

**Background Study – Full Version  
Adams River, British Columbia  
Proposed National Heritage River Nomination**



Prepared for B.C. Ministry of Environment  
Thompson Region

Cal-Eco Consultants Ltd. and Mariposa Trails

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### Maps

An overview map of the Adams River showing its location in the province of British Columbia is provided on Page 8. The overview map also indicates the location of six individual map sheets showing greater detail for segments of the river. These sheets 1 to 6 are found at the end of this document.

### Acknowledgements

The people of Chase, the Adams River and the North Shuswap for their input and help  
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*Cover photo: Adams River Salmon Society*

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# 1 Introduction

This project was carried out for the B.C. Ministry of Environment, Thompson Region, Environmental Stewardship Division, Kamloops. It encompassed an overview of the features of the Adams River, British Columbia, and an assessment of the degree to which the river meets the requirements for a national heritage nomination under the Canadian Heritage Rivers System (CHRS).

The project involved secondary research, as well as contact with numerous individuals and representatives from a variety of groups. Contact was made with First Nations, commercial and forestry interests, and Local, Provincial, and Federal governments. A workshop and open house were held in Chase. The Adams River Salmon Society played a key role in both initiating this project and assisting with its progress.

## 1.1 Overall project purpose

The broad objectives of the background study, undertaken in two phases, were to:

- a) document and assess the river's human heritage values (cultural/ historical/ archaeological), related natural resource values and recreational opportunities, land and water uses/issues, and heritage management and environmental issues associated with the Adams River from a CHRS perspective; and
- b) apply this information to the formulation of statements on the degree to which the human heritage, natural heritage, and recreational values of the Adams River meet CHRS selection and integrity guidelines; the role that the river would play in the CHRS; and the feasibility of managing the river according to CHRS objectives.

Initial work was carried out in February and March, 2005. Further work was undertaken in the period November 2005 to Mar 2006.

## 1.2 Detailed Objectives

The detailed objectives for the first phase of the project, carried out in February - March 2005, were as follows:

- Review the nomination process for a Canadian Heritage River and requirements for information.
- Determine the extent that existing documents (including park planning documents and the British Columbia Heritage River work, Adams River Salmon Society information) provide information to fulfill the nomination process requirements, including scoping out availability of maps, images, photographs and videos.
- Identify any gaps in information required for CHR nomination and further work required.
- Identify key interest groups and individuals with involvement/interest in the Adams River.

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- Make preliminary contact with as many stakeholder groups as feasible in the time available.
  - Delineate an approximate study area for the river, which encompasses known significant human heritage and related natural and recreational values.

It was recognized that recommendations on a suitable study area would be fine-tuned based on stakeholder consultation in Phase 2. It was also recognized that, due to the tight timeframe, the preliminary background study would exclude detailed consultation with stakeholders, and that this would comprise part of the second phase of the project.

Phase 2 objectives were:

- Complete the documentation and assessment of the river's human heritage values (cultural/ historical/ archaeological), related natural resource values and recreational opportunities, land and water uses/issues, and heritage management and environmental issues associated with the Adams River from the perspective of the Canadian Heritage Rivers System (CHRS) and their various planning documents<sup>1</sup>;
- Assess the degree to which the human heritage, natural heritage, and recreational values of the Adams River meet CHRS selection and integrity guidelines; the role that the river would play in the CHRS; and the feasibility of managing the river according to CHRS objectives.
- Initiate a consultation process with local stakeholders and relevant government and local government agencies to gain input to the planning process, ensure any issues and concerns are addressed early on in the process, and gain support for the program;
- Prepare a CHRS nomination document in cooperation with local stakeholders for the Adams River.

This document outlines and assesses the river's heritage values. A separate draft nomination document has been prepared.

## 2 Background

### 2.1 Overview, Adams River

The Adams River rises in the Columbia Mountains. It flows southward approximately 94 km through a deeply dissected valley which includes a series of wetlands and two lakes (Tumtum and Mica) into Adams Lake, a 72 km long waterbody. The river continues at the south end of Adams Lake and flows for another 11 km to enter into Shuswap Lake near Squilax east of Chase (refer to Overview Map, page 8). The

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<sup>1</sup> These include the following documents: CHRS Principles, Procedures and Operational Guidelines (2002), A Cultural Framework for Canadian Heritage Rivers (2<sup>nd</sup> Edition, 2002), A Framework for the Natural Values of Canadian Heritage Rivers (2<sup>nd</sup> Edition, 2001)

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stretch above Adams Lake is referred to as the upper Adams River; the stretch below Adams Lake is the lower Adams River.

Roderick Haig-Brown Provincial Park on the lower river is known internationally for its sockeye salmon run, and has been recognized as one of the “World’s Greatest Natural Areas” by the International Union for the Conservation of Nature (IUCN) World Commission on Protected Areas.<sup>2</sup>

## **2.2 BC Heritage Rivers Status**

In 1995 the mainstem of the Adams River was nominated as one of a number of inaugural Heritage Rivers by the then newly-established BC Heritage Rivers Board. The BC Heritage Rivers Program has the following overall objectives:

- To raise awareness and promote good stewardship of British Columbia’s rivers.
- To encourage public discussion of the heritage values of rivers.
- To identify rivers in British Columbia that reflect a diversity of natural heritage, cultural heritage and recreational values.
- To ensure that river stewardship is addressed in existing and future plans and planning processes.

Operating principles of the BC heritage river system are:

- To operate within existing legislation, policies and planning processes.
- To provide input and guidance that is not regulatory or directive in nature.
- To focus on the primary stem of the river.
- To reinforce the work of stakeholders and planning tables in addressing river stewardship.
- To encourage coordination and collaboration among stakeholders.
- To monitor river management, to determine whether river management guidelines are being achieved.

The Adams River (including upper and lower sections, and Adams Lake) was selected for its “critical environment contributing to the sustainability of internationally significant salmon populations. As such it provides exceptional opportunities to help protect this resource and educate people on the importance of habitat quality and sustainability.”<sup>3</sup>

In April 1996 the Government provided its response to the Board’s nominations, and accepted the nomination of the Adams River as a BC Heritage River.<sup>4</sup>

The BC Government’s “Vision” and “Management Guidelines” for the Adams River are:

### **Vision**

A carefully managed waterway, ensuring its integrity as the premier salmon spawning river in the province and enabling its significant contribution to the protection of British Columbia’s natural heritage and contribution to widespread public education.

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<sup>2</sup> Clarke and Vyse, p. 2

<sup>3</sup> BC Heritage Rivers Board, 1995, pp 12-13.

<sup>4</sup> British Columbia, 1996, p. 5

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## Management Guidelines

- To establish and maintain water quality standards required to support salmon production.
- To manage forestry and other industrial uses to ensure that the volume, quality and timing of water flows meet the requirements of salmon production.
- To monitor and control recreational use of the river to avoid impacts on fish populations.
- To maintain human history values of the river, combined with ongoing industrial and recreational use.
- To implement educational programs that communicate the special value of the Adams River fish populations.
- To manage the river, where it flows through a protected area, to retain its free-flowing character. Otherwise, to consider maintaining its free-flowing character.
- To ensure that river recognition will not diminish or restrict the use and enjoyment of the river by aboriginal people.
- To ensure that these management guidelines are consistent with the management objectives of the protected area and special resource management zones outlined in the Kamloops Land and Resource Management Plan decision document.

## 2.3 Canadian Heritage Rivers System

The Canadian Heritage Rivers System (CHRS) is Canada's national river conservation system, aimed at promoting, protecting and enhancing Canada's river heritage. The system has been established by the Federal, Provincial and Territorial governments for the purpose of recognizing outstanding rivers of Canada, and ensuring future management which will protect these rivers and enhance their significant heritage values for the long term benefit and enjoyment of Canadians.

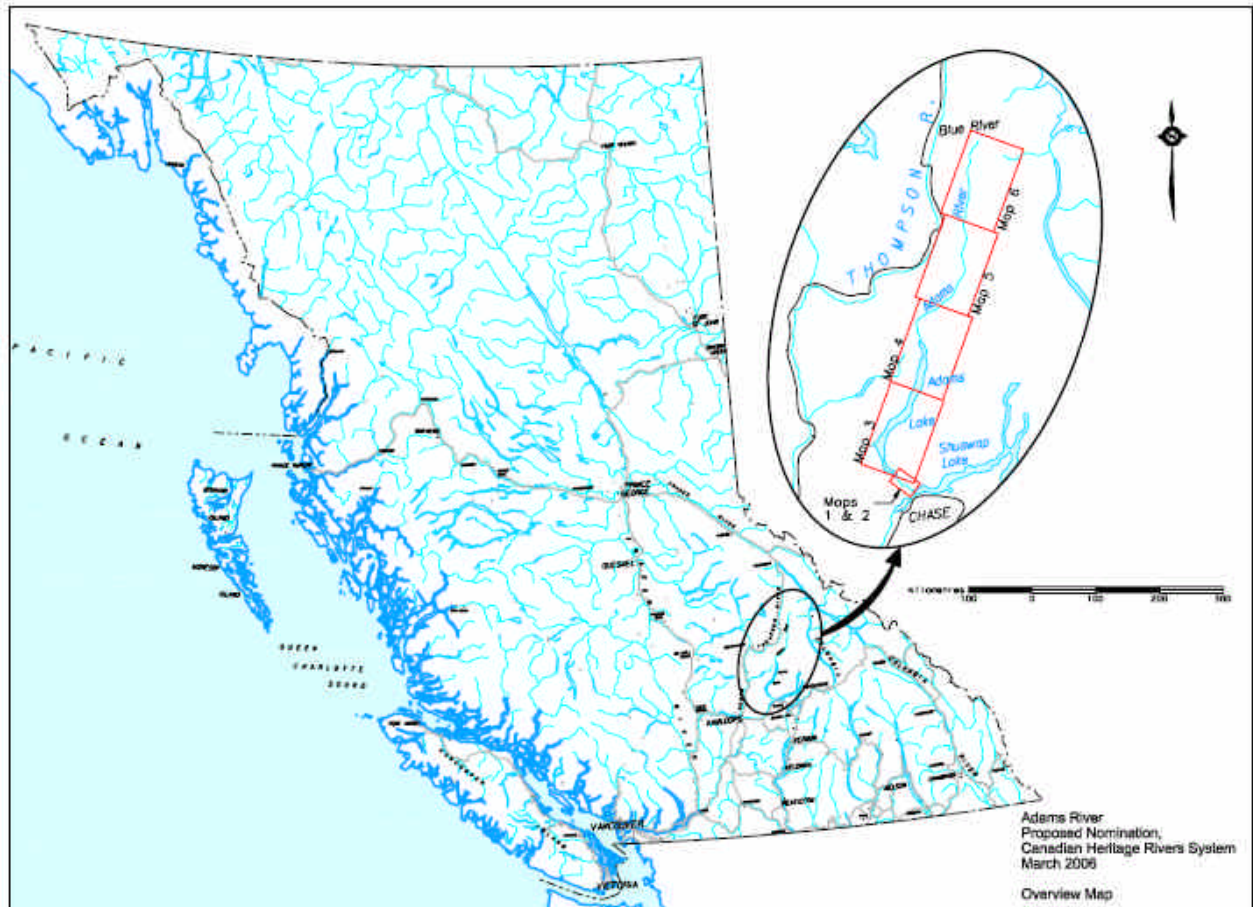
The CHRS operates under a charter that describes rivers as “*a priceless and irreplaceable part of our national heritage and identity*”. In British Columbia, the Fraser, Kickinghorse and Cowichan Rivers have been designated as Heritage Rivers under the CHRS. To qualify for inclusion in the CHRS, a river (or section of river) must be of outstanding significance in one or more areas: natural heritage, human heritage, or recreational values.

The process of nominating a Canadian Heritage River requires an assessment of a river's natural, cultural and recreational values against criteria set out by the CHRS.

While the CHRS is administered by the Canadian Heritage Rivers Board, a fundamental principle of the system is that it depends on voluntary participation, partnership, cooperation and community involvement. The CHRS has no legislative authority, and as such, Local, Provincial and Federal governments, and First Nations, retain their traditional jurisdictional powers and management responsibilities.



## Overview map of the Adams



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## 3 The CHRS Framework and Features of the Adams River

The CHRS framework provides a consistent way of assessing the features of rivers being considered for nomination as a Canadian Heritage River. The framework addresses natural, cultural, and recreational values. The features of the Adams River are assessed and presented in terms of this framework.

### 3.1 Natural Values

Under the CHRS Natural Heritage Framework, six broad themes are identified. Information is presented in the following sections describing the Adams River under each of these themes.

A key theme that emerges from the natural values framework is that many factors, including hydrology, physiography, and geographical location in relation to both Adams Lake, and the downstream Shuswap Lake, work in concert to contribute to the significance of the Adams River for the salmon populations which breed in it. The Adams River is near the southern extreme for sockeye salmon in North America; it is the most productive tributary of the Fraser, one writer describes it as the “greatest salmon river on the planet”.<sup>5</sup> Certainly many place it among the best.

#### 3.1.1 Theme 1 – Hydrology

##### *Sub theme 1.1 Drainage basins*

The Adams River is in the Pacific Ocean Basin; it flows into Shuswap Lake, which empties into the Fraser River via the Thompson River. The Adams is therefore a lower order river, with a stream number greater than 2.

The river’s headwaters are in the Columbia Mountains, at roughly 2,000 m elevation. The Adams rises one valley to the east of the North Thompson River, and one valley to the west of the Columbia River, separated by the Monashee Range. These mountain ranges have a cooling effect on both the waters and the air flowing down the valleys, so even though the outlet of the river at Shuswap Lake is in a warm micro-climate area, the waters of the river stay relatively cool.

Oliver, Sunset and Dudgeon Creeks are three significant tributaries originating in the Monashee Mountains that drain into the upper river. Cayenne Creek flows south from the Monashees and through the Momich Lakes into Adams Lake. A number of smaller creeks enter the lake from the surrounding hills. The two main tributaries of the lower river are Hiuihill (Bear) Creek and Nikwikaia (Gold) Creek. To the south of the Adams River is the Shuswap Lake system and the South Thompson River; directly north of the headwaters is the North Thompson River.

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<sup>5</sup> Hume, p. 71

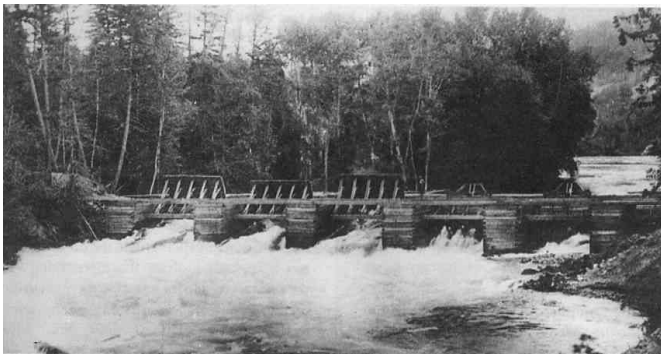


The Lower Adams River  
Photo: Blair Borden

The Water Survey of Canada (through Environment Canada) has operated a stream gauge on the lower Adams River since 1912, at the apex of the river's alluvial fan, about 3 km upstream of where it enters Shuswap Lake.<sup>6</sup> The watershed (area drained), at the point where the stream gauge is located, is 3,080 km<sup>2</sup>.<sup>7</sup> Hydrometric stations were also located at Hiuihill Creek (lower Adams River valley), and Fisher Creek (upper Adams River valley) but data are no longer collected.<sup>8</sup> A station on Adams Lake monitors lake levels.

### ***Sub theme 1.2 Seasonal Variation***

Historically, flows in the Adams River peak in June and are at their lowest in February or March. This flow regime is typical of the BC interior, dominated by snowmelt processes.<sup>9</sup> Discharge rates during the salmon-spawning season are typically about one quarter the size of annual maximum discharge rates.



The Splash dam built on the river in 1907. Source: Restoring Fraser River Salmon.

Water flows on the Adams River were disrupted between 1907 and 1921 by the construction of a 4 ½ m (15 foot) high splash dam (left). This practice (not common in BC but more common in Washington and Oregon) was carried out to raise the water level in Adams Lake to spring freshet height. Stored water was released in the late summer to flush logs down the river to Shuswap Lake for hauling to a mill in Chase. The dam was removed in 1945; historical data between 1907 and 1946 show the effects of

the dam on flows, particularly in winter.<sup>10</sup> There is also a report of a control works dam near the Adams Lake outlet between 1949 and 1952.<sup>11</sup>

<sup>6</sup> Summit Environmental Consultants, 2005, p. 3.

<sup>7</sup> Summit Environmental Consultants, 2005, p. 3.

<sup>8</sup> Water Survey of Canada website, [www.scitech.pyr.ec.gc.ca](http://www.scitech.pyr.ec.gc.ca)

<sup>9</sup> Summit Environmental Consultants, 2004, p. 11

<sup>10</sup> Clarke and Vyse, 2001, p. 8.

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The Adams River supplies over 20 per cent of the water in the South Thompson River ; the effects of the dam had a visible impact on the amount of water flowing in the South Thompson River past Kamloops.

With the removal of the splash dam, there are no current impediments to the natural flow regime in the river. There is a log “wing dam” or “sheer boom” which was built along the south shore of the river, immediately upstream of the highway bridge (Squilax-Anglemont road). It is a 100 metre long structure consisting of 13 sets of creosote timber piers fronted and backed by unpreserved logs. This was likely built in order to help in the floating of logs down the river, so they would not get caught on the island below the bridge, and to protect the bridge piers.<sup>12</sup>

The upstream presence of Adams Lake has a regulating effect on flows in the lower stretches of the Adams River; for example, “instantaneous maximum flows” are on average only 1 per cent larger than the daily peak flows.<sup>13</sup>

### ***Sub theme 1.3. Water Content***

Summit Environmental Consultants notes that water quality in the lower Adams River is generally very good. Turbidity levels tend to be elevated during the freshet, as in the majority of B.C. rivers.<sup>14</sup> Summit notes however that agricultural and logging activity in the watershed have the potential to add sediments to the river.<sup>15</sup>

There are no available sediment transport data or studies for the Adams River.<sup>16</sup> However, Summit notes that the two main tributaries of the lower river (Hiuihill and Nikwikaia Creeks) have experienced eroding banks and potentially can increase sediment to the river.<sup>17</sup>

Adams Lake is very deep (deepest sounding noted in a 1997 study was 397 metres<sup>18</sup>); this places its bed at only a few metres above present day sea level. This feature, combined with its size at 12,800 ha, keeps water cool and helps protect the quality of the water in the lower stretch for spawning. The lake also helps trap sediments brought into the system by the streams which drain into it, further protecting the quality of the lower river. The water draining from the lake flows out over and through coarse gravels, so few fines are added to the river bottom.<sup>19</sup> The rate of sediment input to tributary streams means relatively little sediment is added to the lower stretches of the river, although there have been erosion and avulsions in the Hiuihill (Bear) Creek valley.<sup>20</sup> The low sedimentation contributes to the high quality spawning habitat of the lower Adams River.

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<sup>11</sup> Summit Environmental Consultants, 2005, p. 4.

<sup>12</sup> Summit Environmental Consultants, 2004, p. 14

<sup>13</sup> Summit Environmental Consultants, 2004, p. 14

<sup>14</sup> Summit Environmental Consultants, 2004, p. 32.

<sup>15</sup> Ibid, p. 32.

<sup>16</sup> Summit Environmental Consultants, 2005, p. 6.

<sup>17</sup> Ibid., p. 8.

<sup>18</sup> Fisheries and Oceans Canada, September 1997

<sup>19</sup> Clarke and Vyse, 2001, p. 8.

<sup>20</sup> Summit Environmental Consultants, 2005, p.8

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Clarke and Vyse note that if the temperature of Adams Lake increases as a result of climate change, water would warm in the lower Adams River, and affect spawning salmon.<sup>21</sup>

Tumtum Lake on the upper stretch of river is also deep, again helping keep water in the system cool (65 metres maximum depth).<sup>22</sup>



Tumtum Lake, 1981  
Photo: Blair Borden

### ***Sub-theme 1.4. River Size***

The upper river flows for an estimated 94 km; 65 km of this length is included in the Upper Adams River Provincial Park. Adams Lake is 72 km long, collecting water from a watershed that stretches into the Columbia Mountains. The lower river is a short stretch about 11 km long. The total length of the river, including the lake, is therefore estimated to be about 177 km.

Summit Environmental Consultants used data from the stream gauge on the lower river to calculate maximum daily flows in the river. The annual maximum instantaneous discharge rate, 200 year return period, was estimated (at a 95% confidence level) to be between 383 m<sup>3</sup>/s and 473 m<sup>3</sup>/s. Minimum daily flows (generally in February or March) since 1953 (after flow regulation ceased) average 15.7 m<sup>3</sup>/s.<sup>23</sup> Average peak flows (in June) are just over 200 m<sup>3</sup>/s.<sup>24</sup>

There is no local information on the potential effects of climate change with respect to precipitation, implications for water volume in the river, and potential for changes in patterns of peak flows. It is understood that the next phase for climate change modelling is to “downscale” the global models to regional levels. However, Canadian research in the interior indicates that there is potential for all these factors to be influenced; in general, climate models indicate increased precipitation in the winter, with more of it falling as rain rather than snow, decreased snow packs, increase in glacier melt, and decreased precipitation in the summer.<sup>25</sup>

## **3.1.2 Theme 2 – Physiography**

### ***Sub theme 2.1. Physiographic Region***

Adams River is located in the Shuswap Highlands of the Canadian Cordilleran Plateau / Mountains physiographic region. The Shuswap Highlands are transitional between the Thompson Uplands to the west and the Monashee Mountains (part of the Columbia Mountain system) to the east. The characteristic features are a gently rolling plateau highly dissected by major river systems and their tributaries. The Adams River watershed is at the western edge of the Shuswap Highlands, which is generally defined by

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<sup>21</sup> Clarke and Vyse, p. 9

<sup>22</sup> Mussio, 1997, Reference p. 16

<sup>23</sup> Summit Environmental Consultants, 2005, p. 5 – 6.

<sup>24</sup> Summit Environmental Consultants, 2005, Figure 3.1

<sup>25</sup> Cal-Eco Consultants, 2006.



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the Louis Creek fault that runs on the western side of the watershed. Adams River rises at over 2,000 metres in some of the remnant glaciers and icefields of the Columbia Mountains; Adams Lake is at an elevation of 404 metres and the river enters Shuswap Lake at 347 metres.

### ***Sub theme 2.2. Geological Processes***

The rocks of the Shuswap Highlands are thought to mark the ancient western edge of the Pre-Cambrian rocks of the original North American continent. They were deformed and metamorphosed as the Kootenay terrane collided with the continent in the Cretaceous Period about 160 million years ago<sup>26</sup>. According to Clarke and Vyse, underlying bedrock in the Adams River watershed are some of the oldest rocks found in B.C.<sup>27</sup> The result is a very complex geology of highly metamorphosed and very ancient rocks that is still being understood.

The upper Adams River flows from the ancient metamorphosed Precambrian Monashee complex rocks in the headwaters, and through the intensely metamorphosed rocks of the Hunters Range Assemblage of the Kootenay Terrane. Adams Lake and the lower area of the river, in Roderick Haig-Brown Park, cut through the Eagle Bay Assemblage, the Tsalkom and Sicamous Formations and the Silver Creek Assemblage of the same terrane<sup>28</sup>. The northwest side of Adams Lake is composed of a large Cretaceous granite pluton that intruded through the metamorphics.

On his 1898 map, Shuswap Sheet, George Dawson describes the geology in some detail. For example, in the section Shuswap Series (now called the Tsalkom and Sicamous Formations):

“The Adams Lake series consists almost entirely of altered volcanic materials. Where best displayed, on Adams and Shuswap Lakes, it comprises a great thickness of chlorite, felspathic, sericitic, and sometimes nacreous schists, with occasional argillites. In the lower part of the series the schists are generally grey, in the upper usually green. The northern edge of the grey schists, crossing Adams Lake north of Skwa-am’ Bay runs to the forks of Scotch Creek and....but it is not everywhere well-defined. Irregular beds of limestone appear in the upper part of the series, but no attempt has been made to define these on the map. These schists have resulted from some dynamic metamorphism of more massive volcanic rocks, into which they can be traced.”<sup>29</sup>

Major fault lines are found along the lower reaches of upper Adams River and Adams Lake, within Roderick Haig-Brown Park along the river valley, and along the Squilax-Anglemont Road west of the bridge over the Adams River. Erosion of these ancient rocks continued through the Tertiary period and the general land surface was in place before the ice ages of the Pleistocene.<sup>30</sup>

Glacial action gave the Adams River its present form through the processes of erosion and deposition. The river and lake valleys were deepened through each successive glaciation, and moraine deposited in varying thicknesses throughout the uplands.

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<sup>26</sup> Yorath, 1990, pp. 27-31.

<sup>27</sup> Clarke and Vyse, p. 6

<sup>28</sup> Monger and Price, 2000, map.

<sup>29</sup> Dawson, 1898

<sup>30</sup> Holland, 1964, pps. 45-46.

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### ***Sub theme 2.3. Hydrogeology***

It is not known exactly how the gravel that provides such good spawning beds in the lower river was deposited. Multiple glaciations may have raised the fans and deltas; they could also be from kame deposits left while ice filled the Adams Lake basin.<sup>31</sup> Hume writes that the glacial ice in the Adams Lake and river valley were the last deposits of ice to melt. Meltwater, dammed by ice in what is now Little Shuswap Lake, initially ran into the Columbia and Okanagan drainage systems. When the ice dam finally melted, the pattern of drainage reversed and the river that is now the Adams swung to the west.<sup>32</sup>

The lower section of the river, upstream of the bridge, has soils of a gravelly texture, derived from fluvial or fluvio-glacial processes. Slopes are steep, soil textures coarse, and drainage is not impeded.<sup>33</sup> Soils in the alluvial fan contain a higher proportion of sand, including some areas where a sandy veneer has been deposited from overbank flooding. This area is imperfectly to poorly drained.<sup>34</sup>

Large areas of the upper Adams River are gravel beds; due to the damage to the salmon run in the upper river (discussed later in this document), the gravel beds have not been used for many years. There is some concern that these gravels are now inferior for spawning because they are covered in a sediment that has compacted due to lack of use, creating an environment that is not ideal for spawning and salmon fry development. However, salmon themselves are capable of restoring the beds through cleaning, taking off the surface deposits and uncovering the gravel.<sup>35</sup>

Aquifer mapping has been completed for areas in the lower Adams River but not for other sections of the valley<sup>36</sup>; there is no information available on hydrogeological processes for the upper Adams River.<sup>37</sup>

### ***Sub theme 2.4. Topography***

The Adams River rises at about 2,000 m and drops about 1,000 m in only a few kilometres while it is still a small series of headwater creeks. The upper Adams River valley is narrow and steep-sided, with a floodplain in the characteristic shape of formerly glaciated “U-shaped” valleys.

Below Tumtum Lake the forested valley widens and slopes are gentler with a more rolling topography. The river is joined by a number of creeks from the north as it enters the head of Adams Lake in a broad floodplain. Steep slopes from a rolling forested plateau form the curving sides towards the north end of Adams Lake, with the slopes becoming lower and gentler towards the south.

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<sup>31</sup> Robert Fulton, Pers. Comm.

<sup>32</sup> Hume, p. 72

<sup>33</sup> Clarke and Vyse, p. 6

<sup>34</sup> Ibid. This section is drawn directly from Clarke and Vyse.

<sup>35</sup> Doug Lofthouse, Fisheries and Oceans Canada, Pers. Comm. Kelly Austin, Fisheries and Oceans Canada, Pers. Comm.

<sup>36</sup> Ministry of Environment aquifer map

<sup>37</sup> Fulton, Pers. Comm.



The upper Adams River, north of Tumtum Lake  
Source: Ron VanderZwam, B.C. Min. of Forests

Squaam Bay, on the north side, forms the only major indentation in the lake's shoreline. The lower Adams River deeply dissects forested upland of the Adams Plateau on the east side, and Adams Hill and Tsalkom Mountain to the west.<sup>38</sup> Below the highway bridge it broadens out to include the extensive alluvial fan before it enters Shuswap Lake.

Tumtum Lake is at about 755 m elevation; between Tumtum and Adams Lake the river descends at roughly 5 m per km, a significant gradient in terms of the CHRS framework evaluative criteria. After the river leaves Tumtum Lake local users indicate there are about 10 kilometres of Class III – IV paddling water. It then slows for about 15 km with a gentler gradient and, and then again narrows and speeds up through narrow steep-sided canyon walls for somewhere between 5 to 8 km. Here local users indicate the water is Class IV – V for paddling. About 3 km downstream of where Sunset Creek enters the river there are 3 metre (10 foot) falls; a canyon in the area is described as extremely dangerous. This water continues until the big southerly bend before the river goes into the gentle Class I-II delta area at Adams Lake.<sup>39</sup>

The lower river drops 60 m in the 11 km from Adams Lake (at 404 m) to Shuswap Lake (347 m) and is rated Class II for paddling, with one 75 m section through the gorge (called Devil's Door) rated Class III – IV for paddling.<sup>40</sup>

### 3.1.3 Theme 3 – River Morphology

#### *Sub theme 3.1. Valley Type*

The upper river flows in a narrow valley between steep-sided mountains of the Monashee Range. Adams Lake separates the upper river from the lower section; it too, sits between the steep-sided slopes of the Adams Plateau.

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<sup>38</sup> Clarke and Vyse, p. 5

<sup>39</sup> Robert Beaudry, Pers. Comm.; Bob MacDonald, Pers. Comm.

<sup>40</sup> Mussio, 1998, Reference page 37.



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The 11 km lower river flows rapidly for 8 km, confined to a narrow incised valley (including a bedrock canyon for approximately 0.25 km) and dropping almost 60 metres in this distance (an average of 7.5 m per km). The final 3 km of the river is a wide alluvial fan.

### ***Sub theme 3.2. Channel Pattern***

The upper Adams River meanders in a narrow valley, with extensive wetlands north of Tumtum Lake. The valley bottom widens out below the lake and the river flows from side to side in a series of deep meanders, oxbows and side channels. The river enters Adams Lake through a main channel and a series of smaller channels.

Wing dams were constructed in the upper Adams River by the former Adams River Lumber Company sometime during the period 1911-1925. These structures provided holding places for logs that were dumped into the river before they were run down to the lake for making into booms. Remnants of the structures remain in the river, with one visible beside the main road crossing.

Adams Lake is situated in a narrow, curved, steep-sided valley. The lower Adams River is relatively straight, with a few bends, until it reaches the last 3 km alluvial fan where it meanders before entering Shuswap Lake near Little River, in the area called Squilax.

Fisheries and Oceans Canada (DFO) recently compiled a set of historical aerial photographs (1951, 1960, 1975, 1980, 1990, and 2000) and commissioned the production of orthophotos to examine changes in the channel of the lower river since 1951, the date of the oldest available aerial photograph. Considerable changes in channel pattern were identified on the river's alluvial fan. Some of these changes include aggradation in the south channel since 1951, reducing its capacity to carry flow, and thus reducing spawning habitat. This aggradation was likely caused principally by peak flows in the early 1970s and late 1990s, but contributing factors were sediment (from the tributaries Hiu Hill and Nikwikaia Creeks), woody debris and past engineering works in the river.<sup>41</sup>

In 1974 the International Pacific Salmon Fisheries Commission constructed river “training” works in the alluvial fan of the river, in order to partition stream flows between the two main channels and maximize the available spawning habitat on the fan. However, this project had the opposite effect over the long-term, increasing the flow through one channel, causing a scour hole, and aggradation.<sup>42</sup> In addition, these



The upper Adams Valley north of Adams Lake  
Source: Ron VanderZwam, B.C. Min. of Forests

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<sup>41</sup> Summit Environmental Consultants, 2005b, p51

<sup>42</sup> Summit Environmental Consultants, 2005a, p. 10

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channel adjustments have placed trails in Roderick Haig-Brown Park under increasing risk of erosion.<sup>43</sup> One of the options which has been suggested to manage habitat in the alluvial fan, linked to channel issues, is the removal or relocation of a viewing platform in Roderick Haig-Brown Park.<sup>44</sup>

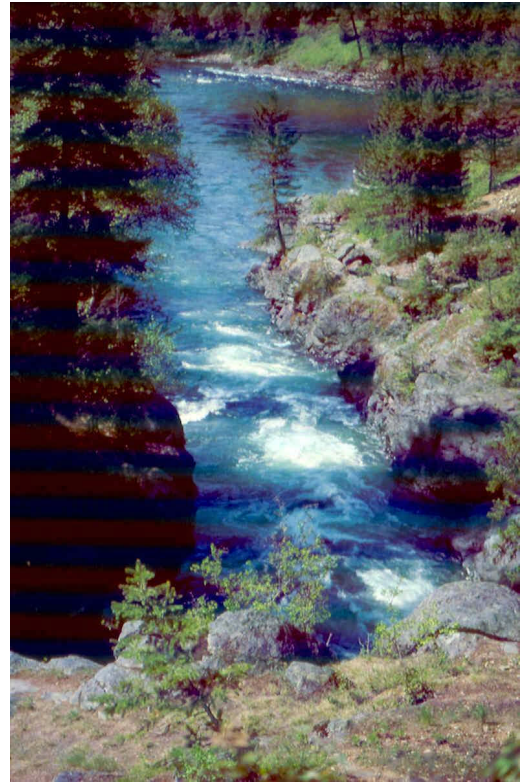
An important element of the alluvial fan is the role played by large woody debris in stabilizing the channel and contributing to habitat quality. In the past, large woody debris was removed in a misguided attempt to stabilize channels. During the days of the splash dam the river channel was scoured every year by all the logs pouring down towards Shuswap Lake.

### ***Sub theme 3.3. Channel Profile***

Knowledge about the channel profile of the upper river was gained through several users of the upper river. Distances and descriptions are imprecise. Extensive sections of the upper Adams River are cataracts and prolonged rapids, with one long section which would be categorized as level water. The lower Adams is “riffle”, with one section of “cataract” whitewater.

### ***Sub theme 3.4. Fluvial Landforms***

The upper Adams River is a large floodplain with extensive areas of wetlands and oxbows throughout its length. There is a large wetland just before the river enters Tumtum Lake and multiple channels as it approaches Adams Lake. Before it enters Shuswap Lake the river emerges into a wide alluvial fan for 3 km, with many gravel ridges dividing the various channels of the river. Abandoned channels with accompanying ridges are vegetated. The entire valley, including the lower slopes along the lake edge, is characterized by extensive fluvio-glacial deposits. Because the gravels of the lower river are immediately downstream of a deep lake, sediment is reduced, which is excellent for fish<sup>45</sup>.



Canyon, lower Adams River  
Photo: Blair Borden

## **3.1.4 Theme 4 – Biotic Environments**

### ***Sub theme 4.1 Aquatic Ecosystems***

In terms of the CHRS guidelines for classifying aquatic ecosystems, the headwaters of the upper Adams River is classified “headwater” zone, while the rest of the system is “middle zone”.

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<sup>43</sup> Ibid.

<sup>44</sup> Summit Environmental Consultants, 2005b, p. 53

<sup>45</sup> Robert Fulton, Pers. Comm.

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Adams River flows through a diverse range of aquatic habitats. In the upper Adams River the cold, wet and rich riparian forests include a variety of wetlands, oxbows and shrubby areas. The fens typically include sedges, grasses, reeds and brown mosses on organic soils; cattail and beaked sedge marshes occur in shallow flooded areas; slightly drier swamps have Drummond's willow, small amounts of other willows, and beaked sedge<sup>46</sup>. In the uppermost reaches trees have been found that are as much as 1000 years old, indicating that there have been few major disturbances in the area for a very long time. All these habitats provide the shade needed for salmon production. Adams Lake is oligotrophic.<sup>47</sup> The lake has only a few areas with deciduous riparian vegetation, primarily where the larger creeks enter the lake, Momich Creek and delta being the most notable. As of September 2004, the lake was free of the invasive aquatic plant Eurasian water milfoil<sup>48</sup>; its present status is unknown. The lower Adams River from Adams Lake to Shuswap Lake is noted for the valuable riparian habitats, backwaters and sloughs that again provide the shade along the river for successful salmon spawning.

It is for its aquatic ecosystems related to salmon that the Adams River is most celebrated. Historically both the lower and upper Adams were known for their huge numbers of spawning sockeye salmon, as exemplified in a quote from John Babcock, the first commissioner of fisheries for British Columbia in a 1913 report. Babcock was so overwhelmed by the numbers of fish that he wrote that "the run of sockeye to Adams Lake in 1901, 1905, and 1909 was so great that every tributary was crowded with spawning sockeye."<sup>49</sup>

The Adams River provides important spawning habitat for sockeye, chinook, coho and pink salmon. The sockeye salmon run in the Adams River is one of the most important of the 30 distinct runs of sockeye in the Fraser River system.

The splash dam built in 1907 just below the outlet of Adams Lake had the result of impeding the early-summer upper Adams run, so that it was unable to reach its spawning area. It also severely affected the late run sockeye of the lower river: when logs and water were released, they scoured the river bottom. In between releases, the lower river channel ran almost dry, killing salmon eggs.

DFO, working with First Nations in the area, has been working to re-establish the upper Adams River sockeye stocks, which are separate from the sockeye that spawn in the lower river. In the fall of 2000, a record 70,000 adult sockeye salmon returned to spawning grounds in the upper Adams River. These numbers were not attained in subsequent years and work is continuing on ways that the numbers can be increased.<sup>50</sup>

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<sup>46</sup> Dennis Lloyd, 2005

<sup>47</sup> Marge Sidney, Pers. Comm.

<sup>48</sup> Doug Dymond, Pers. Comm., citing Columbia Shuswap Regional District, 2004, p. 4

<sup>49</sup> Fisheries and Oceans Canada. Backgrounder on the Upper Adams run December 14, 2000. Posted on their website (accessed 28-03-05).

<sup>50</sup> Keri Benner and Doug Lofthouse, Pers. Comm. March 2006

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The salmon play a crucial role in both aquatic and terrestrial ecosystems. Recent research has shown that the nutrients salmon bring upstream are important for mammals such as bears, birds of prey like eagles, and even trees in the forest which benefit from the droppings of the predators that consume them. The dying carcasses, as they decompose, add important nutrients to the water that feed the next generation of salmon. With the loss of the upper Adams salmon run, and the nutrients left by the salmon when they die, DFO began a program to add nutrients to Adams Lake to stimulate the production of the sockeye's food (plankton).<sup>51</sup> This program has not been continued in recent years due to the costs of doing so against the benefits achieved.<sup>52</sup> There is also anecdotal evidence, for example, that trout populations in Shuswap Lake would increase the year after a dominant salmon run, stimulated by the extra nutrients added to the lake system by the decomposing salmon carcasses.<sup>53</sup>



Salmon carcasses, Adams River  
Photo: Blair Borden

Shuswap Lake itself provides good habitat for salmon fry in their first year of life, so between the cool waters of the Adams River, and the warmer shallower waters of Shuswap Lake bays, the area provides excellent salmon habitat. Each year, especially after a dominant run in the Adams, the lake is enriched by the nutrients added by the decomposing carcasses of the salmon. These nutrients stimulate plankton production which provide the food source for the young sockeye salmon fry in their first year of life, before they return to the Pacific Ocean for the balance of their lives, before returning again to the Shuswap and the Adams to spawn. Thus Shuswap Lake is integral to the importance of the Adams system for sockeye production. After a dominant run, millions of sockeye salmon fry may be swimming within Shuswap Lake.

#### ***Sub theme 4.2. Terrestrial Ecosystems***

The Adams River represents the Montane Cordillera ecozone. The valley provides important bottom riparian habitat, which is considered to be among the most biologically diverse, yet the most threatened in the southern interior.<sup>54</sup>

The riparian areas along both the upper and lower Adams River are rich in diversity of plant species. In addition, the variety of landforms in the lower area helps contribute to a variety of micro-climate conditions which contributes to diversity of plants. The presence of both Adams Lake and Shuswap Lakes influence the climatic conditions and support the relatively high biodiversity of the river valley.

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<sup>51</sup> Fisheries and Oceans Canada news release, May 28, 2001. "Remarkable Rebuilding of Upper Adams Sockeye Run Continues". Posted on their website; accessed 28-03-05.

<sup>52</sup> Doug Lothouse, Pers. Comm., March 2006

<sup>53</sup> Hume, p. 19.

<sup>54</sup> Clarke and Vyse, p.2



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### 3.1.5 Theme 5 – Vegetation

#### *Sub theme 5.1. Significant Plant Communities*

Plant communities in British Columbia have been classified according to the dominant tree species. The Background study on Roderick Haig-Brown Park provided considerable detail on the Park's plant communities. Information for the upper Adams River has been compiled from the unpublished, revised Site Classification for 52 Biogeoclimatic Units in the southern interior region<sup>55</sup>, articles about ancient forests, the Interim Management Direction Statement for Upper Adams River Provincial Park,<sup>56</sup> and discussions with their authors.<sup>57</sup>

The higher portions of the upper Adams River valley is one of only a few in the interior of the province where the combination of high precipitation and lack of fire have produced some of the oldest forest stands in the interior. The river rises in the alpine, and quickly emerges into the Wet Cold Engelmann Spruce Subalpine fir Woodland Zone (ESSFwxw). Balsam fir is the dominant tree species in open forests with a shrub layer of black huckleberry and white-flowered rhododendron. Stands are between 200 and 350 years old with disease, root rot and windthrow being the main agents of change. Trees 1000 years old have been found. Meadows are common in level areas with valerian, hellebore and showy sedge.

The rest of the upper Adams River valley is in the Interior Cedar Hemlock (ICH) zone, ranging through the ICHvk1 (Mica Very Wet Cool variant), north of Tumtum Lake, the ICHwk1 (Wells Gray Wet Cool variant) and the ICHdw3 (North Thompson Dry Warm variant) south of Gold Creek.

Many of the oldest forest stands in the southern interior are found in the ICHvk1, with western red cedar in the valley bottom spanning 1-2 metres in diameter. Mountain hemlock are only found in these wettest places in the province and occur in small stands in the upper Adams River valley. The oldest forest stands are associated with gullies and toe slopes protected from fire.<sup>58</sup> The age and size of the trees in this highly productive area are thought to result from the lack of fire for 500 -1000 years. The ICHvk1 zone has been mapped and is shown on Figure 5.0 (small area) and Figure 6.0 (significant area).

These “Antique Forests” (“... that is, forests that have escaped catastrophic disturbance for a period longer than the age of the trees within them.”)<sup>59</sup> have many species of plants and lichens that are normally associated with coastal forests several hundred kilometres away. The hanging moss (*Antirichia curtispindula*) creates thick mats on western red cedar and western hemlock while the coastal deer fern (*Blechnum spicant*) and red huckleberry (*Vaccinium parviflorum*) are also found. Many oceanic lichen genera are found in these forests where they are old-growth dependent<sup>60</sup>. Two small protected areas have been identified in the upper Adams River valley and are noted as the “Oregona Creek” Protected Areas. The possibility has been raised that some species may be relicts from the “Little Ice Age”, when climatic conditions were presumably more favourable to long-distance dispersal by lichens outside their current primary ranges.<sup>61</sup>

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<sup>55</sup> Dennis Lloyd, 2005.

<sup>56</sup> Ministry of Water, Land and Air Protection, 1999

<sup>57</sup> Arsenault and Goward, 1999.

<sup>58</sup> Ibid..

<sup>59</sup> Ibid. p. 438.

<sup>60</sup> Ibid.

<sup>61</sup> Goward, research posted on: [www.for.gov.bc.ca/mi/research/date\\_creek/Macrolichens.htm](http://www.for.gov.bc.ca/mi/research/date_creek/Macrolichens.htm)

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The largely undisturbed floodplain forests of the 65-kilometre long Upper Adams Park include some patches of old growth cedar/hemlock stands not found anywhere else in the Interior Cedar Hemlock zone.<sup>62</sup> The area is characterized by large areas of deciduous forest with dense shrub layer including red-osier dogwood, thimbleberry and black twinberry. A variety of wetlands occur throughout including fens, marshes and swamps.

The ICH dw3 variant continues south along the base of the steep slopes down to both sides of Adams Lake. ICHmw3 forests occur on the higher slopes on both sides of the lake down to the Spillman Creek area. The forests contain a mixture of species, with primary species being western red cedar, western hemlock, Douglas fir, Engelmann spruce, lodgepole pine, sup-alpine fir, hybrid white spruce, birch and trembling aspen. Accessibility from the lake means that these forests have been harvested at least once.

The southern portions of the lake from Honeymoon Bay on the west and Spillman Creek on the east are in the Thompson Moist Warm Interior Douglas-fir variant (IDFmw2). This variant continues through the lower reaches of the lower Adams River. This subzone is transitional between the Interior Douglas-Fir, where the winters are warm and dry, and the cooler and wetter winters of the Interior Cedar Hemlock zone.

Because there are few extensive stands of lodgepole pine in the Adams River valley, infestations of Mountain Pine Beetle are not widespread. There are some localized areas where it has been identified in the Interfor operating area.<sup>63</sup>

The physiography of the lower Adams River valley, and its position between two very large lakes, influence the complexity and diversity of vegetation in the lower reaches of the river. Steep north and south facing slopes, and cold air drainage from high mountain areas in the upper watershed, create a mix of vegetation communities in the upper portions of this 11 km stretch of river. South-facing slopes are characterized by Douglas fir, ponderosa pine and bunchgrass; north-facing slopes by Douglas fir, cedar and birch forests.

The valley bottom of the lower Adams River is characterized by a rich diversity of riparian vegetation. As the river approaches Shuswap Lake, the warming influence of the lake further affects the diversity of vegetation. Bottom land species include Douglas fir, paper birch, trembling aspen and black cottonwood. Western red cedar is found on moister sites, and lodgepole pine on drier sites. Deciduous riparian species dominate the small islands in the river and on moister sites along the river. Understorey shrubs in the riparian area include dogwood and rose.<sup>64</sup>

The last several kilometres of river valley include mixed forests of black cottonwood, western red cedar, Douglas fir and paper birch, with an abundance of shrubs and flowering plants. Forests by the river mouth are dominated by trembling aspen, black cottonwoods and paper birch. Stands in some areas are age class 6 (100 years) and 7 (120 years).<sup>65</sup>

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<sup>62</sup> Ministry of Environment, Lands and Parks, p. 1

<sup>63</sup> Marino Bordin, Pers. Comm. March 2006

<sup>64</sup> Clarke and Vyse, pp. 10 – 11. Material drawn directly.

<sup>65</sup> Clarke and Vyse, p. 11

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A section of the lower river valley (on north slopes facing southwest, on gravelly substrates) is in the IDF, Thompson, Very Dry Hot variant (IDF<sub>xh2</sub>). These slopes are characterized by areas of mixed Douglas fir and ponderosa pine, with varying understory depending on slope, aspect and soil texture. Non-native species and weed infestations are a concern in some areas of Roderick Haig-Brown Park, primarily areas that have previously had human disturbance.<sup>66</sup>

The Clarke and Vyse report notes that no in-depth scientific studies have been conducted of the flora in the lower reaches of the river; this observation can be extended to the whole of the Adams River. The upper Adams River corridor is bounded by logging roads; there are roads and cutblocks in many areas along the length of the upper Adams River and its tributaries. The Clark and Vyse report also notes that the forests of the lower reaches of the river provide ideal conditions for the establishment of a variety of mushrooms, a point that can be extended to all the forests along the river. Lichens are also an important feature of all the forests along the river, with two uncommon lichens found in Roderick Haig-Brown Park and special species found in the ancient forests of the upper reaches.<sup>67</sup>

### ***Sub theme 5.2. Rare Plant Species***

Rare plants have been noted on the basis of single day studies, plant lists and anecdotal evidence, although a number of plant species are known to be of interest.<sup>68</sup> The following describes only some of those species.

The B.C. Conservation Data Centre lists one rare plant community in the ICH wk1 variant: the Western Hemlock–*Vaccinium mytilloides*–*Paxistima mytilloides*. This community occurs along the bottom of the upper Adams River along and north of Tumtum Lake.

Arsenault and Goward mention a number of epiphytic lichen genera that are old-growth dependent and rare or infrequent in the province: *Chaenotheca*, *Chaenocopsis*, *Collema*, *Fuscopannaria*, *Lichinodum*, *Lobaria*, *Nephroma*, *Pameliella*, *Polychidium*, *Pseudocyphellaria*, *Sphaerophorus* and *Sticta*<sup>69</sup>. They also mention that the Oregana Creek areas (now Protected Areas) are Specie Richness Hotspots or “ancient botanical civilizations”, of which there are only six in the province.<sup>70</sup>

Rare plant species found in the Roderick Haig-Brown Park along the lower Adams River include Porcupine sedge, crested wood fern, and giant helleborine.<sup>71</sup> The black cottonwood forest of the valley bottom is a threatened habitat in the BC southern interior.



The lichen *Lobaria oregana* occurs only in very old forests

Photo: Trevor Goward

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<sup>66</sup> Clarke and Vyse, p. 54

<sup>67</sup> Clarke and Vyse, p. 12

<sup>68</sup> Clarke and Vyse, 2001,

<sup>69</sup> Arsenault and Goward, 1999, p. 438.

<sup>70</sup> Arsenault and Goward, p. 438.

<sup>71</sup> Clarke and Vyse, p. 2

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### 3.1.6 Theme 6 – Fauna

#### *Sub theme 6.1. Significant Animal Populations*

The Adams River sockeye salmon run, which peaks every four years, is one of the most significant remaining natural sockeye salmon spawning channels in North America.<sup>72</sup> When European settlers first arrived in the area, the run was in the millions in a dominant year. The first Fisheries biologist in the Shuswap, David S. Mitchell, is reported by Clarke and Vyse to have found the wide bay in Shuswap Lake at the mouth of the river to have been choked with dead fish.

*“On the 14<sup>th</sup> of December, 1905, we steamed through the awful stench into the wide bay at the mouth of the lower Adams River. With mouths tightly closed we communicated only by signals. The shore was banked with a wide, deep double bar of putrid salmon, extending around the bay until it faded out of view in the distance... The lake bottom, where visible near shore, was paved with dead fish.”<sup>73</sup>*



Source: Adams River Salmon Society

Numbers of returning salmon in peak years of the run have fluctuated in recent years. In 2002 there were over 2 million. The next two dominant runs will be 2006 and 2010; sub-dominant years will be 2007 and 2011. DFO reports concern with recent high rates of mortality amongst returning salmon that are dying en route to the spawning areas in the Adams River. This could be associated with a number of possible factors, including high water temperatures in the lower Fraser; research is currently being conducted.

The upper Adams River is considered to be “the most significant sockeye enhancement opportunity in the Fraser Basin”.<sup>74</sup> Work that has been carried out periodically to re-establish stocks in the upper Adams River (such as egg-take programs) is continuing.<sup>75</sup>

The lower Adams River is also important for chinook; the lower reaches of the tributary Hiuihill Creek (Bear Creek) are important natural coho spawning beds.<sup>76</sup> The significance of the salmon to the animal populations of the Adams River valley and area is substantial, particularly in years of peak runs. During these years, reported numbers of eagles, ospreys and blue herons increase dramatically. Black bears are resident in the area, as are mule deer and whitetail deer. Other mammals present occasionally in the park include lynx, bobcat and cougar. Small mammals including red squirrel, northwestern chipmunk, deer mouse, shrews and voles are abundant.

Detailed inventories of most wildlife species in the upper Adams River valley have not been gathered and information presented is based on studies of specific species, species expected in specific ecosystems and anecdotal reports. The lush forested riverine ecosystems of the valley bottom provide habitat for a wide variety of large and small mammals as well as a variety of birds. Logging activity over the past 100 years

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<sup>72</sup> Clarke and Vyse, 2001, p. 1; Summit Environmental Consultants, 2005b, p. 1

<sup>73</sup> Cited by Clarke and Vyse, 2001, p.14

<sup>74</sup> Kamloops Interagency Planning Management Committee, 1995, Section 2.3, Protected Area P21

<sup>75</sup> Doug Lofthouse, March 2006, Pers. Comm.

<sup>76</sup> Clarke and Vyse, 2001, p. 16



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has produced a mix of forest ages with an abundance of berry sources. Red- and blue-listed species are discussed in Sub-section 6.2.

A healthy population of mountain goats roam the eastern sides of the valley north from Sunset Creek. Black bear<sup>77</sup>, wolf, cougar, and marten are all found in varying numbers in the upper Adams River valley. Moose, mule deer and white-tailed deer are found in the lower portions of the upper Adams valley. Rocky Mountain elk were introduced in the valley in about 1934<sup>78</sup> and continue to thrive as far as up as Sunset Creek. Smaller mammals include: beaver, bobcat, coyote, fisher, lynx, mink, muskrat, otter, red squirrel, ermine, wolf, wolverine<sup>79</sup>, Columbian ground squirrels and hoary marmots.

Bird species in the riparian areas of Upper Adams River Park may include American dipper, owls, kingfishers, woodpeckers, vireos, swallows, chickadees, nuthatches, wrens, kinglets, thrushes, wood-warblers and finches. Bats may be present in the lower portion of the upper Adams River valley.

Because of the diversity of riparian habitats along the lower river, there is a diversity of wildlife. Some wildlife species are resident in the Roderick Haig-Brown Park, while others use the area seasonally for varying periods.<sup>80</sup> Clarke and Vyse note that the park is important for resident, nesting and migrating birds because of the diversity of habitats. There are also reptiles (including the blue-listed Western painted turtle), and common and western garter snakes; sightings of the northern alligator lizard have been reported in the canyon area of the river.<sup>81</sup>

Sockeye and chinook salmon spawn in the upper Adams River as far as Harbour Creek and Mica Lake, while coho are found as far up as the lower headwaters. There is shore spawning in Tumtum Lake.

The upper river also provides significant rearing opportunities; the significant expanse of river provides opportunities which do not exist in the lower river<sup>82</sup> -- for example, chinook and coho are found there, as well as resident species such as rainbow trout, bull trout and whitefish.

On Adams Lake, sockeye and coho salmon spawn along Sinmax Creek as far as Johnson Creek, and along Momich River as far as the lower Cayenne Creek. Sockeye spawn at the mouth of Bush Creek, and coho spawn along both shorelines of the lower lake. The lake also contains rainbow trout, Kokanee salmon and bull trout.<sup>83</sup>

In addition to the sockeye salmon, several other species of salmon spawn in the lower Adams River, but on different cycles and in much fewer numbers. These include chinook, pink and coho salmon. Other species of fish include the rainbow trout, Rocky Mountain whitefish, large-scale sucker, fine-scale sucker and the blue-listed bull trout (see below).<sup>84</sup> Burbot are known to congregate at the mouth of the Adams in

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<sup>77</sup> Ministry of Environment, Lands and Parks, 1999.

<sup>78</sup> Don Fraser, Pers. Comm.

<sup>79</sup> Kurt Kier, Pers. Comm.

<sup>80</sup> Clarke and Vyse, p. 2

<sup>81</sup> Clarke and Vyse, p. 13

<sup>82</sup> Kelly Austin, March 2006, Pers. Comm.

<sup>83</sup> Mussio, Reference p. 5

<sup>84</sup> Clarke and Vyse, p. 2

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the fall to feed on salmon eggs and carcasses; other fish such as sculpins, rainbow and bull trout also take advantage of the salmon run.<sup>85</sup>

### ***Sub theme 6.2. Rare Animal Species***

B.C. Conservation Data Centre maps show no individual site records for rare animal species in the upper Adams River. Habitat for the most significant wildlife, blue-listed mountain caribou, in the upper Adams River valley is shown. According to the Regional Ecologist for B.C. Ministry of Forests, no habitat research on this upper area has been carried out since its designation as a protected area in the Kamloops LRMP.<sup>86</sup>

Suitable mountain caribou habitat of old trees with abundant arboreal lichens is found in the most northerly reaches of the valley. The tops of all the mountains on each side of the valley north of Burton Creek and Harbour Creek also have core winter, summer and all year habitat. There is also a movement corridor north of Tumtum Lake from the upper Adams over to the upper Finn Creek area. Animals were radio-collared in the Tumtum Lake area as part of the 10-year Kamloops LRMP Study<sup>87</sup> and there are reports of caribou being seen in that area.<sup>88</sup>

Blue-listed grizzly bear are reported on both sides of Tumtum Lake in the middle valley and in the lower reaches of the river valley, where there is a continuing source of berries. Fisher may be found in small numbers and there is a healthy population of wolverine<sup>89</sup>.

Information on threatened, endangered and vulnerable species in the lower Adams River is from the Background Study for Roderick Haig-Brown Park, and reported in Appendix 1. Species identified in the Background Study included great blue heron, flammulated owl, Townsend's big-eared bat, bull trout and Western painted turtle.

There is considerable concern about the stocks of the sockeye which come to the Adams River to spawn, including the lower river stock. In some years recently, the normally returning late season spawning fish (October) have returned to the freshwater system early, and proceeded up the Fraser without delay. Associated with this early entry has been a very high mortality rate, the causes of which are not clear. High temperatures in the river, associated with lower water levels and higher than normal summer temperatures, may be a factor. The long term forecasts for climate change in the southern interior suggest that these trends may continue, with implications for the Adams River sockeye.

Coho stocks in the interior Fraser River watershed were designated a species at risk by COSEWIC in 2002; a special effort has been made at Roderick Haig-Brown Park to provide new habitat. An artificial spawning channel was built in 1990 and has successfully reared substantial numbers of coho, chinook,

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<sup>85</sup> Doug Biffard, Ministry of Environment, Pers. Comm.

<sup>86</sup> Dennis Lloyd, Pers. Comm..

<sup>87</sup> Kamloops LRMP Caribou Sub-Committee, 2006.

<sup>88</sup> Phil Holman, Pers. Comm.

<sup>89</sup> Kurt Kier, Pers. Comm.

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sockeye and rainbow trout.<sup>90</sup> Adams Lake Indian Band has been doing restoration work on the interior Fraser coho stock; they note that the lower Hiuihill Creek is one of the streams they are interested in.<sup>91</sup>

The B.C. 2002 State of the Environment Report on the status of bull trout identified that the population of the Adams River watershed was at conservation risk; that is, the “population is known to be in decline (data available) and threats are identified”. The main threat to bull trout generally is resource development that alters habitat at the watershed level; in the Adams River watershed, this is logging. Road access also opens up watersheds to overfishing and poaching. The BC 2005 - 2006 Freshwater Fishing Regulations notes that some bull trout angling is permitted in both Adams Lake and the upper Adams River.<sup>92</sup>

## 3.2 Cultural Values

Under the CHRS Cultural Framework, five broad themes are identified. The values of the Adams River under each of these themes are outlined in the following sections.

### 3.2.1 Theme 1 – Resource Harvesting

#### *Sub theme 1.1. Fishing*

##### *Aboriginal prehistoric fishing*

A brochure prepared by the Secwepemc First Nation summarizes that “salmon is the foundation of sustenance for many First Nations”<sup>93</sup>. Mark Hume called it the “staff of life”<sup>94</sup> for the Shuswap. The salmon of the Adams River played a central role in the lives of the First Nations of the area, both for sustenance and for trading dried fish. For example, there is evidence that dried salmon were traded to the south, to the west, and across the Rockies into what is now Alberta.

The importance of the salmon and the Adams River for First Nations people was, and is, much more than fishing; later sections in this background report will identify other ways that point to their significance.

##### *Historic domestic fishing and processing*

Enough fish were caught by the Secwepemc in their traps that could be dried on racks daily. The dried fish was stored for personal use and for trade purposes. Huge amounts of dried fish were packed in bundles and trekked by foot and on horseback to the Columbia River at Revelstoke and to Okanagan

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<sup>90</sup> Clarke and Vyse, p. 16

<sup>91</sup> Secwepemc brochure

<sup>92</sup> British Columbia Freshwater Fishing Regulations Synopsis, 2005 – 2006, p. 39

<sup>93</sup> Secwepemc brochure

<sup>94</sup> Hume, p. 68

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Lake. The fish were traded as far south as Colville, Washington.<sup>95</sup> Hume describes these trails as “salmon trails”.<sup>96</sup>



Shuswap Indians Drying Fish, Little Shuswap Lake  
(Vicinity of Adams River)

#### *Commercial fishing*

The Adams River sockeye runs provided input to the canneries at the coast which depended greatly on the sockeye of both the upper and lower Adams runs; the upper Adams stock was lost when the splash dam was put in at the south end of Adams Lake in 1907. That loss, combined with the loss of the lower Adams run by the Hells Gate rockslides in 1913, contributed to the decline of the coastal cannery industry.

*Collection of shellfish* Not applicable

### ***Sub theme 1.2. Shoreline Resource Harvesting***

#### *Trapping of fur-bearing animals*

The Adams River area was within the trading area of the fort established in 1812 at the site of what is now Kamloops. References in Hudson’s Bay Company journals indicate trading with Adams Lake Indians<sup>97</sup>. Local First Nations were encouraged to trap beaver and to trade their furs to the Pacific Fur Company and the Northwest Fur Company (later amalgamated into the Hudson’s Bay Company). By 1827 over-trapping in the area had decimated the local wildlife population in a large area around the fort and the

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<sup>95</sup> David Mitchell, p. 8-9.

<sup>96</sup> Hume, p. 75

<sup>97</sup> Cooperman, 1989, p.5

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traditional way of life of many First Nations was affected; this included the peoples of the Adams River.<sup>98</sup> Local First Nations still hunt and trap in their traditional territories.

Trappers and miners came into the upper Adams area at the end of the 19th and early 20th centuries, setting up homesteads at the end of the lake. One trapper was Oliver Robideau who arrived in 1906 and trapped north of Tumtum Lake; Abraham (Abe) Anderson came at a similar time, and had a number of cabins from Adams Lake to Tumtum Lake. A glimpse into the way of life at this time is given in the journal of Spencer Tuck; a brief excerpt, written in the spring of 1904, follows.

*“It is impossible to do any prospecting now. The river is getting higher, and is now a howling raging torrent. We dare not even put our canoe out on it...Our canoes are simply hewed out of a tree and then hollowed out inside and pointed at both ends and there you are. My canoe is 14 feet long and 18 inches beam and in calm water she will carry me and about 400 lbs of stuff besides. They are very fast boats to be paddled. When we came up Adams Lake, Billy and I made over 40 miles in one day each with our canoe loaded with as much as it would carry.”<sup>99</sup>*

There are at present six registered traplines throughout the Adams River watershed, with a large one covering the east side of Adams Lake and the upper Adams River. Species trapped include: beaver, muskrat, mink, coyote and wolverine.

A registered Guide-Outfitter territory covers the east side of Adams Lake to the headwaters. The licence is fairly new and there is no information on activities in the area.

#### *Collection of aquatic plants*

Hume reports on the wide range of plants First Nations used in the area; he notes over 135 species of local plants were harvested.<sup>100</sup>

#### *Hunting of birds and land animals*

The local First Nations divided their territory according to family groupings for food-gathering purposes, a system that seems to be largely intact today.<sup>101</sup> For example, the Secwepemc historical website reports that hunters from Adams Lake and Neskonlith Indian Bands continue to hunt and pick berries at the north end of Adams Lake, an area they call Mumix<sup>102</sup>.

The 2001 report *Significant Trails within Little Shuswap Indian Band's Area of Interest* for the Little Shuswap Indian Band reports:

*“In addition the obvious must be stated, trails provided access to most of the values that belonged to Aboriginal culture, these included, botanicals, ochre sites, sacred sites, hunting areas, berry picking areas, trade, and all related*

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<sup>98</sup> Clarke and Vyse, p. 24

<sup>99</sup> Diary of Spencer Tuck, Part 1. 1904.

<sup>100</sup> Hume, p. 10

<sup>101</sup> Vyse, 2004, p.10.

<sup>102</sup> [www.landoftheshuswap.com](http://www.landoftheshuswap.com) Website accessed 14/03/2006

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*uses within a landscape. Trails were the primary path by which Aboriginal people's relationship with their landscape was defined. In turn the landscape defined the location of many of the trails.*<sup>103</sup>

#### *Mines and quarries in bed or banks of river*

During the gold rush of the 19<sup>th</sup> century there was panning for gold on Nikwikaia Creek after 1884, particularly by Chinese railway workers. The impact of Chinese settlers on British Columbia's settlement history is only recently being recognized. Mines were established in areas close to tributaries of the Adams system, including the Homestake mine on Homestake creek.

### ***Sub theme 1.3. Extration of Water***

#### *Direct drive power generation*

Does not exist

#### *Domestic consumption*

There are two domestic water licences on upper Adams River, both of which are in the original homesteading parcels. One of the licences has a pending application for power development.<sup>104</sup>

There are a number of domestic licences in the Brennan Creek area taking water from that and other creeks. A resort and Girl Guide Camp take water for domestic use from Squam Bay and the southern end of Adams Lake. Numerous domestic water licences are clustered on both shores of the southern end of Adams Lake on both private land and the Hustalen Indian Reserve.<sup>105</sup> The dates licences were issued give an indication of the development of lake and riverside properties. One dates from 1945, some from the 1960 to 1980s; one at the Indian Reserve was issued in 1994, probably the time at which a community water system was installed.

The Clarke and Vyse report indicates that there are no water licences in Roderick Haig-Brown Park, and that a "Water Reserve" was placed on the Adams Lake and the Adams River in the Park by Order in Council 1511 on November 12<sup>th</sup>, 1919.<sup>106</sup> The Reserve was for "...the Crown in the public interest." In 1922 the City of Kamloops is reported to have been interested in the potential for power production at lower Adams Lake as an alternative source from their East Barriere Lake hydro-electric power.<sup>107</sup> In spite of the Water Reserve, the B.C. Ministry of Environment data base of water licences shows over 60 licences on Adams Lake and tributaries, and one on Adams River.<sup>108</sup> The total domestic withdrawals permitted by these licences is 44,500 gallons per day (Adams Lake). The licence on the lower Adams River is indicated as 5,475,000 gallons per year for waterworks to Adams Lake Indian Band. There are also many licences for water removal on Hiuihill Creek, including storage, domestic use, irrigation and a trout farm.<sup>109</sup>

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<sup>103</sup> Running Horse Consultants, p.12.

<sup>104</sup> Water Licences Web Query, Ministry of Environment, Mar, 2006

<sup>105</sup> Water Licences Web Query, Ministry of Environment, Mar, 2006

<sup>106</sup> Clarke and Vyse, p. 49

<sup>107</sup> Kamloops Museum and Archives, #202.

<sup>108</sup> Ministry of Environment, March, 2006

<sup>109</sup> Clarke and Vyse, p. 10

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Two Community Watershed Resource Management Zones are identified in the area, on Toops Creek, and Currie Brook (refer to Map Sheet 3.0).

*Agricultural extraction*

Two licences totalling 31.6 acre feet for Adams Lake are noted.<sup>110</sup>

*Industrial extraction*

The Interfor Forest Products Mill has a licence to take 21,000 gallons per day for its operation dating back to the founding of the mill in 1944. One licence near Brennan Creek is for “Greenhouses”.<sup>111</sup>

There is a water licence application pending at Squaam Bay for Sun Peaks Corporation for 12,775,000 gallons per year.

## 3.2.2 Theme 2 – Water Transport

### *Sub theme 2.1 Commercial Transportation*

*Prehistoric trends*

Shuswap First Nations used cottonwood trees that grow along the lower stretches of the Adams River to build dugout canoes.<sup>112</sup> Other trees were also used. George Dawson, the geologist, on first noting a Shuswap canoe made from white pine, remarked on the shape and style, and commented that it was “extremely strong and seaworthy to an extraordinary degree”.<sup>113</sup>

*Historic human-powered freight*

Early settlers used to paddle up and down the lake with their personal supplies.<sup>114</sup>

*Powered commercial freight*

The paddle wheeler A R Hellen was built by the former Adams River Lumber Company at the Gold Creek camp at the south end of the lake in 1909. It was used to transport logs cut from the surrounding slopes above the lake, down the lake to the dam at the end of the lake above the lower river. It continued in service until 1925.

Mr. George Todd ran light freight on the boat “McLeod” from Squaam Bay around the lake in the 1930s. A tug and



A R Hellen Steamer Sternwheeler on Adams Lake, circa 1918. Photographer Walter Montgomery. Source: Shuswap Chronicles, Vol. 2.

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<sup>110</sup> Ministry of Environment , March, 2006

<sup>111</sup> Water Licences Web Query, Ministry of Environment, Mar, 2006

<sup>112</sup> Hume, p. 75

<sup>113</sup> Cooperman, Kathi. p. 31

<sup>114</sup> Fraser, Pers. Comm., Mar. 2006

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barge service is still maintained between either end of the lake, stopping in at Brennan Creek and Squam Bay.

*Surface bulk transportation*

When timber became scarce near the shoreline of Adams Lake in 1912, the former Adams Lake Lumber Company built a 7.5 km flume from Skmana Lake in the Hiuihill Creek (Bear Creek) valley to the Adams River. This V shaped flume was about 1 ½ m (5 feet) wide, and mounted on trestles 15 to 25 m (50 to 80 feet) above the ground to cross the deep canyons. At the time, this flume was the largest and, at \$120,000, possibly the most expensive in North America; it was also very efficient and was able to move logs to the river in just 15 minutes. Parts of the flume are still visible.<sup>115</sup> About the same time a second flume, 4.5 km long, was built in the Brennan Creek drainage, further up Adams Lake. The flumes also operated in winter and saved the burden on sleigh horses.



Brennan Creek Log Flume, Adams Lake, circa 1918.

Photographer Walter Montgomery. Source: Shuswap Chronicles, Vol. 2.

Both the river and the lake played crucial roles in transporting logs in the logging history of the Adams valley, as illustrated in the 1912 cartoon from the Chase Tribune (next page). The river drive was a “complex, dangerous operation that required the work of many skilled men”. Some lives were lost during river drives.<sup>116</sup> The lake is still used for floating logs to the mill.

***Sub theme 2.1 Transportation Services***

*Fur trade posts*

Not applicable to Adams River; closest was Kamloops.

*Navigational improvements*

Do not exist

*Shipyards*

Do not exist

*Facilities for loading and provisioning passengers*

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<sup>115</sup> Clarke and Vyse, p. 24

<sup>116</sup> Cooperman, J. 1989, p. 13



The former Adams Lake Lumber Company established three wharfs on the lake. They were located at Gold Creek, Brennan Creek, and at the head of the lake – “The Depot”. At The Depot two 25 metre (80 foot) warehouses were built for storing supplies for the logging camps up river. A supply depot was also established at the Gold Creek wharf.

Two forestry boats were in service in the 1920s and ‘30s: the Dominion Forest Service boat plied from Brennan Creek to the south end and the Provincial Forest Service “Aspen” from Brennan Creek north to the head of the lake. Occasionally the boats took residents from place to place around the lake.<sup>117</sup>

According to a local historian in Chase, tourists occasionally were known to boat up the lake.<sup>118</sup>

### ***Sub theme 2.3. Exploration and Surveying***

#### *French exploration*

There is no record of French exploration.

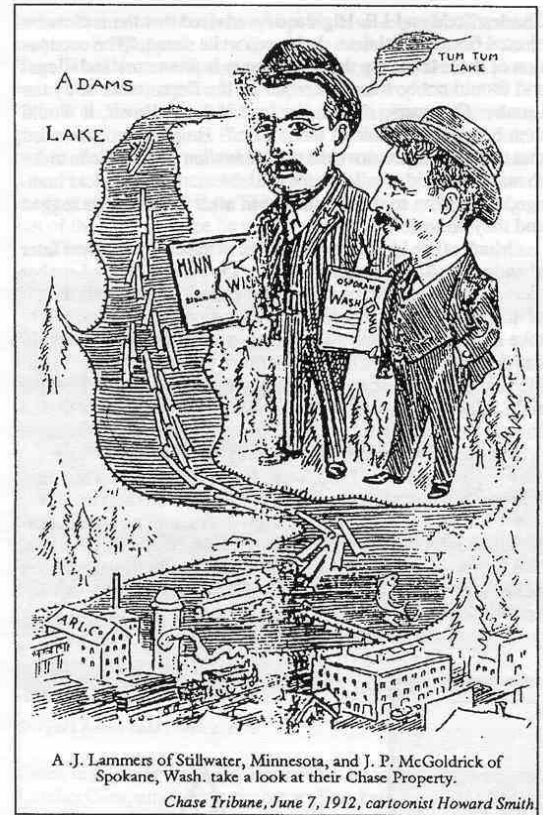
#### *British exploration*

There is no record of British exploration.

#### *Historical Surveying*

A map in the Kamloops Museum Archives drawn by S. Black in 1835<sup>119</sup> shows an unnamed Adams Lake and Adams River flowing into a crudely-shaped Shuswap Lake. A “Barriere” is indicated at the outlet of Adams Lake.

George Mercer Dawson, renowned geologist for the Geological Survey of Canada, who was also surveyor and geographer, ethnologist, naturalist and photographer, surveyed the area three times, in 1877, 1882 and 1898, compiling more detailed contour and geological maps with each visit. He indicates an Observation Point on the east side of Adams Lake on his 1888 map and routes travelled on his 1898 map<sup>120</sup>. In 1898 he followed old First Nation trails along the lower Adams to reach higher ground on both sides of the river. In 1898 he followed a route up Hustalen Creek over the headwaters of Spillman Creek and following the height of land northwards. He also travelled up Bush Creek, Sinmax Creek (called Pass Creek on his 1888 map<sup>121</sup>) and Momich Creek.



Source: Shuswap Chronicles, Vol.

<sup>117</sup> Don Fraser, Pers. Comm.

<sup>118</sup> Dave Lepsoe, Pers. Comm.

<sup>119</sup> Black, S. 1835.

<sup>120</sup> Dawson and McEvoy, 1898

<sup>121</sup> Dawson and McEvoy, 1888

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During his travels, Dawson also compiled ethnological information about the Secwepemc. “Dr. George”, as he was known, is referred to today as the Father of Canadian Anthropology.<sup>122</sup> Dawson’s work became the basis for much of the geological and botanical knowledge of western Canada. According to one source, his First Nation guide during this work referred to him as, "Skookum Tumtum" meaning “brave, cheery man”.<sup>123</sup>



George Dawson Geology Map, 1898

### *Migration and settlement*

Just as it was important to First Nations, so was salmon important for the early European settlers of the area. For example, Hume quotes historical journals from the earliest traders in the Thompson River valley in the mid 19<sup>th</sup> century which noted years of hunger amongst the traders when the salmon runs were poor.<sup>124</sup> In 1846 there is a report that the food shortage was so serious at Fort Kamloops that the chief trader refused smallpox vaccination to 70 Shuswaps until they delivered a year’s supply of salmon to the fort.<sup>125</sup>

D.S. Mitchell, a fisheries officer on Shuswap Lake at the turn of the 19th century, reports in his 1925 story<sup>126</sup>, in reference to the decrease in salmon:

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<sup>122</sup> Cooperman, Kathi, p. 31

<sup>123</sup> [www.peakfinder.com](http://www.peakfinder.com) Accessed Mar 27, 2006

<sup>124</sup> Hume, p. 67. Hume cites reports of the Secwepemc Cultural Society which noted that these years included 1829, 1842 - 1843; 1850-52, 1855, and 1859.

<sup>125</sup> Ibid., p. 68.

<sup>126</sup> Mitchell, 1925, p. 11.

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*“The destruction was mostly wrought by visitors on holiday and some settlers who came later. As the country settled up, the demand on the spawning beds became very heavy. It was an unsatisfied demand, as the canners allowed so few to pass, during three years out of four, that the settlers could only lay in a supply once in four years, when they used their chances to satisfy.”*

*When the Indian struck at a salmon with his spear he got that salmon, and when he had enough he quit; not so the white men. They got after them with pitchforks, iron spikes, or pieces of thick telegraph wire fastened on poles, and with gaffs. After wounding several they would get one pinned to the bottom then lost it in trying to get it ashore. For each one they got to the bank many got away with holes through them. For every ten they got, they injured a hundred that escaped.”*

Mitchell also saw a potential for a flourishing agricultural amendment industry:

*“... the great quantities of spent salmon could now have been saved for agricultural use by mixing with pulverised gypsum, or sulphate of lime, from the great deposit on the Salmon River, now reached by the Government railway between Kamloops and Vernon. The mixing plant could have followed the shore on a scow. A good combination would have been produced as gypsum having an affinity for ammonia would have saved the manurial properties of the fish, in addition to its own beneficial action in releasing potash locked up insoluble in the soil.”*

The area was also affected by the gold rush of the Fraser and Thompson rivers which commenced in 1857. Hume quotes a report written by James Douglas, chief factor of the Hudson’s Bay Company, in 1857.

*“The native Indian tribes of Thompson’s River...have already taken the high-handed, though probably not unwise course, of expelling all the parties of gold diggers...who had forced an entrance into their country....The Indians felt the gold was theirs as it originated from their lands. They also believed the activities of the miners would prevent the salmon from completing their migration up the Fraser and Thompson Rivers...The Indians ...blamed the miners for the salmon run being small that year.”<sup>127</sup> According to Hume, miners camped on gravel bars throughout the Thompson, took over fishing places, and washed silt into streams that fed the salmon rivers.<sup>128</sup>*

Other minerals besides gold were of interest, including silver, lead and zinc. The Homestake mine, in the Homestake Creek area, about 4 km from Squam Bay operated until 1941.<sup>129</sup> In the 20<sup>th</sup> century, particularly the 1920s and 1930’s, there were claims staked throughout the Adams Lake valley and plateau area.<sup>130</sup> Exploration and mining activity continue today in the plateau areas above Adams Lake.<sup>131</sup>

By the time the gold miners had moved on, permanent settlers had arrived in the area.

In 1887 the Canadian Pacific Railway was built just across Shuswap Lake to the south from where the lower Adams River enters it. This created a new demand on the area’s resources, as huge quantities of cord wood were cut to supply the steam locomotives. A 64 kilometre wide “Railway Belt” was granted to

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<sup>127</sup> Quoted by Hume, p. 68

<sup>128</sup> Ibid.

<sup>129</sup> Barazzuoland

<sup>130</sup> Clarke and Vyse, p. 24

<sup>131</sup> Ministry of Energy, Mines and Petroleum Resources

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Canadian Pacific Railway as an incentive to build the route.<sup>132</sup> Once the railway was completed the area reverted to the Federal Government. The Dominion Forest Service administered the land and established a Ranger Station at the south end of Adams Lake from 1906 until 1930 when administration was transferred to the Province.<sup>133</sup>

The former Adams River Lumber Company established a mill in Chase to process wood from the surrounding lands, including the Adams River watershed. Logs were felled along the accessible lakeshore areas of Adams Lake up to about one-third km (half a mile) from the lake. Logs were pulled down to the lake by horses, or by swampers with snow shovels in winter.<sup>134</sup> By 1906 there were four families living at Squaam Bay and in 1917 a school was established, meaning that there were at least 8 children among the families in the area. Brennan Creek had four to five settlers and their families by 1908.

As loggers got further away from the shore they had to find another way to move the trees to the lake. Wooden flumes were built in Hiuihill (Bear) Creek valley and in Brennan Creek in 1912, remnants of which can still be seen in Hiuihill Creek. A dam was built on the outlet of Adams Lake in 1907 and logs were held above it; they were released in the fall to float down the lower Adams to Shuswap Lake. Horses and sleds were often used to haul logs along sometimes not so gentle slopes to the flumes in winter.

A series of at least 24 logging camps were established by the former Adams River Lumber Company throughout the Adams watershed, with varying numbers operating at any one time. A major camp was at Brennan Creek on flat ground at the top of the flume, and five more were identified below Tumtum Lake on upper Adams River.<sup>135</sup> Some of these are shown on the map sheets. Camp 18 was situated 57.6 km (36 miles) up the river from the head of the lake and was closed in 1925.<sup>136</sup> Logs were floated down the upper Adams River with wing dams providing guidance to keep them in the middle of the river.

A 12-room hotel and rooming house called the Adams Lake Hotel was built in 1912 by Frank Sturgill at the south end of the lake for the former Adams River Lumber Company visitors. Mr. Sturgill operated it until the 1920's when the Potters purchased it.<sup>137</sup>



The size of cedar trees in the upper Adams valley, and the hazards of logging, are reflected in this early 20<sup>th</sup> century photo.

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<sup>132</sup> McLaren, 1981

<sup>133</sup> Don Fraser, Pers. Comm,

<sup>134</sup> C. Heather Allen. 1979.

<sup>135</sup> Don Fraser, Pers. Comm.

<sup>136</sup> Don Fraser, Pers. Comm.

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Pole-sized timbers were cut and shipped out from the area around Rock Islands from 1938 to 1942 by Mr. Fraser. A camp was established at the far end of Momich Lake, with remains still visible in Momich Lake Park.<sup>138</sup>

Between 1911 and 1913 railway construction crews, while blasting a rail bed through the Fraser River canyon, caused a number of slides which led to debris in the Fraser. In 1913 a huge slide in the Hells's Gate section of the Fraser choked the river; early runs of salmon, returning upstream to spawn, could not pass the bottleneck due to the river's seasonal low water. This resulted in the complete loss of the upper Adams salmon stock which was unable to return. The late season lower Adams stock was only able to make it to its spawning grounds because the Fraser's level was raised by autumn rains by the time the salmon were returning.<sup>139</sup> Some salmon stocks were helped manually by First Nations, who physically carried them past the blocked channel in the canyon.<sup>140</sup>

### 3.2.3 Theme 3 – Riparian Settlement

#### *Sub-theme 3.1. Siting of Dwellings*

##### *Shoreline seasonal dwellings*

Parts of the Adams River system fall within the traditional territories of the Adams Lake, Neskonlith, Little Shuswap and North Thompson Indian Bands. All groups still live in the area.

Adams Lake and the lower river were very significant for the native peoples; the salmon were central to their lives. The abundance of salmon that passed upstream every fall provided a reliable food source that would help sustain the people over the winter. As well as a food source, the sockeye were a trade good. The gravelled river terraces along the lower Adams River provided flat ground for villages; the mild climate and low snowfall provided good living conditions for surviving the winter.<sup>141</sup>

Archaeological sites have been found both along Adams Lake, between Woodpole and McIvor Points (three sites with evidence of dwelling, cache pit, miscellaneous deposits), along lower Momich River (four sites with evidence of dwelling, cache pit, miscellaneous deposits)<sup>142</sup> and along the lower Adams River. Winter houses were pit dwellings built into the earth.

It is thought that human occupation of the area dates back to the last ice age; the oldest known site in the area is at Blind Bay on nearby Shuswap Lake, where materials dating back 9,000 years were found in a cave.<sup>143</sup> According to one source, prior to 1800, the Shuswap Lake area supported a native population of upwards of 2,000.<sup>144</sup>

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<sup>137</sup> Don Fraser, Pers. Comm..

<sup>138</sup> Don Fraser, Pers. Comm..

<sup>139</sup> Ibid., p. 69

<sup>140</sup> The video "Red Run" reports on efforts of the Nicola peoples to help the salmon blocked by the Hell's Gate slide.

<sup>141</sup> Clarke and Vyse, p. 23

<sup>142</sup> Kamloops LRMP Maps

<sup>143</sup> Hume, p. 74

<sup>144</sup> Cooperman, Jim, 1988, p. 26

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According to Clarke and Vyse, 54 documented cultural heritage sites have been found in Roderick Haig-Brown Park alone. The area is part of a much larger area of sites that has provincial significance.<sup>145</sup> Some of the archaeological features that have been found include depressions remaining from pit houses, cache pits, fire-burned rock, basalt flakes, and lithic scatter. Two “petroforms” at the canyon area were thought to be directional signs. Some of the sites have been dated back to 4000 Before Present<sup>146</sup>, although pit houses have been dated to 700 years old (one has been dated to 1,500 Before Present)<sup>147</sup>. The rectangular style of many of the pit dwellings was apparently unique to the Adams Lake First Nations.<sup>148</sup>

Hume notes that in 1977, provincial archaeologists found evidence of winter village sites at the mouth of the river, and at its outlet on Adams Lake. The site at the Adams Lake outlet was spread over 15,000 square metres, with dozens of winter houses dug into the earth, each built to accommodate about 25 people.<sup>149</sup> There were also smaller groups of dwellings down the length of the river.

It is possible that more First Nations cultural heritage sites exist in the area. For example, in the course of a recent Archaeological Impact Assessment for the Ministry of Transportation’s proposed Adams River Bridge Realignment, three previously unrecorded archaeological / heritage sites were identified over a 400 metre stretch of river.<sup>150</sup>

Seasonal dwellings still exist, particularly along Adams Lake, but they are now associated with recreational use. For example, many of the old homestead lots in the Squam Bay area are now used as seasonal recreational properties.

#### *Riverside homesteads and farms*

The increase in logging activity in the early 20th century to supply the former Adams River Lumber mill at Chase led to the settlement of homesteads on lower Adams Lake, at Squam Bay, Brennan Creek, and the north end of the lake. A hotel and rooming house was built at the south end of the lake for the company staff.

Trappers and miners also established homesteads on the small amounts of level, low ground at Momich Creek mouth, and the upper Adams River mouth above Adams Lake.

#### *Permanent riverside dwellings sited with respect to river*

The small community of Brennan Creek was established at the time of the Brennan Creek flume in 1912. It survives midway up the west shore of Adams Lake with a few families working in the area and a small school.

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<sup>145</sup> Clarke and Vyse, p. 23

<sup>146</sup> Clarke and Vyse, p. 23

<sup>147</sup> Adams River Salmon Society, website accessed 28-03-05

<sup>148</sup> Clarke and Vyse, p. 23

<sup>149</sup> Hume, p. 10

<sup>150</sup> Equinox, p. ii

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There is a mix of permanent and seasonal residents at Squaam Bay on the west side of the lake. A resort and cabins are located on the north shore of the bay and two cabins on the south shore. A Girl Guide Camp is situated on the south shore of the Adams Lake north of Adams Lake Park (Bush Creek site).

Some people working at the present Interfor-Adams Lake Lumber Mill at the south end of Adams Lake live in a small community on the south shore of the lake or in newer subdivisions in the forested hills above the lake.

There are a number of residents living at the south end of the lake on both shores. Some work at the mill, others in the forest. There are also a number of seasonal dwellings in those areas. A private cabin is located on Tumtum Lake in Upper Adams Provincial Park.

A number of homesteads and dwellings were located in what is now Roderick Haig-Brown Park. In 1912, the Dempster brothers cleared land, built houses and raised cattle and horses in the area where the present parking lot is and at the mouth of the river. Their land reverted to the crown when taxes were not paid. The gardens produced abundant crops in the riparian soils for a family living on the north side of lower Adams River. Other properties were logged or used for summer vacations. All private properties along the lower river were purchased between 1978 and 1982 by the province and The Nature Trust of BC (then known as the National Second Century Fund of BC) to protect the lower river for the salmon.

*Dispersed dwellings in settlement patterns*

Only a very few people still remain in the lower portion of the upper Adams River valley above Adams Lake.

***Sub-theme 3.2. River-based Communities***

*Permanent shoreline Aboriginal settlements*

There are four reserves in the area, three on the south end of Adams Lake: the largest is in the area of the present IR #1, Hustalen Reserve; the Toops Reserve, # 3 is on the south side of the lake where the river exits; and the third, IR#2, is on the north shore of Squaam Bay.

The Quaaout IR Reserve #1 extends along the south banks of the river at its outlet with Shuswap Lake.

*Fortification-based communities*

Do not exist

*River industry-based communities*

Brennan Creek was established as a logging camp in 1912 in association with the expansion of logging higher up the east side of Adams Lake. Continuing opportunities for forestry activity in the area have helped maintain a small population at the community until the present day. A small resort is situated on the shore of Adams Lake.

The current Interfor – Adams Lake Lumber sawmill on the south shore of Adams Lake was established as Holdings Mill in 1942. It continues to rely on the lake for the logs it needs. They are barged down the lake from a log sort area at Momich River and held in booming grounds at the south end of the lake. Employees live in houses on or near the lake or in subdivisions above the lake.



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*River crossing-based communities*

The Hustalen and Toops Indian Reserves are across Adams Lake from each other and used to be directly connected before the bridge was burned.

***Sub-theme 3.3. River-influenced Transportation***

*Ferries and fords*

A tug and barge operation on Adams Lake was converted to a cable ferry service in 1996, operated by B.C. Ferries. The ferry links development on the east side of the lake with the road on the west side just south of the Interfor – Adams Lake mill. Crossing time is 6 minutes; the ferry service is available 24 hours per day, but for emergencies only between 3:00 am and 5:00 am.

*Road bridges*

The main road to north shore Shuswap Lake communities crosses the lower Adams River at the Squilax – Anglemont single lane road bridge; a bridge planning project is underway to replace the existing bridge for safety reasons.

A bridge across the lower Adams River at the south end of Adams Lake gave access to 20th century development of properties along the north shore of lower Adams Lake. It was burned down in 1995; the ferry now provides access.

The road from the North Thompson, south of Barriere arrives at Squaam Bay on Adams Lake. The road branches to the north along the lake and crosses the upper Adams River giving access to the east side of the river. Turning south it meets the Squilax Road from the Trans Canada Highway.

Three more forest access road bridges cross the upper Adams River: just south of Tumtum Lake, another south of the southern Oregona Protected area, and the last between the south and north Oregona Protected area.

*Rail bridges* None exist

*River-influenced roads and railways*

The roads in Adams River valley generally follow the river and lake valley.

The lowest portion of the Adams River flows through Roderick Haig-Brown Park in multiple channels. There are many opportunities to appreciate the river all the way from the highway bridge down to the mouth from well-made trails. Above the highway bridge an old road leads up river as far as Nikikwaia (Gold) Creek. The road goes down to the river at many points, and especially at the rapids through the canyon.

There is a road along the lakeshore from south to north on the west side; however, forest planners were careful to make sure that new roads on the east side of the lake were placed further away from the shore.

In the upper Adams valley, roads were developed as forests were accessed for timber. By 1960 logging was taking place beyond Tumtum Lake and a road was constructed to the end of the valley and over the



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height of land into Finn Creek. It was joined up with roads going up Finn Creek from the North Thompson in the 1970s.<sup>151</sup>

The provincial Forest Service built a trail before 1922, from their Depot about one-third km (half a mile) above the mouth of the upper Adams River, along the shore of Adams Lake to the Momich River and up to Momich Lake. The present road follows a similar route today.<sup>152</sup>

While there are no railways in the Adams River valley, part of the historic “Railway Belt” lies within it. This was a swath of land granted to the Canadian Pacific Railway as an incentive to build the rail line, which is currently on the south side of Shuswap Lake.

The road accessing Adams Lake and the upper Adams valley remains an active logging road.

### 3.2.4 Theme 4 – Culture and Recreation

#### *Sub-theme 4.1. Spiritual Associations*

##### *Sacred or spiritual sites*

*“Whenever archaeologists excavate village sites along the South Thompson they find salmon bones. And whenever the elders tell stories..., sooner or later, a salmon will swim through them in some prophetic or symbolic way. They ate salmon, they traded them, they built their mythology around them. Their culture was literally built on fish.”<sup>153</sup>*

The Adams River and its salmon are central to the First Nations people who live there. Theirs is an oral history culture; as Hume’s quote indicates, the salmon, and the river, are woven throughout the fabric of their culture.

##### *Ritual or ceremonial structures and sites*

Pictographs are found along rock faces and canyon walls of the lower Adams River. They are also found on opposite sides of Adams Lake at White Bluffs and north of Tshinakin Point, in the area of limestone formations first recognised by George Dawson on his 1898 Geology map. Although the meaning of these rock paintings is not known, they indicate the significance of the Adams River and Adams Lake for local First Nations peoples. Culturally modified trees are found in Momich Lakes Park on the west side of Adams Lake.

A source of ochre would have been a small cave above a breach on the shore of the lake.<sup>154</sup> Ochre was mixed with animal fat and another mineral to create the paint. It was used to protect against rattlesnakes and was also traded.

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<sup>151</sup> Don Fraser, Pers. Comm..

<sup>152</sup> Don Fraser, Pers. Comm..

<sup>153</sup> Hume, p. 74

<sup>154</sup> Cooperman, 1989. p.4.

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During an archaeological impact assessment for the bridge over the Adams River, a small number of culturally modified trees (bark stripped) were identified.<sup>155</sup>

#### *Aboriginal burial places*

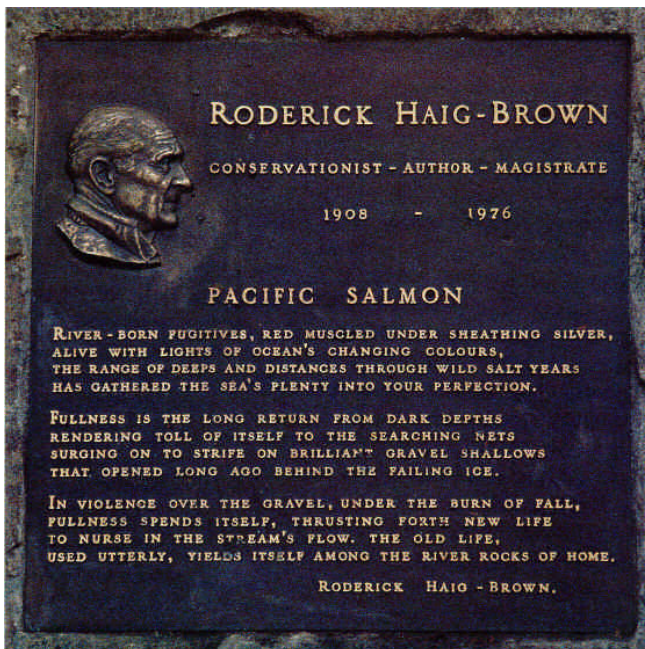
There is anecdotal evidence of gravesites along Squam Bay where unrecorded aboriginal grave sites have apparently been unearthed in recent years during construction work.

#### *European burial places*

Early homesteaders may have been buried on their properties at the head of the lake. It is known that a trapper was buried at the “Caribou Hotel” on Adams Lake at the mouth of the Momich River.<sup>156</sup>

### **Sub-theme 4.2. Cultural Expression**

#### *Riverside museums, art galleries and commemorative structures*



A plaque in Roderick Haig-Brown Park commemorates Roderick Haig-Brown, the respected conservationist and author, known for his writings, starting in the 1950's, about the importance of protecting British Columbia's salmon rivers.

BC Parks has established a riverside viewing platform at Roderick Haig-Brown Park for visitors to observe spawning salmon. Because of erosion concerns, the platform may be removed and / or relocated.

There is also a natural cottonwood tree in the Park in the shape of an “H” which is considered symbolic.<sup>157</sup>

The Chase Museum, downstream of the Adams River, has much information on the Adams River system and its history.

The Adams River Salmon Society has embarked on the first stage of an ambitious two-stage project for a permanent Adams River Interpretive Centre Project, to be located near the bank of the lower Adams River in Roderick Haig-Brown Park. The first phase, targeted to open the spring of 2006, is an “Information / Administrative Centre”; the second phase, an “Interpretive Centre”, is planned for a year or so later. The centre will include a theatre, permanent displays on the sockeye salmon, First Nations cultural information, and material about other heritage features in the park (such as the log flume). Plans are to cater to ecotourism, cultural tourism and recreational tourism, school groups for educational

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<sup>155</sup> Equinox, 2004, p. 22

<sup>156</sup> Don Fraser, Pers. Comm.

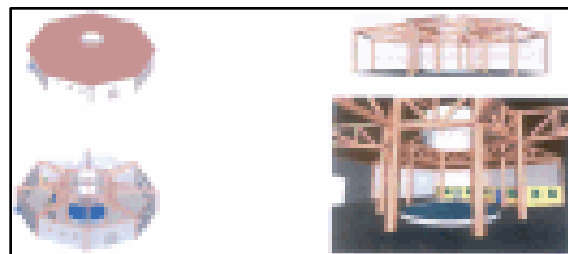
<sup>157</sup> Bob Harding, Pers. Comm.

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purposes, and to include opportunities for demonstrations of traditional native fishing practices and celebrations surrounding the salmon harvest. Plans are also to provide opportunities for workshops and seminars on topics such as snowshoe making, wild animal tracking, fish smoking and winter survival.<sup>158</sup> The Centre's objectives are to:

- Establish a high quality, one of a kind tourism experience for visitors that enriches their knowledge of the sockeye salmon and the delicate ecosystem in which they live, featuring the Shuswap people and the heritage of the region
- Achieve the first objective at a profit level that will allow the Centre to be self-sustaining<sup>159</sup>

Discussions with various individuals involved with the project have informally indicated a desire to have something completed by 2010, the year of the Whistler Olympics in B.C. and also a dominant sockeye run. Planning is ongoing, along with coordinating with the many agencies involved. For example, construction of the interpretive centre would increase pressure on traffic, and the need for the bridge realignment would be increased. Some people in the community see the process of nominating the Adams River as a national heritage river could be linked to movement forward on the interpretive centre; there was also mention of exploring the feasibility of nominating Roderick Haig-Brown Park as a UNESCO World Heritage Cultural Site. However, it should be noted that there is stiff competition from other sites across Canada for this nomination. It would be subject to national review, and would likely take many years, even if it is considered inside Canada, before being presented internationally.<sup>160</sup>



Adams River Salmon Society  
Sketch of Interpretive Centre

#### *Culturally associated sites*

Many features along Adams Lake and tributaries have Anglicised versions of First Nations names or are named after early pioneers in the area.

Walter Moberley noted in 1865 that he “made acquaintance of Adam and Eve, an Indian and his wife.” Adams River is called ‘choo-choo ach’ on Archibald MacDonald’s 1827 map of “Thompson River District”. It was renamed Adams River after the Shuswap Indian Chief, Sel-howt-kin who had been given the name “Adam” when he was baptised by Father Nobli.<sup>161</sup> Chief Adam’s wife was later called Eve. The couple were apparently the initial First Nations in the area to be converted to the Catholic faith; they lived on the shores of Adams Lake and had winter houses along the river.<sup>162</sup>

Other examples of the link of place names to history include Woolford Point and McLeod Point at the south end of the lake which are named for early pioneers in the area. Hindu Point was named after the group of East Indian immigrants who logged in that area in the 1920s.<sup>163</sup>

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<sup>158</sup> Adams River Salmon Society, Jan Lingford, March 2005

<sup>159</sup> Ibid.

<sup>160</sup> Murray McComb, Pers. Comm., September 2005.

<sup>161</sup> Akrigg, 1997.

<sup>162</sup> Hume, p. 71

<sup>163</sup> Don Fraser, Pers. Comm.

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A significant cultural association is the “Salute to the Sockeye”. This event commenced in 1962 and takes place beside the banks of the lower Adams River in Roderick Haig-Brown Park. It is a major event every four years during the dominant sockeye run. Attractions include river-related food kiosks presented by First Nations (smoked salmon and bannock), educational displays by DFO and others, arts and crafts for sale, including many items with a “salmon” theme. Smaller events / displays occur in non-dominant years, especially during sub-dominant runs of salmon which are also on a four year cycle. Estimates of attendance at Roderick Haig-Brown Park are approximately 20,000 in a non peak salmon run year to approximately 95,000 in a peak year.<sup>164</sup> Others report attendance far in excess of the 95,000.

#### *River-based cultural landscapes*

The “Salute to the Sockeye” is a significant event for the local communities of Chase, Salmon Arm and the First Nations communities in the area. Many teachers in the local school districts, as well as much further away in B.C. and Alberta, plan field trips during this time; busloads of students, from kindergarten to Grade 12, come to view the salmon and the educational displays.

Visitors to the peak salmon spawning season come from all over the globe; tour busses and long lines of other vehicles are a testament to the significance of this event for those who witness it.

Another reflection of the profound influence of the Adams River salmon run is that it has “spawned” at least two significant video productions (see bibliography).

#### *Architectural responses to river locations*

None known

### ***Sub-theme 4.3. Early Recreation***

This section describes what is known about early recreation, as well as current recreational uses of the Adams River.

Little is known about the use of the river recreationally by First Nations, either before or at the time of European contact.

#### *Recreational boating*

Forest Service Recreation Sites along the lake have attracted people to the lake for boating over many years. It is preferred by many as a quieter recreation area than the adjacent Shuswap Lake. There are some reports of accidents on the river (including deaths) noted in the Park files. Boating activities include tubing, rafting, canoeing and kayaking in both the lower and upper rivers.

The lower river is considered a “great place for beginners to cut their teeth on a bit of whitewater”.<sup>165</sup>

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<sup>164</sup> Pat Moulton, Ministry of Environment, pers com. (email, March 3, 2005). This figure excludes users of Upper Canyon and Flume trails. The figure also differs from those provided by the Salmon Society.

<sup>165</sup> Mussio, 1998, Reference page 37

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Although stretches of the upper river can be paddled by canoe or kayak, its remoteness and sudden changes in river character make the trip unsuitable for novice paddlers<sup>166</sup>. (The nearest payphone, for example, is Vavenby, about 30 km from the south end of the Upper Adams Provincial Park along a forest service road.) In addition to lengthy sections of rapids and waterfalls, dead heads and sweepers and large volumes of water in high water periods add to the challenge and make parts of the upper river extremely dangerous. At the same time, however, paddling the upper river has been described as a “fantastic wilderness experience”<sup>167</sup>.

*Angling* Angling is an important activity throughout the area, both recreationally and for sustenance to First Nations. Fishing is very popular at the mouth of the Adams in Shuswap Lake during spawning season as the washed down eggs attract trout and burbot, which in turn attracts anglers.

Roderick Haig-Brown published writing about the Adams River, fishing and conservation. An example is this excerpt from his poem “Pacific Salmon”, now recorded in a plaque installed at Roderick Haig-Brown Park.

*.... Fullness spends itself, thrusting forth new life  
To nurse in the stream's flow. The old life,  
Used utterly, yields itself among the river rocks of home.*

*Land-based touring*

There are many trails for both hiking and mountain biking in Roderick Haig-Brown Park. The Salute to the Sockeye event sees heavy use of the trails along the viewing platform. Huihill Creek trails are popular for exploring the shady canyon where remnants of the old Bear Creek flume can be seen.



Bear Creek Flume Remnants  
Photo: Blair Borden

Adams Lake and the upper portions of the Adams River are not easy to access and are explored only in summer by people looking for a back-country experience. Momich Lake is a popular summer destination on the route over to Albas and Seymour Arm.

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<sup>166</sup> Mussio, 1998, Reference page 43.

<sup>167</sup> Mussio, 1998, Reference page 43.



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A helicopter skiing operation has recreational licences in the upper Adams River headwaters area, and a commercial licence covering a large area from Adams River to Seymour River and north for helicopter use.

*Organized river recreation facilities and clubs*

There is commercial river rafting on the lower Adams River, average 3,000 participants in any year, from May to September<sup>168</sup>. Permits are issued by Adams Lake Indian Band and / or Crown lease.



Adams River Rafting Photo source: [www.adamsriverrafting.com](http://www.adamsriverrafting.com)

Tourist activities in the area include resorts, guiding activities, and adventure tourism activities.

The Squam Bay area has hosted a Fishing Derby for fifty years.

### 3.2.5 Theme 5 – Jurisdictional Use

A considerable portion of the land along the Adams River, including Adams Lake, is Crown Land. The majority of the valley bottom land in both the lower and upper rivers is now protected, through two provincial parks – Upper Adams Park (65 km along the upper Adams River) and Roderick Haig-Brown Park which includes almost the entire length of the corridor of the lower 11 km of river. To protect this lower 11 km of the river involved substantial purchase of private property by the Province and the National Second Century Fund of BC (now known as The Nature Trust of BC).<sup>169</sup> Nature Trust lands are leased back to the Ministry of Environment. There are also provincial parks on Adams Lake – Adams Lake Park (Bush Creek site, a former Ministry of Forests Recreation Site) and Adams Lake Marine Park (boat access only, with three separate sites – Spillman Beach, Poplar Point and Refuge Bay). Additionally, Momic Lakes Provincial Park includes the lower reaches of Momic Creek and part of the foreshore of Adams Lake.

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<sup>168</sup> Pat Moulton, Ministry of Environment, pers com. (email, March 3, 2005).

<sup>169</sup> Clarke and Vyse, p. 2

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There are two major Indian Reserves – Quaaout, on the south side of the river at the mouth (Little Shuswap Indian Band) and Hustalen Indian Reserve (Adams Lake Indian Band, at the south end of Adams Lake, east side of the river). There is also a small reserve, Squaam Bay, on Adams Lake and another one, Toops, also on Adams Lake. The Adams Lake Indian Band and the Neskonlith Indian Band have completed a joint Traditional Use Study that indicates long-time and continuing interest in, and use of, the areas comprised by Roderick Haig-Brown Park. The Little Shuswap Indian Band has completed Phase One of their Traditional Use Study.<sup>170</sup>

A few people live at the head of Adams Lake, number unknown, and approximately 40 people live at Brennan Creek. There are both Crown and Indian Band leases along Adams Lake for private cottages and residences. There are also Crown land leases for recreational uses (at least one guide outfitter, and a river rafting company), and for temporary industrial use on Adams Lake (log impoundment for logs pulled off after the fires of 2003; this use was granted in 2004). Some Crown leases on the shores of Adams Lake have been purchased by individuals.

In 1995 a multi-stakeholder planning process was completed for the broader area, resulting in the Kamloops Land and Resource Management Plan (LRMP). It was as a result of this planning process that Upper Adams River Park and Momich Lakes Park were created, as well as an expansion to Roderick Haig-Brown Park. Another element of this plan was the designation of Special Resource Management Zones for various purposes. Much of the land in the upper Adams River valley adjacent to the park is in the Special Resource Management Zone for the mountain caribou habitat.

### ***Sub-theme 5.1. Conflict and Military Associations***

*Aboriginal internecine conflict* – none known

*Aboriginal / European conflict*

There are accounts of conflict between First Nations and gold miners in the mid 19<sup>th</sup> century. Concerned about the impact of the miners on their way of life, and the diseases they were thought to be bringing with them, one account indicated they “threatened anyone with death who went up the (Adams) lake”.<sup>171</sup>

*European internecine conflict* – none known

*Military expeditions* – none known

### ***Sub-theme 5.2. Boundaries***

*International borders* All land within the Adams River watershed is within Canada.

*Interprovincial and inter-territorial boundaries* All land within the Adams River watershed is within the Province of British Columbia.

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<sup>170</sup> Ministry of Water, Land and Air Protection, 2002. p. 13

<sup>171</sup> Report by Dr. Henry Featherstone, 1866, noted in Cooperman, Jim, p. 26

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*Land use boundaries*

-- **First Nations** with interests in the area: Adams Lake Indian Band, Neskonlith Indian Band, and Little Shuswap Indian Band. The North Thompson Indian Band, located in Barriere, may also have interests.

-- **Regional Districts:** Thompson-Nicola Regional District has jurisdiction for the west side of Adams Lake and upper areas; Columbia Shuswap for the east side of lower Adams and Shuswap Lake.

-- **Ministry of Environment**

Environmental Stewardship Division:

Roderick Haig-Brown Park: 1076 ha.

Roderick Haig-Brown Park was established as the Adams River Recreation Area in 1977 and renamed Roderick Haig-Brown Recreation Area in 1978. It became a Class A Provincial Park in 1991 and was expanded after the Kamloops LRMP process.

Adams Lake Provincial Park (Bush Creek): 56 ha on the southwest shore of Adams Lake at the mouth of Bush Creek (a former Forest Service Recreation Site).

Upper Adams Park: 5,733 ha.

Upper Adams Park was established in April 1996 after the Kamloops LRMP identified values through the Protected Areas process. This Park includes 5,733 hectares of valley bottom interior cedar-hemlock forests. It extends to either side of the Adams River floodplain, for about 65 km from the Tumtum wetlands to Adams Lake. The Park is confined to areas below forestry roads.

Momich Lakes Park: 1848 ha.

Momich Lakes Park was established in April 1996 after the Kamloops LRMP identified values through the Protected Areas process. This Park includes three steep-sided lakes along the Momich River with associated rich riparian areas and wetlands. It has the most northerly stands of Western larch in the province. Sockeye salmon spawn all the way through Momich Lake to the lower reaches of Cayenne Creek. The valley is in a rainshadow area and is an important corridor for ungulates; it has good mountain goat habitat and winter range for moose. A white, sandy beach and paddling opportunities make it a regionally important park for recreation. Evidence of pithouses in the lower valley, culturally modified trees, and the remains of a pre-war logging camp are important cultural features.

Adams Lake Marine Park was established in April 1996 after the Kamloops LRMP identified values through the Protected Areas process. It has three sites:

Poplar Point site: 32 ha on the east side of Adams Lake.

Spillman Beaches site: 139 ha at the mouth of Spillman Creek on the east side of Adams Lake. The Observation Point on George Dawson's 1882 Map is located on the height of land northeast of Spillman Creek; the Management Direction Statement for the park suggests development of a hiking trail to an excellent viewpoint.<sup>172</sup>

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<sup>172</sup> Ministry of Water, Land and Air Protection. 1999.



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Refuge Bay site: 43 ha on west side of Adams Lake



Adams Lake  
Photo: Blair Borden

### **Ministry of Environment:**

A registered Guide-Outfitter territory covers the east side of Adams Lake to the headwaters. The licensee is fairly new and there is no information on his activities in the area.

There are six registered traplines that include part of the Adams River watershed, with a large one covering the east side of Adams Lake and the upper Adams River. Four were originally registered in the 1930s, one in 1946 and the other in 1958.

### **Ministry of Agriculture and Lands:**

Use, Recreation of the Public (U.R.E.P.) Reserves:

There are several UREP reserves along the shores of Adams Lake and many more were absorbed into the new parks in 1996. The Ministry of Forests initiated many reserve requests on level ground situated at the mouths of creeks to protect them from development as log dumps.<sup>173</sup> A reserve on the south edge of the community of Brennan Creek was set aside to protect a Canada goose nesting area.<sup>174</sup>

### **Mike Weigle Helicopter Skiing:**

One Commercial Licence covering a large area from Adams River to Seymour River and North for helicopter use.

Five Commercial Recreational Licences in the upper Adams River headwaters area.

### **Ministry of Forests and Range:**

-- **Forest Districts:** The northern reaches of the watershed, north of Spapilem Creek are in Headwaters Forest District and the remainder of the watershed is in Kamloops Forest District.

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<sup>173</sup> Phil Holman, Pers. Comm.

<sup>174</sup> Phil Holman, Pers. Comm.

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Much of the Adams River watershed is in the Operating Area of Interfor - Adams Lake Lumber; the upper river is within the operating area of Gilbert Smith Forest Products Ltd.

The 340 hectare Woodlot 370 is situated on the northern boundary of Roderick Haig-Brown Park. It is managed by the Small Business Program of the Salmon Arm Forest District.

**Ministry of Transportation and Highways** has an active gravel pit adjacent to the north boundary of Roderick Haig-Brown Park.

### **BC Hydro**

Has three Rights of Way:

The main transmission line from Mica Dam to the Lower Mainland passes through upper Roderick Haig-Brown Park and crosses the river just below the point where Hiuihill Creek enters it.

Two local hydro lines go through the park to the North Shuswap area and to the Interfor Mill.

### **The Nature Trust of British Columbia:**

Holds title to ten properties within Roderick Haig-Brown Park that are managed by BC Parks as part of the park.

#### *Transboundary rivers*

None

### ***Sub-theme 5.3. Environmental Regulation***

#### *Flood control*

There are no known works along the river for flood control, although a log and timber wing dam regulates flow just above the highway bridge. This wing dam is deteriorating and may require removal in the future.<sup>175</sup>

#### *Improvements in water management*

As noted earlier, some works were carried out in the 1970s on the alluvial fan for the purposes of managing water to increase spawning habitat. There have also been projects within the Roderick Haig-Brown Park to create spawning channels. An artificial spawning channel that had been built in the Park was partially destroyed in a 1999 flood. Bank erosion is a concern in the Park, including the impacts of, and implications for, the concrete viewing platform; the issue is being studied currently and its removal or relocation has been recommended.

#### *Improvements in aquatic ecosystem management*

The improvements after removing the splash dam at end of Adams Lake, and the Hiuihill Creek flume, provide opportunities for environmental education about both the historical relationships of logging and the river, and the lessons learned from inappropriate activities. Another opportunity is understanding of the negative impacts of some of the so-called “improvements”; for example, the “training” works that

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<sup>175</sup> Summit Environmental Consultants, 2005, p. 15-16.

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were constructed in the alluvial fan of the river. This also provides an opportunity for environmental education at the Park.

DFO has experimented with nutrient fertilization of Adams Lake to increase fry success (a “fry augmentation” program). Cost benefit analysis indicates that the program needs more spawners to be successful.

#### *Regulation of river access and use*

Park Use Permits are required in Provincial Parks for approved activities.

#### Lake Regulation

Lakeshore Guidelines, Thompson-Nicola Regional District

Thompson-Nicola Regional District has classified Adams Lake and Tumtum Lake as part of a lakeshore development planning process. Adams Lake has been classified as “General Use”, primarily used for public recreation with some cottaging, in a predominantly natural and rural landscape with conservation also being an important objective. Adams Lake is also noted as being a “Special Case” lake due to the significance of Native Cultural sites in the area. Tumtum Lake has been classified as “Natural Environment”, recognizing scenic, waterfowl, wildlife, vegetation, fisheries or other values worthy of conservation, with its accessibility providing quality recreational opportunities.

#### Riparian Areas Regulation

The British Columbia government has established a “Riparian Areas Regulation” requiring local governments to follow setback requirements along fish-bearing watercourses and lakeshores.

#### Forest Practices Legislation

Through the Lakeshore Harvesting Regulations of the Forest Practices Code, the lakeshore of Adams Lake is protected, although the regulations are currently under review.

#### Agricultural Land Reserve

The lower portion of Roderick Haig-Brown Park (below the bridge) falls within the Agricultural Land Reserve.

#### Climate Change Impacts and Adaptation Research

There are a variety of research initiatives proposed or underway in the interior to examine several current issues relevant to the river corridor. Some of these (such as drought management, fire risk assessment, and pine bark beetle management) are being carried out independently of the federal Climate Change Impacts and Adaptation Research program; others are proposed directly through the program.<sup>176</sup> Implications of climate change would need to be incorporated into future management planning.

#### Living Rivers Program

This initiative of the province of BC may have implications for the proposed nomination of the Adams River, and particularly for funding related to National Heritage River management.

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<sup>176</sup> For example, a 2005 – 2006 project undertaken by the authors of this report in association with the Federation of BC Naturalists to examine community planning tools for protecting shorelines in the Thompson-Nicola-Shuswap region.

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## 4 Assessment

The guidelines for the selection of Canadian Heritage Rivers include the following principles:

The outstanding value of Canadian Heritage Rivers shall be determined according to three sets of “Selection Guidelines”:

- Selection guidelines for natural heritage values;
- Selection guidelines for cultural values; and
- Selection guidelines for recreational values<sup>177</sup>

### 4.1 Natural Heritage Values

The four natural heritage guidelines adhere to the following common preamble: *Outstanding Canadian natural heritage value will be recognized when a river environment meets one or more of the following guidelines:*<sup>178</sup>

The following provides an assessment of the Adams River in terms of these guidelines. Comments follow each relevant criterion.

**Guideline 1.** *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 portion of the Shuswap Highlands that the Adams River system bisects is made up of metamorphic rocks that are nationally significant, as they are thought to represent the leading edge of the original Pre-Cambrian continental basement rock that have been compared with Laurentian Pre-Cambrian rocks by more than one geologist.<sup>179</sup>

**Guideline 2.** *Is an outstanding representation of significant ongoing fluvial, geomorphological and biological processes.*

The Adams River represents fluvial processes of erosion and deposition at work, from the sub-alpine through a dry forest setting to an alluvial fan. In fact, these processes pose challenges to managing spawning channels and viewing platforms in Roderick Haig-Brown Provincial Park.

**Guideline 3.** *Contains along its course unique, rare or outstanding examples of natural phenomena, formations or features.*

The area contains representative examples of some of the oldest bedrock geology in British Columbia.

The upper Adams River valley contains examples of interior rain forests, referred to as ancient or “antique” forests, similar in structure and form to those on the coast. Some of the forests have

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<sup>177</sup> Canadian Heritage Rivers System, 2001a, Section 3.1

<sup>178</sup> Canadian Heritage Rivers System, 2001, pp 65 - 67

<sup>179</sup> Yorath, 1990.

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not seen disturbance for over one thousand years. Cedar trees have been found that are over 1000 years old, along with many examples of coastal plant and lichen species.

The Adams River is internationally recognized for its dominant sockeye salmon run; also other species of salmon spawn in the system. It is one of the most significant tributaries of the Fraser system for salmon production.

**Guideline 4.** *Contains along its course habitats of rare or endangered species of plants and animals including outstanding concentrations of plants and animals of Canadian interest and significance.*

The habitats of the Adams River have come together to facilitate the production of huge numbers of sockeye salmon that return in a dominant cycle every four years to spawn. The coolness and clarity of water are ideal for salmon production. As well as sockeye, the river is significant for the interior Fraser coho salmon. The upper Adams River and Adams Lake are also significant, for their dual role as being integral to the downstream habitat, and for the potential opportunities afforded for re-establishing stocks in the upper reaches of the river system.

The river and its watershed contain habitats and species at risk that include porcupine sedge, crested wood fern, giant helleborine and a number of epiphytic lichen genera that are old-growth dependent, bull trout, mountain caribou, grizzly bear, fisher, wolverine, great blue heron, flammulated owl, Townsend's big-eared bat and Western painted turtle.



The lower Adams River  
Photo: S. Kipp

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## 4.2 Cultural Values

A river environment is judged to possess outstanding Canadian *human* heritage value if it meets one of the following four selection guidelines:<sup>180</sup>

**Guideline 1:** *[The river environment] 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.***

The Adams River played a significant role for the Secwepemc (Shuswap) peoples of the interior of British Columbia. They relied upon the salmon they harvested from it for sustenance, and for trading with other bands and nations. Their culture was built around the salmon; the salmon in the river continue to be very important for the First Nations bands in the area.

The early fur traders and gold seekers also relied on salmon from the Adams River.

The logging industry which developed in the Adams River valley relied heavily upon both the lake and the river for its operation. The river was used for running logs down to Shuswap Lake, and at one time, a splash dam was built at the outlet of Adams Lake and two flumes up tributaries in the valley.

**Guideline 2:** *[The river environment] is strongly associated with persons, events, movements, achievements, ideas or beliefs of Canadian significance;*

The great cannery era on the lower Fraser depended greatly on the sockeye of both the upper and lower Adams River; the loss of the upper Adams stock in 1907 and the lower Adams stock in 1913 contributed to the decline of the coastal cannery industry. The cannery era is a significant recent historical period in Canada.

The Adams and its tributaries were a focus of gold panning activity of Chinese railroad workers. The impact of Chinese immigrants on British Columbia's settlement history is only recently being recognized.

George Mercer Dawson, renowned geologist for the Geological Survey of Canada, and ethnologist, surveyed the area three times, in 1877, 1882 and 1898, compiling more detailed contour and geological maps with each visit. During his travels, Dawson also compiled ethnological information about the Secwepemc. Dawson's work became the basis for much of the geological and botanical knowledge of western Canada.

Roderick Haig-Brown, the respected conservationist and author, had connections to the river and fought to protect salmon rivers in British Columbia.

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<sup>180</sup> Canadian Heritage Rivers System, 2001 p. 35



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**Guideline 3:** *[The river environment] contains historical or archaeological structures, works or sites which are unique, rare or of great antiquity;*

There are already over 54 identified First Nations cultural heritage or archaeological sites in the lower reaches of the river and other sites have been identified along Adams Lake and the Momich River. Pit houses and pictographs are of interest.

**Guideline 4:** *[The river environment] contains outstanding examples or concentrations of **historical or archaeological structures, works or sites** which are representative of **major themes** in Canadian history.*

Remnants of an early 20<sup>th</sup> century log flume are located in the area of Hiuihill Creek inside Roderick Haig-Brown Park. At the time of construction, this log flume was one of Canada's (in fact, North America's) largest and probably most expensive.

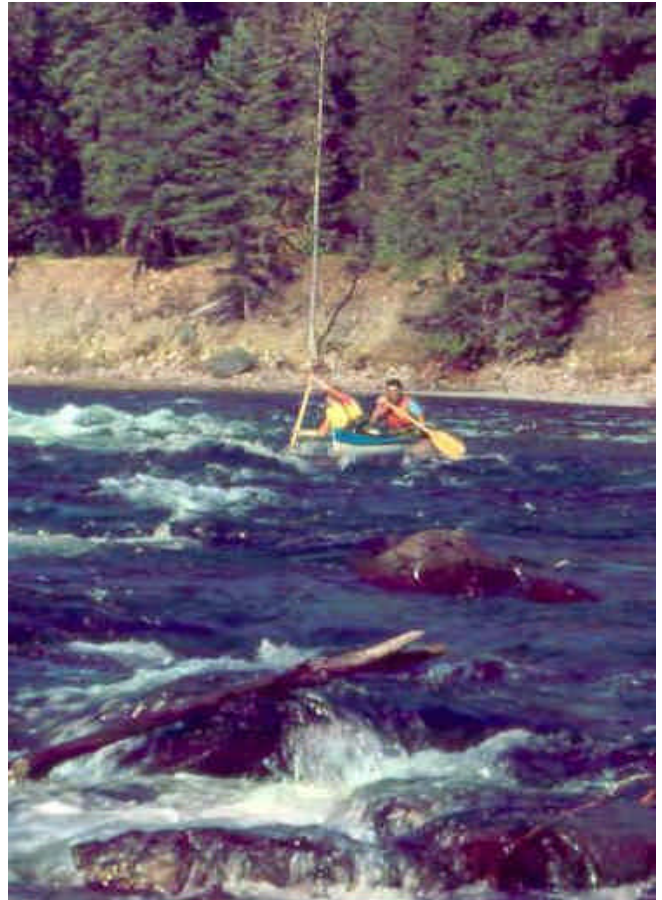
### 4.3 Recreational Values

The selection guidelines for recreational values are the following:

*Outstanding Canadian recreational value will be recognized when a river and its immediate environment possesses a combination of river-related recreational opportunities and related natural and or cultural values which together provide a capability for an outstanding recreational experience.*

- *Recreational opportunities include water-based activities such as canoeing and other forms of boating, swimming and angling, and other activities such as camping, hiking, wildlife viewing, and natural and cultural appreciation which may be part of a river-touring experience.*
- *Natural values include natural visual aesthetics, and physical assets such as sufficient flow, navigability, rapids, accessibility and suitable shoreline.*

Sections of the Adams River system provide outstanding, globally significant and accessible (especially the lower Adams River) opportunities for wildlife viewing of a spectacular natural event. Along with the wildlife viewing are opportunities for recreation, environmental education, wildlife appreciation, cultural appreciation of First Nations and early European settlement, and ecotourism. The river's natural attributes, along with those of Adams Lake, provide many recreational opportunities. These



Canoeing, Lower Adams River. Photo: Blair Borden

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include angling (both upper and lower stretches of the river, as well as Adams Lake), hiking, cycling, riding, snowshoeing, cross-country skiing, snowmobiling, canoeing and kayaking (in specific sections only of the upper Adams River due to some dangerous conditions), white water rafting (lower Adams River), swimming (lower Adams River and Adams Lake), and camping (Adams Lake).

The river's natural values include visually aesthetic appeal, ecological richness, sufficient flow, navigability for appropriate watercraft, rapids, and accessibility (particularly lower section and parts of Adams Lake).

The river's recreational values are enhanced by the activities and plans of a local community-based group, the Adams River Salmon Society, which is building an interpretive centre in Roderick Haig-Brown Provincial Park.

#### 4.4 Integrity Values

In addition to meeting specific heritage value guidelines, a river and its immediate environment must meet Integrity Guidelines in order to be admitted to the Canadian Heritage Rivers System.<sup>181</sup> These include:

##### Natural Integrity Values

In addition to meeting one or more of the natural heritage value guidelines (Section 4.1), for a river to be judged to have outstanding Canadian natural heritage value, it must meet all of the following natural integrity guidelines:

- *The nominated section is of sufficient size to include significant representations of all of the natural processes, features, or other phenomena which give the river its outstanding natural value;*

The nominated sections run from the river's headwaters in some of the remnant icefields and glaciers of the Columbia Mountains to its mouth at Shuswap Lake; the river's integral lakes and wetlands, and parts of some major tributaries are included (as outlined in section 5.0 "Boundaries").

- *The nominated section includes those ecosystem components which contribute significantly to the provision of habitat for species in need of protection;*

The nominated sections are significant for salmon species, bull trout, antique forest areas, southern interior riparian ecosystems, mountain caribou and other species.

- *There are no human-made impoundments within the nominated section;*

No. In the past, a splash dam acted to impound water in Adams Lake; as well, wing dams impounded waters in sections of the upper Adams River. However these have all been

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<sup>181</sup> Canadian Heritage Rivers System, 2001a, section 3.3



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removed and water now flows unimpeded, and this provides educational opportunities under “lessons learned”.

- *All key elements and ecosystem components are unaffected by impoundments located outside the nominated section;*  
Not relevant; no impoundments.
- *The water in the nominated section is uncontaminated to the extent that its natural aquatic ecosystem is intact;*  
Water remains of sufficiently good quality for salmon to spawn. The various jurisdictions involved in monitoring and protecting the river for its salmon habitat are assisting in protecting the river’s natural values future. It is not known what the long term effects of climate change will be, but this might be a future concern for all of Canada’s heritage rivers.
- *The natural aesthetic character of the nominated section is free of, or not adversely affected by, human developments.*  
Human developments exist along limited parts of the river corridor, and the river generally retains its natural aesthetic character, notwithstanding the presence of cutblocks in the watershed. There are minimal hardened shorelines along Adams Lake and current forest management practices include visual quality objectives with regard to harvesting.

### **Cultural Integrity Values.**

In addition to meeting one or more of the above cultural value guidelines, for a river to be judged to have outstanding Canadian cultural value, it must meet all of the following cultural integrity guidelines:

- *The nominated section is of sufficient size to include significant representations of all of the features, activities or other phenomena which give the river its outstanding cultural value;*  
Yes. Within the proposed boundaries there are many existing parks, including linear ones along the river, as well as two specially protected areas.
- *The visual character of the nominated section enables uninterrupted appreciation of at least one of the periods of the river’s historical importance;*  
Elements of the river’s historical importance include First Nations historical sites, salmon spawning, and logging. There are many visually appealing natural areas within the proposed boundary.
- *The key artifacts and sites comprising the cultural values for which the river is nominated are unimpaired by impoundments and human land uses;*  
Generally yes.
- *The water quality of the nominated section does not detract from the visual character or the cultural experience provided by its cultural values.*  
The quality of water generally is considered excellent. Occasional silting from some tributaries occurs; however the lake is deep enough to buffer the river and act as a settling pond for upstream tributaries.

### **Recreational Integrity Values.**

In addition to meeting both of the recreational value guidelines, for a river to be judged to have outstanding Canadian recreational value it must meet all of the following recreational integrity guidelines:

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- *The river possesses water of a quality suitable for contact recreational activities, including those recreational opportunities for which it is nominated;*  
Yes. However, from a safety perspective, in some sections of the river, especially in the upper Adams River, there are severe rapids, waterfalls, an exceptionally dangerous canyon, sweepers and also remains of old wing dams that create hazards to all paddlers.
  - *The river's visual appearance is capable of providing river travellers with a continuous natural experience, or a combined natural and cultural experience, without significant interruption by modern human intrusions;*  
Yes, provided care is taken as indicated above.
  - *The river is capable of supporting recreational uses without significant loss of, or impact on, its natural and cultural values or its visual character.*  
Yes, with the caveat that recreational, educational and tourism uses are very carefully managed.

## 5 Boundary for the Proposed Heritage River Corridor

It is proposed that the boundaries of the Adams River System as a national heritage river consist of the following elements:

- Lower Adams River, and the lower part of a tributary known as Hiuihill (Bear) Creek, all of which are situated within Rodenick Haig-Brown Provincial Park. Where the river borders on First Nations land, the boundary shall be to the river's high water mark.
- Adams Lake and its riparian area shoreline and the Lakeshore Management Zone which generally lies between the main Adams Lake forestry road and the lake edge and includes the following provincial parks:
  - ◊ Adams Lake Park (Bush Creek site)
  - ◊ Adams Lake Marine Park (Poplar Point, Spillman Beaches and Refuge Bay sites)
  - ◊ Part of the main tributary that lies within the boundaries of Momich Lakes Park.
- Upper Adams River mainstem including associated lakes (such as Mica and Tumtum) and associated wetlands, all that lie within the boundaries of Upper Adams River Provincial Park.
- Oregana Creek Protected Areas, and associated Riparian Reserve Zone (as currently designated under forest practices legislation).
- All remaining riparian areas outside of any provincial park or protected area, up to the source of the river's mainstem.

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## 6 Personal Contacts

Mark Angelo, Chair, Outdoor Recreation Council of B.C.  
Felix Arnouse, Chief, Little Shuswap Indian Band  
Kelly Austin, Fisheries and Oceans, Kamloops  
Sean Bennett, Habitat Restoration Biologist, Fisheries and Oceans, Kamloops  
Keri Benner, Fisheries and Oceans, Kamloops  
Robert Beaudry, River Adventures, Clearwater, BC  
Doug Biffard, Ministry of Environment  
Marino Bordin, Forester, Adams Lake Lumber (Interfor)  
Vic Calvert, Adams River Salmon Society  
Patricia Carlson, Senior Project Engineer, Fisheries and Oceans, Kamloops  
Patrick Cochrane, Engineering Technician, Fisheries and Oceans, Kamloops  
Doug Dymond, Operations Manager, Columbia Shuswap Regional District  
Jennifer Eastwood, Regional Recreation Officer, Ministry of Tourism, Sport and the Arts, Kamloops, BC  
Michael Flynn, Adams River Salmon Society  
Don Fraser, local resident, historian, retired local Ministry of Forests Ranger (lived and worked in Adams Lake area since 3 years old in 1921)  
Robert Fulton, retired terrain geology, surficial and landforms specialist, Geological Survey of Canada.  
Loretta Greenhough, North Shuswap Historical Society, Chase  
Bob Harding, Habitat Field Technician, Fisheries and Oceans, Salmon Arm  
Jeremy Heighton, Community Liaison Officer, Fisheries and Oceans, Kamloops  
Phil Holman, Retired Forest resource Planner, Ministry of Environment, Kamloops, BC  
Toby Jeffries, Forester, Gilbert Smith Forest Products  
Kurt Kier, Wildlife Technician, (Trapping-Guiding) Ministry of Environment, Kamloops.  
Byril Kurtz, Retired Fisheries Officer, DFO Salmon Arm  
Dave Lepsoe, Chase Museum, Chase, B.C.  
Jan Lingford, Adams River Salmon Society, Chase, B.C.  
Dennis Lloyd, Regional Ecologist, Kamloops Forest District, Ministry of Forests  
Doug Lofthouse, Fisheries and Oceans, Vancouver  
Murray McComb, Parks Canada, Ottawa  
Ed MacDonald, cabin owner, Tumtum Lake  
Leith MacKenzie, Ministry of Forests, Kamloops  
Ernie Maynard, Planning Officer, (former) Ministry of Sustainable Resource Management, Kamloops  
Leith McKenzie, Ministry of Forests, Kamloops  
Pat Moulton, Area Supervisor, Thompson Region, Environmental Stewardship Div, Ministry of Environment  
Brent Olsen, Stewardship Officer, Kamloops Forest District, Ministry of Forests  
Brent Persello, Regional Environmental Manager, Ministry of Transportation, Kamloops  
Hank Shelley, Salmon Arm Fish & Game, Salmon Arm  
Marge Sidney, Ministry of Environment, Kamloops  
Carmen Smith, retired owner, Gilbert Smith Forest Products Ltd., Barriere  
Adrian Wall, Habitat Partnership Coordinator, Fisheries and Oceans, Kamloops  
Ron VanderZwan, Ministry of Forests, Clearwater

## 7 Organizations and Groups Contacted

### First Nations

- Adams Lake Band
- Neskonlith Band
- Little Shuswap Band
- North Thompson Band

### Federal agencies

- Fisheries and Oceans Canada (Salmon Arm, Kamloops and Vancouver offices)

### Provincial agencies

- Ministry of Environment
- Ministry of Forests
- Ministry of Transportation

### Regional Districts

- Thompson-Nicola Regional District
- Columbia Shuswap Regional District

### Non-government organizations

- Adams River Salmon Society
- Chase and District Museum and Archives
- Kamloops Museum
- Thompson-Okanagan Tourism Association (Kelowna)
- Chase and District Chamber of Commerce
- Shuswap Environmental Action Society
- Kamloops Naturalists
- North Shuswap Naturalists
- North Shuswap Historical Society
- Shuswap Naturalists
- BC Outdoor Recreation Council
- Chase Museum Committee

### Commercial / recreational / private interests

- Adams River Rafting
- A Rover's Rest B&B (TOTA representative)
- Adams Lake Lumber (Interfor)
- Gilbert Smith Forest Products
- Guide outfitters in Adams Lake area

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## Appendix 1 – Lists of Flora and Fauna

**Table 1. Plant species within Roderick Haig-Brown Provincial Park.**<sup>182</sup>

### Trees

Ponderosa pine *Pinus ponderosa*  
 Lodgepole pine *Pinus contorta* var. *latifolia*  
 Western white pine *Pinus monticola*  
 Western hemlock *Tsuga heterophylla*  
 Hybrid white spruce *Picea glauca* × *engelmannii*  
 Interior Douglas-fir *Pseudotsuga menziesii* var. *glauca*  
 Western redcedar *Thuja plicata*  
 Paper birch *Betula papyrifera*  
 Water birch, *Betula occidentalis*  
 Trembling aspen *Populus tremuloides*  
 Black cottonwood *Populus trichocarpa*  
 Choke cherry *Prunus virginiana*

### Shrubs

Douglas maple *Acer glabrum douglasii*  
 Mountain alder *Alnus incana* ssp. *tenuifolia*  
 Sitka alder *Alnus viridis*

<sup>182</sup> The source of this list is Appendix 6 of the Roderick Haig-Brown Provincial Park Management Plan Background Document (BC Parks, 2001). The following sources were used to compile this list:

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Malcolm Martin, 1996 – plant lists from slides as part of a Thompson River District plant survey project for Shuswap Lake Parks.

Jim Shaver, 1996 – lists for use by naturalists at 20 spots along the trails.

Bea Prehara (formerly Goward) – former resident

George Prehara

Saskatoon *Amelanchier alnifolia*  
 Kinnikinnick *Arctostaphylos uva-ursi*  
 Redstem ceanothus *Ceanothus sanguineus*  
 Snow brush *Ceanothus velutinus*  
 Prince's pine *Chimaphila umbellata*  
 Red-osier Dogwood *Comus sericea*  
 Hazelnut *Corylus comuta*  
 Columbian haw thorn *Crataegus columbiana*  
 Black haw thorn *Crataegus douglasii*  
 Ocean spray *Holodiscus discolor*  
 Common juniper *Juniper communis*  
 Orange honeysuckle *Lonicera ciliosa*  
 Black twinberry *Lonicera involucrata*  
 Tall Oregon-grape *Mahonia aquifolia*  
 Devil's club *Oplopanax horridus*  
 Falsebox *Pachistima myrsinites*  
 Lewis' Mock orange *Philadelphus lewisii*  
 Poison ivy *Rhus radicans*  
 Black gooseberry *Ribes lacustre*  
 Prickly rose *Rosa acicularis*  
 Baldhip rose *Rosa gymnocarpa*  
 Nootka Rose *Rosa nutkana*  
 Red Raspberry *Rubus idaeus*  
 Thimbleberry *Rubus parviflorus*  
 Peachleaf willow *Salix amygdaloides*  
 Sitka willow *Salix sitkensis*  
 Elderberry *Sambucus sp*  
 Soopolallie *Shepherdia canadensis*  
 Mountain ash *Sorbus scopulina*  
 Sitka mountain ash *Sorbus sitkensis*  
 Table A.1 Plant species within Roderick Haig-Brown Provincial Park (continued).

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Birch-leaved spirea *Spiraea betulifolia*  
Pink spirea *Spiraea douglasii*  
Common snow berry *Symphoricarpos albus*  
High-bush cranberry *Viburnum edule*

### Wildflowers

Yarrow *Achillea millefolium*  
Vanilla-leaf *Achlys triphylla*  
Nodding Onion *Allium cernuum*  
Pearly Everlasting *Anaphalis margaritacea*  
Kneeling Angelica *Angelica genus flexa*  
Field Pussytoes *Antennaria neglecta*  
Spreading Dogbane *Apocynum androsaemifolium*  
Holboell's Rockcress *Arabis holboellii*  
Sarsaparilla *Aralia nudicaulis*  
Burdock *Arctium lappa*  
Heart-leaved Arnica *Arnica cordifolia*  
Northern Wormwood *Artemisia campestris*  
Aster sp. *Aster bracteolatus*  
Leafy Aster *Aster foliaceus*  
Douglas Aster *Aster subspicatus*  
Aster species *Aster sp.*  
Balsamroot *Balsamorhiza sagittata*  
Pinegrass *Calamagrostis rubesens*  
Mariposa Lily *Calochortus macrocarpus*  
Bluebell *Campanula sp.*  
Common Red Paintbrush *Castilleja miniata*  
Knapweed *Centaurea spp.*  
Prince's pine *Chimaphila umbellata*  
Chicory *Cichorium intybus*  
Thistle species *Cirsium sp.*  
Western Spring Beauty *Claytonia lanceolata*  
Queen's Cup *Clintonia uniflora*  
Small-flowered Blue-eyed Mary *Collinsia parviflora*  
Spotted Coralroot *Corallorhiza maculata*  
Bunchberry *Cornus canadensis*  
Mountain Ladyslipper *Cypripedium montanum*

Upland Larkspur *Delphinium nuttallianum*  
Rough-fruited Fairybells *Disporum trachycarpum*  
Fireweed *Epilobium angustifolium*  
Purple-leaved Willow-herb  
(Watson's Willow herb) *Epilobium ciliatum*  
*Epilobium watsonii*  
Giant Hellebore *Epipactis gigantea*  
Common Horsetail *Equisetum arvense*  
Scouring Rush *Equisetum hymenale*  
Marsh Horsetail (Swamp Horsetail) *Equisetum palustre*  
Fleabane species *Erigeron species*  
Yellow glacier lily *Erythronium grandiflorum*  
Wild strawberry *Fragaria virginiana*  
Chocolate Lily *Fritillaria lanceolata*  
Northern Bedstraw *Galium borealis*  
Brown eyed Susan, *Gaillardia aristata*  
Rattlesnake Plantain *Goodyera oblongifolia*  
Curly-cup Gumweed *Grindelia squarrosa*  
Stickseed sp. (Hakelia) *Hackelia sp.*  
Mountain Sneezeweed, *Helenium autumnale L. var. grandiflorum*  
Golden-aster *Heterotheca villosa*  
Round-leaved Alumroot *Heuchera cylindrica*  
Narrow-leaved Hawkweed *Hieracium umbellatum*  
Purple Peavine *Lathyrus nevadensis*  
Oxeye Daisy *Leucanthemum vulgare*  
Tiger Lily *Lilium columbianum*  
Twinflower *Linnaeus borealis*  
Fringe-cup (Small-flowered Woodland Star)  
*Lithophragma parviflorum*  
Lemonweed *Lithospermum ruderale*  
Large-fruited Desertparsley *Lomatium macrocarpum*  
Lomatium species *Lomatium sp.*  
Skunk Cabbage *Lysichiton americanum*  
Alfalfa *Medicago sativa*  
Smith's Melic, *Melica smithii*  
White Sweet Clover *Melilotus alba*  
Common Mitrewort *Mitella nuda*

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Wild Bergamot *Monarda fistulosa*  
Indian-pipe *Monotropa uniflora*  
Mountain Sweet Cicely *Osmorhiza chilensis*  
One-sided Wintergreen *Orthilia secunda*  
Field Locoweed *Oxytropis campestris*  
Slender Blue Penstemon *Penstemon fruticosus*  
Shrubby Penstemon *Penstemon procensus*  
Silver-leaf Phacelia *Phacelia hastata*  
Common plantain *Plantago major*  
Round-leaved rein orchid *Platanthera orbiculata*  
Bog-orchid *Platanthera sp.*  
Graceful Cinquefoil *Potentilla gracilis*  
Sulphur Cinquefoil *Potentilla recta*  
Heal-all *Prunella vulgaris*  
Pink wintergreen *Pyrola asarifolia*  
Little buttercup *Ranunculus uncinatus*  
Lance-leaved Stonecrop *Sedum lanceolatum*  
Night flowering Catchfly *Silene noctiflora*  
False Solomon's Seal *Smilacina racemosa*  
Star-flowered Solomon's Seal *Smilacina stellata*  
Canada Goldenrod *Solidago canadensis*  
Northern Goldenrod *Solidago multiradiata*  
Twisted Stalk *Streptopus amplexifolius*  
Dandelion *Taraxacum officinale*  
Western Meadow rue *Thalictrum occidentale*  
Foamflower *Tiarella unifoliata*  
Salsify *Tragopogon dubius*  
Red Clover species *Trifolium species*  
Great Mullein *Verbascum thapsus*  
American Vetch *Vicia americana*  
Round-leaved Violet *Viola orbiculata*  
Meadow Death Camas *Zigadenus venenosus*

#### Grasses

Crested Wheatgrass *Agropyron cristatum*  
Quack Grass *Agropyron repens*  
Bluebunch Wheatgrass *Agropyron spicatum*  
Brome grass *Bromus spp.*

Cheat grass (Drooping Brome) *Bromus tectorum*  
Slimstem Reedgrass (Northern Small Reed) *Calamagrostis inexpansa*  
Pinegrass *Calamagrostis rubescens*  
Sedge species *Carex sp.*  
Sedge *Carex cusickii*  
Porcupine Sedge *Carex hystericina*  
Beaked Sedge *Carex utriculata*  
Orchardgrass *Dactylis glomerata*  
Timber Oatgrass (Poverty Oatgrass) *Danthonia spicata*  
Blue Wildrye (Wild Rye Grass) *Elymus glaucus*  
Idaho Fescue *Festuca idahoensis*  
Western Fescue *Festuca occidentalis*  
June Grass *Koeleria cristata*  
Rough-leaved Rice Grass *Oryzopsis asperifolia*  
Reed Canary Grass *Phalaris amnicolae*  
Kentucky Blue Grass *Poa pratensis*  
Blue Grass species *Poa sp.*  
Great Bulrush *Scirpus lacustris*  
Cattail *Typha latifolia*

#### Ferns

Lady Fern *Athyrium filix-femina*  
Crested Wood Fern *Dryopteris cristata*  
Oak Fern *Gymnocarpium dryopteris*  
Licorice Fern *Polypodium vulgare*  
Bracken *Pteridium aquilinum*  
Oregon Woodsia *Woodsia oregana*

#### Clubmosses & Mosses

Brachythesiums *Brachythecium sp.*  
Cushion Moss *Dicranum sp.*  
Layered Moss *Hylocomium splendens*  
Mniiums *Mnium sp.*  
Schreber's Red Stem *Peltigera schreberi*  
Common Moss *Pleurozium spp.*  
Pogonatum *Pogonatum spp.*

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Hairy Cap Moss *Polytrichum* spp.

(Feather Moss) *Ptilium crista-castrensis*

Electrified Cat's Tail Moss ("Pipcleaner Moss")

*Rhizidiadelphus triquetrus*

Compact Selaginella *Selaginella densa*

Clubmoss species *Lycopodium* sp.

### **Mushrooms**

Fly agaric *Amanita muscaria*

*Agarica silvicola*

Delicious milky cap *Lactarius deliciosus*

Red juicy milky cap *Lactarius rubrilactus*

Glistening milky cap *Coprinus micaceus*

Oyster mushroom *Pleurotus ostreatus*

*Suillus lakei*

*Russulus* spp.

Aspen bolete *Leccinum insigne*

Black morels *Morchella elata* group

Shaggy mane *Coprinus comatus*

Inky cap *Coprinus atramentarius*

**Table 2 Wildlife species within Roderick Haig-Brown Provincial Park, showing Provincial Status.**<sup>183</sup>

**Birds B.C. Provincial Status**

Common Loon *Yellow*  
 Pied-billed Grebe *Yellow*  
 Red-necked Grebe *Yellow*  
 Western Grebe *Red*  
 Great Blue Heron *Blue*  
 Canada Goose *Yellow*  
 Mallard *Yellow*  
 American Widgeon *Yellow*  
 Harlequin Duck *Yellow*  
 Barrow's Goldeneye *Yellow*  
 Common Merganser *Yellow*  
 Osprey *Yellow*  
 Bald Eagle *Yellow*  
 Golden Eagle *Yellow*  
 American Kestrel *Yellow*  
 Merlin *Yellow*  
 Blue Grouse *Yellow*  
 Ruffed Grouse *Yellow*  
 Sora *Yellow*  
 Sandhill Crane *Yellow*  
 Killdeer *Yellow*  
 Greater Yellowlegs *Yellow*  
 Lesser Yellowlegs *Yellow*  
 Solitary Sandpiper *Yellow*  
 Spotted Sandpiper *Yellow*  
 Bonaparte's Gull *Yellow*  
 Herring Gull *Yellow*

Flammulated Owl *Blue*  
 Great Horned Owl *Yellow*  
 Northern Pygmy Owl *Yellow*  
 Northern Saw-whet Owl *Blue*  
 Calliope Hummingbird *Yellow*  
 Rufous Hummingbird *Yellow*  
 Belted Kingfisher *Yellow*  
 Red-naped Sapsucker *Yellow*  
 Downy Woodpecker *Yellow*  
 Hairy Woodpecker *Blue*  
 Northern Flicker *Yellow*  
 Pileated Woodpecker *Yellow*  
 Olive-sided Flycatcher *Yellow*  
 Western Wood Peewee *Yellow*  
 Willow Flycatcher *Yellow*  
 Dusky Flycatcher *Yellow*  
 Pacific-slope Flycatcher *Yellow*  
 Western Kingbird *Yellow*  
 Eastern Kingbird *Yellow*  
 Tree Swallow *Yellow*  
 Violet-green Swallow *Yellow*  
 Northern Rough-winged Swallow *Yellow*  
 Bank Swallow *Yellow*  
 Cliff Swallow *Yellow*  
 Barn Swallow *Yellow*  
 Gray Jay *Yellow*  
 Steller's Jay *Blue*  
 American Crow *Yellow*  
 Common Raven *Yellow*  
 Black-capped Chickadee *Yellow*  
 Mountain Chickadee *Yellow*  
 Chestnut-backed Chickadee *Yellow*  
 Red-breasted Nuthatch *Yellow*  
 Brown Creeper *Yellow*  
 Winter Wren *Yellow*  
 Marsh Wren *Yellow*  
 American Dipper *Yellow*

<sup>183</sup> The source of this list is Appendix 7 of the Roderick Haig-Brown Provincial Park Management Plan Background Document (BC Parks, 2001). The original list was compiled from a variety of sources of anecdotal lists and a study of southern interior bats by S. L. Holroyd in 1992.

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Golden-crow ned Kinglet *Yellow*  
Ruby-crow ned Kinglet *Yellow*  
Mountain Bluebird *Yellow*  
Townsend's Solitaire *Yellow*  
Swainson's Thrush *Yellow*  
Hermit Thrush *Yellow*  
American Robin *Yellow*  
Varied Thrush *Yellow*  
Bohemian Waxwing *Yellow*  
Cedar Waxwing *Yellow*  
European Starling *Yellow*  
Solitary Vireo *Yellow*  
Warbling Vireo *Yellow*  
Orange-crow ned Warbler *Yellow*  
Yellow Warbler *Yellow*  
Yellow-rumped Warbler *Yellow*  
Townsend's Warbler *Yellow*  
Common Yellow throat *Yellow*  
Wilson's Warbler *Yellow*  
Western Tanager *Yellow*  
Chipping Sparrow *Yellow*  
Song Sparrow *Yellow*  
Lincoln's Sparrow *Yellow*  
White-crow ned Sparrow *Yellow*  
Dark-eyed Junco *Yellow*  
Red-winged Blackbird *Yellow*  
Brewer's Blackbird *Yellow*  
Brown-headed Cowbird *Yellow*  
Northern Oriole *Yellow*  
Cassin's Finch *Yellow*  
House Finch *Yellow*  
Red Crossbill *Yellow*  
White-winged Crossbill *Yellow*

Pine Siskin *Yellow*  
American Goldfinch *Yellow*  
Evening Grosbeak *Yellow*  
**Mammals**  
Black Bear *Yellow*  
Bobcat *Yellow*  
Cougar *Yellow*  
Coyote *Yellow*  
Deer mice *Yellow*  
Grizzly Bear *Blue*  
Lynx *Yellow*  
Moose *Yellow*  
Mule Deer *Yellow*  
North Western Chipmunk *Yellow*

Shrews, Voles  
Whitetail Deer *Yellow*

**Reptiles & Amphibians**

Painted Turtle *Blue*  
Northern Alligator Lizard *Yellow*  
Common Terrestrial Garter snake *Yellow*  
Western Terrestrial Garter snake *Yellow*  
Long-toed Salamander *Yellow*  
Pacific Tree Frog *Yellow*  
Spotted Frog *Yellow*  
Western Toad *Yellow*

**Bats**

Hoary *Yellow*  
Western long-eared myotis *Yellow*  
California myotis *Yellow*  
Big brown bat *Yellow*  
Long-legged myotis *Yellow*  
Yuma Myotis *Yellow*  
Little brown myotis *Yellow*



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## Appendix 2 – Participants at Workshop, March 16, 2006

<b>Name</b>	<b>Organization</b>
Deb Bischoff	North Shuswap Historical Society
Marino Bordin, Forester	Interfor (Adams Lake Lumber)
Clive Callaway	Cal-Eco Consultants
Vic Calvert, President	Adams River Salmon Society
Michael Flynn	Adams River Salmon Society
Grant Fraser, Area Director	Thompson-Nicola Regional District
Bob Gibbs	
Jeremy Heighton	Fisheries and Oceans Canada
Greg Holitzki	Village of Chase
Sarah Kipp	Cal-Eco Consultants
Byril Kurtz	Retired
Toby Jeffreys	Gilbert Smith Forest Products
Pat Moulton	B.C. Parks
Hank Shelley	Salmon Arm Fish and Game Club
Vic Skjeie	Village of Chase
Carman Smith	Gilbert Smith Forest Products
Peter Weilandt	B.C. Ministry of Environment
Greg Witzky	Adams Lake Indian Band