.9	Management of Scientific Research and Collection	44
.10	Heritage Appreciation Management	44
-	Themes	44
-	Methods	45
-	Interpretative Services	45
.11	Outdoor Recreation Management	45
-	Recreation Activities	46
-	Staging Areas	46
.12	Tourism Management	46
3.0	Surrounding Lands	47
.1	Proposed Boundary Adjustments	48
.2	Coordination	48

4.0	Baseline Studies and Information Needs	Page 48
.1	Baseline Studies	48
5.0	Program Support	49
.1	Regulations and Enforcement	49
.2	Vehicle Access	49
.3	Volunteers	49
.4	Budget	50
6.0	Implementation	51
7.0	Plan Review and Amendment	53
8.0	"State-of-the-Reserve" Report	53

GLOSSARY

- Kootenay Plains Reports and Publications

REFERENCES

LIST OF APPENDICES

- Dispositions & Other Land-Use Activities in Ecological Reserves as Governed by the Wilderness Areas, Ecological Reserves and Natural Areas Act.
- Theme Components - Montane Subregion

1.0 **INTRODUCTION**

.1 Scope of the Plan

The Kootenay Plains Ecological Reserves Management Plan provides the overall direction for the protection, management and operation of the Reserve. It translates the provisions of the *Wilderness Areas, Ecological Reserves and Natural Areas Act* into specific guidelines that are consistent with the protection of ecological values of the Reserve. The plan is a commitment by all involved agencies to the efficient and effective implementation of the management guidelines. More specifically the current plan:

- outlines the historic and biophysical resources as well as the ecological values of the site
- identifies information gaps and scientific research needs
- identifies management issues
- establishes objectives for protection, heritage appreciation, outdoor recreation and tourism within the Reserve
- develops management guidelines and strategies to fulfill objectives and resolve identified issues
- outlines monitoring strategies to evaluate the effectiveness of management of the Reserve
- sets the stage for preparation of annual budgets and the administrative support required to implement the plan

.2 Public Involvement

The Kootenay Plains Ecological Reserve Management Plan has been prepared with comprehensive public involvement. At the beginning of the planning process, members of the public were asked to advise on how they felt the plan should be prepared. On-site surveys were conducted to ask visitors for input. Open House and Roundtable

meetings have been held at each major stage of the plan preparation. Public response has been very constructive and an important consideration as the plan was drafted.

.3 Plan Organization

The Management Plan is organized in two parts. Part I presents Background Information that was used during the preparation of the Plan. Part I includes information on the ecological reserves program in Alberta, the role of the Kootenay Plains Ecological Reserve, an overview of resource data and management issues identified during the initial stages of public involvement.

Part II presents the management direction that will be followed in the future management of the Kootenay Plains Ecological Reserve. Part II outlines the Values, Goals and Objectives for future management of the Reserve, plus detailed management guidelines and implementation tasks.

PART I:

BACKGROUND INFORMATION

**KOOTENAY PLAINS ECOLOGICAL RESERVE
MANAGEMENT PLAN**

1.0 SYSTEMS CONTEXT

.1 Ecological Reserves in Alberta

.1 Legislative Framework

Ecological Reserves are an integral part of Alberta's overall conservation-outdoor recreation system, established pursuant to the *Wilderness Areas, Ecological Reserves and Natural Areas Act* (1980).

Overall program coordination and legislative responsibility rests with the Minister of Environmental Protection. On-site management of the Kootenay Plains Ecological Reserve is assigned to the Land and Forest Services in consultation with Natural Resources Service.

Under Section 3.1(1) of the *Wilderness Areas, Ecological Reserves and Natural Areas Act*, public land may be designated as an ecological reserve to preserve it for ecological purposes. Ecological reserves may include lands which:

- are suitable for scientific research associated with the study of natural ecosystems.
- are a representative example of a natural ecosystem in Alberta
- serve as an example of an ecosystem that has been modified by man and that offers an opportunity to study the recovery of the ecosystem from that modification
- contain rare or endangered native plants or animals that should be preserved
- contain unique or rare examples of natural biological or physical features

Under Section 5 of the Act programs may be carried out with the approval of the Minister for:

- management and preservation of the animal and plant life and the environment of the ecological reserve
- environmental research that does not involve any physical disturbance of the ecological reserve
- furtherance of public education and interpretation
- preservation and protection of the ecological reserve

A table summarizing permitted uses and prohibitions is included in Appendix 1.

.2 The Role of Ecological Reserves

Ecological Reserves are areas selected as representative or special natural landscapes and features of the province, which are protected as examples of functioning ecosystems, as gene pools for research, and for education and heritage appreciation purposes.

Ecological Reserves are established to achieve four program objectives defined as:

Protection: To protect the full range of landscapes, environmental diversity and special natural features of Alberta.

Outdoor Recreation: To protect natural landscapes throughout Alberta for a variety of resource-based, dispersed recreation pursuits.

Heritage Appreciation: To protect landscapes that ensure, for Albertans and visitors, the opportunity to explore, understand and appreciate the full range of Alberta's natural heritage.

Tourism: To protect areas capable of sustaining adventure travel and ecotourism, including extended tours, and enable visitors to experience the unspoiled landscapes and abundant wildlife representative of Alberta's natural regions.

The most important objective of ecological reserves is protection. Ecological reserves are legally established areas that protect our natural heritage, conserve biological resources and promote on-site conservation of species and ecosystems over the long term.

It is acknowledged that outdoor recreation, heritage appreciation and tourism are not priority objectives for ecological reserves. It is further acknowledged, however, that in many cases ecological reserves are extremely attractive for these purposes. Subsequent sections of this plan refine the management direction necessary to ensure that outdoor recreation, heritage appreciation, and tourism uses are compatible with the overall protection objective.

.2 Role of Kootenay Plains Ecological Reserve

The Kootenay Plains Ecological Reserve is located within the Montane Sub-Region of the Rocky Mountain Natural Region. The Montane landscape is characterized by a pattern of open forests and grasslands. Montane tree species typically include Douglas fir, limber pine and white spruce. Grasslands in Montane are usually dominated by wheatgrasses, fescue grasses and oatgrasses with a large diversity of forbs. Chinooks are characteristic of the Montane Sub-Region and it is intermittently snow-free in winter.

Kootenay Plains has been designated as an Ecological Reserve primarily to protect a portion of land in Alberta that represents the Montane Sub-Region. The Douglas fir forest, limber pine and grassland mosaic typical of Montane are all found at Kootenay Plains. The river valleys, outwash plains, moraine fields and mineralized wetlands are also typical Montane landforms found within the Ecological Reserve. The area is protected as an Ecological Reserve because it includes so many natural

features that represent the Montane subregion. Appendix 2 outlines all of the Montane natural history themes found at Kootenay Plains.

A secondary role of the Kootenay Plains Ecological Reserve is the protection of a number of special features that enhance its importance as a protected area. The Siffleur Falls, Native ceremonial sites, rare plants and wildlife mineral licks are a few examples of special features found in the Reserve. Details on all special features are found later in the management plan.

A third role of the Kootenay Plains Ecological Reserve is the importance the area plays in presenting Alberta's ecological reserves program to a large number of visiting public. Kootenay Plains Ecological Reserve is unusual among the ecological reserves in Alberta due to the large number of visitors to the site. Highway #11 bisects the Reserve and the proximity to Banff National Park brings a large number of visitors to the area. Siffleur Falls, the North Saskatchewan River, Native ceremonial activities, and adjacent campgrounds all attract thousands of visitors each year. Kootenay Plains will play a unique role in telling people about the importance of ecological reserves as protected areas.

2.0 OVERVIEW

.1 Location and Regional Setting

The Kootenay Plains Ecological Reserve is located along the David Thompson Highway #11 approximately 150 kilometres west of Rocky Mountain House near the boundary of Banff National Park. The White Goat and Siffleur Wilderness Areas and Big Horn Wildland Recreation Area surround the Reserve on the north, south and east sides. A wide variety of recreational activities occur on the surrounding lands including hiking, equestrian trails, fishing and hunting. (See Map).

Campgrounds are located along Highway #11 beside the Ecological Reserve. Tourism services are provided at nearby resorts on the David Thompson Highway and the Icefields Parkway (Highway #93).

The Stoney Indian Band controls land beside the Ecological Reserve that is used for religious and ceremonial purposes.

The North Saskatchewan River flows through the Réserve and into Lake Abraham at the northern boundary. The lake is a storage reservoir operated by TransAlta Utilities for hydro-electric power production at the Big Horn Dam site.

.2 Legal Status and Area

The Kootenay Plains Ecological Reserve was established under the *Wilderness Areas, Ecological Reserves and Natural Areas Act*, and approved by Cabinet on July 17, 1987 by Order In Council 435/87. The original Reserve had an area of 3204 hectares but was changed to 3439 hectares in a 1995 boundary adjustment. (See Map).

.3 Boundary Definition

Kootenay Plains Ecological boundaries were instituted to protect and preserve an example of the Montane Sub-Region. Establishment was based on the existing Alberta Survey System using quarter section lines to cover the Montane area. In addition, native land claims and other land uses were taken into account.

Changes to the boundaries were implemented in 1995 in order to resolve several landuse conflicts (eg. overlap with TransAlta's Water Development Lease) and to include a number of special features (eg. Siffleur Falls). The 1995 boundaries follow a combination of rivers, cutlines, and old roads. These boundary changes are more visible on the ground, providing the area manager and visitors with an easier method of establishing their location. The boundary changes were made due to public concerns expressed during the management planning process.

4. History of Reserve Designation

The Bighorn-Kootenay Plains region has been the subject of provincial interest for a number of decades, both from a government and public standpoint. The flooding of Lake Abraham and leasing of land in the Kootenay Plains Area were significant in defining the boundaries of the

KOOTENAY PLAINS ECOLOGICAL RESERVE MANAGEMENT PLAN

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Natural Resources Service
Recreation and Protected Areas

JUNE 1996
West of the Fifth Meridian

Design File: kootbase Prepared by: LAC

Produced from 1:20 000 Digital Data supplied by Resource Data Division, 1996

original Ecological Reserve. Following is a chronological outline of the events concerning the designation of the Reserve:

1968	Kootenay Plains Natural Area established
1974	Big Horn Dam construction and flooding of Lake Abraham.
1974	Lease with Stoney Indian Band negotiated.
1987	Status of Kootenay Plains changed from Natural Area to Ecological Reserve.
1992	Management Plan initiated, Issues identified through public input process.
1995	Boundary changes approved.

.5 Biophysical and Cultural Resources

The following is a brief summary of the natural and cultural resources found within the Reserve.

.1 Bedrock Geology

The Kootenay Plains lies within the Front Ranges which act as a divider between the foothills to the east and the main mountain ranges to the west. Roughly, the eastern boundary is the McConnell thrust near Windy Point and the western boundary is the Bourgeau thrust near Whirlpool Point. The Sulphur Mountain thrust fault cuts through the Reserve. Highway #11 crosses the Sulphur Mountain thrust near the Cline River, then follows it a further 14 kilometers along the edge of the Kootenay Plains.

The southwest shoulder of Mt. Stelfox near the Cline River bridge has a good display of the Paleozoic strata of the area. The strata visible, all within the Sulphur Mountain thrust block are

from top to bottom: dolomitic limestone of the Upper Devonian Palliser Formation, Devonian and Mississippian shales and carbonates of the Alexo Formation and Fairholme Group, shales and limestone of the Ordovician Survey Peak Formation and finally, carbonates of the Cambrian Lynx Group.

.2 Surficial Geology

The Kootenay Plains have an altitude of about 1370 metres and lie largely on a complex system of terraces, alluvial fans and active floodplains of the North Saskatchewan River. Most of these features are the result of Wisconsin glaciation and its associated glacial tills and outwash debris. Calcareous loess has been deposited on the valley floor and adjacent slopes in a layer up to 30 cm thick.

The North Saskatchewan and several adjacent valleys are U-shaped as a result of several glacial advances. The older Big Horn Advance is undated but reached at least as far as the Big Horn Dam. The later Main Advance is estimated to date from the late Wisconsin age at least 9,000 years ago. There is no estimate as to how far down the North Saskatchewan River valley this advance reached. Surviving till deposits are found on the lower ridge slopes and in the valleys while most of the evidence of earlier glacial events on the upper slopes have been eroded or removed by subsequent glacial activity. An indicator of the ice's one time thickness are the erratics on nearby Sentinel Mountain at 2,515 metres. Radiocarbon analysis of charcoal found near Saskatchewan River Crossing indicates that the North Saskatchewan River valley was ice-free about 9,000 years ago.

While there is some limestone and dolomite bedrock, basically the glaciers carved the North Saskatchewan River valley out of less resistant sandstone and shale.

.3 Soils

Soils are predominantly poorly developed Regosols and Brunisols and are usually very calcareous and well drained. The strong and frequent winds in the valley continually deposit new loess material and thereby bury existing soils.

The soil conditions contribute to the extreme fragility of some areas. Unvegetated spots are readily degraded by wind and water erosion. Revegetation processes on the unstable and dry soils are extremely slow.¹

.4 Climate

The climate of the Kootenay Plains Ecological Reserve is dry, windy, and consistent over much of it's area.

Mean summer temperatures (May to September) are 10 to 11 degrees Centigrade and winter temperatures (December to February) run from -6.5 to -9.5 degrees Centigrade. However, peak temperatures have run as high as 32 degrees in summer, and as low as -35 in winter. Chinooks occur 10 - 20 times a season which is less frequent than the Montane areas in the south.

Precipitation here is one of the lowest for the Montane Sub-Region and is due in part to the rain shadow caused by the surrounding mountains. Summer precipitation is 150 - 200 mm and winter is 100 - 220 mm. Snow cover is generally low because of the Chinooks.

The North Saskatchewan valley provides a corridor for warm Pacific air which results in moderate winter temperatures. The warm and windy conditions result in high evapotranspiration and drought resistant vegetation.²

¹Management Concept For A Kootenay Plains Ecological Reserve by Uwe Wittkugel - 1983
²Ecological Land Classification and Evaluation, Chungo-Cline-Nordegg, 1984)

.5 Hydrology

The Reserve's major hydrologic feature is the North Saskatchewan River and Lake Abraham into which most of the surface water drains. The only exceptions are several pothole lakes and bogs. Between Whirlpool Point and Lake Abraham the North Saskatchewan flows along a low gradient through floodplains and braided channels. The river flows into Lake Abraham whose level is controlled by the Big Horn Dam. Water levels at Lake Abraham fluctuate about 35 metres causing mud and gravel flats, at low levels, which may stretch out a hundred metres from the high level shore line.

The Siffleur River, Loudon, Wilson and Whiterabbit Creeks all join the North Saskatchewan within the Ecological Reserve. Discharge levels will vary widely during the year and are controlled by the seasonal snowmelt in the surrounding mountains. The lowest rate of discharge is usually in February or March; the highest in June or July. The North Saskatchewan at Whirlpool Point will crest over 30 times above its average minimum flow.

The spectacular Siffleur Falls are the most noteworthy hydrologic feature within the Ecological Reserve.

.6 Vegetation

Many of the plants and plant communities in the area are adapted to growing conditions found in the Montane Sub-region. Extensive grasslands, forest communities, and unusual plant communities are found within the Kootenay Plains Ecological Reserve. Two biophysical inventories have been conducted on the Plains, one by Wallis and Wershler in 1981, and one by Wittkugel in 1983. Each inventory was specific, in that Wallis and Wershler concentrated on the grassland and unusual communities, whereas Wittkugel focused on the forested communities.

Grasslands

From Wallis and Wershler (1981), six major and nine minor grassland communities were identified. However, it is indicated that all these communities are variations of the Northern Wheatgrass - June Grass - Pasture Sagewort - Pussytoes (*Agropyron dasystachum* - *Koeleria macrantha* - *Artemisia frigida* - *Antennarria nitida*) community.³

Significant species for each community are listed by abundance for the Kootenay Plains Ecological Reserve. The ratings are Common (usually present in most identified habitats), Uncommon (seldom present in identified habitats), and Occasional (almost never present in the identified habitats). Any plants listed as Rare, are rare for Alberta.

The six major grassland communities as taken from Wallis and Wershler (1981) are as follows:

- Northern Wheatgrass - June Grass - Pasture Sagewort (*Agropyron dasystachum* - *Koeleria macrantha* - *Artemisia frigida*). This is the most common grassland community found within the Kootenay Plains Ecological Reserve. Generally found on well-drained, mesic sites. Uncommon species found, Hooker's Townsendia (*Townsendia hookeriana*)
- Northern Wheatgrass - Dragonwort - Pasture Sagewort (*Agropyron dasystachum* - *Artemisia dracuncul* - *Artemisia frigida*). Found on well-drained sites, and is less common than the previous community.
- Northern Wheatgrass - June Grass - Pasture Sagewort - Pussytoes (*Agropyron dasystachum* - *Koeleria macrantha* - *Artemisia frigida* - *Antennarria nitida*). Moderately well

³Wallis and Wershler, 1981

to well-drained sites, with a greater abundance of forbs. Rare species found in this community, One-flowered Ironplant (*Haplopappus uniflorus*).

- Northern Wheatgrass - Pussytoes (*Agropyron dasystachum* - *Antennaria nitida*). Occurs along woodland edge, and previously wooded areas.
- Pussytoes (*Antennaria nitida*). Occurs in the transition between the grassland and forest, and along drainage channels. Species occasionally occurring in this community is Grape Fern (*Botrychium dunsenii*).
- Creeping Juniper (*Juniperus horizontalis*). This community is actually a Northern Wheatgrass - June Grass - Pasture Sagewort community, with lush depressions dominated by Creeping Juniper. Uncommon species are Hooker's Oatgrass (*Helictotrichon hookeri*).

Nine other minor grassland communities are also identified by Wallis & Wershler (1981).

The species composition of the grasslands on the Kootenay Plains Ecological Reserve is somewhat different than the grasslands found in the Montane sub-region in the Porcupine Hills⁴. The main difference is the absence of rough fescue (*Festuca scabrella*) at Kootenay Plains, and its dominance in the Porcupine Hills⁵. Rough fescue is quite prevalent east of the Kootenay Plains in the native grasslands along the Clearwater River. Wallis and Wershler (1981) speculated that the absence of rough fescue at Kootenay Plains may be the result of the severe grazing pressure by wildlife (bison, elk, sheep) in the 1800's, as well as horses in the 1900's, and possibly the xeric condition on the Plains.

⁴Management Concept For A Kootenay Plains Ecological Reserve by Uwe Wittkugel - 1983.

⁵Management Concept For A Kootenay Plains Ecological Reserve by Uwe Wittkugel - 1983.

Forested Lands

The study by Wittkugel (1983) concentrated more on the forested areas of the Kootenay Plains Ecological Reserve. From Wittkugel's study, six major forest communities have been identified. They are:

- White Spruce - Willow (*Picea glauca* - *Salix*). This community occurs on fans and floodplains of the North Saskatchewan River, with the tree canopy open and trees somewhat stunted.
- White Spruce - June Grass (*Picea glauca* - *Koeleria macrantha*). This community is found along fans and floodplains of the North Saskatchewan River, but on xeric terraces. This would account for the lack of willow, but the dominance of plant species adopted for drier conditions, such as June Grass, Bearberry, and Juniper.
- Limber Pine - June Grass (*Pinus flexilis* - *Koeleria macrantha*). This community is found on ridges with southern exposures and quite windy. Whereas on the leeward side of these slopes, dense lodgepole pine and white spruce dominate.
- Douglas Fir - June Grass (*Pseudotsuga menziesii* - *Koeleria macrantha*). Douglas Fir stands in the Kootenay Plains Ecological Reserve are quite rare. The Kootenay Plains and the Athabasca Valley in Jasper National Park are considered one of the few places north of the Bow River where Douglas Fir occurs. The Douglas Fir were found as interspersed individuals or clustered with limber pine stands. Only one stand of pure Douglas Fir was found. This stand was located in an area surrounded by dense lodgepole pine and white spruce. The oldest Douglas Fir found during the study was 374 years old.

- Lodgepole Pine - Buffaloberry (*Pinus contorta* - *Shepherdia canadense*). This community is fairly extensive and covers a large portion of the Ecological Reserve. This community originated from fire.
- Trembling Aspen - Strawberry (*Populus tremuloides* - *Fragaria virginiana*). This community is limited due to the lack of water availability. These sites are found along stream channels or where ground water is available.

Special Vegetation and Plant Communities

Within the Reserve there are a number of special habitats/features and rare plant species.

Six rare plants for Alberta are found within the Ecological Reserve, including:

- Glandular Labrador Tea (*Ledum glandulosum*)
- Alaska Willow (*Salix alaxensis*)
- One-flowered Ironplant (*Haploppus uniflorus*)
- Mountain Mare's-tail (*Hippuris montana*)
- Leafy Braya (*Braya humilis*)
- Whitlow-grass (*Draba fladnizensis*)

Significant plant communities and habitats as identified by Wittkugel (1983) within the Ecological Reserve are:

- Willow - Birch Fen. Found on large sediment flats in meander bows.

- Channel Edge. Found along temporary side channels along the North Saskatchewan River.
- Meander Pools. Found along the North Saskatchewan floodplain, often dry up during the summer.
- Calcareous Cliff Communities. Very rare community within the Ecological Reserve. Located in the southwestern portion of the reserve.
- Spring Fed Wetland. Found near the calcareous cliff.
- Peripheral Pond Vegetation. A small pond within the Ecological Reserve with interesting vegetation found along its edges.

Another special vegetation feature within the Reserve is the Tree of Renown. This tree is a limber pine tree near Whirlpool Point that is estimated to be 1,000 years old.

.7 Fauna

Mammals

The Reserve is utilized by most species of large mammals common to sub-alpine habitat in Alberta including moose, elk, bighorn sheep, black and grizzly bears, wolf, coyote, and cougar. Mountain goats and caribou occur within a few miles but do not use the Reserve. Individuals from all of these species are more likely to move in and out of the Reserve during the year because of their mobility and the long narrow shape of the Reserve. Recreational and subsistence hunting and trapping occur on the surrounding lands. These activities will continue to influence the large mammals present on the Reserve.

Elk are the primary ungulate species using the Reserve because they prefer grasses for feed. The Reserve is important elk habitat during the winter due to the high nutrition levels of grasses in the Reserve and the lack of snow cover most winters.

Bighorn sheep use of the Reserve is much more limited than elk's due to their dependency on steep rocky terrain for escape from harassment by predators and humans. Whirlpool Point is a popular area for sheep during the winter and spring where they lick road salt off the highway and feed on the grasslands to the east of the Point. They also use a mineral lick and grassy sites on the ridge east of the North Saskatchewan River at Two O'clock Creek. Sheep at Whirlpool Point are vulnerable to poaching and vehicle collisions.

Grizzly bears range throughout the Reserve since it is in prime habitat for them. The need to maintain large ecosystems for bears and their propensity to aggressively defend their young and prey gives them a high profile. The Reserve's location between two Wilderness Areas and Banff Park, as well as its location along a large river, ensures that bears will be frequent visitors, even if they are only passing through. The bears prefer the portions of the Reserve where *Hedysarum* and *Shepherdia* plants grow. They are most visible in the spring green-up period when they feed on grasses and forbs on the south west facing sites.

The small mammal populations in the Reserve have not been studied but they are thought to be representative of the Montane ecosystem. Riparian habitat is well represented in the Reserve, so there will be a wide range of small mammal species. Beaver, mink, marten, fisher, snowshoe hare, lynx, wolverine, short-tailed weasels, red fox, red squirrel, bushy-tailed wood rat, chipmunk, golden-mantled ground squirrel, bats, flying squirrel, shrews, voles and mice are expected to be present. Surveys are required to determine species densities and if species such as muskrat, woodchuck or jackrabbits are present.

Birds

The Reserve's varied habitats are suitable for a large number of bird species. A 1981 study by Wallis & Wershler identified 60 species seen in the Reserve. The Reserve has good habitat for some of the less common species such as mountain bluebirds and rough-winged swallows. Harlequin ducks may be present on the streams.

A Breeding Bird Survey has been conducted along Highway #11 by the Canadian Wildlife Survey and covers the area of the Kootenay Plains Ecological Reserve.

Mountain bluebirds are common in the Reserve because they utilize grass lands for insect foraging areas. These birds are very attractive and easy to view in the Reserve. Bluebirds have suffered a widespread decline over their entire range, so it is appropriate to give them high priority at this Reserve.

Barn, tree and rough-winged swallows have been reported in this Reserve. Bank swallows may also be present. The tree swallows occur next to the grasslands but the others are prevalent along the river.

Amphibians

Amphibian surveys have not been conducted in the Reserve. There have been sightings of a spotted frog and a western toad. It is possible that long-toed salamanders occur in the few small ponds.

Insects

There are no studies of insects on the Reserve other than a tick survey.

Extirpated Species

Alexander Henry reported that there were many buffalo on the Kootenay Plains when he was there on February 11, 1811. The high density of buffalo and the dry conditions may account for the lack of rough fescue in the Reserve. Rough Fescue does not tolerate heavy grazing well. The buffalo were likely gone by the mid to late 1800's.

It is most probable that river otter occurred here in the 1800's as well. They were trapped out of most of their East Slopes range due to extensive beaver trapping. Otter are easily caught in beaver traps and their lower densities could not recover from the heavy trapping pressure.

Peregrine falcons were likely present in the Reserve at one time. The surrounding mountains and abundant small birds on the plains would meet their habitat needs. There have not been any recorded sightings in the area.

There are some prairie species which could have occurred here. Sharp-tailed grouse, and long tailed weasels may have been present. The lack of ground squirrels suggests that many of the potential prairie species (swift fox, badgers, burrowing owls) were never present.

The Reserve's relatively mild winter climate may attract several species which have not been recorded yet. This is particularly true for birds. Ptarmigan, and snow buntings are most likely present during extreme snow conditions.

Fish

The most common fish species in the waterbodies found in the Reserve are mountain whitefish, bull trout, rainbow trout, longnose suckers, mountain suckers and spoonhead sculpin. Species such as cutthroat trout, brook trout, longnose dace, lake chub and white sucker are less common in the area. Lake

sturgeon have occasionally been reported this far up in the North Saskatchewan River.

.8 Visual Landscapes

From a scenic standpoint, Kootenay Plains offer a diverse panorama of grasslands, forests, and rugged mountain slopes. These features provide the visitor with a unique view of the Rocky Mountains throughout the year.

The aesthetic value is further increased by the easy access to the spectacular Siffleur Falls.

.9 Paleontology

No paleontological resources have been identified within the Ecological Reserve. No inventory or assessment of the area for fossils has been conducted.

.10 Archaeology

At least twenty-three (23) prehistoric sites are known to exist within the Kootenay Plains Ecological Reserve.

To date, archaeological studies in the Reserve area have been sporadic and project specific. A complete historical resources inventory for the Reserve does not exist. The only extensive survey was conducted in 1972, prior to construction of the Big Horn Dam and Lake Abraham. A subsequent study in 1987 focused on selected landforms believed to have potential for ancient sites greater than 8,000 years of age. As a result, the existing inventory of prehistoric sites (including several in a submerged context), represent only a percentage of the number believed to exist within the Reserve.

The North Saskatchewan River valley was an important historic, and possibly prehistoric, trade and travel corridor linking the Alberta plains and the interior of British Columbia. The fur trading posts at Rocky Mountain House were established to take

advantage of the trade potential with the Kutenai Indians who resided in the Rocky Mountain Trench. This group is known to have made three journeys each year to Alberta to hunt bison and trade. Their lodges were noted in the Kootenay Plains area by Alexander Henry in 1812, and it is believed that this movement pattern has considerable antiquity.

Besides the transitory groups, Indigenous groups exploited the Kootenay Plains area on a regular basis. Early explorers frequently noted the presence of significant numbers of game animals in this unique ecological setting, in contrast to the surrounding forested terrain. Most recorded archaeological sites, such as small hunting and fishing camps, and stone tool workshops probably reflect exploitation of local resources.

Archaeological sites in the area represent the remains of the activities of the prehistoric hunting and gathering cultures that frequented the area for the past 12,000 years or more. The Reserve area encompasses a portion of the "Ice Free Corridor" which is believed to have existed along the Eastern Slopes during the terminal stages of the last ice age, allowing movement of the first Albertans from the Bering Straits/Yukon area to the southern Plains. Consequently, it may contain some of the earliest evidence of human activity on the continent, south of the Alaska/Yukon area.

The Ecological Reserve encompasses the terraces of the North Saskatchewan River (some of which are now flooded), as well as benches along some of the mountain flanks, and alluvial fans built up by drainage systems entering the main valley. In prehistoric times it is probable that grasslands were more extensive than they are today, and many of these well drained landforms would have been suitable for prehistoric occupation. Sheltered locales in proximity to fresh water would have been preferred settings for campsites. High benches with a commanding view of the valley would have been well suited for

game observation spots, and may contain evidence of prehistoric activities. Alluvial fans hold special potential to contain deeply buried, well preserved archaeological sites because of their sorted gravel character.

.11 Historic Resources

The area included in the Kootenay Plains Ecological Reserve has been used as a European transportation route since the eighteenth century. The first outpost in the region was established east of the planning area at Rocky Mountain House in 1799. The Reserve area subsequently became an important hunting and trapping hinterland in support of these commercial enterprises, and sites relating to these activities may be present in the area. In 1993 a hand carved freighter canoe paddle was discovered within the Ecological Reserve that could be dated back to the time of David Thompson Expedition (early 1800's).

Dissuaded by the hostility of the Peigan, the fur traders abandoned the Howse Pass transmountain route in the first decades of the 19th century in favour of the Athabaska Pass. Non-native occupation on the Kootenay Plains ceased for nearly a century. During the winter of 1902-03 Tom Wilson, guide and outfitter working out of Banff, established his Powderhorn Ranch near the confluence of Whiterabbit Creek and the North Saskatchewan River. He purchased or rented his first cabin from Stoney, Silas Abraham. The Whiterabbit Creek has undercut its banks threatening to topple this cabin into the creek. Wilson built his own cabins closer to the North Saskatchewan in 1903. It was here that he wintered his horse herd and that of other outfitters. Wilson remained on the plains for eight years. The site is now under water, but his cabin and outbuildings were moved by the Province to Two O'Clock Creek around 1970. The cabin was burned by vandals in the spring of 1994.

Beginning in 1905, Wilson had a neighbour. Elliot Barnes established his Kadoona Tinda Ranch beside Two O'Clock Creek

where he attempted to raise Clydesdale horses. Three years later, Barnes left the plains. His cabin deteriorated over the years, and burned in 1960, however the corral was left standing.

The construction of the David Thompson Highway in the 1950's provided primary access to Banff and Jasper National Parks through the Reserve area. In 1974 the Bighorn Dam was constructed, creating Lake Abraham. Both projects caused disruption to historical resources, however, the area is considered to have potential to contain additional sites relating to exploration, fur trade post supply or later commercial/resource related activities.

Perhaps the most significant historical use of the Reserve and surrounding area is that by local Native groups for religious and ceremonial purposes, as well as for other traditional activities such as hunting and trapping. The remains of significant numbers of sun dance lodges in select locations within the Reserve and adjacent lands, serve as testimony to the on-going importance of this area for Native cultural activities.

.12 Special Features Summary

The importance of the Reserve can be attributed to a unique combination of cultural and natural factors. Climatic conditions have contributed to the development of a Montane landscape that supports a number of animal and plant species that are distinctive of this land type. A summary of special features found on the site include the following:

- Siffleur Falls & Gorge
- rare plants
- Tree of Renown
- calcareous cliff plant communities

- spring fed wetland
- moraine field
- archaeological sites
- religious and ceremonial sites
- winter wildlife range
- wildlife mineral lick and movement corridors
- nesting sites for rough-winged swallows

.6 Land Uses

.1 Dispositions & Improvements

The *Wilderness Area, Ecological Reserve and Natural Areas Act* generally prohibits land dispositions and improvements within Ecological Reserves. However, a number of improvements to accommodate needs relating to environmental monitoring and public recreation activities were in existence when the Ecological Reserve was established. These facilities will be permitted to remain in the Reserve.

Following is a list of existing improvements:

Alberta Environmental Protection	Siffleur Falls Staging Area
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Alberta Environmental Protection	Water Monitoring Stations on the Siffleur & North Saskatchewan River
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Alberta Transportation & Utilities	Two Bridges across the Siffleur & North Saskatchewan River
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.2 Recreation

The area surrounding Kootenay Plains is a popular location for recreation and an important tourism attraction. The adjacent National Parks draw thousands of tourists to the region. Nearby resorts along Highway #11 and Highway #93 provide accommodation and tourism services. Commercial horse outfitters lead parties on trail rides up mountain valleys near the Ecological Reserve. Tourism guides lead boating and canoe groups along the North Saskatchewan River through the Reserve.

Two government campgrounds are located beside Highway #11 on land adjacent to the Ecological Reserve. The campgrounds serve as an operation base for visitors who hike, rock and ice climb, hunt, fish, canoe, draw/paint and view wildlife.

The Siffleur Falls hiking trails is the primary recreation attraction within the Ecological Reserve. An estimated 5,000 - 10,000 people hike to Siffleur Falls each year. Mountain biking is popular on trails and old roads within the Reserve. Equestrian riders cross the Reserve to gain access to trails in the Whiterabbit Creek and North Saskatchewan River valleys. Fishermen walk across the Reserve to fish in the North Saskatchewan River.

.3 Surrounding Land Uses

The Crown lands adjacent to the Kootenay Plains Ecological Reserve are zoned under the David Thompson Corridor Integrated Resource Plan and the Nordegg-Red Deer River Sub-Regional Integrated Resource Plan⁷ & ⁸. The majority of surrounding lands are zoned prime protection in order to preserve environmentally sensitive terrain and ecological and aesthetic resources. The Stoney lands beside the Reserve are zoned Special Use to accommodate Native religious and ceremonial activities. The land areas along the highway corridor north and

⁷Nordegg-Red Deer River - Sub-Regional Integrated Resource Plan, 1986

⁸David Thompson Corridor - Integrated Resource Plan, 1992

west of the Reserve are zoned general recreation to provide for a wide variety of outdoor recreational opportunities.

North of the Ecological Reserve is the Water Development Lease held by TransAlta Utilities for the operation of Lake Abraham as a water storage reservoir.

South of the Ecological Reserve is the Siffleur Wilderness Area designated as a protected area under the *Wilderness Areas, Ecological Reserves and Natural Areas Act*.

.4 Research

Research activities within the Reserve have been minimal to date. Archaeological investigations were undertaken in the area prior to the flooding of the Big Horn Reservoir (Lake Abraham). A number of ecological and natural history inventories were undertaken in the 1970's and 1980's (See Glossary). No formal on-going research is currently in progress.

River monitoring stations operated by Environment Canada in cooperation with Alberta Environmental Protection are located on both the North Saskatchewan River (Whirlpool Point) and the Siffleur River.

A weather monitoring station operated by Alberta Environmental Protection, Land & Forest Services was placed near Two O'Clock Creek Recreation Area in 1993.

.5 Environmental Education

Kootenay Plains Ecological Reserve is used as an outdoor classroom by schools in Central Alberta. School groups often camp at the Cavalcade Group Area adjacent to the Reserve and utilize portions of the Reserve for educational tours.

The University of Alberta, Faculty of Extension, as well as other art groups, utilize Kootenay Plains for painting workshops on an annual basis.

Tourist operators that guide visitors through the Reserve (equestrian riders, boaters, canoeists) provide information to their clients on the natural and cultural history of the Kootenay Plains.

Native elders from the Big Horn Reserve take groups on guided tours of the ceremonial sites located at Kootenay Plains. Other Indian bands also use the area for educational youth camps.

3.0 MANAGEMENT ISSUES

Management issues were brought forward by both the management planning team and the general public as part of the management planning process. These items were discussed at length at both the planning team meetings and at public meetings. The following section summarizes the identified issues. Some of the issues were resolved through boundary changes made in 1995. Other issues will be addressed in the management guidelines in Section 6.0.

.1 Boundaries

.1 Missed Significant Features

When the Ecological Reserve was established, there were some significant features missed. ie: Siffleur Falls, Whirlpool Point, the Tree of Renown, wildlife mineral lick and two pot hole lakes.

.2 East Boundary

The east boundary is extremely difficult to follow on the ground and leads to illegal hunting occurring within the Ecological Reserve.

.3 N.W. Boundary

The area between Lake Abraham and Highway #11 from Preachers Point to the north west boundary of the Ecological Reserve has a number of conflicts. The activities that occur that

are inappropriate in an Ecological Reserve include: camping, boat launching, equestrian staging, gravel pits and overlap with the Water Development Lease for the Bighorn Reservoir.

.4 Access Road to Stoney Indian Land

- .1 An access road to the Stoney Indian Band land is on a portion of the Ecological Reserve.

.2 Water Development Lease

The Ecological Reserve overlapped the Water Development Lease for the Bighorn Reservoir in several areas. The Water Development Lease was in existence before the Ecological Reserve was designated in 1987.

.3 Boat Access

There is no formalized access to the North Saskatchewan River for any type of water craft (canoes, kayaks, power boats, rafts) within the Ecological Reserve. There are access points which are commonly used. The opportunity to remove boats from the North Saskatchewan River above Lake Abraham is a public safety requirement.

.4 Random Camping

Random camping is an activity which has occurred illegally in Kootenay Plains Ecological Reserve for a number of years. The majority of this has happened along Lake Abraham adjacent to Highway #11.

.5 Staging Areas

Only one site has been formally designated to provide access to Kootenay Plains Ecological Reserve (Siffleur Falls Staging Area). A number of informal sites are being used by equestrian users, boaters and hikers to gain access across the Reserve.

.6 Recreation Trails

There are a variety of activities that currently occur in the Kootenay Plains Ecological Reserve which utilize trails including hiking, horseback riding and mountain biking. Discussions with the public indicate that the majority of these activities are acceptable and should be

allowed to continue, but subject to more control. Some people were opposed to horses and bikes in the Reserve.

.7 Fishing

Fishing is a recreational past time which has been allowed in the North Saskatchewan River but restricted in the Siffleur River and all creeks within the Ecological Reserve. People wanted boundaries of the Reserve to be adjusted to allow fishing in Whiterabbit Creek and the Siffleur River.

.8 Buffer Zone For Surrounding Lands

A buffer zone around the Ecological Reserve has been suggested to provide additional protection of the resources within the Ecological Reserve.

.9 Ceremonial Activities

Traditionally, members of the Stoney Indian Band have used the Kootenay Plains area for their ceremonial activities. The majority of their use has been on land that is leased to the Indian band adjacent to the Ecological Reserve. Concern was expressed about the impact of ceremonial activities on the Ecological Reserve. Native people want to collect plants within the Reserve for ceremonial activities.

.10 Public Information

There is a lack of information about the Ecological Reserve available for the general public. Methods of getting information to the public is required.

.11 Archaeological Sites

Archaeological sites have been identified within the Ecological Reserve. Additional sites likely exist but have not been identified. Protective measures may be necessary.

.12 Historic Buildings

A number of old ranch sites may exist within the Ecological Reserve and require protection.

.13 Vegetation Management

With the variety of uses occurring at Kootenay Plains, there is a concern that the native plant community is threatened by the introduction of exotic plants and weeds. Other concerns were expressed about aspen encroachment into grasslands, fire control and the use of prescribed burning.

.14 Wildlife Management

Wildlife are found in and around Kootenay Plains on a year round basis. Careful management is necessary to protect the wildlife found in the Reserve.

.15 Boundary Marking

Existing boundaries are hard to follow and the public doesn't know where the Ecological Reserve starts and stops.

.16 Rehabilitation of Disturbed Sites

Prior to the area becoming an Ecological Reserve, there were a variety of activities which disturbed the site, including an old air strip, gravel pits, Edwards road, campsites and garbage. The need for rehabilitation of these sites was identified as a concern.

.17 Other Access

Currently, access is required by government agencies for maintenance of bridges, river gauges and emergency rescue. The amount of vehicular traffic was considered unsuitable in an Ecological Reserve.

.18 Offers of Assistance

Through the public input process, there were a number of groups and individuals who indicated they would be interested in assisting with Ecological Reserve management.

PART II:

MANAGEMENT DIRECTION:

**KOOTENAY PLAINS ECOLOGICAL RESERVE
MANAGEMENT PLAN**

1.0 **VALUES, GOALS AND OBJECTIVES**

The following value statements, goals and objectives will guide the future management of the Kootenay Plains Ecological Reserve.

.1 **Values**

Value Statement:

The Kootenay Plains Ecological Reserve is important as the only provincially protected area representative of the Montane Sub-Region of the Rocky Mountain Natural Region in Central Alberta.

Core Values

The primary core values of the Kootenay Plains Ecological Reserve are:

- Vegetation mosaic of open forests and grasslands typical of the Montane
- Desert-like climatic conditions with above average temperatures, low annual precipitation and frequent Chinook winds.
- North Saskatchewan River valley with fluvial and glaciofluvial terraces and fans as well as areas of glaciolacustrine, aeolian and morainal deposits.
- Wildlife habitat important for wintering of ungulates and for wildlife movement to adjacent lands.
- Native ceremonial and religious activities that have historically occurred at Kootenay Plains.

Support Values

The following special features support the core values that were important to the establishment of the Reserve.

- Rare plant species
 - Glandular Labrador Tea (*Ledum glandulosum*)

- Alaska Willow (*Salix alaxensis*)
- One-flowered Ironplant (*Haplopus uniflorus*)
- Mountain Mare's-tail (*Hippuris montana*)
- Leafy Braya (*Braya humilis*)
- Whitlow-grass (*Draba fladnizensis*)
- Significant plant communities, habitats & features:
 - Willow - Birch fen.
 - Channel edge.
 - Meander pools.
 - Calcareous cliff vegetation.
 - Spring fed wetland.
 - Peripheral pond vegetation.
 - Tree of Renown
- Siffleur Falls & Gorge
- Archaeological and historical sites
- Wildlife habitat

.2 Goals

Kootenay Plains will be managed as a unique area important for protection and maintenance of the biodiversity of the Montane Sub-

Region of the Rocky Mountain Natural Region. Human activities will focus on education and be governed by the need to protect the natural and historical resources of the Reserve.

.3 Objectives

.1 Protection

With Kootenay Plains established to protect ecosystems and landscapes representative of the Montane, the following objectives direct the management guidelines and implementation strategies:

- Maintain ecological and biological diversity within the Reserve.
- Ensure the integrity and viability of grasslands, forests and wetlands and other ecosystems.
- Permit unimpeded functioning of natural ecological processes except for human safety and maintenance of endangered features.
- Manage natural features within the Reserve from an ecosystem management perspective.
- Protect habitats of rare or sensitive species and monitor to ensure species are not being lost.
- Integrate Native ceremonial and religious activities within the management of the Reserve while protecting the ecological values.
- Protect significant ecological and cultural resources from impacts that could result in their loss while permitting for the responsible use of such sites for scientific, educational and interpretive purposes.

- Monitor human impacts and take remedial action if natural processes or cultural resources are threatened or impaired.
- Monitor the integrity and vigour of ecosystems and special features.

.2 Heritage Appreciation

With its rich heritage and diversity, Kootenay Plains can provide a unique experience for many different user groups. The following are the heritage appreciation objectives of the Reserve:

- Provide information on the role of ecological reserves as part of Alberta's protected area system.
- Provide visitors with information on the natural and cultural resources of the Reserve.
- Provide information to visitors on how to minimize their impact on the Reserve's resources.
- Provide opportunities for environmental education to organized groups and schools.
- Work cooperatively with aboriginal people on the presentation of native history and activities in the Kootenay Plains area.

.3 Outdoor Recreation

The following are outdoor recreation objectives:

- Permit pedestrian access to all areas of the Reserve subject to environmental and safety considerations.
- Permit bicycle access across the Reserve on designated trails only.

- Allow equestrian users to cross the Reserve on designated trails in order to access existing trails on adjacent lands.
- Provide a staging area for the Siffleur Falls trail and at Whirlpool Point.
- Allow hand launching of water craft such as canoes and rafts at Whirlpool Point within the Reserve.

.4 Tourism

With Kootenay Plains located along a major tourist corridor, the potential for use by the public is high and is especially along the trail to Siffleur Falls and the North Saskatchewan River. Tourism activities will be accommodated so long as the ecological and historical resources of the site are not compromised.

The following are tourism objectives for the Reserve:

- Work cooperatively with commercial tourism operators of the region to promote activities that do not negatively impact the valued ecological and historical features of the Reserve.
- Assist commercial tourism operators in presenting the unique story of the Kootenay Plains Ecological Reserve.

2.0 MANAGEMENT GUIDELINES

The management guidelines of the Kootenay Plains Ecological Reserve Management Plan outline how the site will be managed on an on-going basis to ensure the goals and objectives for the area will be achieved.

For convenience, the guidelines are divided into sections by resource type (eg. vegetation). On-going management must be holistic and therefore management

concerns will be addressed from an ecosystem management perspective. In general, the main philosophy behind any management in the Ecological Reserve is "let nature take its course".

.1 Vegetation Management

Rare and Uncommon Plants

The map of rare and uncommon plants identified by Wittkugel (1983) will be used as the basis in ensuring that these significant areas are not disturbed. Additional sites of significant vegetation may be identified through further studies and will be managed to ensure protection.

All significant vegetation sites will be monitored to ensure protection of the sites.

Fire Management

As a general guideline, all fires will be suppressed within the Ecological Reserve. Fire suppression activities will take into consideration the ecological and historical values of the Reserve. No heavy equipment or fire retardant chemicals will be permitted.

Prescribed Burning

Fire has been an integral component of the Eastern Slopes, with all the plant communities evolving to adapt to the frequent fires. With the control of wildfires, the plant communities have aged, resulting in build-up of fuels for fire (ie. more deadfall, increased shrub density and tree regeneration in the understory). In order to ensure the survival of the pure stand of Douglas Fir within the Reserve, prescribed burning of the understory will be required. Douglas Fir is adapted to low intensity ground fires, but with this build-up of fuels, a wildfire will most likely decimate the stand.

Some of the open grassland is slowly being encroached by trees. These stands need to be monitored (every five years) to determine the rate of invasion, and whether any control measures (prescribed fire) are needed to ensure the maintenance of the grasslands.

Weed Control

With the limited precipitation on the Kootenay Plains, and very dry conditions, the native vegetation is very slow in recolonizing disturbed sites. As well, throughout the Ecological Reserve, the amount of plant cover is low. Consequently, a fair amount of bare soil is exposed and weeds and plants not indigenous to the area can quickly invade into the Reserve if the conditions are right. Monitoring for any invading plant species and quickly eradicate them will be a management priority. All restricted weeds are to be destroyed, and all noxious weeds must be controlled, as outlined in the Weed Control Act.

Mechanical or biological control methods will be emphasized. Herbicides will only be utilized if other control methods have been unsuccessful.

Insect & Disease Control

Vegetation damage from insects and diseases can be anticipated. Control measures will not be undertaken in the Reserve except where damage may seriously threaten surrounding lands, or rare plants within the Reserve.

Reclamation

Disturbed sites within the Ecological Reserve will be individually assessed to determine reclamation requirements. Many of the sites have begun to re-vegetate naturally and further steps may not be necessary.

Only plant seed that is native to the Montane Natural Region will be used on any reclaimed site within the Ecological Reserve. The Land & Forest Services has adopted a policy of using native seed in reclamation in the area around the Ecological Reserve, so the potential of non-native plants becoming abundant in the area is limited.

Plant Collection by Natives

Collection of plants by Native people for ceremonial activities will be permitted to continue at current levels. Environmental Protection staff

will work closely with Native people to ensure protection of the plant species.

Inventory and Monitoring

Existing vegetation inventories are considered adequate for on-going management. More detailed inventories are required for rare and special vegetation features/species.

Monitoring activities for changes to populations over time and human impacts will focus on rare and special vegetative features and species. Monitoring of grassland encroachment by aspen will be a priority.

.2 Faunal Management

Inventory and Monitoring

There is a serious need to conduct inventories of most faunal groups on the Reserve during all seasons of the year. Without detailed information on the species present, their distribution and density, there is a risk that human activities will be detrimental to them.

Faunal inventory priorities will include the following:

- spring amphibian
- spring bird
- summer small mammal
- selected summer insect species
- winter bird
- winter large mammal
- winter small mammal track counts
- amphibians

The small mammal inventories may require snap trapping (killing of mice and voles) to obtain adequate data. The other surveys have very little risk to the subjects. Most of the surveys could be done by volunteer's. The protocol of each survey should be reviewed and approved by the Natural Resources Service or the Canadian Wildlife Services (for migratory species). Techniques, such as live capture of birds or mammals with traps or mist nets, require permits. Monitoring

of selected wildlife populations will be conducted routinely every 3 - 5 years to identify changes.

Hunting/Trapping

No hunting or trapping allowed in the Reserve. It is not anticipated that any species in the Reserve would require control measures to limit its density or distribution. This would only be considered if some species did reach a density where it was threatening the survival of some other species of plant or animal in the reserve.

A Wildlife Corridor Sanctuary has been in place along Highway #11 from Allstones Creek to Banff Park since 1990. The sanctuary makes it illegal for anyone to hunt within 365 metres of the centre of this section of Hwy #11. It is intended to prevent killing and harassment of animals along the road in order to reduce overharvesting and poaching as well as to encourage animals to occupy this strip of good habitat. The continued presence of wildlife in the Corridor will enhance non-consumptive viewing opportunities. The sanctuary is credited for the increasing numbers of elk wintering on the Reserve.

Consideration was given to establishing a Wildlife Sanctuary on TransAlta's leased lands around Lake Abraham. A sanctuary was not favourable to the Stoney Tribal Council and thus these lands will continue to be open to legal hunting.

Trapping of fur bearers is allowed on lands around the Reserve. It has had little or no impact on the Reserve for the last 15 years due to low fur prices, poor access east of the river and minimal efforts by the licensed trappers. If the nearest lines are vacated they should be left vacant in order to provide an even better buffer zone around the Reserve and Banff Park.

Bears/Cougars

There is continual risk of bear encounters in the Reserve due to the terrain, the proximity of large tracts of wilderness and large numbers of hikers during the summer. Both grizzly and black bear are regularly

encountered at the campsites in the valley. An on-going education program will be implemented to advise Reserve users how to reduce the risks. Similarly, enforcement will improve compliance with regulations designed to reduce these risks. Food and garbage handling regulations will be required along with adequate facilities to minimize bear problems. Should the risk of a bear encounter become high, or a mauling occur, the trail or area will be closed to public use and efforts will be made to discourage the bears' use of the specific site, (e.g. carcass attracting bear will be relocated, persistently aggressive bear will be trapped or snared and relocated). If the bear is aggressive and there is imminent danger to humans it may be shot. Aggressive cougar situations would be handled similarly.

Wildlife Reintroductions

The reintroduction of native wildlife species will be encouraged if it will not lead to the demise of other native species. Otter are slowly returning to the tributaries of the North Saskatchewan River downstream of the Reserve. If they are not already present they can be expected to return in the next decade. If otter do not return naturally, then relocations should be considered.

Peregrine falcon reintroduction projects are currently underway in the prairie area of Alberta. If they are successful, the same hacking methods could be considered at the Kootenay Plains. The actual hack site may have to be outside the Reserve if there is no suitable cliff within.

Bison may be relatively easy to bring back into the Reserve. Banff National Park staff are currently reviewing the possibility of reintroducing them at Saskatchewan Crossing. If this is done, bison will likely move eastward into the Reserve within a few years. Bison reintroduction into the Reserve will only proceed if impacts on other wildlife, vegetation, recreation and neighbouring lands are found to be minimal.

Wildlife Viewing

The Reserve provides several wildlife viewing opportunities. Some are particularly attractive because they involve species normally found well away from the mountains. Others gain their attraction because the species involved are normally in rugged terrain that few visitors can access. Some of the species have very limited ranges and thus this Reserve is one of the very few places that anyone could see them.

Whirlpool Point is likely the best wildlife viewing site in the Reserve. Bighorn sheep, waterfowl, amphibians and swallows are readily seen within a few hundred yards of the highway. There is also a mineral lick frequently used by ungulates on the east side of the North Saskatchewan River.

The grasslands along Hwy. #11 west of Two O'Clock Creek, provide good viewing of birds such as flickers, kestrels, swallows, bluebirds and meadowlarks. Elk are common here during the winter.

The trail to Siffleur Falls offers a good opportunity to view birds as it passes through open woodlands and mature conifer forest types. By taking the longer trail to the north, up onto the ridge toward the mouth of White Rabbit Creek in the early spring and summer, you have a good chance of seeing ungulates at a mineral lick. On windy days the open meadows to the north-east of this ridge are well sheltered and utilized by deer and elk.

Information on the best locations to view wildlife as well as information on wildlife viewing ethics will be made available to visitors through signs and brochures.

.3 Aquatic Management

Fisheries

At first glance one gets the impression that this Reserve contains part of Lake Abraham and the North Saskatchewan River. In fact, both are excluded in order to recognize the lands included in TransAlta's water licence for the Lake and the Federal Government's jurisdiction over the

navigable waters of the North Saskatchewan River. In 1995, Whiterabbit Creek was also excluded from the Reserve to allow traditional fishing uses of it by both Treaty Indians and recreational fishermen. The Siffleur River, Loudon Creek and a few intermittent streams are included in the Reserve, so fishing is not allowed in those portions. The Siffleur River is included in the Ecological Reserve and excluded from fishing because of the higher priority given to viewing of the Siffleur Falls and the need to be able to regulate user access along the dangerous gorge of the river. Loudon Creek is too small to support a fishery. The fish in the Siffleur are primarily rainbow, bull, and brook trout. There is no need to monitor the populations since they move in and out of the Reserve freely and are subject to normal fishing regulations as soon as they enter the North Saskatchewan River. There is no potential to develop viewing opportunities for these fish.

Information signs explaining fishing regulations within the Ecological Reserve will be placed at access locations.

Wetlands

There are several wetland areas in the Reserve. The pond between Highway #11 and the North Saskatchewan River on the east side of Whirlpool Point, along with the two ponds west of the Siffleur River, attract a few species of waterfowl and shore birds as well as amphibians and aquatic insects. Their perimeters also provide habitat for wetland plants. The calcareous fens and springs with Tufa deposits along the east side of the river provide interesting land forms as well as wetlands for shorebirds, insects and plants. They will add interest to walks and interpretive programs.

Some rare species are associated with low lying areas, small ponds, calcareous springs. The wetland area will be monitored to ensure human activities are not detrimental in these areas.

.4 Geologic and Geomorphic Management

Changes to special features and landscapes that occur as a result of natural processes (eg. erosion) will be allowed to progress naturally. Human impacts will be monitored and assessed for remedial action.

.5 Atmospheric Monitoring

Weather conditions will be monitored on a year-round basis.

.6 Management of Historic Resources

Any activities in the Ecological Reserve that result in land surface disturbance may require an Historical Resources Impact Assessment before development proceeds and must be compatible with the *Wilderness Areas, Ecological Reserve and Natural Areas Act*.

Historical Resources sites that have been identified as being significant by Alberta Community Development will be avoided and left undisturbed.

Projects such as recreational/interpretive and maintenance developments will be referred to staff of the Historic Sites and Archives Service for review coordination to determine if an Historical Resources Impact Assessment is required prior to development proceeding.

Any unrecorded historic period resources (eg. structures, trails) discovered in the Ecological Reserve will be reported to staff of the Resource Management Section of the Historic Sites and Archives Service.

Should any bones/fossils be encountered during the course of construction activity in the planning area, staff of the Resource Management Section of the Historic Sites and Archives Service (Alberta Community Development) will be contacted immediately.

Assessment of historic buildings in the Reserve will be undertaken to define specific management actions.

A comprehensive archaeological inventory of the Reserve will be undertaken in cooperation with Alberta Community Development.

.7 Aesthetics

Any facilities or activities that will be visible from within the Reserve should be sited and designed such that visual impacts on the Reserve are minimized.

.8 Monitoring Programs

Monitoring programs have been identified within each resource section of the Management Plan.

The impact of visitors and on-going management actions will also be monitored to ensure protection of the ecosystems and landscapes of the Reserve.

.9 Management of Scientific Research and Collection

Research activities related to obtaining a greater understanding of Montane Ecosystems will be encouraged and accommodated. Research on the historic resources found in the Reserve will also be encouraged.

Research activities will be administered on the basis of existing policies and procedures as outlined in the brochure *Research and Collection Activities in Ecological Reserves*, Alberta Environmental Protection. Applications for research will be reviewed by Alberta Environmental Protection and other relevant government agencies. Research and Collection permits will be issued by Lands & Forest Services.

**.10 Heritage Appreciation Management
Themes**

The presentation of information about the natural and cultural resources of the Kootenay Plains Ecological Reserve is an important role of the Ecological Reserve. Information on the role of ecological reserves within the protected area system will also be presented.

Messages on public safety and methods of enjoying the Reserve without causing negative environmental impact will also be important.

A communications plan will be prepared to identify specific heritage appreciation themes and detailed messages.

Methods

Information and educational materials will be presented to the public primarily through the use of signs and written materials. Major information signs will be located at the Siffleur Falls Staging Areas, Whirlpool Point and the Cavalcade/Two O'Clock Creek campgrounds. Entrance signs will be placed at the boundaries along Highway #11. Boundary signs will be placed at locations where people are likely to enter the Ecological Reserve (eg. Whiterabbit Creek valley).

Interpretive Services

Consideration will be given to an interpretive centre or major interpretive display on lands adjacent to the Ecological Reserve. The construction and operation of an interpretive centre would require partnerships with groups and organizations outside the Provincial government.

Alberta Environmental Protection will approach the Stoney Indian Band to work cooperatively on presenting information on the Native ceremonial activities.

Alberta Environmental Protection will also work cooperatively with tourism operators in the area to assist with presentation of information on the Kootenay Plains Ecological Reserve to their clients and visitors.

.11 Outdoor Recreation Management

The presence of the Siffleur Falls and Whirlpool Point within the Reserve, plus the variety of attractions in the area make management of outdoor recreation an important part of the protection of the Kootenay Plains Ecological Reserve.

Recreation Activities

Outdoor recreation use of the Kootenay Plains will be low-intensity, non-consumptive activities such as walking, hiking, photography, painting, wildlife viewing and general nature appreciation. Random walking will be permitted throughout the Reserve. Areas where fragile resources are located (eg. rare plants) may be closed to the public. The Siffleur Falls trail will be maintained as a formal trail with directional and safety signs. Safety concerns along the Siffleur Gorge will be reviewed and addressed as deemed appropriate.

Horse riding is not normally allowed in ecological reserves. However, equestrian activity at Kootenay Plains has a long history that predates designation as an ecological reserve. Although horse use is not normally allowed in ecological reserves, equestrian riding will be permitted on designated routes to allow access to trails beyond the Reserve. The Preacher's Point Staging Area, outside the Reserve, will function as the only crossing area for riders wishing to access trails in the Whiterabbit Creek area and also along the Edward's Logging road toward Banff National Park (See Map).

Mountain bikes will only be allowed to cross through the Reserve on specified trails. Random use of bikes will be discouraged. Bikes will be permitted along the Siffleur Falls trail to its junction with the Edward's Logging road. For public safety reasons, bicycling will be discouraged on the existing trail along the Siffleur Gorge upstream of the Siffleur Bridge (See Map.)

Equestrian use and mountain biking within the Reserve will be monitored to ensure there are no significant negative impacts on the resources of the Reserve or serious conflicts with other recreational activities. Severe negative impacts may require removal or relocation of the horse or biking activity.

Staging Areas

The Siffleur Falls Staging area will be maintained to provide information, parking, washrooms and waste disposal. No picnicking

KOOTENAY PLAINS ECOLOGICAL RESERVE

MANAGEMENT PLAN

TRAILS

- Hiking Trail
- Equestrian / Mountain Bike
- - - Shared Trail
- ▨ Ecological Reserve

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
Natural Resources Service
Recreation and Protected Areas

JUNE 1996
West of the Fifth Meridian

Design File: kootbase Prepared by: LAC

facilities will be provided. Public safety messages regarding the Siffleur Falls area will be emphasized.

Parking and information services will be provided at Whirlpool Point. Hand launching of small boats, like canoes, kayaks and rafts will be permitted at Whirlpool Point from the Highway #11 right-of-way.

Preachers Point, adjacent to the Reserve, will be maintained as an equestrian staging area and boat access site to the North Saskatchewan River.

.12 Tourism Management

Tourism is a major industry within the David Thompson Corridor. Kootenay Plains Ecological Reserve is one attraction for visitors in the area.

Tourism related activities of a low intensity, non-consumptive nature, will be accommodated within the Ecological Reserve. Tourism activities must not have detrimental impacts on the ecological and historic values of the Reserve and not conflict with recreational activities.

Alberta Environmental Protection will work closely with the tourism industry representatives of the area to allow only activities consistent with the protected status of the Ecological Reserve.

3.0 SURROUNDING LANDS

The majority of surrounding lands are zoned prime protection and are believed to provide an adequate environmental buffer to protect the Ecological Reserve.

Some adjacent lands are zoned for general recreation. Through the Integrated Resource Planning process, the need for additional protection of lands now zoned for general recreation will be reviewed to ensure the long term integrity of the ecological values of the Reserve.

Alberta Environmental Protection will work with TransAlta Utilities and the Stoney Indians, as neighbours, to minimize the impact of their activities on the values of the Reserve.

.1 Proposed Boundary Adjustments

As part of the process for preparing the management plan, a number of boundary adjustments were made in 1995. No additional boundary changes are recommended at this time.

.2 Co-ordination

The management of the Kootenay Plains Ecological Reserve will be coordinated by Alberta Environmental Protection, Lands & Forest Services. Liaison will be maintained with Natural Resources Service, Alberta Community Development (Historic Sites), the Stoney Indian Band and TransAlta Utilities.

4.0 BASELINE STUDIES AND INFORMATION NEEDS

.1 Baseline Studies

Biophysical inventories have been conducted for the Ecological Reserve. Additional baseline information is required for the following areas or resources:

- land areas added to the Reserve in 1995.
- inventories of fauna, especially birds, amphibians, insects and small mammals.
- inventories of rare or uncommon plants or species or assemblages.
- archaeological and historical resources (comprehensive inventory).
- assessment of disturbed areas for reclamation.

5.0 **PROGRAM SUPPORT**

.1 Regulations and Enforcement

Specific regulations for Kootenay Plains are not necessary at this time. Enforcement activity can utilize the existing regulations of the *Wilderness Areas, Ecological Reserves and Natural Areas Act*.

Signs will be used to encourage users to adhere to the proposed restrictions, especially at boundary locations. Regulations may become necessary should activities start to adversely affect the site.

Boundary fencing will be utilized to control vehicle access to grasslands adjacent to Highway #11. Fencing design will accommodate wildlife needs.

The greatest emphasis in managing public use of the Reserve will be on education to help the public understand and appreciate the policies for Reserve management. However, there remains a responsibility to ensure adherence to the provisions of the *Wilderness Areas, Ecological Reserves and Natural Areas Act*.

Enforcement of existing legislation will be provided by various government agencies under their existing mandates.

.2 Vehicle Access

Vehicle access within the Reserve may be required for maintenance of trails, bridges, river guages, emergency rescues and research purposes and will be accommodated for these purposes. The amount of vehicle access will be kept to the absolute minimum necessary.

.3 Volunteers

As part of the management planning process a large number of groups and organizations offered assistance in the on-going management of the Ecological Reserve.

Volunteers will be encouraged to actively participate in the management, monitoring and research of the site. Volunteer participants will be actively recruited by Alberta Environmental Protection.

The following is a list of potential project areas where volunteers could be of particular assistance:

- garbage clean-up
- trail maintenance
- fencing
- fund raising
- weed control
- rehabilitation
- information presentation/interpretation
- biophysical inventories and monitoring
- staging area maintenance

If sufficient public interest exists, a formal cooperating association could be formed to assist with volunteer projects and on-going management of the Ecological Reserve.

.4 Budget

The annual operating costs for Kootenay Plains Ecological Reserve will be the primary responsibility of Lands and Forest Services. The operating budget will cover activities such as trail maintenance, staging area maintenance, boundary signs and fencing and resource monitoring. Natural Resources Service will provide budget assistance for projects

such as communications planning, information products and resource inventories.

6.0 IMPLEMENTATION

The following is a list of implementation tasks:

L & F - Land & Forest/NRS - Natural Resources Service

<u>Task</u>	<u>Responsibility</u>
Staging areas, trail & bridge maintenance.	L & F
Directional/safety signs on trails for walkers, bikers & horses	L & F
Fishing regulation signs at access locations	L & F/NRS
Boundary markings/maintenance	L & F/NRS
Review safety concerns along Siffleur Gorge	L & F
Communications plan for public information.	NRS
Annual meetings with TransAlta Utilities and Stoney Indian Bands.	L & F/NRS
Review of David Thompson Corridor Integrated Resource Plan zoning of adjacent lands	L & F/NRS
Meeting with area tourism operators	L & F/NRS Tourism

L & F - Land & Forest/NRS - Natural Resources Service

<u>Task</u>	<u>Responsibility</u>
Coordinate volunteer projects/programs	L & F
Inventories/Baseline studies	
- Land areas added to the Reserve in 1995	L & F/NRS
- Detailed inventory of rare and uncommon plants	L & F/NRS
- Inventory of disturbed sites for reclamation requirements	L & F
- Inventory of wildlife including: - amphibians, birds, insects, small mammals (summer) & large mammals (winter)	NRS
- Assessment of historic buildings	NRS/Culture
- Inventory of archaeological resources	NRS/Culture
Monitoring programs.	
- Rare & uncommon plant sites monitored for changes (2 years)	L & F/NRS
- Encroachment of aspen onto grass-lands (5 years)	L & F
- Insect & disease conditions (ongoing)	L & F
- Monitoring of selected wildlife species	NRS
- Monitor wetlands for human impact	NRS

- Weather conditions L & F
- Monitor visitor use levels and impacts (annual) L & F
- Monitor impact of specific management actions (ongoing) L & F/NRS

7.0 PLAN REVIEW AND AMENDMENT

The management plan will be formally reviewed five years after its approval. Review and amendment of the plan will provide opportunities for public input and comment.

8.0 "STATE-OF-THE-RESERVE" REPORT

Alberta Environmental Protection will prepare an annual "State-Of-The-Reserve" report. The report will outline resource conditions, estimates of public visitation and management activities.

GLOSSARY

- **Reports and Publications**

GLOSSARY
KOOTENAY PLAINS ECOLOGICAL RESERVE

REPORTS AND PUBLICATIONS

_____. **undated.** *Kootenay Plains Ecological Reserve Information Package.*

Contains a list of significant plant and wildlife in the Kootenay Plains Ecological Reserve.

Alberta Ecological Survey. 1977. *Kootenay Plains Ecological Reserve a Nomination.* Province of Alberta. Map.

Report identifies the climate, physiography and hydrology, vegetation, soils, wildlife and special features of Kootenay Plains. Management requirements are also considered.

Bighorn-Kootenay Plains Current Management Plan. 29 pp. Maps

Interim management guidelines addressing indiscriminant recreational activity and unauthorized grazing of livestock in and around Kootenay Plains.

C. Walsh & C. Werschler (Cottonwood Consultants Ltd.) 1981. *Kootenay Plains Flora and Grassland Vegetation Assessment.* Natural Areas Program. Alberta Energy and Natural Resources. Maps.

Description of major/minor grassland communities, lists of vertebrates and vascular plants, makes recommendations concerning the management of grassland/savannah type vegetation.

GLOSSARY

KOOTENAY PLAINS ECOLOGICAL RESERVE

REPORTS AND PUBLICATIONS

Mussell, David J. 1982. *Utilization of the Kootenay Plains of Western Alberta by Ungulates.* Alberta Energy and Natural Resources. 39 pp. Maps.

Information concerning conservation and land use. Documents habitat uses by pellet group distribution and ungulate presence.

Pettapiece, W. W. 1971. *Land Classification and Soils in the Rocky Mountains of Alberta Along the North Saskatchewan River Valley.* Alberta Institute of Pedology. Maps.

Contains a biophysical with an expanded section on soil formation and capability rating for forestry, wildlife and recreation along the North Saskatchewan River Valley including the area of Kootenay Plains.

Pettapiece, W. W. 1970. *Pedological Investigations in the Front Ranges of the Rocky Mountains Along the North Saskatchewan River Valley.* Unpublished Ph.D. thesis, Department of Soil Science, University of Alberta, Maps.

An investigation of soils and physiography of the North Saskatchewan River Valley including the area of Kootenay Plains.

Wittkugel, Uwe. 1983. *Management Concept for a Kootenay Plains Ecological Reserve.*

APPENDICES:

- **Dispositions and Other Land-Use Activities in Ecological Reserves as Governed by the Wilderness Areas, Ecological Reserves and Natural Areas Act.**
- **Theme Components - Montane Sub-Region**

APPENDIX #1

Dispositions and Other Land-Use Activities in Ecological Reserves as Governed by the Wilderness Areas, Ecological Reserves and Natural Areas Act

INTRODUCTION:

The following summary outlines details relating to dispositions and other land use activities as governed by the *Wilderness Areas, Ecological Reserves and Natural Areas Act*. This summary is intended only to provide general direction; it is not a legal interpretation. "Minister" refers to the Minister of Alberta Environmental Protection unless otherwise stated.

Under Section 5 of the Act, the Minister of Environmental Protection may approve programs to be carried out for:

- the management and preservation of the animals, plants or environment
- environmental research that does not involve physical disturbance
- public education and interpretation
- preservation and protection of the Reserve

All of the activities listed under the Section entitled "*Other Land Use Activities*" are generally not permitted [Section 8(1)] unless required to carry out the above programs [Section 9(a)] or unless required to extinguish forest fires, prevent damage to natural resources or property or in emergencies involving the health and safety of people [Section 9(b)].

When the term "existing" is used in the following discussion, it refers to dispositions and/or activities that were in existence **prior to** the Ecological Reserve being established.

DISPOSITIONS

1. Petroleum and Natural Gas (PNG) Dispositions. NOTE: This refers <u>only</u> to <u>subsurface</u> leases.	- New dispositions may be issued [Section 7(b)].- Existing dispositions may continue to expiry [Section 6(2)]
2. Dispositions under the Public Lands Act or Special Areas Act in connection with a PNG disposition made under the Mines and Minerals Act.	- Existing dispositions (eg. wellsites, access road, pipelines) may continue to expiry and be renewed with the Minister's consent [Section 6(3)(a)].- No new dispositions may be granted [Section 7(1)(b)].
3. Dispositions under the Public Lands Act other than in connection with a PNG disposition made under the Mines and Minerals Act (eg. grazing leases, recreation leases, etc.)	- Existing dispositions may either be terminated [Section 6(1)(a)] or allowed to continue to expiry and renewed only with the written consent of the Minister [Section 6(3)(b)].- no new dispositions may be granted [Section 7(1)(b)].
4. Dispositions under the Special Areas Act (eg. leases, permits, easements, etc.) other than in connection with PNG agreements.	- Existing dispositions may either be terminated [Section 6(1)(b)] or allowed to continue to expiry and renewed only with the written consent of the Minister [Section 6(3)(c)].- No new dispositions may be granted [Section 7(1)(b)].
5. Dispositions under the Mines and Minerals Act other than PNG dispositions (eg. coal leases, quarriable mineral leases, etc.).	- Dispositions must be terminated as soon as possible [Section 6(1)(e)].
-

DISPOSITIONS (cont.)

-
6.	Timber licences and timber permits under the Forest Act.	-	Existing dispositions may either be terminated [Section 6(1)(c)] or allowed to continue to expiry and renewed only with the written consent of the Minister [Section 6(3)(d)].
		-	No new dispositions may be granted [Section 7(1)(b)].
-
7.	Livestock grazing permits under the Forest Reserves Act.	-	Existing dispositions may be allowed to continue to expiry and renewed only with the written consent of the Minister [Section 6(3)(e)].
		-	No new dispositions may be granted [Section 7(1)(b)].
-
8.	Other dispositions or land interests under other legislation.	-	No dispositions can be granted by any minister or government agency [Section 7(2)].
-

OTHER LAND USE ACTIVITIES

1. Petroleum & Natural Gas Activities	-	Existing activities (eg. operation of wellsites, utilization of roads and pipelines) may be allowed to continue subject to the Minister's consent [Section 6(3)(a)].
	-	New activities (eg. geophysical operations, drilling of wells, etc.) are not permitted [Section 7(1)(b)].
2. Constructing, maintaining, repairing or operating of public works, roads railways, aircraft landing strips, helicopter bases and other structures or installations.	-	These activities are not permitted [Sections 7(3)(a) & 7(3)(b)] excepting certain situations as described in the Introduction above.
3. Hunting and Trapping	-	These activities are not permitted [Section 8(1)(b)] excepting certain situations as described in the Introduction above.
4. Fishing	-	This activity is not permitted [Section 8(1)(c)] excepting certain situations as described in the Introduction above.
5. Landing an Aircraft	-	This activity is not permitted [Section 8(1)(d)] excepting certain situations as described in the Introduction above.
6. Littering	-	This activity is not permitted
-
-

OTHER LAND USE ACTIVITIES (cont.)

-
7.	Collecting, destroying or removing any plant, animal, fossil or object of cultural or scientific interest.	-	This activity is not permitted [Section 8(1)(f)] excepting certain situations as described in the Introduction above.
-
8.	Introducing substances or materials harmful to plants or animals.	-	This activity is not permitted [Section 8(1)(h)] excepting certain situations as described in the Introduction above.
-
9.	Operating Motorized Vehicles	-	This activity is not permitted [Section 8(1)(i)] excepting certain situations as described in the Introduction above.
		-	Where permitted, motor vehicles are required to travel on routes designated by regulation for that purpose.
-
10.	Lighting Fires		This activity is not permitted [Section 8(1)(j)] excepting certain situations as described in the Introduction above.
-
11.	Constructing, repairing or adding to existing improvements.	-	This activity is not permitted [Section 8(1)(k)(i)] excepting certain situations as described in the Introduction above.
-
12.	Disturbing the Surface of the Land harmful to plants or animals.	-	This activity is not permitted [Section 8(1)(k)(ii)] excepting certain situations as described in the Introduction above.
-

APPENDIX #2
MONTANE SUB-REGION
ROCKY MOUNTAIN NATURAL REGION

Natural Regions provide the big picture of Alberta's landscapes. Each of the landscape patterns of an individual Region contain a mix of similiar vegetation, soil and landform features. Each Natural Region has been divided into sub-regions based on similiar landscape patterns that are distinct from other sub-regions.

The Montane is one of the three subregions in the Rocky Mountain Natural Region.

The Montane Sub-region in southern Alberta occurs on east-west ridges that extend out from the foothills. To the north, this sub-region occurs mostly along the major river valleys of the Bow, North Saskatchewan, and Athabasca rivers.

Chinooks are a characteristic of the sub-region and the area is intermittently snow-free in the winter. The Montane landscape is characterized by a pattern of open forests and grasslands. Open forests dominated by Douglas fir and limber pine on ridgetops are among the driest forest communities in Alberta. These communities are species rich, reflecting the diversity of habitats.

Limber pine grows on the most exposed rock outcrops. Lodgepole pine forests occur on upland sites, white spruce forests grow along streams and aspen forests are typically found on terraces. Grasslands are typically dominated by bluebunch wheatgrass, fescue grasses and oat grasses with a large diversity of forbs.

Douglas fir-limber pine habitats are home to blue grouse, mountain chickadee, Clark's nutcracker, mule deer, elk and Columbian ground squirrel. Aspen forests typically contain MacGillivray's warbler, warbling vireo and lazuli bunting. Spotted frog and long-toed salamander which are found in wetlands in this sub-region are restricted to the Rocky Mountain Natural Region in Alberta.

The following table details the natural history themes that are typical of the Montane Sub-region and those found specifically at Kootenay Plains.

THEME COMPONENTS - MONTANE SUB-REGION

NATURAL HISTORY THEMES - MONTANE SUB-REGION

VALLEY/RIDGE

FLOOR/STREAM

- *Outwash
 - *Fluvial
 - *Glaciofluvial
- Lacustrine
- *Springs/Seepage
 - Douglas Fir Forest
- *Spruce Forest
- *Lodgepole Pine Forest
- *Limber Pine Forest
- *Aspen Forest
- *Balsam Poplar Forest
- *Shrublands
- *Grassland
- *River

RIDGE/VALLEY WALL

- *Douglas Fir Forest
 - Recently-burned Forest
- *Spruce Forest
- *Lodgepole Pine Forest
- *Limber Pine Forest
- *Aspen Forest
- *Shrublands
- Grassland
- *Moraine
 - Bedrock
 - Colluvium

WETLAND

MINERAL

- *Spruce Forest
 - Deciduous Forest
- *Shrubland
- *Marsh

Note:

- * Natural History themes represented at Kootenay Plains Ecological Reserve.

From: **Alberta Parks Services. July, 1992. *Natural Regions and Sub-Regions of Alberta, A Revised Classification for Protected Areas Management.***

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