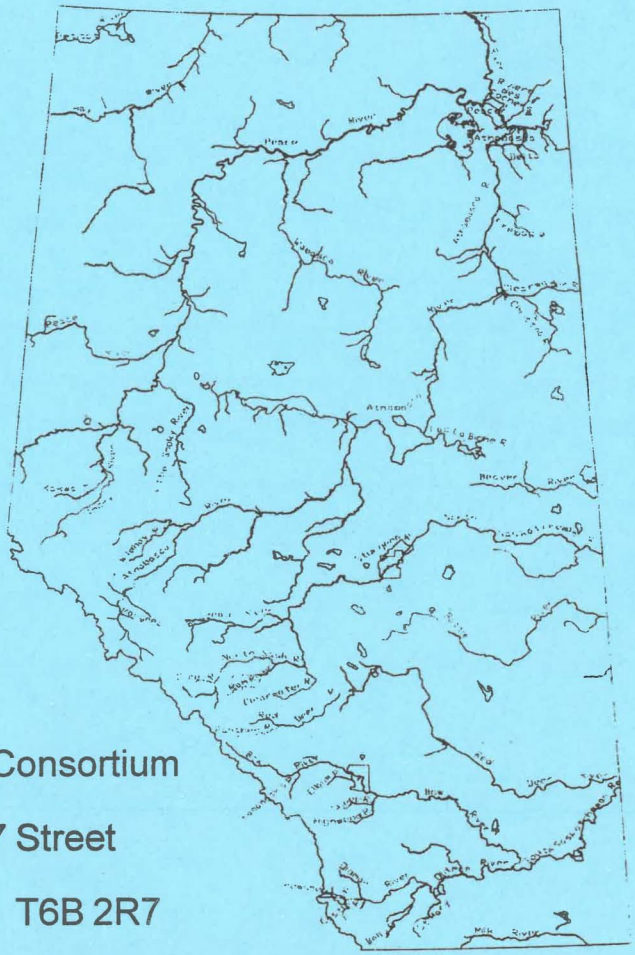
Canadian Heritage Rivers Systems

Study of Rivers in Alberta

A PRELIMINARY APPLICATION OF THE EVALUATION FRAMEWORK

Phase 2



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1.0 INTRODUCTION

In Phase I of the Alberta Rivers CHRS Study, an evaluation framework was developed to determine which rivers in Alberta merit consideration for nomination to the Canadian Heritage Rivers System. This framework represented criteria in each of three categories identified by the CHRS Board as important in evaluating a river's potential for heritage status.

The three categories included:

- Natural Heritage values;
- Human Heritage values; and
- Recreation Capability values.

A summary of the general guidelines used to evaluate a river in each of these 3 categories is provided in Appendix 3. The term "heritage" is intended to mean "that which is inherited" and refers to the intrinsic values a river has in each of the 3 categories which reflects a "Canadian" value.

The evaluation framework developed to assess Alberta's candidate rivers was largely based on the methods used by the other provinces in studying CHRS candidate rivers.

However, Alberta's framework was modified to reflect feature characteristics unique to Alberta. And, it was agreed, attempts should be made to simplify the evaluation process in order to attract greater public awareness and involvement. Figure 1 summarizes the Evaluation Framework as developed in Phase 1 and is included in this report as a reference.

From an initial list of 72 rivers put forward by Alberta Environment for consideration in this study, a short list of 39 rivers was identified for evaluation using the framework criteria. Figure 2 illustrates the location of those rivers selected for evaluation in Phase II.

The purpose of the Phase II study component is to identify a further shortlist of potential candidate rivers that merit a more detailed evaluation as would be undertaken in Phase III of this system Study. The outcome of Phase II is largely determined by applying the evaluation criteria and arriving at "total score" values for each of the 39 rivers.

Figure 1 Overview of Thematic Framework

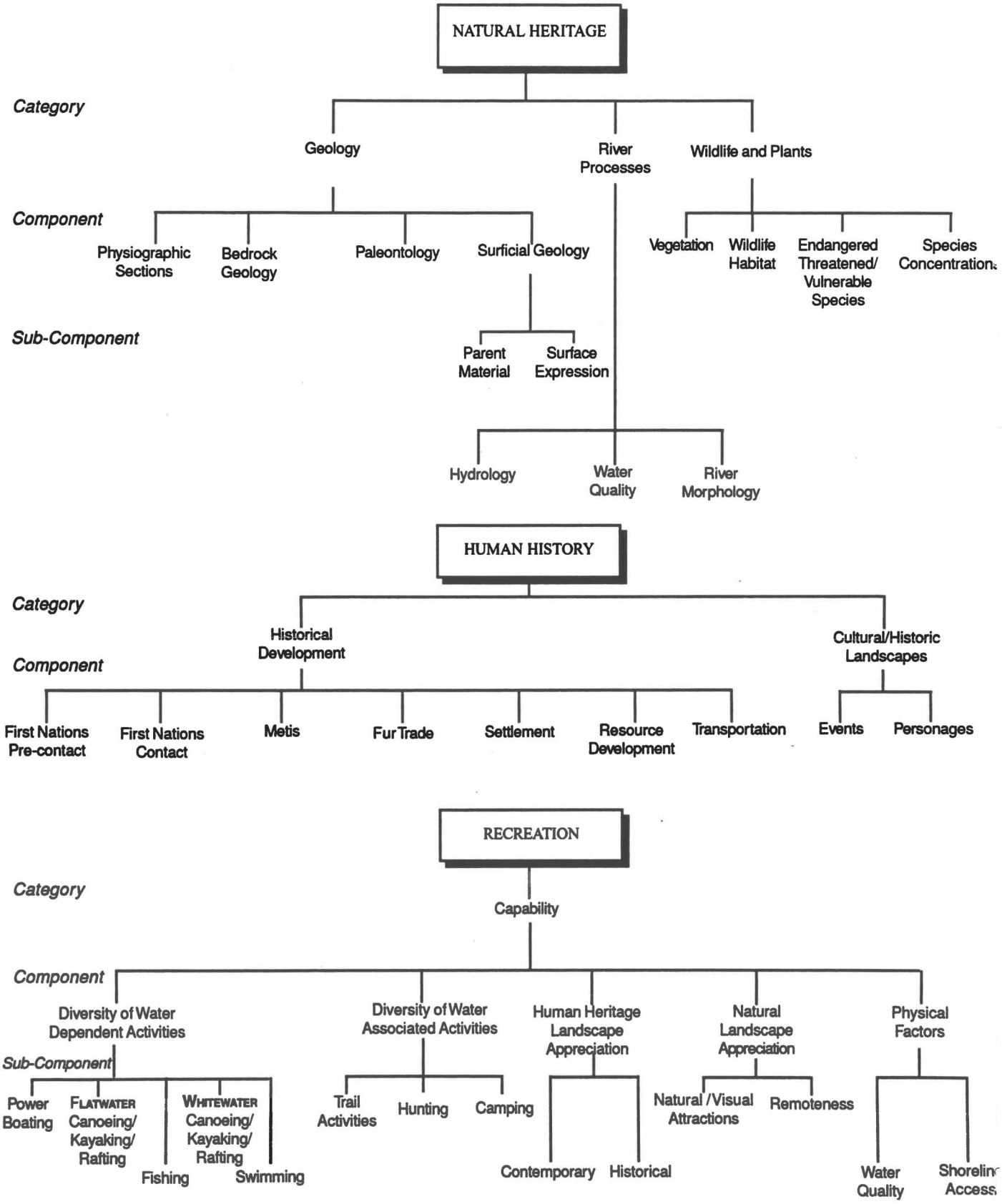


Figure 2

Alberta's Candidate Rivers for CHRS Evaluation

1.1 User Survey

An integral part of the Alberta evaluation process applied in Alberta is the inclusion of public involvement and potential contribution throughout the study. Through the office of the Senior Manager for the CHRS Program in Alberta, the public (including municipalities, NGOs, user groups and interested individuals) has been kept informed as much as possible given the budget and time constraints associated with this project.

The Study Team compiled a comprehensive list of provincial user groups, NGO's, schools, and communities. These people were all contacted and informed of the process being applied and invited to provide direct input into the evaluation.

Additional input of a more specific nature was obtained in Phase II. In an attempt to further enhance the data resources available to evaluate each of the shortlisted rivers, a modified questionnaire survey based on the evaluation framework was prepared for distribution to the public contact list developed in Phase I. Appendix 1 provides a summary of the questionnaire that was sent out.

The survey covers all three CHRS themes: Natural Heritage, Human Heritage and Recreation Capability. Definitions were provided as to the meaning and intent of each category as well as the main components to be assessed. Instead of having people respond to all of the components and sub-components in each category, these were condensed to only represent the main intent. For instance, under the Natural Heritage theme, instead of having people respond to 15 sub-categories and components, only 4 criteria were defined.

A simple 3 point scoring system was developed with:

3 - river has excellent resource values in that category
2 - river has good resource values
1 - river has mediocre resources values
0 - river does not have any resource value in that category

In total 100 surveys were distributed to such user groups as: Alberta Wilderness Association, Alberta Canoe Association, Friends of the Oldman; municipal contacts, regional Alberta government representatives and various educational institutes. Respondents were given almost 4 weeks to reply. Thirty responses were received.

It should be noted that for some rivers like the Bow or North Saskatchewan, several responses were received. Some rivers received only one response while a few had no response. In this regard the outcome of the survey is not statistically reliable.

However, the primary intent of the survey was to keep people informed of the CHRS process and to collect whatever additional data could be applied to the actual detailed evaluation being undertaken by the research team.

In this way, score values for each river could be corroborated, that is; confirming if a river received a high score value for a particular category or its overall rating by both the public and the professional team. And if one or the other had a different rating, hopefully the difference could be taken into account in the overall assessment.

The results of the survey are provided in Appendix 2.

1.2 Evaluation Scoring Process - Score Indexing

As outlined in the Evaluation Framework, a 10 point scoring system is applied to each component and sub-component being evaluated under each theme. The CHRS guidelines attribute equal significance to each of the themes. Recognizing that some of the theme categories have different numbers of components and sub-components, a means had to be established to equate the overall score value for each theme.

To achieve this balance, the point values in each theme were multiplied by a corresponding factor that would score the evaluation out of a total of 100 points. In this way, the three theme scores can be compared and manipulated on an equal basis.

Since each theme category had a different number of components and sub-components to evaluate the indexing formula for each was varied. The following summarizes the approach used to index each theme.

Recreation: In scoring the Recreational factors, there are 5 components. In order to achieve a total score value out of 100, each component requires a score of 20. Some components such as the Diversity of Water Dependent Factors has 5 sub-components having a score value of 10 for each. In order to equate that score out of a value of 20, each rating was multiplied by a factor of .4. The totals for each component were then added for a combined score out of 100.

Natural Heritage: Under this theme there are 3 categories: geology, river processes, wildlife and plants. In order to achieve an index out of 100 the scores in each category were multiplied by a factor of 33.3.

Human Heritage: The scores assigned to each river under this category have been indexed to yield a maximum possible score of 100 points. The two categories outlined in the framework were weighted with Historical Development contributing a maximum of 75 points to the total and Cultural/Historic Landscapes contributing a maximum of 25 points. Each component within the categories were weighted equally so that a maximum of 10.7 points could be awarded in any of the seven components in Historical Development, while each component of Cultural/Historical Landscapes could achieve a maximum of 12.5 points.

The intent of the scoring approach for this stage is simply to begin differentiating the overall evaluation between the 39 shortlisted rivers selected for the process. Results from the evaluation process will then be analyzed to determine which of these rivers merit consideration for further study.

1.3 Evaluation Limitations

Following the identification of the evaluation framework and the indexed scoring system assigned to evaluate each heritage theme; it is necessary that limitations associated with the process also be qualified.

At this stage of the study the primary objective was to develop a basic framework that could begin to identify and rank river resources having potential for consideration to the CHRS.

While many data resources were reviewed and referenced (i.e., as indicated in the Bibliography developed for Phase I of this study), overall time and budget resources permitted only a cursory review of these materials.

There are several information or data gaps, particularly under several components within the human heritage and recreation capability themes. The user survey results helped to fill in some of these gaps.

Even though personal or professional knowledge may exist, documented references or field study data may not be available for all rivers. This limits the evaluation scores for some rivers.

In terms of evaluating the human heritage themes essentially no regionally specific studies could be reviewed. Thus, with the exception of knowledge

based on personal specializations within the study team, the resulting data reflects well documented themes and themes of broad provincial or national importance such as exploration or transportation. More site specific local and regional information could not be researched under the framework of this study due to time and budget limitations. Much of that information would be further researched during the background study of a particular river that may be nominated for CHRS designation.

The second major information gap relates to historical data related to First Nation and Metis history and traditional land use. Information regarding these topics normally is not presented in traditional reference material sources. Indirect references may be found scattered throughout a plethora of historical documents. Direct consultation with First Nations and Metis organizations is essential, particularly regarding traditional land use, as it is only with the cooperation of these organizations that the topics can be effectively evaluated. As such, it is best to consider the evaluations of the First Nations Contact and Metis components of this study as merely tentative and incomplete. Every effort was made to identify those rivers on which *well documented* First Nation or Metis sites were present, although it can be assumed that many areas were missed as documentation, when available, is often scant or unsubstantiated.

Major topics have identified the most intensively utilized rivers in terms of prehistoric and historic human occupation. However, it does not reflect the local history of most rivers, particularly those which are in areas of limited access and/or development such as the smaller northern rivers and many of the montane rivers.

A third area of information gaps relates to the Resource Development component. This is largely a result of the regionally specific nature of resource development. Although this information is available in a larger body of reference materials than was utilized during this stage of the study, the scope and resources available for Phase II of this project did not allow for the investigation of these regionally and locally specific materials.

In summary, it must be stressed that this is not an exhaustive review or evaluation of the 39 short-listed rivers but only a preliminary overview.

It is anticipated that, as the Canadian Heritage Rivers Systems program is intended to recognize rivers which best exemplify aspects of Canada's natural, cultural, and recreational resources, the rivers identified during Phase II of the Alberta study merit national attention and that the details of the human heritage and other elements will be researched more thoroughly during Phase III of the study. Should a river be nominated for CHRS review, individual river

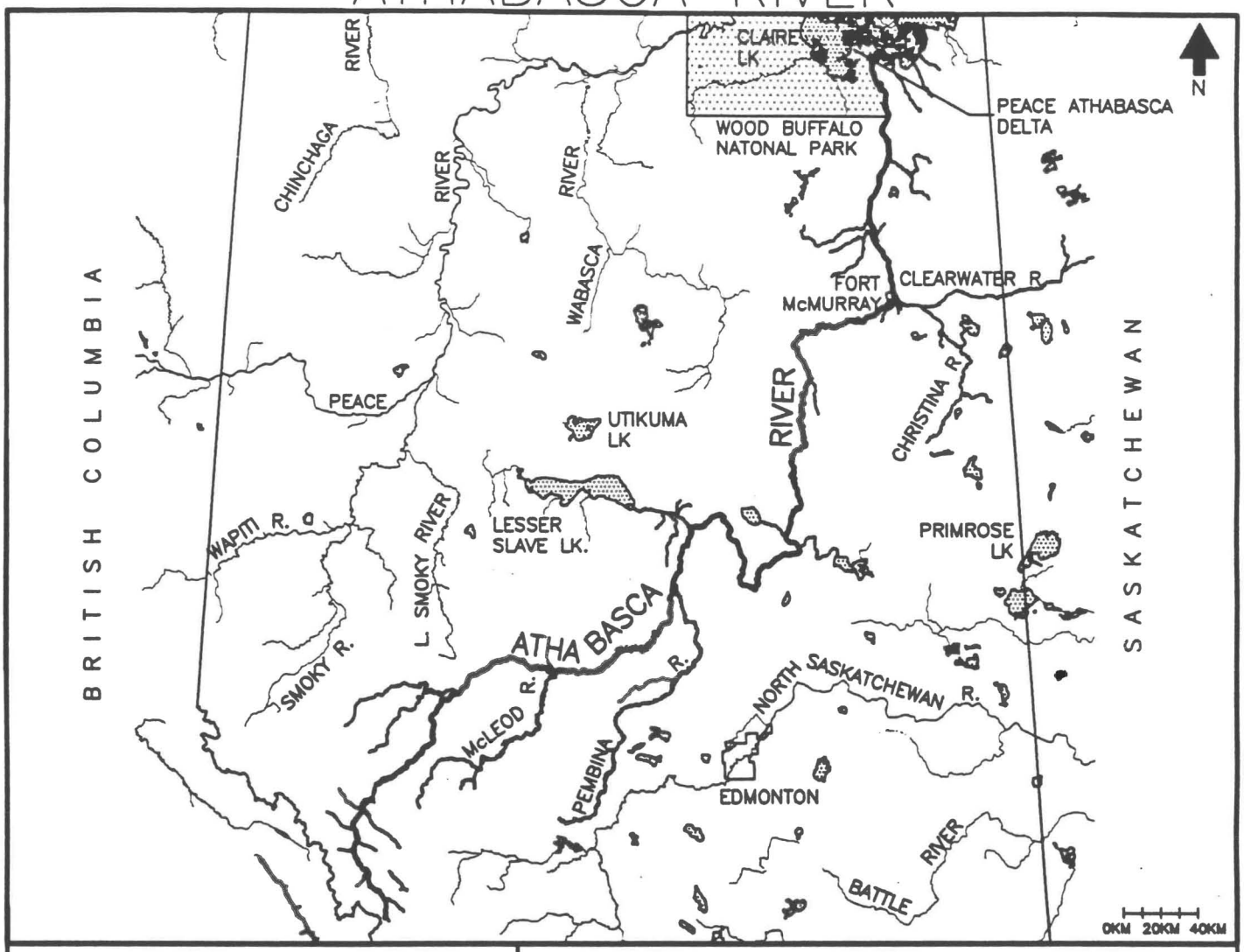
assessments would become more detailed thus bridging the information gaps apparent in Phase II.

The following pages summarize the evaluations for each of the 39 shortlisted rivers. Each evaluation includes a general location map for the river and a summary of the ratings for each theme category.

2.0

RIVER EVALUATIONS

ATHABASCA RIVER



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Human Heritage Scores

Historical / Cultural	66.60

Natural Heritage Scores

Geology	31.66
River Processes	30.00
Plants and Wildlife	31.66

Recreational Scores

Recreational Activities/Landscape Appreciation	72.30

TOTAL ADJUSTED SCORE 77.40

ATHABASCA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Swan Landing Site FhQl 4 is an important early site; and there are sites representing all major cultural affiliation groupings. Relatively rare microblade sites have been recorded on the river.
	RESOURCE EXPLOITATION	10	Several important resource exploitation sites have been recorded, primarily relating to stone tool material acquisition. Beaver River Quarry HgOv 29; Calumet pipestone quarry HiOv-39; Quarry HeOu 3
	HABITATION	10	Several important habitation sites have been recorded along the river, primarily in the lower reaches of the Athabasca. These include the Cree Burn Lake site HhOv 16; Bitumount site, Swan Landing Site FhQl 4, and FhQl 29.
	IDEOLOGY	10	The most frequent sites relating to ideology are burials such as FfQm 119, FgQm; 9, FgQm 15, and HbPd 1 (House River cemetery). Another important site is the Devona Cave Pictographs
FIRST NATIONS CONTACT	FUR TRADE	10	Natives were attracted to the early furt trade posts along the Athabasca and near Lake Athabasca to trade. There were First Nations plantation sites adjacent to all of the fur posts.
	REBELLION	0	
	TREATY	10	Indian Reserves 201G, 178, 201, 201B
	TRADITIONAL LAND USE	10	Palliser Map shows Stone Indian Camp near modern Whitecourt, Beaver and Chick__ (Chipewyan?) Indian to north of Hinton area, Iroquois camp in Hinton area. House River cemetery (HbPd 1). Athabasca was known as *tawah-tinow* in Cree which meant "hills on both sides". Many Native groups were drawn to the river. Traditional area of the Beaver, Snake, Chipewyan, Slavey and Cree.
METIS	HABITATION	10	Native and Metis descendants of the fur trade occupy the region. Burials have been recorded as FgQm 4 and FiQk 1.
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	10	Fur trade activities began in earnest in 1778 with the establishment of Peter Pond's Post. Associations with Captain Swan, Thanadelthur.
	RIVALRY (1774-1821)	10	Many competing forts were established during this period such as the Fort of the Forks (HeOu 1) 1788->1800 NW Co., Pierre au Calumet Post (HiOv 3) 1819-1821 NW Co. provisioning post, Henry House 1811->1825 NW Co. horse station, Berens House 1819-21; & Jasper House I 1813-1829
	MONOPOLY (1821-1859)	10	Many posts continued to operate through this period including Fort Assiniboine 1824->1870, John Moberley House FfQm7; and Jasper House II 1829-1890
	FREE TRADERS (1850-1940)	4	Free traders would have operated in the rich Athbasca region but as these small, independent traders left few records, more extensive research would be needed to locate their operations.
SETTLEMENT	EXPLORATION	10	Critical early fur trade related exploration concentrated in the region and explorers to the area would have included Pond, Fidler, Turnor, Thompson, Ogden, Ross, Mackenzie, Cuthbert Grant and others. Franklin followed the Athabasca on his travels to the Arctic. Palliser followed the Athabasca from Fort Assiniboine to the river source.
	LEGAL SURVEY	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	MISSIONS	10	Important regular transport route to northern Oblate missions, possible mission site IdOr 1.
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	7	NWMP Grand Rapids outpost
RESOURCE DEVELOPMENT	LUMBER	8	historic and modern lumbering areas; Chisholm mills
	FISHING	0	
	MINING	7	Used as transport to Klondike gold fields, salt mines were operated at Fort McMurray.
	PETROLEUM	10	Oil seeps and tar sands were noted by fur traders. Bitumount is an early oil center, Fort McMurray is an important oil center. There are early drill locations along the lower route of the river.
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Major fur trade route from Athabasca Lake to headwaters, some important locales are Athabasca Landing, Homes crossing (Fort Assiniboine) and Grand Rapids Portage; Ferries were operated at Holmes crossing, Athabasca Landing, Hinton, Mirror Landing, Blue Ridge, Pocahontas, Whitecourt, Klondyke (E1/2 31-61-6-W5M), and at the Edson/Grande Prairie Trail crossing; Sir Alexander Mackenzie waterway; Portage from Pond's Post to Peace River called Embarras Portage.
	LAND COMMUNICATION	10	Crossed by Edson/Grande Prairie Trail, terminus for Athabasca Landing Trail, terminus for Assiniboine trail at Fort Assiniboine, T.W. Chalmer's Klondyke Trail crossed at Fort Assiniboine, route of Jasper trail from Edson; Canol Project. Overlanders seeking the 1859 to 1862 B.C. Gold Rush followed the Athabasca to the Yellowhead Pass.
	TELECOMMUNICATION	0	
EVENTS		5	The murder of Brother Alexis Reynard.
PERSONAGES		10	Suzanne Cardinal's Grave, Louis "Shot" Fosseneuve famous for running the Grand Rapids. Fur traders such as Pond, Fidler, Turnor, Thompson, Ogden, Ross, Mackenzie, Cuthbert Grant and others. Franklin was exploring for the Northwest Passage. Von Hammerstein, Fitzsimmons, and Clark were early oil developers. Geologist Ells. Bishops Tache and Faraud.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	/40 x 10.7	=	10.7
• First Nations Contact	/40 x 10.7	=	8.0
• Metis	/30 x 10.7	=	3.6
• Fur Trade	/40 x 10.7	=	9.1
• Settlement	/60 x 10.7	=	4.8
• Resource Development	/60 x 10.7	=	4.5
• Transportation	/30 x 10.7	=	7.1
• Events	/10 x 12.5	=	6.3
• Personages	/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			66.6

Natural Heritage Evaluation \ Athabasca River

Category	Score	Rationale
Geology		
1. Physiographic Section	10	This river originates in the Rocky Mountains, travels across the Eastern Alberta Plains and then turns northward across the Northern Alberta Lowlands to the Athabasca Delta on the Northern Plains.
2. Bedrock Geology	10	All 4 geological eras are represented: Paleozoic and Precambrium material in the Rockies, Cenozoic bedrock in the foothills and shales and oil sands from the Lower Cretaceous Period in The Fort McMurray region.
3. Palaeontology	8	The Athabasca River contains a few select sites of high and medium palaeontological resource sensitivity near Edson and Fort MacKay. Some longer stretches of low sensitivity exist; however, the status of most of the river's length is unknown.
4. Surface Geology		
4.1 Parent Material	10	This river traverses a variety of parent materials with no one type dominant.
4.2 Surface Expression	10	A wide variety of landscape expressions are traversed by the Athabasca River, ranging from steeply inclined and veneered surfaces to veneer-blanket surfaces in the Rockies, with undulating and rolling surfaces common as the river flows northward across the plains.
River Processes		
1. Hydrology	10	Segments of both fast and slow moving water exist. The rivers energy level decreases as it travels from its headwaters in the Columbia Icefields to the Peace-Athabasca Delta. At Athabasca Falls there is a drop of 12m. Other falls and rapids mark this river as it traverses the landscape. High standing waves also occur at "Grand Rapids" and other places. The Athabasca River is Alberta's largest free-flowing drainage area.
2. Water Quality	7	During the summer, colour, turbidity and phosphorous levels tend to be high. Water quality may be impacted by industrial activity downstream of pulp mills and oil sands plants.
3. River Morphology	10	Several levels of terraces (continuous and fragmentary stretches) and a floodplain exist. Stretches of straight channel and channel with pronounced bends following a repetitive pattern constitute the major portion of this river. In the mountains the channel is at times braided and laterally active. Diagonal and mid- channel bars are found in this river.
Biota		
1. Vegetation	10	The river traverses a number of vegetation subregions including the Montane, Lower Foothills, Dry Mixedwood, Central Mixedwood and the Peace River Lowlands, with the Central Mixedwood by far the most prominent.
2. Wildlife Habitat	8	Prime habitat for ungulates exists along 80 % of this river. There is significantly less prime habitat for waterfowl and fish. The Athabasca, however has a very important sports fishery.
3. Endangered/Threatened Species	10	The Athabasca River environment provides habitat for 18 rare and endangered species. Of note are three: the Peregrine Falcon, Trumpeter Swan and the Yellow-cheeked Vole.
4. Species Concentration	10	Significant ungulate wintering habitat is found along the entire length of the river. Priority migratory waterfowl habitat is distributed along 40% of the length of the river.

Summary of Average Natural Heritage Category Scores

Geology Category	38/40 x 33.33 = 31.66
River Processes Category	27/30 x 33.33 = 30.00
Biota Category	38/40 x 33.33 = 31.66
Total Natural Heritage Theme Score	93.32

Recreation Evaluation \ Athabasca River

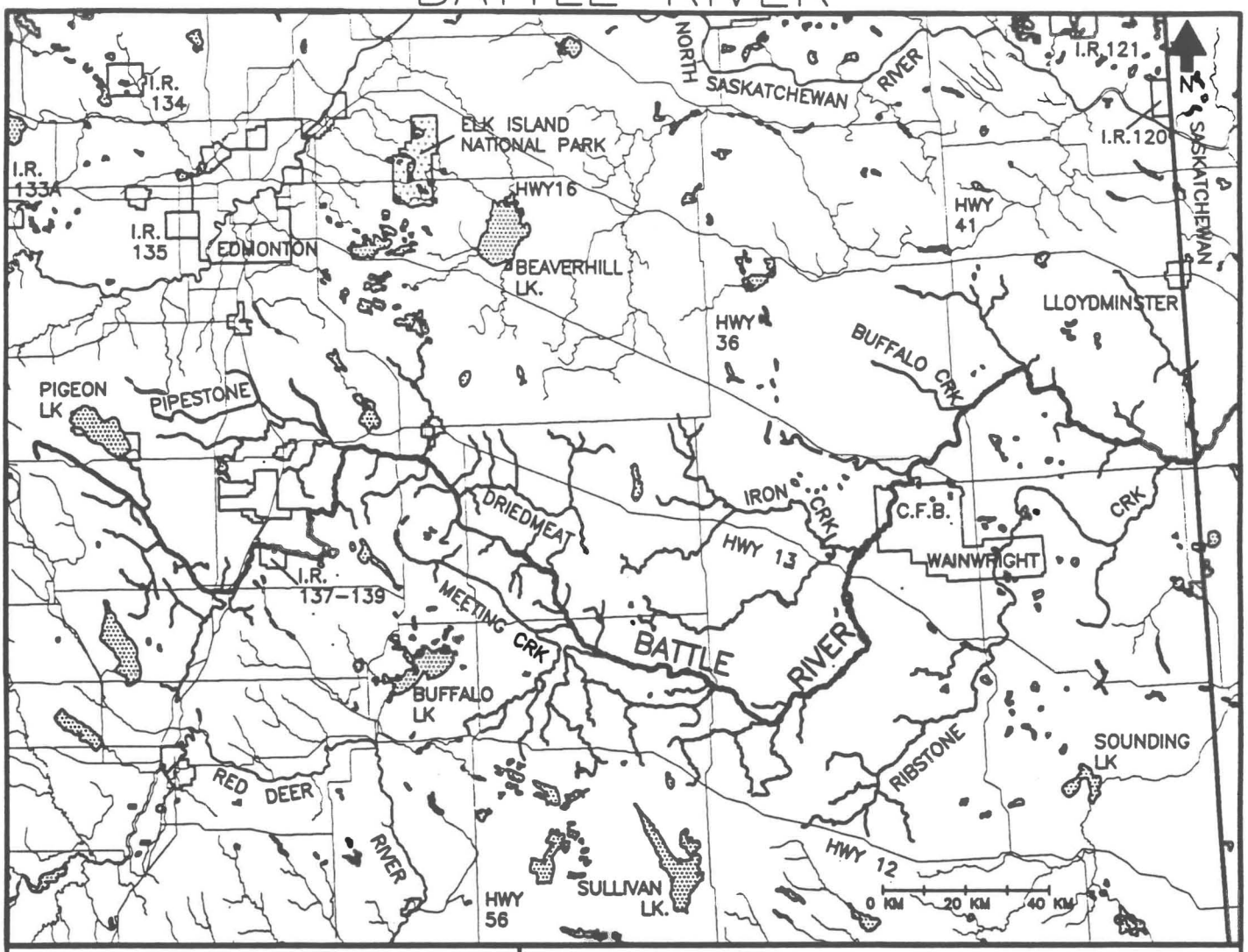
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	9	Suited throughout except for Mountain Park Region and reach between Grande Rapids and Ft. McMurray. Extended trip potential is excellent
- Flatwater Boating	9	See above
- Whitewater Boating	9	On International scale relative to rapids between Athabasca and Ft. McMurray -- on provincial scale in mountains and foothills
- Fishing	7	Capability exists throughout with 2 or more sports fishing species
- Swimming	0	Too cold, high sediment load.
• Diversity of Water Associated Activities		
- Trail Activities	9	Broad valley through majority of length exhibits random activity and good potential
- Hunting	9	Excellent game populations and popular throughout (except in mountain parks and settlement areas)
- Camping	6	Available throughout -- generally more developed between mountain and Athabasca and becomes more random for the remainder
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Generally in or near settlements, agricultural activity, oil and gas and logging prevalent throughout
- Historical Landscape	9	Early transportation route and many historic settlements
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Very scenic and varied -- Grande Rapids is most prevalent feature
- Remoteness	9	Predominant in northern half of river either north or south of Ft. McMurray
• Physical Factors		
- Water Quality	4	Turbid after leaving Foothills section (pulp mill, oil sands)
- Shoreline Access	6	Near settlements and at all road crossings of which there are many

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 34/50 x 20 = 13.6
- Diversity of Water Associated Activities 25/30 x 20 = 16.7
- Human Heritage Landscape Appreciation 15/20 x 20 = 15.0
- Natural Landscape Appreciation 17/20 x 20 = 17.0
- Physical Factors 10/20 x 20 = 10.0

- Total Recreational Capability Theme Score 72.3

BATTLE RIVER



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Human Heritage Scores

Historical / Cultural	56.20

Natural Heritage Scores

Geology	25.75
River Processes	15.55
Plants and Wildlife	20.83

Recreational Scores

Recreational Activities/Landscape Appreciation	37.50

TOTAL ADJUSTED SCORE 51.90

BATTLE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Elements
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	All cultural affiliations have been identified in association with the river. An extensive prehistoric record has been recorded along the river, particularly in the Hardisty area reflecting investigations related to oil field development.
	RESOURCE EXPLOITATION	9	FbOv 1 is a jump, at least five additional kill sites recorded
	HABITATION	9	At least 22 stone feature sites have been recorded with stone circles generally interpreted as tipi rings.
	IDEOLOGY	10	Possible location of the Iron Creek Meteorite at the mouth of Iron Creek - an important ideological element in Cree spirituality.
FIRST NATIONS CONTACT	FUR TRADE	3	Natives hunted buffalo for provisions to trade at the posts along the North Saskatchewan river and presumably elsewhere.
	REBELLION	7	Relief column of NWMP crossed the Battle near Wainwright on way to Frog Lake.
	TREATY	10	Indian Reserves 137, 137A, 139.
	TRADITIONAL LAND USE	10	Palliser map shows Sarcee Indian camp in modern Alliance area and a Cree camp near the mouth of Red Willow Creek. Driedmeat Lake area hills were traditionally used for drying buffalo meat. The Battle River formed the limits of the Cree and Blackfoot territories and, hence, was an area of numerous conflicts between the Nations, giving the area its name.
METIS	HABITATION	7	Historic settlements, especially near Buffalo Lake region.
	PROVISIONING	9	Driedmeat Lake and Buffalo Lake areas traditional provisioning areas.
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	6	Todd's Crossing (near Gwynne)
SETTLEMENT	EXPLORATION	7	Palliser crossed the Battle repeatedly; Henday crossed 3 times (near Wainwright, near Red Willow Creek, near Pigeon Lake)
	LEGAL SURVEY	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Elements
	MISSIONS	6	Within visiting territory of George and John McDougall based out of Victoria Mission on the North Saskatchewan River.
	AGRARIAN SETTLEMENT	6	early agricultural settlements
	RANCHING	6	early ranching
	LAW & ORDER	7	CFB Wainwright; NWMP column crossed near Wainwright on way to Frog Lake
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	7	Ford at Todd's Crossing (near Gwynne); numerous ferries operated including an 1875 NWMP ferry, an early ferry run by Abraham Salvais near Todd's crossing, near Fabyan, Chauvin, Hardisty, Ferrybank, and Ferry Point
	LAND COMMUNICATION	7	Crossed by Calgary/Edmonton Trail, branch of this trail to Rocky Mountain House, Wolf's trail, and a trail near Duhamel
	TELECOMMUNICATION	0	
EVENTS		8	Buffalo National Park (Wainwright). George McDougall had his people remove the Iron Creek Meteorite from the Battle River/Iron Creek area and bring it to Victoria Mission.
PERSONAGES		8	The town of Hardisty was named for Senator Richard Hardisty who was fomerly the Chief Factor of Fort Edmonton and had married a daughter of George McDougall who was an active missionary in the region, based out of Victoria Mission on the North Saskatchewan River.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	38/40 x 10.7	=	10.2
• First Nations Contact	30/40 x 10.7	=	8.0
• Metis	10/30 x 10.7	=	5.7
• Fur Trade	6/40 x 10.7	=	1.6
• Settlement	32/60 x 10.7	=	5.7
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	14/30 x 10.7	=	5.0
• Events	8/10 x 12.5	=	10.0
• Personages	8/10 x 12.5	=	10.0
• Total Human Heritage Theme Score			56.2

Natural Heritage Evaluation \ Battle River

Category	Score	Rationale
Geology		
1. Physiographic Section	10	This river traverses a number of the plains and uplands in the Eastern Alberta Plains. The longest stretch of river is located on the Sullivan Lake Plain.
2. Bedrock Geology	7	The geology of this area is represented primarily by Cretaceous non-marine sandstone and coal and marine shale, with a minor component of Tertiary sandstone, shale and coal located near the headwaters.
3. Palaeontology	9	A major length of the river extending eastward from Wetaskiwin to Alliance contains areas of high palaeontological resource sensitivity.
4. Surficial Geology		
4.1 Parent Material	8	Rock overlain by till, glaciofluvial sediments and eolian deposits comprise the parent material.
4.2 Surface Expression	9	The river flows through a diversity of landscapes; including hummocky terrain, rolling terrain, undulating terrain, steeply modified and blanketed surfaces.
River Processes		
1. Hydrology	3	The Battle River has a gross drainage area of 25,430 km^2. The hydrology of the Battle River Basin is partially controlled by the Coal Lake Reservoir on Pipestone Creek in the upper reaches and by two reservoirs on the Battle River, one at Dried Meat Lake and the other power plant cooling reservoir near Forestburg.
2. Water Quality	5	Low dissolved oxygen levels may occur and are mostly associated with winter ice cover. Fecal and total coliform levels tend to be high in both the spring and fall, probably as a result of lagoon flushing.
3. River Morphology	6	This river flows in a narrow meandering band through a former glacial outflow valley.
Biota		
1. Vegetation	2	The Battle River flows through the Central Parkland grazing the Northern Fescue subregion near Alliance.
2. Wildlife Habitat	7	Extensive prime habitat for ungulates is present along the entire length of the river with a somewhat lower amount for waterfowl. No prime habitats for fish are found.
3. Endangered/Threatened Species	7	A number of endangered species may be found along this river. Of note are the: Loggerhead Shrike, Long-billed Curlew, Peregrine Falcon, Piping Plover and Ferruginous Hawk.
4. Species Concentration	9	This river environment is very important for wintering ungulates and some areas are some areas are provincially significant for migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	34.5/40 x 33.33 = 25.75
River Processes Category	14/30 x 33.33 = 15.55
Biota Category	25/40 x 33.33 = 20.83
Total Natural Heritage Theme Score	62.13

Recreation Evaluation \ Battle River

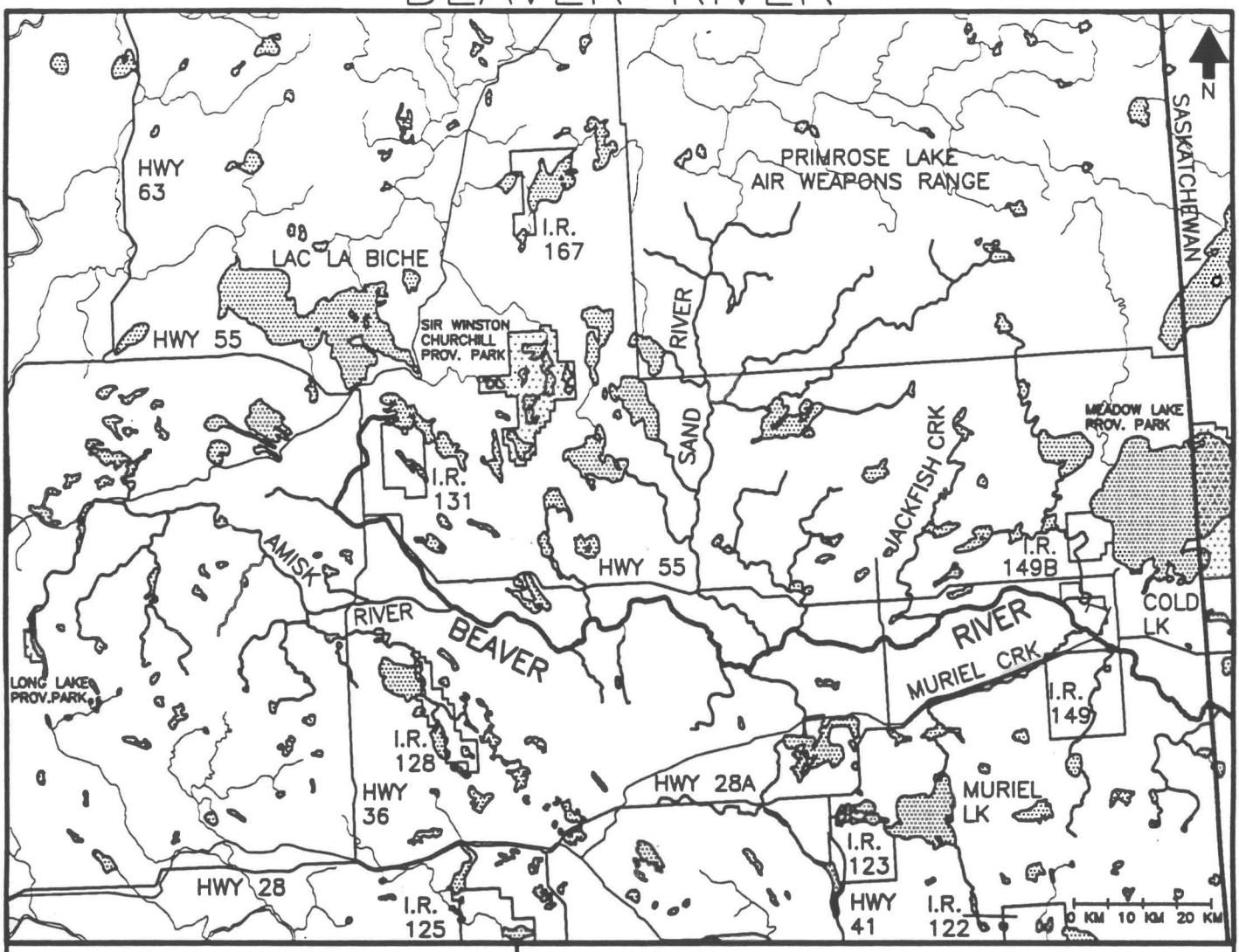
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	3	Flow regime and size inhibiting factors other than at Coal Lake and Dried Meat Lake
- Flatwater Boating	3	Can sustain in some sections on a seasonal basis and on Coal Lake and Dried Meat Lake but many meanders in some reaches
- Whitewater Boating	0	Slow moving stream
- Fishing	2	Capability limited due to unreliable flows
- Swimming	4	Occurs at lake resources
• Diversity of Water Associated Activities		
- Trail Activities	5	Existing around Dried Meat and Coal Lakes - winter snowmobiling occurs along entire stretch
- Hunting	4	Moderate capability for ungulates and waterfowl - land tenure and inhibits access
- Camping	4	At lake locations and at some points along river
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	5	Agricultural setting with numerous road crossings
- Historical Landscape	4	
• Natural Landscape Appreciation		
- Natural/Visual Attractions	4	General flows through agricultural lands and aspect parkland -- aesthetics improve at Dried Meat and Coal Lake
- Remoteness	1	Land use throughout
• Physical Factors		
- Water Quality	4	Suitable water quality for contact activity on lakes but some coliform content in dry season
- Shoreline Access	6	

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 12/50 x 20 = 4.8
- Diversity of Water Associated Activities 13/30 x 20 = 8.7
- Human Heritage Landscape Appreciation 9/20 x 20 = 9.0
- Natural Landscape Appreciation 5/20 x 20 = 5.0
- Physical Factors 10/20 x 20 = 10.0

- Total Recreational Capability Theme Score 37.5

BEAVER RIVER



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Human Heritage Scores

Historical / Cultural 53.20

Natural Heritage Scores

Geology 14.44

River Processes 20.00

Plants and Wildlife 14.17

Recreational Scores

Recreational Activities/Landscape Appreciation ... 44.10

TOTAL ADJUSTED SCORE 48.60

BEAVER RIVER

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	2	Few archaeological sites have been recorded on the Beaver River to date, likely reflecting the lack of previous investigation in the region.
	RESOURCE EXPLOITATION	4	Quarry GeOu 1 is one of the resource exploitation sites recorded to date on the Beaver River.
	HABITATION	0	
	IDEOLOGY	10	Admore buffalo effigy was likely a spiritual item. There was a *Manitokan* or Cree "idol" on Beaver River.
FIRST NATIONS CONTACT	FUR TRADE	0	The current lack of recorded sites on the Beaver River likely reflects the limited investigations in the region.
	REBELLION	7	Big Bear retreated from Fort Pitt following Beaver River
	TREATY	7	Indian Reserves 149 and 131
	TRADITIONAL LAND USE	8	Chipewyan, Beaver and Cree traditional lands
METIS	HABITATION	8	Briereville located on the river. Area is within range of Beaver River Metis Settlement.
	PROVISIONING	7	Lac La Biche cart trail to Fort Pitt, this was an important Metis trade and travel corridor.
	REBELLION	6	Part of the 1885 Rebellion at Frog Lake boiled over into this region.
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	7	Both David Thompson and Peter Fidler used Beaver River route to establish posts on Lac La Biche in 1798/99. Beaver River route was used to transport provisions to supply brigades travelling via Methy Portage and Portage La Biche; Jolie Butte meeting place was reported by the late eighteenth century. A NW Co. post was established at Beaver Crossing.
	MONOPOLY (1821-1859)	7	Associated with the rationalization of the fur trade - George Simpson orders abandonment of route in 1824
	FREE TRADERS (1850-1940)	6	There were at least 2 posts at Beaver Crossing
SETTLEMENT	EXPLORATION	9	Thompson then Fidler used Beaver River Route; Pink came down the Beaver River
	LEGAL SURVEY	0	

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
	MISSIONS	7	Beaver Lake Mission Church (R.C.); used by O.M.I. for transport, area of itinerant visits based out of Notre Dame des Victoires
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	4	Military base - Medley
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Major fur trade route from Churchill drainage to Athabasca; Portage La Biche (GeOx 64), Moose Portage and Cold Lake Portage were all on the Beaver. La Corey ferry, Beaver Crossing ferry. Route of Hudson's Bay Company "Columbia Express".
	LAND COMMUNICATION	7	Trail from North Saskatchewan to Lac La Biche crossed river. MacArthur's railroad from Hylo to St. Lina Creek crosses and parallels
	TELECOMMUNICATION	0	
EVENTS		7	1885 Rebellion, 1798 crossing of the Little Divide by Thompson first documented use of this route. Fidler 1799 established first Hudson's Bay Company post in the Athabasca Country.
PERSONAGES		9	Big Bear pursued along river course; Thompson then Fidler used Beaver River route. Fur traders Angus Shaw, Odgen, McLoughlin, Ross, etc. Aboriginal inhabitants Desjarlais, Laderoote, Cardinal. Missionaries Tache, Faraud, Lacombe.

Summary of Average Human History Value Scores

• First Nations Pre-Contact	16/40 x 10.7	=	4.3
• First Nations Contact	22/40 x 10.7	=	5.9
• Metis	21/30 x 10.7	=	7.5
• Fur Trade	20/40 x 10.7	=	5.4
• Settlement	20/60 x 10.7	=	3.9
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	17/30 x 10.7	=	6.1
• Events	7/10 x 12.5	=	11.3
• Personages	9/10 x 12.5	=	8.8

• Total Human Heritage Theme Score 53.2

Natural Heritage Evaluation \ Beaver River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The majority of the length of this river traverses the Lac La Biche Plain in east central Alberta, with minor portions crossing the Thickwood Hills Uplands and Vermilion Uplands.
2. Bedrock Geology	5	The Mesozoic is the sole era represented.
3. Palaeontology	N/A	No palaeontological findings have occurred and no surveys have been undertaken in this area.
4. Surficial Geology		
4.1 Parent Material	4	Morainal and glaciofluvial parent materials are prominent.
4.2 Surface Expression	4	The land surface generally consists of regular sequences of very gently rolling slopes. A smaller portion is represented by hummocky terrain alone or in combination with the undulating topography.
River Processes		
1. Hydrology	5	This is a gently flowing river that contains few riffles and scour holes.
2. Water Quality	7	Dissolved oxygen levels tend to be low during the winter.
3. River Morphology	6	Initially the river valley is quite deep and narrow. As the valley widens the river meanders. Point bars and large dunes are present. The channel bed and banks consist of easily-erodible material which contributes to the slightly unstable state of the channel.
Biota		
1. Vegetation	1	This river travels through the Dry Mixedwood natural subregion.
2. Wildlife Habitat	5	Prime habitat for ungulates is very abundant, with somewhat less habitat available for fish and only minimal top quality habitat suitable for waterfowl.
3. Endangered/Threatened Species	4	Important habitat is provided for the endangered Loggerhead Shrike and the threatened: American White Pelican, Bald Eagle, Cooper's Hawk, Osprey, Turkey Vulture and River Otter.
4. Species Concentration	7	The full length of the river environment is important to wintering ungulates. These are areas of national and provincial significance for migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	13/30 x 33.33 = 14.44[1]
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	17/40 x 33.33 = 14.17
Total Natural Heritage Theme Score	48.61[1]

[1] Palaeontological information not available

Recreation Evaluation \ Beaver River

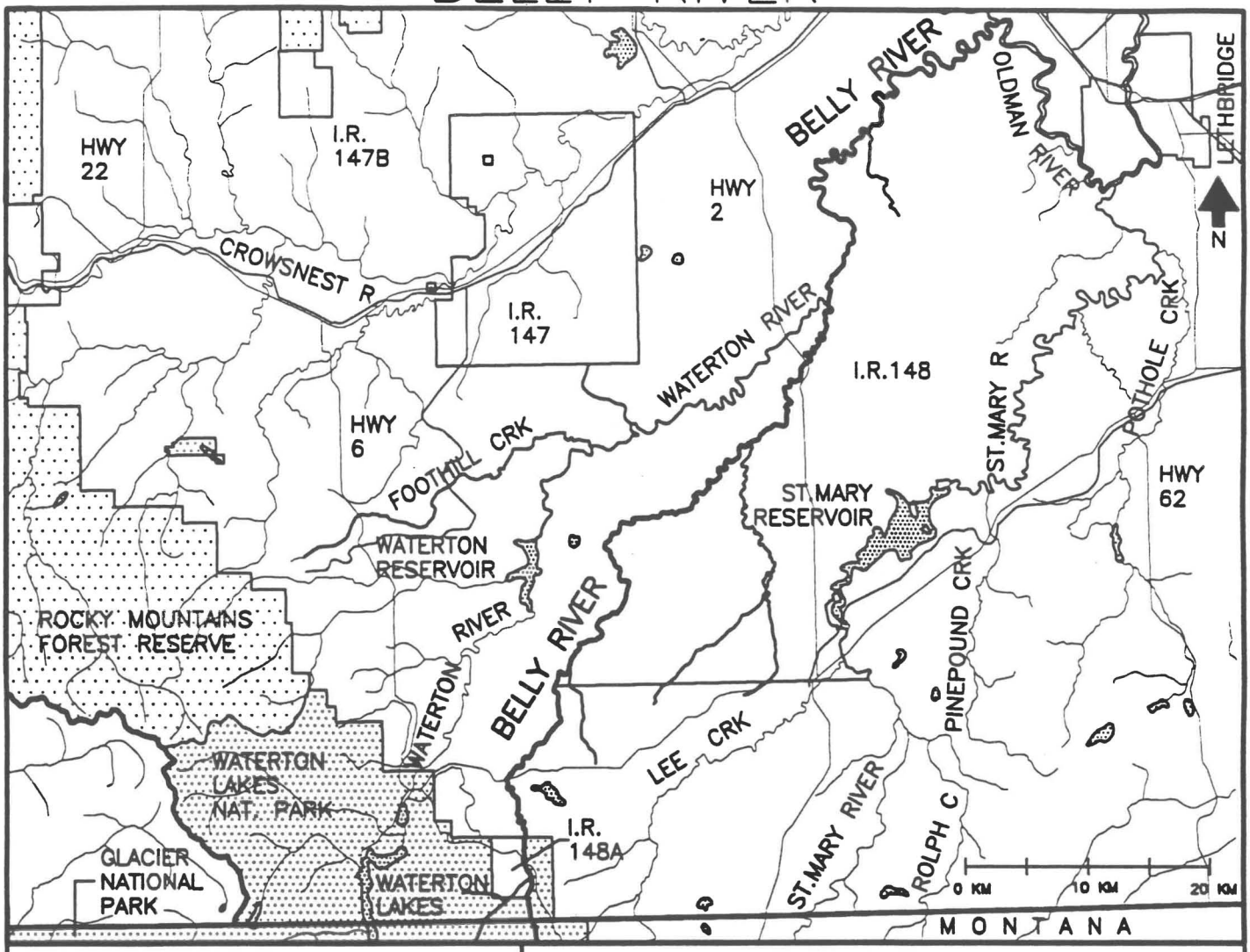
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	5	
- Flatwater Boating	5	Canoeing and boating opportunities possible on lower reaches.
- Whitewater Boating	0	
- Fishing	6	Contains at least 3 sport fish species.
- Swimming	1	
• Diversity of Water Associated Activities		
- Trail Activities	3	Semi-developed but inhibited by private lands.
- Hunting	4	Land ownership and access.
- Camping	4	Limited sites and land ownership.
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Predominantly agricultural base where deer occur / pastoral rolling hills.
- Historical Landscape	7	Historic water route accessing the Peace and Athabasca systems.
• Natural Landscape Appreciation		
- Natural/Visual Attractions	4	Meandering foothills but no outstanding features.
- Remoteness	4	Some remote sections but potent lands are abundant.
• Physical Factors		
- Water Quality	5	Productive resource for fish.
- Shoreline Access	4	Limited by private lands.

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 17/50 x 20 = 6.8
- Diversity of Water Associated Activities 11/30 x 20 = 7.3
- Human Heritage Landscape Appreciation 13/20 x 20 = 13.0
- Natural Landscape Appreciation 8/20 x 20 = 8.0
- Physical Factors 9/20 x 20 = 9.0

- Total Recreational Capability Theme Score 44.1

BELLY RIVER



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Human Heritage Scores

Historical / Cultural	49.60

Natural Heritage Scores

Geology	22.50
River Processes	27.75
Plants and Wildlife	15.83

Recreational Scores

Recreational Activities/Landscape Appreciation	52.50

TOTAL ADJUSTED SCORE 56.06

BELLY RIVER

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Sites identified through the Middle and Late Prehistoric sequence within the river valley.
	RESOURCE EXPLOITATION	8	Jump DhPj 11 is located adjacent to the river. Traditional trade and transport route.
	HABITATION	9	Stratified camps along the Belly include DhPj 22; Camps include DjPh 1, DkPq 24, DiPh 6, DgPk 11, and DgPk 14.
	IDEOLOGY	10	Burials include DhPj 69 and DkPg 24. Headwaters at Chief Mountain, an important landmark in Native spirituality.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	8	Indian Reserves 148, 148A
	TRADITIONAL LAND USE	10	Traditional territory of Peigan, Blackfoot, Blood
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	10	Whiskey traders - Kipp's post, DkPg 29, Fort Standoff, Slide Out Post DjPh 17
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	10	Focal locale of Mormon settlement
	AGRARIAN SETTLEMENT	7	Early agricultural settlement - irrigation based
	RANCHING	9	The Cochrane Ranche Belly River Operation 1883-1905; Portion of Oxley Ranch 1882-?
	LAW & ORDER	10	NWMP Outposts at Big Bend, Fort Kipp, Kipp, Standoff
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
	WATER	9	Early irrigation systems
TRANSPORTATION	RIVER COMMUNICATION	6	Big Island Ferry ca. 1880-1923
	LAND COMMUNICATION	9	2 branches of Whoop-Up Trail cross, Riplinger Trail to Fort Shaw (Fort McLeod) crossed
	TELECOMMUNICATION	0	
EVENTS		8	Whiskey trade of the 1860's to 1870's
PERSONAGES		7	Personages of the whiskey trade and NWMP, prominent Native leaders such as Red Crow.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	37/40 x 10.7	=	9.9
• First Nations Contact	18/40 x 10.7	=	4.8
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	10/40 x 10.7	=	2.7
• Settlement	36/60 x 10.7	=	6.4
• Resource Development	9/60 x 10.7	=	1.6
• Transportation	15/30 x 10.7	=	5.4
• Events	8/10 x 12.5	=	10.0
• Personages	7/10 x 12.5	=	8.8
• Total Human Heritage Theme Score			49.6

Natural Heritage Evaluation \ Belly River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	This river originates in the Southern Foothills and traverses both the Cardston and Southwest Plains.
2. Bedrock Geology	7	Bedrock of Mesozoic and Cenozoic origin are represented.
3. Palaeontology	4	One section of low palaeontological sensitivity is located along the river near Hillspring.
4. Surficial Geology		
4.1 Parent Material	10	Till, colluvium and rock are prominent in the foothills, while glaciolacustrine, glaciofluvial and morainal deposits are common on the plains.
4.2 Surface Expression	10	Steep inclines, fans, ridges, veneers and veneer blankets are common in the foothills. The plains consist of undulating and hummocky terrain.
River Processes		
1. Hydrology	7	The existence of variable flow is noted in the presence of pool and riffle sequences. Also present are flow altering channel bars, oxbows and abrupt changes in gradient.
2. Water Quality	8	Generally the water quality meets the Alberta Ambient Surface Water Quality guidelines. Although occasionally, phosphorous levels exceed the guidelines.
3. River Morphology	10	A variety of morphological features include: stretches of two continuous terrace levels, occasional islands, diagonal and mid channel bars. Meandering has contributed to the existence of oxbow lakes and moderately unstable lateral activity. The channel bank materials consist of easily and moderately erodible sand and gravel.
Biota		
1. Vegetation	8	The Belly River traverses the Montane, Foothills Parkland, Foothills Fescue and Mixed grass natural subregions.
2. Wildlife Habitat	2	Significant amounts of quality habitat for ungulates and fish exist along the entire length of the river. Only minimal amounts of prime habitat for waterfowl are present.
3. Endangered/Threatened Species	4	The Belly River and adjacent environments support 6 endangered and threatened species, including the Trumpeter Swan, American White Pelican, Bald Eagle, Prairie Falcon, Bobcat and Grizzly Bear.
4. Species Concentration	5	Most of the length of this river environment is important to wintering ungulates. Much less of it is favourable for migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	27/40 x 33.33 = 22.50
River Processes Category	25/30 x 33.33 = 27.75
Biota Category	19/40 x 33.33 = 15.83
Total Natural Heritage Theme Score	66.08

Recreation Evaluation \ Belly River

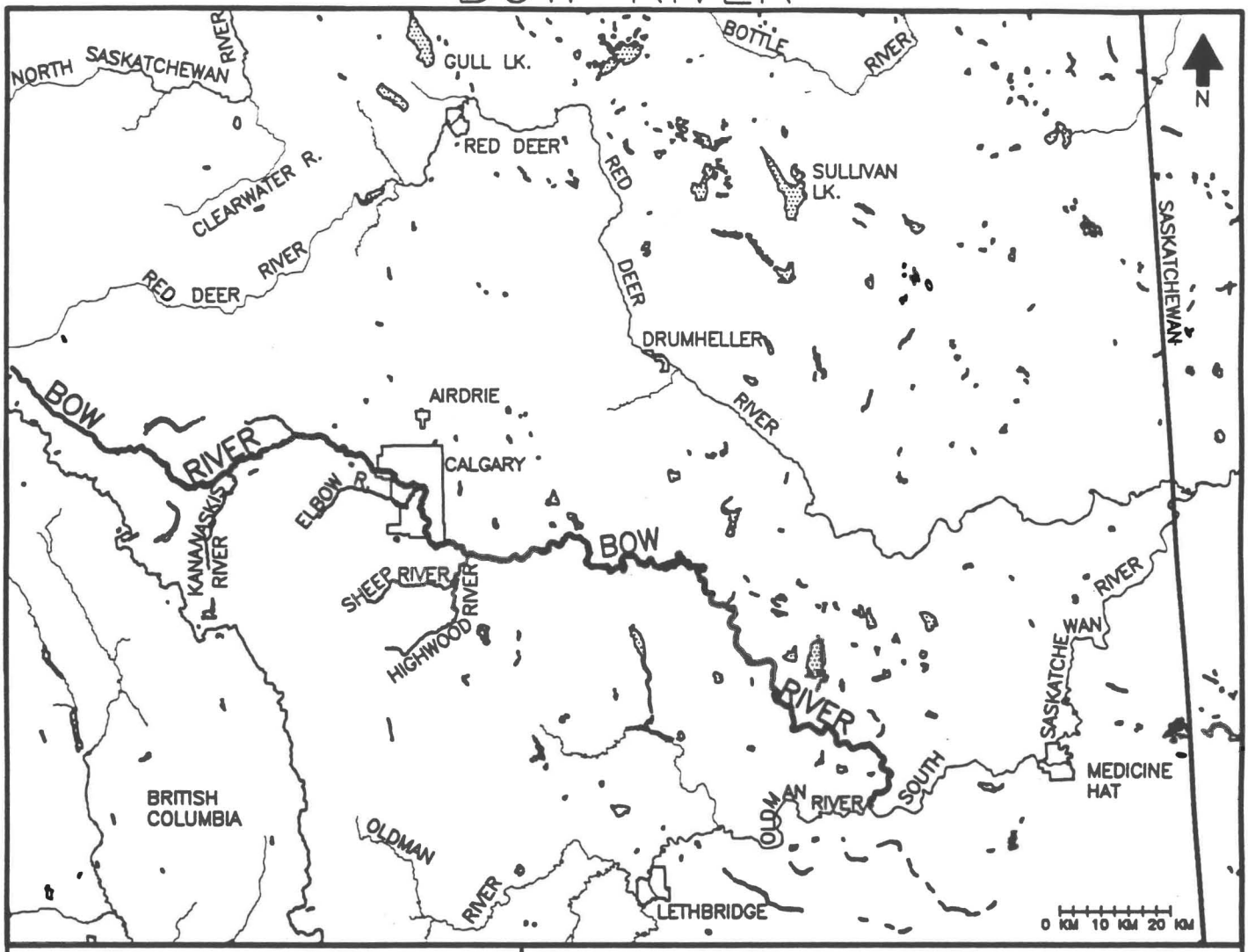
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Not possible due to water shortage
- Flatwater Boating	5	Lower reaches offer some potential, mostly beginner level
- Whitewater Boating	5	Upper reaches have some whitewater, but limited use
- Fishing	6	Inconsistent and limited, dependent on flow
- Swimming	7	Several localized "swimming holes" provide good swimming opportunity in river (i.e., Oystershell Dinosaur Swimming Holes)
• Diversity of Water Associated Activities		
- Trail Activities	5	Limited developed trail access, due to private land ownership
- Hunting	6	Good potential, especially in upper reaches
- Camping	3	Mostly informal camping along shoreline of river; developed campsite at Spring Glen Park below Waterton Reservoir
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Mostly pasture lands, some gas and logging, frequent evidence of human occupation
- Historical Landscape	5	Little surficial evidence of historic features but potential exists
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	River offers a variety of landscapes with views to mountains in west and incised channels along lower reaches
- Remoteness	4	Limited due to strong evidence of human occupation
• Physical Factors		
- Water Quality	7	Generally good, with some influence from dams and weirs
- Shoreline Access	6	Numerous bridge crossings providing access but land ownership creates some access limitations

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 23/50 x 20 = 9.2
- Diversity of Water Associated Activities 14/30 x 20 = 9.3
- Human Heritage Landscape Appreciation 11/20 x 20 = 11.0
- Natural Landscape Appreciation 10/20 x 20 = 10.0
- Physical Factors 13/20 x 20 = 13.0

- Total Recreational Capability Theme Score 52.5

BOW RIVER



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Human Heritage Scores

Historical / Cultural 69.90

Natural Heritage Scores

Geology 31.66

River Processes 20.00

Plants and Wildlife 29.16

Recreational Scores

Recreational Activities/Landscape Appreciation ... 58.40

TOTAL ADJUSTED SCORE 69.71

BOW RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Excellent archaeological record representing all cultural and temporal affiliations. Sites include Clovis, Agate Basin, Scottsbluff, Mummy Cave, Bitteroot, Oxbow, McKean, Pelican Lake, Sandy Creek, Besant, Avonlea, Late Prehistoric, Protohistoric, and Historic period native sites. Cluny or Siksika Earthlodge/Fortified Village is a unique site of great importance.
	RESOURCE EXPLOITATION	10	Many Springs Site EgPs 14, Killsites - EgPs 51,EgPn 290, Quarry at Bow Falls EgPu 1.
	HABITATION	10	Buried camps, stratified camps, surface camps, and stone circles are well represented along the Bow. Sites included on the Significant Sites Listing include stratified camps - EgPu 19, EgPu 20, F.M. Ranch EfPk 1, Lafarge EgPt 6, Outhouse Camp EfPt 3, EgPt 17; Buried Rings EhPo 36; Camps - EfPm 143, Terrace site EfPl 111, EgPn 219, Point MacKay EgPm 124, Rat's Nest Cave, Coal Creek Site EhPp 1
	IDEOLOGY	10	Several important ideological sites occur on the Bow including the Majorville Cairn Complex EdPc 1, Jamieson's Place EePi-2, effigies EePi 5, EcPb 5, EePd 1, and burials EfPm 134, EgPn 208, EfPm 102, EePk 273, EePf 2, and EePg 13. Iniskim ("buffalo" stone) sources along the river.
FIRST NATIONS CONTACT	FUR TRADE	3	Native aggression prevented widespread direct contact in the Bow River valley during most of the fur trade period. Peigan Post (Old Bow Fort) was short lived and trade reverted to Rocky Mountain House until after the Treaty Period.
	REBELLION	0	
	TREATY	10	Blackfoot Crossing was the location of the signing of Treaty #7. Indian Reserves 142, 143, 144, 146.
	TRADITIONAL LAND USE	10	Palliser's Map shows Peigan camp and Stone Indian camp; Jumpingpound Creek confluence was pound location; Dead Man's Flats and Ghost River both have traditional stories about battles and spiritual connections. Traditional native tree burials were practiced along the wooded river valley. Indian Flats an important traditional land area. Historic buffalo pound at modern ferry crossing on Siksika Reserve. Traditional territory of the Siksika Blackfoot, Tsuu T'ina and Stoney Nations.
METIS	HABITATION	0	
	PROVISIONING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	2	Fort Lajonquiere might have been located on the Bow.
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	8	Peigan Post/Old Bow Fort EgPr 1
	FREE TRADERS (1850-1940)	10	French's Post at Blackfoot Crossing, Berry and Shear's Whiskey Post at Junction of Bow and Highwood
SETTLEMENT	EXPLORATION	9	Palliser expedition followed several segments of the Bow, fords noted between the Ghost and Kananaskis rivers.
	LEGAL SURVEY	9	John Nelson was the first legal surveyor in the Calgary area.
	MISSIONS	10	McDougall Methodist Mission at Morleyville EhPq 6, EePg 2, Anglican Day School EePf 5.
	AGRARIAN SETTLEMENT	10	early agricultural settlement. Historic Calgary (Hunt House, Deane House); Old Kananaskis
	RANCHING	10	Bow River Ranches, Edworthy Ranch, Cochrane Ranche, Mackay Ranch EgPn 123
	LAW & ORDER	10	Fort Calgary main Post, Outposts - Banff, Blackfoot Crossing, Canmore, Cochrane, Dunbow, Mitford, Morley, Silver City.
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	10	Coal mining - Canmore, Grand Valley; Cement - Exshaw, Butchart Lime Kilns; Silver - Silver City; Stone - Glenbow
	PETROLEUM	7	Extensive oil and gas development
	CLAY PRODUCTS	10	Brickyards - Mitford, Cochrane, Glenbow, Calgary area
	WATER	8	Ghost Reservoir, Bearspaw Reservoir
TRANSPORTATION	RIVER COMMUNICATION	7	Numerous ferries (Calgary, Morley, Mitford, Blackfoot Crossing, Canmore, Carseland, Eyremoor, Banff, Bassano, Bowslope)
	LAND COMMUNICATION	10	Shouldice Bridge; East Gates Rocky Mountain Park EgPs 25, C.P.R. arrived in 1883. Calgary to Edmonton Trail, Morley Trail, McLeod to Calgary Trail
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		10	Canmore Relief Camp (Camp 5?) EgPt 11. Treaty No. 7 was signed at Blackfoot Crossing on the modern Siksika First Nation Reserve, an act which allowed for the large scale settlement of southern Alberta by non-Natives.
PERSONAGES		10	Chief Crowfoot, Chief Poundmaker, John and George McDougall, Father Constantine Scollen, Sam Livingstone, Ephrem Brisbois, Colonel James McLeod, Patrick Burns, Matthew Cochrane, Viscount R. B. Bennett, Dr. John Laurie, Andrew Sibbald and Ralph Connor were just some of the important people during the early historic period on the Bow River.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	23/40 x 10.7	=	6.2
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	20/40 x 10.7	=	5.4
• Settlement	58/60 x 10.7	=	10.3
• Resource Development	35/60 x 10.7	=	6.2
• Transportation	17/30 x 10.7	=	6.1
• Events	10/10 x 12.5	=	12.5
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			69.9

Natural Heritage Evaluation \ Bow River

Category	Score	Rationale
Geology		
1. Physiographic Section	9	From its headwaters in the Park Ranges of the Rocky Mountains the Bow River flows eastward through the Front Ranges, the Olds Plain, the Milk River Uplands, Sullivan Lake Plain to the Coulee Plain where it joins the Oldman River to form the South Saskatchewan River. The longest stretch of the river is located on the Olds Plains.
2. Bedrock Geology	10	All four geological eras are represented, with the Mesozoic and Cenozoic components dominant.
3. Palaeontology	9	Numerous sites of high and medium palaeontological sensitivity are located on the lower reach of the Bow River.
4. Surficial Geology		
4.1 Parent Material	10	The full spectrum of parent materials may be found in the landscape through which the Bow River flows. The most prolific parent materials are tills and glaciolacustrine and glaciofluvial deposits.
4.2 Surface Expression	10	A wide range of surface expressions define the topography through which the river flows. Steep inclines and fans are common in the mountains, while rolling and undulating terrain is more common on the plains.
River Processes		
1. Hydrology	2	Numerous hydrological features and characteristics exist, including: bedrock and boulder rapids, uniform flow, waterfalls (Bow Falls), riffles, high standing waves and material projecting into the river from the banks or logjams. A number of dams, developed for hydro-electric and irrigations purposes, are located on the reaches of this river and the main stream (Bearspaw Dam, Ghost Dam, Horseshoe Dam, Seebee Dam, Coarsland Dam), with the largest dam, the Bassano Dam, located on the Bow River.
2. Water Quality	6	The Bow River is impacted significantly by climate, however, extensive flow regulation is also a prominent factor. Levels of dissolved material tend to be high. High turbidities and pHs tend to occur in the summer. In the winter the high nitrogen levels occur, while phenols tend to increase in the spring and fall.
3. River Morphology	10	Stretches of both fragmentary and continuous terrace levels exist along this river. The channel ranges from braided in some mountain stretches to a single shifting channel with occasional to frequent occurrences of islands on the prairies. In the mountains the bends in the river tend to be much sharper than on the plains. Bedrock ledges and outcrops (often sites of waterfalls), side and mid-channel bars also exist, with the former more prominent in the mountainous areas. The river channel is relatively stable with a channel bed of gravel over shale.
Biota		
1. Vegetation	10	This river travels through a diversity of vegetation types as it flows through the foothills to the plains. Natural subregions traversed include; Sub-Alpine, Montane, Foothills Parkland, Foothills Fescue, Mixed grass and Dry Mixed grass. The Dry Mixedgrass region is the most prominent.
2. Wildlife Habitat	8	This river provides extensive fish habitat. Lesser amounts of prime habitat are available for waterfowl and ungulates.
3. Endangered/Threatened Species	10	Numerous species are represented here,including 3 mammals, 11 birds, 10 plants and 1 amphibian.
4. Species Concentration	7	Sites for wintering ungulates are slightly more numerous than favourable sites for migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	38/40 x 33.33 = 31.66
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	35/40 x 33.33 = 29.16
Total Natural Heritage Theme Score	80.82

Recreation Evaluation \ Bow River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	5	Some jetboating around Calgary, some longer trips possible when river is higher
- Flatwater Boating	7.5	More intermediate flatwater canoeing above the Glenmore Dam, novice from Calgary to Grand Falls -- 6-7 day trip possible
- Whitewater Boating	5	Challenging sections with Class I to IV rapids above Glenmore and Bearspaw Dams
- Fishing	8	The Bow is renown as a world class trout fishing river. Most fishing above glenmore and Bearspaw Dam
- Swimming	6	Some swimming opportunities in shallow pools
• Diversity of Water Associated Activities		
- Trail Activities	5	Good trails found in developed area but many sections go through private lands where trails are limited
- Hunting	5	Some hunting possible
- Camping	6	The Bow has numerous stopping areas for camping and several developed campsites at places including: Basano, Scandia Bridge and Carsland
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	7	Much of the Bow flows through pasture/ranchlands but also several urban areas providing an interesting prospective of contemporary development
- Historical Landscape	7	Much history occurred along the Bow, dating to early native and fur traders -- several old fort sites can be located, but overall little physical evidence of historical artifacts
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	Between Banff-Calgary, the Bow offers dramatic mountain/foothill scenery -- below Calgary, the landscape is fairly uniform
- Remoteness	3	Much of the Bow is easily accessible with evidence of human development, so little true remote experience is possible

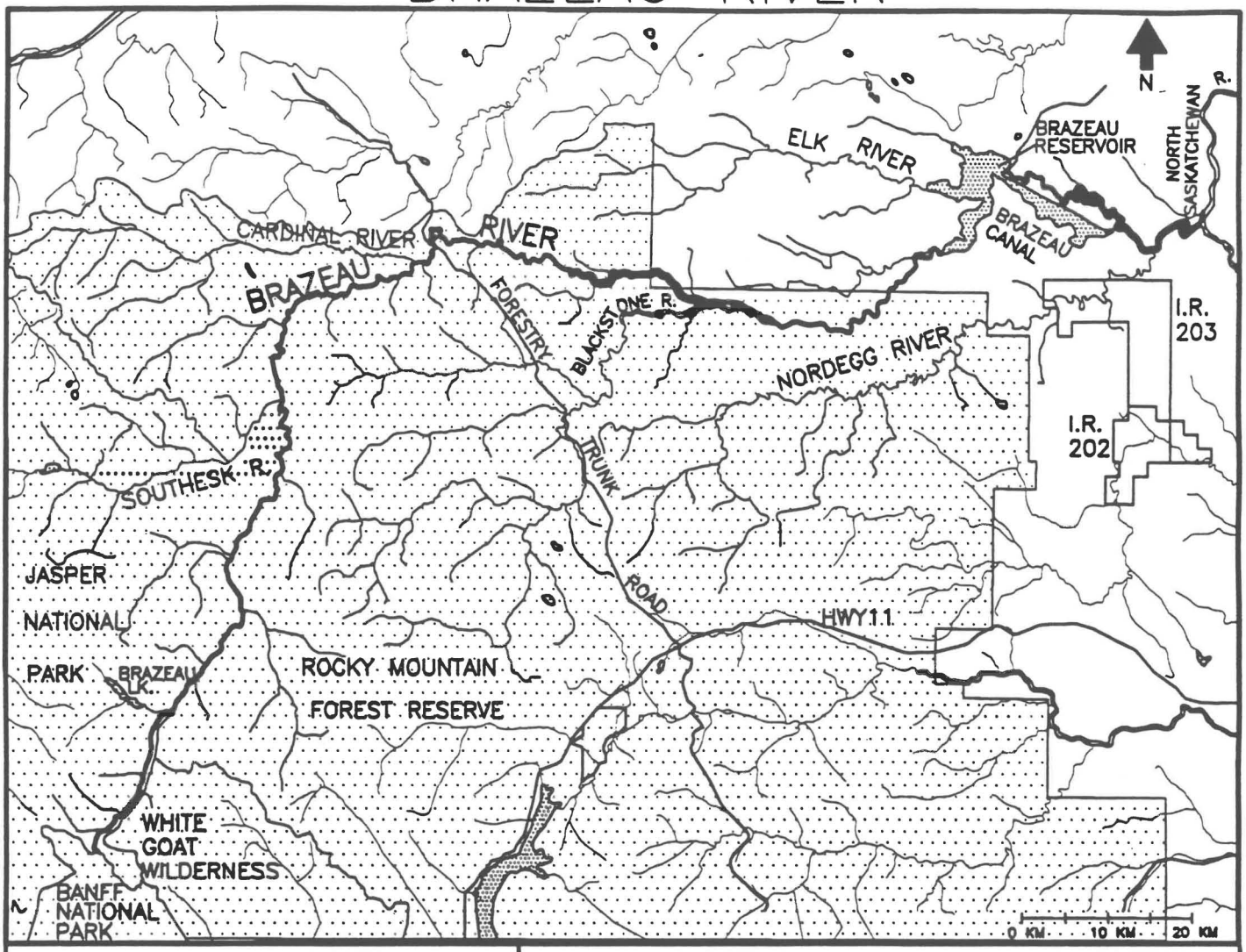
Component	Score	Rationale
• Physical Factors		
- Water Quality	5	Above the Glenmore/Bearspaw Dams water quality remains fairly good -- below Calgary the river is influenced by pollution due to agricultural run-off and urban sewage
- Shoreline Access	6	The Bow River has numerous access points at bridge crossings and urban areas

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 32/50 x 20 = 12.8
- Diversity of Water Associated Activities 16/30 x 20 = 10.6
- Human Heritage Landscape Appreciation 14/20 x 20 = 14.0
- Natural Landscape Appreciation 10/20 x 20 = 10.0
- Physical Factors 11/20 x 20 = 11.0

- Total Recreational Capability Theme Score 58.4

BRAZEAU RIVER



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Human Heritage Scores

Historical / Cultural	14.70

Natural Heritage Scores

Geology	28.33
River Processes	21.11
Plants and Wildlife	15.00

Recreational Scores

Recreational Activities/Landscape Appreciation	55.40

TOTAL ADJUSTED SCORE 44.80

BRAZEAU RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Very little investigation has been undertaken in the Brazeau region, hence there is a lack of previously recorded sites. This lack does not reflect archaeological potential.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Kootenay Plains - aboriginal hunting
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	6	David Thompson explored this area.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	6	important logging area
	FISHING	0	
	MINING	6	coal prospecting in the area was extensive in the early 20th Century - Nordegg, McEvoy and Hayden coal fields
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	7	hydro-electric developments
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		6	David Thompson explored the area; Brazeau was an employee of the Hudson's Bay Company and was of Creole origin.

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	10/40 x 10.7	=	2.7
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	6/60 x 10.7	=	1.1
•	Resource Development	19/60 x 10.7	=	3.4
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	6/10 x 12.5	=	25.0
•	Total Human Heritage Theme Score			14.7

Natural Heritage Evaluation \ Brazeau River

Category	Score	Rationale
Geology		
1. Physiographic Section	9	The Brazeau River originates in the Park Ranges of the Rocky Mountains and traverses the Front Ranges, Central Foothills, Western Benchlands and the Drayton Plain.
2. Bedrock Geology	10	All four geological eras are represented with the Cenozoic being the most prominent.
3. Palaeontology	5	A few isolated sites of medium and low palaeontological sensitivity exist just above the Brazeau Reservoir.
4. Surficial Geology		
4.1 Parent Material	10	In the mountain and upland areas, till, colluvial material and rock which is either exposed or overlain by till or colluvium, are prevalent. As the river proceeds eastward on to the plains, glaciolacustrine and glaciofluvial deposits are predominant, with some isolated cases of eolian and morainal material.
4.2 Surface Expression	10	A variety of surface expressions are encountered ranging from steep inclines, fans, hummocky relief, veneers and veneer blankets in the upland areas to undulating terrain typical of the prairies.
River Processes		
1. Hydrology	3	The Brazeau River is a very fast moving river containing pool and riffle sequences, standing waves and strong back eddy currents. The flow of this river is regulated in the lower reaches by the Brazeau Dam (Brazeau Reservoir). Dramatic changes in discharge occur as a result of regulated flow changes.
2. Water Quality	8	Water quality meets the guidelines for parameters that have been analyzed.
3. River Morphology	8	This river has very pronounced bends that may or may not show a repeating pattern, depending on the stretch of the river. Several fragmentary terrace levels exist. Diagonal and side bars are also present. The river is fairly stable with a channel bed of gravel over erodible sandstone. Ledges, boulders and a canyon impact water flow.
Biota		
1. Vegetation	7	The natural subregions encountered by the Brazeau River environment include the Sub Alpine, the Upper Foothills and the Lower Foothills.
2. Wildlife Habitat	5	Vast amounts of prime habitat are available for fish and ungulates. No quality habitat exists for waterfowl.
3. Endangered/Threatened Species	2	Several endangered wildlife species tend to use the river and/or adjacent habitat. These include the Peregrine Falcon, Bald Eagle, Osprey and Grizzly Bear.
4. Species Concentration	4	The river environment is important to wintering ungulates.

Summary of Average Natural Heritage Category Scores

Geology Category	34/40 x 33.33 = 28.33
River Processes Category	19/30 x 33.33 = 21.11
Biota Category	18/40 x 33.33 = 15.00
Total Natural Heritage Theme Score	64.44

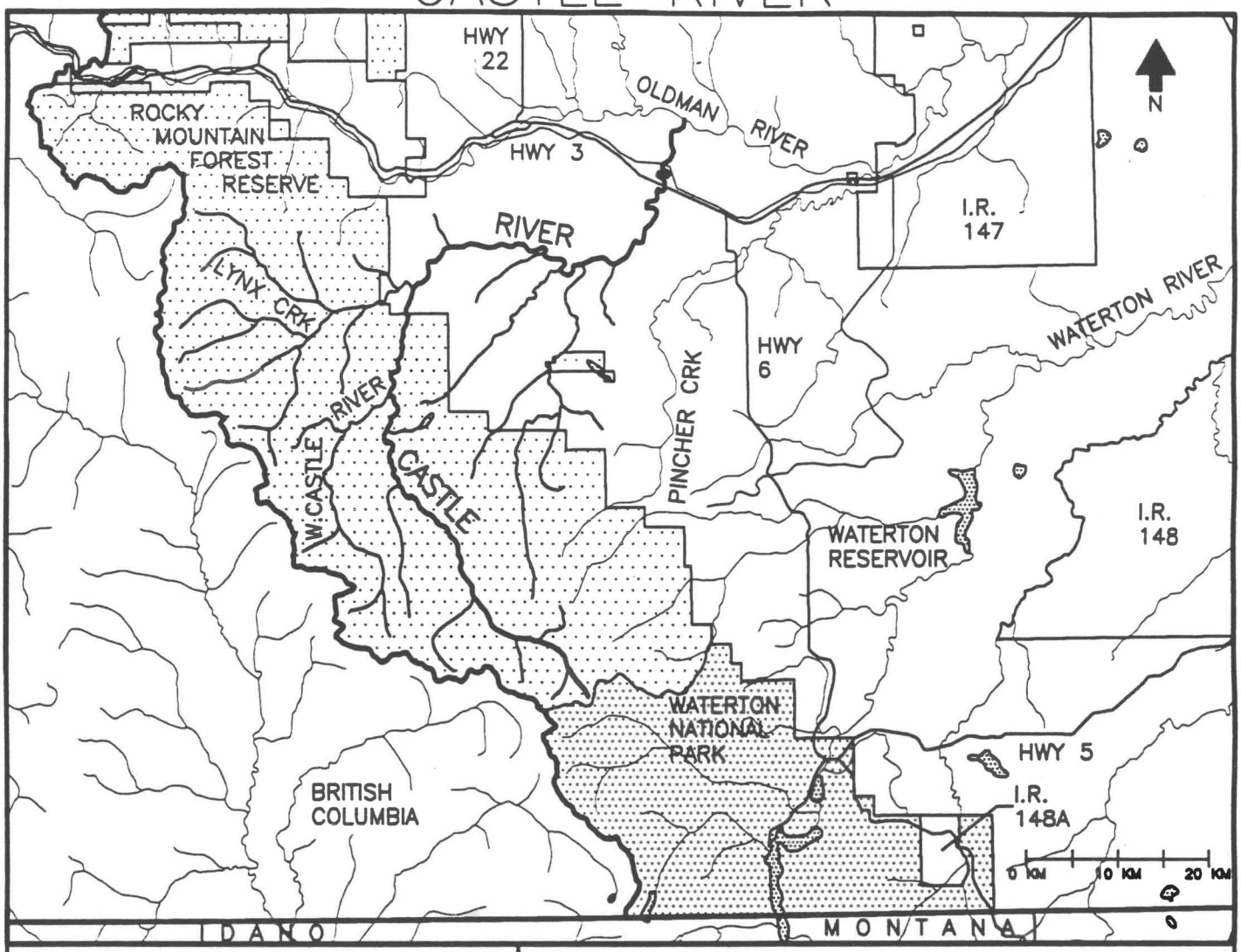
Recreation Evaluation \ Brazeau River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	3	Limited to reservoir and hazardous due to deadfall - jet boat only on lower reaches
- Flatwater Boating	5	Lower reach to reservoir is suitable with some undeveloped camping areas - access is poor
- Whitewater Boating	8	Upper reaches have Class I - IV for intermediate and expert in open canoes - 3 day trip possible - access to river is poor
- Fishing	6	Good in middle reach with 2 or more varieties of sport fish - access is poor at reservoir
- Swimming	5	
• Diversity of Water Associated Activities		
- Trail Activities	6	Little use adjacent to river in lower reaches but more dispersed than region
- Hunting	8	Very popular game area - accessed by jet boat and all terrain vehicles
- Camping	5	Underdeveloped / random except at reservoir and 2 forestry sites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	2	Fire tower and road crossing
- Historical Landscape	3	1 recorded site (Bogg & Hall wintering post of N.W.Co.) at mouth of River below dam
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Excellent variation between mountain and plains environment
- Remoteness	8	No settlements and few man-made from upper reach to dam
• Physical Factors		
- Water Quality	9	Excellent glacier fed resource clear and cold
- Shoreline Access	2	Limited to 4 or 5 access points over entire upper course

Summary of Average Recreational Category Scores

• Diversity of Water Dependent Activities	27/50 x 20 = 10.8
• Diversity of Water Associated Activities	19/30 x 20 = 12.6
• Human Heritage Landscape Appreciation	5/20 x 20 = 5.0
• Natural Landscape Appreciation	16/20 x 20 = 16.0
• Physical Factors	11/20 x 20 = 11.0
• Total Recreational Capability Theme Score	55.4

CASTLE RIVER



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Human Heritage Scores

Historical / Cultural 17.90

Natural Heritage Scores

Geology 24.16

River Processes 24.44

Plants and Wildlife 10.00

Recreational Scores

Recreational Activities/Landscape Appreciation ... 56.00

TOTAL ADJUSTED SCORE 44.20

CASTLE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is an excellent representation of all cultural and temporal affiliations from the Middle, Late and Protohistoric periods.
	RESOURCE EXPLOITATION	5	Drive lanes at DjPm 219 are near the river. Valley was a traditional trade and transport route.
	HABITATION	8	Stratified campsites characterize the area such as sites DjPm 44, DjPm 64, and DjPl 3
	IDEOLOGY	8	A sweatlodge has been recorded along the river (DjPm 151); sacred paint source
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	8	Located within traditional territory of greater Blackfoot Nation
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	7	Hutterites Garden DjPm 64, early Dukhobor settlement
	RANCHING	7	Early ranching was practiced by several British remittance men, i.e. the Godsal Ranch
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		4	Kootenai Brown (famous frontiersman)

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	31/40 x 10.7	=	8.3
•	First Nations Contact	8/40 x 10.7	=	2.1
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	14/60 x 10.7	=	2.5
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	4/10 x 12.5	=	5.0
•	Total Human Heritage Theme Score			17.9

Natural Heritage Evaluation \ Castle River

Category	Score	Rationale
Geology		
1. Physiographic Section	8	The Castle River originates in the Border Ranges, then traverses the Southern Foothills to the Cardston Plain, where it feeds into the Oldman River.
2. Bedrock Geology	10	All four geological eras are represented; however, the Mesozoic is a relatively minor component.
3. Palaeontology	2	A few select locations of low palaeontological sensitivity are located near the confluence with the Oldman River.
4. Surficial Geology		
4.1 Parent Material	9	Most of the surface area crossed by this river in the mountains and foothills consists of till, rock and fluvial deposits, while glaciolacustrine material and till are prevalent on the plain.
4.2 Surface Expression	9	A variety of surface landforms are traversed, including veneers, veneer-blankets, steep inclines and undulating and hummocky terrain.
River Processes		
1. Hydrology	6	This is a fast flowing river with numerous ledges, channel rock and rapids. Pool and riffle sequences are also common.
2. Water Quality	9	The water meets guideline standards. No major municipal inputs exist.
3. River Morphology	7	This river has pronounced bends which in places show a repetitive pattern. Diagonal and point bars are present. The moderately unstable channel is partly entrenched and confined. Castle canyon is a prominent feature. As the river flow decreases, islands are formed by the settling sediment.
Biota		
1. Vegetation	4	Much of the Castle River and its valley tends to fall into the Montane region, however, in some areas Lower Foothills vegetation may be evident, depending on the exact location of the transition zone. As the river nears the Oldman River confluence, the Foothills Fescue subregion becomes prevalent.
2. Wildlife Habitat	2	The river provides a top quality environment for fish. Prime ungulate habitat is less abundant, while prime waterfowl habitat is nonexistent.
3. Endangered/Threatened Species	4	Several species of plants and mammals, a bird and an amphibian, all of which have threatened status, may be found along this river.
4. Species Concentration	2	Approximately 50 % of the length of this river is important to wintering ungulates. This river is of no significance to migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	29/40 x 33.33 = 24.16
River Processes Category	22/30 x 33.33 = 24.44
Biota Category	12/40 x 33.33 = 10.00
Total Natural Heritage Theme Score	58.60

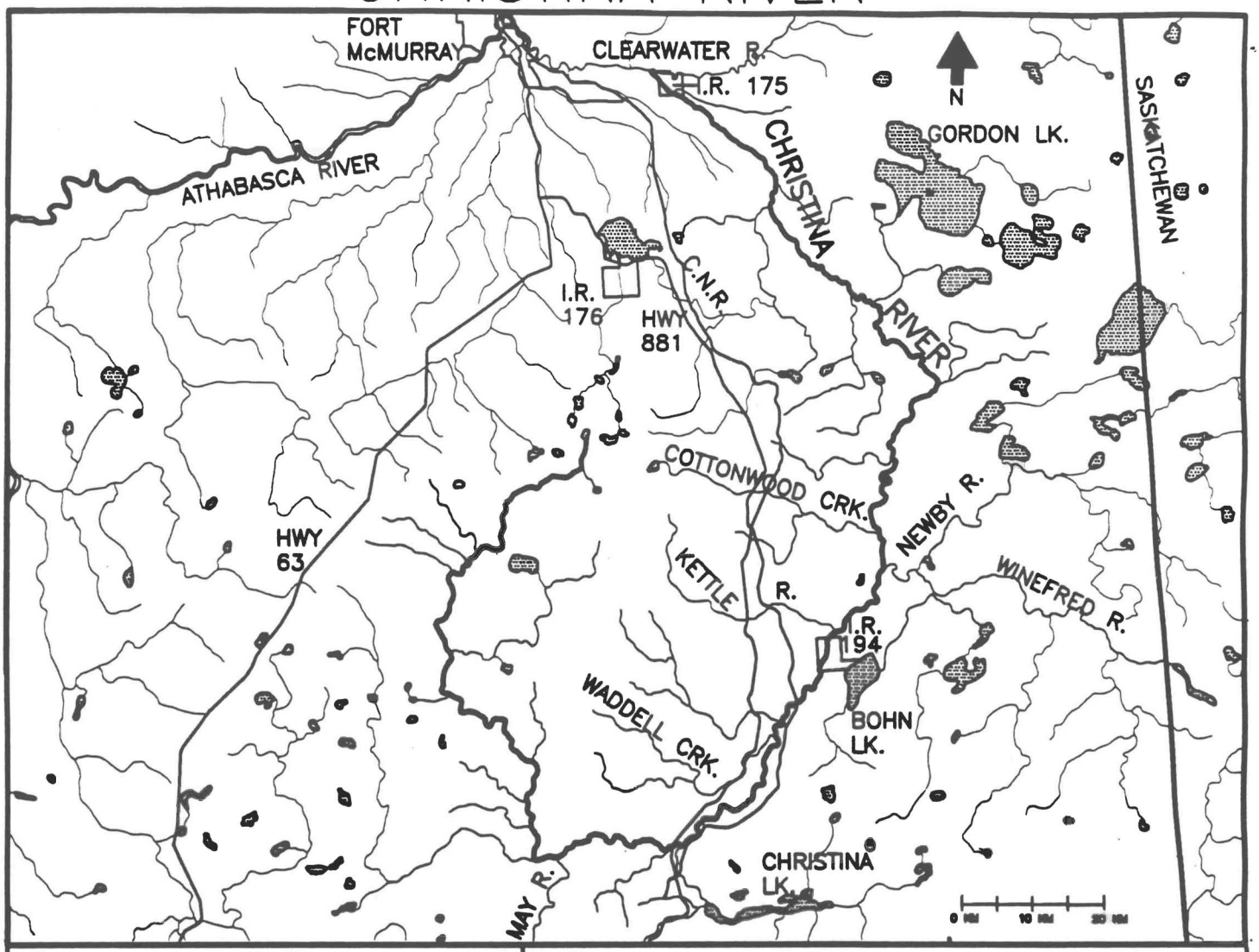
Recreation Evaluation \ Castle River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Not possible
- Flatwater Boating	3	Limited to high water level periods
- Whitewater Boating	1	Some potential along certain reaches during high spring runoff
- Fishing	7	Good sport fishing
- Swimming	4	Generally limited to shallow pools but water very cold
• Diversity of Water Associated Activities		
- Trail Activities	7	Good access for all types of trail activities including hiking, horseback riding, ATV, snowmobile, cross-country skiing
- Hunting	7	Area offers good hunting potential for large game
- Camping	6	Several forestry campsites have been developed, but they are not fully serviced
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	7	Much of the Castle is influenced by gas exploration, logging, ranching and other activities
- Historical Landscape	4	Evidence dating back to 2000 - 10,000 years but little remains visible on surface. Several buried sites exist.
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	Generally a scenic mountain landscape with varied topography, vegetation and views
- Remoteness	3	Limited to certain reaches -- most of river is easily accessible so limited remote experience
• Physical Factors		
- Water Quality	8	Generally the river has a high water quality for all recreation, except during periods of spring runoff
- Shoreline Access	7	Many roads, forestry access and paved roads cross the river or provide easy access. Only limitation is private ownership along much of the river

Summary of Average Recreational Category Scores

• Diversity of Water Dependent Activities	15/50 x 20 = 6.0
• Diversity of Water Associated Activities	21/30 x 20 = 14.0
• Human Heritage Landscape Appreciation	11/20 x 20 = 11.0
• Natural Landscape Appreciation	10/20 x 20 = 10.0
• Physical Factors	15/20 x 20 = 15.0
• Total Recreational Capability Theme Score	56.0

CHRISTINA RIVER



Human Heritage Scores

Historical / Cultural 8.30

Natural Heritage Scores

Geology 23.33

River Processes 20.00

Plants and Wildlife 6.67

Recreational Scores

Recreational Activities/Landscape Appreciation ... 42.10

TOTAL ADJUSTED SCORE 33.50

CHRISTINA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	To date no prehistoric sites have been recorded on the Christina River due to the lack of investigation in the region. This does not necessarily reflect archaeological potential
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	9	Indian Reserves 194, 175
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	2	Was located within the Athabasca District trading area
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	7	Philip Turnor and Peter Fidler traversed Christina River to reach the Athabasca (1791).
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	2	Historic cabin HdOs 3 (1920-1940)
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		3	Independent traders Tatum, Robeau, Stepahanowich

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	9/40 x 10.7	=	2.4
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	2/40 x 10.7	=	0.5
•	Settlement	9/60 x 10.7	=	1.6
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	3/10 x 12.5	=	3.0
•	Total Human Heritage Theme Score			8.3

Natural Heritage Evaluation \ Christina River

Category	Score	Rationale
Geology		
1. Physiographic Section	8	This river traverses four physiographic sections: the Wabasca Lowlands, the McMurray Lowlands, the Methy Portage Plains and the Stony Mountain Upland, with the uplands region being the most prominent.
2. Bedrock Geology	5	The geology of this area is Mesozoic in origin: generally marine shales, with shale and oil sands more prominent near the confluence with the Clearwater River.
3. Palaeontology	5	Little palaeontological information is available regarding this area. Only a relatively small area near the confluence with the Clearwater River has known palaeontological sensitivity. Within this area one section has medium sensitivity and several others have low sensitivity.
4. Surficial Geology		
4.1 Parent Material	10	Much of this area contains glaciofluvial or glaciolacustrine material overlying till deposits. Glaciolacustrine, fluvial and moraine deposits are also associated with this region.
4.2 Surface Expression	10	The Christina River traverses a wide range of landscape surfaces; however, undulating and rolling terrain are the most common in this area.
River Processes		
1. Hydrology	6	The Christina River is a small volume river with a moderate current. Rapids are common before and after the meander bends. In-stream boulders tend to affect flow. Water levels fluctuate drastically throughout the year.
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	6	This meandering river doubles in width following the Winefred River confluence. The river bed changes from sand to gravel and silt. Just past the Gordan River confluence the river enters a canyon with steep sandstone cliffs (30-50m) approximately 0.4 km wide. Islands exist within the river channel. Several tar sand exposures exist.
Biota		
1. Vegetation	3	The Central Mixedwood comprises the largest component of the vegetation. The Boreal Highlands is a minor component as the river skirts around the Stony Mountain Upland area.
2. Wildlife Habitat	2	Some prime habitat is provided for fish and ungulates.
3. Endangered/Threatened Species	1	The Osprey and River Otter may be found along this river.
4. Species Concentration	2	This river environment is of some importance to wintering ungulates and contains some sites of provincial significance to migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	28/40 x 33.33 = 23.33
River Processes Category	12/20 x 33.33 = 20.00[3]
Biota Category	8/40 x 33.33 = 6.67
Total Natural Heritage Theme Score	50.00[3]

[3] Water quality information not available

Recreation Evaluation \ Christina River

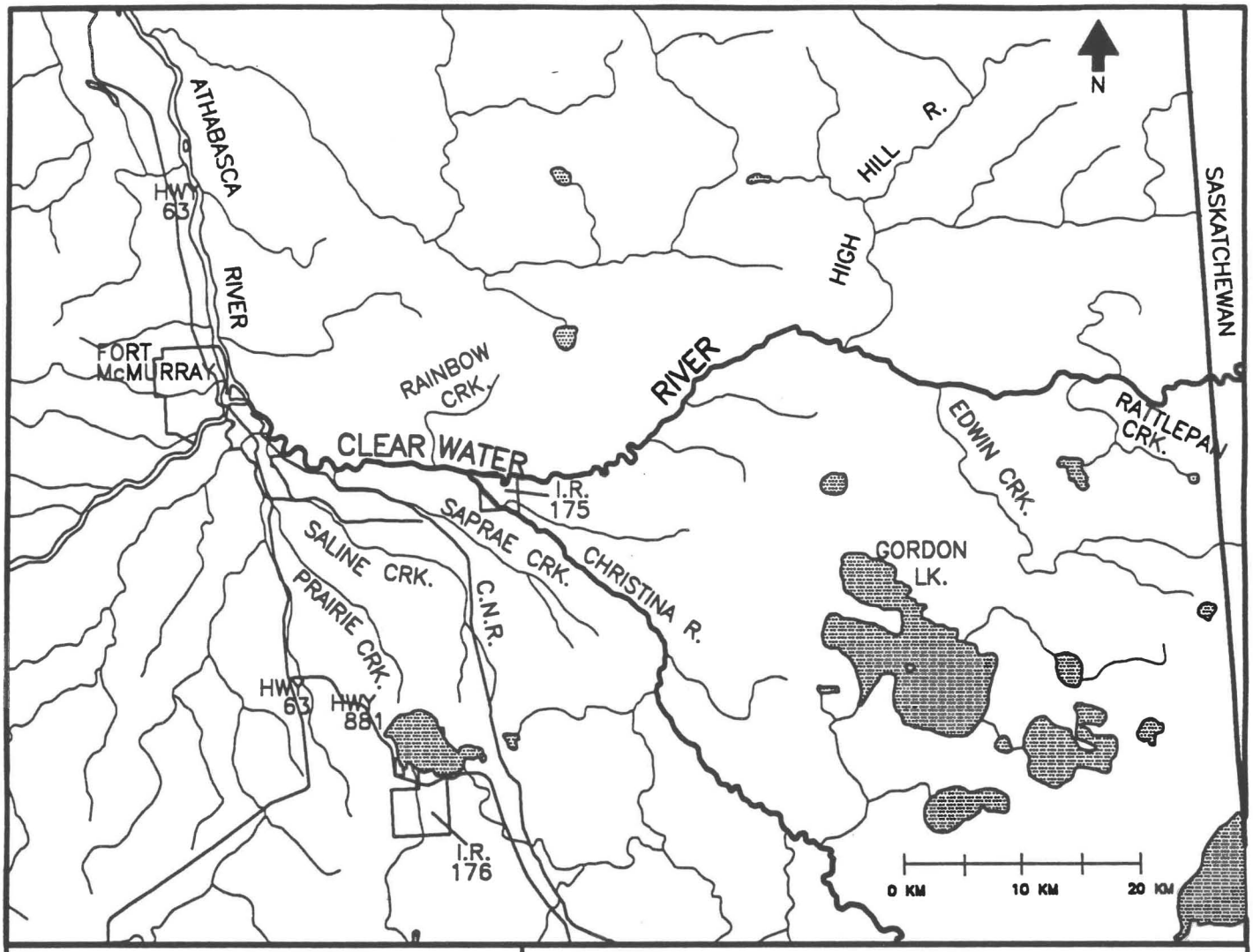
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	1	Narrow, water fluctuation and no access
- Flatwater Boating	5	Five (5) campsites, limited access, best when water levels are low
- Whitewater Boating	3	Some Class IV, but limited and can be dangerous with steep gorges especially at high water
- Fishing	8	Prime Arctic Grayling
- Swimming	0	Quality is good but no known locations
• Diversity of Water Associated Activities		
- Trail Activities	4	Limited snowmobile trails
- Hunting	6	Access is limited, hunting around Christina Lake Lodge
- Camping	4	Only five (5) campsites exist
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	4	Logging operations and railroad bridge
- Historical Landscape	1	Limited information available
• Natural Landscape Appreciation		
- Natural/Visual Attractions	3	Some rapids / generally consistent Boreal forest throughout with little change in landscape
- Remoteness	8	Few manmade occurrences (i.e., roads, powerlines, housing) throughout 100 km
• Physical Factors		
- Water Quality	8	Relatively undisturbed
- Shoreline Access	2	Generally remote thus limited access

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 17/50 x 20 = 6.8
- Diversity of Water Associated Activities 14/30 x 20 = 9.3
- Human Heritage Landscape Appreciation 5/20 x 20 = 5.0
- Natural Landscape Appreciation 11/20 x 20 = 11.0
- Physical Factors 10/20 x 20 = 10.0

- Total Recreational Capability Theme Score 42.1

CLEARWATER RIVER



Human Heritage Scores

Historical / Cultural	47.70

Natural Heritage Scores

Geology	16.67
River Processes	20.00
Plants and Wildlife	7.49

Recreational Scores

Recreational Activities/Landscape Appreciation	60.10

TOTAL ADJUSTED SCORE 50.65

CLEARWATER - ATHABASCA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	5	Limited numbers of previously recorded sites are reported for the Clearwater, thus known cultural and temporal affiliations are limited. This is not necessarily a reflection of archaeological potential.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	8	Indian Reserve 175
	TRADITIONAL LAND USE	9	Historic and recent cabins recorded in the area, important fishing camps.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	10	Fort of the Forks (McLeod's House) HeOu 1, part of Methy Portage fur trade route
	MONOPOLY (1821-1859)	10	part of fur trade route
	FREE TRADERS (1850-1940)	7	part of fur trade network
SETTLEMENT	EXPLORATION	10	Peter Pond was first explorer through the Methy portage route
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	10	Fort McMurrary focus of oil development, HeOt 1 - oil sands quarry site from 1929 to 1936.
	CLAY PRODUCTS	0	
	WATER	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
TRANSPORTATION	RIVER COMMUNICATION	10	Methy Portage route - major fur trade water route; Pine Portage HeOm-2; Sir Alexander Mackenzie waterway
	LAND COMMUNICATION	7	Waterways railway
	TELECOMMUNICATION	0	
EVENTS		10	First fur trade access to modern Alberta
PERSONAGES		10	Peter Pond, Cuthbert Grant, Mackenzie, Waden

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	5/40 x 10.7	=	1.3
• First Nations Contact	17/40 x 10.7	=	4.5
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	27/40 x 10.7	=	7.2
• Settlement	10/60 x 10.7	=	1.8
• Resource Development	10/60 x 10.7	=	1.8
• Transportation	17/30 x 10.7	=	6.1
• Events	10/10 x 12.5	=	12.5
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			47.7

Natural Heritage Evaluation \ Clearwater River (Athabasca)

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The Clearwater river traverses the McMurray Lowland and the Methy Portage Plains.
2. Bedrock Geology	5	The Mesozoic era is the sole era represented.
3. Palaeontology	7	Approximately 75 % of this river has been surveyed. Several small select locations of high and medium palaeontological resource sensitivity exist along the length of this river, with the remainder categorized as containing low sensitivity.
4. Surficial Geology		
4.1 Parent Material	4	Two parent materials dominate this region; till and glaciolacustrine material.
4.2 Surface Expression	4	Topography in this area is limited to sequences of very gently rolling slopes and flat unidirectional sloping surfaces.
River Processes		
1. Hydrology	5	Numerous rapids and falls mark this river. Of note are the Whitemud Falls, which gets its name from a white limestone gorge through which the river passes, and Flowerpot Island and Cascade rapids.
2. Water Quality	7	Levels exceeding guidelines occasionally occur for some metals and phosphorous. A high level of sodium chloride, relative to upstream portions of the basin, occurs as a result of the high salt content of groundwater input from the Devonian Formation.
3. River Morphology	6	Two fragmentary levels of terraces exist. The river generally contains bends of low curvature and has occasional islands. Large dunes and some boulders mark the river channel. A series of ledges occurring in the middle of a narrow canyon contribute to the formation of rapids.
Biota		
1. Vegetation	1	Only one vegetation zone is encountered, the Central Mixedwood.
2. Wildlife Habitat	2	Prime habitat is provided for ungulates.
3. Endangered/Threatened Species	2	This river and the adjacent environments provide habitat for the threatened Bald Eagle, Osprey and River Otter.
4. Species Concentration	4	No significant seasonal habitat exists for waterfowl. Class 1 and 2 wintering habitat for ungulates is found along the entire length of the river.

Summary of Average Natural Heritage Category Scores

Geology Category	20/40 x 33.33 = 16.67
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	9/40 x 33.33 = 7.49
Total Natural Heritage Theme Score	44.16

Recreation Evaluation \ Clearwater River (Athabasca)

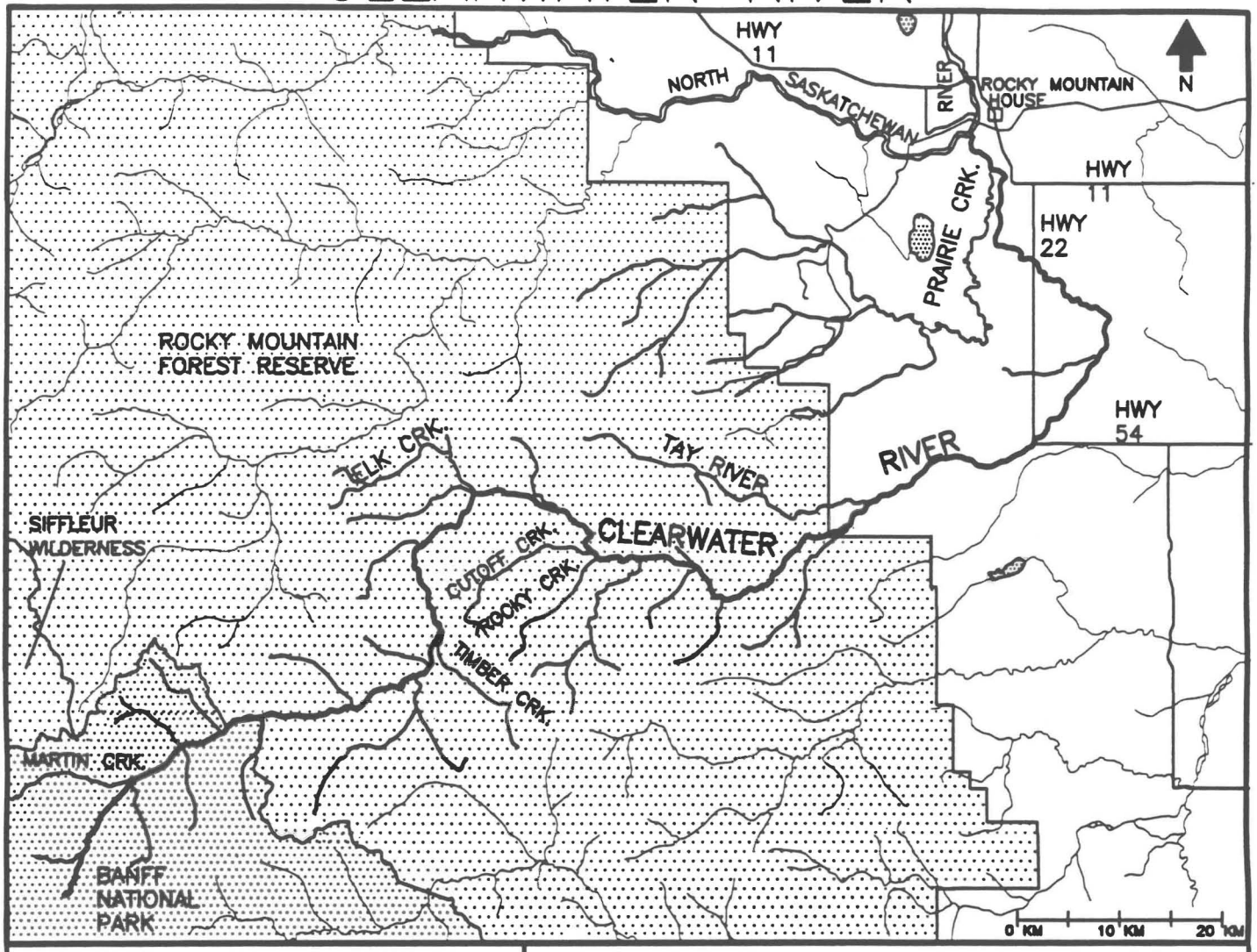
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	6	Accessible up to Whitemud Falls for predominantly jet boats.
- Flatwater Boating	7	Excellent resource for extended service trips. Campsites limited overall class II. Some portages necessary.
- Whitewater Boating	7	Provides Class II through VI and kayaking offers remote/ adventure paddling. Some portages necessary.
- Fishing	4	Low fish stocks due to slow growth - Arctic Grayling, Pike and Walleye.
- Swimming	3	Some fair swimming areas if developed. Water temperature
• Diversity of Water Associated Activities		Remote and under-developed but good potential portages are established.
- Trail Activities	6	
- Hunting	6	Critical deer and moose habitat but not caribou.
- Camping	5	Limited to primitive river campsites - good potential.
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	1	Fire tower and primitive campsites only.
- Historical Landscape	8	Peter Pond fur trading route.
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	Whitemud falls spectacular scenery and varied natural attractions.
- Remoteness	9	Very remote / little to no development.
• Physical Factors		
- Water Quality	9	Very clear / limestone sediments.
- Shoreline Access	2	Limited and ATV but could be developed.

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 27/50 x 20 = 10.8
- Diversity of Water Associated Activities 17/30 x 20 = 11.3
- Human Heritage Landscape Appreciation 9/20 x 20 = 9.0
- Natural Landscape Appreciation 18/20 x 20 = 18.0
- Physical Factors 11/20 x 20 = 11.0

- Total Recreational Capability Theme Score 60.1

CLEARWATER RIVER



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Human Heritage Scores

Historical / Cultural 7.40

Natural Heritage Scores

Geology 29.16

River Processes 23.33

Plants and Wildlife 14.17

Recreational Scores

Recreational Activities/Landscape Appreciation ... 59.70

TOTAL ADJUSTED SCORE 44.60

CLEARWATER - NORTH SASKATCHEWAN RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	4	Limited archaeological information is available reflecting the lack of systematic investigation in the region. This is not necessarily an indicator of archaeological potential. A number of non-diagnostic or ephemeral sites have been recorded.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	9	Burials - FaPt 9, FaPt 8, ElPu 15 (cemetery)
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Kootenai (Salish?) pithouses. Traditional territory of the Stoney, Kootenai, and Blackfoot Nations
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	7	Partially followed by Palliser expedition
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	13/40 x 10.7	=	3.5
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	7/60 x 10.7	=	1.2
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			7.4

Natural Heritage Evaluation \ Clearwater River (N. Sask.)

Category	Score	Rationale
Geology		
1. Physiographic Section	9	The Clearwater River originates in the Park Ranges of the Rocky Mountains and traverses the Front Ranges, Central Foothills, Western Benchlands and the Olds Plain, with no one section dominating.
2. Bedrock Geology	10	As with many of the rivers that originate in the Rockies and migrate to the Plains, all geological eras are represented.
3. Palaeontology	8	A few select sites of high palaeontological sensitivity occur near the headwaters of the river.
4. Surficial Geology		
4.1 Parent Material	8	Fluvial, morainal and colluvial deposits are common and often overlay rock.
4.2 Surface Expression	8	Surface expression ranges from undulating and ridged terrain to various combinations of sediment blankets and veneers.
River Processes		
1. Hydrology	5	The river contains pool and riffle sequences as well as numerous small rapids. In some regions boulders may be scattered throughout the channel. Logjams and sweepers are common and can influence the current and flow.
2. Water Quality	8	Only very seldom are guidelines exceeded.
3. River Morphology	8	Stretches of several continuous levels of terraces and a floodplain are evident in the river valley. The river has very pronounced meander bends that do not possess a repetitive pattern. Occasional islands exist. Mid-channel and diagonal bars are common in this predominantly gravel- bedded river. The river's lateral activity is relatively stable. The channel itself is partly entrenched and often confined within the valley bottom.
Biota		
1. Vegetation	8	While the headwaters of this river are located in the Alpine, both the Alpine and Sub-Alpine natural regions account for only a minimal proportion of the vegetation found along this river. Most of this river is located in the Upper Foothills subregion. The Lower Foothills and Dry Mixedwood are important components as the river nears the North Saskatchewan River confluence.
2. Wildlife Habitat	2	The river is rated as prime habitat for ungulates.
3. Endangered/Threatened Species	3	Numerous endangered and threatened species of plants, animals, birds, amphibians and reptiles are found in association with this river.
4. Species Concentration	4	The river environment along the entire length of this river is of major importance to wintering ungulates but of no significance to migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	35/40 x 33.33 = 29.16
River Processes Category	21/30 x 33.33 = 23.33
Biota Category	17/40 x 33.33 = 14.17
Total Natural Heritage Theme Score	66.66

Recreation Evaluation \ Clearwater River (N. Sask.)

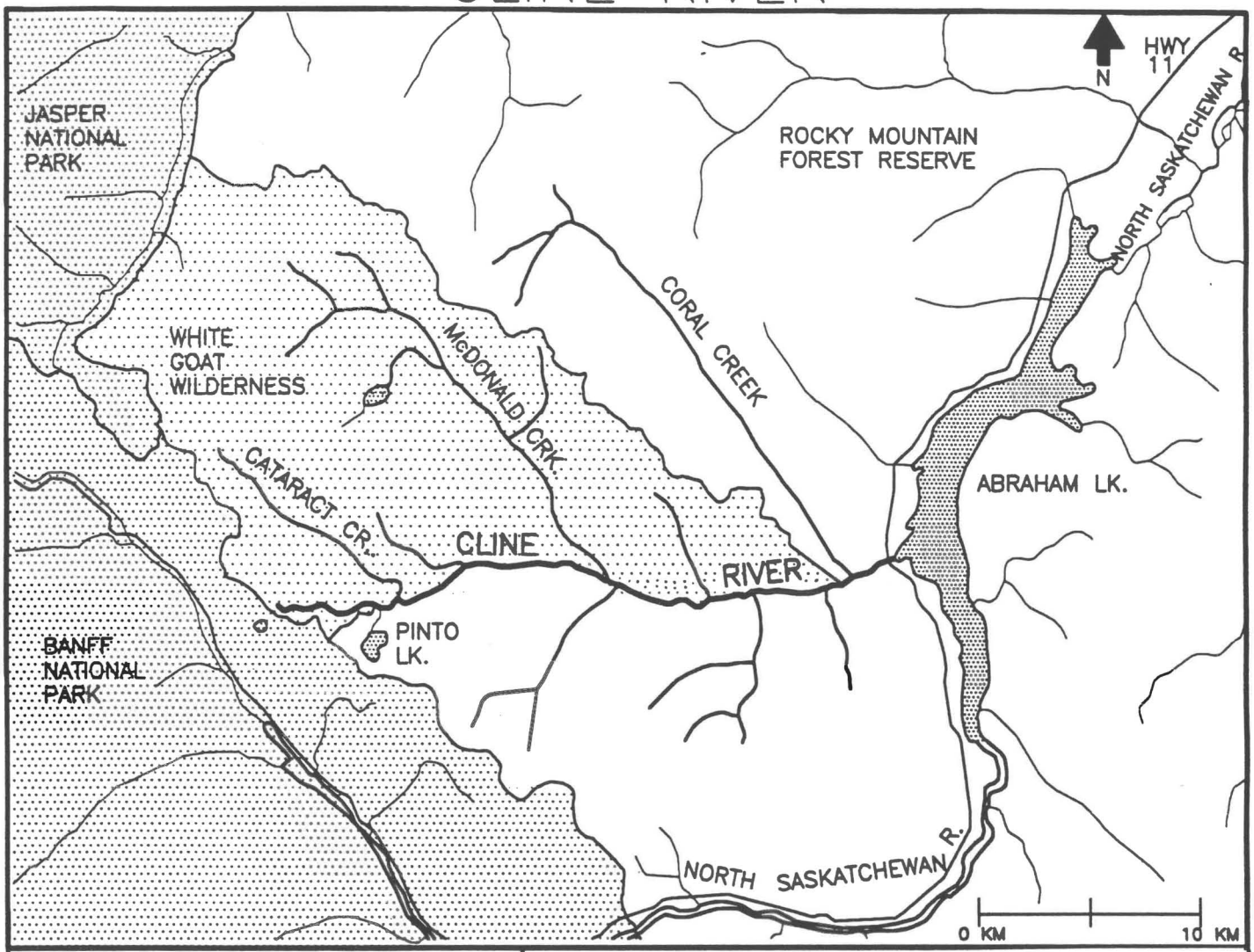
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Mountain and foothill stream / rapids and depth
- Flatwater Boating	0	Rapids
- Whitewater Boating	8	Popular resource for intermediate and advanced paddler - sweepers and log jams are dangerous
- Fishing	8	Important bull trout habitat
- Swimming	0	Flow regime and temperature
• Diversity of Water Associated Activities		
- Trail Activities	6	Developed trails along some roads
- Hunting	7	Excellent game area but access is limited
- Camping	7	Number of sites on upper reaches - fewer on lower
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	3	Flows through some agricultural lands in lower reaches
- Historical Landscape	6	Three (3) sites near mouth of Clearwater
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	Excellent front range / grassland terraces
- Remoteness	8	Wild and scenic except for lower reaches
• Physical Factors		
- Water Quality	9	Mountain fed
- Shoreline Access	5	Provides limited access at 6 points along stretch

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 16/50 x 20 = 6.4
- Diversity of Water Associated Activities 20/30 x 20 = 13.3
- Human Heritage Landscape Appreciation 9/20 x 20 = 9.0
- Natural Landscape Appreciation 17/20 x 20 = 17.0
- Physical Factors 14/20 x 20 = 14.0

- Total Recreational Capability Theme Score 59.7

CLINE RIVER



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Human Heritage Scores

Historical / Cultural 6.70

Natural Heritage Scores

Geology 20.00

River Processes 0

Plants and Wildlife 6.67

Recreational Scores

Recreational Activities/Landscape Appreciation ... 49.80

TOTAL ADJUSTED SCORE 27.72

CLINE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Elements
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	4	Few sites have been recorded along the Cline.
	RESOURCE EXPLOITATION	4	FbQc 34 is a lithic reduction site.
	HABITATION	0	
	IDEOLOGY	10	Cline River Pictographs FaQf 1, this is a relatively rare site type in Alberta.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	7	Waputeek or White Goat River on Palliser Map of 1859. Traditional hunting grounds of the Stoney Nation.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Elements
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	18/40 x 10.7	=	4.8
• First Nations Contact	7/40 x 10.7	=	1.9
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	0/60 x 10.7	=	0.0
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			6.7

Natural Heritage Evaluation \ Cline River

Category	Score	Rationale
Geology		
1. Physiographic Section	3	This river is located entirely within the Park Ranges of the Rocky Mountains.
2. Bedrock Geology	7	The geology of this area consists of Paleozoic and Precambrian sedimentary rock.
3. Palaeontology	N/A	No palaeontological information is available at the present time regarding this area.
4. Surficial Geology		
4.1 Parent Material	8	The parent materials range from colluvium and fluvium to bedrock, which is either exposed or overlain by till.
4.2 Surface Expression	8	Surface expression in this area ranges from fans and steep inclines to veneers and veneer blankets.
River Processes		
1. Hydrology	N/A	
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	N/A	
Biota		
1. Vegetation	2	Most of the region through which the Cline River flows is within the Montane natural subregion, with a minor component in the Sub-Alpine.
2. Wildlife Habitat	2	Prime habitat is provided for both ungulates and fish.
3. Endangered/Threatened Species	2	Several endangered and threatened species may be found near or adjacent to the river environment. These include the; Cooper's Hawk, Grizzly Bear and a plant, *Braya humilis*, which is a member of the mustard family.
4. Species Concentration	2	Ungulate wintering habitat is found along the entire length of this river. The Cline River is of no significance to migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	18/30 x 33.33 = 20.00[1]
River Processes Category	0 = 0[2,3,4]
Biota Category	8/40 x 33.33 = 6.67
Total Natural Heritage Theme Score	26.67[1,2,3,4]

[1] Palaeontology information not available
[2] Hydrology information not available
[3] Water quality information not available
[4] River morphology information not available

Recreation Evaluation \ Cline River

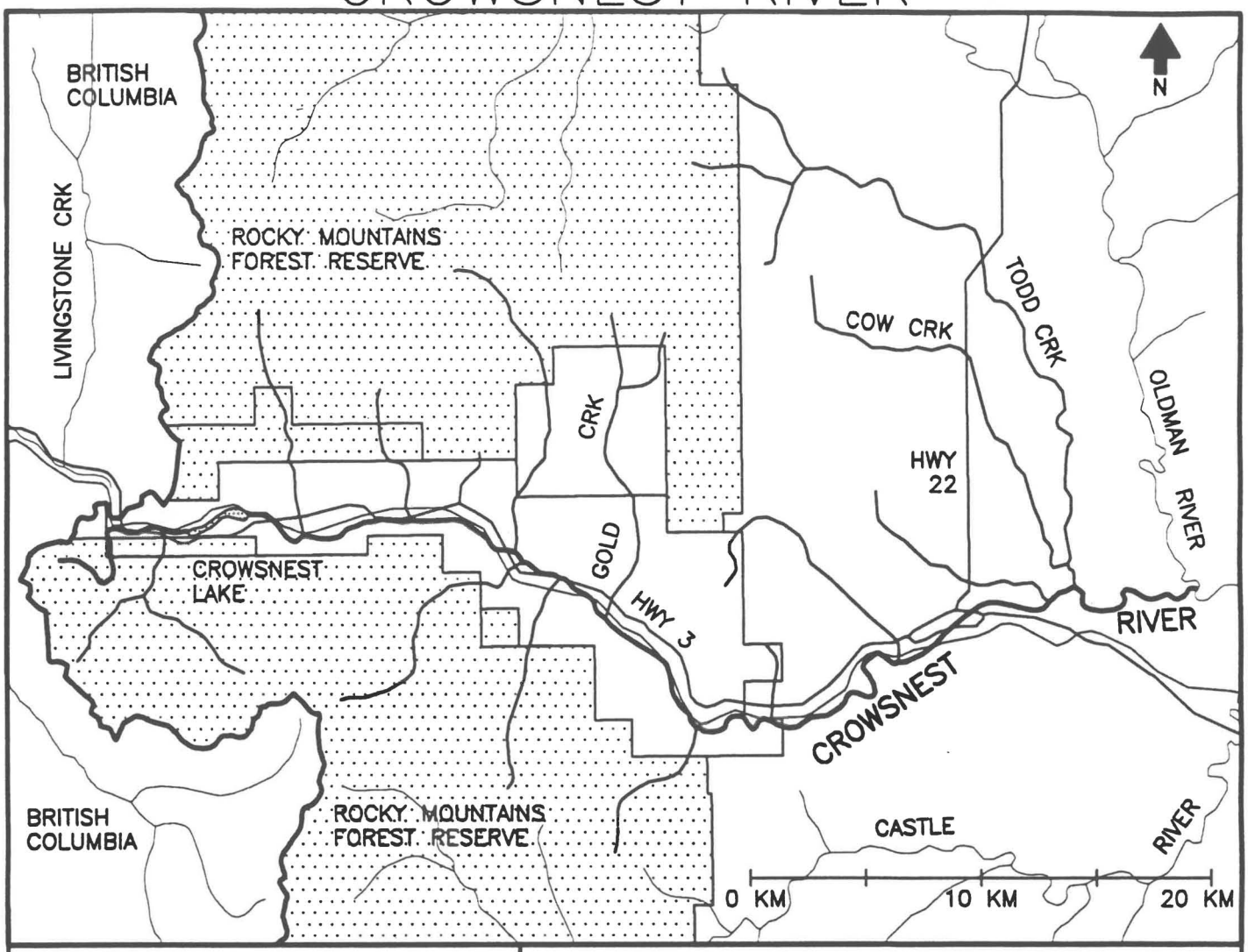
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Size / flow
- Flatwater Boating	0	Size / flow
- Whitewater Boating	0	* Unknown activity
- Fishing	7	Excellent trout stream
- Swimming	0	Temperature / flow
• Diversity of Water Associated Activities		
- Trail Activities	8	Cline River Trail usable on North and South banks
- Hunting	8	Excellent bear, moose, elk and deer habitat outside of Whitegoat Wilderness
- Camping	5	At Abraham Lake and icefield parkway and some camping at informal sites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	1	Development of highways at either end
- Historical Landscape	0	
• Natural Landscape Appreciation		
- Natural/Visual Attractions	10	Makes up southern border of Whitegoat Wilderness - excellent scenic mountain valley trees of renown old growth coast
- Remoteness	9	Borders wildness area
• Physical Factors		
- Water Quality	9	glacial fed
- Shoreline Access	4	Limited

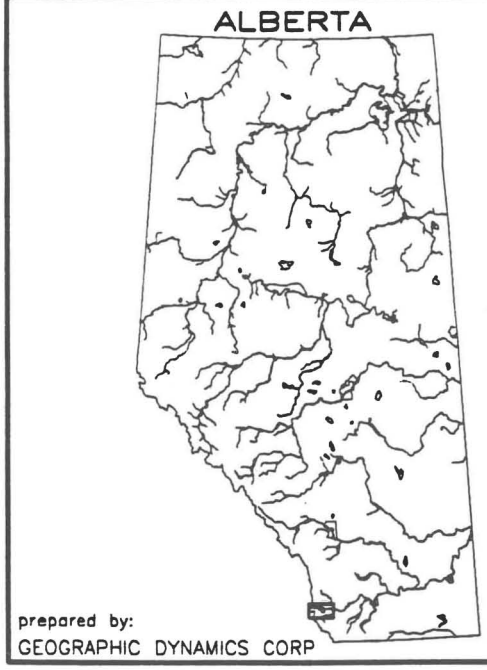
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 7/50 x 20 = 2.8
- Diversity of Water Associated Activities 21/30 x 20 = 14.0
- Human Heritage Landscape Appreciation 1/20 x 20 = 1.0
- Natural Landscape Appreciation 19/20 x 20 = 19.0
- Physical Factors 13/20 x 20 = 13.0

- Total Recreational Capability Theme Score 49.8

CROWSNEST RIVER





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Human Heritage Scores

Historical / Cultural	43.30

Natural Heritage Scores

Geology	27.50
River Processes	16.67
Plants and Wildlife	7.50

Recreational Scores

Recreational Activities/Landscape Appreciation	61.60

TOTAL ADJUSTED SCORE 52.19

CROWSNEST RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	An excellent representation of temporal and cultural affiliations have been recorded along the river. Cultural affiliations represent temporal associations with the Early, Middle and Late Prehistoric Periods, as well as the Protohistoric and Historic.
	RESOURCE EXPLOITATION	10	Entrance Cairns DjPn 112, Rock Creek Kill DjPn 53, site DjPm 116, site DjPm 80, DjPo 47, and more.
	HABITATION	10	Stratified Camps - DjPn 16, DjPn 9, DjPn 62, DjPp 8; Rings DjPm 47, Drive Lanes DjPm 58; Camps DjPm 100, DjPm 49, DjPm 54, DjPm 84, DjPm 115, DjPm 48, DjPn 15, DjPn 60, DjPo 85, DjPo 25
	IDEOLOGY	10	Crowsnest Lake Pictographs DjPp 1, Effigies at DjPm 12, DjPn 5.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Within the territory of the Kutenai and greater Blackfoot Nation, Native resource and travel corridor.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	7	River and pass used by Palliser Expedition, Dawson documented the area.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	9	early Dukhobor settlements, Dancehall site DjPp 3, Easterbrook House
	RANCHING	0	
	LAW & ORDER	10	NWMP Outposts - Police Flats DjPn 119, Crowsnest DjPp 52, DjPo 123, Blairmore, Coleman
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	MINING	10	Extensive coal mining - Leitch Collieries DjPn 21, Frank townsite and slide, Greenhill Mine complex, International Coal and Coke Co., Zinc Smelter DjPo 122, Old Passburg DjPo 41, East Passburg DjPo 23, Blairmore, Coleman.
	PETROLEUM	0	
	CLAY PRODUCTS	10	Blairmore Brick Factory DjPo 125
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	8	Canadian Pacific Railway, historic "Crow Rate" agreement for grain transport
	TELECOMMUNICATION	0	
EVENTS		10	1867 Fiske expedition - Party of 12 killed at Massacre Butte. Hillcrest Mine Disaster. Frank Slide of 1903.
PERSONAGES		5	Chinese Cemetery DjPp 41 indicates minority segregation

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	26/60 x 10.7	=	4.6
• Resource Development	20/60 x 10.7	=	3.6
• Transportation	8/30 x 10.7	=	2.9
• Events	10/10 x 12.5	=	12.5
• Personages	5/10 x 12.5	=	6.3
• Total Human Heritage Theme Score			43.3

Natural Heritage Evaluation \ Crowsnest River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	The headwaters of the Crowsnest River are located in the Front Ranges of the Rocky Mountains. The river then migrates through the Southern Foothills to the Cardston Plain.
2. Bedrock Geology	10	All geological eras are represented; however, the Cenozoic is a very minor component.
3. Palaeontology	8	Several areas of high, medium and low palaeontological sensitivity exist along the river.
4. Surficial Geology		
4.1 Parent Material	9	Colluvium, till and bedrock either exposed or overlain by till or colluvium are prevalent. In the most westerly stretch of the river, on the Cardston Plain, glaciolacustrine deposits are more prominent.
4.2 Surface Expression	9	The topography varies with ridges, steep inclines, fans, veneer and blankets in the mountain and foothill areas and an undulating surface on the plains.
River Processes		
1. Hydrology	3	Pool and riffle sequences are common. The existence of tight meander bends also contributes to some variation in flow. This river is subject to frequent flooding, most commonly related to the large discharges that occur with snowmelt and rain occurring simultaneously. Long stretches of this river have been channelized for flood control, with a diversion designed at the east end of Blairmore.
2. Water Quality	7	High levels of iron may occur and occasionally high nitrogen levels are found.
3. River Morphology	5	This river contains pronounced bends that possess no continuous pattern. Diagonal and point bars are common. Minimal lateral activity is occurring, with no obvious downcutting or aggrading taking place. Several fragmentary terrace levels exist. The channel bed is generally gravel, while the banks are composed of a mixture of sand and gravel.
Biota		
1. Vegetation	5	Most of this river is located in the Montane natural subregion, with a lesser component in the Foothills Fescue subregion and a minimal representation in the Sub-Alpine.
2. Wildlife Habitat	1	This riparian habitat provides prime habitat for fish. High quality habitat for ungulates is quite minimal.
3. Endangered/Threatened Species	2	The Osprey, Bobcat and Grizzly Bear may be found in habitats associated with the river.
4. Species Concentration	1	This river is not significant for migratory waterfowl and provides relatively little wintering habitat for ungulates.

Summary of Average Natural Heritage Category Scores

Geology Category	33/40 x 33.33 = 27.50
River Processes Category	15/30 x 33.33 = 16.67
Biota Category	9/40 x 33.33 = 7.50
Total Natural Heritage Theme Score	51.67

Recreation Evaluation \ Crowsnest River

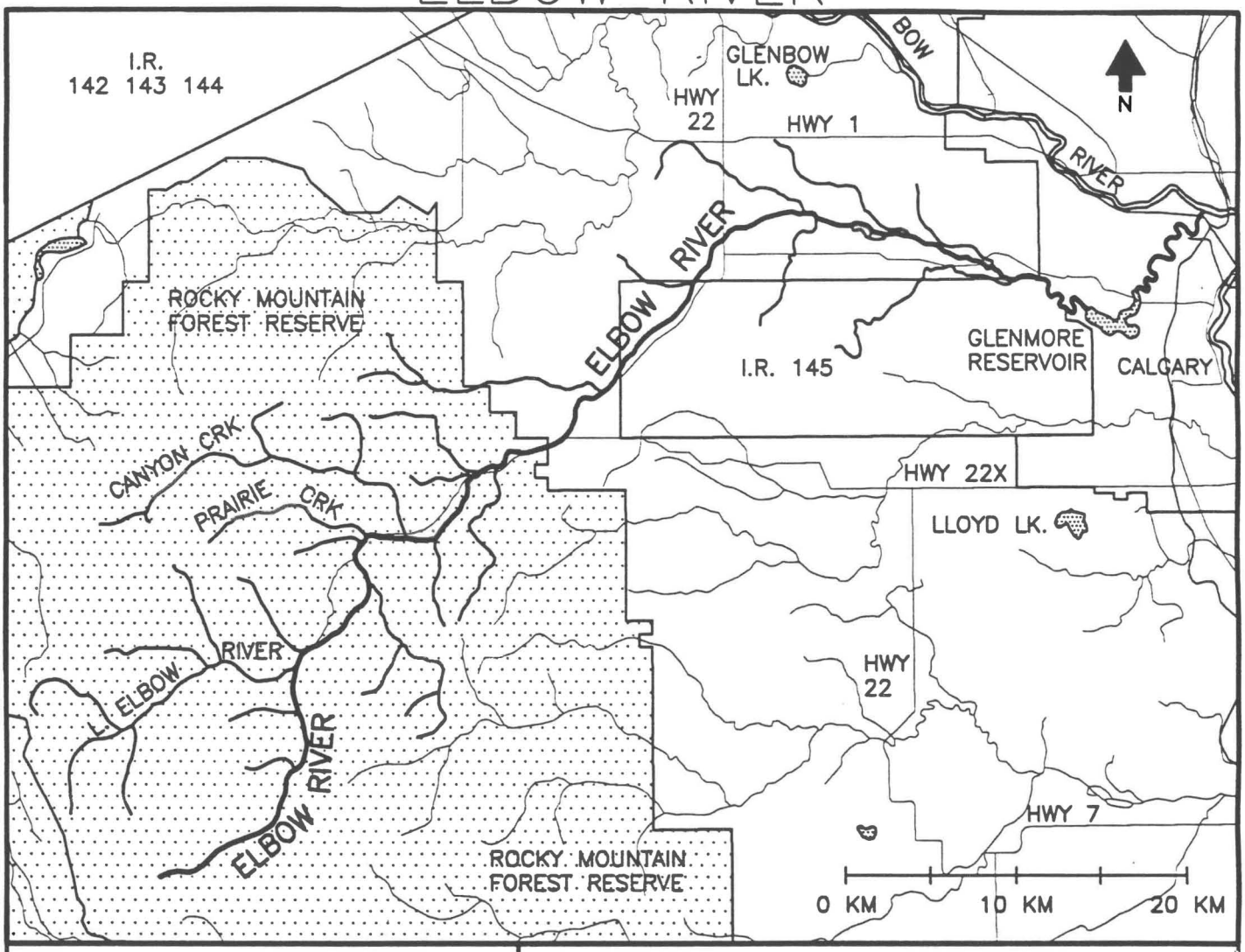
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	No powerboating
- Flatwater Boating	4	Some potential but restricted by water flow and obstructions
- Whitewater Boating	6	Some good whitewater kayaking on upper reaches and in spring runoff
- Fishing	8	CLI rated as excellent, especially near Frank Slide (Cutthroat Trout, Rainbow Trout)
- Swimming	7	In shallow pools and swimming holes near Frank, Crowsnest
• Diversity of Water Associated Activities		
- Trail Activities	5	Developed trails in urban areas and near historic site but limited access due to land ownership restrictions
- Hunting	7	The river valley offers good potential for hunting
- Camping	7	Several campsites, both forestry and municipal exist along river with access for canoeists and river users
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	8	Diversity of human occupation, urban area evidence of logging and industry at junction with Oldman River (Oldman River Damn)
- Historical Landscape	8	Site of one of modern history's major natural disasters (Frank Slide). Extensive pioneer history, early coal mining, forestry and railroad
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Overall river setting quite interesting and diverse with views of mountains, human occupations, etc.
- Remoteness	1	Only a few reaches offer any remoteness feeling. Most of river visible from roads and highway.
• Physical Factors		
- Water Quality	7	Generally good but influenced from urban development and industry
- Shoreline Access	7	This river is very accessible in terms of road access but has limitations due to private lands

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 25/50 x 20 = 10.0
- Diversity of Water Associated Activities 19/30 x 20 = 12.6
- Human Heritage Landscape Appreciation 16/20 x 20 = 16.0
- Natural Landscape Appreciation 9/20 x 20 = 9.0
- Physical Factors 14/20 x 20 = 14.0

- Total Recreational Capability Theme Score 61.6

ELBOW RIVER



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Human Heritage Scores

Historical / Cultural	23.70

Natural Heritage Scores

Geology	26.25
River Processes	20.00
Plants and Wildlife	20.00

Recreational Scores

Recreational Activities/Landscape Appreciation	51.60

TOTAL ADJUSTED SCORE 47.18

ELBOW RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is a good representation of Middle, Late, and Protohistoric cultural materials from sites on the Elbow River.
	RESOURCE EXPLOITATION	8	At least two buffalo jumps and killsites have been recorded
	HABITATION	7	Campsites such as EfPq 5, EfPq 6, EfPm 74, EdPs 4 and EePr 9 have been recorded along the river.
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	7	Indian Reserve 145.
	TRADITIONAL LAND USE	10	*nm-no-tho-ap-ta* in Stoney, the river runs through the traditional territory of the Tsuu T'ina and was used by other Native groups at contact.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	9	Whiskey posts - Kanouse's Elbow River Post (for Healy and Hamilton), Berry's Post, Livingstone Post
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	7	Dominion Land Surveyor named Cairnes undertook initial survey.
	MISSIONS	7	Our Lady of Peace Catholic Mission
	AGRARIAN SETTLEMENT	9	Historic structures within the City of Calgary. Weaver Homestead EgPn 118
	RANCHING	7	Cochrance Ranche property used the Elbow as a boundary indicator.
	LAW & ORDER	9	Fort Calgary at mouth of Elbow, Sarcee Outpost, CFB Calgary

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	4	3 ferries within Calgary area
	LAND COMMUNICATION	5	McLeod to Calgary Trail terminates near confluence with Bow
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	25/40 x 10.7	=	6.7
• First Nations Contact	17/40 x 10.7	=	4.5
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	9/40 x 10.7	=	2.4
• Settlement	39/60 x 10.7	=	6.9
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	9/30 x 10.7	=	7.2
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			23.7

Natural Heritage Evaluation \ Elbow River

Category	Score	Rationale
Geology		
1. Physiographic Section	7	The Elbow River originates in the Front Ranges and flows eastward traversing the Southern Foothills, Western Benchlands and the Olds Plain.
2. Bedrock Geology	10	All four of the geologic eras are represented.
3. Palaeontology	5	Several locations of medium and low palaeontological resource sensitivity exist along the river.
4. Surficial Geology		
4.1 Parent Material	9	Colluvium, till and bedrock are the predominant parent materials found along the course of the Elbow River in the mountain and upland areas. Often the bedrock is overtopped by colluvial and morainal material. As the river travels eastward to the plains glaciolacustrine deposits and till become more prevalent with occasional areas of glaciofluvial deposits.
4.2 Surface Expression	10	A wide variety of surface expressions exist. In the upland areas steeply inclined, ridged and rolling terrain is common, whereas on the plains undulating topography is dominant. Sediment veneers and blankets are prevalent along the total length of the river.
River Processes		
1. Hydrology	4	This river has one of the steepest gradients of rivers within Alberta. Small magnitude floods occur as a result of rapid snow melt. Pool and riffle sequences and rapids are present on this river. A downstream impoundment (Glenmore Reservoir) provides water for the city of Calgary.
2. Water Quality	7	Generally water quality meets guidelines, however, occasionally phenols, nitrogen and phosphorous levels are non-compliant. This is most likely attributable to municipal impacts.
3. River Morphology	7	This moderately stable river generally has a sinuous channel. In some locations the channel splits or takes on a braided form. Drops, ledges and canyons are prominent in the mountainous terrain near the headwaters. Diagonal bars also occur. The channel bed consists of shallow gravel over moderately erodible rock with some rock outcrops in the channel.
Biota		
1. Vegetation	5	This river traverses the Lower Foothills subregion, the Foothills Parkland subregion and to a lesser degree the Foothills Fescue subregion.
2. Wildlife Habitat	2	The river environment provides extensive prime habitat for fish, with only minimal top quality habitat for ungulates.
3. Endangered/Threatened Species	4	The Grizzly Bear, Bobcat, Prairie Falcon, Osprey, Cooper's Hawk and Bald Eagle have been associated with habitats near this river.
4. Species Concentration	1	This river is of no significance to migratory waterfowl and only of minimal importance for wintering ungulates.

Summary of Average Natural Heritage Category Scores

Geology Category	31.5/40 x 33.33 = 26.25
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	12/40 x 33.33 = 20.00
Total Natural Heritage Theme Score	66.25

Recreation Evaluation \ Elbow River

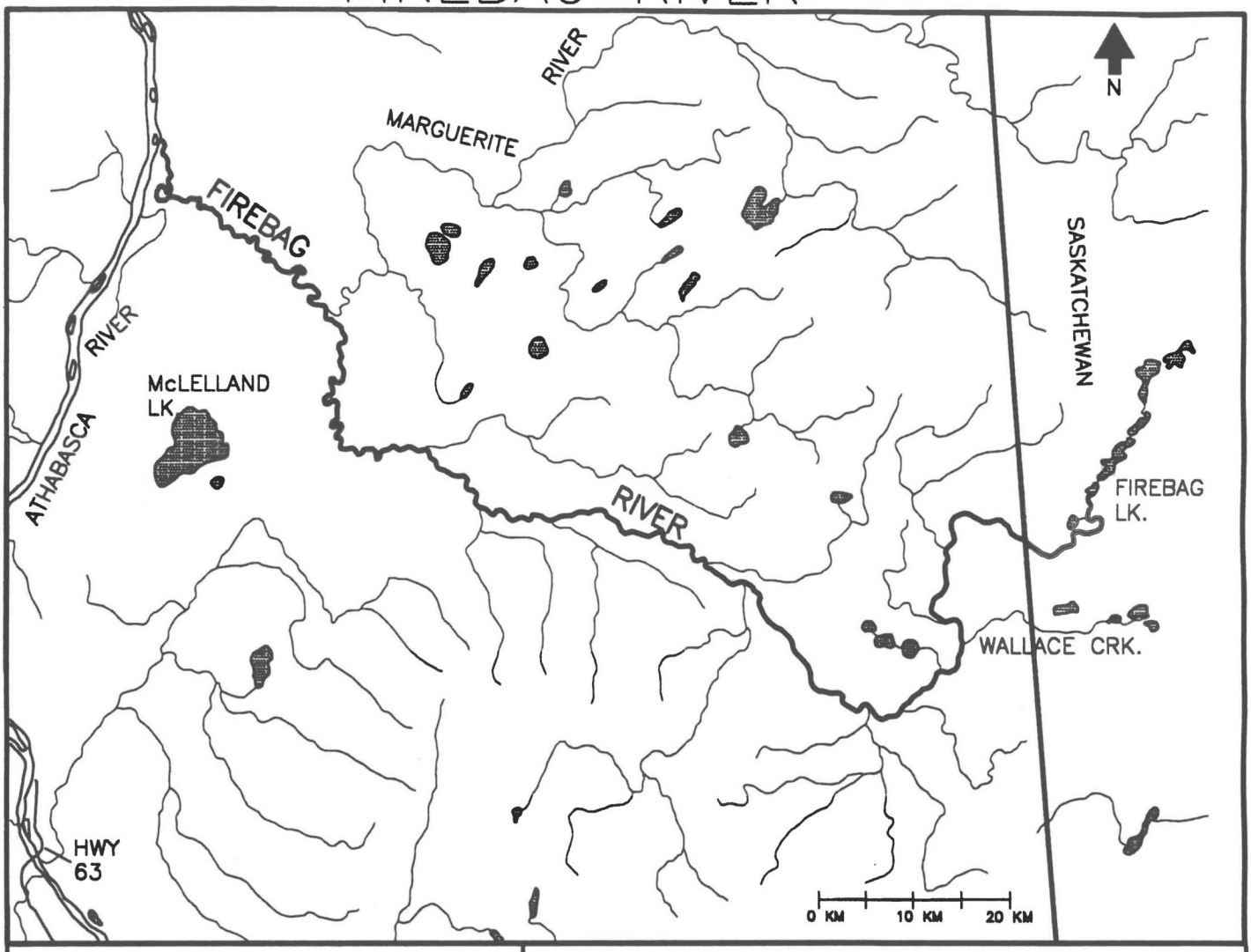
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Not possible
- Flatwater Boating	5	Advanced, intermediate level canoers on upper reach, no boating below Glenmore Dam, too dangerous
- Whitewater Boating	7	Challenging Class II - IV river with rapids ranging from Class II - VI -- upper reaches most popular
- Fishing	6	Good sport fishing potential -- brown trout, rainbow trout, but some limitations due to water depth
- Swimming	2	Very limited, too cold or not enough water except in shallow pools or local "water holes" near urban areas
• Diversity of Water Associated Activities		
- Trail Activities	4	Some developed trails exist (others are informal), but not overly developed -- opportunity for hiking, horseback riding, ATV use
- Hunting	6	Upper reaches allow limited hunting in season on Crown lands -- elk, moose and sheep
- Camping	6	Several primitive forestry campsites along river, good camping at Bragg Creek Provincial Park
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	5	Along upper reaches limited to road crossings; lower reaches past Bragg Creek offer a variety of features related to urban settlement and agriculture
- Historical Landscape	5	Limited visual historical significance, some early settlement and First Nations contact -- explored by David Thompson 1800
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	Upper reaches provide foothills relief, canyons, lower reaches more open landscape
- Remoteness	4	River is too accessible to roads for any significant remote experience
• Physical Factors		
- Water Quality	7	Relatively pure mountain stream, uncontaminated
- Shoreline Access	6	Numerous road/bridge crossings and forestry access roads -- good launching sites at campsites, provincial park and townsite

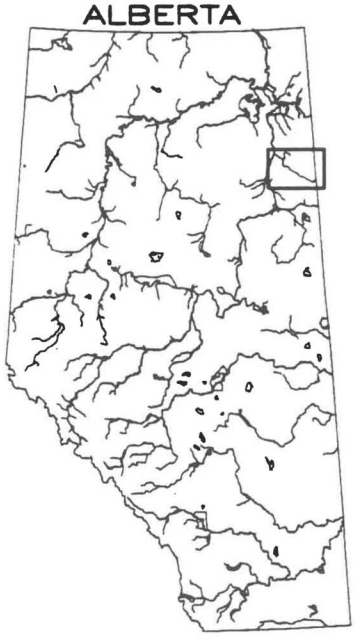
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 20/50 x 20 = 8.0
- Diversity of Water Associated Activities 16/30 x 20 = 10.6
- Human Heritage Landscape Appreciation 10/20 x 20 = 10.0
- Natural Landscape Appreciation 11/20 x 20 = 11.0
- Physical Factors 13/20 x 20 = 13.0

- Total Recreational Capability Theme Score 51.6

FIREBAG RIVER





Human Heritage Scores

Historical / Cultural	12.00

Natural Heritage Scores

Geology	23.33
River Processes	20.00
Plants and Wildlife	4.17

Recreational Scores

Recreational Activities/Landscape Appreciation	27.40

TOTAL ADJUSTED SCORE 25.80

FIREBAG RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	2	Due to the lack of systematic investigation in the region, knowledge of the prehistoric resources of the Firebag River is very limited.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	4	Firebag river was known as a flint source.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	3	Firebag River was in the Athabasca district trade network
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	2/40 x 10.7	=	0.5
• First Nations Contact	4/40 x 10.7	=	1.1
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	3/40 x 10.7	=	0.8
• Settlement	0/60 x 10.7	=	0.0
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			2.4

Natural Heritage Evaluation \ Firebag River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	This river traverses the Firebag Hills Uplands, the McMurray Lowlands and the Great Slave Plain, with the latter being the most prominent.
2. Bedrock Geology	7	The geology consists of Upper Cretaceous shale and oilsands and Devonian limestone, dolomite, salt and gypsum.
3. Palaeontology	8	Several sites of high and medium palaeontological sensitivity are located along the length of the river.
4. Surficial Geology		
4.1 Parent Material	6	Morainal, eolian and primarily glaciofluvial sediments contribute to the parent materials located in the vicinity of this river.
4.2 Surface Expression	8	Rolling and undulating terrain are prevalent, with minor regions of level and hummocky topography.
River Processes		
1. Hydrology	N/A	
2. Water Quality	6	Total iron, phenols and phosphorous may exceed guidelines.
3. River Morphology	N/A	
Biota		
1. Vegetation	1	This river lies solely in the Central Mixedwood natural subregion.
2. Wildlife Habitat	2	High capability areas for fish exist along this river (i.e., Arctic Grayling). This area is of little significance for waterfowl and ungulates.
3. Endangered/Threatened Species	1	The American White Pelican and the River Otter may be found along this river.
4. Species Concentration	1	No significant concentrations of any species have been noted here.

Summary of Average Natural Heritage Category Scores

Geology Category	28/40 x 33.33 = 23.33
River Processes Category	6/10 x 33.33 = 20.00[2,4]
Biota Category	5/40 x 33.33 = 4.17
Total Natural Heritage Theme Score	47.50[2,4]

[2] Hydrology information not available
[4] River Morphology information not available

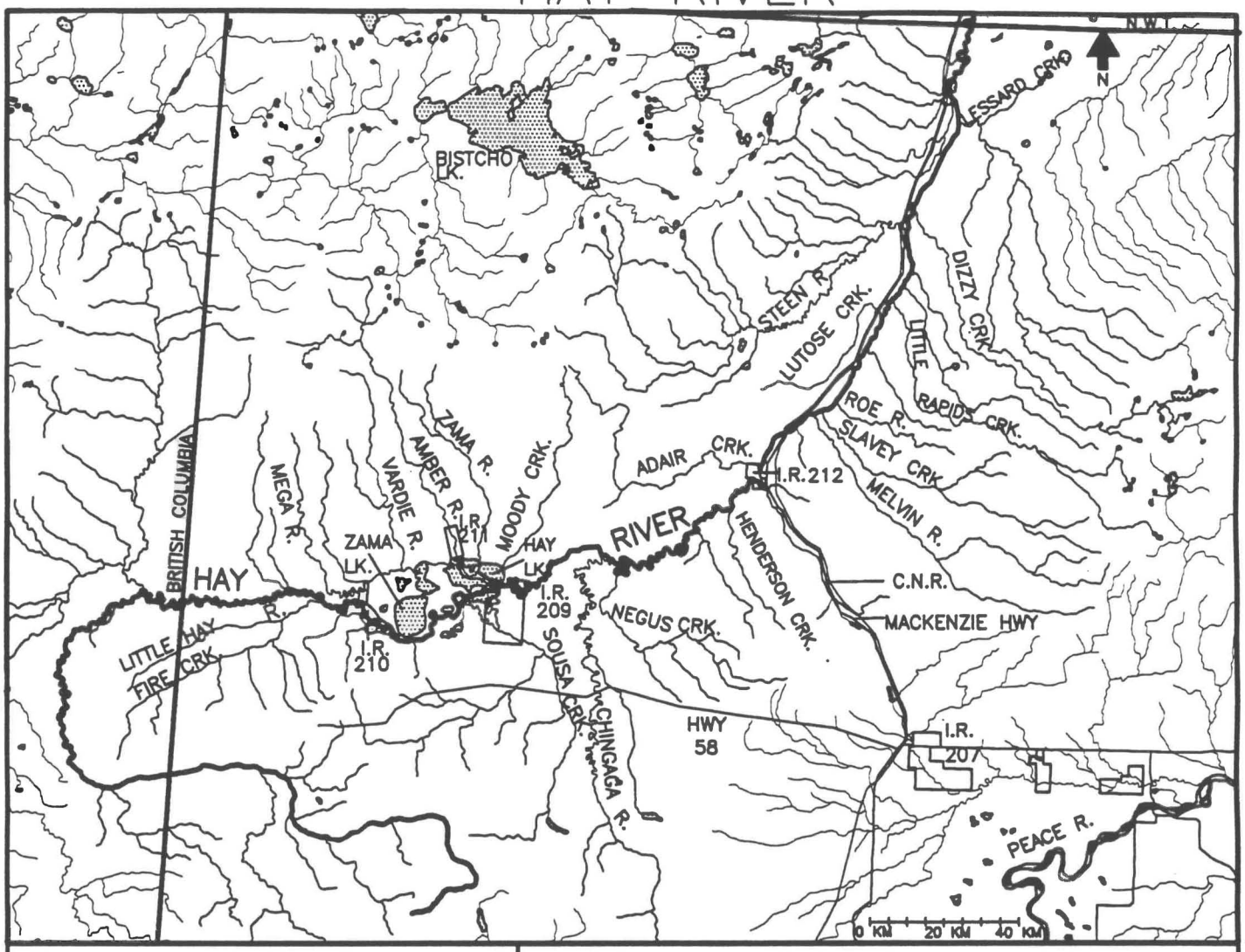
Recreation Evaluation \ Firebag River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	1	Narrow, water fluctuation, no access other than upstream from Athabasca
- Flatwater Boating	3	No infrastructure to access river but some potential exists
- Whitewater Boating	0	
- Fishing	7	River well known for fishing (Walleye, Pike)
- Swimming	0	
• Diversity of Water Associated Activities		
- Trail Activities	2	Opportunities exist for trail access but generally are limited
- Hunting	4	Area offers some hunting but access limited
- Camping	0	No developed / designated campsites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	0	No signs of contemporary activity
- Historical Landscape	0	No historical significance
• Natural Landscape Appreciation		
- Natural/Visual Attractions	4	River has some incised river banks, consistent Boreal Forest
- Remoteness	10	This river provides a totally remote experience
• Physical Factors		
- Water Quality	5	Partially polluted, some silt loads and muskeg influence, tea coloured water, acid rain concern
- Shoreline Access	0	

Summary of Average Recreational Category Scores

• Diversity of Water Dependent Activities	11/50 x 20 = 4.4
• Diversity of Water Associated Activities	6/30 x 20 = 4.0
• Human Heritage Landscape Appreciation	0/20 x 20 = 0.0
• Natural Landscape Appreciation	14/20 x 20 = 14.0
• Physical Factors	5/20 x 20 = 5.0
• Total Recreational Capability Theme Score	27.4

HAY RIVER



Human Heritage Scores

Historical / Cultural	7.60

Natural Heritage Scores

Geology	13.33
River Processes	20.00
Plants and Wildlife	4.17

Recreational Scores

Recreational Activities/Landscape Appreciation	40.70

TOTAL ADJUSTED SCORE 28.60

HAY RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Due to a lack of systematic investigation in the region, the prehistoric record is limited on the Hay River. This does not necessarily reflect archaeological potential
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	8	Indian Reserves 209, 210, 212
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	3	Hay river was an important fur trade region.
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	6	early mission at Habay
	AGRARIAN SETTLEMENT	8	early settlements at Habay and Chateh
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	6	Zama was an area of early oil exploration
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	3	In the fur trade this would have been a trade corridor
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	/40 x 10.7	=	0.0
•	First Nations Contact	/40 x 10.7	=	2.1
•	Metis	/30 x 10.7	=	0.0
•	Fur Trade	/40 x 10.7	=	0.8
•	Settlement	/60 x 10.7	=	2.5
•	Resource Development	/60 x 10.7	=	1.1
•	Transportation	/30 x 10.7	=	1.1
•	Events	/10 x 12.5	=	0.0
•	Personages	/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			7.6

Natural Heritage Evaluation \ Hay River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The Hay River flows across the Fort Nelson Lowland as it enters Alberta and exits Alberta across the Great Slave Plain, with the former containing a greater portion of the river length.
2. Bedrock Geology	5	This river flows over an area that is composed entirely of Lower Cretaceous shale and oilsands.
3. Palaeontology	3	A few select sites of low palaeontological sensitivity are located near the Meander River confluence. For the most part the palaeontological resources of this area are unknown.
4. Surficial Geology		
4.1 Parent Material	2	This area is covered by glaciolacustrine deposits.
4.2 Surface Expression	6	The terrain which the Hay River traverses is primarily level or level and inclined in the south, with a level and undulating surface more prominent in the north.
River Processes		
1. Hydrology	6	The flow along this river is variable as result of the channel form: sometimes very narrow, other times wider. Rapids and waterfalls are present.
2. Water Quality	5	A significant seasonal trend in water quality exists. Occasional occurrences of low dissolved oxygen may occur during the winter. Metals often exceed the guidelines. This may reflect the lithology and natural weathering of rock in the basin.
3. River Morphology	7	The Hay River gorge is marked by a narrow canyon with vertical cliffs. Three sets of rapids are located in this stretch of the river. Islands are located in some portions of the river.
Biota		
1. Vegetation	1	The Hay River flows through the Wetland Mixedwood natural subregion.
2. Wildlife Habitat	0	This river environment does not provide high quality habitats for wildlife; however some populations exist.
3. Endangered/Threatened Species	2	The Bald Eagle, Grizzly Bear and River Otter utilize the habitat associated with the river.
4. Species Concentration	2	Approximately 40 % of the river environment is of local significance to migratory waterfowl.

Summary of Average Natural Heritage Category Scores

Geology Category	16/40 x 33.33 = 13.33
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	5/40 x 33.33 = 4.17
Total Natural Heritage Theme Score	37.50

Recreation Evaluation \ Hay River

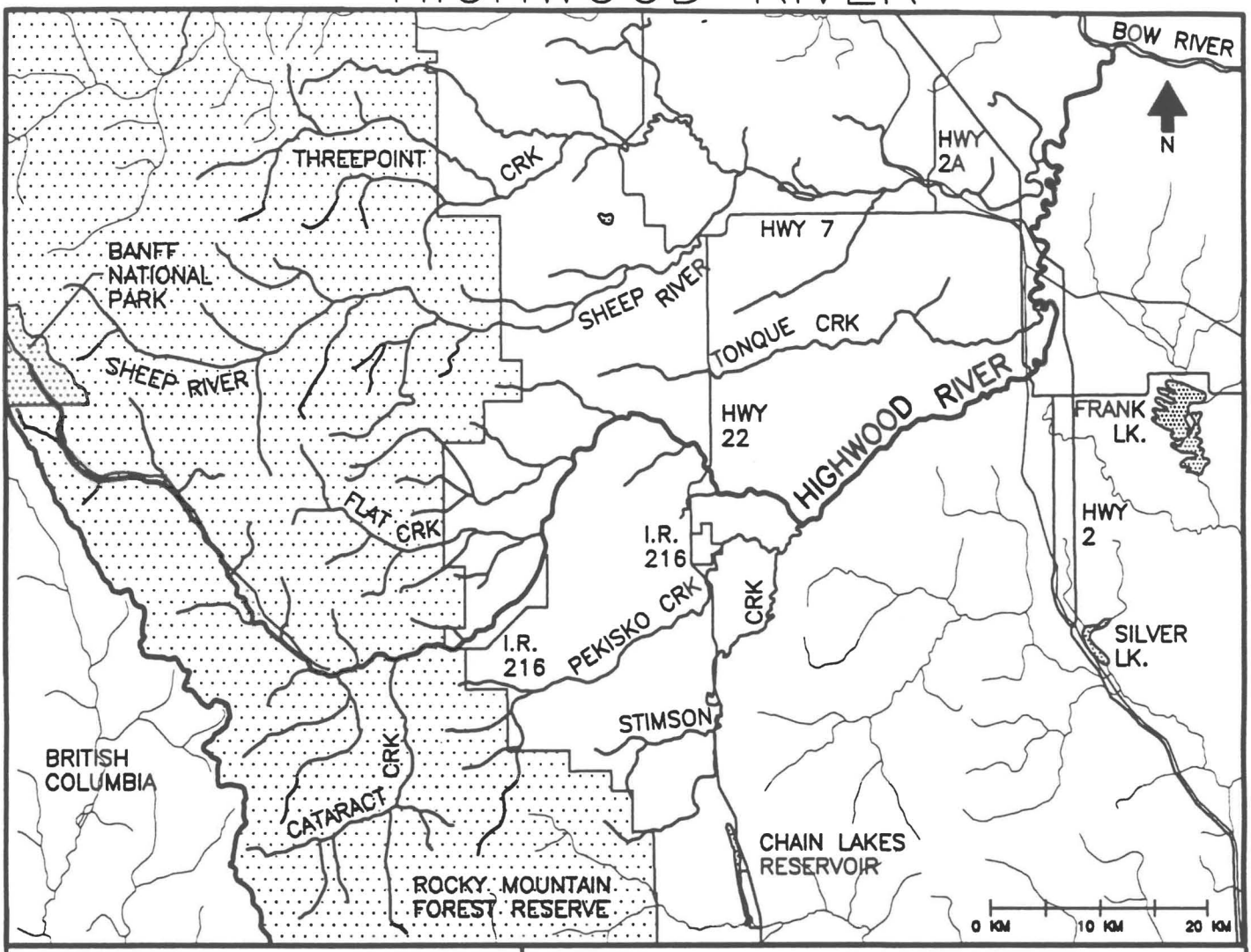
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating		
- Flatwater Boating		
- Whitewater Boating		
- Fishing		
- Swimming		
- Other		
• Diversity of Water Associated Activities		
- Trail Activities		
- Hunting		
- Camping		
- Other		
• Human Heritage Landscape Appreciation		
- Contemporary Landscape		
- Historical Landscape		
• Natural Landscape Appreciation		
- Natural/Visual Attractions		
- Remoteness		
• Physical Factors		
- Water Quality		
- Shoreline Access		

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities /50 x 20 =
- Diversity of Water Associated Activities /30 x 20 =
- Human Heritage Landscape Appreciation /20 x 20 =
- Natural Landscape Appreciation /20 x 20 =
- Physical Factors /20 x 20 =

- Total Recreational Capability Theme Score

HIGHWOOD RIVER



prepared by:
GEOGRAPHIC DYNAMICS CORP

Human Heritage Scores

Historical / Cultural	38.40

Natural Heritage Scores

Geology	25.00
River Processes	18.89
Plants and Wildlife	11.67

Recreational Scores

Recreational Activities/Landscape Appreciation	67.00

TOTAL ADJUSTED SCORE 53.60

HIGHWOOD RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	An excellent prehistoric and historic archaeological record has been collected from the Highwood River area. All temporal affiliations are represented and a good range of cultural affiliations have been identified.
	RESOURCE EXPLOITATION	8	Bison utilization characteristic of prehistoric sites in the region, at least one large killsite exists on the river.
	HABITATION	9	Numerous campsites of varying form have been recorded on the river.
	IDEOLOGY	10	Hitchner Cairn EdPm 3, Burial EePk 272, Medicine Wheel
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Alternate name on Palliser map - "Ispasquehow"; "Spitzee" is Blackfoot for Tall Timber. Upper reaches called "sapow" or Wind River. Sundance lodges and sweatlodges have been noted on the river. Fidler noted traditional Peigan camps at mouth of Tongue Creek.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	9	Spitzee whiskey post EdPl 13, unknown whiskey post EdPl-12, Berry and Shear's whiskey post Ee Pk 285
SETTLEMENT	EXPLORATION	7	Palliser made numerous crossings, Fidler recorded traditional Peigan camps at the mouth of Tongue Creek.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	9	early settlement around High River townsite was some of the earliest in southern Alberta - i.e. Sexsmith homestead EdPl 24, High River Nurse's Residence
	RANCHING	9	Bar U Ranch 1881 (moved to Pekisko Creek 1883); "Buffalo Head" ranch run by George Pocaterra was one of Canada's first dude ranches.

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	LAW & ORDER	8	NWMP outposts - Dunbow, Ings, Pekisko, Stimson's
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	10	Very early oil exploration, shanty towns related to exploration - Longview evolved from one of these shanty towns.
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	9	1890 ferry at the Crossing (High River), the Crossing was an important regional landmark and vital transportation feature
	LAND COMMUNICATION	7	McLeod trail (Calgary to Fort McLeod) at the Crossing
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		8	Local personages include John Ware, Fred Stimson, Pat Burns, Bill Moodie, George Lane, Herb Miller, Joe Brown, etc. Many important cattlemen trace back to the Highwood River region.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	37/40 x 10.7	=	9.9
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	9/40 x 10.7	=	2.4
• Settlement	33/60 x 10.7	=	5.9
• Resource Development	10/60 x 10.7	=	1.8
• Transportation	16/30 x 10.7	=	5.7
• Events	0/10 x 12.5	=	0.0
• Personages	8/10 x 12.5	=	10.0
• Total Human Heritage Theme Score			38.4

Natural Heritage Evaluation \ Highwood River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	The river originates in the Front Ranges of the Rocky Mountains and traverses the Southern Foothills and Western Benchlands prior to feeding into the Bow River.
2. Bedrock Geology	10	Bedrock from all four geological eras are represented.
3. Palaeontology	5	Several sections of medium palaeontological sensitivity occur along with sections of low palaeontological sensitivity along the portion of the river located in the Rockies.
4. Surficial Geology		
4.1 Parent Material	8	Morainal and colluvial deposits, often overlying rock, are prevalent in the vicinity of the Highwood River. Exposed rock surfaces, fluvial deposits and glaciolacustrine sediments are less common.
4.2 Surface Expression	10	As is common with mountain originating rivers, a wide range of surface expressions exist.
River Processes		
1. Hydrology	4	This river contains rapids and waterfalls and has a very strong turbulence. Minor logjams and in-channel boulders contribute to the turbulence present. Two water diversion structures, the Squaw Coulee and Little Bow Canal, are present on this river.
2. Water Quality	6	Water quality is impacted by climate and flow regulation. A combination of high water temperatures and decreased flows (as a result of water diversion for irrigation) contribute to decreased oxygen levels during the summer. Concentrations of phosphorous and phenols occasionally exceed guidelines, predominantly during periods of low flow. Water quality has improved considerably since 1989, when the town of High River ceased discharging sewage directly into the river.
3. River Morphology	7	Several fragmentary terrace levels exist along this river. The channel ranges from braided near the headwaters to a single entrenched channel with pronounced bends and occasional islands downstream. The channel bed consists of shallow gravel with several rock outcrops. High ledges and chutes are present. A canyon is located near the Highwood provincial campsite.
Biota		
1. Vegetation	5	This river originates in the Sub-Alpine and traverses the Foothills Parkland and Foothills Fescue subregions, with the largest stretch of river located in the latter.
2. Wildlife Habitat	2	Prime fish habitat exists along the full length of the river. Lesser amounts of quality habitat for ungulates exists.
3. Endangered/Threatened Species	4	The American White Pelican, Cooper's Hawk, Osprey, Prairie Falcon, Bobcat and Grizzly Bear may be found in habitats associated with this river.
4. Species Concentration	3	Approximately 20 % of the environment along the river's length is of local importance to migratory waterfowl, while 60 % is significant to wintering ungulates. The Upper Highwood provides winter range for elk. This river contains major spawning areas for Bow River Rainbow Trout and Mountain Whitefish.

Summary of Average Natural Heritage Category Scores

Geology Category	30/40 x 33.33 = 25.00
River Processes Category	17/30 x 33.33 = 18.89
Biota Category	14/40 x 33.33 = 11.67
Total Natural Heritage Theme Score	55.56

Recreation Evaluation \ Highwood River

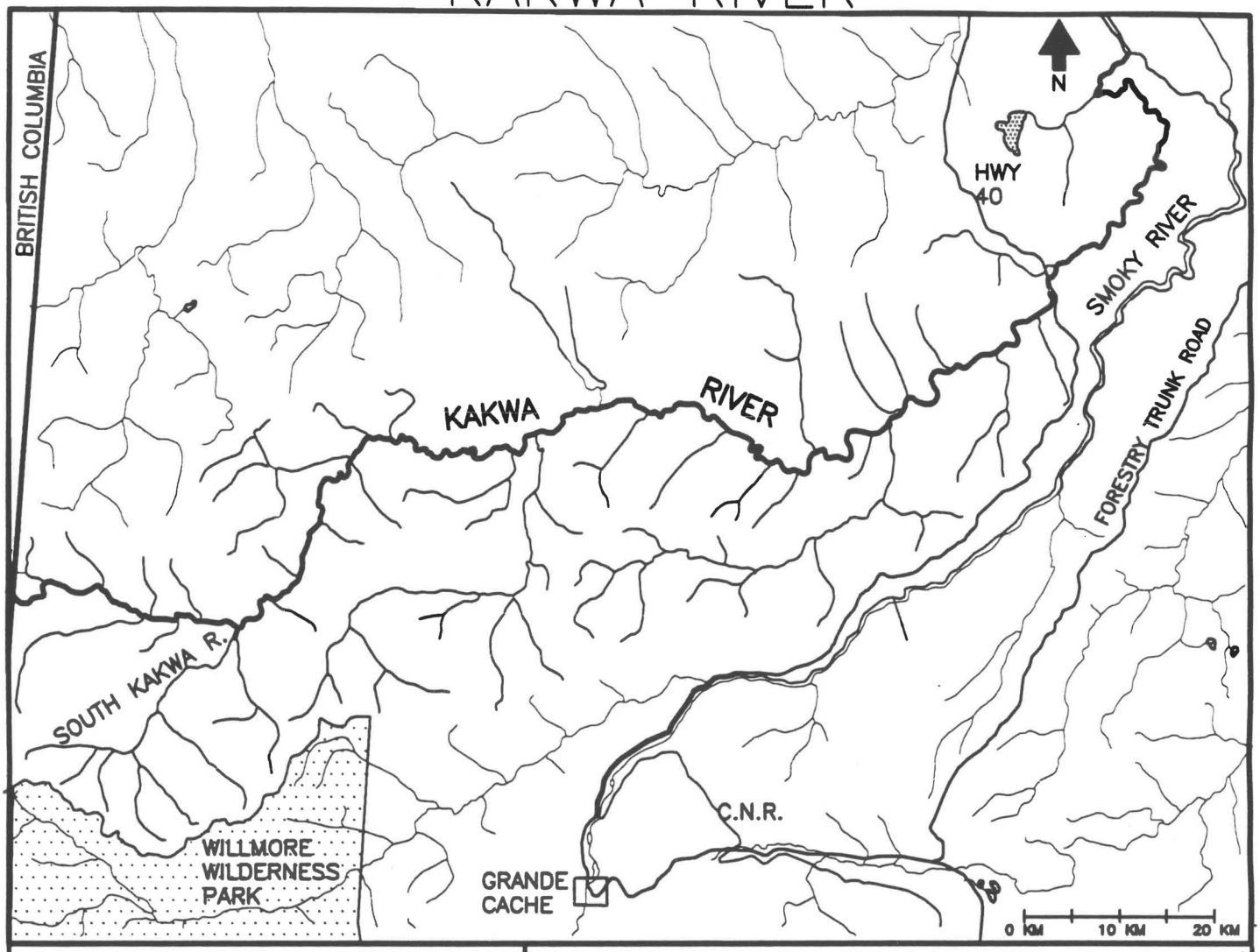
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	
- Flatwater Boating	5	Some opportunities where river levels down, but numerous obstacles and log jams
- Whitewater Boating	8	Overall river rated as Class III with rapids ranging from I to IV. Difficult river with numerous hazards, 3-day trips possible. Predominantly kayaking, some canoeing.
- Fishing	8	Popular fishing river
- Swimming	0	Too cold, hazardous
• Diversity of Water Associated Activities		
- Trail Activities	8	Limited motorized trails, but excellent hiking equestrian trails
- Hunting	8	Good hunting for deer, moose, some sheep
- Camping	6	Several river accessible campground
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Upper reaches have limited influences, but lower reaches pass through ranch lands and other manmade influences
- Historical Landscape	7	Important in travels of various pioneers including David Thompson, but limited evidence of artifacts
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Overall river is quite scenic with excellent views, but lower reaches are impacted by human influences, roads, crossings, resource use
- Remoteness	7	Upper reaches have some opportunity for remote experiences, but lower reaches influenced by roads, human activity
• Physical Factors		
- Water Quality	8	Generally good
- Shoreline Access	8	Numerous places to access river for recreation opportunities

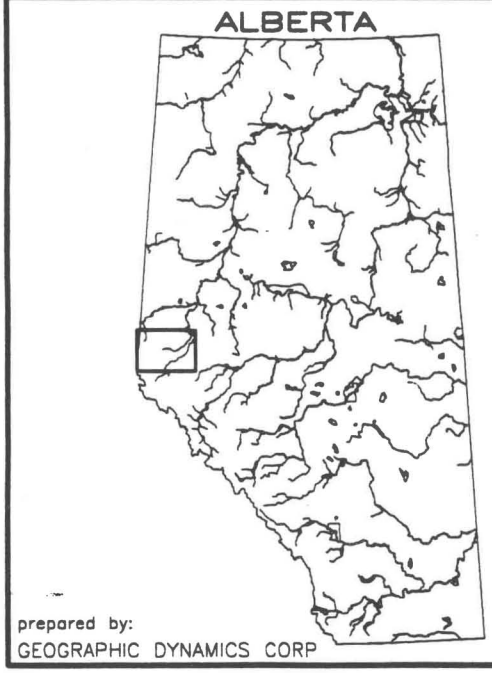
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 21/50 x 20 = 8.4
- Diversity of Water Associated Activities 22/30 x 20 = 14.6
- Human Heritage Landscape Appreciation 13/20 x 20 = 13.0
- Natural Landscape Appreciation 15/20 x 20 = 15.0
- Physical Factors 16/20 x 20 = 16.0

- Total Recreational Capability Theme Score 67.0

KAKWA RIVER





Human Heritage Scores

Historical / Cultural 3.30

Natural Heritage Scores

Geology 21.66

River Processes 20.00

Plants and Wildlife 17.50

Recreational Scores

Recreational Activities/Landscape Appreciation ... 41.60

TOTAL ADJUSTED SCORE 34.70

KAKWA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Due to the lack of systematic investigation in the area, there is little documentation of the prehistoric record in this area. This is not necessarily a reflection of archaeological potential.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	7	Historic cabin GbQt 1; unidentified cemetery
METIS	HABITATION	4	Settlements in the Kakwa River area. There is an unidentified cemetery on the middle Kakwa River which may be Native or Metis.
	PROVISIONING		
	REBELLION		
FUR TRADE	CONTACT (1670-1778)		
	RIVALRY (1774-1821)		
	MONOPOLY (1821-1859)		
	FREE TRADERS (1850-1940)		
SETTLEMENT	EXPLORATION		
	LEGAL SURVEY		
	MISSIONS		
	AGRARIAN SETTLEMENT		
	RANCHING		
	LAW & ORDER		
RESOURCE DEVELOPMENT	LUMBERING		
	FISHING		
	MINING		
	PETROLEUM		
	CLAY PRODUCTS		
	WATER		
TRANSPORTATION	RIVER COMMUNICATION		
	LAND COMMUNICATION		
	TELECOMMUNICATION		

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale

EVENTS

PERSONAGES

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	7/40 x 10.7	=	1.9
•	Metis	4/30 x 10.7	=	1.4
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	0/60 x 10.7	=	0.0
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			3.3

Natural Heritage Evaluation \ Kakwa River

Category	Score	Rationale
Geology		
1. Physiographic Section	8	This river traverses the Northern Foothills and Grande Cache Benchlands, with the Wapiti Plains only minimally represented.
2. Bedrock Geology	7	The bedrock is primarily of Cenozoic origin with the exception of the foothills area where Mesozoic geology predominates.
3. Palaeontology	2	Numerous sites of low palaeontological sensitivity are located along the Kakwa River. Fossil covered canyon walls exist.
4. Surficial Geology		
4.1 Parent Material	8	In the foothills, till and rock overlaid by colluvium predominates. As the river travels westward out of the foothills, terrain consisting of moraines covered by glaciolacustrine deposits are more common.
4.2 Surface Expression	10	A wide variety of surface expressions exist, with no one being dominant.
River Processes		
1. Hydrology	7	Numerous hydrological features indicative of slow and fast flowing water occur along the length of this river, including water falls, rapids, chutes (channel through a gap in a rapid, steeper and faster flowing than surrounding water), pools and areas canoeists call rock gardens (areas where rocks are scattered throughout the channel).
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	5	The Kakwa River has numerous sharp bends and ledges. The river gradient doubles to 10 m/km in the canyon environment.
Biota		
1. Vegetation	8	The river flows predominantly through the Upper and Lower Foothills natural subregions. The Sub-Alpine and Central Mixedwood have only minimal representation.
2. Wildlife Habitat	5	Prime habitat exists along the full length of the river for both fish (including bull trout) and ungulates. Quality waterfowl habitat is nonexistent.
3. Endangered/Threatened Species	3	The Trumpeter Swan, Bald Eagle, Osprey, Grizzly Bear and River Otter may be found in river-associated environments. Bull trout are also common.
4. Species Concentration	5	Prime ungulate wintering habitat is located along the entire length of this river. No areas of significance to migratory waterfowl have been documented.

Summary of Average Natural Heritage Category Scores

Geology Category	26/40 x 33.33 = 21.66
River Processes Category	12/20 x 33.33 = 20.00[3]
Biota Category	21/40 x 33.33 = 17.50
Total Natural Heritage Theme Score	59.16[3]

[3] Water quality information not available

Recreation Evaluation \ Kakwa River

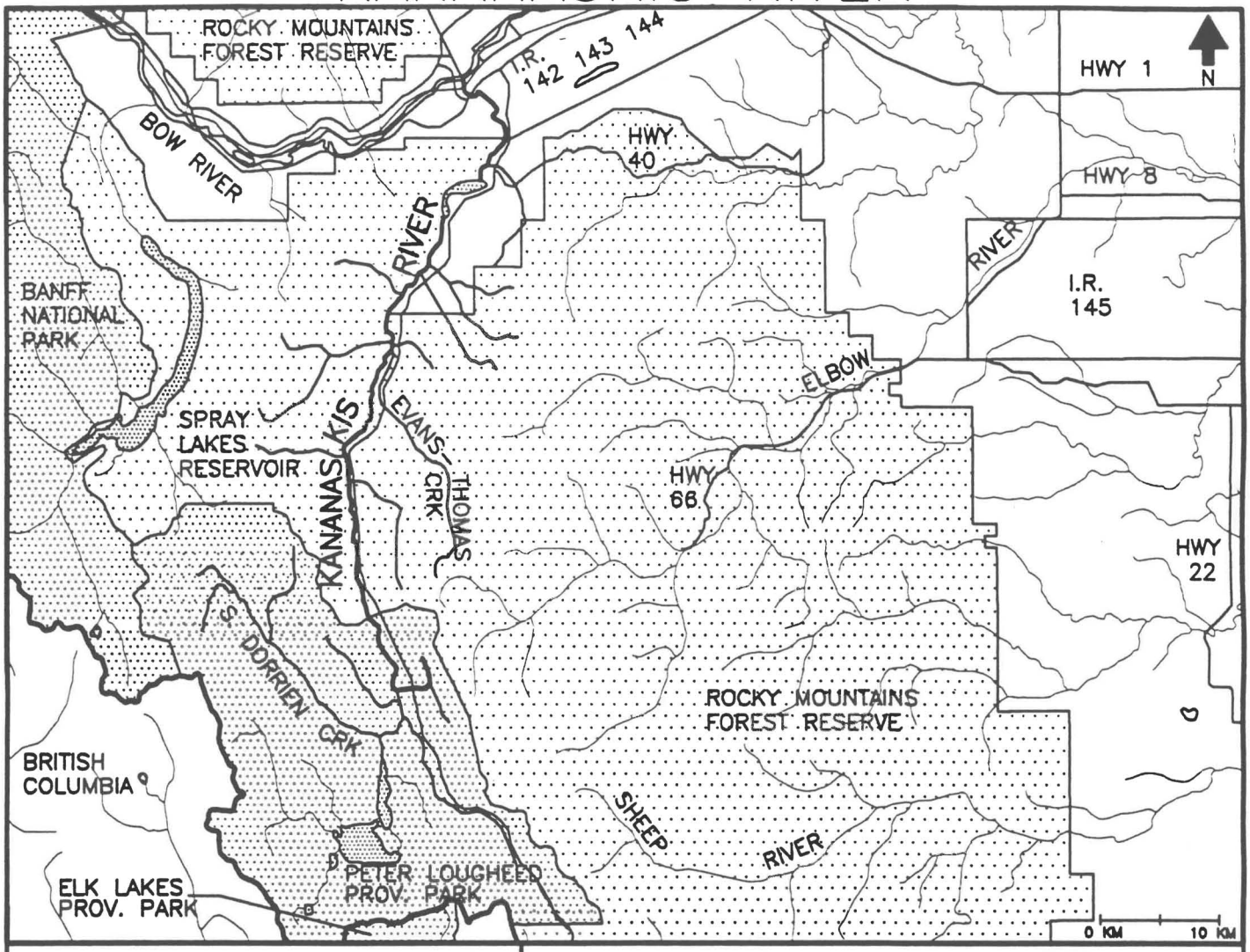
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Not possible
- Flatwater Boating	6	Intermediate level river rated Grade II
- Whitewater Boating	7	Has some challenging whitewater
- Fishing	7	Good sport fishing but limited access
- Swimming	0	Not possible
• Diversity of Water Associated Activities		
- Trail Activities	2	No known developed trails, some informal trail access by ATV
- Hunting	7	Good wildlife production habitat for moose, elk, sheep
- Camping	1	No developed campsites -- informal spots associated with forestry road access
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	3	Mostly logging
- Historical Landscape	1	Little historical significance
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	Area is quite scenic -- Kakwa Falls one of highest in Alberta
- Remoteness	6	Area is relatively remote, little road access, no developments
• Physical Factors		
- Water Quality	9	River is largely unpolluted, natural flowing
- Shoreline Access	2	Limited access to river

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 20/50 x 20 = 8.0
- Diversity of Water Associated Activities 10/30 x 20 = 6.6
- Human Heritage Landscape Appreciation 4/20 x 20 = 4.0
- Natural Landscape Appreciation 12/20 x 20 = 14.0
- Physical Factors 11/20 x 20 = 11.0

- Total Recreational Capability Theme Score 41.6

KANANASKIS RIVER



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Human Heritage Scores

Historical / Cultural	16.10

Natural Heritage Scores

Geology	25.41
River Processes	18.89
Plants and Wildlife	5.00

Recreational Scores

Recreational Activities/Landscape Appreciation	55.00

TOTAL ADJUSTED SCORE 40.10

KANANASKIS RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	4	While a number of sites have been recorded along the Kananaskis River, few have provided temporal or cultural data. This may reflect the nature of previous investigations rather than the archaeological potential of the region.
	RESOURCE EXPLOITATION	0	Insufficient information at this time regarding specific resource utilization.
	HABITATION	3	Smaller sites identified to date likely reflect habitation situations.
	IDEOLOGY	10	Kananaskis was an important figure in Native oral traditions, EgPs 35 is an Assiniboine Sacred Lodge.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	10	Indian Reserves 142, 143, 144
	TRADITIONAL LAND USE	10	Don Rider ceremonial camp EgPs 35
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	7	Palliser followed the river through to the mountain pass
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		4	George Pocaterra (1882-1972) associated with the Kananaskis

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	17/40 x 10.7	=	4.5
• First Nations Contact	20/40 x 10.7	=	5.4
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	7/60 x 10.7	=	1.2
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	4/10 x 12.5	=	5.0
• Total Human Heritage Theme Score			16.1

Natural Heritage Evaluation \ Kananaskis River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	This river originates in the Front Ranges of the Rockies and feeds into the Bow River in the Southern Foothills.
2. Bedrock Geology	9	As this is a mountain river, Paleozoic and Precambrium rock are the major geological components, with Mesozoic sandstones, shales and coal comprising a minor component for that portion of the river located in the Southern Foothills.
3. Palaeontology	9	Much of the area along the Kananaskis river has been surveyed with numerous sections of high and medium palaeontological sensitivity zones located along the banks of the river.
4. Surficial Geology		
4.1 Parent Material	8	Sediments which this river traverses include those of a colluvial and fluvial nature, in addition to till overlain by bedrock.
4.2 Surface Expression	9	As much of this river is located within the Rocky Mountains, a wide diversity of surface expressions are encountered including: ridges, steep inclines, fans, colluvial and till veneers and veneer blankets.
River Processes		
1. Hydrology	2	The snow- and ice-fed Upper and Lower Kananaskis Lakes drain into this river. Rapids, boulder gardens, standing waves and logjams contribute to the variety of flow found within this river. Flow on this river is regulated by the Barrier and Seebe Dams.
2. Water Quality	9	Water quality tends to meet Alberta water quality guidelines.
3. River Morphology	6	Several fragmentary terrace levels exist. Some shallow braided areas are present. The river has very tight bends which are partially entrenched and confined.
Biota		
1. Vegetation	2	This river flows mainly through the Sub-Alpine natural subregion with Montane comprising a very minor component.
2. Wildlife Habitat	1	Only minimal high quality habitat is available for ungulates and fish.
3. Endangered/Threatened Species	2	The Prairie Falcon, Grizzly Bear and Spotted Frog utilize the habitat associated with this river.
4. Species Concentration	1	No significant habitat for migratory waterfowl exists and only minimal ungulate wintering habitat is available.

Summary of Average Natural Heritage Category Scores

Geology Category	30.5/40 x 33.33 = 25.41
River Processes Category	17/30 x 33.33 = 18.89
Biota Category	6/40 x 33.33 = 5.00
Total Natural Heritage Theme Score	49.30

Recreation Evaluation \ Kananaskis River

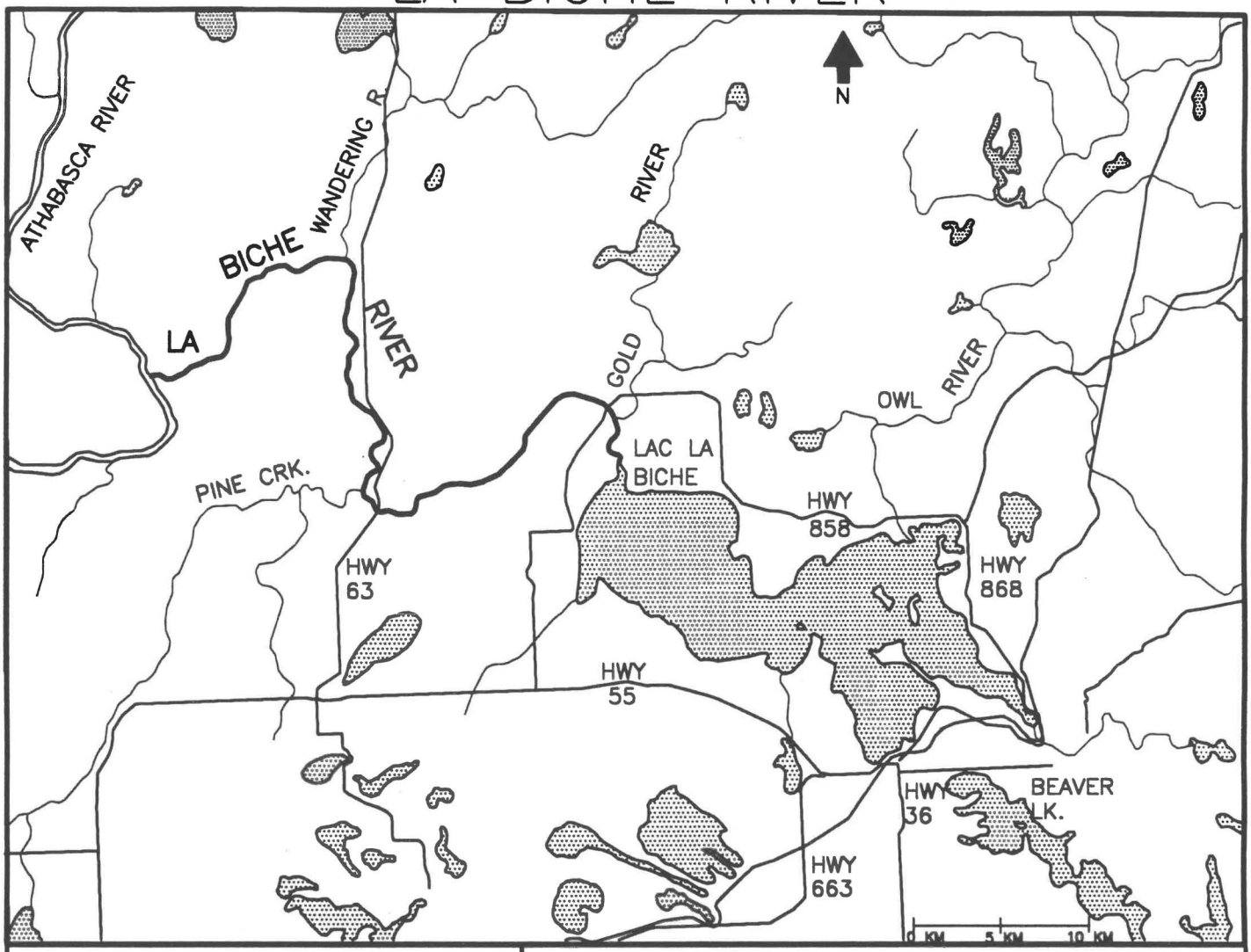
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	
- Flatwater Boating	3	Limited potential
- Whitewater Boating	7	Excellent intermediate whitewater potential but limited by short lengths and water fluctuation. One of the most popular whitewater rivers in Alberta (especially for Calgary and area)
- Fishing	6	Some good fishing with easy access
- Swimming	0	Too shallow and cold
• Diversity of Water Associated Activities		
- Trail Activities	8	With development of Kananaskis Country, trail access along river is quite good
- Hunting		
- Camping	8	Numerous campsites, plus a major camper park at Eau Claire
Sub-Total		
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	7	Much evidence of roads, power lines, hydro plants
- Historical Landscape	6	Some historical trapper cabins and evidence of early trapper trails
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	Surrounding mountain landscape in broader glaciated valley quite striking, but evidence of many hydro plants and manmade influence detracts from natural scenery
- Remoteness	2	River is too short and too accessible by roads to give a true wilderness experience
• Physical Factors		
- Water Quality	8	Relatively uncontaminated
- Shoreline Access	8	With road access on both sides of river and various bridge crossing and trails the river is highly accessible

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 16/50 x 20 = 6.4
- Diversity of Water Associated Activities 16/30 x 20 = 10.6
- Human Heritage Landscape Appreciation 13/20 x 20 = 13.0
- Natural Landscape Appreciation 9/20 x 20 = 9.0
- Physical Factors 16/20 x 20 = 16.0

- Total Recreational Capability Theme Score 55.0

LA BICHE RIVER



Human Heritage Scores

Historical / Cultural 31.80

Natural Heritage Scores

Geology 9.17

River Processes 18.33

Plants and Wildlife 5.00

Recreational Scores

Recreational Activities/Landscape Appreciation ... 38.40

TOTAL ADJUSTED SCORE 34.20

LA BICHE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Due to the lack of systematic investigations in the region, the archaeological record for this area is limited. This may not reflect archaeological potential
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	4	Beaver, Cree and Chipewyan traditional territory
METIS	HABITATION	3	Traditional Metis region relating to the Lac La Biche fur trade and the natural transport route to the Athabasca.
	PROVISIONING	0	
	REBELLION	2	The Metis of the region remained loyal to the Canadian government in 1885
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	10	1811/12 David Thompson establishes a "Northwest Passage" using the Beaver River-Portage La Biche-La Biche River-Athabasca River route which becomes the route of the "Columbia Express".
	MONOPOLY (1821-1859)	8	1824 Beaver River/Lac La Biche/La Biche River route ordered abandoned by George Simpson. Continued to be used by free traders.
	FREE TRADERS (1850-1940)	7	Continued use of La Biche river route to Athabasca by free traders
SETTLEMENT	EXPLORATION	8	Peter Fidler used the La Biche River in 1800 to reach the Athabasca River. Decoigne also used this route for the Northwest Company in 1799. Dr. Robert Bell did a track survey in 1882.
	LEGAL SURVEY	0	
	MISSIONS	8	Important transport route for Oblate Missions
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Fur trade route from Beaver River to the Athabasca River between 1799 and 1824, and continued to be used by free traders. The La Biche route was the main fur trade route to the Lesser Slave Lake District as well as the route for the Columbia Express.
	LAND COMMUNICATION	9	Cart trail cut by Oblate missionaries along route to Athabasca River
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		10	Bishop Tache traversed water route to confirm transport potential for missionary supplies. Bishop Faraud travelled the route to reach the northern missions, as did numerous other O.M.I. missionaries. Fur traders associated with the river route include Peter Fidler, Decoigne, David Thompson, McLoughlin, Ogden, Ross and others. George Simpson travelled the route and declared an official end to the use of the Beaver River/La Biche route for HBC transport.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	0/40 x 10.7	=	0.0
• First Nations Contact	4/40 x 10.7	=	1.1
• Metis	5/30 x 10.7	=	1.8
• Fur Trade	25/40 x 10.7	=	6.7
• Settlement	16/60 x 10.7	=	2.9
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	19/30 x 10.7	=	6.8
• Events	0/10 x 12.5	=	0.0
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			31.8

Natural Heritage Evaluation \ La Biche River

Category	Score	Rationale
Geology		
1. Physiographic Section	3	This river traverses the Lac La Biche Plain.
2. Bedrock Geology	5	Mesozoic marine shales constitute the bedrock geology of the area.
3. Palaeontology	N/A	No palaeontological records exist for the areas adjacent to the river.
4. Surficial Geology		
4.1 Parent Material	4	Till and glaciolacustrine material make up the parent material.
4.2 Surface Expression	2	The river flows through a very gently rolling landscape.
River Processes		
1. Hydrology	5	Pool and riffle sequences are found on this river.
2. Water Quality	6	Phenol and nitrogen levels may exceed guidelines. Occasionally some metal ion concentrations are non-compliant.
3. River Morphology	N/A	
Biota		
1. Vegetation	1	This river flows through the Dry Mixedwood natural subregion.
2. Wildlife Habitat	1	Some prime habitat for ungulates exists.
3. Endangered/Threatened Species	1	Habitat is provided for the threatened Bald Eagle and River Otter.
4. Species Concentration	3	This river contains areas of local significance to migratory waterfowl. Some ungulate wintering habitat is also present.

Summary of Average Natural Heritage Category Scores

Geology Category	11/40 x 33.33 = 9.17
River Processes Category	11/20 x 33.33 = 18.33[4]
Biota Category	6/40 x 33.33 = 5.00
Total Natural Heritage Theme Score	32.50[4]

[4] River morphology information not available

Recreation Evaluation \ La Biche River

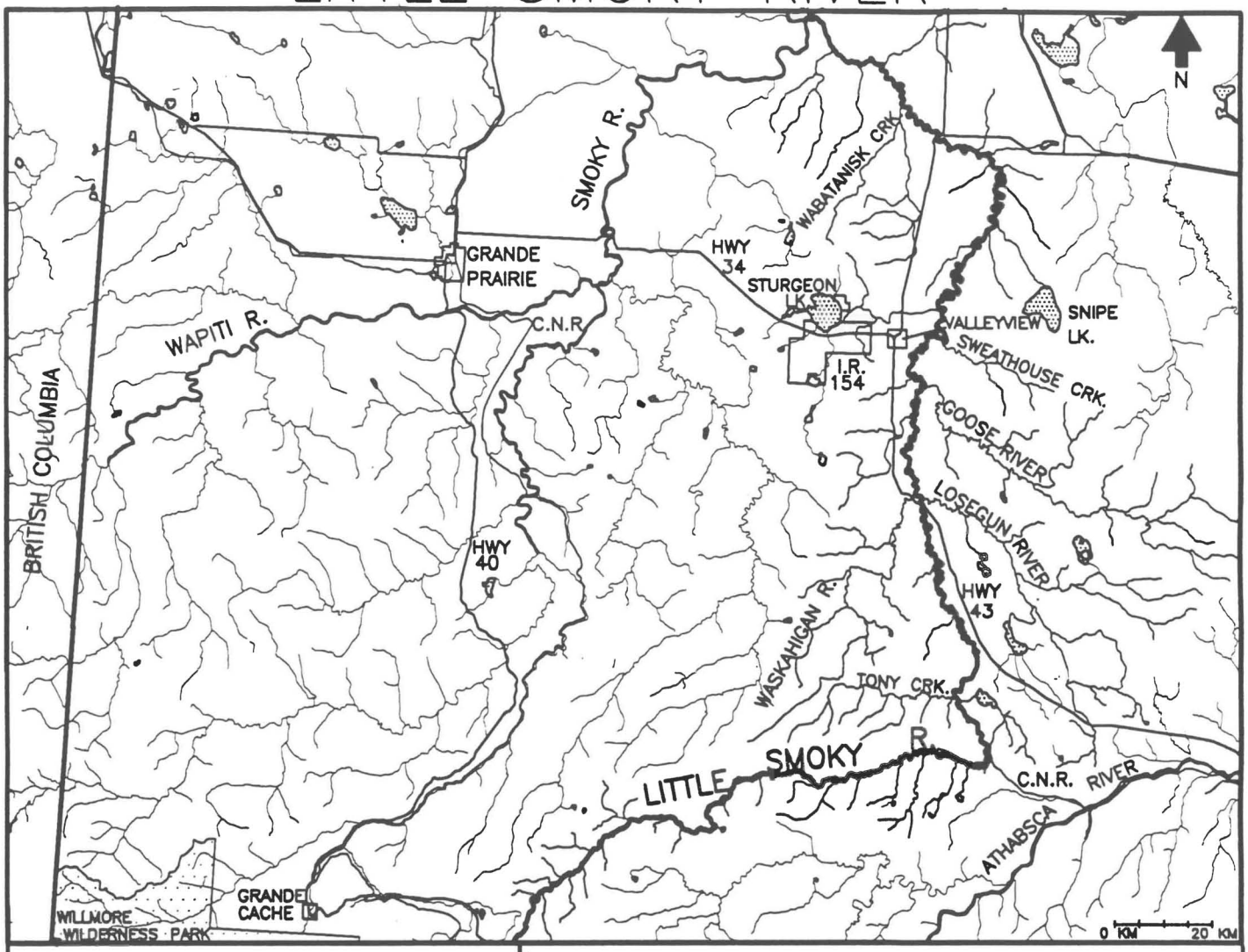
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	1	Jet powered vessels only, no formal launch facilities
- Flatwater Boating	3	Too short for extended trips
- Whitewater Boating	3	Limited to no rapids, short lengths
- Fishing	8	Popular fishing river, contains more than 4 popular sports fishing species (Perch, Pickerel, Walleye and Pike)
- Swimming	1	Limited shoreline access
• Diversity of Water Associated Activities		
- Trail Activities	4	Limited camping and many private lands are adjacent
- Hunting	3	Private lands are deterrent
- Camping	2	Campsites located at Lac La Biche on lake not on river
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	5	Pastoral / rural agriculture and bridges
- Historical Landscape	7	Important developed and non-developed sites - at least one site is developed
• Natural Landscape Appreciation		
- Natural/Visual Attractions	3	Typical land forms
- Remoteness	2	Developed agricultural lands are predominant
• Physical Factors		
- Water Quality	5	
- Shoreline Access	4	

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 16/50 x 20 = 6.4
- Diversity of Water Associated Activities 9/30 x 20 = 6.0
- Human Heritage Landscape Appreciation 12/20 x 20 = 12.0
- Natural Landscape Appreciation 5/20 x 20 = 5.0
- Physical Factors 9/20 x 20 = 9.0

- Total Recreational Capability Theme Score 38.4

LITTLE SMOKY RIVER



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Human Heritage Scores

Historical / Cultural	4.60

Natural Heritage Scores

Geology	26.66
River Processes	24.44
Plants and Wildlife	17.50

Recreational Scores

Recreational Activities/Landscape Appreciation	55.90

TOTAL ADJUSTED SCORE 43.00

LITTLE SMOKY RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Few prehistoric sites have been recorded in the region likely reflecting a lack of systematic investigation rather than archaeological potential
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	6	Fahler ferry and Edson/Grande Prairie Trail ferry
	LAND COMMUNICATION	7	crossed by Edson to Grande Prairie Trail
	TELECOMMUNICATION	0	
EVENTS		0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	0/40 x 10.7	=	0.0
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	0/60 x 10.7	=	0.0
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	13/30 x 10.7	=	4.6
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			4.6

Natural Heritage Evaluation \ Little Smoky River

Category	Score	Rationale
Geology		
1. Physiographic Section	7	The Peace River Lowlands and the Summit Benchlands constitute the major portion of the area through which the Little Smoky River flows, with the Wapiti Plains and Grande Cache Benchlands providing minor components.
2. Bedrock Geology	7	The geology of the area dates to the Cenozoic era near the source in the foothills and to the Mesozoic era as it travels northward to its confluence with the Smoky River. This river derived its name from coal beds along the river that sometimes ignite and burn for long periods of time.
3. Palaeontology	9	An extended area of high palaeontological significance exists in the Valleyview area and northward. Smaller more localized sites of medium sensitivity occur along the upper reach of the river.
4. Surficial Geology		
4.1 Parent Material	8	Glaciolacustrine and till deposits are the prominent surface materials, with glaciolacustrine sediment often overlying till or till overlying bedrock.
4.2 Surface Expression	10	No single type of surface expression predominates. Rather, the topography is varied due to the transition from the Rocky Mountain foothills to the lowlands of the Peace River area.
River Processes		
1. Hydrology	7	At highwater standing waves are not uncommon in many stretches of the Little Smoky River.
2. Water Quality	7	Dissolved oxygen, phosphorous and iron levels occasionally exceed guidelines particularly during periods of low flow (ie. winter).
3. River Morphology	8	Several fragmentary terrace levels and a floodplain are evident along the Little Smoky River. A definite pattern is found in the very pronounced meander bends along this river. The single channel contains occasional islands, mid channel and point bars. The river is generally entrenched. As the river downgrades the valley tends to narrow. At the confluence with the Smoky River, the Little Smoky River is enclosed in a gorge approximately 150-180 m deep.
Biota		
1. Vegetation	9	The high variation in physiography is reflected in the vegetation zones through which the Little Smoky crosses. The Sub-Alpine is very minor component; however, as the river meanders northward it passes through the Upper Foothills zone, the Lower Foothills zone, the Central Mixedwood and eventually the Dry Mixedwood.
2. Wildlife Habitat	4	Extensive prime habitat for ungulates is provided along this river.
3. Endangered/Threatened Species	2	Habitat is provided for the endangered Trumpeter Swan and the threatened Grizzly Bear and River Otter.
4. Species Concentration	6	Ungulate wintering habitat exists along the majority of the length of this river. Only a minimal amount of habitat significant to migratory waterfowl is present.

Summary of Average Natural Heritage Category Scores

Geology Category	32/40 x 33.33 = 26.66
River Processes Category	22/30 x 33.33 = 24.44
Biota Category	21/40 x 33.33 = 17.50
Total Natural Heritage Theme Score	68.60

Recreation Evaluation \ Little Smoky River

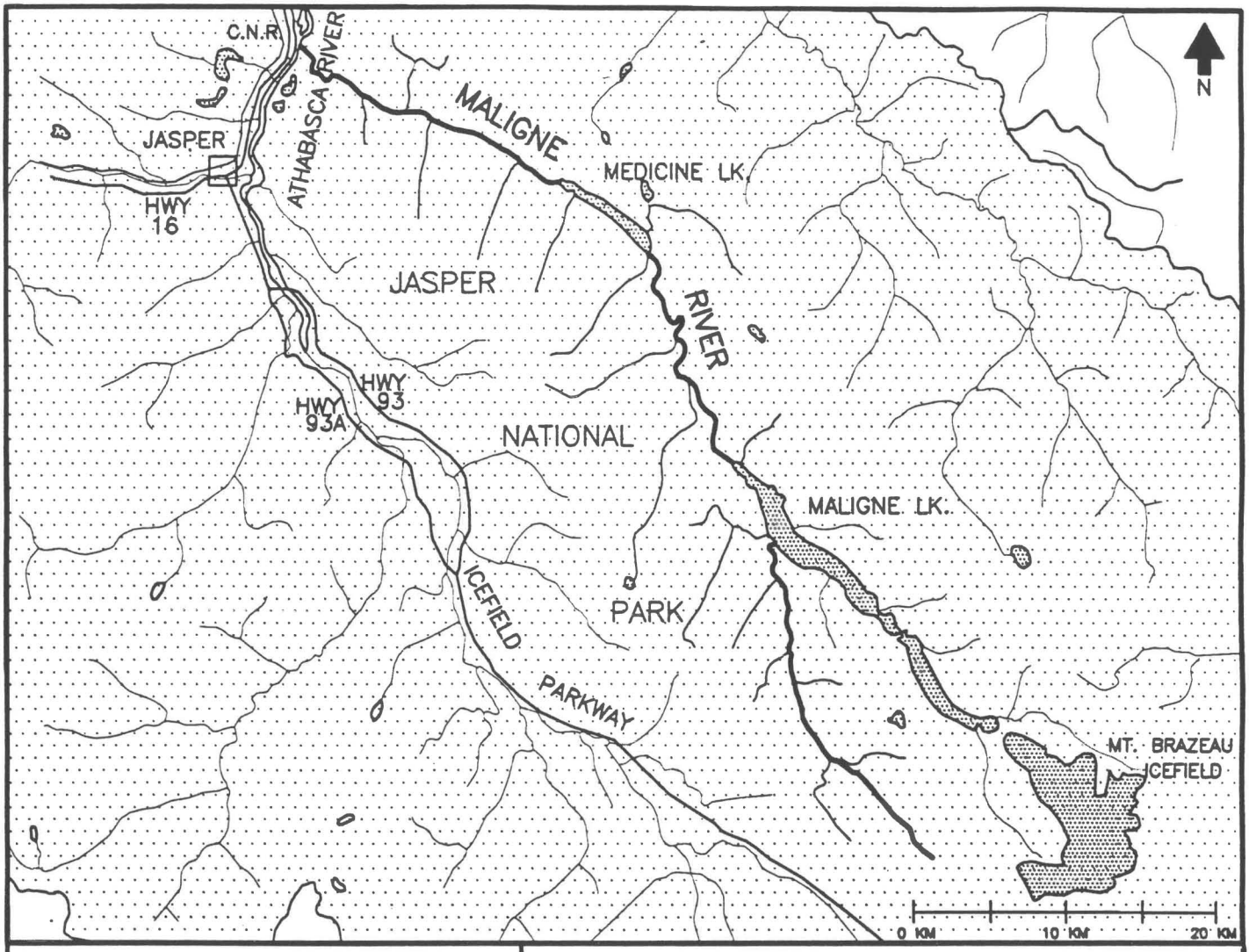
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	2	Limited opportunity / jet boats only
- Flatwater Boating	6	Good for open canoe in upper stretches -- overall Grade I resource
- Whitewater Boating	7	Good for novice open paddlers (Class I-III rapids) for extended 6-7 day trips
- Fishing	7	Deemed to be good resource by local residents
- Swimming	2	Randomly takes place in upper reaches
• Diversity of Water Associated Activities		
- Trail Activities	5	Limited and undeveloped in upper reaches -- inaccessible in lower reach
- Hunting	8	Popular hunting zone for game -- prime habitat for ungulates
- Camping	7	Numerous developed campsites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	4	Village of Watino and provincial campsite and 3 bridge crossings
- Historical Landscape	2	Few sites recorded (trail ferry crossing evidence)
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	High variation in physiography -- deep gorge at confluence of Smoky
- Remoteness	6	Known as wilderness trip but has numerous exploration roads and oil and gas activity
• Physical Factors		
- Water Quality	6	Generally good over summer season
- Shoreline Access	7	6 or 7 locations developed and numerous access roads

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 24/50 x 20 = 9.6
- Diversity of Water Associated Activities 20/30 x 20 = 13.3
- Human Heritage Landscape Appreciation 6/20 x 20 = 6.0
- Natural Landscape Appreciation 13/20 x 20 = 13.0
- Physical Factors 14/20 x 20 = 14.0

- Total Recreational Capability Theme Score 55.9

MALIGNE RIVER



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Human Heritage Scores

Historical / Cultural 1.40

Natural Heritage Scores

Geology 20.00

River Processes 30.00

Plants and Wildlife 6.67

Recreational Scores

Recreational Activities/Landscape Appreciation ... 59.30

TOTAL ADJUSTED SCORE 39.10

MALIGNE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	4	Father de Smet preached in area
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	4	Curly Phillips Boathouse (Jasper Park)
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	0/40 x 10.7	=	0.0
• First Nations Contact	0/40 x 10.7	=	0.0
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	4/60 x 10.7	=	0.7
• Resource Development	4/60 x 10.7	=	0.7
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			1.4

Natural Heritage Evaluation \ Maligne River

Category	Score	Rationale
Geology		
1. Physiographic Section	3	This river runs parallel to two mountain ridges within the Park Ranges of the Rockies and feeds into the Athabasca River within Jasper National Park.
2. Bedrock Geology	7	The Maligne River traverses Precambrian and Paleozoic materials.
3. Palaeontology	N/A	The existence of significant fossil areas is probable in this region; however, this possibility has not been verified by fossil finds or surveys.
4. Surficial Geology		
4.1 Parent Material	8	An assortment of parent materials are associated with the region through which the Maligne river traverses, including colluvium, till, rock and fluvial material.
4.2 Surface Expression	8	The Maligne river runs through a variety of landscapes, many of which are associated with the formation of the Rocky Mountains and more recent glacial and fluvial processes. Evidence of steep surfaces are seen in the Maligne canyon, where water action has eroded the bedrock. The river also traverses areas which have blankets or veneers of tills and other sediments.
River Processes		
1. Hydrology	10	This river contains many areas of very rapid flow and major drops. The water action and limestone geology combine to form unique hydrological characteristics and features such as extensive karst system. The Maligne River is fed in part by an extensive underground drainage system that flows through Medicine Lake. Huge underground limestone caverns were created as a result of the continual erosive action of water dissolving the soft bedrock. This same erosive action is visible at the surface in the Maligne Canyon. Waterfalls and deep pools are prominent features. Log jams are common in this mountainous environment. The river flow slows considerably as it approaches the Athabasca River. Water levels and the undergound drainage that occurs are controlled by Maligne Lake outlet.
2. Water Quality	N/A	No data is available regarding water quality.
3. River Morphology	8	The nature of the geology in this area lends itself to the formation of many unique and distinct landforms of which extensive karst systems are most prominent. The river has many very tight bends and major drops, most evident in Maligne Canyon.
Biota		
1. Vegetation	2	The headwaters and the upstream half of this river are located in the Sub-Alpine, while the downstream portion and the confluence with the Athabasca River are situated in the Montane.
2. Wildlife Habitat	1	The river environment provides significant habitat for ungulates, mountain goats, mountain sheep and furbearing animals.
3. Endangered/Threatened Species	3	Several threatened species including the Bald Eagle, Osprey, Cooper's Hawk, Grizzly Bear and River Otter make use of this environment.
4. Species Concentration	2	No significant seasonal habitat for migratory waterfowl is provided. However, a Harlequin duck population resides on the river, near Maligne Lake in the early summer. Approximately 90 % of the river's length provides important winter habitat for ungulates. This area is of seasonal importance to wolves which are attracted by increased prey densities.

Summary of Average Natural Heritage Category Scores

Geology Category	18/30 x 33.33 = 20.00[1]
River Processes Category	18/20 x 33.33 = 30.00[3]
Biota Category	8/40 x 33.33 = 6.67
Total Natural Heritage Theme Score	56.67[1,3]

[1] Palaeontology information not available
[3] Water quality information not available

Recreation Evaluation \ Maligne River

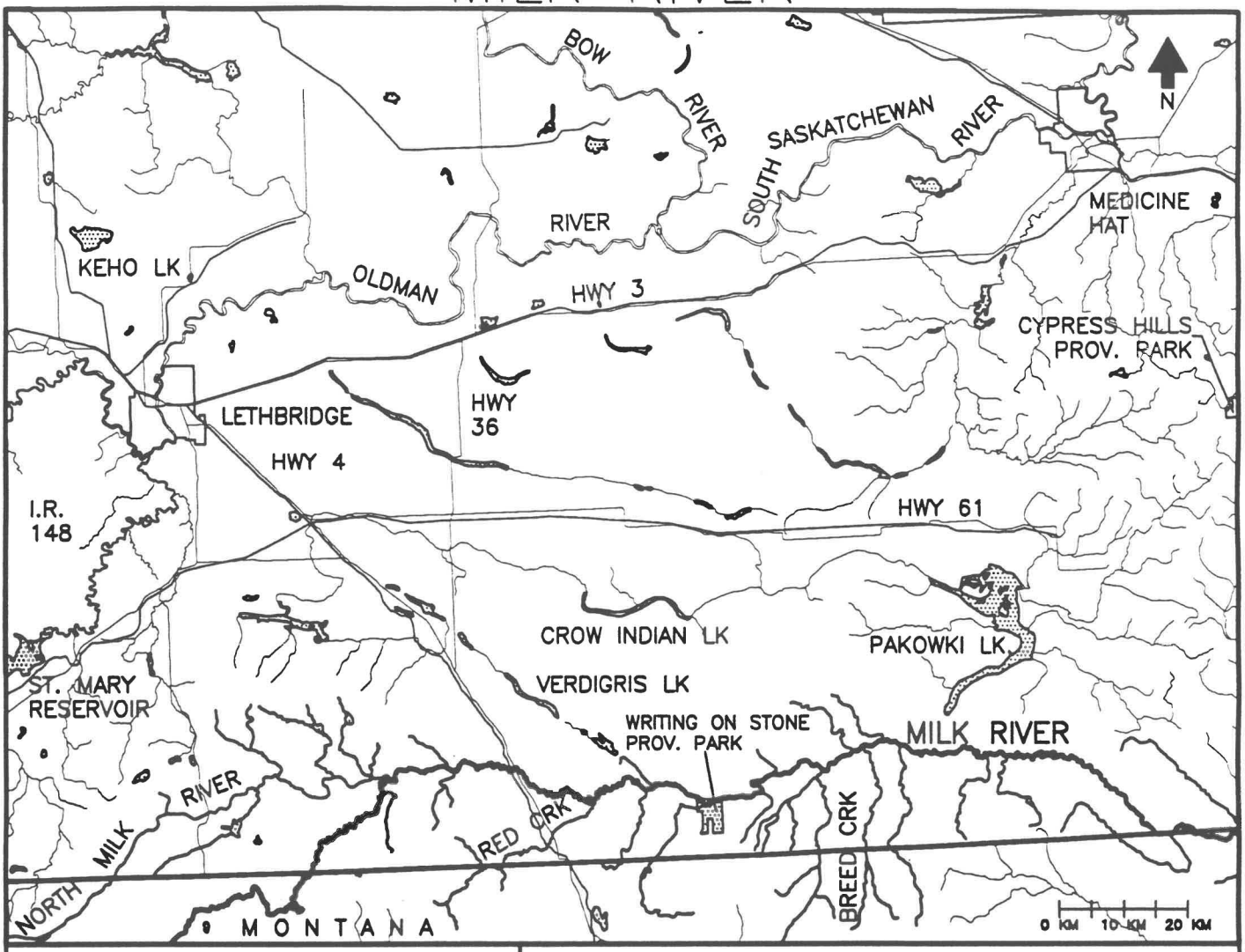
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	
- Flatwater Boating	0	
- Whitewater Boating	9	Only for expert paddlers and rafting but some controversy over disturbing Harlequin Ducks habitat
- Fishing	6	Fast water and limited catch
- Swimming	0	
• Diversity of Water Associated Activities		
- Trail Activities	8	Hiking trails and youth hostel along accessible portions
- Hunting	0	
- Camping	3	Back country - upstream section
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	
- Historical Landscape	5	
• Natural Landscape Appreciation		
- Natural/Visual Attractions	10	Mountain scenery and canyon walls
- Remoteness	7	Road follows portion of river
• Physical Factors		
- Water Quality	10	
- Shoreline Access	8	

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 15/50 x 20 = 6.0
- Diversity of Water Associated Activities 11/30 x 20 = 7.3
- Human Heritage Landscape Appreciation 11/20 x 20 = 11.0
- Natural Landscape Appreciation 17/20 x 20 = 17.0
- Physical Factors 18/20 x 20 = 18.0

- Total Recreational Capability Theme Score 59.3

MILK RIVER



Human Heritage Scores

Historical / Cultural	23.80

Natural Heritage Scores

Geology	21.25
River Processes	21.00
Plants and Wildlife	16.67

Recreational Scores

Recreational Activities/Landscape Appreciation	43.40

TOTAL ADJUSTED SCORE 42.04

MILK RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Very good representation of cultural and temporal affiliations associated with the Middle and Late Prehistoric Periods.
	RESOURCE EXPLOITATION	10	The Milk River was a Native trade and travel corridor to the south. Several jumps and kills have been recorded along the river.
	HABITATION	10	A large number and wide range of habitation sites have been recorded including DgPc 109, DgPc 55, DgPc 2, DgPc 7, and DgPc 109.
	IDEOLOGY	10	Burials - DgOv 12, DgOn 1, DgOp 23; Writing-on-Stone Complex, Medicine Wheel DgPc 6.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	*Masinasin* "writing-on-stone" in Cree, *Kenushsisuht* in Blood meaning "little river". The presence of Writing-On-Stone and the proximity of the Sweetgrass Hills make this an important travel corridor both economically and spiritually.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	5	Area important in whiskey trade
SETTLEMENT	EXPLORATION	5	Named by Lewis and Clark in 1805 for its milky colouring
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	6	early ranching communities
	LAW & ORDER	10	NWMP outposts - Wildhorse Creek DgOn 15, Pendant D'Oreille DgOs 6, Milk River Ridge DgPb 5, Kennedy's Crossing, Milk River, Writing on Stone
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	6	There was a ford crossing near the modern community of Milk River
	LAND COMMUNICATION	9	Fort Benton/Whoop-Up Trail crossed west of town of Milk River; Boundary Commission Trail crossed near Red Creek
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	5/40 x 10.7	=	1.3
• Settlement	21/60 x 10.7	=	3.7
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	15/30 x 10.7	=	5.4
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			23.8

Natural Heritage Evaluation \ Milk River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The Milk River extends through the Milk River Upland and the Southwest Plains, with greater representation in the latter.
2. Bedrock Geology	5	The geologic material of this area consists of Upper Cretaceous deposits.
3. Palaeontology	9	The Milk River valley provides a rich source for fossils. The stretch of river east of the Milk River townsite contains extensive areas of high and medium palaeontological resource sensitivity.
4. Surficial Geology		
4.1 Parent Material	6	Parent material consists of fluvial and morainal material, till overlain bedrock and select areas of glaciolacustrine deposits.
4.2 Surface Expression	9	Surface expression in this area is highly variable, ranging from rolling, undulating, terraced to hummocky terrain, with or without veneer blankets.
River Processes		
1. Hydrology	4	The meandering nature of this river results in areas of slow and fast water flow. The predominantly gravel bed and bars contribute to the development of rapids and riffles. Sandbars and sweepers also occur in this river. River flow is regulated from April to October by the St. Mary Canal diversion. It is the only river in Alberta that drains into the Mississippi and eventually into the Gulf of Mexico.
2. Water Quality	7	Summer phosphorous and nitrogen levels tend to exceed guidelines. This is due to a combination of municipal and climatic factors. Occasionally, dissolved oxygen depletion occurs under ice cover in the winter. Flow rates have a considerable impact on water quality. Total dissolved solids are highest in the winter and directly associated with low flows.
3. River Morphology	10	Two continuous terrace levels are present. This river has pronounced bends which show no repetitive pattern. Several large features stand out along this river: 1) a large burnt clinker shale butte formed as a result of lightning striking a coal seam, 2) a shallow canyon, 3) an outcrop of igneous rock in a upstream section, known locally as "Black Butte" and 4) cutbanks which give way to sandstone cliffs which are subsequently eroded, producing hoodoos and table rocks.
Biota		
1. Vegetation	3	Dry Mixedgrass is the prominent natural subregion with a smaller component of Mixedgrass.
2. Wildlife Habitat	2	Some prime habitat for ungulates exists. Only a minimal amount of quality habitat for waterfowl may found along this river.
3. Endangered/Threatened Species	10	Numerous species, including 6 birds, 2 mammals, 5 plans and 6 reptiles and amphibians may be found in association with this river. Of note are the endangered Ferruginous Hawk, Loggerhead Shrike, Long-billed Curlew, and Peregrine Falcon. This river has several fish species not found anywhere else in Alberta due to it being the only river in Alberta that drains into the Mississippi drainage system.
4. Species Concentration	5	Significant migratory waterfowl habitat and wintering ungulate habitat exists along approximately 50 % of this river. The migratory waterfowl habitat is of local significance.

Summary of Average Natural Heritage Category Scores

Geology Category	25.5/40 x 33.33 = 21.25
River Processes Category	21/30 x 33.33 = 21.00
Biota Category	20/40 x 33.33 = 16.67
Total Natural Heritage Theme Score	58.92

Recreation Evaluation \ Milk River

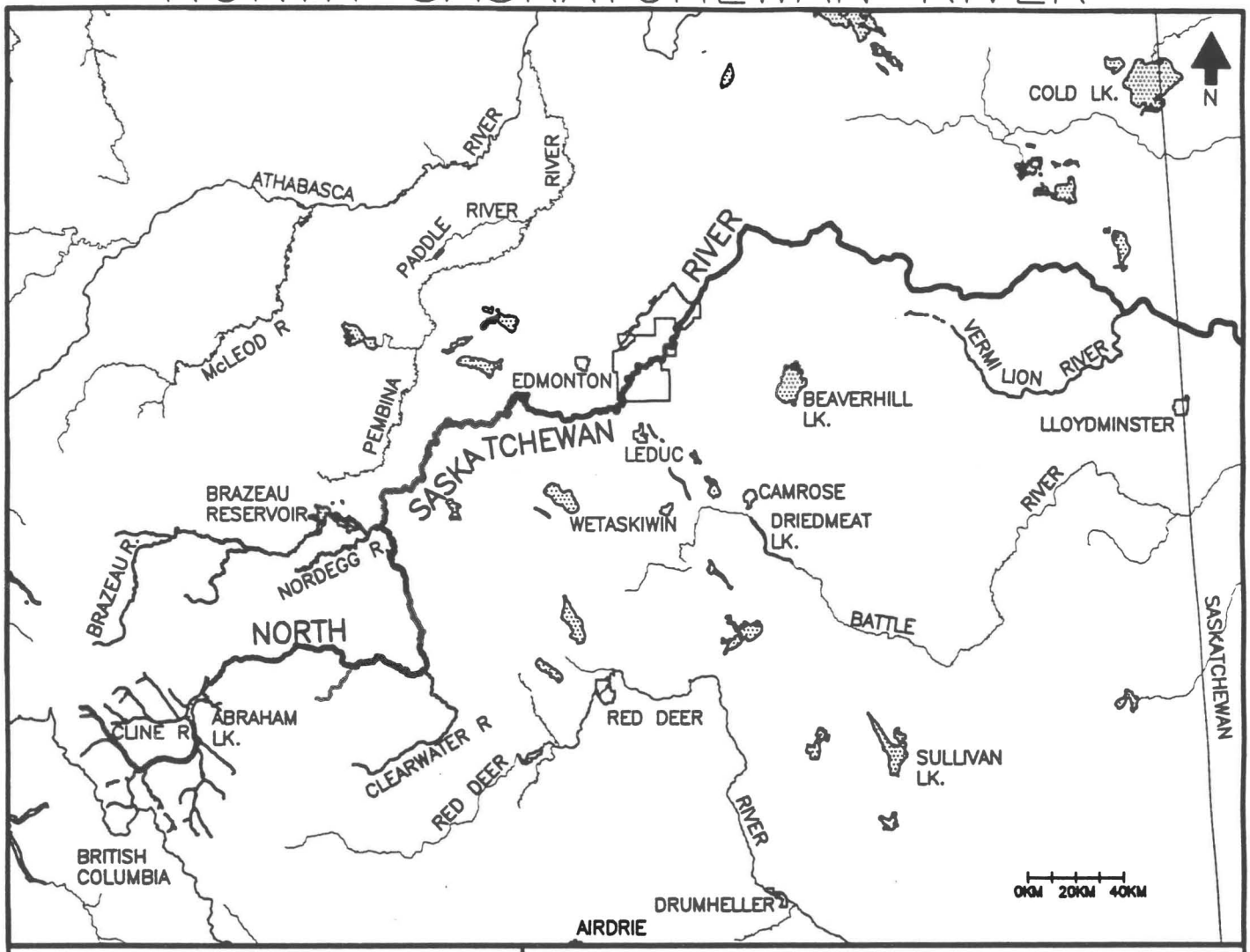
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	1	Maybe some limited powerboating around urban areas (Milk River) when water levels are high enough -- otherwise limited potential
- Flatwater Boating	5	Distance and access are deterrents for extended canoeing -- although potential exists. This is a fairly important canoeing river
- Whitewater Boating	0	No whitewater -- river slow moving, shallow
- Fishing	3	Few species, limited access
- Swimming	3	Has limited potential in sections (i.e., near Milk River community)
• Diversity of Water Associated Activities		
- Trail Activities	3	Only occasional trails access the river valley -- limited trails along river except in parks and reserves
- Hunting	3	Potential exists for some game, but limited access
- Camping	4	Writing on Stone offers best camping area; other sites limited to primitive level of camping
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	2	Little evidence of human use of valley -- mainly a few scattered ranches, improved pasture
- Historical Landscape	8	River has famous petroglyphs of ancient society, writing on stone, much use by early First Nations people
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	Eastern section of river has spectacular canyon with striking visual landscape; western section uninspiring, monotonous pastureland landscape
- Remoteness	7	Because of limited access and limited use by man, river has good potential for remote experience
• Physical Factors		
- Water Quality	7	Generally acceptable
- Shoreline Access	2	Access generally poor with few high quality roads; landownership also poses problem for access

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 12/50 x 20 = 4.8
- Diversity of Water Associated Activities 10/30 x 20 = 6.6
- Human Heritage Landscape Appreciation 10/20 x 20 = 10.0
- Natural Landscape Appreciation 13/20 x 20 = 13.0
- Physical Factors 9/20 x 20 = 9.0

- Total Recreational Capability Theme Score 43.4

NORTH SASKATCHEWAN RIVER



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Human Heritage Scores

Historical / Cultural 88.10

Natural Heritage Scores

Geology 31.66

River Processes 22.22

Plants and Wildlife 30.00

Recreational Scores

Recreational Activities/Landscape Appreciation ... 58.60

TOTAL ADJUSTED SCORE 76.80

NORTH SASKATCHEWAN RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Excellent representation of a range of temporal and cultural affiliations - Early Prehistoric to Historic Periods.
	RESOURCE EXPLOITATION	10	Stoney Plain Quarry Site FiPm 6, Kitto Lake Quarry FhPq 1, Strathcona site FjPi 29, and killsite FiPn 9 are examples of the resource exploitation sites identified on the North Saskatchewan.
	HABITATION	10	Numerous campsites and some stone circle sites have been identified on the river.
	IDEOLOGY	10	Burials ElQd 1, ElQe 12, and FbQc 23.
FIRST NATIONS CONTACT	FUR TRADE	10	Seafort burial FcPr 7 (Iroquois burials), Rossdale Power Plant Burial FjPi 63. Plantation sites associated with fur trade sites.
	REBELLION	7	Frog Lake 1885 Rebellion began north of the North Saskatchewan and warriors travelled along the river to Fort Pitt and Frenchman Butte. Natives associated with Victoria Mission area (Pakan) remained loyal to the Canadian government.
	TREATY	0	
	TRADITIONAL LAND USE	10	Indian Reserves 125, 144A. Kootenay Sundance Lodges FaQc 23, Sundance lodges FbQc 21; Sweatlodge FbQc 22. Palliser notes Cree Village near Vermilion river mouth.
METIS	HABITATION	7	River lot settlement in areas. Lamoureaux settlement near Edmonton.
	PROVISIONING	7	Buffalo were hunted on the plains south of the river and brought to the North Saskatchewan posts for trade.
	REBELLION	8	Events of the 1885 Rebellion occurred along the eastern length of the North Saskatchewan River.
FUR TRADE	CONTACT (1670-1778)	10	1754 Anthony Henday explored the Saskatchewan river system (both North and South branches). Fort La Jonquiere may have been located on the North Saskatchewan.

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	RIVALRY (1774-1821)	10	Fort Vermilion/Paint Creek House FjOn 1 1802-1810, 1811-1816; Fort George/Buckingham House FlOq 1&2 1792-1801/2; Fort de l'Isle II FkOs 1 1799-1801; Lower Terre Blanche House (Fort White Earth) GaPb 3 1810-1813; Fort Augustus I/Fort Edmonton I 1795-1801; Fort Augustus II/Fort Edmonton II 1801-1810; Fort Augustus III and IV/Fort Edmonton 1812-1915; Upper Terre Blanche 1799-1801; 1810-11; Muskeg Fort >1808; Boggy Hall FgPt 5 >1808; Rocky Mountain House I/Acton House 1799-1834
	MONOPOLY (1821-1859)	10	Dog Rump Creek House >1827; Rocky Mountain House II 1835-1861;
	FREE TRADERS (1850-1940)	10	Rocky Mountain House III 1866-1875; Fort Victoria GaPc 6.
SETTLEMENT	EXPLORATION	10	Henday followed from Sturgeon River area back to Fort York. Tomison headed the HBC fur trade expansion up the North Saskatchewan River. Alexander Henry was an important trader on the river. Palliser expedition followed from Fort Carlton to the river's source.
	LEGAL SURVEY	10	First settlements occurred along the North Saskatchewan River valley, concentrating in Edmonton and the Victoria Mission/Pakan area.
	MISSIONS	10	Victorica Methodist Mission Site. Roman Catholic, Methodist and Anglican missionaries used the North Saskatchewa as a transport and travel corridor from the 1840's onward. Historic churches are located witihin Edmonton including the 1874 Anglican Diocese FjPi 2.
	AGRARIAN SETTLEMENT	10	farmstead FcPr 21; Historic settlement and structures in Edmonton (including Government House); concentrations of ethnic settlements (Ukranian, Moravian, German, etc.) Agricultural settlement of modern Alberta was initiated along the route of the North Saskatchewan.
	RANCHING	0	
	LAW & ORDER	10	Fort Saskatchewan NWMP Post FkPh 15, outposts and patrols. Original Fort Saskatchewan Provincial penitentiary. 1885 Alberta Rifles crossed at Heinsburg on way to quell Frog Lake Rebellion.
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	10	coal mine FjPi 42, several small coal mines were located in the Edmonton region along the river. Windsor salt mine at Lindbergh.

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	PETROLEUM	10	Both the Redwater and Leduc oil fields extend into the river area. Devon was established as a company town for oil exploration and development.
	CLAY PRODUCTS	10	Pollard brickyards FjPj 27. White Earth Creek used as a plastering clay source by McDougalls at Victoria Mission in 1860's.
	WATER	10	Bighorn dam
TRANSPORTATION	RIVER COMMUNICATION	10	Important fur trade water route; Numerous ferries (>30 individual ferry locations). Steamboat travel on the North Saskatchewan.
	LAND COMMUNICATION	10	Palliser noted Snake Portage to Lac La Biche near Saddle Lake area, may be the same as that beginning near Brosseau; Lac La Biche to Fort Pitt Trail crossed the river; Victoria Mission was junction for several trails including the Carlton to Edmonton Trail, a trail to Edmonton from the south side of the river, and a trail to the southeast which linked up with the Vermilion River and Battle River. Edmonton was the starting point for the Athabasca Landing Trail and the terminus for the Calgary to Edmonton Trail; Rocky Mountain House trail crossed river near forts
	TELECOMMUNICATION	10	Telegraph and telephone lines were established along the river valley.
EVENTS		10	Edmonton became a staging ground for the 1898 Klondike Gold Rush. Edmonton became provincial capital in 1905. Alberta Mounted Rifles arrived in Edmonton May 1, 1885 on route to Frog Lake to help quell the rebellion - they followed the river to Frog Creek area and then on to Frenchman Butte and Loon Lake.
PERSONAGES		10	David Thompson, Peter Fidler, Tomison, Alexander Henry, Bird, John Rowand, Richard Hardisty, George and John McDougall, Robert Rundle, Chief Maskepetoon, Chief Pakan, Chief Big Bear, Albert Lacombe, Emily Murphy, Dr. E.A. Braithwaite and many others.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	27/40 x 10.7	=	7.2
• Metis	22/30 x 10.7	=	7.8
• Fur Trade	40/40 x 10.7	=	10.7
• Settlement	50/60 x 10.7	=	8.9
• Resource Development	40/60 x 10.7	=	7.1
• Transportation	30/30 x 10.7	=	10.7
• Events	10/10 x 12.5	=	12.5
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			88.1

Natural Heritage Evaluation \ North Saskatchewan River

Category	Score	Rationale
Geology		
1. Physiographic Section	10	The North Saskatchewan River traverses an assortment of physiographical sections as it flows eastward from its headwaters at the Saskatchewan Glacier in the Rockies, through the foothills and across the prairies. Most prominent are the uplands and plains of the Eastern Alberta Plains.
2. Bedrock Geology	10	Non-marine sandstone and coal of the Upper Cretaceous and Tertiary sandstones, shale and coal compose the predominant geological material of this area. Terrain of Precambrium and Paleozoic origin represents only a minor component of the landscape traversed.
3. Palaeontology	8	Several sites of high palaeontological sensitivity exist along this river within the City of Edmonton and just west of Edmonton. Undercut banks near the Genesee Bridge expose shale-like rock which as it weathers exposes fossilized plants, some over 60 million years old. The two most common fossils are metasequoia and cercidiphyllum.
4. Surficial Geology		
4.1 Parent Material	10	This river traverses landscapes containing the full spectrum of parent materials. Till, colluvium and bedrock are more prominent in the mountain and upland areas, whereas glaciolacustrine sediments, glaciofluvial deposits and till are dominant on the Western and Eastern Alberta Plains.
4.2 Surface Expression	10	A diversity of surface expressions coincides with the wide range of parent materials. These grade from ridged and steeply inclined in the mountains to hummocky and undulating on the plains.
River Processes		
1. Hydrology	4	This river has considerable representation and variation in hydrological characteristics and conditions. It contains such features as; pool and riffle sequences, rolling and standing waves, strong currents along meander bends, water falls, strong eddies caused by rock ledges extending into the river, boulder rapids and relatively long straight stretches of slow flow. The flow tends to slow significantly just past Edmonton. An interesting hydrological condition exists at the confluence of the Brazeau River, where clear waters of the Brazeau run along side the sediment laden North Saskatchewan waters for a distance prior to mixing. The water flow of the North Saskatchewan is regulated in the upper reaches by the Brazeau Dam (Brazeau Reservoir) and on the main river by the Bighorn Dam (Abraham Lake Reservoir).
2. Water Quality	6	The most obvious change in the water quality of this river occurs after Edmonton and Fort Saskatchewan. The impact of industrial and municipal use results in water quality falling below that stated in the Alberta Ambient Surface Water Quality Guidelines at times, specifically with regards to dissolved oxygen, phosphorous, nitrogen, organic compounds and bacteria counts.
3. River Morphology	10	The river channel varies from sinuous and braided in the mountains and foothills to a single meandering channel with occasional islands on the plains. Several fragmentary terrace levels and a floodplain exist. These are very distinct in the Edmonton area. Point, mid-channel and side bars may be encountered along this river. In many of the meander bends tall sandstone cliffs alternate with low gravel shores. Many of the meander banks have been undercut. Numerous remnants of glacial activity are also evident including; drumlins, spillways, alluvial fans and sand dunes.

Category	Score	Rationale
Biota		
1. Vegetation	10	Much of the North Saskatchewan River and valley is located within the Lower Foothills, Dry Mixedwood and Central Parkland natural subregions. The Sub-Alpine, Montane and Upper Foothills subregions comprise a much smaller component.
2. Wildlife Habitat	8	Extensive ungulate habitat exists along the length of this river. Much lower amounts of quality fish and waterfowl habitat exist.
3. Endangered/Threatened Species	10	This river and the associated environments contain a diverse selection of endangered and threatened species. Of note are the endangered Loggerhead Shrike, Peregrine Falcon and Trumpeter Swan.
4. Species Concentration	8	A large amount of habitat for both wintering ungulates and migratory waterfowl exists.

Summary of Average Natural Heritage Category Scores

Geology Category	38/40 x 33.33 = 31.66
River Processes Category	20/30 x 33.33 = 22.22
Biota Category	36/40 x 33.33 = 30.00
Total Natural Heritage Theme Score	83.88

Recreation Evaluation \ North Saskatchewan River

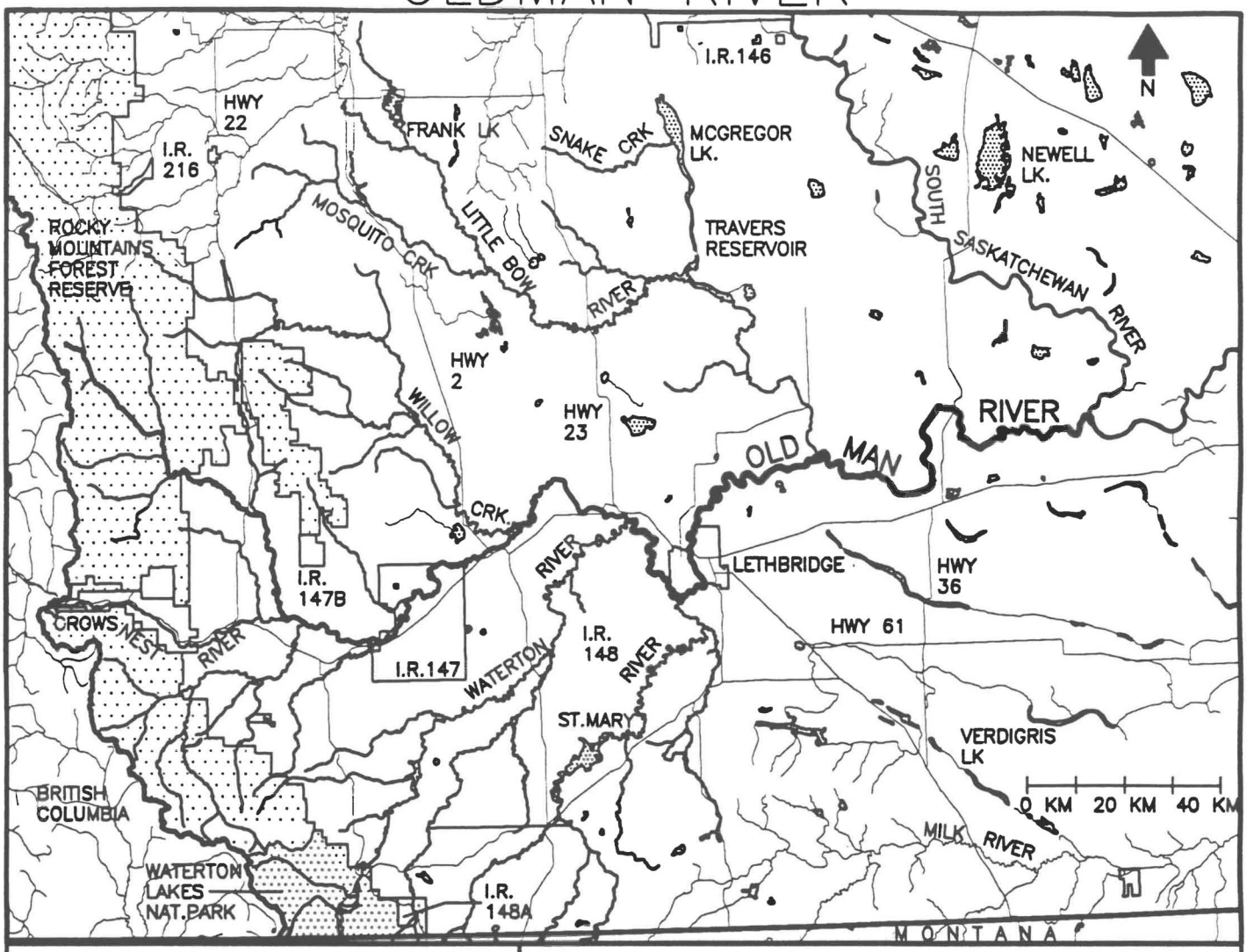
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	8	Can be navigated throughout with only exception being the foothills -- shallow depths in some areas precludes propeller driven boats, jet boats can navigate entire stretch
- Flatwater Boating	10	Flow regime, length, size and availability of camping and services is quite good
- Whitewater Boating	3	Only in foothills section
- Fishing	4	For catch and release Goldeye
- Swimming	0	Flow regime / temperature and contaminants
• Diversity of Water Associated Activities		
- Trail Activities	8	Well developed in populated areas and excellent potential throughout
- Hunting	4	Not in populated areas but occurs in rural areas (whitetailed deer, moose)
- Camping	7	Most prevalent in upper reaches and excellent potential exists
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	10	Flows through numerous settlements, agricultural regions, etc.
- Historical Landscape	7	Contains numerous historical settlements both developed and undeveloped
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	Scenic wide valley with high valley walls and changing land use patterns
- Remoteness	3	Generally flows through developed lands
• Physical Factors		
- Water Quality	2	Poor color and lead contaminants
- Shoreline Access	8	Accessible from most regions to waters edge -- many developed launch areas exist

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 25/50 x 20 = 10.0
- Diversity of Water Associated Activities 19/30 x 20 = 12.6
- Human Heritage Landscape Appreciation 17/20 x 20 = 17.0
- Natural Landscape Appreciation 9/20 x 20 = 9.0
- Physical Factors 10/20 x 20 = 10.0

- Total Recreational Capability Theme Score 58.6

OLDMAN RIVER



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Human Heritage Scores

Historical / Cultural 59.90

Natural Heritage Scores

Geology 30.83

River Processes 20.00

Plants and Wildlife 28.33

Recreational Scores

Recreational Activities/Landscape Appreciation ... 63.60

TOTAL ADJUSTED SCORE 67.55

OLDMAN RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is an exceptional prehistoric record along the Oldman River. Temporal and cultural affiliations are very well represented from Early to Protohistoric and Historic Periods.
	RESOURCE EXPLOITATION	10	Fort McLeod Kill and Camp DkPi 2, Buffalo Jump DkPm 11, DjPm 126 Castle Forks Buffalo Jump; Kill Site DkPm 2; Ross Site DlPd 1, 2, 3 are just some of the numerous kill sites and bison exploitation sites along the river.
	HABITATION	10	The Gap Buried Site DlPo 8; Kenney Site DjPk 1; Stratified Camp DjPl 100; Lone Pine DkPo 9; Campsites DjPm 32, DjPm 36, DjPm 29, DkPf 9, DkPf 55, DkPf 61, DkPf 62, DjPf 7, DkPf 82 and numerous other habitation sites occur in association with the Oldman River.
	IDEOLOGY	10	Numerous ideological sites have been identified along the Oldman River including Nitapinaw's Medicine Wheel DjPf 23, Many Spotted Horses Medicine Wheel DkPf 1; Burial DlPo 19, DjPk 24, DjPk 25, Taber Child DlPa 4. Napi's (Oldman's) Bowling Green.
FIRST NATIONS CONTACT	FUR TRADE	7	Protohistoric sites such as DjPm 36 and DjPm 115 document the role of the fur trade in Native society.
	REBELLION	0	
	TREATY	10	Indian reserves 147, 148
	TRADITIONAL LAND USE	10	Burials - Weasel Bear, Many Guns, Jim Four Horses' Children, S. Holloway's Grandmother; Cabins - Widow Scott, Frank Holloway, Sam Yellowtail, Bob Crow Eagle, Jim Rabbit, John Crow Eagle, Jonas Bullhead, Leo Strikes with a Gun, Pretty Face, Black Eyes, Little Plume, Bob Warrior, Bob and Alfred Crow Eagle Confluence with Crowlodge Creek is a traditional plant source, Indian Battle Park commemorates battlefield of Blackfoot and Cree; Site DkPf 5 is a Blackfoot/Cree battle site. Black Rocks/Medicine Stone/Steep Banks are traditional names for Lethbridge. The Oldman River is named for the creator figure in Peigan mythology - Napi or Oldman.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	7	Jerry the Bird's Bottom - Metis who acted as an interpreter for treaty in 1883 - he spoke Cree, Blackfoot and English fluently. Fled from Batoche to the Lethbridge area.

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	10	Whiskey posts - Grand Forks, Sample's bottom, Fort Warren/Kanouse's post, DkPg 29, Conrad's post DkPf 2, Captain Jack's Bottoms DkPf 54, Fort Weatherwax, Fort Whoop-up DjPf 2
SETTLEMENT	EXPLORATION	10	Peter Fidler explored in the Oldman Basin and recorded Peigan life. The Palliser expedition documented the Oldman valley (called it Belly River on 1859 map)
	LEGAL SURVEY	0	
	MISSIONS	10	Historic Mission DkPj 5, Victoria Jubilee Mission, Roman Catholic School, Peigan Mission DjPk 15.
	AGRARIAN SETTLEMENT	10	Fort McLeod Townsite, Dennis homestead DlPn 2; homesteads DjPf 90, DkPf 76, DkPf 64. Fort McLeod region was the earliest large concentration of agricultural development in southern Alberta.
	RANCHING	10	Walrond Ranch; The IV Ranch (Maunsell); Stewart Ranch
	LAW & ORDER	10	Fort Whoop-Up, Fort Kipp, Kipp/Urch Ranch, Little Bow, Peigan, Fort McLeod
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	10	Mine DkPf 40, Sheran Mine DkPf 43 - Lethbridge region mines. Galt coal mines.
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	7	Numerous ferries (Summerview, Taber, Kipp, Fort McLeod, Chin, Coaldale, Grassy Lake, Lethbridge, Monarch, Purple Springs)
	LAND COMMUNICATION	10	Trails - McLeod Trail to Fort Calgary, Fort Whoop-Up/Lethbridge
	TELECOMMUNICATION	0	
EVENTS		8	Initiation of the NWMP at Fort McLeod 1873.

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
PERSONAGES		8	Sir Alexander Tilloch Galt and Elliot Torrance Galt who established coal mines at modern Lethbridge. Col. James McLeod of NWMP. Metis scout Jerry Potts. Mayor C.A. Magrath of Lethbridge.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	27/40 x 10.7	=	7.2
• Metis	7/30 x 10.7	=	2.5
• Fur Trade	10/40 x 10.7	=	2.7
• Settlement	50/60 x 10.7	=	8.9
• Resource Development	10/60 x 10.7	=	1.8
• Transportation	17/30 x 10.7	=	6.1
• Events	8/10 x 12.5	=	10.0
• Personages	8/10 x 12.5	=	10.0
• Total Human Heritage Theme Score			59.9

Natural Heritage Evaluation \ Oldman River

Category	Score	Rationale
Geology		
1. Physiographic Section	9	The headwaters of this river are located in the Front Ranges of the Rocky Mountains. As the river progresses eastward, it traverses the Southern Foothills, the Cardston Plain, a small edge of the Porcupine Hills Upland, the Southwest Plains, eventually converging with the Bow River to form the South Saskatchewan River on the Coulee Plain. The largest expanse of this river is located on the Coulee Plain.
2. Bedrock Geology	10	Precambrium and Paleozoic sedimentary rock may be found in the Rockies. Mesozoic sediments are located in the Foothills and the Interior Plains, with the most recent material of Cenozoic origin situated at the transitional zone between the Foothills and the Interior Plains.
3. Palaeontology	8	The Oldman River has provided some very rich fossil sites. A stretch covering approximately 25% of the river's length, located on either side of the Little Bow confluence, contains areas of high palaeontological resource sensitivity.
4. Surficial Geology		
4.1 Parent Material	10	A rich assortment of parent material is included in the terrain through which this river flows. The most common surface sediment is glaciofluvial in origin. Others include colluvial, morainal, fluvial and bedrock material.
4.2 Surface Expression	10	The types of surface expression are highly variable, however, undulating terrain is the most prominent.
River Processes		
1. Hydrology	2	This river contains a variety of flows, from pool and riffle sequences to white water and several major water-falls - (Oldman Falls and The Gap). The flow of this river is heavily regulated by the Oldman Dam (Oldman Reservoir) and irrigation weirs and aqueducts.
2. Water Quality	6	Water quality is influenced by the climate of this region, the flow rate, as well as municipal and agricultural usage. Concentrations of dissolved material tends to be higher due to the drier climate and irrigation activity. Nutrient input from municipalities, high water temperatures and low turbidity provide optimum conditions for prolific biotic growth and subsequent depleted oxygen levels. Water quality is significantly impacted through the municipal water use by the City of Lethbridge.
3. River Morphology	10	Stretches of fragmentary and continuous terraces are often evident along the river. The channel generally shows very pronounced bends that contain no particular pattern; however, some rather long straight stretches do exist. The river breaks through the Livingstone Mountain Range by means of a narrow gorge - "The Gap". Numerous features, including diagonal bars, side bars, mid-channel bars, boulders, ledges and islands contribute to the morphology of the river.
Biota		
1. Vegetation	9	In a relatively short stretch, from its headwaters, the Oldman River crosses the Sub-Alpine, Montane and Foothills Fescue natural subregions. The majority of the length of this river then flows through the Mixedgrass and Dry Mixedgrass subregions which are very prominent in Southern Alberta.
2. Wildlife Habitat	8	Extensive areas of prime ungulate and fish habitat exist along this river. No prime waterfowl habitat is available.
3. Endangered/Threatened Species	10	The Oldman River and valley provides habitat for numerous endangered and threatened species. Of note are the: Ferruginous Hawk, Loggerhead Shrike, Long-billed Curlew and Trumpeter Swan.
4. Species Concentration	7	Ungulate wintering habitat exists along approximately 50 % of the rivers length. Less migratory waterfowl habitat occurs; with some sites of provincial significance.

Summary of Average Natural Heritage Category Scores

Geology Category	37/40 x 33.33 = 30.83
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	34/40 x 33.33 = 28.33
Total Natural Heritage Theme Score	79.16

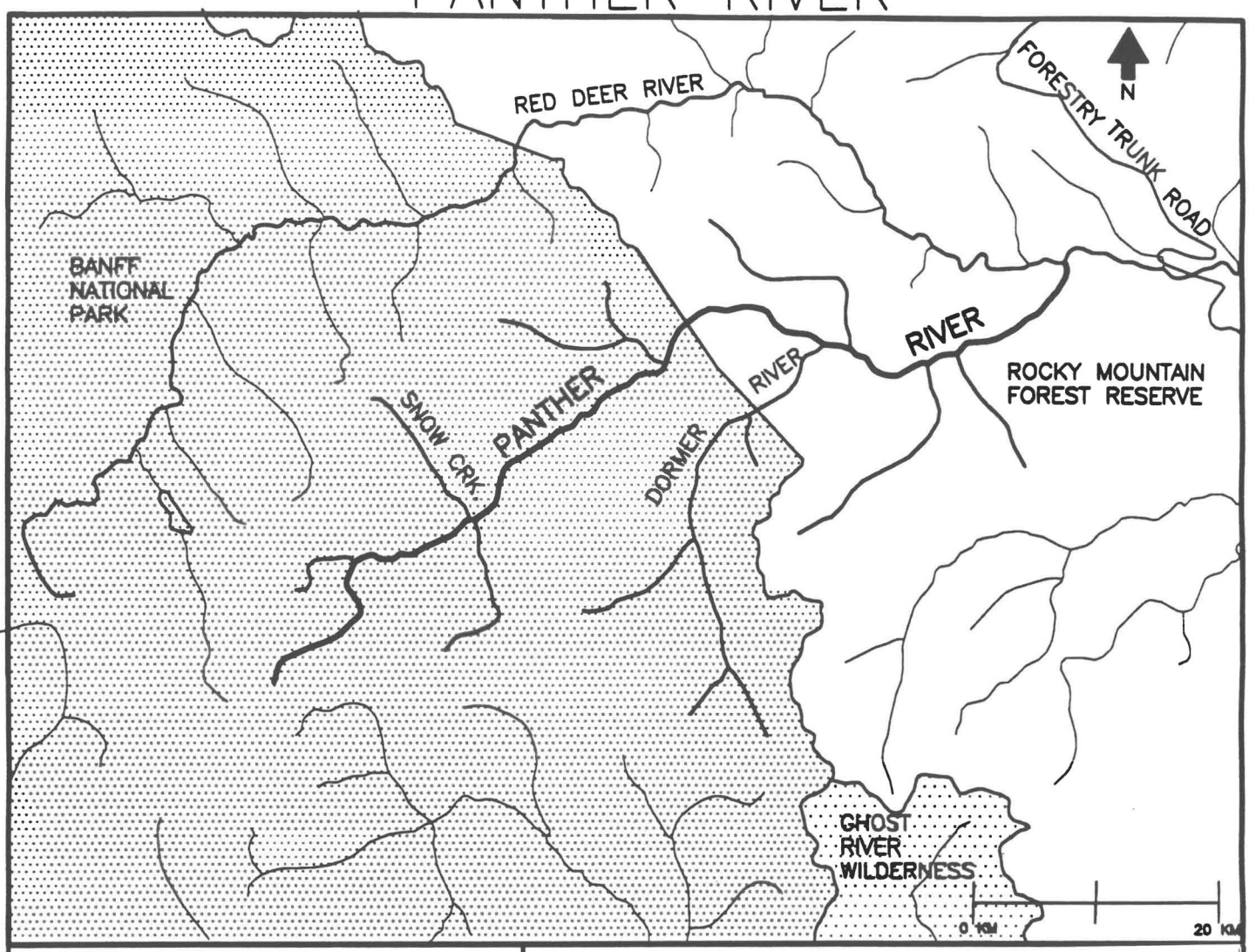
Recreation Evaluation \ Oldman River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	4	Stretches of the lower river suitable for limited power boating
- Flatwater Boating	8	Below the dam river offers good flatwater trip of up to 5 or more days -- Class I river, Class I rapids make it ideal for novice canoers
- Whitewater Boating	8	On the upper reaches above the reservoir between the Damsite and Brockett, the river offers some excellent whitewater with Class I to IV rapids -- a special kayak / whitewater course was developed below the dam
- Fishing	5	Upper reaches are popular sport fishing area - lower reaches not ideal
- Swimming	5	Lower reaches offer some opportunities for safe swimming
• Diversity of Water Associated Activities		
- Trail Activities	7	Upper reaches very accessible along old roads, etc.; along lower reaches urban areas have developed trails
- Hunting	6	On Crown lands along upper reaches, excellent hunting but on lower reaches land ownership and access limits the sport
- Camping	6	The river has numerous campsites, especially for canoe tripping, but most are primitive. Only around Ft. Macleod, Lethbridge and Taber can more developed campsites be found
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	8	The entire river from the foothills to Grand Forks offers variety and interesting views of contemporary landscape
- Historical Landscape	7	River has strong historical association, many early farms, areas of native influence, etc.
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	River offers distinctive views, although limited
- Remoteness	5	Most of the river is accessible for use . . . feelings of remoteness are possible but evidence of man all around
• Physical Factors		
- Water Quality	5	Dams and agriculture affect river quality
- Shoreline Access	7	The Oldman has generally good access to most reaches of the river, particularly around urban areas

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 30/50 x 20 = 12.0
- Diversity of Water Associated Activities 19/30 x 20 = 12.6
- Human Heritage Landscape Appreciation 15/20 x 20 = 15.0
- Natural Landscape Appreciation 12/20 x 20 = 12.0
- Physical Factors 12/20 x 20 = 12.0
- Total Recreational Capability Theme Score 63.6

PANTHER RIVER



prepared by:
GEOGRAPHIC DYNAMICS CORP

Human Heritage Scores

Historical / Cultural 4.90

Natural Heritage Scores

Geology 20.41

River Processes 20.00

Plants and Wildlife 9.17

Recreational Scores

Recreational Activities/Landscape Appreciation ... 57.50

TOTAL ADJUSTED SCORE 37.33

PANTHER RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	7	There is a modest archaeological record to date for the Panther River, likely reflecting the lack of systematic investigations in the region. Middle Prehistoric sites have been identified associated with McKean and Pelican Lake affiliations.
	RESOURCE EXPLOITATION	0	
	HABITATION	7	Campsites EjPw 31, EjPv 1 and EjPv 2 represent the sites identified along the Panther River.
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	7	Documented by Dawson
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	14/40 x 10.7	=	3.7
•	First Nations Contact	0/40 x 10.7	=	0.0
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	7/60 x 10.7	=	1.2
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			4.9

Natural Heritage Evaluation \ Panther River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	This river is located predominantly in the Front Ranges of the Rocky Mountains with minimal representation in the Rocky Mountain Central Foothills.
2. Bedrock Geology	9	Precambrium and Paleozoic material comprise the largest geological component associated with this river. Mesozoic bedrock, forms only a minor component of the bedrock geology.
3. Palaeontology	3	With the exception of a few select locations of low palaeontological resource sensitivity, the total length of the river is located in a "probable" zone for palaeontological resources.
4. Surficial Geology		
4.1 Parent Material	8	Parent materials associated with this river include colluvium, till, alluvium and bedrock.
4.2 Surface Expression	9	Surface expression reflects the mountain and foothill physiography, with steep inclines, fans, and rock the major contributors to the topographic composition. The nature and deposition of veneer and blanket sediments also contributes to the landscape.
River Processes		
1. Hydrology	6	The Panther is a low volume river containing some very strong eddies that result from bank or midstream obstructions which cause a reversal in the current.
2. Water Quality	N/A	Water quality information is not available.
3. River Morphology	6	This river is narrow and contains numerous tight bends. Sharp rocks and ledges are evident along the river channel.
Biota		
1. Vegetation	5	This river traverses mainly Sub-Alpine and Upper Foothills vegetation, with Alpine vegetation comprising only a minor constituent at the river's headwaters.
2. Wildlife Habitat	2	Habitat is provided for both ungulates and sportfish.
3. Endangered/Threatened Species	2	The threatened Bald Eagle, Bobcat and Grizzly Bear may be found in association with this river.
4. Species Concentration	2	Some ungulate winter habitat is provided. No prime habitat for migratory waterfowl has been found.

Summary of Average Natural Heritage Category Scores

Geology Category	24.5/40 x 33.33 = 20.41
River Processes Category	12/20 x 33.33 = 20.00[3]
Biota Category	11/40 x 33.33 = 9.17
Total Natural Heritage Theme Score	49.58[3]

[3] Water quality information not available

Recreation Evaluation \ Panther River

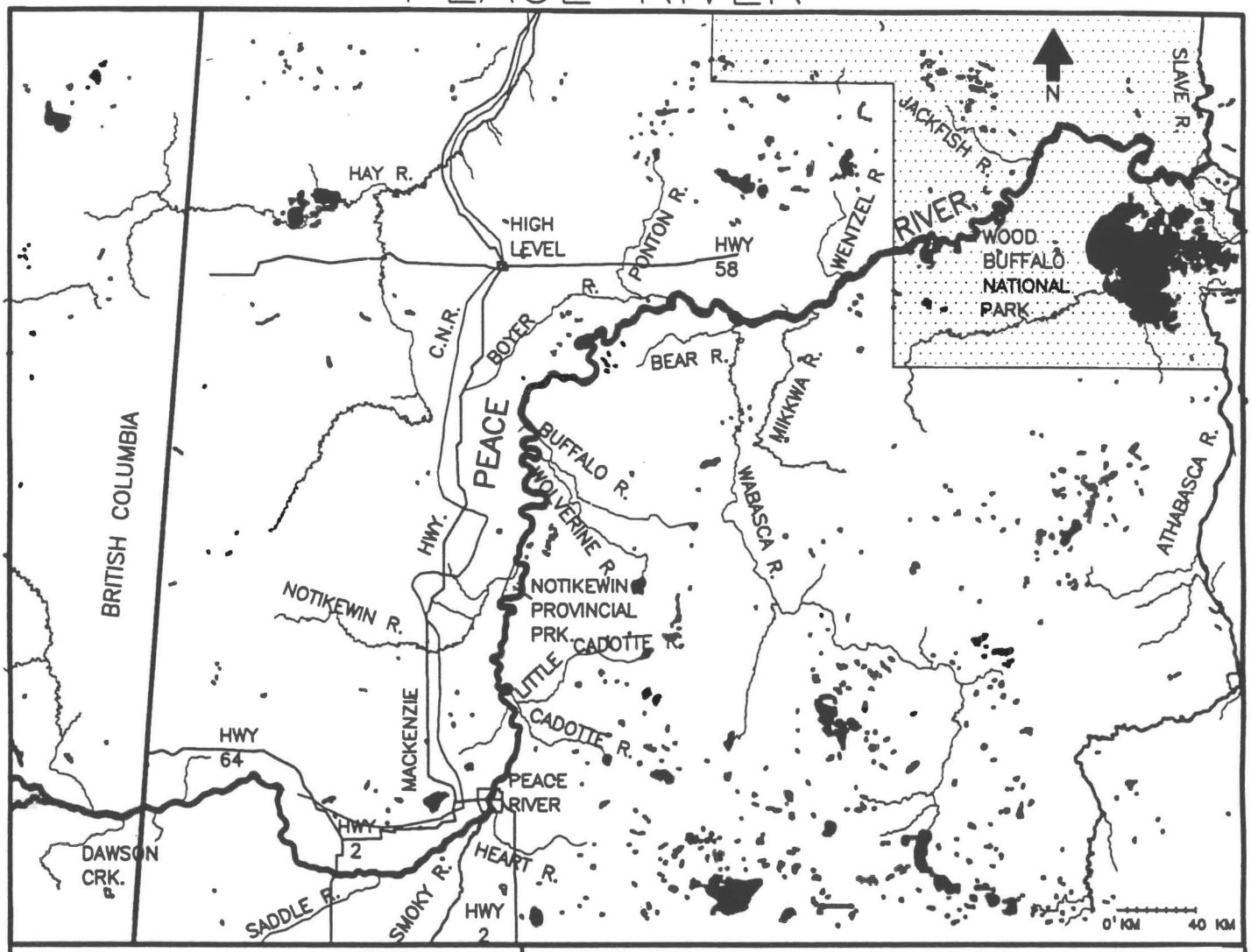
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	No opportunities
- Flatwater Boating	2	Limited flatwater when river is down
- Whitewater Boating	8	River is short but challenging, overall rating Class II with rapids up to Class IV -- best season spring to mid-July with high water
- Fishing	8	Popular sport fishing river (Cut Throat and Rainbow Trout)
- Swimming	0	
• Diversity of Water Associated Activities		
- Trail Activities	6	Some trail connections into National Park
- Hunting	8	Excellent hunting in season outside of National Park boundary
- Camping	7	Informal campsites, forestry campsite where Panther comes into Red Deer
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	4	Little evidence of contemporary landscape
- Historical Landscape	2	Limited historical evidence
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Striking mountain landscape
- Remoteness	8	Relatively remote experience -- lower reaches have more human contact
• Physical Factors		
- Water Quality	10	Uncontaminated, pure mountain spring / glacier runoff
- Shoreline Access	5	Limited, except near lower reaches near Red Deer

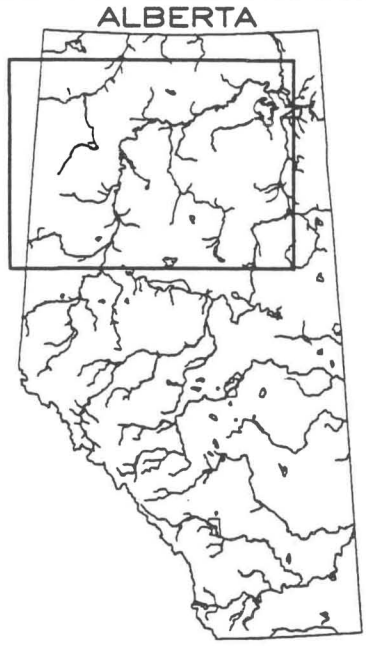
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 18/50 x 20 = 7.2
- Diversity of Water Associated Activities 21/30 x 20 = 13.3
- Human Heritage Landscape Appreciation 6/20 x 20 = 6.0
- Natural Landscape Appreciation 16/20 x 20 = 16.0
- Physical Factors 15/20 x 20 = 15.0

- Total Recreational Capability Theme Score 57.5

PEACE RIVER





Human Heritage Scores

Historical / Cultural	73.60

Natural Heritage Scores

Geology	27.91
River Processes	21.44
Plants and Wildlife	23.33

Recreational Scores

Recreational Activities/Landscape Appreciation	66.00

TOTAL ADJUSTED SCORE 70.76

PEACE RIVER

Human Heritgage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	Despite a limited amount of formal investigation in the region, there is a very good archaeolological record for the Peace River spanning the Early, Middle and Late Prehistoric. Given the geographic location of the Peace River, the archaeological materials reflect both Northern Plains traditions and northern Boreal Forest-Subarctic traditions.
	RESOURCE EXPLOITATION	7	The Peace River was a major traditional transport and trade corridor and sites reflect the transport of materials and resources.
	HABITATION	10	Camp HaQi 1; the Peace Point Site, Notikewin River Stratified Camp HhQg 3, HbQw 14, HbQw 15, HaQw 3, HbQw 17, IcPx 1 are some of the campsites identified along the river.
	IDEOLOGY	7	Notikewin Burial HhQg 5.
FIRST NATIONS CONTACT	FUR TRADE	10	HaQi 1 (kikules - pits with trade goods scattered about), Native materials associated with numerous fur trade sites along the river.
	REBELLION	0	
	TREATY	8	Indian Reserve 215, 162
	TRADITIONAL LAND USE	10	Site IePl 1 is a Native cemetery and HbQh 2 is a Native burial. Peace Point is the area that the Beaver and Cree settled their disputes. Traditional territory of the Beaver, Cree, Slavey, Chipewyan, and Sekani. Iroquois and Assiniboine were also noted by fur traders at Fort Dunvegan.
METIS	HABITATION	10	Metis Settlement No. 1 is located on the river. Carcajou is a Metis based community. Metis agricultural settlement occurred around Shaftesbury.
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	7	Peter Pond intiated early trade in the Peace District.

Human Heritgage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
	RIVALRY (1774-1821)	10	John's House 1818-1819; Grand Marias 1798-1803;Wentel's Post 1799-1803; Colville House 1818-1821; Boyer's post 1788-1791; Mansfield House 1802-3, Fort Liard 1802-1804; Aspin House 1792-1799; Fort Vermilion I 1798-1831; Horse Shoe House 1803-1805; Encampment Island Fort 1806-1808; McLeod's Fort 1790-1792; Colin Campbell's House 1812-13 or 1820-21, St. Mary's House III 1820-21; St. Mary's House II 1819-20; St. Mary's House I1818-19; Fort Fork 1792-1805; Fort Fork (XY Co.) 1803-05; Fort Dunvegan 1805-1918
	MONOPOLY (1821-1859)	10	Fort Vermilion II 1831, Keg River Post, Hay River Post IcQa2
	FREE TRADERS (1850-1940)	10	12 Foot Davis' Post and grave. Other free traders would have been found along the river course.
SETTLEMENT	EXPLORATION	10	Many important explorer are associated with the Peace river including Peter Pond, Cuthbert Grant, Waden, Franklin, and Mackenzie. Later, Geological Survey of Canada parties included Dawson, Selwyn and Olgivie.
	LEGAL SURVEY	10	Early surveys concentrated around the Peace River agricultural settlements in western Alberta
	MISSIONS	10	St. Augustine's Mission, St. Savior's Mission (C.M.S.), St. Charles Mission (R.C.)
	AGRARIAN SETTLEMENT	10	agricultural settlements in early 20th Century focussed in the Peace River Prairie, i.e. Shaftesbury settlement.
	RANCHING	7	Sheridan Lawrence Ranch
	LAW & ORDER	7	NWMP Posts and patrols
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Important fur trade water route. Numerous ferry crossings (Blakeley, Carcajou, Dunvegan, Fort Vermilion, La Crete, Peace River Crossing, Shaftesbury, Taylor Flats). Sir Alexander MacKenzie waterway (War Road). Steamboat travel on the Peace.
	LAND COMMUNICATION	7	Trail crossings at Dunvegan and Peace River, Shaftsbury trail.
	TELECOMMUNICATION	8	Dominion Telegraph installed in 1910's

Human Heritgage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
EVENTS		10	Alexander Mackenzie's 1793 voyage of exploration was first to reach the Pacific. The fur trade was a critical factor in the settling of the Peace River region. The steamboat *Sikanni Chief* sunk and remains in the river. Settlement rush of the late 1890's to early 20th Century.
PERSONAGES		10	Sir Alexander Mackenzie, Boyer, Black, Swain, Wentzel, George Simpson, William Butler, George Mercer Dawson, 12 Foot Davis, Bishop Henri Faraud, Fr. Emile Petitot, Fr. Emile Grouard, Reverend J. G. Brick, Dr. W.D. Albright, Sheridan Lawrence and many other figures in early fur trade, missionary, and development in northern Alberta.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	34/40 x 10.7	=	9.1
• First Nations Contact	28/40 x 10.7	=	7.5
• Metis	10/30 x 10.7	=	3.6
• Fur Trade	37/40 x 10.7	=	9.9
• Settlement	54/60 x 10.7	=	9.6
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	25/30 x 10.7	=	8.9
• Events	10/10 x 12.5	=	12.5
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			73.6

Natural Heritage Evaluation \ Peace River

Category	Score	Rationale
Geology		
1. Physiographic Section	8	The Peace River Lowland and the Vermilion Lowland comprise the largest part of the landscape over which the Peace River flows. The most northerly 25 % of the river length traverses the Great Slave Plain and Delta Plains. The dissection of the landscape by the Peace river has resulted in the river creating its own environmental conditions in an area large enough to be labelled as a physiographic section.
2. Bedrock Geology	7	The bedrock geology of the region traversed by the river is predominantly Mesozoic in origin, with the exception of the most northerly stretch (basically that part of the river contained within Wood Buffalo National Park) which has Paleozoic origins. In many places the Peace River valley has eroded through the Upper Cretaceous shale and sandstone exposing Lower Cretaceous material.
3. Palaeontology	9	The Peace River Lowland area is rich in palaeontological resources. Much of the northern stretch of the Peace River has yet to be surveyed.
4. Surficial Geology		
4.1 Parent Material	9	A wide variety of parent materials comprise the area crossed by the Peace River. Fluvial and glaciolacustrine deposits are the most prominent.
4.2 Surface Expression	10	Several types of surface expressions are present including: steeply inclined, undulating, hummocky, level, ridged, terraced and delta. None appear to dominate.
River Processes		
1. Hydrology	3	This river transports the greatest volume of water of any river in Alberta. Its drainage basin covers one-third of the province. The Vermillion Falls resulting from a series of limestone ledges produces strong currents and standing waves. Flow volume has been significantly altered due to the construction of the Bennett Dam in the northern interior of British Columbia.
2. Water Quality	7	Water quality is impacted by pulp mills but more so by changes in the channel bed. The water quality does not always meet with the Alberta Surface Water Quality Guidelines mainly due to natural processes. The stretch from the Alberta-British Columbia border to Smoky River receives no direct input of effluent and has high dissolved oxygen levels and low levels of metals, nutrients, organic matter, bacteria and salts. From Smoky River to Fort Vermilion, concentrations of most constituents increase gradually as a result of tributary inputs. There is a significant increase in sodium and chloride, which is directly attributable to pulp mills and abandoned oil and gas wells. In the stretch from Fort Vermilion to the mouth, water quality is influenced by natural tributary inputs, but more significantly by a change in the channel bed form from gravel to sand and silt. As a result of this change levels of suspended solids and substances naturally associated with clay particles such as metals increase.
3. River Morphology	10	The channel varies from straight to straight and split near the Alberta-British Columbia border to a meandering channel as the river travels north and eastward. Mid- channel and point bars are relatively common, as are debris jams in the straight sections. High white cliffs of the Gypsum Formation mark the Boyer rapids.

Category	Score	Rationale
Biota		
1. Vegetation	8	The Dry Mixedwood and the Peace River Lowlands comprise the largest portion of vegetation encountered by the Peace River. The Peace River Parkland and the Central Mixedwood are minor components.
2. Wildlife Habitat	5	Prime ungulate habitat is found along 60 %of the river. Fish habitat is less prominent. Several Alberta fish species are only found in this drainage, including the Redsided Shiner, Largescale Sucker and Northern Squawfish.
3. Endangered/Threatened Species	5	Several species of endangered and threatened mammals, birds and plants, including the Trumpeter Swan and Peregrine Falcon may be found in association with this river.
4. Species Concentration	10	Excellent ungulate wintering habitat is located along much of the length of this river. Priority migratory waterfowl habitat is only half as abundant.

Summary of Average Natural Heritage Category Scores

Geology Category	33.5/40 x 33.33 = 27.91
River Processes Category	19/30 x 33.33 = 21.44
Biota Category	28/40 x 33.33 = 23.33
Total Natural Heritage Theme Score	72.68

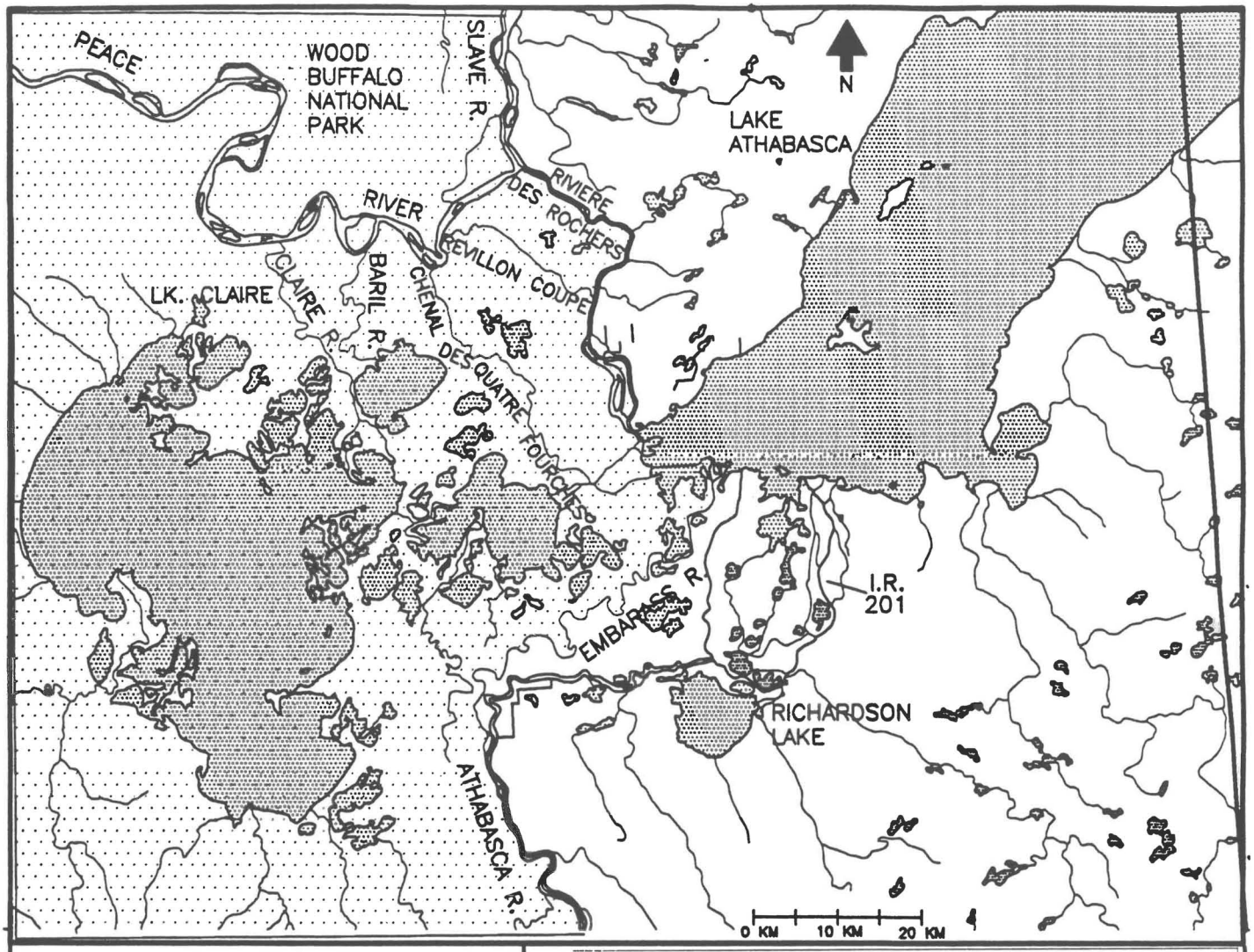
Recreation Evaluation \ Peace River

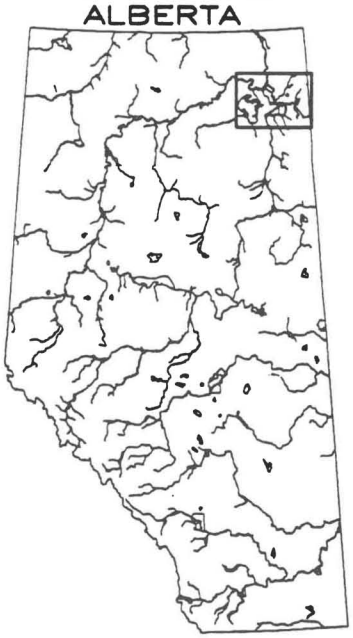
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	8	Much of the river is accessible for power boating although launching sites are limited
- Flatwater Boating	8	The upper reaches of the river from the B.C. border to Ft. Vermilion graded Class I with few rapids - classed for novice paddlers
- Whitewater Boating	6	Lower reaches past Ft. Vermilion into Wood Buffalo has some sections with Class I-IV rapids
- Fishing	8	The Peace has many sportfish species including Arctic Grayling, Bull Trout, Pike -- most fishing done at mouths of tributaries -- river is "underfished."
- Swimming	5	Opportunity exists near urban areas in "local waterholes" but some limitation due to cold and heavy silt loads
• Diversity of Water Associated Activities		
- Trail Activities	4	Limited developed trails except near urban areas of public campgrounds -- much of shoreline privately owned or inaccessible
- Hunting	7	The Peace River supports high wildlife production especially for Whitetail/Mule deer and moose
- Camping	6	Developed campsites exist at urban areas and some selected sites along river, but generally are well spaced -- however, excellent potential for informal camping on numerous islands found on the river
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	7	Varied landscapes from urban areas to pasture lands-- few road crossings
- Historical Landscape	8	Famous historical river, ?? site, evidence of early settlement
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Much of the river is in a natural landscape condition but does have a regulated flow controlled by B.C. dams -- broad river, wide banks, many diverse views
- Remoteness	8	Many sectors of the Peace flows through unpopulated areas offering minimal contact with other humans
• Physical Factors		
- Water Quality	5	The Peace carries heavy silt loads -- some impact from urban areas and agriculture
- Shoreline Access	5	The Peace has few bridge crossings, but good access can be found at communities along the river

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 35/50 x 20 = 14.0
- Diversity of Water Associated Activities 17/30 x 20 = 11.0
- Human Heritage Landscape Appreciation 15/20 x 20 = 15.0
- Natural Landscape Appreciation 16/20 x 20 = 16.0
- Physical Factors 10/20 x 20 = 10.0
- Total Recreational Capability Theme Score 66.0

PEACE–ATHABASCA DELTA





Human Heritage Scores

Historical / Cultural	29.30

Natural Heritage Scores

Geology	16.66
River Processes	23.33
Plants and Wildlife	16.67

Recreational Scores

Recreational Activities/Landscape Appreciation	41.00

TOTAL ADJUSTED SCORE 43.42

PEACE-ATHABASCA DELTA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	Located within a Wood Buffalo National Park - previously recorded archaeological resource records would be on Parks Canada files and is considered unknown at this time.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Quatres Fourches is a traditionally important area. Traditional hunting and trapping area.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	6	Being on the edge of Lake Athabasca, it was an area involved in the early fur trade intiated by Peter Pond and others.
	RIVALRY (1774-1821)	6	The Lake Athabasca area continued to be the focus of concentrated activity in the fur trade.
	MONOPOLY (1821-1859)	6	The area continued to be active in the fur trade.
	FREE TRADERS (1850-1940)	6	Fur trading continued to the a primary economic activity.
SETTLEMENT	EXPLORATION	10	Early exploration relating to the fur trade would include the travels of Peter Pond, Sir Alexander MacKenzie, Franklin, Ogden, Ross and others
	LEGAL SURVEY	0	
	MISSIONS	6	Catholic and Anglican missionary activity.
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	7	NWMP outpost
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Important fur trade travel corridor
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		10	Sir Alexander Mackenzie, Peter Pond, McLoughlin, Franklin and other early explorers.

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	10/40 x 10.7	=	2.7
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	24/40 x 10.7	=	6.4
•	Settlement	23/60 x 10.7	=	4.1
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	10/30 x 10.7	=	3.6
•	Events	0/10 x 12.5	=	0.0
•	Personages	10/10 x 12.5	=	12.5
•	Total Human Heritage Theme Score			29.3

Natural Heritage Evaluation \ Peace-Athabasca Delta

Category	Score	Rationale
Geology		
1. Physiographic Section	3	The Peace and Athabasca Deltas are located within the Delta Plains.
2. Bedrock Geology	7	Paleozoic sediments constitute the primary geological component with a very minor Precambrium element.
3. Palaeontology	N/A	No information is available regarding the palaeontological record of this area.
4. Surficial Geology		
4.1 Parent Material	5	The parent material of this region is fluvial and aeolian in origin.
4.2 Surface Expression	5	While the surface expression is not highly variant, it is unique in terms of its morphological expression of fluvial processes.
River Processes		
1. Hydrology	7	This delta is the largest freshwater delta in the world receiving flow from the Athabasca, Fon du Lac and Peace Rivers. It has been significantly impacted by flow regulation of the Peace River by the Bennett Dam in B.C.
2. Water Quality	N/A	No information is available regarding water quality. The relatively shallow lakes found in this area, which do not freeze throughout in winter, often experience low or depleted oxygen levels. high winds contribute to excessive turbidity.
3. River Morphology	N/A	
Biota		
1. Vegetation	1	This region is represented by the Peace River Lowlands.
2. Wildlife Habitat	8	The delta provides an extensive area of prime waterfowl habitat. Scoring could not be based on length, therefore greater emphasis was placed on the importance of this location to a number of species. Habitat is also provided for species such as moose which thrive on shallow water vegetation. There is also extensive muskrat habitat.
3. Endangered/Threatened Species	8	Several species utilize the habitats provided by the delta, including both the Peregrine Falcon and Whooping Crane. The Wood Buffalo Park / Peace Delta areas represent the only major nesting grounds for the Whooping Crane in North America.
4. Species Concentration	7	This region is measured by area rather than length, therefore the score is rather arbitrary. The entire delta is a provincially significant migratory waterfowl area. The bison herds of Wood Buffalo National Park utilize the delta during the mid winter. This area also provides important spawning and rearing habitat for several species of fish. The Delta has one of the highest muskrat population densities in North America.

Summary of Average Natural Heritage Category Scores

Geology Category	15/30 x 33.33 = 16.66[1]
River Processes Category	7/10 x 33.33 = 23.33[3,4]
Biota Category	20/40 x 33.33 = 16.67
Total Natural Heritage Theme Score	59.98[1,3,4]

[1] Palaeontology information not available
[3] Water quality information not available
[4] River morphology information not available

Recreation Evaluation \ Peace-Athabasca Delta

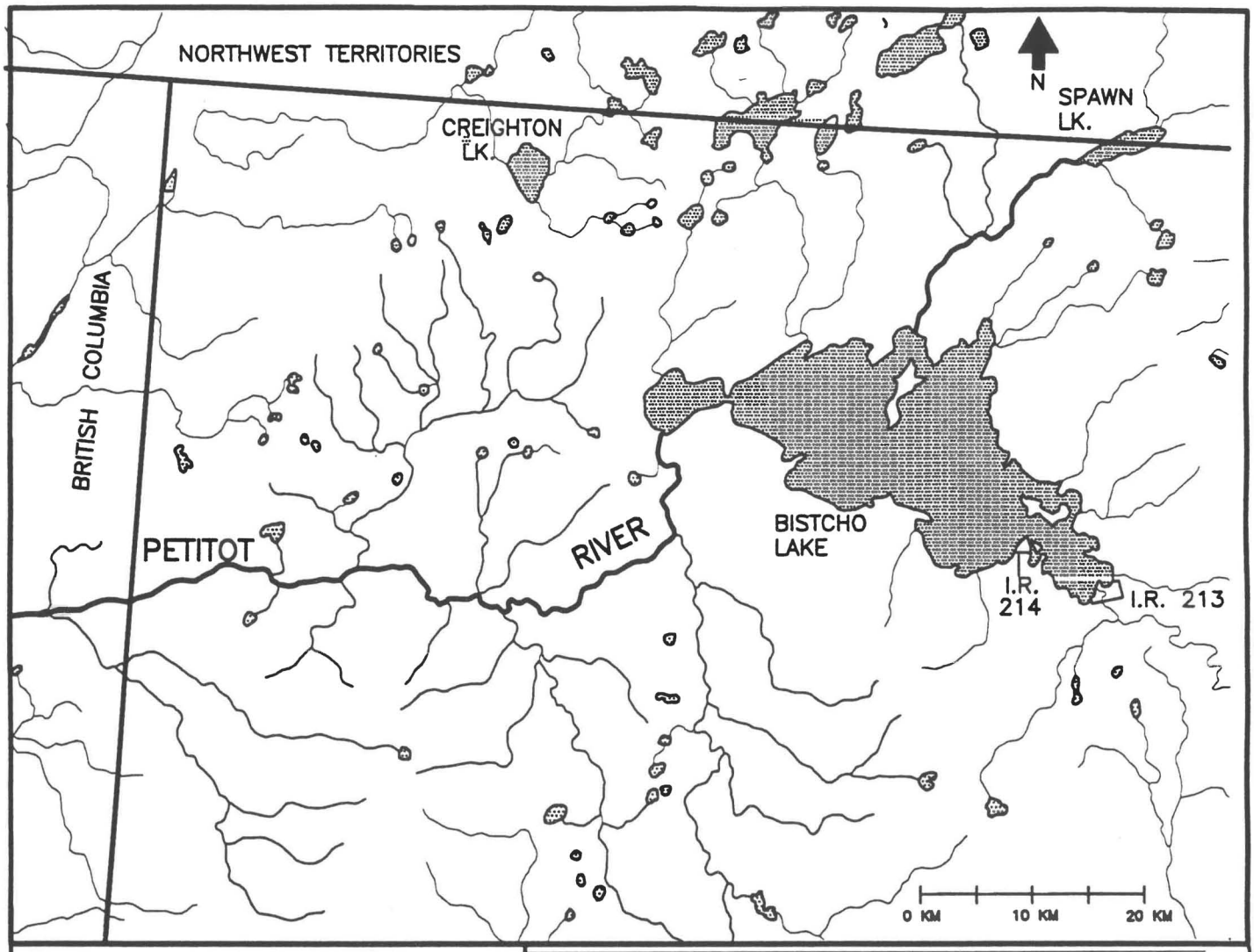
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	6	Some jet boat tours of Delta area out of Ft. Chip
- Flatwater Boating	2	Limited canoeing, strong currents, braided channels, difficult access
- Whitewater Boating	1	Limited whitewater potential
- Fishing	5	Some fishing potential but limited access
- Swimming	0	
• Diversity of Water Associated Activities		
- Trail Activities	2	Limited trail access
- Hunting	0	No hunting, national park area
- Camping	2	Limited camping at Carlson Point just before Delta area
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	2	Remote area, little sign of human occupation, except at trading post and store at Embarras
- Historical Landscape	6	Significant from historical perspective but little visual evidence
• Natural Landscape Appreciation		
- Natural/Visual Attractions	10	Delta is one of the most unique natural areas in the world
- Remoteness	9	This area of the Peace is relatively inaccessible and very remote but Athabasca portion more accessible
• Physical Factors		
- Water Quality	5	Water quality is good but carries heavy silt loads
- Shoreline Access	1	Very limited access to this area, other than by air or jet boat

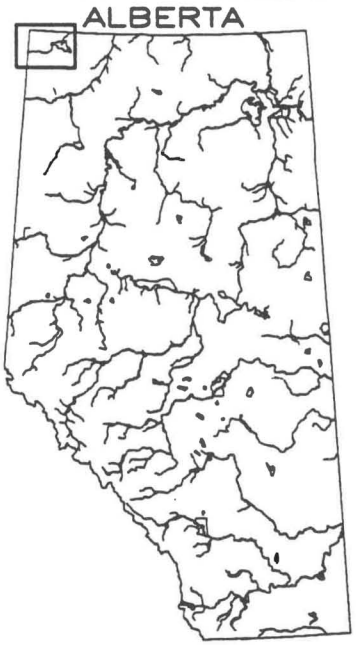
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 14/50 x 20 = 5.6
- Diversity of Water Associated Activities 4/30 x 20 = 2.6
- Human Heritage Landscape Appreciation 8/20 x 20 = 8.0
- Natural Landscape Appreciation 19/20 x 20 = 19.0
- Physical Factors 6/20 x 20 = 6.0

- Total Recreational Capability Theme Score 41.0

PETITOT RIVER





Human Heritage Scores

Historical / Cultural 6.30

Natural Heritage Scores

Geology 11.11

River Processes ..... n/a

Plants and Wildlife 1.67

Recreational Scores

Recreational Activities/Landscape Appreciation ... 42.50

TOTAL ADJUSTED SCORE 20.53

PETITOT RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	There is a lack of systematic investigation in the region of the Petitot River. The lack of data is likely more a reflection of the lack of study than the actual potential of the area.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
PERSONAGES		5	Named for Emile Petitot, O.M.I., who was an active missionary in the area.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	0/40 x 10.7	=	0.0
• First Nations Contact	0/40 x 10.7	=	0.0
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	0/60 x 10.7	=	0.0
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	5/10 x 12.5	=	6.3
• Total Human Heritage Theme Score			6.3

Natural Heritage Evaluation \ Petitot River

Category	Score	Rationale
Geology		
1. Physiographic Section	3	This river is situated within the Cameron Hills Uplands.
2. Bedrock Geology	5	The geology of the area consists of shale and oilsand of Mesozoic origin.
3. Palaeontology	N/A	No information is available regarding the palaeontological sensitivity of this area.
4. Surficial Geology		
4.1 Parent Material	2	Tills comprise the primary parent material.
4.2 Surface Expression	2	The landscape is dominated by undulating terrain.
River Processes		
1. Hydrology	N/A	
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	N/A	
Biota		
1. Vegetation	1	The river traverses the Sub-Arctic natural subregion.
2. Wildlife Habitat	0	No prime wildlife habitat exists along this river.
3. Endangered/Threatened Species	1	The Trumpeter Swan and River Otter may be found near this river.
4. Species Concentration	0	No areas of species concentration appear to exist.

Summary of Average Natural Heritage Category Scores

Geology Category	10/30 x 33.33 = 11.11[1]
River Processes Category	N/A = 0[2,3,4]
Biota Category	2/40 x 33.33 = 1.67
Total Natural Heritage Theme Score	12.78[1,2,3,4]

[1] Palaeontology information not available
[2] Hydrology information not available
[3] Water Quality information not available
[4] River morphology information not available

Recreation Evaluation \ Petitot River

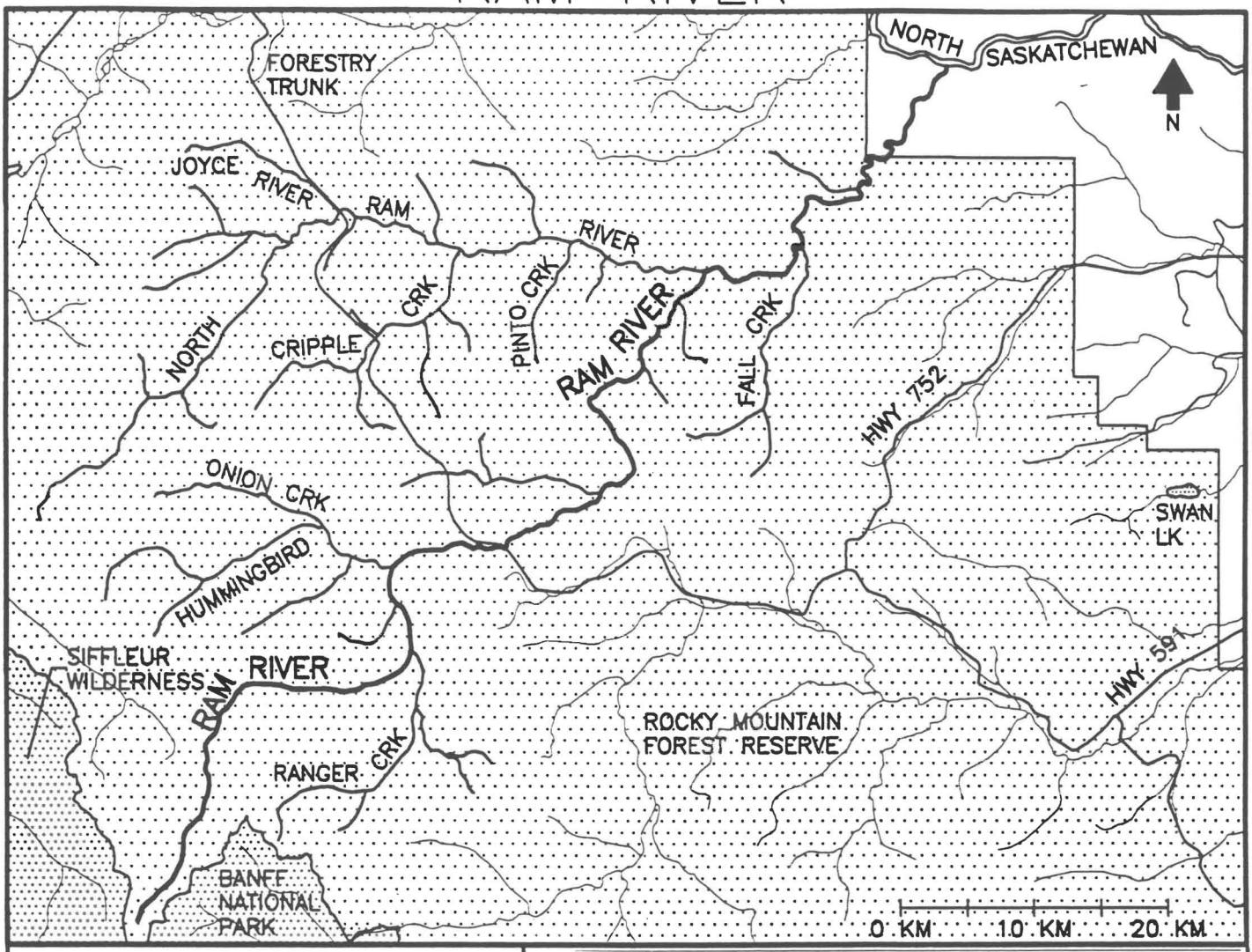
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Depth, cobbled bottom and large boulders preclude safe travel
- Flatwater Boating	6	Alberta portion is a 3 to 5 day trip with only one hazardous area -- undeveloped random campsites are plentiful
- Whitewater Boating	5	Offers some challenge -- not a popular whitewater resource
- Fishing	6	Many good fishing holes -- Northern Pike and Walleye
- Swimming	0	Unknown potential
• Diversity of Water Associated Activities		
- Trail Activities	5	Undeveloped but with potential
- Hunting	5	Moose, black bear and caribou
- Camping	6	Undeveloped but with potential for random unserviced areas
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	0	Fish and wildlife camp is the only apparent development
- Historical Landscape	2	One trappers cabin
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	River is reported to be quite scenic (Ranger District)
- Remoteness	9	True wilderness experience with limited access to services
• Physical Factors		
- Water Quality	6	Clear near Thurston Lake but tea colored further on
- Shoreline Access	2	Limited to air and non-auto means

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 17/50 x 20 = 6.8
- Diversity of Water Associated Activities 16/30 x 20 = 10.7
- Human Heritage Landscape Appreciation 2/20 x 20 = 2.0
- Natural Landscape Appreciation 15/20 x 20 = 15.0
- Physical Factors 8/20 x 20 = 8.0

- Total Recreational Capability Theme Score 42.5

RAM RIVER



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Human Heritage Scores

Historical / Cultural	1.10

Natural Heritage Scores

Geology	27.50
River Processes	24.44
Plants and Wildlife	10.83

Recreational Scores

Recreational Activities/Landscape Appreciation	48.80

TOTAL ADJUSTED SCORE 37.56

RAM RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	There is a lack of systematic investigations in the region, thus, no archaeological sites have been previously recorded on the river.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	6	David Thompson documented the area.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	0/40 x 10.7	=	0.0
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	6/60 x 10.7	=	1.1
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	0/30 x 10.7	=	0.0
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			1.1

Natural Heritage Evaluation \ Ram River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	The Ram River traverses the Front Ranges, the Central Foothills and the Western Benchlands, with the latter contributing only a very minor component.
2. Bedrock Geology	10	All four eras are represented: Paleozoic and Precambrium sedimentary rocks in the Rocky Mountains, Mesozoic sandstones, shale and coal in the Foothills and a very minor component of Cenozoic material in the Uplands where the Ram River feeds into the North Saskatchewan River.
3. Palaeontology	8	The Ram River environment contains numerous sites of high and medium palaeontological resource sensitivity near its headwaters.
4. Surficial Geology		
4.1 Parent Material	8	This river flows over a variety of parent materials, largely because of its mountainous location. Colluvial and fluvial sediments as well as bedrock and bedrock overlain by till contribute to the parent materials found in this area.
4.2 Surface Expression	10	A high diversity of surface expressions are evident on the landscape, including veneers, blanket veneers, steep inclines, ridges, fans, as well as rolling and hummocky terrain.
River Processes		
1. Hydrology	6	Several canyons, rapids and falls (Ram River Falls) are located on this river.
2. Water Quality	9	Water quality meets guidelines.
3. River Morphology	7	Ledges and steep drops are present in the mountainous area. This river takes on a meandering pattern as it flows through the foothills.
Biota		
1. Vegetation	8	The Ram River lies extensively in the Upper Foothills natural subregion. The Alpine, Sub-Alpine and Lower Foothills subregions contribute only a minor component.
2. Wildlife Habitat	2	Extensive fish habitat exists. This river supports one of very few 'pure' Cutthroat Trout populations in the province. Prime ungulate habitat is located along 60 % of this river.
3. Endangered/Threatened Species	2	The Bobcat and Grizzly Bear may utilize the habitat associated with this river.
4. Species Concentration	1	No significant habitat for migratory waterfowl exists. Wintering habitat for ungulates exists along approximately 50 % of the river's length.

Summary of Average Natural Heritage Category Scores

Geology Category	33/40 x 33.33 = 27.50
River Processes Category	22/30 x 33.33 = 24.44
Biota Category	13/40 x 33.33 = 10.83
Total Natural Heritage Theme Score	62.77

Recreation Evaluation \ Ram River

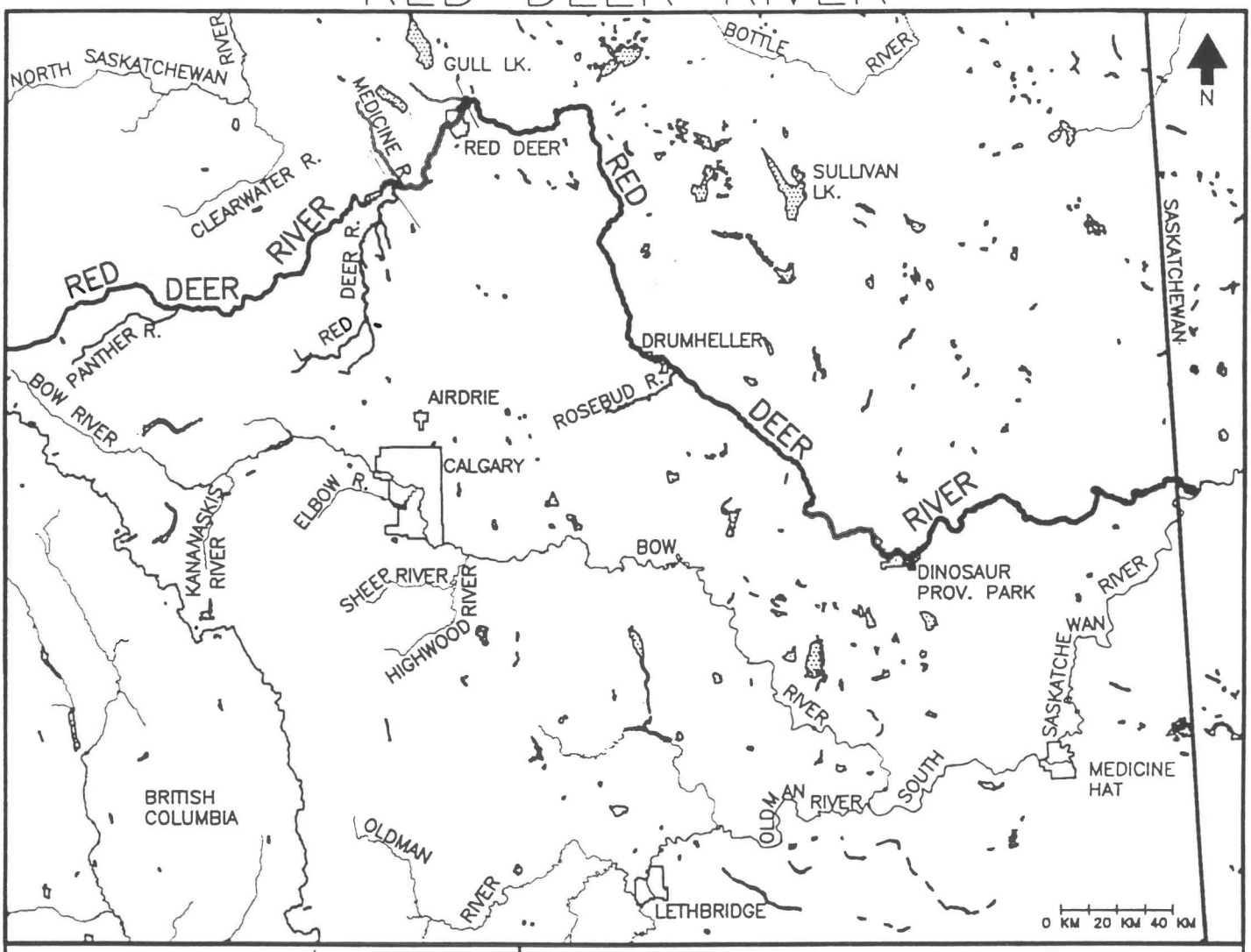
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Wild river, not navigable
- Flatwater Boating	0	Flow / rapids / falls restrict
- Whitewater Boating	5	For expert only / steep walls / falls and dangerous portaging is difficult
- Fishing	8	Excellent with 2 or more species (important Cut Throat population)
- Swimming	0	Flow regime / temperature inhibits
• Diversity of Water Associated Activities		
- Trail Activities	6	Developed trails along some reaches / steep canyons limit multi-use activities
- Hunting	7	Excellent game area but poor access and difficult terrain along river
- Camping	6	Camping at Ram River falls
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	2	Wilderness river / little shoreline development / no settlements
- Historical Landscape	0	No known sites
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	Ram River falls / steep canyons
- Remoteness	9	Wild and scenic
• Physical Factors		
- Water Quality	9	Mountain fed
- Shoreline Access	2	Terrain prohibits access except at 2 points (forestry road)

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 13/50 x 20 = 5.2
- Diversity of Water Associated Activities 19/30 x 20 = 12.6
- Human Heritage Landscape Appreciation 2/20 x 20 = 2.0
- Natural Landscape Appreciation 18/20 x 20 = 18.0
- Physical Factors 11/20 x 20 = 11.0

- Total Recreational Capability Theme Score 48.8

RED DEER RIVER



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Human Heritage Scores

Historical / Cultural	68.00

Natural Heritage Scores

Geology	33.33
River Processes	18.89
Plants and Wildlife	33.33

Recreational Scores

Recreational Activities/Landscape Appreciation	75.00

TOTAL ADJUSTED SCORE 76.18

RED DEER RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is an excellent and varied cultural and temporal record for the Red Deer River encompassing hundreds of sites dating from Early Prehistoric through to the Historic and Protohistoric Periods.
	RESOURCE EXPLOITATION	10	Huxley Bison Jump, Dry Island Buffalo Jump ElPf 1, Miller Camp and Jump FbPi 1, and others.
	HABITATION	10	There are many camps such as ElPf 10, EfOq 80, EfOx 1, EkPw 4, EkPw 9 and many others as well as dozens of stone feature sites along the eastern portion of the river. An historic pithouse (Kootenai?) EgPx 30 has been recorded on the river.
	IDEOLOGY	10	Suitor Ranch Sites EfOx 1, Hutton Medicine Wheel and Cairn EgOx 46, Suitor Medicine Wheel EfOp 414, Wetzel Rock Alignment EfOp 118, Rinker Medicine Wheel EfOp 58, Miners #1 & #2 Medicine Wheels EfOo 10, Suitor Site Effigy Medicine Wheel EgOx 2; Red Deer Indian School Burial FbPl 18, Squaw Point Burial FbPl 15. There are other ideological sites as well.
FIRST NATIONS CONTACT	FUR TRADE	8	Protohistoric sites such as burials EjPs 2 and EhPc 2 are likely resultant from the fur trade.
	REBELLION	0	
	TREATY	4	Red Deer Indian School FbPl 17.
	TRADITIONAL LAND USE	10	Noted on Palliser map: Blackfoot camps near Dinosaur Park and near mouth of Rosebud River, Stone Indian camp between the Red Deer and Little Red Deer, Cree Indian camp near Dry Island. Traditional territory of a number of Native Nations including the Blackfoot, Stoney and Kootenai.
METIS	HABITATION	10	Village EfOt 5, Burial EfOt 6. Tail Creek townsite FbPg 4.
	PROVISIONING	10	The area around the Red Deer River was an important bison hunting area for fur trade provisioning by Metis and Native hunters. Site such as the Tail Creek village and Green Wintering Post ElPg 2 are indicative of this.
	REBELLION	10	Fort Normandeau (FbPl 10) - 1885 built by Winnipeg Light Brigade
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	7	Green Wintering Site ElPg 2
	FREE TRADERS (1850-1940)	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
SETTLEMENT	EXPLORATION	10	Henday crossed twice (near Big Valley and near the mouth of Medicine River). Palliser followed the river course from just below the forks of the Little Red Deer and Medicine well into the foothills.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	10	Historic buildings in the town of Red Deer, early settlements near the mouth of Tail Creek. Iclandic settlements in foothills region including Markerville Creamery run by S. Stephansson.
	RANCHING	10	Old Mexico Ranch EeOu 4; all along the river was a focus of early ranching
	LAW & ORDER	7	NWMP outpost at Red Deer
RESOURCE DEVELOPMENT	LUMBERING	7	early logging activities
	FISHING	0	
	MINING	10	East Coulee and other small coal mines in Drumheller region
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	7	Numerous ferry crossings along the entire length of the river (Atlee, Bleriot, Buffalo Crossing, Dorothy, Content, Drumheller, East Coulee, Emerson's Ford, Finnegan, Garrington, Empress, etc.)
	LAND COMMUNICATION	8	Several trails crossed the Red Deer including the Calgary to Edmonton Trail at Red Deer townsite and near the confluence of the Little Red Deer and Medicine Rivers, Blackfoot Trail crossed near the Buffalo Lake region. Atlas Mine suspension bridge.
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		10	Tyrrell's discovery of dinosaur fossils
PERSONAGES		10	Happy Jack (Hansel Gordon Jackson), Lord Beresford and "Lady Flo" - all of the Old Mexico Ranch. J.B. Tyrrell and G.M. Dawson. Charley Sternbury. John Ware's cabin at Dinosaur Park. S. Stephansson the Icelandic poet who opened the Markerville Creamery.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	22/40 x 10.7	=	5.9
• Metis	30/30 x 10.7	=	10.7
• Fur Trade	7/40 x 10.7	=	1.9
• Settlement	37/60 x 10.7	=	6.6
• Resource Development	17/60 x 10.7	=	1.8
• Transportation	15/30 x 10.7	=	5.4
• Events	10/10 x 12.5	=	12.5
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			68.0

Natural Heritage Evaluation \ Red Deer River

Category	Score	Rationale
Geology		
1. Physiographic Section	10	The Red Deer River has a large impact on surrounding physiography, so much so that it has created its own unique environment. From its headwaters in the Front Ranges of the Rock Mountains, this river flows through the foothills, Western Benchlands and over many uplands and plains of both the Western and Eastern Alberta Plains.
2. Bedrock Geology	10	All four geological eras are represented; however, the Mesozoic and Cenozoic are most prominent. The Mesozoic deposits exposed along the Red Deer River valley have received international acclaim as a result of the extensive fossil beds situated there.
3. Palaeontology	10	The Red Deer River valley is world renowned for the rich and diverse fossils which have been found there. South of the City of Red Deer this river has a continuous zone of high and medium palaeontological sensitivity. Near Drumheller and Dinosaur Provincial Park the Judith River Formation has been exposed, uncovering major fossil beds associated with the Jurassic ("Age of the Dinosaurs"). Dinosaur Provincial Park, located midway between Drumheller and the Saskatchewan border, has been declared a World Heritage Site due to the unique fossils which have been uncovered.
4. Surficial Geology		
4.1 Parent Material	10	In the mountains and foothills colluvium, till and bedrock represent the major parent materials. On the plains glaciolacustrine and glaciofluvial deposits, in addition to till, form the major parent materials.
4.2 Surface Expression	10	Associated with the diverse parent materials are equally diverse surface expressions. Fans, steeply inclined and ridged terrain are prominent in the mountains and foothills with the topography grading through rolling and hummocky terrain eventually leading to the undulating plains.
River Processes		
1. Hydrology	2	Pools and riffles, uniform rapids, logjams and in-channel rocks are all contributors to the variation in flow pattern. The Dickson Dam has a significant impact on water flow by regulating discharge quantities.
2. Water Quality	5	Water quality is impacted by the municipal use of Drumheller and other smaller centres. Phosphorous and nitrogen levels tend to be high in the summer and winter. Occasionally high levels of coliforms, phenols and various metals occur.
3. River Morphology	10	Several continuous levels of terraces exist. Generally, this river contains only bends of low curvature and occasional islands. Mid-channel bars, diagonal bars, side bars and large dunes contribute to the river morphology. The morphology of this river is well known since it flows through areas known as Badlands (Drumheller and Dinosaur Provincial Park). Erosion and stream activity has a major impact on landform, creating deep valleys and coulees which expose the 75 million year old Oldman Formation as well as creating hoodoos and other unique features. Downstream of the park, sand beaches and channel islands are more frequent.

Category	Score	Rationale
Biota		
1. Vegetation	10	As the river flows eastward it traverses an assortment of very diverse vegetation zones. Much of the length of the Red Deer River is located within the Central Parkland and Dry Mixedgrass natural subregions. Other subregions which contribute to a lesser extent include the; Upper Foothills, Lower Foothills, Dry Mixedwood and Northern Fescue.
2. Wildlife Habitat	10	Extensive waterfowl and ungulate habitat is present along the entire length of the river. Significantly less areas of prime fish habitat exist.
3. Endangered/Threatened Species	10	A wide variety of species are associated with this river, including the endangered Ferruginous Hawk, Loggerhead Shrike, Long-billed Curlew and Piping Plover.
4. Species Concentration	10	Extensive ungulate wintering habitat exists. Significant migratory waterfowl habitat is less abundant. Known Hognose Snake hibernacula occur along this river.

Summary of Average Natural Heritage Category Scores

Geology Category	40/40 x 33.33 = 33.33
River Processes Category	17/30 x 33.33 = 18.89
Biota Category	40/40 x 33.33 = 33.33
Total Natural Heritage Theme Score	85.55

Recreation Evaluation \ Red Deer River

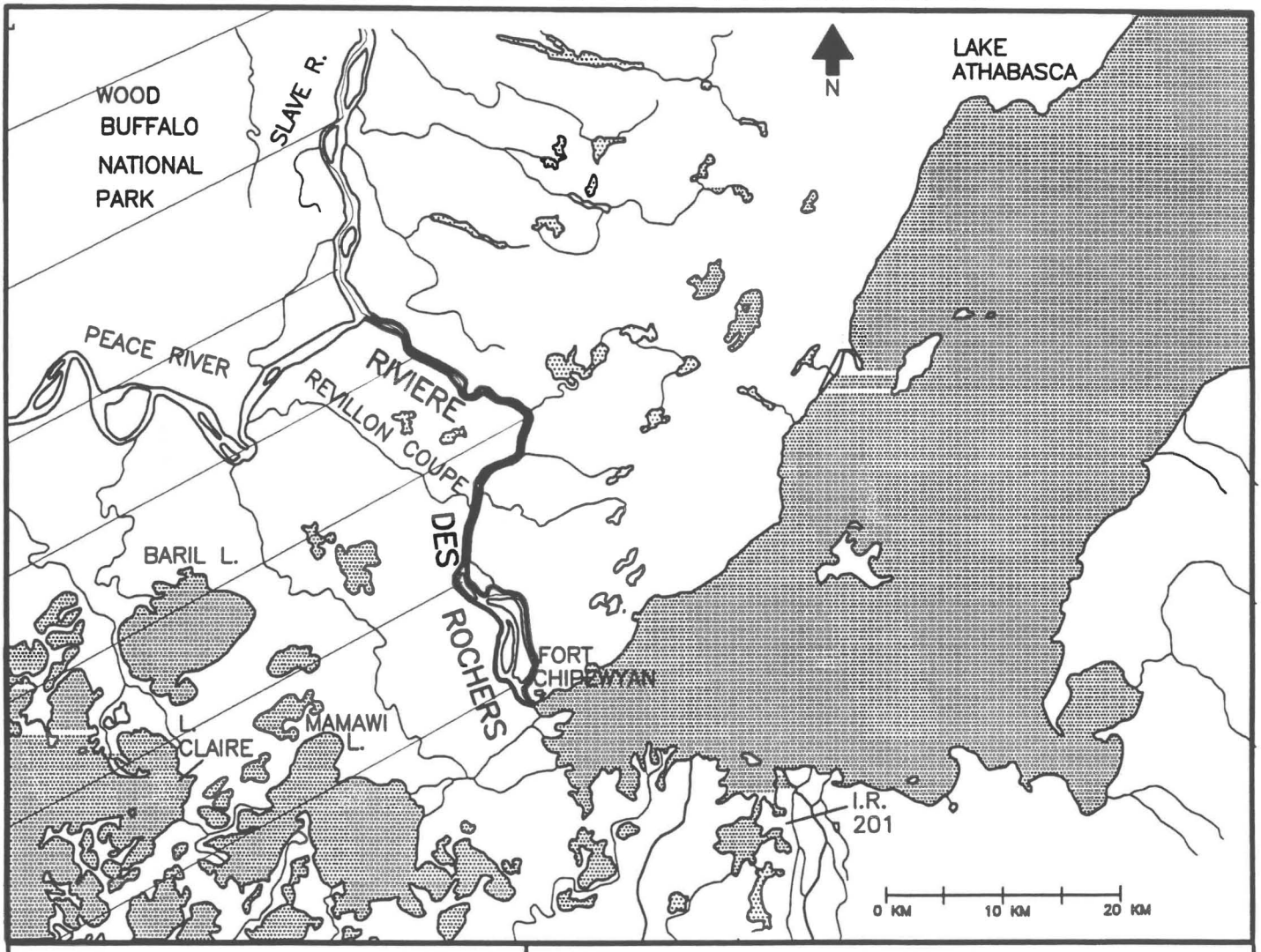
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	7	There are numerous boat touring options below Dickson Dam, limited only by water levels later in season
- Flatwater Boating	8	Extended canoe tripping possible from Red Deer to Border up to 8 days
- Whitewater Boating	10	Upper reaches have world Class IV and V rapids for kayaking
- Fishing	7	Upper sections of Red Deer has excellent sport fishing, lower reaches restricted by limited water flow
- Swimming	5	Lower reaches offer opportunities for swimming, upper reaches too cold, fast moving
• Diversity of Water Associated Activities		
- Trail Activities	7	Trail activities abound along upper reaches and certain sections of lower reaches in canyon lands and around Red Deer, Drumheller
- Hunting	5	Upper reaches provide good access and opportunity, lower reaches restricted by landownership
- Camping	7	The Red Deer has numerous forestry and municipal campsites as well as informal campsites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	8	Numerous examples of manmade influence on River
- Historical Landscape	8	Much evidence of early pioneer history (1900's) and prehistoric (Badlands, Dinosaurs)
• Natural Landscape Appreciation		
- Natural/Visual Attractions	10	The Red Deer offers a rich and diversified landscape from its source, across the province
- Remoteness	7	Upper reaches provide relative solitude while lower reaches only occasion
• Physical Factors		
- Water Quality	7	Overall quality acceptable to most river activities
- Shoreline Access	8	The Red Deer is a highly accessible river

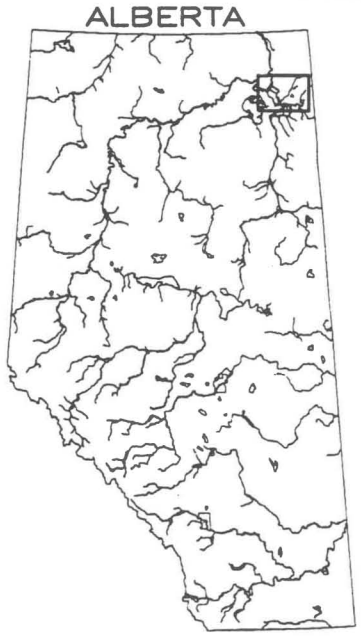
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 37/50 x 20 = 14.4
- Diversity of Water Associated Activities 19/30 x 20 = 12.6
- Human Heritage Landscape Appreciation 16/20 x 20 = 16.0
- Natural Landscape Appreciation 17/20 x 20 = 17.0
- Physical Factors 15/20 x 20 = 15.0

- Total Recreational Capability Theme Score 75.0

RIVIERE DES ROCHERS





Human Heritage Scores

Historical / Cultural 27.70

Natural Heritage Scores

Geology 17.78

River Processes 6.67

Plants and Wildlife 5.00

Recreational Scores

Recreational Activities/Landscape Appreciation ... 38.50

TOTAL ADJUSTED SCORE 31.88

RIVIERE DES ROCHERS

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	As this river borders Wood Buffalo National Park, some sites may be recorded with the Parks Service. A lack of sites on this river likely reflects the lack of systematic investigation rather than archaeological potential.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	10	Fort Chipewyan II (IeOt 2) and Fort Chipewyan III and IV (IeOs 3); Nottingham House/Fort Chipewyan (IeOt 1, 2, IeOs 3); Fort Wedderburn (IeOs 2), La Cache (H.B.C.)
	MONOPOLY (1821-1859)	10	Fort Chipewyan II continued to be utilized until modern day.
	FREE TRADERS (1850-1940)	10	Fort Chipewyan II continued to be utilized into modern day.
SETTLEMENT	EXPLORATION	10	Early exploration was undertaken by Peter Pond, Peter Fidler, Cuthbert Grant, Boyer and others. Sir Alexander Mackenzie travelled through the area during his 1793 voyage. Franklin used this river to reach the Arctic.
	LEGAL SURVEY	0	
	MISSIONS	10	Nativity Mission, Oblate Mission established in 1849.
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Part of the larger Athabasca/Peace River river route during the fur trade.
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		10	Mackenzie, Franklin, Fidler, Pond, Grant, and other early explorers and fur traders.

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	0/40 x 10.7	=	0.0
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	30/40 x 10.7	=	8.0
•	Settlement	20/60 x 10.7	=	3.6
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	10/30 x 10.7	=	3.6
•	Events	0/10 x 12.5	=	0.0
•	Personages	10/10 x 12.5	=	12.5
•	Total Human Heritage Theme Score			27.7

Natural Heritage Evaluation \ Riviere Des Rochers

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The Kazan Upland is the primary physiographic component. Of lesser significance is the Delta Plain.
2. Bedrock Geology	5	This area is underlain by Precambrium granites, gneisses and quartzites which comprise the Canadian Shield.
3. Palaeontology	N/A	No palaeontological information is available for this area.
4. Surficial Geology		
4.1 Parent Material	6	This river is situated in a transitional area between the Interior Plains and the Canadian Shield. Exposed bedrock or bedrock overlain by till is common. The close proximity of the Peace-Athabasca Delta accounts for the presence of an alluvial component.
4.2 Surface Expression	8	The landscape in this region is, in large part, governed by the geological formations present. The delta area provides its own unique surface expression, while the bedrock provides a rolling topography with or without veneers and blankets of till.
River Processes		
1. Hydrology	2	Some rapids are present. The Riviere des Rochers joins the Peace River to form the Slave River. Presently, this channel is largely used to control the water levels within the Peace-Athabasca Delta. A water control dam is located at the mouth of the river.
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	N/A	
Biota		
1. Vegetation	2	This river traverses the aspen, balsam poplar and white spruce forests and wetlands of the Peace River lowlands and the jack pine forests and black spruce peatlands of the Kazan Upland natural sub-regions.
2. Wildlife Habitat	1	Prime fish habitat exists throughout the length of the river (i.e., Arctic Grayling).
3. Endangered/Threatened Species	1	The River Otter and a rare species of Wild Daisy (*Erigeron hyssopifolius*) may be found in association with the river environment.
4. Species Concentration	2	This area provides extensive migratory waterfowl habitat which is considered provincially significant. No prime ungulate wintering habitat has been located.

Summary of Average Natural Heritage Category Scores

Geology Category	16/30 x 33.33 = 17.78[1]
River Processes Category	2/10 x 33.33 = 6.67[3,4]
Biota Category	6/40 x 33.33 = 5.00
Total Natural Heritage Theme Score	29.45[1,3,4]

[1] Palaeontology information not available
[3] Water quality information not available
[4] River morphology information not available

Recreation Evaluation \ Riviere des Rochers

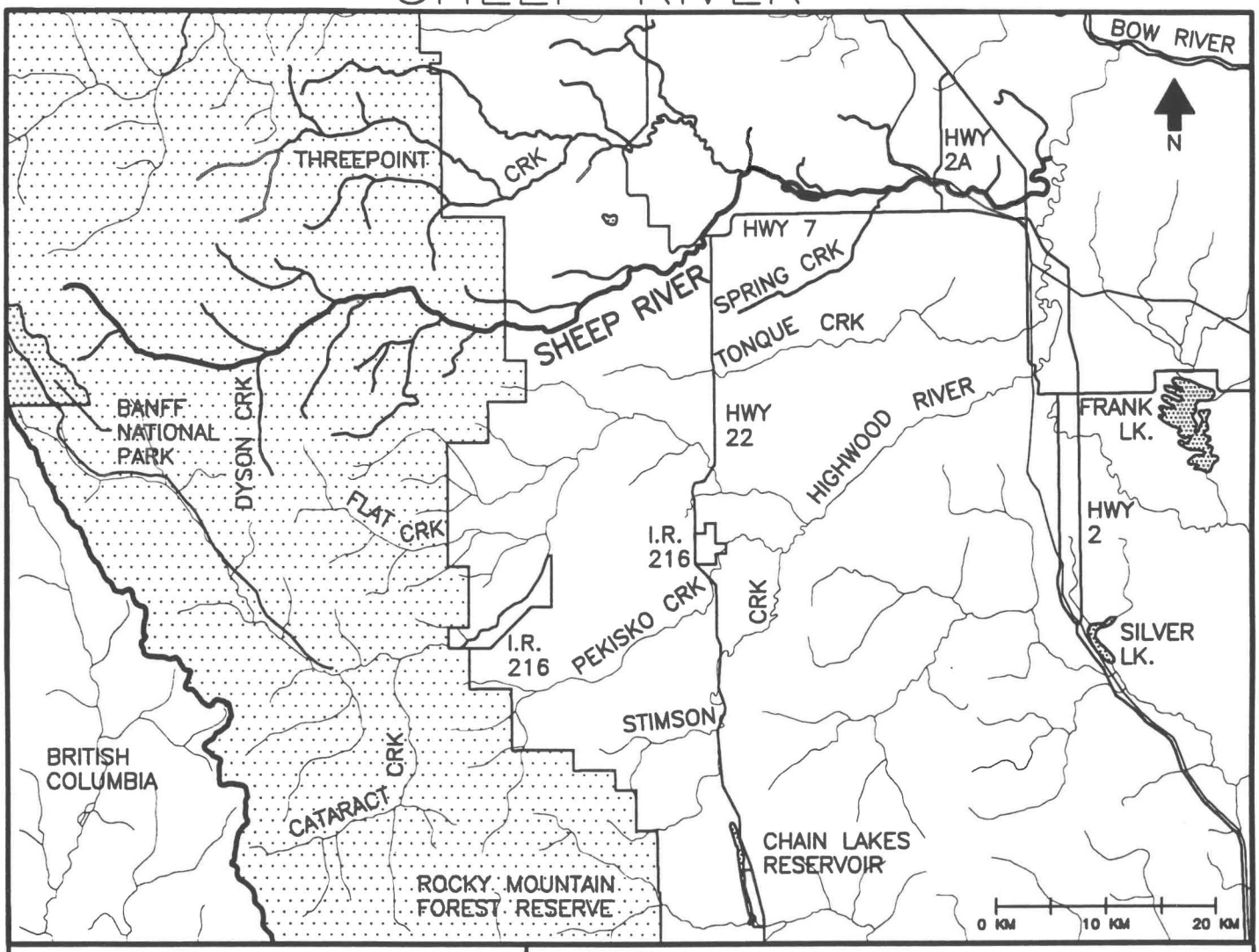
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	
- Flatwater Boating	6	River rated Grade II with Class I - III rapids suited for intermediate open Canadian, however paddlers must be expert at compass work and hydro charts
- Whitewater Boating	6	Some whitewater, at spring runoff periods
- Fishing	6	
- Swimming	0	
• Diversity of Water Associated Activities		
- Trail Activities	2	Limited access from Ft. Chip
- Hunting	6	Assume good hunting, but mainly localized as access difficult
- Camping	0	No campsites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	3	Some evidence of human occupation around Ft. Chip...some forestry but limited
- Historical Landscape	3	Assume area has some historical significance but no physical evidence
• Natural Landscape Appreciation		
- Natural/Visual Attractions	5	River shed quite interesting, natural, but surrounding landscape primarily monotone boreal forest
- Remoteness	7	Little use made of this river, largely inaccessible
• Physical Factors		
- Water Quality	6	Generally good but carrying silts and pollutants washed out Lake Athabasca
- Shoreline Access	2	Limited access from Ft. Chip, otherwise generally unaccessible by land

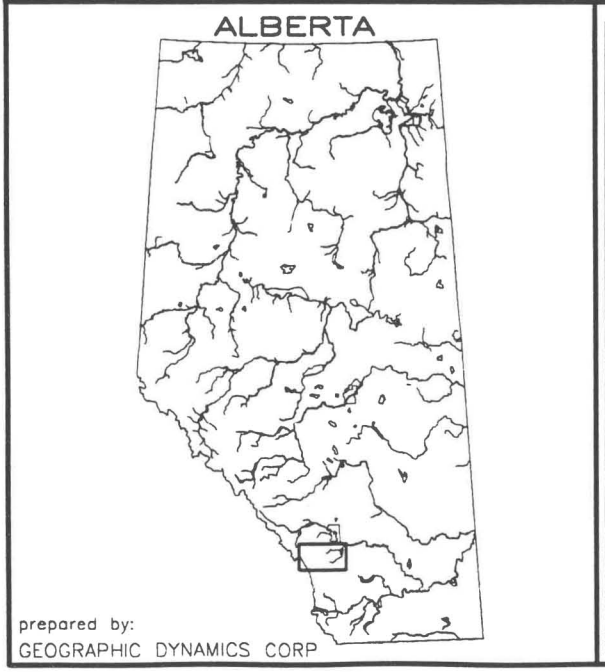
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 18/50 x 20 = 7.2
- Diversity of Water Associated Activities 8/30 x 20 = 5.3
- Human Heritage Landscape Appreciation 6/20 x 20 = 6.0
- Natural Landscape Appreciation 12/20 x 20 = 12.0
- Physical Factors 8/20 x 20 = 8.0

- Total Recreational Capability Theme Score 38.5

SHEEP RIVER





prepared by:
GEOGRAPHIC DYNAMICS CORP

Human Heritage Scores

Historical / Cultural 21.50

Natural Heritage Scores

Geology 23.75

River Processes 15.55

Plants and Wildlife 12.50

Recreational Scores

Recreational Activities/Landscape Appreciation ... 68.00

TOTAL ADJUSTED SCORE 47.10

SHEEP RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	An excellent archaeological record has been identified on the Sheep River with excellent temporal and cultural affiliation coverage. Owing to cultivation, however, many sites come from disturbed contexts.
	RESOURCE EXPLOITATION	8	Several prehistoric kill sites have been recorded on the Sheep River
	HABITATION	9	Canyon Creek Site EdPp 21 is perhaps the most noteworthy campsite on the Sheep River, although numerous others have been recorded as have many stone feature sites.
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	7	Okotoks Erratic - Big Rock EePm 3 - an important traditional and recent landmark.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	10	Whiskey trade posts - Neil Campbell's Post, Fred Wachter's Post, Conrad's Post, McPherson's Post.
SETTLEMENT	EXPLORATION	8	Thompson and Fidler documented the river.
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	8	Cabins EdPp 3; farm EdPn 46; Old Lineham House, Okotoks. Along with the Highwood River, the Sheep River was an area of early agricultural settlement in the 1870's.
	RANCHING	7	The Quorn Ranch
	LAW & ORDER	7	NWMP outposts - Dewdney, Okotoks
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	PETROLEUM	10	Turner Valley and area oil fields. Hell's Half Acre, Dingman No. 1 and other oil fields. Shanty towns such as New York and LittleChicago sprang up during early oil exploration activities.
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	7	McLeod Trail (Calgary to Fort McLeod) at Okotoks
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	27/40 x 10.7	=	7.2
•	First Nations Contact	7/40 x 10.7	=	1.9
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	10/40 x 10.7	=	2.7
•	Settlement	30/60 x 10.7	=	5.4
•	Resource Development	10/60 x 10.7	=	1.8
•	Transportation	7/30 x 10.7	=	2.5
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			21.5

Natural Heritage Evaluation \ Sheep River

Category	Score	Rationale
Geology		
1. Physiographic Section	7	As with many rivers of mountain or foothill origin, the Sheep River traverses a wide range of physiographic sections. With headwaters located in the Front Ranges, the river migrates through the Southern Foothills and the Western Benchlands to the Southwest Plains where it feeds into the Highwood River.
2. Bedrock Geology	10	All four eras are represented; however, sandstones, shales and coal of the Cenozoic era contribute only minimally to the geology of the terrain over which the river flows.
3. Palaeontology	2	The palaeontological resources of the this river environment are relatively unknown. Only a few select sites of low palaeontological sensitivity have been located along this river.
4. Surficial Geology		
4.1 Parent Material	9	A wide range of parent material is associated with the terrain which this river traverses. These include colluvial deposits, fluvial sediments, glaciolacustrine material and bedrock (exposed or overlain by till).
4.2 Surface Expression	10	The topography encountered by this river is related to the geomorphic processes prevalent in the mountains and foothills. Surface expressions include: veneers, veneer-blankets, ridges, steep inclines, fans and rolling and undulating terrain.
River Processes		
1. Hydrology	3	The very tight meanders and diagonal and mid-channel bars indicate the existence of areas of fast and slow flow. Boulders within the channel also disturb the flow. A dam (St. Mary Reservoir) controls the flow of this river.
2. Water Quality	7	Phosphorous and nitrogen levels may fluctuate and occasionally exceed guidelines. Water quality is impacted by flow regulation.
3. River Morphology	4	Several indefinite levels of terraces are present. This river contains very pronounced bends that display no regular pattern. Diagonal and mid-channel bars, as well as boulders, are also present.
Biota		
1. Vegetation	8	The Sheep River flows predominantly through the Lower Foothills and Foothills Parkland natural subregions. The Sub-Alpine and Foothills Fescue are only represented in a very minor capacity.
2. Wildlife Habitat	2	Some prime habitat is provided for ungulates and fish.
3. Endangered/Threatened Species	2	The Peregrine Falcon, Prairie Falcon, Bobcat and Grizzly Bear may be found in habitats associated with this river.
4. Species Concentration	2	No significant migratory waterfowl habitat has been located. Ungulate wintering habitat exists along approximately 40 % of the river.

Summary of Average Natural Heritage Category Scores

Geology Category	28.5/40 x 33.33 = 23.75
River Processes Category	14/30 x 33.33 = 15.55
Biota Category	15/40 x 33.33 = 12.50
Total Natural Heritage Theme Score	51.80

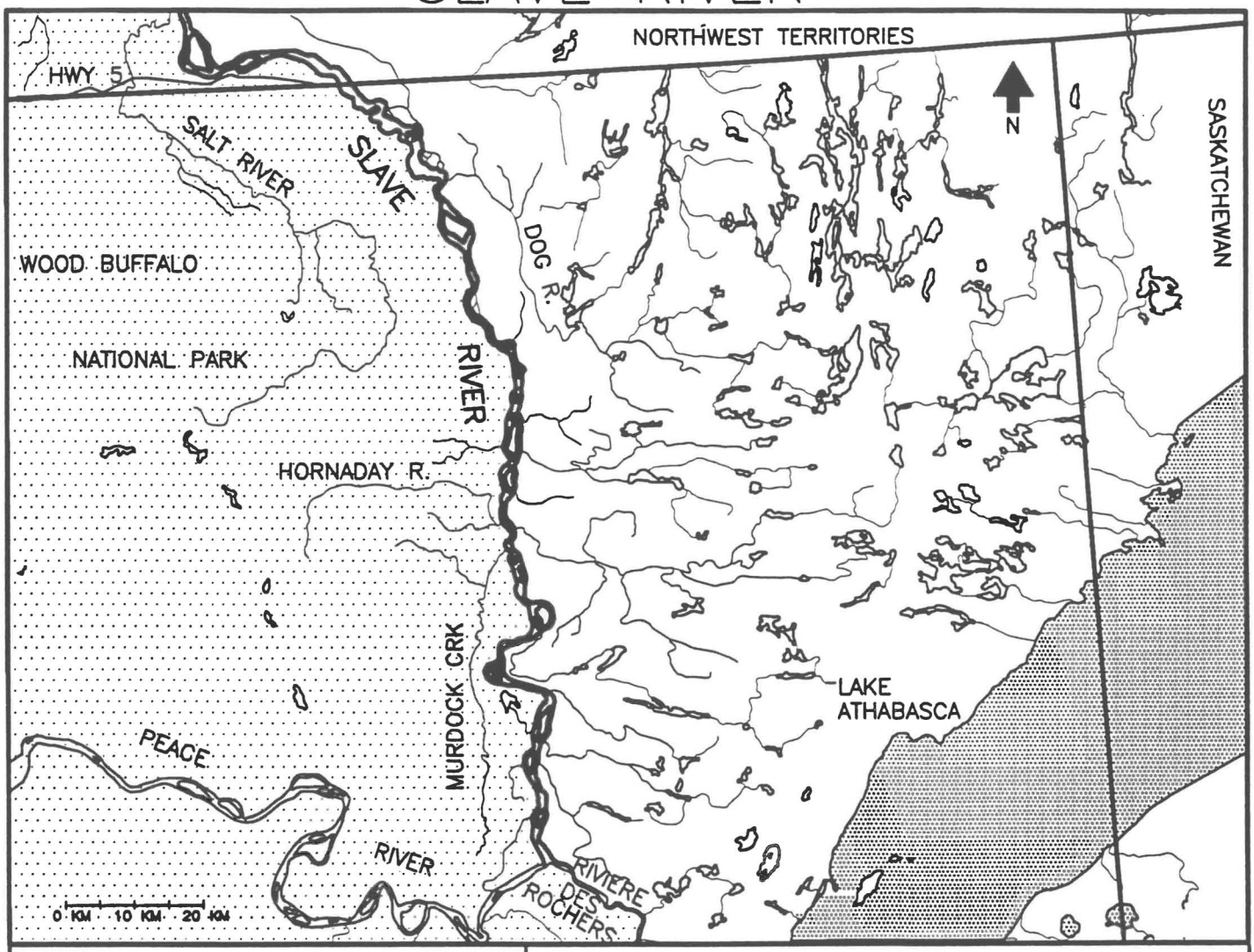
Recreation Evaluation \ Sheep River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	1	Limited to certain reaches (near urban area) and when water levels permit
- Flatwater Boating	7	Has good opportunity along lower reaches but constrained by seasonal water level limitations
- Whitewater Boating	7	Upper reaches have some whitewater but limited use
- Fishing	6	Sport fish production limited, trout in pools
- Swimming	6	Potential in "local" swimming holes near urban areas of Black Diamond, Okotoks and Prov. Rec. area
• Diversity of Water Associated Activities		
- Trail Activities	7	Some developed trails near urban areas and provincial recreation area, many undeveloped trails -- some limitations due to steep shoreline
- Hunting	8	Upper reaches have good habitat for moose, elk, sheet and goat -- good hunting opportunities in season
- Camping	8	Several developed campsites in forestry area and in the urban communities provide good river access
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	8	Much evidence of varied land use including mining, logging, urban development and ranching
- Historical Landscape	6	Significant early First Nation contact and early settlement but limited visual evidence
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	The Sheep is a very scenic river with a varied landscape with views to mountains, deep chasms, rolling landscape and mixed vegetation
- Remoteness	4	Much of the river is accessible, so limited remoteness factor
• Physical Factors		
- Water Quality	7	Overall quality good, but some impact from urban uses on lower reaches
- Shoreline Access	8	Much of this river is easily accessible from many road/bridge crossings and from developed areas

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 27/50 x 20 = 10.8
- Diversity of Water Associated Activities 23/30 x 20 = 15.2
- Human Heritage Landscape Appreciation 14/20 x 20 = 14.0
- Natural Landscape Appreciation 13/20 x 20 = 13.0
- Physical Factors 15/20 x 20 = 15.0
- Total Recreational Capability Theme Score 68.0

SLAVE RIVER



Human Heritage Scores

Historical / Cultural	45.40

Natural Heritage Scores

Geology	24.58
River Processes	17.18
Plants and Wildlife	6.67

Recreational Scores

Recreational Activities/Landscape Appreciation	49.60

TOTAL ADJUSTED SCORE 47.84

SLAVE RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	The Slave River within Alberta has a good archaeological record with good temporal depth (sites from the Early Prehistoric to the Historic Periods) and cultural variability representative of the Subarctic sequence.
	RESOURCE EXPLOITATION	8	Prehistoric quarries IjOu 4 and IkOv 4 are representative of the resource exploitation sites recorded along the Slave river.
	HABITATION	9	IlOw 3, IlOw 7, IkOv 5 and IjOu 3 are an example of the campsites identified along the river.
	IDEOLOGY	7	Burials IlOv 25, IhOu 7
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	9	Historic quarry IkOv 1 (may have a prehistoric component). Dog River Cabin I (IlOv 4) and II (IlOv 5).
METIS	HABITATION	10	Dog River settlement
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	7	Pelican Portage Camp IlOv 2, Salt River House
	MONOPOLY (1821-1859)	9	Fort Fitzgerald/Smith's Landing IlOv 12, Halfway House IlOw 8
	FREE TRADERS (1850-1940)	7	Alex Hamilton - Northern Trading Co., Baker (Lebanese free trader)
SETTLEMENT	EXPLORATION	10	Samuel Hearne travelled on the Slave. Portage at rapids of the drowned noted during exploration. Mackenzie used the Slave route to the Mackenzie river in 1789. George Back used the Slave route to lead the rescue party for Ross in 1833. John Franklin expeditions in 1820 and 1825 used the Slave River.
	LEGAL SURVEY	0	
	MISSIONS	8	Missionary transportation route, St. Bruno's farm
	AGRARIAN SETTLEMENT	7	Yanik Homestead IlOv 1
	RANCHING	7	Buffalo paddocks along river to unload bison destined for Wood Buffalo National Park
	LAW & ORDER	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
RESOURCE DEVELOPMENT	LUMBERING	7	modern Native lumber mill
	FISHING	0	
	MINING	6	Klondike gold fields route; Limestone kiln IjOu 5, limestone quarry IlOu 6
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Major fur trade water route. Steamboat transport route. Mountain Portageg at Fitzgerald.
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		10	Sir Alexander Mackenzie, John Franklin, George Back, John Ross, Samuel Hearne

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	34/40 x 10.7	=	9.1
• First Nations Contact	9/40 x 10.7	=	2.4
• Metis	10/30 x 10.7	=	3.6
• Fur Trade	23/40 x 10.7	=	6.2
• Settlement	32/60 x 10.7	=	5.7
• Resource Development	13/60 x 10.7	=	2.3
• Transportation	10/30 x 10.7	=	3.6
• Events	0/10 x 12.5	=	0.0
• Personages	10/10 x 12.5	=	12.5
• Total Human Heritage Theme Score			45.4

Natural Heritage Evaluation \ Slave River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	The Slave River does not appear to dissect any single physiographic section, rather it runs between the Tazin River Uplands to the east and the Great Slave and Delta Plains to the west.
2. Bedrock Geology	5	The Slave River marks the convergence of the Interior Plains and the Canadian Shield. Shield geology consists of Precambrium granites, gneisses and quartzites, whereas the Northern Plains contain the more erodible Devonian limestones, dolomites, salts and gypsum.
3. Palaeontology	10	Several sites of high and medium palaeontological resource sensitivity are situated along the western banks.
4. Surficial Geology		
4.1 Parent Material	8	With the convergence of two structurally very different geological materials and the existence of a major delta, a number of parent materials occur, including glaciolacustrine, fluvial, morainal and bedrock.
4.2 Surface Expression	9	The landscape ranges from undulating or rolling terrain with veneers or blankets in the north to the delta region in the south.
River Processes		
1. Hydrology	6	Four sets of major rapids, including the Castle, Pelican, Mountain Rapids the Rapids of the Drowned (jointly known as the Slave River rapids) are located on the Slave River. At present this river is the proposed site of a massive hydro project. The flow in this river is affected by the flow of the Peace River which is heavily regulated.
2. Water Quality	5	The turbidity is relatively high in the early summer; however, this may be due to the spring runoff. High metal concentrations are attributable to natural weathering of rock in the basin the presence of suspended solids in the river water. Water quality is influenced significantly by flow rates.
3. River Morphology	5	The rapids can be attributed to the bedrock geology of the area. They are formed by the Precambrium red granite at the edge of the northern sedimentary plains. Several islands occur within the river channel.
Biota		
1. Vegetation	2	The two adjacent natural subregions are the Peace River Lowlands and the Kazan Uplands.
2. Wildlife Habitat	1	Limited habitat for fish has been documented within this river environment.
3. Endangered/Threatened Species	4	The Peregrine Falcon, American White Pelican, River Otter and several plant species are associated with this river and the adjacent habitats.
4. Species Concentration	1	The Pelican Rapids mark the feeding ground of the northern most pelican colony in North America: also recognized as the only white water colony.

Summary of Average Natural Heritage Category Scores

Geology Category	29.5/40 x 33.33 = 24.58
River Processes Category	16/30 x 33.33 = 17.18
Biota Category	8/40 x 33.33 = 6.67
Total Natural Heritage Theme Score	48.43

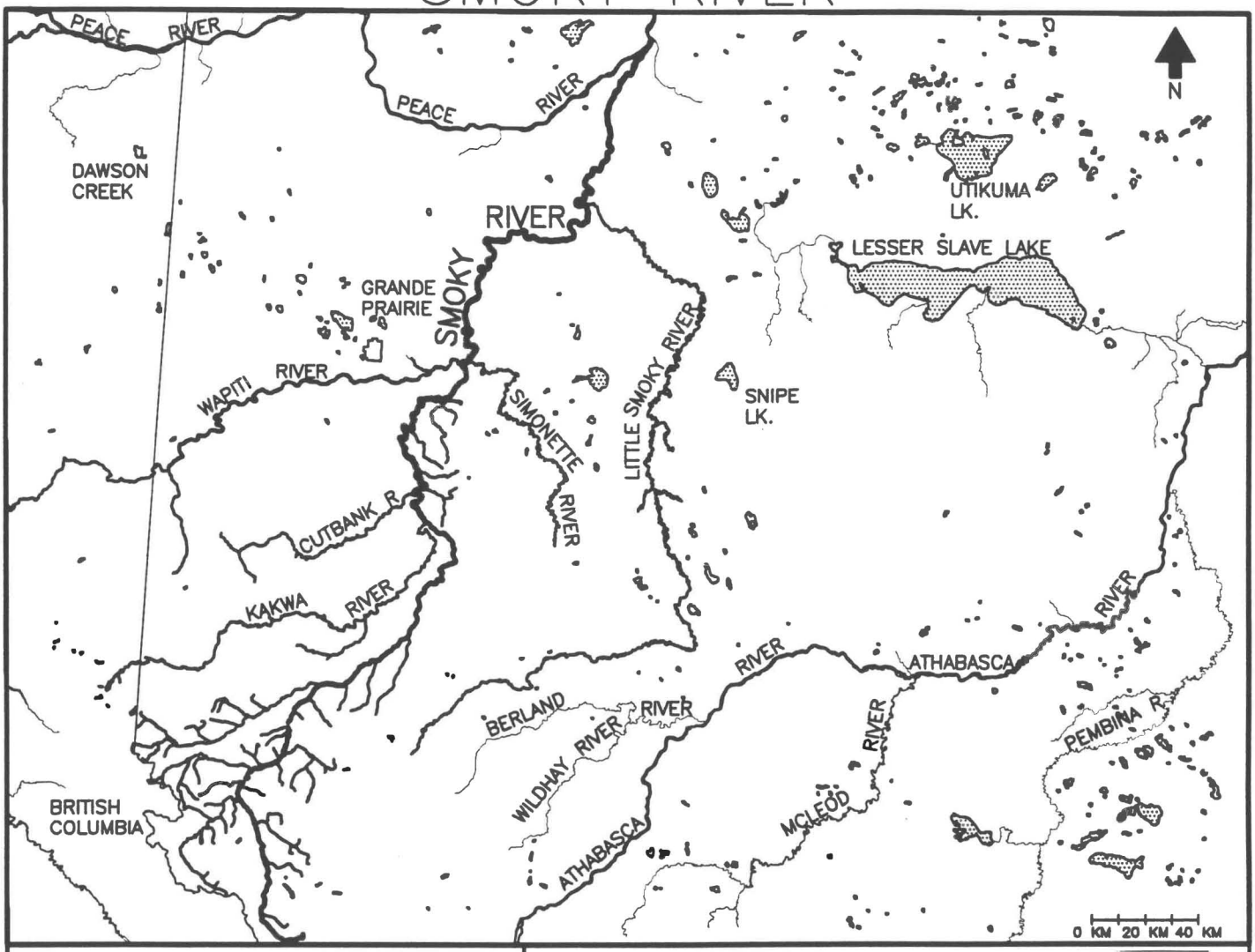
Recreation Evaluation \ Slave River

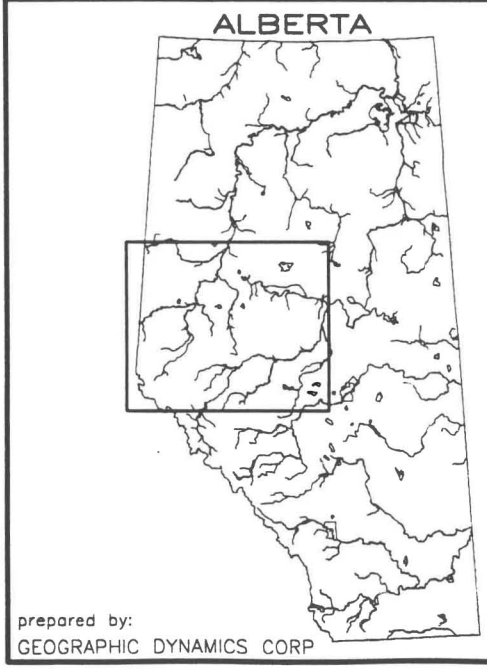
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	5	Rapids at Fort Smith are only barrier to navigation. Access is limited.
- Flatwater Boating	5	Activity is limited.
- Whitewater Boating	8	Fort Smith is recognized for commercial whitewater rafting.
- Fishing	6	Excellent resource with more than one popular species.
- Swimming	0	Access is limited.
• Diversity of Water Associated Activities		
- Trail Activities	3	Little infrastructure outside of Wood Buffalo and Fort Smith.
- Hunting	5	Black bears, moose, elk - somewhat remote.
- Camping	4	Limited to areas near NWT border.
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	3	Ft. Chipeweyan, Wood Buffalo campsite and Ft. Smith.
- Historical Landscape	4	Contemporary Indian settlements.
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	Canadian Shield and Wood Buffalo Park and no varied ecosystems, rapids at Ft. Smith.
- Remoteness	8	
• Physical Factors		
- Water Quality	7	
- Shoreline Access	1	

Summary of Average Recreational Category Scores

• Diversity of Water Dependent Activities	24/50 x 20 = 9.6
• Diversity of Water Associated Activities	12/30 x 20 = 8.0
• Human Heritage Landscape Appreciation	7/20 x 20 = 7.0
• Natural Landscape Appreciation	17/20 x 20 = 17.0
• Physical Factors	8/20 x 20 = 8.0
• Total Recreational Capability Theme Score	49.6

SMOKY RIVER





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Human Heritage Scores

Historical / Cultural	18.70

Natural Heritage Scores

Geology	32.50
River Processes	22.22
Plants and Wildlife	20.83

Recreational Scores

Recreational Activities/Landscape Appreciation	58.40

TOTAL ADJUSTED SCORE 50.88

SMOKY RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is a relatively limited archaeological record for the Smoky River. This is likely a reflection of a lack of systematic investigation rather than potential. Possible Clovis materials have been found at GaQs 1 which is very significant, being the earliest commonly recognized cultural affiliation in the New World. Middle Prehistoric and Historic materials have also been recorded.
	RESOURCE EXPLOITATION	8	Chipping stations near Grande Cache have been recorded, likely reflecting the quarrying and reduction of materials originating in this area.
	HABITATION	7	Smoky Buried Campsite GaQs 1
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	0	
METIS	HABITATION	8	Metis settlement area, Historic cabins FkQu 3, FkQu 5 and FkQt 1
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	9	early settlements from the confluence of the Wapiti through to the confluence with the Peace. Old Bezanson townsite GgQn 2 Is representative of this.
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	8	early and modern lumbering
	FISHING	0	
	MINING	0	
	PETROLEUM	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	8	Edson to Grande Prairie Trail Ferry, Watino ferry, Goodwin Crossing ferry
	LAND COMMUNICATION	9	Edson to Grande Prairie trail crossing (ferry), Edson to Grouard trail crossing. Watino railroad trestle.
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	25/40 x 10.7	=	6.7
•	First Nations Contact	0/40 x 10.7	=	0.0
•	Metis	8/30 x 10.7	=	2.9
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	9/60 x 10.7	=	1.6
•	Resource Development	8/60 x 10.7	=	1.4
•	Transportation	17/30 x 10.7	=	6.1
•	Events	0/10 x 12.5	=	0.0
•	Personages	0/10 x 12.5	=	0.0
•	Total Human Heritage Theme Score			18.7

Natural Heritage Evaluation \ Smoky River

Category	Score	Rationale
Geology		
1. Physiographic Section	10	The headwaters of the Smoky River are located in the Park Ranges. As the river progresses from the Rocky Mountains to the Northern Alberta Plains, it traverses the Front Ranges, the Northern Foothills, the Grand Cache Benchlands, the Wapiti Plains and its most extensive stretch, the Peace River Lowlands, where it enters the Peace River.
2. Bedrock Geology	10	Representation of all four eras is found, with the longest stretch of the river traversing Upper Cretaceous marine shales and non-marine sandstone and coal.
3. Palaeontology	9	Extensive areas along the river have been documented to have some degree of palaeontological resource sensitivity. An extensive stretch of the river in the Grande Prairie region has high palaeontological sensitivity, as does an north of Watino.
4. Surficial Geology		
4.1 Parent Material	10	All types of parent material are represented along the Smoky River, with glaciolacustrine and morainal deposits possessing the highest representation.
4.2 Surface Expression	10	The wide range of surface expressions coincides with the variety of parent materials present.
River Processes		
1. Hydrology	8	Strong and fast currents are representative of this river. Numerous upwellings of water, choppy sections caused by increasing gradients and accelerated current, standing waves and rapids formed as a result of rock bars and outcrops are present.
2. Water Quality	6	Colour, coliforms, turbidity and phosphorous levels tend to exceed guidelines during the summer.
3. River Morphology	6	There are several continuous levels of terraces. The river has a winding channel with occasional islands. Point and mid channel bars littered with logs are common. The channel is partly entrenched and frequently confined in clay and silt material.
Biota		
1. Vegetation	9	As the river moves northward from the Rocky Mountains to the Peace River Lowlands, it flows through landscapes with a diversity of elevations and climates. Natural subregions traversed include: Sub-Alpine, Upper Foothills, Montane, Lower Foothills, Central Mixedwood and Dry Mixedwood.
2. Wildlife Habitat	6	Prime ungulate habitat is found along the entire length of this river. Some prime fish habitat and lesser amounts of waterfowl habitat also exist.
3. Endangered/Threatened Species	3	The Peregrine Falcon, Osprey, Bald Eagle, Grizzly Bear and River Otter may be found in habitats associated with this river.
4. Species Concentration	7	The Smoky River environment provides extensive ungulate wintering habitat. Habitat significant to migratory waterfowl is not as prolific.

Summary of Average Natural Heritage Category Scores

Geology Category	39/40 x 33.33 = 32.50
River Processes Category	20/30 x 33.33 = 22.22
Biota Category	25/40 x 33.33 = 20.83
Total Natural Heritage Theme Score	75.55

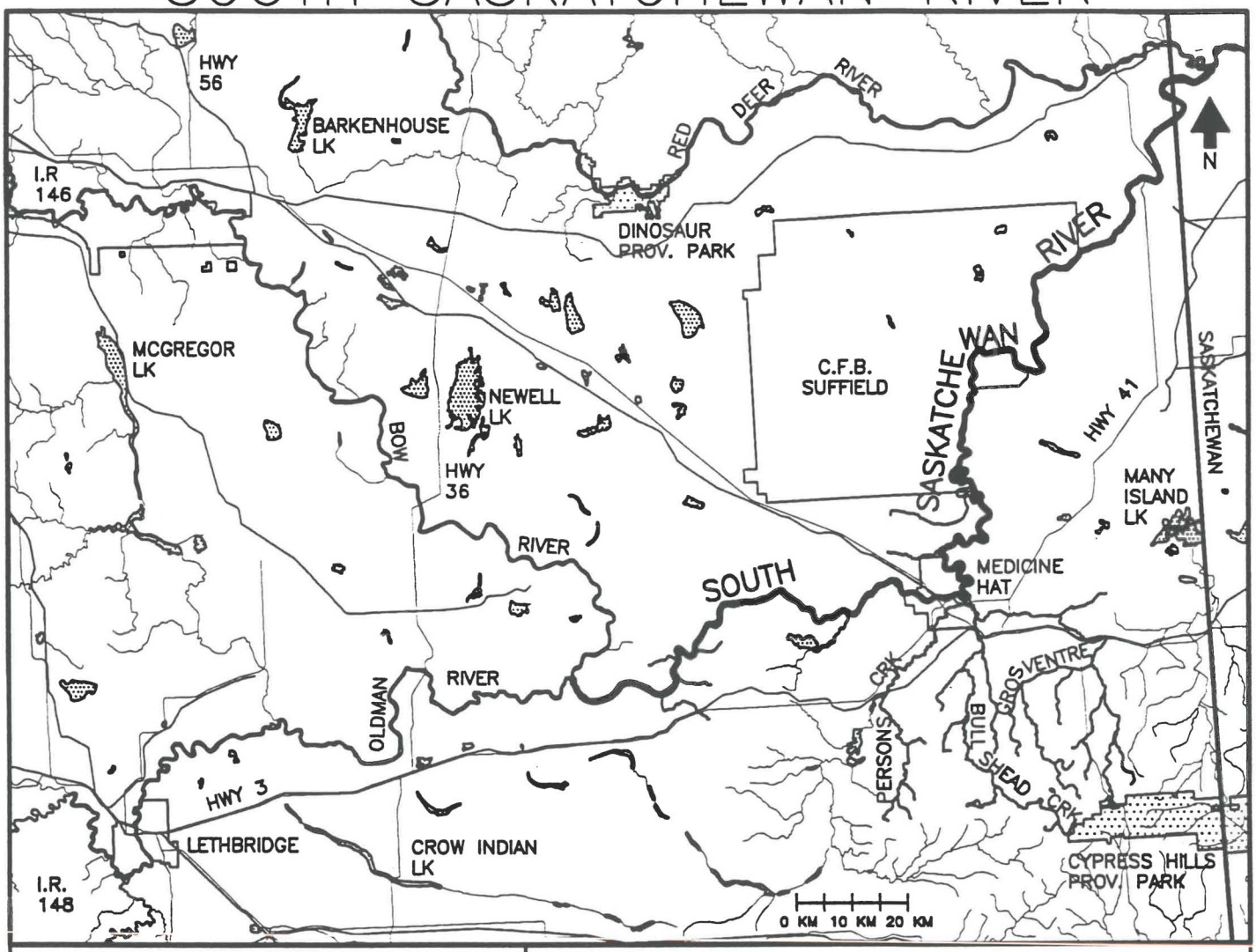
Recreation Evaluation \ Smoky River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	8	World famous and international jet boat races on river -- recognized as a challenging river
- Flatwater Boating	8	Overall Grade II river with Class I to V rapids -- river rated for expert and intermediate paddlers
- Whitewater Boating	8	Popular whitewater kayaking river, numerous spectacular rapids including Hell's Creek Rapids and the "Chutes"
- Fishing	7	Good fishing at key access points, many pools, good fish habitat
- Swimming	0	River not suitable for swimming, too cold, too fast
• Diversity of Water Associated Activities		
- Trail Activities	5	Undeveloped trail access and activity -- good potential for lengthy stretches in lower reaches but steep valley walls preclude trail development in many areas
- Hunting	7	Popular hunting region with better access and mobility in lower reaches
- Camping	6	Prairie and Smoky River campsite plus random sites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	3	Some development in upper reaches (2 bridges and Grande Cache Coal Mine) -- some farms and bridge crossings visible at lower reaches
- Historical Landscape	4	Some evidence of historic trail crossing and ferries
• Natural Landscape Appreciation		
- Natural/Visual Attractions	9	Exhibits varied terraces / deep and incised valleys and rolling terrain over its length. Very scenic and interesting
- Remoteness	7	Predominance of wilderness setting with bridge crossings on occasion
• Physical Factors		
- Water Quality	6	Turbidity during summer months
- Shoreline Access	5	At bridge crossings and near settlements like Grande Cache, Grande Prairie area and Peace River

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 31/50 x 20 = 12.4
- Diversity of Water Associated Activities 18/30 x 20 = 12.0
- Human Heritage Landscape Appreciation 7/20 x 20 = 7.0
- Natural Landscape Appreciation 16/20 x 20 = 16.0
- Physical Factors 11/20 x 20 = 11.0
- Total Recreational Capability Theme Score 58.4

SOUTH SASKATCHEWAN RIVER



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Human Heritage Scores

Historical / Cultural 43.40

Natural Heritage Scores

Geology 23.75

River Processes 16.67

Plants and Wildlife 19.16

Recreational Scores

Recreational Activities/Landscape Appreciation ... 54.40

TOTAL ADJUSTED SCORE 52.46

SOUTH SASKATCHEWAN RIVER

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	An excellent archaeological record has been obtained for the South Saskatchewan River including a diversity of site types and cultural and temporal affiliations. Significant sites include the Cactus Flower site EbOp 16 and several medicine wheel sites (see below).
	RESOURCE EXPLOITATION	10	Laidlaw Antelope Trap DlOu 9
	HABITATION	10	Wallwork kill and camp DlOu 7, Wahl site EcOo 31, EbOp 151, EbOp 16 the Cactus Flower Site, EbOp 28, EaOp 2, EaOp 9, EbOp 33 are some of the more important campsites. Numerous stone feature sites have also been identified.
	IDEOLOGY	10	The more signficant ideological sites on the river include EdOm 2 camp and Medicine Wheel, DlOv 1 & 2 Grassy Lake cairn and Medicine Wheel, DlOw 6 Murphy Medicine Wheel, EcOp 4 Ellis Medicine Wheel, EaOs 2 Suffield Medicine Wheel; Mitchell Bluff burial EaOp 13, Burial EeOm 13, EaOp 5 and EaOp 8.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Palliser noted Blood Indian camps north of modern Medicine Hat. Medicine Hat translates as *Saamis* in Blackfoot and has several origin stories associated with it. The presence of so many ideological sites is indicative of an important traditional use area.
METIS	HABITATION	0	
	PROVISIONING	7	The grasslands between the Saskatchewan rivers and beyond were important bison hunting grounds to provide pemmican for the fur trade.
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	8	Possible route of Le Verendrye in 1749 when establishing Fort La Jonquiere
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	8	Grand Forks Whiskey Post DlOw 88
SETTLEMENT	EXPLORATION	7	Palliser expedition followed from fork with Red Deer to the junction of the Bow and Oldman.
	LEGAL SURVEY	0	
	MISSIONS	0	

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
	AGRARIAN SETTLEMENT	8	Medicine Hat townsite and other smaller communities arose from the routing of the C.P.R. Historic structures remain in Medicine Hat
	RANCHING	7	A.P. Ranch - Linquist Family (Swedes) 1889
	LAW & ORDER	9	Medicine Hat outpost EaOp 11
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	8	concentrated natural gas exploration
	CLAY PRODUCTS	10	Medalta potteries
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	8	Palliser map shows a good ford near Grand Forks. Ferries at Bindloss, Medicine Hat, Empress, and Redcliff.
	LAND COMMUNICATION	8	On route of C.P.R.
	TELECOMMUNICATION	0	
EVENTS		7	"Hanging Tree" near Grassy Lake where 21 horse thieves from Montana were hung.
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	40/40 x 10.7	=	10.7
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	7/30 x 10.7	=	2.5
• Fur Trade	16/40 x 10.7	=	4.3
• Settlement	31/60 x 10.7	=	5.5
• Resource Development	18/60 x 10.7	=	3.2
• Transportation	16/30 x 10.7	=	5.7
• Events	7/10 x 12.5	=	8.8
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			43.4

Natural Heritage Evaluation \ South Saskatchewan River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	This river traverses both the Coulee and Bigstick Plain and skirts along side the Rainy Hills Uplands.
2. Bedrock Geology	5	The geology encountered represents non-marine shale and coal of the Upper Cretaceous Period.
3. Palaeontology	10	This area is rich in fossils and all but a few relatively small areas along the length of this river rate high or medium in palaeontological significance.
4. Surficial Geology		
4.1 Parent Material	6	The parent material is glaciofluvial, glaciolacustrine and morainal in nature.
4.2 Surface Expression	9	A wide variety of landscape composition occurs in this area with no single type of surface expression dominating.
River Processes		
1. Hydrology	4	This river contains one major set of rapids and several old dams and diversions.
2. Water Quality	6	The city of Medicine Hat has a major municipal impact on this river. Several guideline components are exceeded in the summer and early in the year.
3. River Morphology	5	This river contains only minimal curvature with occasional islands. Two levels of fragmentary terraces exist. This river possesses entrenched loop development and flows through a incised valley 100 m deep and 3 to 5 km wide.
Biota		
1. Vegetation	1	This river flows through the Dry Mixed Grass natural subregion.
2. Wildlife Habitat	6	Prime fish and waterfowl habitat can be found along the entire length of this river. A few areas of high quality ungulate habitat have been located.
3. Endangered/Threatened Species	10	Numerous endangered and threatened species utilize this river environment, including the endangered; Ferruginous Hawk, Loggerhead Shrike, Long-billed Curlew and Piping Plover.
4. Species Concentration	6	Approximately 50 % of the river environment provides significant ungulate wintering habitat and migratory waterfowl sites.

Summary of Average Natural Heritage Category Scores

Geology Category	28.5/40 x 33.33 = 23.75
River Processes Category	15/30 x 33.33 = 16.67
Biota Category	23/40 x 33.33 = 19.16
Total Natural Heritage Theme Score	59.58

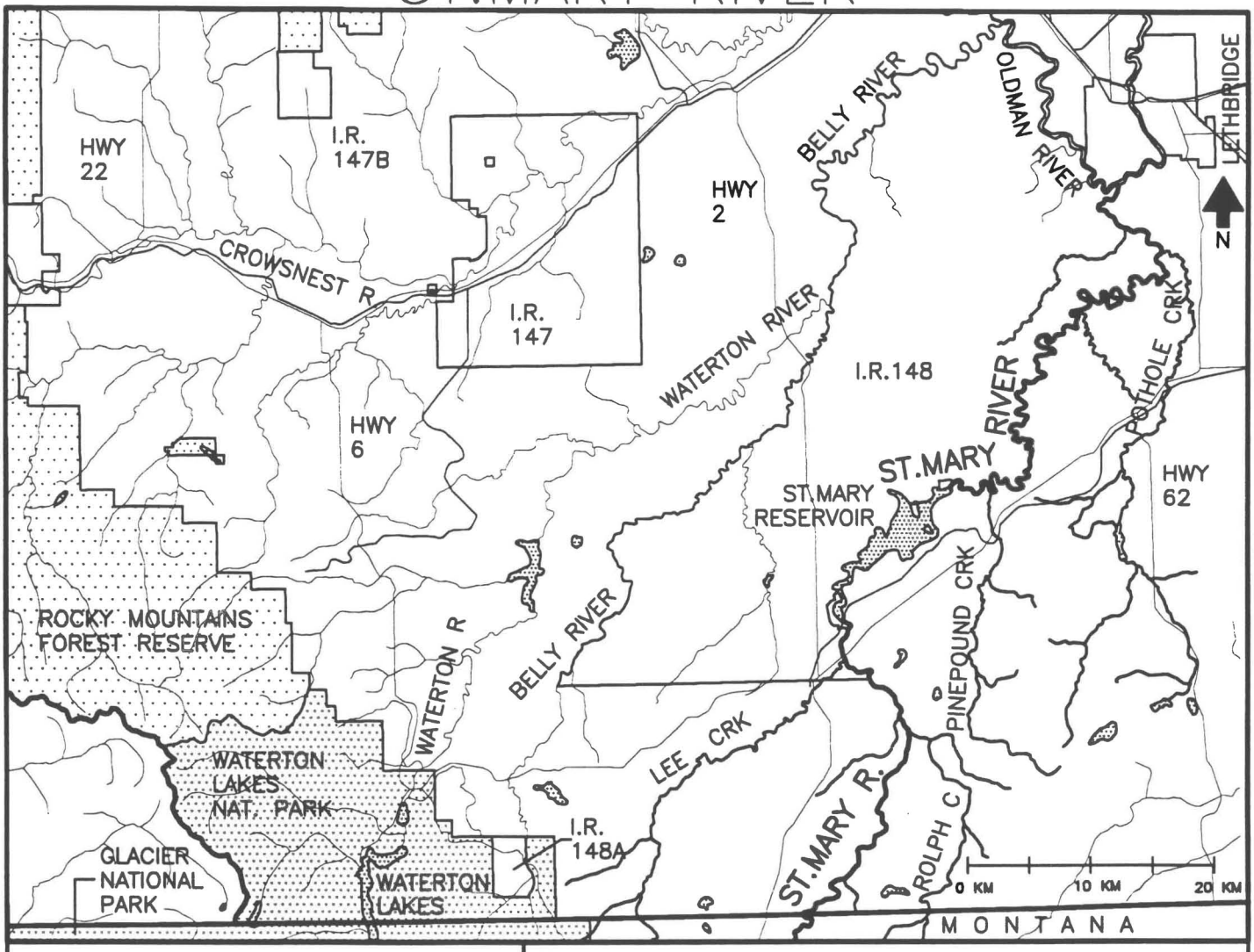
Recreation Evaluation \ South Saskatchewan River

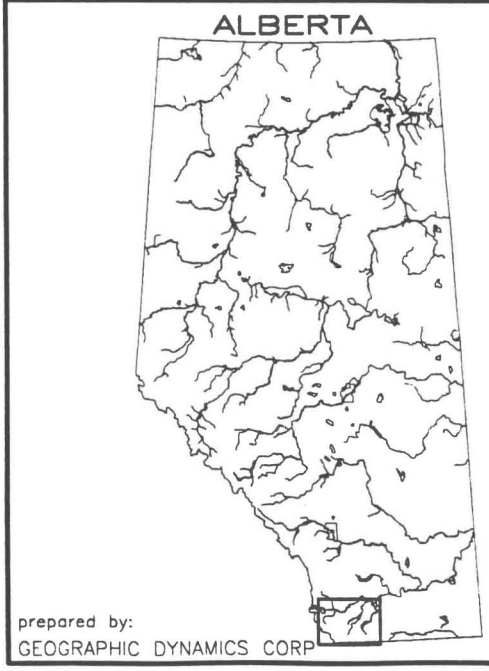
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	2	Limited power boating when water level permits around urban areas (i.e., Medicine Hat)
- Flatwater Boating	8	Ideal novice canoeist river -- Class I river
- Whitewater Boating	1	Occasional Class I/II rapids -- can take trips of 7-10 days -- limited appeal to whitewater enthusiasts
- Fishing	6	Popular fishing river for warm water species (Gold Eye, Sauger, Pike)
- Swimming	5	Possible in shallow pools
• Diversity of Water Associated Activities		
- Trail Activities	4	Excellent within Medicine Hat River Valley but limited elsewhere due to poor access to river; private lands (grazing leases)
- Hunting	6	Enthusiasts claim good hunting for antelope and deer
- Camping	6	Medicine Hat has superb campground, but other areas along river limited to occasional primitive campsite in shoreline groves
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Much evidence of ranching/farming
- Historical Landscape	6	
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	Fairly uniform with occasional valley roads and some variety (new ecological reserve)
- Remoteness	5	Good potential for wilderness camping except through Suffield Reserve
• Physical Factors		
- Water Quality	6	Generally good but can be affected by agricultural runoff
- Shoreline Access	6	Generally good with numerous road crossings but access to river not well developed

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 22/50 x 20 = 8.8
- Diversity of Water Associated Activities 16/30 x 20 = 10.6
- Human Heritage Landscape Appreciation 12/20 x 20 = 12.0
- Natural Landscape Appreciation 11/20 x 20 = 11.0
- Physical Factors 12/20 x 20 = 12.0
- Total Recreational Capability Theme Score 54.4

ST.MARY RIVER





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Human Heritage Scores

Historical / Cultural 38.10

Natural Heritage Scores

Geology 26.99

River Processes 18.89

Plants and Wildlife 13.33

Recreational Scores

Recreational Activities/Landscape Appreciation ... 35.00

TOTAL ADJUSTED SCORE 43.99

ST. MARY RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	10	There is an extensive archaeological record for the St. Mary River spanning the Early, Middle and Late Prehistoric Periods.
	RESOURCE EXPLOITATION	10	Killsites DgPh 2 and DgPh 3 are representative of the bison utilization sites recorded in the region.
	HABITATION	10	Stratified Camps DgPh 3 and DjPf 9, as well as sites EjPf 83 and DjPf 6 are representative of the buried habitation sites found in the area. In addition, numerous stone feature sites (interpreted as tipi rings) have been recorded on the St. Mary River.
	IDEOLOGY	7	Burial DiPf 6 is representative of the ideological sites in the area.
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	10	Indian Reserve 148
	TRADITIONAL LAND USE	10	Traditional territory of Peigan/Blackfoot/Blood. There is an historic burial DhPh 10 on the St. Mary River.
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	10	Whiskey posts - Skin-out Post, Pothole Creek Post (I.G. Baker), Farwell's Post
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	8	St. Paul's Anglican Mission, Mormon settlements
	AGRARIAN SETTLEMENT	9	early irrigation agriculture
	RANCHING	6	early smaller ranches in St. Mary area.
	LAW & ORDER	10	NWMP outposts - St. Mary's (McLeod's) DgPh 87, St. Mary's DjPf 59, Fort Whoop-Up at mouth of river and confluence with Oldman River.
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	5	Ferries - Colles ferry and Houk ferry
	LAND COMMUNICATION	10	Crossed by Fort McLeod to Whoop-Up trail, Riplinger trail, Fort Whoop-Up to Lethbridge trail, Boundary Commission trail
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		7	Leaders of the Native community such as Chief Red Crow. Locally prominent Mormon leaders.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	37/40 x 10.7	=	9.9
• First Nations Contact	20/40 x 10.7	=	5.4
• Metis	0/30 x 10.7	=	0.0
• Fur Trade	10/40 x 10.7	=	2.7
• Settlement	33/60 x 10.7	=	5.9
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	15/30 x 10.7	=	5.4
• Events	0/10 x 12.5	=	0.0
• Personages	7/10 x 12.5	=	8.8
• Total Human Heritage Theme Score			38.1

Natural Heritage Evaluation\ St. Mary River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	This river enters Alberta through the Southern Foothills and traverses the Cardston Plain to the Southwest Plain. Much of the length of this river is located on the Cardston Plain.
2. Bedrock Geology	7	The major geological components are of Mesozoic and Cenozoic origin.
3. Palaeontology	10	A relatively long stretch of the river just south of Lethbridge possesses high palaeontological resource sensitivity.
4. Surficial Geology		
4.1 Parent Material	9	This river encounters a range of surface sediments as it flows northward to eventually feed into the Oldman River. Parent materials include till, colluvium, glaciolacustrine sediments, glaciofluvial deposits and of bedrock or fluvial material.
4.2 Surface Expression	9	Surface expressions range from veneers and blankets of sediment to ridged, undulating and hummocky terrain. A large proportion of the landscape contains continuous sequences of gentle slopes that tend to produce a wave-like pattern of relief.
River Processes		
1. Hydrology	4	The sharp bends in this river produce pool and riffle sequences. The existence of channel bars also influences flow pattern.
2. Water Quality	7	Phosphorous and pH tend to fluctuate and occasionally exceed guidelines.
3. River Morphology	6	Several continuous levels of terraces exist. The channel contains pronounced bends and occasional islands. Diagonal and mid channel bars are common. The channel bed consists of shallow gravel over resistant rock, which produces a moderately unstable channel.
Biota		
1. Vegetation	2	The river flows mainly through the Foothills Fescue natural subregion with the Mixedgrass subregion comprising only a minor component.
2. Wildlife Habitat	2	Small areas of prime habitat for fish, waterfowl and ungulates exist.
3. Endangered/Threatened Species	7	Several endangered species make use of habitats associated with this river. Of note are the Ferruginous Hawk, Loggerhead Shrike, Long-billed Curlew, Northern Leopard Frog and the plant, *Iris missouriensis*, whose common name is as Flag.
4. Species Concentration	5	This river provides extensive locally significant migratory waterfowl habitat. Ungulate winter habitat also exists but to a lesser extent.

Summary of Average Natural Heritage Category Scores

Geology Category	32/40 x 33.33 = 26.66
River Processes Category	17/30 x 33.33 = 18.89
Biota Category	16/40 x 33.33 = 13.33
Total Natural Heritage Theme Score	58.88

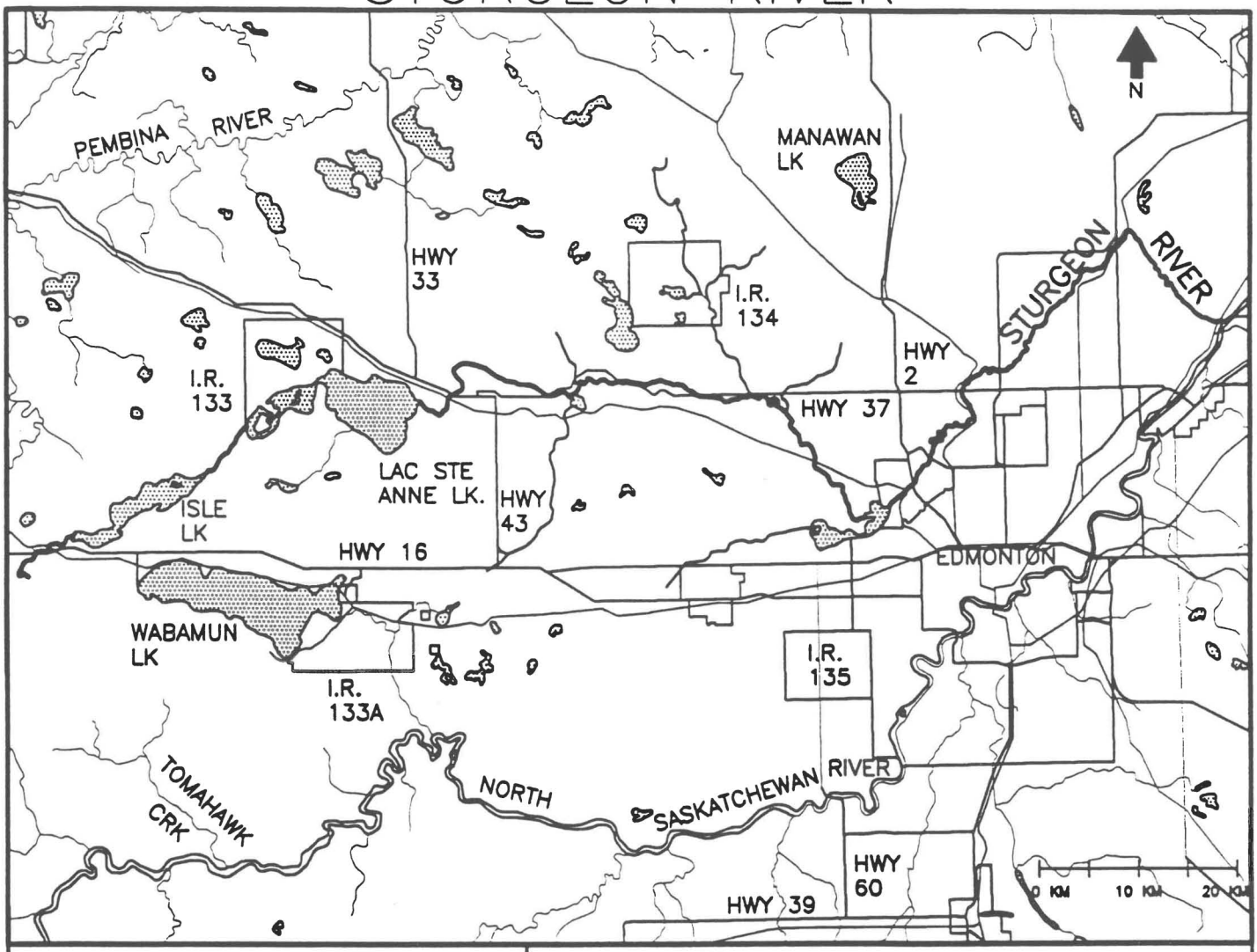
Recreation Evaluation \ St. Mary River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Doesn't exist due to low water levels
- Flatwater Boating	5	Upper reaches are broad with easy gradients. Lower reaches below reservoir are narrow with steep gradients -- boating experience dependent upon water resource operation procedures (reservoir release)
- Whitewater Boating	4	Offers several challenging whitewater opportunities
- Fishing	4	Fishing is inconsistent and limited. Certain flow periods offer some potential for mountain whitefish or rainbow trout
- Swimming	3	Limited to shallow pools
• Diversity of Water Associated Activities		
- Trail Activities	3	Limited due to land ownership restraints
- Hunting	5	Good potential but limited due to access
- Camping	2	No developed campsites except at St. Mary Reservoir. Informal camping along river shore in places
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	6	Area mostly influenced by ranching, some logging, gas plus several dams and weirs
- Historical Landscape	5	Evidence of early history, but limited, some pioneer history
• Natural Landscape Appreciation		
- Natural/Visual Attractions	8	Upper reaches (above reservoir) offer good views to mountains and across plains -- lower reaches have deep canyons
- Remoteness	5	Some reaches offer potential for remoteness but much of river accessible and influenced by man
• Physical Factors		
- Water Quality	7	Generally good, but some influence from dams and local use
- Shoreline Access	5	Mostly limited to major road crossings (i.e., Hwy. 505) due to extensive private ownership of adjacent river shorelands

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 16/50 x 20 = 6.4
- Diversity of Water Associated Activities 10/30 x 20 = 6.6
- Human Heritage Landscape Appreciation 11/20 x 20 = 11.0
- Natural Landscape Appreciation 13/20 x 20 = 13.0
- Physical Factors 12/20 x 20 = 12.0
- Total Recreational Capability Theme Score 35.0

STURGEON RIVER



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Human Heritage Scores

Historical / Cultural	35.00

Natural Heritage Scores

Geology	13.33
River Processes	15.55
Plants and Wildlife	4.17

Recreational Scores

Recreational Activities/Landscape Appreciation	47.60

TOTAL ADJUSTED SCORE 38.55

STURGEON RIVER

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	7	There is a limited archaeological record for the Sturgeon River, likely reflecting both extensive ground disturbance and limited systematic investigation. At least two sites to date (FkPn 5 and FjPj 19)ultural affiliations.
	RESOURCE EXPLOITATION	6	FkPn 9 is a bison bone bed exhibiting butchering
	HABITATION	7	FkPn 5 and FjPj 19 are buried campsites
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	8	Indian Reserve 133
	TRADITIONAL LAND USE	0	
METIS	HABITATION	10	Lac Ste. Anne, St. Albert, and Lameroux settlements
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	9	Palliser roughly followed from St. Albert to Lac Ste. Anne. Sturgeon River was part of fur trade route.
	LEGAL SURVEY	8	River lot surveys at St. Albert and Lac Ste. Anne
	MISSIONS	10	Oblate priests, particularly Albert Lacombe, initiated first permanent settlement of the area through missionary activity; important locations in St. Albert are Fr. Lacombe's Church and Bishop Grandin's "Palace" or official residence.
	AGRARIAN SETTLEMENT	10	Sturgeon River mill, very early settlements
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	7	petro-chemical development
	CLAY PRODUCTS	0	

Human Heritage Evaluation

COMPONENT	SUBCOMPONENT	SCORE	ELEMENTS
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	10	Trail between Edmonton and Lac Ste. Anne crossed at several points. Part of fur trade route between North Saskatchewan and Lesser Slave Lake.
	LAND COMMUNICATION	7	Edmonton to Lac Ste. Anne trail crossings
	TELECOMMUNICATION	0	
EVENTS		0	
PERSONAGES		8	Father Albert Lacombe was an important provincial and national figure who forged his missionary training at St. Albert.

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	20/40 x 10.7	=	5.4
• First Nations Contact	8/40 x 10.7	=	2.1
• Metis	10/30 x 10.7	=	3.6
• Fur Trade	0/40 x 10.7	=	0.0
• Settlement	37/60 x 10.7	=	6.6
• Resource Development	7/60 x 10.7	=	1.2
• Transportation	17/30 x 10.7	=	6.1
• Events	0/10 x 12.5	=	0.0
• Personages	8/10 x 12.5	=	10.0
• Total Human Heritage Theme Score			35.0

Natural Heritage Evaluation \ Sturgeon River

Category	Score	Rationale
Geology		
1. Physiographic Section	4	The Sturgeon River traverses the Edmonton Plain just north of Edmonton.
2. Bedrock Geology	5	The bedrock material in this area consists of non-marine sandstone and coal of Mesozoic origin.
3. Palaeontology	N/A	No information is available regarding the palaeontological resources that may exist along this river.
4. Surficial Geology		
4.1 Parent Material	4	Glaciolacustrine sediments constitute the primary parent material, with isolated occurrences of glaciofluvial, morainal and bedrock material.
4.2 Surface Expression	2	Undulating terrain is common in this region.
River Processes		
1. Hydrology	4	Some flow variation exists with very pronounced bends in the channel form. Steep shallow riffles and deep pools occur. Logjams and sweepers are common resulting in extreme undertows at times.
2. Water Quality	5	High nitrogen and phenol levels tend to occur throughout the year. Occasionally low dissolved oxygen levels exist. These conditions may be attributed to the naturally-occurring high organic load.
3. River Morphology	5	Several morphological features exist including: a fragmentary terrace level, diagonal bars (responsible for riffle -pool sequences) and meanders that tend to grow mainly outward resulting in cutoffs. This river is eroding through the sandstone channel bed and bank material resulting in partially entrenched and frequently confined flow.
Biota		
1. Vegetation	1	The entire length of this river flows through the Central Parklands natural subregion.
2. Wildlife Habitat	1	Only small pockets of prime ungulate and fish habitat exist along the this river.
3. Endangered/Threatened Species	1	The only endangered species that may use the habitat associated with this river is the Peregrine Falcon.
4. Species Concentration	2	Ungulate wintering habitat is rare; however, the entire length of the river provides locally significant migratory waterfowl habitat.

Summary of Average Natural Heritage Category Scores

Geology Category	12/30 x 33.33 = 13.33[1]
River Processes Category	14/30 x 33.33 = 15.55
Biota Category	5/40 x 33.33 = 4.17
Total Natural Heritage Theme Score	33.05[1]

Recreation Evaluation \ Sturgeon River

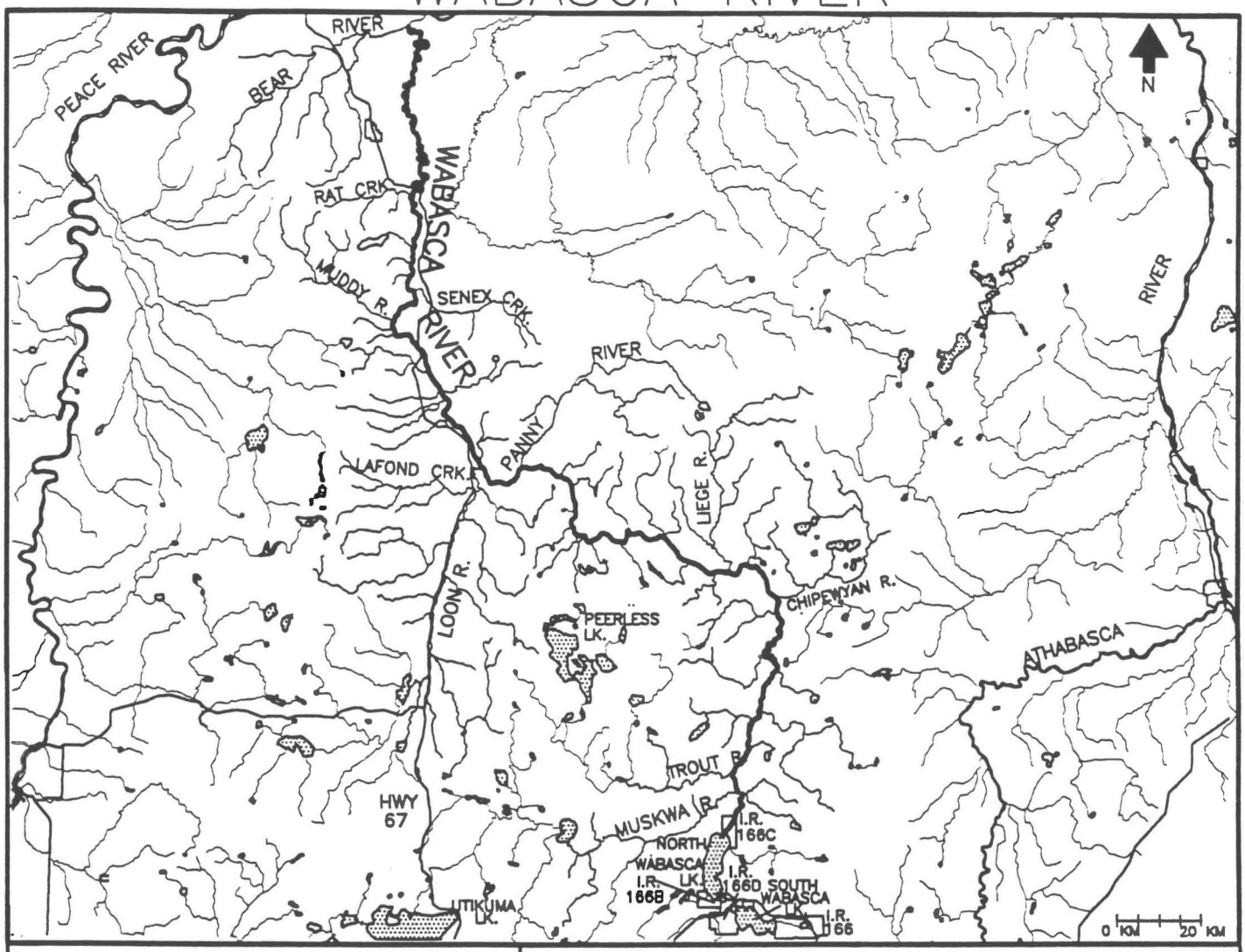
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	River is too shallow
- Flatwater Boating	6	In lower reaches between St. Albert and North Saskatchewan
- Whitewater Boating	0	No fast water
- Fishing	2	Limited / no prevalent activities
- Swimming	5	Limited to locally known swimming holes especially in Gibbons-Bon Accord area
• Diversity of Water Associated Activities		
- Trail Activities	9	Numerous undeveloped trails for both powered and non-powered use (urban park system in St. Albert and Gibbons)
- Hunting	3	Limited due to land terrain and urban development
- Camping	2	One site exists near Gibbons
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	8	Provides urban/rural transition
- Historical Landscape	9	Flows through a significant historical area
• Natural Landscape Appreciation		
- Natural/Visual Attractions	5	Scenic in some sections which flow through farmlands. Big lake is an excellent waterfowl in temp. zone.
- Remoteness	1	95% of adjacent lands are under some land use
• Physical Factors		
- Water Quality	3	Not suited for contact activities / agricultural run off and siltation
- Shoreline Access	10	

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 13/50 x 20 = 5.3
- Diversity of Water Associated Activities 14/30 x 20 = 9.3
- Human Heritage Landscape Appreciation 17/20 x 20 = 17.0
- Natural Landscape Appreciation 6/20 x 20 = 6.0
- Physical Factors 13/20 x 20 = 10.0

- Total Recreational Capability Theme Score 47.6

WABASCA RIVER



Human Heritage Scores

Historical / Cultural	7.00

Natural Heritage Scores

Geology	17.50
River Processes	20.00
Plants and Wildlife	8.33

Recreational Scores

Recreational Activities/Landscape Appreciation	43.90

TOTAL ADJUSTED SCORE 32.24

WABASCA RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	3	The archaeological record for the Wabasca River is very sparse, likely reflecting the lack of systematic investigations in the area.
	RESOURCE EXPLOITATION	0	
	HABITATION	3	HgPs 1 is an campsite of unknown affiliation.
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	10	Indian Reserves 173, 166, 166C
	TRADITIONAL LAND USE	0	
METIS	HABITATION	4	Cree/Metis cabins GlPi 1
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	5	There were several small Hudson's Bay Company outposts in the Wabasca area.
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	0	
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		0	

Summary of Average Human Heritage Value Scores

• First Nations Pre-Contact	6/40 x 10.7	=	1.6
• First Nations Contact	10/40 x 10.7	=	2.7
• Metis	4/30 x 10.7	=	1.4
• Fur Trade	5/40 x 10.7	=	1.3
• Settlement	0/60 x 10.7	=	0.0
• Resource Development	0/60 x 10.7	=	0.0
• Transportation	0/30 x 10.7	=	0.0
• Events	0/10 x 12.5	=	0.0
• Personages	0/10 x 12.5	=	0.0
• Total Human Heritage Theme Score			7.0

Natural Heritage Evaluation \ Wabasca River

Category	Score	Rationale
Geology		
1. Physiographic Section	6	This river traverses the Wabasca and Vermilion Lowlands.
2. Bedrock Geology	5	The bedrock of this area represents the Mesozoic era. Upper Cretaceous non-marine sandstone and coal and marine shale compose the bedrock over which the southern stretch of the Wabasca River flows. Lower Cretaceous shale and oil sands underly the northern portion of the river near the confluence with the Peace River.
3. Palaeontology	2	Numerous isolated sites of low palaeontological sensitivity exist along the length of this river.
4. Surficial Geology		
4.1 Parent Material	6	Till, glaciolacustrine and glaciofluvial material are the most prominent. Often the till is overlaid by glaciolacustrine and glaciofluvial deposits.
4.2 Surface Expression	10	Undulating terrain is the most common type in this region, alone or in combination with inclines or blankets of sediments. Some hummocky terrain and regions with veneer blankets also exist.
River Processes		
1. Hydrology	6	The Wabasca contains a relatively slow current. Numerous small rapids occur along its length. In many locations large boulders crowd the channel during low water. During high water, the current becomes rapid and the water is very rough in these areas.
2. Water Quality	6	Iron levels often exceed guideline values, as do total nitrogen and manganese concentrations. Dissolved oxygen levels are often low in the winter.
3. River Morphology	6	This river flows through a narrow canyon-like valley. Rock bars and large submerged boulders are present.
Biota		
1. Vegetation	2	The river flows through the Central Mixedwood and the Dry Mixedwood subregions.
2. Wildlife Habitat	1	Prime ungulate habitat exists along 70 % of the length of this river.
3. Endangered/Threatened Species	2	The American White Pelican, Bald Eagle and River Otter may be found in association with this river.
4. Species Concentration	5	Locally significant migratory waterfowl habitats occur along approximately 50 % of the river. Ungulate wintering habitat is less abundant.

Summary of Average Natural Heritage Category Scores

Geology Category	21/40 x 33.33 = 17.50
River Processes Category	18/30 x 33.33 = 20.00
Biota Category	10/40 x 33.33 = 8.33
Total Natural Heritage Theme Score	45.83

Recreation Evaluation \ Wabasca River

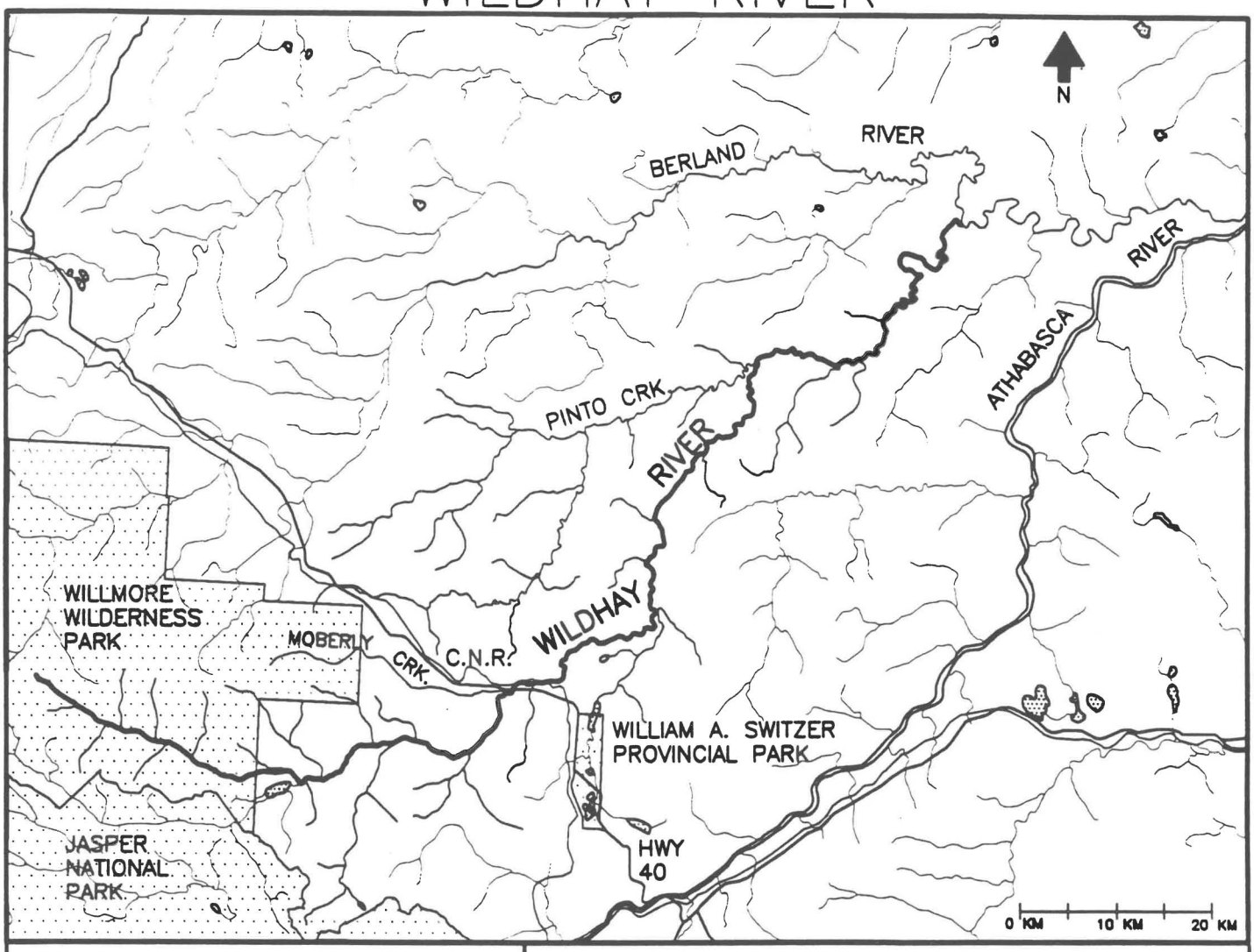
Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Not sufficient depth or flow
- Flatwater Boating	7	Excellent wilderness resource river (advanced camping skills required) and long trips 2 to 5 days (Alberta Canoe Association)
- Whitewater Boating	5	Some challenges for intermediate but generally slow moving
- Fishing	6	Pike, Walleye and Arctic Grayling
- Swimming	1	
• Diversity of Water Associated Activities		
- Trail Activities	5	Non-developed but terrain will permit
- Hunting	4	Moose, black bear population but limited access
- Camping	5	Abundance of suitable random sites
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	1	South Tall Cree Reserve
- Historical Landscape	4	Several trapper cabins
• Natural Landscape Appreciation		
- Natural/Visual Attractions	6	The visual attractions are common - thick bush, Aspen, Spruce, Birch -- wildlife and waterfowl sightings are numerous
- Remoteness	10	Extremely remote
• Physical Factors		
- Water Quality	4	Carries a significant silt load
- Shoreline Access	2	Extremely limited for auto access

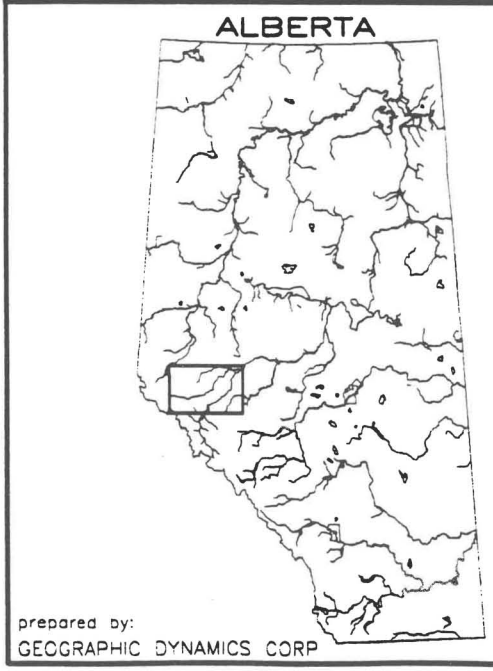
Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 19/50 x 20 = 7.6
- Diversity of Water Associated Activities 14/30 x 20 = 9.3
- Human Heritage Landscape Appreciation 5/20 x 20 = 5.0
- Natural Landscape Appreciation 16/20 x 20 = 16.0
- Physical Factors 6/20 x 20 = 6.0

- Total Recreational Capability Theme Score 43.9

WILDHAY RIVER





prepared by:
GEOGRAPHIC DYNAMICS CORP

Human Heritage Scores

Historical / Cultural 10.60

Natural Heritage Scores

Geology 24.16

River Processes 25.00

Plants and Wildlife 13.33

Recreational Scores

Recreational Activities/Landscape Appreciation ... 55.00

TOTAL ADJUSTED SCORE 42.70

WILDHAY RIVER

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
FIRST NATIONS PRE-CONTACT	TEMPORAL/CULTURAL AFFINITIES	0	The archaeological record for the Wildhay river is very limited which is likely a reflection of the lack of systematic investigation in the region.
	RESOURCE EXPLOITATION	0	
	HABITATION	0	
	IDEOLOGY	0	
FIRST NATIONS CONTACT	FUR TRADE	0	
	REBELLION	0	
	TREATY	0	
	TRADITIONAL LAND USE	10	Historic trails through mountains. Historic Sundance lodge FjOm 1
METIS	HABITATION	0	
	PROVISIONING	0	
	REBELLION	0	
FUR TRADE	CONTACT (1670-1778)	0	
	RIVALRY (1774-1821)	0	
	MONOPOLY (1821-1859)	0	
	FREE TRADERS (1850-1940)	0	
SETTLEMENT	EXPLORATION	0	
	LEGAL SURVEY	0	
	MISSIONS	0	
	AGRARIAN SETTLEMENT	0	
	RANCHING	0	
	LAW & ORDER	0	
RESOURCE DEVELOPMENT	LUMBERING	0	
	FISHING	0	
	MINING	0	
	PETROLEUM	0	
	CLAY PRODUCTS	0	
	WATER	0	
TRANSPORTATION	RIVER COMMUNICATION	0	
	LAND COMMUNICATION	8	Historic trails - Indian trail, Mountain trail. Traditional transport routes
	TELECOMMUNICATION	0	

Human Heritage Evaluation

Component	Subcomponent	Score	Rationale
EVENTS		0	
PERSONAGES		4	Moberley family

Summary of Average Human Heritage Value Scores

•	First Nations Pre-Contact	0/40 x 10.7	=	0.0
•	First Nations Contact	10/40 x 10.7	=	2.7
•	Metis	0/30 x 10.7	=	0.0
•	Fur Trade	0/40 x 10.7	=	0.0
•	Settlement	0/60 x 10.7	=	0.0
•	Resource Development	0/60 x 10.7	=	0.0
•	Transportation	8/30 x 10.7	=	2.9
•	Events	0/10 x 12.5	=	0.0
•	Personages	4/10 x 12.5	=	5.0
•	Total Human Heritage Theme Score			10.6

Natural Heritage Evaluation \ Wildhay River

Category	Score	Rationale
Geology		
1. Physiographic Section	7	This river originates in the Front Ranges of the Rockies and traverses the Northern Foothills, Grande Cache Benchlands and the Big River Plains. The Northern Foothills and the Big River Plains, however, constitute a very minor component of the landscapes encountered.
2. Bedrock Geology	10	All four geological eras are represented.
3. Palaeontology	2	Several sites of low palaeontological sensitivity are situated along the length of the river.
4. Surficial Geology		
4.1 Parent Material	10	Much of this area contains till and colluvial material, often underlaid by rock. Some select areas of fluvial, eolian and glacial deposits also occur.
4.2 Surface Expression	10	A variety of surface expressions exist, with variability in slope a contributing factor to all.
River Processes		
1. Hydrology	6	This river contains pool and riffle sequences, rapids, logjams and sweepers.
2. Water Quality	N/A	No information is available regarding water quality.
3. River Morphology	9	Two continuous levels of terraces are present. The river has very pronounced bends resulting in pool and riffle sequences. Both mid-channel and diagonal bars are found, especially along the canyon. The channel bed consists of gravel over easily-erodible sandstone. Some features of note are: 1) undercut cliffs, 2) anticline/syncline formations which rise out of the river and 3) a canyon with vertical cliffs.
Biota		
1. Vegetation	5	The Upper Foothills is the most prevalent natural subregion encountered, with the Sub-Alpine represented at the headwaters and Lower Foothills vegetation found near the confluence with the Athabasca River.
2. Wildlife Habitat	3	Prime ungulate and fish habitat exists along the entire length of this river. This location is important to the Rainbow Trout natural gene pool.
3. Endangered/Threatened Species	4	Several threatened species, including the Bald Eagle, Cooper's Hawk, Osprey, Grizzly Bear, River Otter and *Braya humilis,* may be found in habitats associated with this river.
4. Species Concentration	4	No significant migratory waterfowl habitat has been documented. Ungulate wintering habitat may be found along the entire length of the river.

Summary of Average Natural Heritage Category Scores

Geology Category	29/40 x 33.33 = 24.16
River Processes Category	15/20 x 33.33 = 25.00[3]
Biota Category	16/40 x 33.33 = 13.33
Total Natural Heritage Theme Score	62.49[3]

[3] Water quality information not available

Recreation Evaluation \ Wildhay River

Component	Score	Rationale
• Diversity of Water Dependent Activities		
- Power Boating	0	Flow regime and size does not permit power boating
- Flatwater Boating	5	Stretches will allow flatwater boating
- Whitewater Boating	7	Very popular whitewater resource
- Fishing	8	Two or more common species and popular
- Swimming	0	Dangerous flow regime
• Diversity of Water Associated Activities		
- Trail Activities	6	Campsites available and group activities for camping
- Hunting	7	Opportunities good to excellent
- Camping	8	Both primitive and serviced camping available
• Human Heritage Landscape Appreciation		
- Contemporary Landscape	5	Some bridge crossings and logging activity
- Historical Landscape	1	No known sites
• Natural Landscape Appreciation		
- Natural/Visual Attractions	7	Some stretches exhibit varied land forms
- Remoteness	6	Several stretches through natural untouched terrain
• Physical Factors		
- Water Quality	8	Pure mountain stream but does have turbidity in rainy periods
- Shoreline Access	6	Some developed access points for launching and many points for river camping

Summary of Average Recreational Category Scores

- Diversity of Water Dependent Activities 20/50 x 20 = 8.0
- Diversity of Water Associated Activities 21/30 x 20 = 14.0
- Human Heritage Landscape Appreciation 6/20 x 20 = 6.0
- Natural Landscape Appreciation 13/20 x 20 = 13.0
- Physical Factors 14/20 x 20 = 14.0

- Total Recreational Capability Theme Score 55.0

3.0 PHASE II CONCLUSIONS - CANDIDATE RIVERS EVALUATIONS

The primary purpose of Study Phase II was to provide an evaluation of a number of Alberta rivers based upon their respective human heritage, natural heritage and recreation values.

The evaluative process which was employed involved the application of a pre-approved evaluative framework (Phase I) which embodied both Canadian Heritage River Systems Guidelines and conditions which were felt to be important within a provincial context. Thus, the ultimate scores which were arrived at in evaluating river candidates reflect both national and provincially significant values in the areas of human heritage, natural heritage and recreation.

The salient results of this Phase II evaluation are reflected within a series of tables that illustrate the ranking of the various rivers based on analyzing their individual and combined score values. An important caveat which must be recognized is that there are data gaps for some rivers and all evaluations are based upon secondary data sources, unconfirmed reports from local residents and professional judgements of study team and committee members.

Additional in-field investigation and scientific research goes beyond the study. The reader should also be cautioned that the resulting candidate river scores and subsequent rankings are but a preliminary step towards a more thorough analysis and selection of top candidates.

Further analysis (Phase III) will involve an indepth review of river integrity guidelines and management issues which when undertaken may produce either higher or lower scores for specific rivers or sections of rivers.

In spite of these shortcomings, the main objective of Phase II has been met. That is, to achieve a listing of 39 evaluated rivers in order of score magnitude based on the application of an approved framework. A number of interesting conclusions can be drawn in analyzing the tabulated results.

Table 3.1 summarizes the ranking of rivers based on Human Heritage scores. The highest scoring river in terms of Human Heritage is the North Saskatchewan with an adjusted score of 88.1 out of 100. The mean score value for Human Heritage based on the scores from all the rivers is 29.97.

Table 3.2 summarizes the ranking based on Natural Heritage scores. The Athabasca has the highest value with a score of 93.3. The mean score value is 57.94.

Table 3.1

Summary of Human Heritage Scores

Rank	River	Total Score
1	North Saskatchewan	88.1
2	Peace	73.6
3	Bow	69.9
4	Red Deer	68.0
5	Athabasca	66.6
6	Oldman	59.9
7	Battle	56.2
8	Beaver	53.2
9	Belly	49.6
10	Clearwater (Athabasca)	47.7
11	Slave	45.5
12	South Saskatchewan	43.4
13	Crowsnest	43.3
14	Highwood	38.4
15	St. Mary	38.1
16	Sturgeon	35.0
17	La Biche	31.8
18	Peace-Delta	29.3
19	Riviere des Rochers	27.7
20	Milk	23.8
21	Elbow	23.7
22	Sheep	21.5
23	Smoky	18.7
24	Castle	17.9
25	Kananaskis	16.1
26	Brazeau	14.7
27	Firebag	12.0
28	Wildhay	10.6
29	Christina	8.3
30	Hay	7.6
31	Clearwater (N. Saskatchewan)	7.4
32	Wabasca	7.0
33	Cline	6.7
34	Petitot	6.3
35	Panther	4.9
36	Little Smoky	4.6
37	Kakwa	3.3
38	Maligne	1.4
39	Ram	1.1

Table 3.2

Summary of Natural Heritage Scores

Rank	River	Total Score
1	Athabasca	93.3
2	Red Deer	85.5
3	North Saskatchewan	83.8
4	Bow	80.8
5	Oldman	79.6
6	Smoky	75.6
7	Peace	72.7
8	Little Smoky	68.6
9	Clearwater (North Saskatchewan)	66.6
10	Elbow	66.3
11	Belly	66.1
12	Brazeau	64.4
13	Ram	62.8
14	Wildhay	62.5
15	Battle	62.1
16	Peace-Delta	59.9
17	South Saskatchewan	59.6
18	Kakwa	59.1
19	Milk	58.9
20	St. Mary	58.9
21	Castle	58.6
22	Maligne	56.7
23	Highwood	55.5
24	Sheep	51.8
25	Crowsnest	51.7
26	Christina	50.0
27	Panther	49.6
28	Kananaskis	49.3
29	Beaver	48.4
30	Slave	48.4
31	Firebag	47.5
32	Wabasca	45.8
33	Clearwater (Athabasca)	44.2
34	Hay	37.5
35	Sturgeon	33.0
36	La Biche	32.5
37	Riviere des Rochers	29.4
38	Cline	26.7
39	Petitot	12.7

Table 3.3 summarizes the ranking based on Recreation capability scores with the Red Deer River achieving the highest score value of 75. The mean score value is 49.39.

From the evaluation process it appears that the most significant category for Alberta's rivers is their natural heritage values which achieved a higher mean score than the other categories. In addition, on selected rivers both human heritage and natural heritage values scored the highest compared to recreation scoring.

Table 3.4 provides an analysis of how the rivers would be ranked by combining both the human heritage and natural heritage scores. In this scenario, although their order is somewhat altered the same top 5 rivers still come out as being ranked highest (i.e., the North Saskatchewan, Athabasca, Red Deer, Bow and Peace). The highest combined score value is for the North Saskatchewan with a total of 171.9.

Table 3.5 illustrates the overall comparative ranking of each river based on combining the scores from individual theme categories.

Of significance is the fact that major river systems like the North Saskatchewan, the Peace, the Athabasca and the Red Deer exhibit relatively higher rankings overall. For the most part this is due to the diversity inherent within their length and the relative impact they have had in support in human settlement across broader regions.

Also of significance is that some rivers may have a relatively low ranking in one value area but rank much higher in others. It is important to recognize that combined values are an important determination in assessing the value of any given resource.

Table 3.6 summarizes the overall ranking for all the rivers based on their total combined scores for each of the theme categories. All scores were totalled out of 300 and adjusted to a value of 100.

The highest ranked river from this analysis is the Athabasca with a combined, adjusted score out of 100 of 77.4. However, the top rivers still largely remained as the top although their ranking was altered as illustrated on Table 3.7.

Table 3.3

Summary of Recreation Scores

Rank	River	Total Score
1	Red Deer	75.0
2	Sheep	68.0
3	Highwood	67.0
4	Peace	66.0
5	Athabasca	65.6
6	Oldman	63.6
7	Crowsnest	61.6
8	Clearwater (Athabasca)	60.1
9	Clearwater (N. Saskatchewan)	59.7
10	Maligne	59.3
11	North Saskatchewan	58.6
12	Bow	58.4
13	Smoky	58.4
14	Panther	57.5
15	Castle	56.0
16	Little Smoky	55.9
17	Brazeau	55.4
18	Wildhay	55.0
19	Kananaskis	55.0
20	South Saskatchewan	54.4
21	Belly	52.5
22	Elbow	51.6
23	Cline	49.8
24	Slave	49.6
25	Ram	48.8
26	Sturgeon	47.6
27	Beaver	44.1
28	Wabasca	43.9
29	Milk	43.4
30	Petitot	42.5
31	Christina	42.1
32	Kakwa	41.6
33	Peace-Delta	41.0
34	Hay	40.7
35	Riviere des Rochers	38.5
36	La Biche	38.4
37	Battle	37.5
38	St. Mary	35.0
39	Firebag	27.4

Table 3.4

Summary of Human and Natural Heritage Scores

Rank	River	Total Score for both categories
1	North Saskatchewan	171.9
2	Athabasca	159.9
3	Red Deer	153.5
4	Bow	150.7
5	Peace	146.3
6	Oldman	139.5
7	Battle	118.3
8	Belly	115.7
9	South Saskatchewan	103.0
10	Beaver	101.8
11	St. Mary	97.0
12	Crowsnest	95.0
13	Highwood	93.9
14	Slave	93.9
15	Clearwater (Athabasca)	91.9
16	Elbow	90.0
17	Peace-Delta	89.3
18	Milk	82.7
19	Brazeau	79.1
20	Castle	76.5
21	Clearwater (North Saskatchewan)	74.0
22	Sheep	73.3
23	Little Smoky	73.2
24	Wildhay	73.1
25	Smoky	70.5
26	Sturgeon	68.0
27	Kananaskis	65.4
28	La Biche	64.3
29	Ram	63.9
30	Kakwa	62.4
31	Firebag	59.5
32	Christina	58.3
33	Maligne	58.1
34	Riviere des Rochers	57.1
35	Panther	54.5
36	Wabasca	52.8
37	Hay	45.1
38	Cline	33.4
39	Petitot	19.0

Table 3.5

Summary of Rankings for Combined Values

Rank	River	Human Heritage and Natural Heritage Combined Rank	Human Heritage and Recreation Combined Rank	Natural Heritage and Recreation Combined Rank
1	Athabasca	2	4	2
2	North Saskatchewan	1	1	3
3	Red Deer	3	2	1
4	Peace	5	3	6
5	Bow	4	5	5
6	Oldman	6	6	4
7	Belly	8	10	13
8	Highwood	13	8	10
9	South Saskatchewan	9	11	18
10	Crowsnest	12	9	19
11	Battle	7	14	27
12	Smoky	25	17	7
13	Clearwater - Athabasca	15	7	23
14	Beaver	10	12	30
15	Slave	14	13	28
16	Elbow	16	18	14
17	Sheep	22	15	12
18	Brazeau	19	24	11
19	Clearwater - North Sask.	21	26	8
20	Castle	20	19	17
21	St. Mary	11	20	29
22	Peace-Delta	17	22	25
23	Little Smoky	23	31	9
24	Wildhay	24	28	15
25	Milk	18	25	24
26	Kananaskis	27	21	22
27	Maligne	32	30	16
28	Sturgeon	26	16	33
29	Panther	34	29	21
30	Ram	29	35	20
31	Kakwa	30	38	26
32	La Biche	28	23	37
33	Christina	31	34	31
34	Wabasca	35	33	32
35	Riviere des Rochers	33	27	38
36	Hay	37	37	34
37	Firebag	36	39	36
38	Cline	38	32	35
39	Petitot	39	36	39

Table 3.6

Summary of Combined Scores

Rank	River	Summary Human Heritage out of 100	Summary Natural Heritage out of 100	Summary Recreation out of 100	Total out of 300	Adjusted Total out of 100
1	Athabasca	66.6	93.30	72.3	232.20	77.40
2	North Saskatchewan	88.1	83.80	58.6	230.50	76.80
3	Red Deer	68.0	85.55	75.0	228.50	76.18
4	Peace	73.6	72.68	66.0	212.28	70.76
5	Bow	69.9	80.82	58.4	209.12	69.71
6	Oldman	59.9	79.16	63.6	202.66	67.55
7	Belly	49.6	66.08	52.5	168.18	56.06
8	Highwood	38.4	55.50	67.0	160.90	53.6
9	South Saskatchewan	43.4	59.58	54.4	157.38	52.46
10	Crowsnest	43.3	51.67	61.6	156.57	52.19
11	Battle	56.2	62.10	37.5	155.80	51.9
12	Smoky	18.7	75.55	58.4	152.65	50.88
13	Clearwater - Athabasca	47.7	44.16	60.1	151.96	50.65
14	Beaver	53.2	48.68	44.1	145.90	48.60
15	Slave	45.5	48.43	49.6	143.53	47.84
16	Elbow	23.7	66.25	51.6	141.55	47.18
17	Sheep	21.5	51.80	68.0	141.30	47.10
18	Brazeau	14.7	64.40	55.4	134.50	44.80
19	Clearwater - North Sask.	7.4	66.60	59.7	133.70	44.60
20	Castle	17.9	58.60	56.0	132.50	44.20
21	St. Mary	38.1	58.88	35	131.98	43.99
22	Peace-Delta	29.3	59.98	41.0	130.28	43.42
23	Little Smoky	4.6	68.60	55.9	129.10	43.00
24	Wildhay	10.6	62.49	55.0	128.09	42.70
25	Milk	23.8	58.92	43.4	126.12	42.04
26	Kananaskis	16.1	49.30	55.0	120.40	40.10
27	Maligne	1.4	56.67	59.3	117.37	39.10
28	Sturgeon	35.0	33.05	47.6	115.65	38.55
29	Panther	4.9	49.58	57.5	111.98	37.33
30	Ram	1.1	62.77	48.8	112.67	37.56
31	Kakwa	3.3	59.10	41.6	104.00	34.70
32	La Biche	31.8	32.50	38.4	102.70	34.20
33	Christina	8.3	50.00	42.1	100.40	33.50
34	Wabasca	7.0	45.83	43.9	96.73	32.24
35	Riviere des Rochers	27.7	29.45	38.5	95.65	31.88
36	Hay	7.6	37.50	40.7	85.80	28.60
37	Firebag	2.4	47.50	27.4	72.30	25.80
38	Cline	6.7	26.67	49.8	83.17	27.72
39	Petitot	6.3	12.78	42.5	61.58	20.53

Table 3.7

Summary of River Rankings - Top 8 Rivers

River	Human Heritage	Natural Heritage	Recreation	Combined Score
Athabasca	5	1	5	1
North Saskatchewan	1	3	11	2
Red Deer	4	2	1	3
Peace	2	7	4	4
Bow	3	4	12	5
Oldman	6	5	6	6
Belly	9	11	21	7
Highwood	14	23	3	8

As an alternative to illustrate the relationships between rivers based on their score values, the following graphic (Figure 3) was developed. The graphic presents 3 overlapping circles, each one representing one of the main CHRS resource evaluation themes.

Within the graphic, the closer a river is positioned to the centre, the greater its diversity and higher its overall combined score values. Rivers near the outside of the circles are not necessarily poor resources, they are positioned to reflect their primary attributes. Thus the position of a river such as the Cline indicates its highest score value was in the Recreation category but even within that category, its score was not among the highest when compared to other rivers.

Those rivers which are key candidates for further investigation are contained within the overlapped portions of the three value circles.

At this stage of the study it can be seen that by using the evaluation framework a ranking of Alberta's rivers has been achieved.

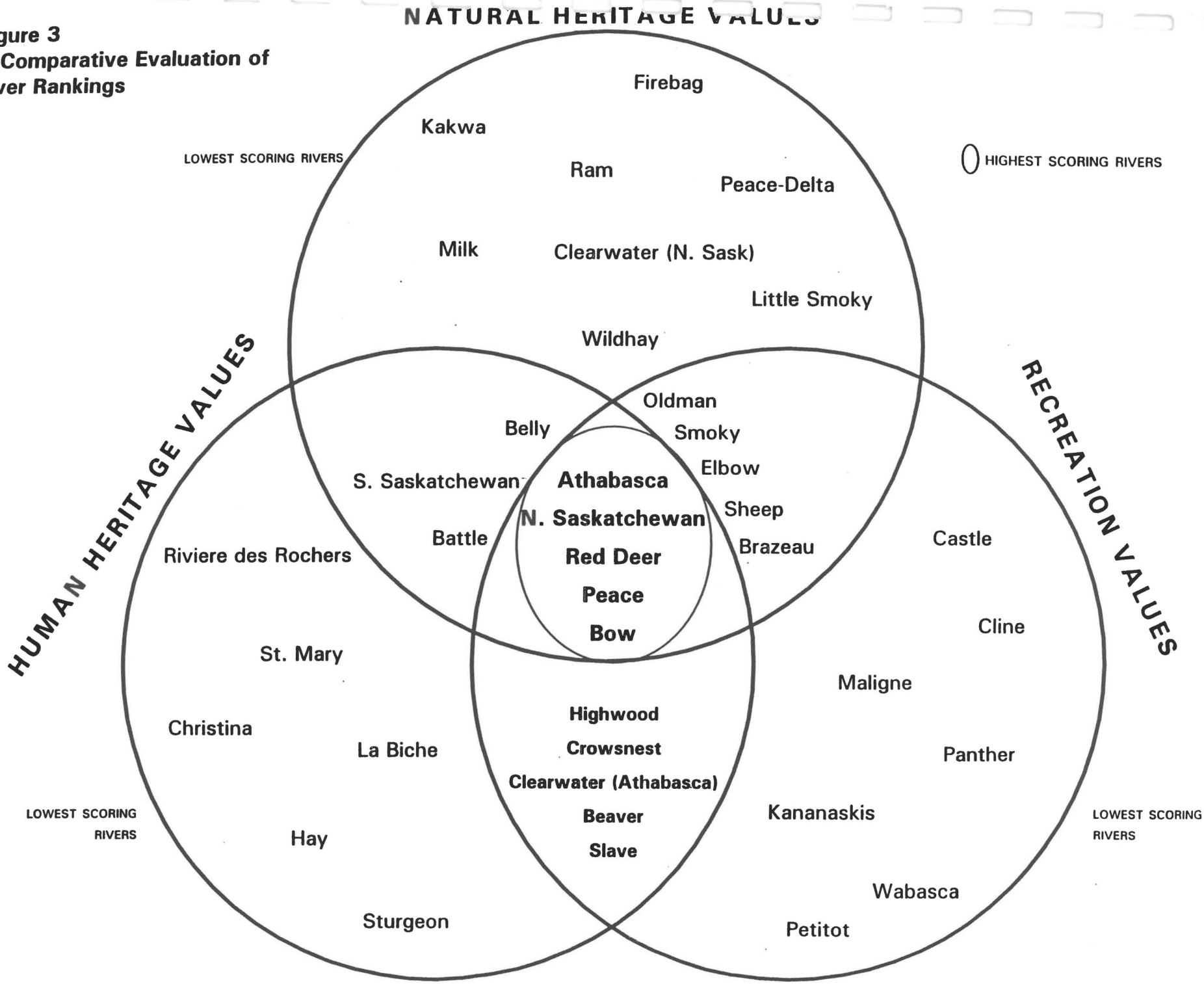
It largely confirms that rivers which one would expect have potential CHRS significance do indeed reflect evaluation scores that would merit their consideration for further study.

One river which might have ranked higher, the Clearwater in the Athabasca Basin bears some analysis. While the river is being considered for nomination to the CHRS, it is clear that at the level of research completed in Phase II of this study, that the river is not in the top 5.

This is a prime example of where further detailed analysis and site investigation as is being undertaken in a separate study currently underway may prove to increase its heritage significance.

The purpose of this study is primarily to develop a general ranking of key rivers. It should be noted that in Phase III of this study, when management issues and integrity guidelines are applied to the rivers, the final ranking might again show some changes. This may make allowances for rivers which presently rank lower to move up to a higher overall position.

Figure 3
A Comparative Evaluation of River Rankings



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Appendix 1

Questionnaire Summary

Alberta
ENVIRONMENTAL PROTECTION

Natural Resources Service

Standard Life Centre
10405 Jasper Avenue
Edmonton, Alberta
Canada T5J 3N4

Telephone 403/427-6781
Fax 403/427-5980

February 15, 1995

Dear Survey Participant:

RE: Canadian Heritage River Survey

On August 15, 1994, Alberta Environmental Protection, Natural Resources Service initiated a research study to develop a framework for evaluating Alberta's river resources for possible inclusion in the Canadian Heritage River System (CHRS).

The consultants and technical advisory committee have developed a preliminiary framework to evaluate river resources based on the guidelines for the 3 major themes established by the Canadian Heritage Rivers Board:

- Natural Heritage
- Human History
- Recreational

To supplement the use of this framework, we are seeking additional input from user groups and those agencies having potential information about the rivers. We have developed a simplified version of the technical framework along with survey forms for you to review and complete.

The study has identified a preliminary "shortlist" of some 38 Alberta rivers (copy attached) which will be further evaluated using the framework. Information provided through this survey will augment our assessment.

We hope you will participate in the survey by filling in the forms to the best of your knowledge. Please return the completed forms before February 28, 1995.

If you have any questions please contact Ted Dykstra, Senior Manager, Water Based Recreation, Alberta Environmental Protection at 427-7009 or Bart Deeg, Study Team Coordinator at 465-6699.

Thank you for your interest and support.

Ted L Dykstra

Ted Dykstra
Senior Manager
Water Based Recreation

Enclosure

cc: Bart Deeg
Technical Advisory Committee Members

Appendix 1

Questionnaire Summary

User Group Survey

Scoring Considerations for Natural Heritage Categories

The natural heritage categories developed for the Canadian Heritage Rivers define the criteria for scoring the suitability of selected rivers to be Heritage rivers. This section of the survey deals with **physical** and **biological** features of the landscape. They include:

Geology: The development of the present day landscape and river environment over geological time; diversity of landscape (types of sediment and manner of deposition); and variations in topography (i.e., badland formations, canyons, rock outcrops).

River Processes: Changes that are taking place continually as a result of water movement, factors which influence water movement and water quality; and land forms created or being modified by water (i.e., terraces, cataracts, eskers, meanders).

Wildlife Habitat: Places where food, shelter and reproductive sites for fish, mammals, birds, amphibians and reptiles are found.

Plants Habitat: Places where distinctive or typical vegetation grows on the bank or floodplain or valley slopes of a river.

From the list of rivers on the following page, please provide us with your evaluation of the river's natural resource values in each category. Base your score on the above and any **other factors** (i.e., hotsprings, waterfalls, sinkholes, etc.) which you feel should be considered within each category. We ask that you **only** respond for those rivers and categories that you have some knowledge of. The following rating system should be used:

- [3] if you believe the river has excellent resource values in the category
- [2] if the river has good resource values in the category
- [1] if the river has mediocre resource values in the category
- [0] if you feel the river does not support any resource value
- [ ] leave blank if you have no knowledge about the river's resource

Please use a separate sheet for your comments if you require more space. Thank you!

Natural Heritage Resource/ Value / River	Geology	River Processes	Wildlife Habitat	Plant Habitat	Justification and Comments
Example: River Styx	*2*	*3*	*2*	*3*	*High cliffs near highway 89 crossing*
Athabasca					
Beaver					
Clearwater *(North)*					
Maligne					
Christina					
Firebag					
Lac La Biche					
Wildhay					
Slave					
Hay					
Petitot					
Riviere des Rochers					
Peace					
Peace Delta					
Smoky					
Little Smoky					
Kakwa					
Wolf					
Wabasca					
Brazeau					
North Saskatchewan					
Ram					
Battle					
Clearwater *(South)*					
Cline					
Sturgeon					
Heart					
Red Deer					
Bow					
Highwood					
Kananaskis					
Panther					
Oldman					
Castle					
Crowsnest					
Belly					
St. Mary					
Milk					
South Saskatchewan					

User Group Survey

Scoring Considerations for Human History

The Human History theme includes the historical associations of a river and the artifacts from periods ***prior*** to the first European explorers through to more recent periods of settlement and resource development.

This survey deals with your knowledge or information regarding:

- Historical Development — distinct communities (i.e., First Nations, Metis, Ethnic Settlers, etc.) and key persons contributing to Canadian cultural heritage (i.e., native peoples, fur traders and early settlers which occurred along the river).

- Cultural/Historic Landscapes — including trails, portages, landings, settlements, resources and specific events that occurred along the river.

From the list of rivers on the following page, would you please provide us with your evaluation of the river's resource values in each category. Base your score on the above facts and any others which you feel should be considered. We ask that you **only** respond to those rivers and categories that you have some knowledge of. The following rating system should be used:

- [3] if you believe the river has excellent historical values
- [2] if the river has good historical values
- [1] if the river has mediocre historical values
- [0] if you feel the river has no historical values
- [ ] leave blank if you have no knowledge about human history on the river

Please use a separate sheet for your comments if you require more space. Thank you!

Human History/ Value / River	Historical Development	Please specify	Cultural/Historic Landscape	Please specify
Example: River Styx	*2*	*ABC Fur Trade Near*	*2*	*Name of missionary or fur trader at specific site along r.*
Athabasca				
Beaver				
Clearwater *(North)*				
Maligne				
Christina				
Firebag				
Lac La Biche				
Wildhay				
Slave				
Hay				
Petitot				
Riviere des Rochers				
Peace				
Peace Delta				
Smoky				
Little Smoky				
Kakwa				
Wolf				
Wabasca				
Brazeau				
North Saskatchewan				
Ram				
Battle				
Clearwater *(South)*				
Cline				
Sturgeon				
Heart				
Red Deer				
Bow				
Highwood				
Kananaskis				
Panther				
Oldman				
Castle				
Crowsnest				
Belly				
St. Mary				
Milk				
South Saskatchewan				

User Group Survey

Scoring Considerations for Recreational Activities

The natural heritage categories, derived from the Canadian Heritage Rivers Systems (CHRS) guidelines, define the criteria for scoring the suitability of rivers to be Alberta Heritage Rivers. We are most interested in your perception and/or knowledge of the capability of specific rivers to support a mix of recreational activities.

From the list of rivers on the following page would you please provide us with your evaluation of those river resources which have certain recreational activities noted. Space is provided for your comments.

We ask that you **only** respond to those rivers and for those activities that you have some knowledge of.

Please use the following rating scale:

- [3] if you believe the river has excellent recreational capability
- [2] if the river has good recreational capability
- [1] if the river has mediocre recreational capability
- [0] if you feel the river has no recreational capability
- [ ] leave blank if you have no knowledge about the activity on the river

Please use a separate sheet for your comments if you require more space. Thank you!

Recreational Activity/ Value for: River	Power Boating	Flatwater Canoeing	Whitewater Canoeing or Kayaking	Sports Fishing	Swimming	Motorized Trail Activities	Non-Motorized Trail Activities	Hunting	Camping	Contemporary Landscape Appreciation (farmsteads)	Historic Landscape Appreciation (pioneer cabins)	Distinctive Natural Landscapes or Beauty	Remoteness Appreciation	Comments
Example: River Stux	2	3	2	2	3	0	3	2	3	0	3	3	3	*Area near Hwy 89 crossing has much recreation diversity*
Athabasca														
Beaver														
Clearwater *(North)*														
Maligne														
Christina														
Firebag														
Lac La Biche														
Wildhay														
Slave														
Hay														
Petitot														
Riviere des Rochers														
Peace														
Peace Delta														
Smoky														
Little Smoky														
Kakwa														
Wolf														
Wabasca														
Brazeau														
North Saskatchewan														
Ram														
Battle														
Clearwater *(South)*														
Cline														
Sturgeon														
Heart														
Red Deer														
Bow														
Highwood														
Kananaskis														
Panther														
Oldman														
Castle														
Crowsnest														
Belly														
St. Mary														
Milk														
South Saskatchewan														

Appendix 2

Survey Results

River	Historical Development	Cultural/Historic Landscape	Total
Athabasca	2.79	2.75	**2.77**
Beaver	2.33	2.38	**2.36**
Clearwater *(North)*	2.6	2.43	**2.52**
Maligne	1.0	1.0	**1.00**
Christina	1.6	1.75	**1.68**
Firebag	1.33	1.33	**1.33**
Lac La Biche	2.5	2.0	**2.25**
Wildhay	2.0		**1.00**
Slave	2.33	2.0	**2.17**
Hay	2.0	2.0	**2.00**
Petitot			**–**
Riviere des Rochers	3.0		**1.50**
Peace	2.88	2.83	**2.86**
Peace Delta	3.0	3.0	**3.00**
Smoky	1.5	2.0	**1.75**
Little Smoky	1.0		**0.50**
Kakwa	2.0	2.5	**2.25**
Wolf	0.5	0.5	**0.50**
Wabasca	1.0	0	**0.50**
Brazeau	0.5	0	**0.25**
North Saskatchewan	2.82	2.82	**2.82**
Ram	0	0	**0.00**
Battle	2.14	1.75	**1.95**
Clearwater *(South)*	0	0	**0.00**
Cline	1.0	1.0	**1.00**
Sturgeon	1.88	3.0	**2.44**
Heart	1.0		**0.50**
Red Deer	2.82	2.5	**2.66**
Bow	2.86	2.5	**2.68**
Highwood	2.2	2.0	**2.10**
Kananaskis	1.5	2.0	**1.75**
Panther			**00**
Oldman	2.80	3.0	**2.90**
Castle	2.0	2.0	**2.00**
Crowsnest	2.67	1.5	**2.09**
Belly	2.5	3.0	**2.75**
St. Mary	2.5	3.0	**2.75**
Milk	2.17	2.75	**2.46**
South Saskatchewan	2.5	2.33	**2.42**

River \ Natural Heritage Resource / Value	Geology	River Processes	Wildlife Habitat	Plant Habitat	Total
Athabasca	2.63	2.56	2.8	2.64	**2.66**
Beaver	1.11	1.78	2.5	2.14	**1.88**
Clearwater *(North)*	2.45	2.22	2.88	2.56	**2.53**
Maligne	3.0	2.83	2.67	2.25	**2.69**
Christina	2.25	2.14	2.43	2.33	**2.29**
Firebag	1.75	2.0	2.25	2.25	**2.06**
Lac La Biche	2.0	2.50	3.0	2.5	**2.50**
Wildhay	2.0	2.40	2.6	2.43	**2.36**
Slave	2.83	2.40	2.75	2.5	**2.62**
Hay					–
Petitot	1.0	2.5	2.5	3.0	**2.25**
Riviere des Rochers					–
Peace	2.82	2.44	3.0	2.56	**2.71**
Peace Delta	1.75	2.83	3.0	3.0	**2.65**
Smoky	2.44	2.25	2.75	2.22	**2.42**
Little Smoky	1.86	2.5	2.86	2.0	**2.31**
Kakwa	2.5	3.0	2.5	2.33	**2.58**
Wolf	1.33	1.33	2.33	2.0	**1.75**
Wabasca			2.0		**0.50**
Brazeau	2.5	1.8	2.6	2.4	**2.33**
North Saskatchewan	2.21	2.19	2.53	1.38	**2.08**
Ram	3.0	2.5	2.38	2.17	**2.51**
Battle	1.67	2.0	2.19	1.81	**1.92**
Clearwater *(South)*	2.0	2.25	2.69	2.14	**2.27**
Cline	2.0	1.67	1.83	1.83	**1.83**
Sturgeon	1.33	1.2	1.3	.63	**1.12**
Heart	3.0	2.0	3.0	2.0	**2.50**
Red Deer	2.73	2.54	2.63	2.55	**2.61**
Bow	2.5	2.35	2.45	2.28	**2.40**
Highwood	2.44	2.25	2.5	2.0	**2.30**
Kananaskis	2.13	1.57	1.71	1.67	**1.77**
Panther	3.0	3.0	2.0	3.0	**2.75**
Oldman	2.40	2.0	2.2	2.2	**2.20**
Castle	2.67	2.2	2.58	2.08	**2.38**
Crowsnest	2.67	2.5	3.0	2.3	**2.62**
Belly	2.5	1.0	2.0	2.5	**2.00**
St. Mary	2.0	1.5	1.5	2.0	**1.75**
Milk	2.8	2.31	2.78	2.56	**2.61**
South Saskatchewan	2.63	2.31	2.56	2.64	**2.54**

Recreational Activity/ Value / River	Power Boating	Flatwater Canoeing	Whitewater Canoeing or Kayaking	Sports Fishing	Swimming	Motorized Trail Activities	Non-Motorized Trail Activities	Hunting	Camping	Contemporary Landscape Appreciation (Farmsteads)	Historic Landscape Appreciation (pioneer cabins)	Distinctive Natural Landscapes or Beauty	Remoteness Appreciation	Total
Athabasca	2.24	2.32	2.06	2.33	0.88	1.08	2.0	2.0	2.41	1.45	2.14	2.72	2.58	**2.02**
Beaver	0.5	1.78	0.86	1.0	1.0	1.0	1.40	2.14	1.75	1.71	1.5	1.0	1.5	**1.32**
Clearwater *(North)*	2.5	2.55	1.46	2.43	1.0	1.0	1.29	2.44	2.55	1.0	2.0	2.45	2.81	**1.96**
Maligne	0	1.2	2.86	2.4	0.33	0	2.6	0	2.25	2.0	2.0	2.88	2.29	**1.60**
Christina	0.83	2.29	1.86	2.0	0.80	0.67	.50	2.4	2.57	0.5	1.8	2.1	3.0	**1.64**
Firebag	1.0	2.33	0	2.5	0.5	0	1.0	2.67	2.67	1.0	1.0	2.25	2.5	**1.50**
Lac La Biche	0.5	2.0	2.0	2.0	0.5	0	0	2.0	1.50	1.0	1.0	2.0	2.0	**1.27**
Wildhay	0.2	2.14	2.45	2.38	1.33	0	2.14	2.71	2.4	2.0	1.67	2.45	2.58	**1.88**
Slave	0											3.0	3.0	**0.46**
Hay	0	2.0	0						2.0			1.0	2.5	**0.58**
Petitot	0	2.0	0						1.0			1.0	3.0	**0.54**
Riviere des Rochers	0								0		3.0	2.0	3.0	**0.62**
Peace	2.88	2.56	1.43	2.33	1.5	1.67	2.4	2.83	2.78	2.43	2.38	2.78	2.78	**2.37**
Peace Delta	2.67	1.33	0	3.0	0	0	1.0	2.0	0.83	0	0	2.8	3.0	**1.28**
Smoky	2.6	2.17	2.17	2.33	1.67	1.0	2.33	2.75	2.6	3.0	1.33	2.63	2.63	**2.25**
Little Smoky	1.25	2.40	2.75	2.80	1.75	1.0	2.67	3.0	2.4	2.67	1.67	2.33	2.63	**2.26**
Kakwa	0.5	2.0	2.67	2.5	0.5	2.0	2.5	3.0	2.6	1.5	1.0	2.67	3.0	**2.03**
Wolf	0	1.0	1.33	1.0	0.5			2.0	2.0	0	0	2.0	2.67	**0.96**
Wabasca	0	2.67	1.5	2.0				2.0	2.5			2.0	2.67	**1.18**
Brazeau	1.25	1.67	2.57	2.5	1.0	1.5	2.5	2.75	2.67	1.5	0	2.5	2.5	**1.92**
North Saskatchewan	2.53	2.55	1.83	1.94	1.13	1.91	2.29	2.4	2.42	2.11	2.35	2.42	1.94	**2.14**
Ram	0.2	1.0	2.14	2.5	1.0	1.33	2.8	2.75	2.63	0.75	0.33	2.82	2.45	**1.75**
Battle	0.6	2.0	0.18	1.5	1.18	1.43	1.67	2.22	2.08	1.94	1.29	1.54	0.9	**1.43**
Clearwater *(South)*	0.75	2.0	2.14	2.8	0.75	2.0	2.67	3.0	3.0	1.25	1.33	2.57	2.25	**2.04**
Cline	0.17	0.57	1.57	2.29	1.0	0.33	2.88	2.14	2.13	0.6	0	2.55	2.73	**1.46**
Sturgeon	0	1.4	0.6	1.0	0.6	1.33	1.0	0.75	0.8	2.0	0.5	1.0	0.8	**0.91**
Heart														–
Red Deer	1.5	2.67	2.25	1.75	1.45	1.4	1.88	2.21	2.6	2.15	1.63	2.43	1.81	**1.98**
Bow	1.43	2.56	2.10	2.89	1.86	1.5	2.0	2.0	2.5	2.17	2.2	2.56	1.75	**2.12**
Highwood	0	2.0	2.67	2.4	1.33	1.33	3.0	3.0	2.2	2.0	2.0	2.17	2.5	**2.05**
Kananaskis	0	1.1	2.43	1.83	1.0	1.0	2.4	2.25	2.0	0	0.5	2.30	1.64	**1.42**
Panther	0	1.0	3.0	2.5	1.0	1.0	2.0	3.0	3.0	0	0	3.0	2.67	**1.71**
Oldman	0	2.75	2.25	2.75	1.25	1.0	1.5	2.67	2.5	2.67	3.0	2.6	2.0	**2.07**
Castle	0	1.0	2.0	3.0	0.75	0.50	0.5	2.67	2.2	1.0	0.5	2.42	2.0	**1.43**
Crowsnest	0	1.0	2.0	3.0	0	0	0	3.0	2.0			2.0	0.5	**1.04**
Belly		0	0	0				3.0	3.0		3.0	2.0	1.5	**0.96**
St. Mary												1.0	0	**0.08**
Milk	0	2.57	1.2	0	1.67	0.5	1.0	2.0	2.6	2.33	2.5	2.86	1.75	**1.61**
South Saskatchewan	1.42	2.4	0.4	1.8	1.2	1.33	1.0	2.75	2.0	1.88	1.5	2.36	1.36	**1.65**

Canadian Heritage Rivers Survey
Comments Summary

A. Natural Heritage Resources

Survey scores are indicated in parentheses following the associated comment(s). Abbreviations for each rated category are:

G = geology, RP = river processes, WH = wildlife habitat, PH = plant habitat.

Athabasca River

- Athabasca to Fort McMurray (G:3, RP:3, WH:3, PH:3)
- Changes in regime from Jasper to Lake Athabasca, rapids (especially Grand Rapids) between Athabasca and Fort McMurray (G:2, RP:3, WH:3, PH:3)
- High cliffs, whitewater (G:3, RP:2, WH:3, PH:2)
- At Fort McMurray, strong current, undertows (G:2, RP:2, WH:2, PH:2)
- Recreation; historical route (G:2, RP:3, WH:3, PH:2)
- Alberta's largest free flowing system (G:3, RP:3, WH:2, PH:3)
- In general (G:1, RP:1, WH:2)
- Icefields Falls, whitewater, most mammals, montane to boreal, Grand Rapids. Large variety of plant habitats (G:3, RP:3, WH:3, PH:3)
- Flows through hydrocarbon bed near Fort McMurray (G:3, RP:2, WH:3, PH:2)
- Long diverse river with extensive exposures (G:2, RP:2)
- From Town of Athabasca to Delta (includes Delta)(G:3, RP:3, WH:3, PH:3)
- Significant rock outcrops and landmarks noted namely 'Big Rock' and steep banks at Grand Rapids (G:3, RP:3, WH:3, PH:2)
- Contains only known population of native rainbow trout in Alberta (WH:3)
- Excellent outcrops-Jasper, excellent outcrops-Fort McMurray (G:3)

Beaver River

- Regular meanders between Beaver Crossing and Saskatchewan border (G:1, RP:3, WH:3)
- Sweeping meanders, excellent streamside plant habitat (G:2, RP:2, WH:3, PH:2)
- Classic meandering oxbow channel (G:1, RP:3)
- Excellent habitat for deer, moose, bear (G:2, RP:2, WH:3, PH:3)

Clearwater River (north)

- Whitemud Falls and flower pots (G:3)
- Springs; unusual saline patterned one (G:3, RP:3, WH:3, PH:3)

- Whitemud Falls Ecological Reserve and saline spring downstream (G:3, RP:2, WH:3, PH:3)
- Downstream from the junction with the Christína River to the Athabasca - wide, flat, calm, quiet. Numerous islands (G:1, RP:1, WH:2, PH:2)
- Whitemud Falls area, number of important habitat areas, rare plant species (G:3, RP:2, WH:3, PH: 3)
- Shale beds (with fossils) on shore in several locations, shifting sand bars. Methye Portage (G:3, RP:3, WH:3, PH:3)
- Some exposures, rapids (G:2, RP:2)
- From Saskatchewan Boundary to mouth of Christina (G:2, RP:2, WH:3, PH:3)
- Falls at east end (G:3, RP:3, WH:3, PH:3)
- Valuable outcrops, fine canyon at Fort McMurray (G:2)

Maligne River

- Cave systems (G:3, RP:3)
- Canyons, cliffs (G:3, RP:3, WH:2, PH:2)
- Maligne Canyon (G:3, RP:3)
- Good mountain streams, harlequin ducks, bear, caribou, canyon walks (winter ice walks in canyon) (G:3, RP:2, WH:3, PH:2)
- Extensive karst system, canyon (G:3, RP:3)
- Narrow canyon-Jasper (G:3)

Christina River

- Tar sands exposures (G:3)
- Just downstream from the junction with the Gregoire River some shale banks, but mainly steep/high banks of very unstable sand/sandstone (G:2, RP:2, WH:2, PH:2)
- Important habitat for fauna. Vital winter range for moose (G:2, RP:2, WH:3, PH:2)
- Some exposures, rapids, classic meandering form in some reaches (G:2, RP:2)
- Good high banks in center (G:2, RP:2, WH:3, PH:3)
- Good arctic grayling habitat (rated 2)

Firebag River

- Delta (RP: 2, PH:2)
- Low water (G:2, RP:1, WH:3, PH:2)

Wildhay River

- Elk (WH:2)
- Whitewater (G:3, RP:3, WH:2)
- Critical rainbow trout natural gene pool (G:2, RP:3, WH:3, PH:3)

- At mouth, junction with Berland River, extensive gravel banks, some channel braiding. Active trapper's cabins present (G:1, RP:2, WH:2, PH:2)
- Near Highway 40 (G:2, RP:2, WH:2)
- Moderate importance, but extensive cutbank exposures (G:2, RP:2)
- Good terrace, meander and wet marsh development (G:1, RP:2, WH:3, PH:2)

Slave River

- Slave Rapids/Pelicans (G:3, RP:3, WH:3)
- Rapids, Canadian shield exposures (G:3, RP:2)
- Precambrian geology, pelican nesting, sheer volume, cataracts (G:3, RP:1, WH:3, PH:2)
- fine outcrops-Shield and Palaeozoic-spectacular rapids (G:3)

Petitot River

- Meanders/riparian in permafrost area (RP:3, PH:3)

Peace River

- Vermilion Chutes/deep valley with slumps (G:3)
- The river valley landscape is very diverse (G:3, RP:2, WH:3, PH:2) Numerous, unique geological formations
- Excellent wildlife habitat areas
- Along the river valley, in certain areas, cactus plants can be found and other unique vegetation.
- Substantial diversity in both geology and vegetation as the river flows from NE. V form changes dramatically. Fossils, Vermilion Chutes (G:3, RP:3, WH:3, PH:2)
- Bennett Dam severely affects natural processes and has caused ice jamming and (eg. Peace River 1991) (G:3, RP:1, WH:3, PH:3)
- I believe that this is the only pre-glacial drainage channel of significance in the p (G:3, RP:3)
- Too big to ignore but the Athabasca is better (G:2, RP:3, WH:3, PH:3)
- Several Alberta fish species only found in this drainage (redsided shiner, largescale sucker, Northern squawfish) (WH:3)
- Important granite (?-editor) outcrop (B.C. boundary to Caribou Mountains, fine canyons (G:3)

Peace Delta

- Delta features, oxbow lakes, most mammals (muskrats), bison, distinctive ecology (G:1, RP:3, WH:3, PH:3)
- Very large freshwater delta (G:3, RP:3)

- Too big to ignore but the Athabasca is better (G:1, RP:3, WH:3, PH:3)

Smoky River

- Especially in Willmore (G:3, RP:3, WH:3, PH:3)
- Substantial diversity in both geology and vegetation as the river flows from NE. Valley form changes dramatically. Fossils, Vermilion Chutes (G:2, RP:2, WH:3, PH:2)
- Rainbow trout, bull trout (G:2, RP:2, WH:3, PH:3)
- Several large sub-drainages within system provide important bull trout habitat.(ie. Sulphur or Muskeg would also make good candidates). Hell's Gate at mouth of Sulphur is scenic and interesting geology. (G:3, RP:3, WH:3, PH:3)
- Montane to boreal, braided channels, islands, rapids (upstream from Grande Cache area)(G:3, RP:2, WH:2, PH:2)
- Important outcrops - mountains throughout foothills (G:3)

Little Smoky River

- Caribou/grayling habitat (WH:3)
- Rapids and Devil's Gap in vicinity of Grande Cache (G:3, RP:3)
- Upper reaches represent one of the last unexploited arctic grayling population in Alberta. Rated as the highest quality grayling recreational fishery opportunity in Alberta. Little Smoky is the most southerly arctic grayling fishery in Western North America (Source: Fish and Wildlife, Edson, Carl Hunt 130-8244) (WH:3)
- Trout (G:2, RP:2, WH:3, PH:3)
- Caribou (G:1, RP:2, WH:3, PH:2)
- Important boreal headwaters system (G:3, RP:3, WH:3, PH:3)
- Valuable Cretaceous marine shales (G:2)

Kakwa River

- At Falls (G:3, RP:3, WH:2, PH:2)
- Falls are spectacular - good trout habitat above the falls (RP:3, WH:2)
- Excellent waterfall (G:2)

Wolf River

- Moose habitat (WH:2)
- Major walleye spawning habitat, moose pasture (G:2, RP:2, WH:3, PH:3)

Wabasca River

- Probably raptor sites on cliffs (WH:2)

Brazeau River

- Brazeau Canyon below dam (G:2)
- Upstream of reservoir, 16 km long steep-walled canyon (G:3, RP:2, WH:3, PH:3)
- Near SH940 (Trunk Road)(G:3, RP:2, WH:2)
- Most mammals, montane to boreal vegetation. Bars, islands, mountains, the 'Gap', braided, rapids, Kootenay Plains, glacier. Know National Park section only (G:3, RP:2, WH:3, PH:2)
- Canyons (G:3)
- Excellent Front Ridge-Foothills outcrops (G:3)

North Saskatchewan River

- The higher ratings result from the river's beginnings in the mountains. (G:3, RP:2, WH:2, PH:2)
- Saunders to Rocky Mountain House reach, including Devil's Elbow (G:3, RP:2, WH:2, PH:2)
- Most mammals, montane to boreal vegetation. Bars, islands, mountains, the 'Gap', braided, rapids, Kootenay Plains, glacier. (G:3, RP:3, WH:3, PH:3)
- Meanders, braids, floods, whirlpool point, the Gap (RP:2)
- Geology: River dissects boreal forest at Bruderheim Natural Sanddune Ecology Area South/Redwater Natural Area North (G:2, RP:2, WH:3, PH:3)
- River dissects glacial moraine (knob and kettle) at Hairy Hill - north of Glacial outwash valleys at Hairy Hill - north of Riverbank slumping - Hairy Hill - north of River crossings Bruderheim meteor - south shore Second older gas well - south bank & Egg Creek mouth

Wildlife Habitat and Plant Habitat: Areas Greater than 400 Acres

North slope Fort George/Buckingham House
Death River Valley
South slope at Fort D'Isle
Fort D'Isle
South slope Rannich Area
North slope east of Duvernay (native forbs and grasses)
North slope west of Duvernay (riparian habitat)
Egg Creek west of Duvernay (riparian habitat)
Ukalta Dunes
Riparian habitat north and east of Bruderheim

- Long diverse river with extensive exposures (G:2, RP:3)
- Lots of river, but overall a bit dull (G:2, RP:3, WH:2, PH:2)
- Highest diversity of fishes of any waterbody in the Province (WH:3)

- Excellent outcrop. Mountains through to Edmonton ((G:3)

Ram River

- Canyons and waterfalls on South Ram (G:3)
- Ram Falls, mountain sheep in Ram Falls valley, cutthroat trout, numerous rapids (G:3, RP:3, WH:3)
- At Falls (G:3, RP:3, WH:2, PH:2)
- Canyons, Falls (G:3)
- Extensive canyons, waterfalls and exposed bedrock (G:3, RP:3)
- Canyons below Ram Falls, Ram Falls (G:3, RP:2, WH:1, PH:2)
- Supports one of very few 'pure' cutthroat trout populations in Alberta (WH:3)
- Excellent outcrops. Foothills and Front Range structures (G:3)

Battle River

- Meltwater channel (G:2)
- Coal Lake/Pipestone Creek junction to Forestburg Reserve. Meanders (G:1, RP:2, WH:2, PH:2)
- Undercut river in scenic valley (G:1, RP:1, WH:1, PH:1)
- Misfit stream, meander development (G:2, RP:2, WH:1, PH:1)
- Massive slumping. Hardisty-Wainwright area (G:2)

Clearwater River (south)

- Critical bull trout habitat in the upper reaches (G:2, RP:2, WH:3, PH:1)
- Only major free flowing system of North Saskatchewan that isn't dammed. Important bull trout population (G:3, RP:3, WH:3, PH:3)
- Whitewater, braided channel, wildlife (G:2, RP:2, WH:2)
- Grassland terraces important (G:2, RP:2, WH:3, PH:2)
- Excellent Front Range - Foothills outcrops (G:3)

Cline River

- mountain stream, canyon, bear, moose, elk, deer, fish (G:3, RP:2, WH:2, PH:2)
- Alpine valley (G:2)
- Just another pretty mountain stream (G:1, RP:1, WH:1, PH:1)
- Good outcrops in upper reaches. Excellent canyon (G:3) Sturgeon River
- Beheaded stream (G:2, RP:1, WH:1, PH:0)
- Valuable glacial history (G:2)

Heart River

- Massive slumping creates huge diversity of vegetation types and wildlife habitat (G:3, RP:2, WH:3, PH:2)

Red Deer River

- Badlands/Badland Processes (G:3, RP:3, WH:3, PH:3)
- Badlands, upstream rapids (G:3, RP:3, WH:2, PH:2)
- Badland formations, sandstone cliffs (G:3, RP:3, WH:2)
- Badlands, foothills, dam (G:2, RP:3, WH:2, PH:2)
- Physiographic regions, badlands, canyons, buffalo jump (G:3, WH:3)
- Wildlife habitat: Upper Red Deer River because of limited access, is a very important wildlife corridor - bears, carnivores and ungulates. Also a buffer to Banff National Park as well as originating in the Park. Coulees along the river are critical for wildlife-ungulates. Trochu, Drumheller, Dorothy. Red Deer City: Last cliff where the now reintroduced peregrine falcon reproduced in the wild. Waskasoo Park is a Critical urban example of a wildlife corridor maintained. (letter attached) (G:3+, RP:2-3, WH:3+, PH:3+)
- Paleontological significance (G:3, RP:2)
- From Content Bridge to Empress - just one spectacular feature after another (G:3, RP:3, WH:3, PH:3)
- Excellent outcrops in mountains and foothills, badland exposures (G:3)

Bow River

- Islands above Carseland (RP:2, WH:3, PH:2)
- Trout fish, weir (G:3, RP:2, WH:3)
- Important fishery. Very scenic. Glacial flow (G:3, RP:3, WH:2, PH:2)
- Much variety from montane to prairie. Valley impacted by transportation. Falls, rapids,hoodoos, most mammals, good fishing, Bow Lake. Sections dammed for hydro and water supply (G:3, RP:3, WH:3, PH:3)
- Long diverse river with extensive exposures (G:3, RP:2)
- Highly impacted throughout (G:1, RP:2, WH:0, PH:0)
- Excellent outcrops throughout mountains and plains (G:3)

Highwood River

- Upper Highwood elk winter range (WH:3)
- Whitewater, canyons (G:3, RP:2, WH:2)
- Characterized by excellent freestone reaches, Cataract Creek important tributary (G:3, RP:2, WH:3, PH:2)
- Indigenous use-Highwood Trail (G:3, RP:3, WH:3, PH:3)

- Just another pretty mountain stream (G:1, RP:1, WH:1, PH:1)
- Important outcrops - spectacular foothills topography (G:3)

Kananaskis River

- Whitewater, canyons (G:3, RP:2, WH:2)
- Spoilt by hydro operations (G:2, RP:2, WH:2, PH:2)
- Tufa springs (G:2, RP:2, WH:2, PH:2)
- Cline River ('Just another pretty mountain stream') with a dam on it - actually 3 dams (G:1, RP:0, WH:1, PH:1)
- Important outcrops (G:3)

Oldman River

- Good mule deer habitat along the banks (WH:2)
- Spectacular incised meanders, river process, narrowleaf cottonwood stands, processes impacted by dams (G:3, RP:1, WH:1, PH:2)
- Excellent mixed outcrops in mountains, Cretaceous outcrop near Lethbridge (G:3)

Castle River

- At Falls (G:3, RP:3, WH:2, PH:2)
- Perhaps one of the last bull trout strongholds in southern Alberta (G:3, RP:2, WH:3, PH:2)
- Supports good population of bull trout in upper reaches (WH:3)
- Excellent Front Range outcrop (G:3)

Crowsnest River

- Very good fish habitat (WH:3)
- Excellent rainbow trout habitat. World renowned trout fishery (WH:3)
- Excellent outcrop - especially Crowsnest Volcanics (G:3)

Belly River

- Good outcrop - Front Ranges (G: 3)

St. Mary River

- Good Bearpaw exposures - 'Ammolite" ammonites (G:2)

Milk River

- Badlands/cliffs/raptors/igneous (G:3, WH:3)

- Important prairie wildlife habitat and supports riparian communities. High diversity of landforms and vegetation. Only exposure of igneous bedrock in the grasslands of Western Canada. (G:3, RP:2, WH:3, PH:3)
- Cliffs, canyons, caves, hoodoos, badlands (G:3, RP:2, WH:3, PH:3)
- Milk River Ridge (G:3, RP:3, WH:2, PH:2)
- Distinctive prairie, coulees, distinctive species (antelope, raccoons, rattlesnakes) spoilt by cattle watering and fences (G:2, RP:2, WH:3, PH:2)
- Milk River canyon, meandering (G:2, RP:2)
- Incised misfit stream, rare plants and communities (G:3, RP:2, WH:2, PH:3)
- Headwaters of Missouri drainage. Several fishes restricted to this river in Alberta (stonecat,shorthead sculpin) (WH:3)
- Fine badlands W.O.S.P.P. - good Cretaceous outcrops downstream (G:3)

South Saskatchewan River

- Between Medicine Hat and Saskatchewan border, badlands, Crooked Rapids, waterfowl and ungulate habitat.
- Important prairie river (G:3, RP:2, WH:2, PH:3)
- Incised canyon, lacks variety of Red Deer, limited riparian habitat development (G:2, RP:2, WH:2, PH:3)
- High cliffs and prairie falcon nesting (G:3, RP:1, WH:3, PH:2)
- Supports good populations of lake sturgeon and silver redhorse (WH:3)
- Good Cretaceous outcrops, excellent badlands (G:3)

Additional Comments:

- Berland River is an excellent canoeing/fishing river. House River (Ft. McMurray) has interesting cliffs, seeping oils sands (natural), lots of ungulates. (Ken Sloman: 427-2375)
- Pembina River rated as G:3, RP:2 near Highway 16X/Highway 16.
- Wapiti River is a major tributary of the Smoky and has many of the same attributes as the Smoky. Important for historical river travel during the fur trade (see map for location).
- "The Heritage River Program is useful to protect rivers or portions of rivers to meet social needs of future generations. The Heritage River Program is only one part of what is required if Canadian rivers are to be able to meet the full needs of future generations. From a local viewpoint I am very aware that the greater need is to recognize the necessity of developing an inventory of water resources versus future needs. Laws and management plans can then be created to ensure sustainability resulting in social, recreational, educational and economic benefits for all."

B. Human History Value

1. Historical Development

Athabasca River

- Klondike Trail crossed it-Ft. Assiniboine area has considerable local history (rated 3)
- Bitumount Oil Sands Plant (rated 2)
- Poacher's Landing, fur trading (rated 3)
- Fur trade route (rated 3)
- Fort McMurray (rated 2)
- Fur trade (rated 3)
- Fur trade (rated 3)
- Fur trade/water route (rated 3)
- Fur trade, exploration (rated 3)
- Well documented history from Athabasca Landing to north (rated 3)
- Native people, early settlers and fur traders occurred along the river (rated 3)
- Prehistory, fur trade (rated 3)

Beaver River

- Fur trade route (rated 2)
- Fur trade route (rated 2)
- Moose/Beaver, Thinlate Rivers and Angus Shaw (rated 3)
- Fur trade route (rated 3)
- Fur trade route (rated 3)
- Fur trade, abandoned rail way (rated 3)
- Prehistory, fur trade (rated 3)

Clearwater River (North)

- Main travel route (rated 3)
- Part of Methye Portage (rated 3)
- Fur trade route (rated 2)
- Fort McMurray (rated 2)
- Earliest fur trading route (rated 3)
- Peter Pond (rated 2)
- Fur trade (rated 2)
- Prehistory, fur trade (rated 3)

Christina River (north)

- See Hilton/Benthian letter and Journal of Samuel Hearne and Phiilp Turner extract with margin notes (attached)(rated 3)
- Fur trade (rated 1)

Firebag River

- Fur trade (rated 1)

Lac La Biche River

- Fur trade route (rated 2)
- Fur trade route (rated 3)
- Fur trade (rated 3)

Wildhay River

- Early route through mountains (rated 2)

Slave River

- Rapid portages (rated 3)
- Prehistory, fur trade (rated 2)

Hay River

- Prehistory, fur trade (rated 2)

Peace River

- Dunvegan/Ft. Vermilion (rated 3)
- Important fur trading routes (rated 3)
- The river is rich in history: native communities; fur trade activities; early water-based transportation; farm settlement and development; etc. (rated 3) It was noted by the Historical Resources Branch of Alberta Community Development that the entire river valley is a historical resource in some way. The river made significant contributions to the development of the Peace Region.
- Dunvegan site interpretation center excellent, plus others (rating 3)
- Dunvegan (rated 2)
- Prehistory, fur trade (rated 3)

Peace Delta

- Exploration, fur trade (no rating)
- Fur trade (rated 3)

Smoky River

- First Nations (rated 2)

Kakwa River

- Metis settlements (rated 2)

Brazeau River

- Prehistory (rated 1)

North Saskatchewan River

- Fort Edmonton/Rocky Mountain David Thompson (rated 3)
- Fur trade (rated 2)
- Explorer-David Thompson (rated 2)
- Fort George and many, many more (rated 3)
- Fort George, Buckingham House (rated 2)
- Fur trade, David Thompson's route (rated 3)
- Kootenay-Stony trade route. Fur trade, David Thompson (rated 3)
- HBC fur trading post near Rocky Mountain House (rated 3)
- Fur trade, forts (rated 3)
- House Pass=first mountain crossing south of Peace River by white man (D. Thompson in 1809) (rated 3)
- Fort George/Buckingham House (rated 3)
  Fort Dog Rump (marker)
  Fort D'Isle
  St. Paul De Cris (Duvernay) Crossing
  Fort Victoria
  Fort White Earth (marker)
  Edmonton House - Sturgeon (marker)
  Victoria Trail
  Spectacular views along Victoria Trail
  Shandro
  Egg Creek Caurion
  Before west survey (river lot settlements)
  Lob Stick Settlement
  Victoria Settlement
- Fur trade (rated 3)
- Various forts (rated 3)
- Prehistory, fur trade (rated 3)

Battle River

- Native history (rated 2)
- Natives used as transportation system (rated 2)

Cline River

- Stony-hunting. Fur trade route, Kootenay Plains - Jasper. Rock paintings, Cataract Creek, Cline. (rated 2)
- Prehistory (rated 2)

Sturgeon River

- Fort at mouth
- Father Lacombe (rated 2)

Heart River

- Fur trade (rated 0)

Red Deer River

- Early dinosaur digs (rated 3)
- Dinosaur Provincial Park (rated 3)
- Fur trade. HBC (rated 3)
- Early settlement (rated 3)
- Dry Island Buffalo Jump, early dinosaur hunters, Tail Creek Metis Settlement (5000). Demarkation between Blackfoot/Cree. Drumheller dinosaur beds. Coal mines (1/2 the province's production). East Coulee (Communist Party 1918-1930)(letter attached)
- Charley Sternbury and friends (rated 2)
- Medicine wheels, tipi rings (rated 3)
- Prehistory (rated 3)

Bow River

- Fur trade, hydro dams, irrigation, CPR, Banff. (rated 3)
- Stony, Blackfoot, Kootenay. Fur trade, explorers (rated 3)
- Early settlers, indigenous use (rated 3)
- Prehistory, whiskey trade, fur trade (rated 3)

Highwood River

- Early settlers (rated 3)
- Prehistory, fur trade (rated 3)

Kananaskis River

- Pocaterra (no rating)
- Prehistory (rated 2)

Oldman River

- Important to Blackfoot tribes (rated 3)
- Fort Whoop-Up (rated 2)
- Irrigation, NWMP at Fort Macleod and Fort Whoop-Up. Early settlements (rated 3)
- Connects to Crowsnest Pass, the Indian crossing from B.C. to Alberta (Blackfoot-Kootenay). Adjacent to the Indian Oldman's Bowling Green (rated 2)
- Prehistory, whiskey trade (rated 3)

Castle River

- Prehistory, First Nations (rated 2)

Crowsnest River

- Coal mining - various sites (rated 3)
- Prehistory (rated 3)

Belly River

- Prehistory, whiskey trade (rated 3)

St. Mary

- Prehistory (rated 3)

Milk River

- Writing-on-Stone Provincial Park (rated 3)
- Writing-on-Stone Provincial Park (rated 3)
- Blackfoot, buffalo, whiskey trade (rated 1)
- RCMP post (rated 1)
- Prehistory (rated 3)

South Saskatchewan River

- Early prairie settlement. Indian circles (rated 3)
- The original first landmark on the prairies - LeVerendrye 1749. xxxx (can't read) Ft. Jongane is thought to be in Alberta. (Ft. de la Corne at bifurcation of North and South)(writing very unclear on this comment)(rated 2-3)
- Medicine wheels, tipi rings (rated 2)
- Prehistory, fur trade (rated 3)

2. Cultural/Historic Landscape

Athabasca River

- Oil sands/Athabasca Landing/Fur trade (rated 3)
- Fur trading station (rated 2)
- Cline, Henry House, Peter Pond via Clearwater (rated 2)
- Peter Pond, explorer, noted confluence of Athabasca and Clearwater and tarsands (rated 3)
- River route including trail system, waterways connecting (rated 3)
- Town of Athabasca was a key point in the fur trade. River barge trips down river to Fort McMurray. Major portage at the Grand Rapids. Significant 'landing mail' (rated 3)
- Archaeological sites, fur trade posts (rated 3)

Beaver River

- Fur traders, settlers, natives used river (rated 2)
- Angus Shaw of Northwest Company (1789) (rated 2)
- Angus Shaw, Gabrielle Franchers, Peter Fidler (rated 3)
- Oblate missionaries
- Portage route (rated 1)
- Archaeological sites, fur trade posts (rated 3)

Clearwater River (north)

- Methye portage etc. (rated 3)
- Several First Nation archaeological sites. Several historical portages (rated 3)
- Important access route (rated 2)
- Archaeological sites, fur trade posts (rated 3)

Christina River

- Portage attempt (rated 3)

Lac La Biche

- Explorer route (rated 3)

Wildhay River

- Moberly family (no rating)

Slave River

- Mineral deposits, fur trade posts (rated 2)

Hay River

- Indian cabins, fur trade posts (rated 2)

Peace River

- Historic Dunvegan (rated 3) Historic sites along the Shaftsbury Trail
- Fort Vermilion-oldest settlement in Alberta (rated 3)
- Alexander Mackenzie. Catholic mission and Anglican mission at Dunvegan (rated 3)
- Access route (rated 2)
- Archaeological sites, fur trade posts (rated 3)

Peace Delta

- Different routes to Fort Chipewyan. Northern transportation barges (no rating)
- Fur trade posts (rated 3)

Smoky River

- Boucannes (rated 2)

Kakwa River

- Archaeological sites, Red Rock Creek, sacred landscape (rated 2-3)

North Saskatchewan River

- Many trails and sites including Fort Edmonton (rated 2)
- Peter Fidler, major fur trade route (rated 3)
- Fort Rocky Mountain House along river (rated 3)
- Kootenay Plains, Rocky Mountain House. Historic Park. Many old forts or sites. Nordegg (rating 2)
- David Thompson associated with post (rated 3)
- Fort George/Buckingham House, Fort Irland (rated 3)
- York boat brigades (rated 3)
- Contact Wayne Brown, Fish and Wildlfie St. Paul - extensive knowledge of history
- Archaeological sites, fur trade posts (rated -)

Battle River

- Fur trading (rated 2)
- Native communities along river (food source)(rated 2)

Cline River

- Rock art site (rated 2)

Sturgeon River

- Historic meeting place on the North Saskatchewan River (rated +3)

Red Deer River

- Some areas have strong First Nations heritage (rated 2)
- Dinosaur sites (rated 3)
- Post near Red Deer. David Thompson, Anthony Henday (rated 2)
- Palaeontology (rated 3)
- First established Natural History Society in Alberta. History of early naturalists: Dr. George, Frank Farley (Farley Mowat's uncle), Kerry Wood. Calgary-Edmonton Trail. Early logging history (rated 3)(letter attached)
- Native sites, vision quest, medicine wheels (rated 3)
- Archaeological sites, fur trade post (rated 3)

Bow River

- Explorer's route (rated 2)
- Historically important fishery in Banff. CPR, Trans-Canada, fishery below Calgary (rated 3)
- Old fort sites (rated 2)
- Calgary Fort (rated 3)
- Archaeological sites, fur trade posts, whiskey posts (rated 3)

Highwood River

- Indian grounds and artifacts (rated 3)
- Archaeological sites, fur trade posts (rated 3)

Kananaskis River

- Archaeological sites (rated 2)

Oldman River

- Indian circles, buffalo jumps (rated 3)
- Archaeological sites, whiskey posts, NWMP (rated 3)

Castle River

- Archaeological sites, sacred paint source (rated 2)

Crowsnest River

- Frank Slide (rated 2)
- Archaeological resources (rated 3)

Belly River

- Archaeological resources, whiskey posts (rated 3)

St. Mary River

- Archaeological sites (rated 3)

Milk River

- Archaeological sites (rated 3)
- Writing-on-Stone Provincial Park (rating 2)
- Writing-on-Stone, other petroglyph sites, native sites (rated 3)
- Archaeological sites, rock art, medicine wheels (rated 3)

South Saskatchewan River

- Hanging tree where 21 horse thieves from Montana were hung. See Grassy Lake History book (rated 3).
- Archaeological sites, medicine wheels, fur trade posts (rated 3)

C. Recreational Activity/Value

Ratings for categories applicable to the comments are listed in parentheses following each comment. Abbreviations used for category headings are: PB: power boating, FltC: flatwater canoeing, WWC: whitewater canoeing or kayaking, SF: sport fishing, SW: swimming, MTr: motorized trail activities, NmTr: non-motorized trail activities, H: hunting, C: camping, CLA: contemporary landscape appreciation, HLA: historic landscape appreciation, DNL: distinctive natural landscapes or beauty, RA: remoteness appreciation.

General Comment:

- "On some of these you really don't know what you are rating."

Athabasca River

- Recreation Access Highway 2, 43
- Fort McMurray up/downstream. Undertow, strong current (PB:3, FltC:2)
- Needs more development
- Cabin near Pine Creek confluence
- Numerous rapids and historic significance, primarily Grand Rapids and Pelican settlement

Beaver River

- Highly under utilized

Clearwater River (north)

- Section by Whitemud Falls is deadly (WWC:3)
- Downstream from Christina River junction (PB:3, FltC:2, WWC:0, SW:1, C:2, HLA:2, DNL:2, RA:3)
- High levels of recreational use.
- Short but good wilderness river - an undiscovered gem!
- Extension of Saskatchewan wilderness experience (Alberta leg is short and less inspiring)

Maligne River

- Whitewater rafting, kayaking, winter ice walks in canyon

Christina River

- Trapper's cabins (PB:3, FltC:1, WWC:3, SW:1, C:1, C:3, HLA, DNL, RA:3)
- Limited season? (WWC:2)

Wildhay River

- Excellent canoeing opportunities (FltC:3, WWC:3)
- At mouth, trapper's cabin (FltC:1, WWC:2, SW:1, H:3, C:3, HLA, DNL, RA:3)
- Highway 40 (SF:2, C:2, DNL:2, RA:3)
- Willmore section (FltC:2, WWC:2, SW:1, NmTr:2, H:2, C:2, DNL:3, RA:2)
- Excellent whitewater resource in high water periods

Peace River

- There are a number of developed campsites in the Upper and Lower sections of the Peace River Valley.

  The Upper Peace Valley Recreation Area provides a full range of campsites between the Alberta/British Columbia border and the Town of Peace River. Fishing seems to be good at the mouth of rivers and creeks running into the Peace River. The river valley is popular with photographers due to the unique landscapes, geological formations, etc. While there is some development along parts of the river, many areas of the river are remote.
- Only whitewater at Vermilion Chutes (FltC:3, WWC:0)
- Excellent development from B.C. border to Peace River Town. You should obtain a copy of the 20 minute promo video if you don't have one!

- Excellent wilderness/scenery, long trip

Peace Delta

- Eco tours
- Mosquitoes

Smoky River

- In Willmore (C:3, DNL:3, RA:3).
- Above Grande Cache (FltC:3, WWC:1, NmTr:2, H:2, C:2, DNL:2, RA:2)

Little Smoky River

- catch and release fisheries management strategy upstream of Grizzly Junction. Today's remote access contributes to a wilderness experience. The Fox Creek-Knight Process is working with stakeholders to define the Little Smoky Wildland Recreation Objective (WWC:3, H:3, RA:3)

Kakwa River

- At Falls (C:3, DNL:3, RA:3)
- Probably excellent for whitewater canoeing but don't know for sure

Wabasca River

- Limited knowledge but canoe clubs could connect (FltC:3, WWC:2, RA:3)

Brazeau River

- Upstream of reservoir (WWC:3, DNL:3, RA:3).
- Needs to be developed. SH940
- National Park section only (WWC:3, NmTr:3, C:3, DNL:3, RA:3)
- Wilderness (DNL: 3, RA:3)

North Saskatchewan River

- Higher ratings near mountains (RA:3)
- Saunders to Rocky Mountain House, Devil's Elbow (PB:3, WWC:3, H:3, C:3, DNL:3, RA:3)
- Needs to be developed
- Popular canoeing reaches, Big Horn to Drayton
- Abraham Lake (PB:3, FltC:3, WWC:1, SF:2, H:3, C:3, CLA:3, DNL:3, RA:3)
- Canoeable throughout and accessible (PB:3, FltC:3, WWC:3)
- Variety, specific good locations. Use due to access.
- Limited Crown land along river

- Historical value very high. Fur forts, Riel rebellion, Alta Frid Force (spelling may not be correct)

Ram River

- Excellent catch and release (SF:3)
- At Falls (downstream)(DNL:3, RA:3)
- Falls, hiking
- Dramatic canyon, remote whitewater (expert) (WWC:3)

Battle River

- Ideal camping spots (C:3)
- Coal Lake/Pipestone Creek junction to Forestburg (all factors rated low (0-1), except SP:2)
- Too many meanders for canoeing. Very flat

Cline River

- Canyon, hiking trails on both sides, Pinto Lake
- Gorge, in mountains (RA:3)

Red Deer River

- Variable-depends on reach, badlands on lower reaches (FltC:3 on lower reaches, WWC:3 on higher reaches, CLA:3, DNL:3, RA:3)
- Excellent whitewater around Sundre. Camping all along river (WWC:3, C:3)
- Many recreational opportunities (FltC:3 WWC:3, SF:3, NmTr:3, C:3)
- Accessibility, diversity and scenery, whitewater
- Best whitewater in province on upper - dramatic landscape on lower (FltC:3, WWC:3)

Bow River

- Numerous recreational opportunities (PB:2, FltC:3, WWC: 2, sport fishing:3, MTr: 2)
- Mountain, foothills, prairie. Hydro water supply dams, irrigation weirs
- Good access, scenic

Highwood River

- Numerous recreational opportunities (FltC:2, WWC:3, SF:2, NmTr:3, C:2, RA:3)
- Whitewater in June in upper reaches (FltC: 3, WWC:3)
- Good whitewater activities (WWC:3)

Kananaskis River

- Numerous recreational opportunities. Excellent whitewater canoeing (FltC:2, WWC:3, SF:2, NmTr:3, C:2, RA:3)
- Spoiled by hydro operations
- Good whitewater in scenic environment (WWC:3)

Panther River

- Whitewater canoeing and rafting

Castle River

- At Falls (downstream) (all ratings 1-2, except SF:3)

Crowsnest River

- Good fishery

Milk River

- easy canoeing, ranching, some natural prairie, Writing-on-Stone

Additional Comments

- Brown Creek near SH940 (Trunk Road) DNL:3, RA:3
  River near SH 940 (Trunk Road) DNL:3, RA:3
- "Bow River fishery dependant on Highwood passes for propagation and rearing of fish stocks - fish stocks which has (sic) high social, educational, recreational and economic value- if we do not preserve it we lose it-"
- "Note: very subjective. There are many gaps in my knowledge. Fishing is hearsay."

Appendix 3

Heritage Value Guidelines

Heritage Value Guidelines

1.0 Natural Heritage Values

Outstanding Canadian **natural heritage** value will be recognized when a river environment meets one or more of the following guidelines:

- Is an outstanding example of river environments as they are affected by the major stages and processes in the earth's evolutionary history which are represented in Canada. This would include rivers which best represent the major periods of geological time in which the surface of the earth underwent major changes and stream modification;

- Is an outstanding representation of significant ongoing fluvial, geomorphological and biological processes. As distinct from the periods of the earth's development this focuses upon ongoing processes in the evolution and form of the river and its associated plant and animal communities;

- Contains along its course unique, rare or outstanding examples of natural phenomena, formations or features, or areas of exceptional natural beauty;

- Contains along its course habitats of rare or endangered species of plants and animals. This would also include areas where outstanding concentrations of plants and animals of Canadian interest and significance are found.

2.0 Human Heritage Values

Outstanding **human heritage** value will be recognized when a river environment meets one or more of the following guidelines:

- Is of outstanding importance owing to its influence, over a period of time, on the historical development of Canada through a major impact upon the region in which it is located or beyond; this would include its role in such significant historical themes as native people, settlement patterns and transportation;

- Is strongly associated with persons, events, movements, achievements, ideas or beliefs of Canadian significance;

- Contains historical or archaeological structures, works or sites which are unique, rare or of great antiquity;

- Contains outstanding examples or concentrations of historical or archaeological structures, works or sites which are representative of major themes in Canadian history.

In every case consideration should be given to the state of preservation of the river environment relative to its visual appearance during the historic period in which the waterway is considered to be of outstanding importance.

3.0 Recreational Values

Recognizing the man-land relationship essential to recreation, outstanding **recreational** value will be recognized when a river environment meets the following general guidelines:

- Possesses an appropriate combination of recreational opportunities and related natural values which together provide a capability for an outstanding recreational experience;

  - Recreational opportunities include such activities as boating, hiking, swimming, camping, wildlife viewing, and human heritage appreciation;
  - Natural values include natural visual aesthetics, that is, diversity and quality of scenic beauty and physical essentials, such as sufficient flow, navigability, rapids, accessibility and suitable shoreline;

- Be capable of supporting recreational uses without significant loss of or impact on its natural, historical or aesthetic values.

4.0 Integrity Guidelines

In addition to the specific 'Heritage Value Guidelines,' a river and its immediate environment must meet 'Integrity Guidelines' for designation to the Canadian Heritage Rivers System.

- They should be of sufficient size and contain all or most of the key interrelated and interdependent elements* to demonstrate the key aspects of the processes, features, activities or other phenomena which give the river its outstanding value;

- They should contain those ecosystem components required for the continuity of the species, features or objects to be protected;

- The quality of the water should be such as to provide for the continuity and/or improvement of the resources upon which 'value' to the system has been determined.

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* *Elements are defined as resources or groupings of resources identified as having values essential to the nomination of a river.*