

***Species at Risk Act*, S.C. 2002, c. 29**

**Application to**

**The Honourable Catherine McKenna,  
Minister of Environment and Climate Change**

**and to**

**Governor in Council**

**for an Emergency Order under section 80  
to Protect Matrix Range Critical Habitat of the  
Wells Gray-Thompson Local Population Unit of the  
Woodland Caribou, Southern Mountain Caribou population  
(*Rangifer tarandus caribou*)  
Against Timber Harvesting and Related Road-building on  
Provincial Crown Land**

**by**

**Wells Gray Gateway Protection Society, Upper Clearwater Referral Group, BC Nature, Western Canada Wilderness Committee, Sierra Club British Columbia, Kamloops Naturalist Club, Kamloops Unitarians for Social Justice, Shuswap Naturalist Club, Working Group on Indigenous Food Sovereignty, Vermilion Forks Field Naturalists Society, South Okanagan Naturalists' Club, Squamish Environmental Conservation Society, Chilliwack Field Naturalists, Trevor Goward, Roland Neave, Erik Milton, Dr. Cathie Hickson, Dr. Lyn Baldwin, Dr. Nancy Flood, Dawn Morrison, Kanahus Manuel**

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# Contents

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
1.1	Overview	1
1.2	Actions requested	3
1.3	Applicants	4
1.4	Focus of request	5
1.5	Terminology	6
1.6	Outline of application document	6
<b>2.0</b>	<b>The Wells Gray-Thompson caribou herd from 1926 to 2017</b>	<b>7</b>
2.1	Mountain Caribou decline begins	7
2.2	Southern Selkirk caribou “endangered” under U.S. <i>Endangered Species Act</i>	10
2.3	Toward a Mountain Caribou Strategy	11
2.4	Mountain caribou red listed and designated “threatened”	13
2.5	<i>Species at Risk Act</i>	14
2.6	BC MCRIP	15
2.7	COSEWIC upgrades southern mountain caribou to “endangered”	17
2.8	2014 Federal Recovery Strategy	17
2.9	SARA: critical habitat protection on non-federal lands	20
2.10	First mountain caribou protection study under SARA	22
<b>3.0</b>	<b>Southern Mountain Caribou: Declining Numbers</b>	<b>24</b>
3.1	B.C. MOE census, “in and near southern Wells Gray Park”	24
3.2	COSEWIC (2014)	26
3.3	Central Group Protection Study (2017)	27
<b>4.0</b>	<b>Matrix range is critical habitat for Mountain Caribou</b>	<b>29</b>
4.1	Recovery Implementation Group (2005)	29
4.2	RIG recommends protection of matrix habitat in Kamloops Region	32
4.3	Type 2 matrix range in the 2014 Recovery Strategy	33
4.4	Johnson et al. (2015)	35
4.5	2017 Central Group Protection Study	35
<b>5.0</b>	<b>Imminent Threats to Survival and Recovery</b>	<b>35</b>
5.1	The Upper Clearwater Valley is heavily disturbed by timber harvesting and more is planned	36
5.2	B.C. allows timber harvesting in matrix range critical habitat	37
5.3	Canfor logging plans in the Upper Clearwater Valley	40
5.4	Wolf density in the subject area exceeds “low predation risk”	43
5.5	Effect of timber harvesting on wolf density	44
<b>6.0</b>	<b>Legal Framework</b>	<b>45</b>
6.1	<i>UN Convention on Biological Diversity</i>	45
6.2	<i>Federal Species at Risk Act</i>	46
6.3	Application of SARA to habitat of terrestrial wildlife species on non-federal land	47
6.4	Safety net orders	48
6.5	Emergency order to protect listed species on non-federal land	50
6.6	Emergency order under s.80 and s.97(2)	50

6.7	Southern mountain caribou population and distribution objectives are at the Local Protection Unit level	53
6.8	The Minister's opinion and recommendation under s.80(2)	55
6.9	Timely decision-making	59
6.10	Previous emergency order under SARA s.80	60
<b>7.0</b>	<b>Conclusion</b>	<b>60</b>
<b>8.0</b>	<b>References</b>	<b>63</b>
8.1	Reports and Policy Documents (in chronological order)	63
8.2	Legal authorities	67
<b>9.0</b>	<b>Appendices</b>	<b>68</b>

## **Appendices**

- Appendix A.** Names and Descriptions of Applicants
- Appendix B.** Map of Upper Clearwater Valley Showing Recent and Pending Timber Harvesting within Critical Habitat for Caribou
- Appendix C.** "Wolf Density and Probable Effects of Logging in Matrix Range Critical Habitat within the Wells Gray-Thompson LPU"
- Appendix D.** Map of Canfor Cutblocks within Matrix Range Critical Habitat, Upper Clearwater Valley
- Appendix E.** Caribou Census Detail: Estimates of Southern Mountain Caribou in and near Wells Gray Provincial Park over time
- Appendix F.** Map of Critical Habitat, Wells Gray-Thompson Local Population Unit, 2014 Recovery Strategy, page 87

## 1.0 Introduction

### 1.1 Overview

The endangered Wells Gray-Thompson Local Population Unit (LPU) of southern mountain caribou faces imminent threats to both its survival and its recovery. All of the population estimates show precipitous, continuous declines in numbers even since the *Species at Risk Act* (SARA) was enacted in 2002. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated the Southern Mountain population of Caribou *Rangifer tarandus*, of which the Wells Gray-Thompson LPU is a component, as “endangered” and says the threats to survival are continuing and escalating. The Provincial conservation status of the southern mountain caribou population is “critically imperiled.” The proximate threat is unnaturally high predation rates as a result of habitat alterations that support higher densities of prey such as moose, deer and elk and correspondingly higher densities of predators that in turn prey on southern mountain caribou.

The 2014 federal Recovery Strategy declares that recovery of these endangered animals is both technically and biologically feasible. The Strategy has identified critical habitat areas in the Upper Clearwater Valley<sup>1</sup> that must allow for low predation risk to the caribou, defined as wolf population densities less than 3 wolves/1000 km<sup>2</sup>. However, the wolf density in the critical habitat of the subject herds is well above that level.

The critical habitat in the Upper Clearwater Valley had already been extensively disturbed by timber harvesting and road building prior to the issuance of the Recovery Strategy. Moreover, provincial approval of cut blocks and clearcut logging

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<sup>1</sup> The term “Upper Clearwater Valley” is used in this application to refer to the Clearwater Valley north of Spahats Creek.

has continued even after the issuance of the Recovery Strategy. New timber harvesting within matrix range critical habitat is imminent and the Province of B.C. is unwilling to prevent it. The evidence in Appendix C is that if logging persists in the subject area, then wolf density is more likely than not to increase. This will exacerbate the existing imminent threats to the survival – and certainly the recovery – of the Wells Gray-Thompson caribou herds.

Neither the 2014 Recovery Strategy nor promised future “actions plans” have legal enforceability to prohibit damage to the critical habitat on non-federal land. There are only two mechanisms under SARA for the federal government to achieve effective protection of this critical habitat when the Province is manifestly unwilling to do so: a ‘safety net’ order under section 61, or an emergency order under section 80. The Applicants are asking for an emergency order to halt any further destruction of critical habitat on provincial Crown land until the slow-moving process for developing a safety net order is completed.

The s.61 safety net process has indeed begun. In 2016, the federal and provincial governments initiated a joint study of whether the province is providing “effective protection” of the southern mountain caribou (Northern, Central and Southern Groups) defined in the 2014 Recovery Strategy. This resulted in a February 2017 ‘effective protection report’ for the Central Group. An ‘effective protection report’ for the Southern Group is next in line.

The ‘safety net’ wheel is turning, but it is turning slowly. There is no statutory time limit, there is no official commitment to a specific date, and there is no reason to expect a sudden acceleration of the methodical pace. In the absence of the requested emergency order, substantial new destruction of matrix range critical habitat in the Upper Clearwater Valley will – not might – have occurred before the Governor in Council is in a position to exercise its authority under section 61. To prevent such an outcome is precisely the role of an emergency order under s.80 of

SARA.

The federal Governor in Council has statutory authority under s.80 of SARA to make an emergency order to prohibit commercial timber harvesting and road building on non-federal lands where there are imminent threats to the survival or recovery of the endangered Wells Gray-Thomson caribou. Such an order will prevent new damage to the already demonstrably compromised matrix range critical habitat of the Wells Gray-Thomson caribou herds pending the completion of decision-making regarding a 'safety net' order under s.61.

The first step toward an emergency order is for the Minister of Environment and Climate Change to make an objective determination based on the best available scientific information that the Wells Gray-Thomson LPU faces imminent threats to its survival or recovery. This decision must be made in a timely manner, bearing in mind the emergency nature of the order requested.

## 1.2 **Actions requested**

This is an application under section 80 of the *Species at Risk Act* for the Minister to recommend, and for the Governor in Council to make, an emergency order to provide for the protection of the Wells Gray-Thompson LPU of southern mountain caribou by prohibiting timber harvesting and related road building within matrix range critical habitat on provincial Crown land including, for identification, in the Upper Clearwater Valley of British Columbia adjacent to southern Wells Gray Provincial Park.

The Applicants respectfully request the following actions:

- (a) that the Minister of Environment and Climate Change form the opinion under s.80(2) of SARA that the Wells Gray-Thompson LPU faces imminent threats to its survival or recovery and recommend to the Governor in Council that it make

an emergency order to provide for the protection of the Wells Gray-Thompson LPU,

- (b) that the Governor in Council under s.80(1) make an emergency order to provide for the protection of the Wells Gray-Thompson LPU,
- (c) that pursuant to s.80(4)(c)(ii)(A) the emergency order identify habitat on provincial Crown land that is necessary for the survival or recovery of the Wells Gray-Thompson LPU in the area to which the emergency order relates,
- (d) that pursuant to s.80(4)(c)(ii)(B) the emergency order include provisions prohibiting timber harvesting and related road building on provincial Crown land within the critical habitat to which the emergency order relates, and
- (e) that pursuant to s. 97(2) the emergency order prescribe which of its provisions may give rise to an offence
- (f) that the Minister expedite completion of an 'effective protection report' for the Southern Group of the southern mountain caribou and form an opinion to support a recommendation for a 'safety net' order under s.61.

### 1.3 **Applicants**

This application is made by the following organizations and individuals. Descriptions of the Applicants are provided in Appendix A.

- Wells Gray Gateway Protection Society (previously known as the Wells Gray Action Committee),
- The Upper Clearwater Referral Group,
- BC Nature,
- Western Canada Wilderness Committee,

- Sierra Club British Columbia,
- The Kamloops Naturalist Club,
- Kamloops Unitarians for Social Justice,
- Shuswap Naturalist Club,
- Working Group on Indigenous Food Sovereignty,
- Vermilion Forks Field Naturalists Society,
- South Okanagan Naturalists' Club,
- Chilliwack Field Naturalists,
- Trevor Goward, field naturalist and lichenologist,
- Roland Neave, president and owner of Wells Gray Tours and author of *Exploring Wells Gray Park* (6<sup>th</sup> edition),
- Erik Milton, resident of Upper Clearwater Valley,
- Dr. Cathie Hickson, geoscientist and volcanologist,
- Dr. Lyn Baldwin, plant ecologist, assistant professor at Thompson Rivers University,
- Dr. Nancy Flood, biologist, senior lecturer at Thompson Rivers University,
- Dawn Morrison, Secwepemc Nation educator and community self-development facilitator, and
- Kanahus Manuel, Secwepemc Nation activist, birth keeper, and warrior.

#### 1.4 **Focus of request**

The focus of the request is the Wells Gray-Thompson Local Population Unit #18, of the Southern Group, of the Woodland Caribou, Southern Mountain population, as described in the 2014 Recovery Strategy.

## 1.5 Terminology

Canada and B.C. use somewhat different terminology regarding what the federal 2014 Recovery Strategy calls the “southern mountain caribou.” This application uses the federal terminology except regarding references that use the B.C. terminology.

## 1.6 Outline of application document

This Introductory section provides an overview of the reasons for the application, the names of the applicants, and the details of the actions requested.

Section 2 reviews the history of the Wells Gray-Thompson herd from 1926 to the present. The focus is on the declining population levels, the causes of the decline, matrix habitat and commercial timber harvesting, and the actions of the B.C. and federal governments.

Section 3 focuses on the population numbers. Table 1 shows the estimates for the “in and near southern Wells Gray Park” censuses in the available years. Table 2 provides the most recent population figures and trend determinations.

Section 4 focuses on “matrix range”: habitat that is critical because it is the source of predators that are impacting the caribou population.

Section 5 documents the imminent threats to the survival and recovery of the Wells Gray-Thompson caribou due to past, present and impending timber harvesting in matrix range critical habitat. The willingness of the Province of B.C. to allow timber harvesting in matrix range critical habitat is addressed. Specific timber harvesting cutblocks in the subject area are identified. “Wolf density” is the objective criterion for matrix range critical habitat. Section 5 outlines the conclusions of a report by University of Victoria biologists, provided in Appendix C, that wolf density in the subject area considerably exceeds the standard for “low risk of predation of caribou”

and that additional timber harvesting in the subject area is likely to increase the wolf density.

Section 6 of this application outlines the legal framework for this application. It starts with Canada's 1992 ratification of the UN Convention on Biological Diversity and the enactment of the federal *Species at Risk Act* in 2002. The section describes the provision of SARA that authorizes an emergency order to prohibit activities that may adversely affect a listed terrestrial mammal such as the Wells Gray-Thompson caribou on non-federal land. The legal requirements and the applicable legal principles are set out.

Section 7 is a short conclusion.

References are listed in Section 8.

## **2.0 The Wells Gray-Thompson caribou herd from 1926 to 2017**

### **2.1 Mountain Caribou decline begins**

Wells Gray Provincial Park was established in 1939, in part to protect the Mountain Caribou which had undergone substantial decline following a series of devastating wildfires in the Clearwater Valley beginning in 1926.

An early peer-reviewed report on the decline of the mountain caribou herd in Wells Gray Park was published in 1954 by R.Y. Edwards of the B.C. Forest Service. He states:

“A mountain caribou herd in Wells Gray Park, British Columbia, is one of many in the province that has decreased in size since the turn of the century. Fire appears to be the cause of the decline of the Wells Gray herd. Since 1926 about 70 per cent of the forests below 4000 feet have been burned, and caribou, which appear to require mature

lowland forests for winter range, are now confined in winter to the unburned forest remnants.”<sup>2</sup>

Edwards (1954) links the fire, the reduction of climax forest, the increase in early seral<sup>3</sup> stage forest, an influx of moose, and an increase in predators:

“Moose were unknown in this [Clearwater] valley before the fires. Wanderers colonized the valley in the early 1930s and increased until the winter of 1945, when homesteaders watched moose browsing close by and children on their way to school dodged them. Moose found extensive winter range in the hundreds of square miles of browse, and summered in the damp sub-alpine forests at and below timberline.

With the establishment and increase of moose, wolves increased markedly from a previously low population density. The new mammalian abundance probably figured strongly in this and other increases in mammalian predators of the valley.”<sup>4</sup>

Edwards (1954) concludes:

“To maintain and eventually to increase this herd, management will include protection of the animals, protection of existing lowland forests from fire, and a long-term endeavor to increase the area of lowland climax or near-climax forests.”<sup>5</sup>

Edwards notes that “caribou management in this area cannot tolerate fire or clearcut logging in winter range” and he emphasizes forestry management over game management:

“Whereas most game management yields quicker returns than does forestry, caribou management appears to require planning that is just as long term as in forestry, or perhaps longer since the ideal caribou

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<sup>2</sup> Edwards (1954), p.525.

<sup>3</sup> “Early seral: the condition of habitat that occurs directly after disturbance; early seral habitats are generally composed of grasses, forbs, shrubs and seedling trees.” 2014 Recovery Strategy, p.55.

<sup>4</sup> Edwards (1954), p..523.

<sup>5</sup> Edwards (1954), p.526.

forest could be a senile forest well past ideal cutting age.”<sup>6</sup>

In a 1958 article, Edwards and R.W. Ritcey describe the Wells Gray mountain caribou’s unusual annual pattern of “altitudinal distribution, high in summer, low in early winter, high again in late winter, low again in spring.”<sup>7</sup>

A 1981 BC Ministry of Environment (MOE) report begins by stating that regional personnel had noted caribou declines in the nineteen sixties and seventies:

“Twenty-five years ago, Edwards (1954) stated that caribou had decreased alarmingly throughout B.C. Declines were noted by regional personnel during the early sixties and again in the early 1970s; this finally led to a comprehensive survey of the status of caribou herds and a compilation of Fish and Wildlife Branch caribou records by A.T. Bergerud (1978b).”<sup>8</sup>

The MOE (1981) report confirmed the decline of woodland caribou in the east-central portion of the province, including immediately south and east of Wells Gray Provincial Park. The report said that Park habitat alone will not ensure maintenance of the existing caribou numbers in the Park, as these animals utilize habitat in adjacent timber harvesting units.

Regarding the decline of the population levels of the North Thompson herds, MOE (1981) cites suggestions that a major influence is “habitat destruction due to wildfire and logging (R. Ritcey pers. comm.)” The report says that others say “the decline may have resulted from overhunting associated with increased and uncontrolled access (Bergerud 1978b, Bloomfield 1979).”<sup>9</sup>

In terms of numbers, MOE (1981) states that “The 1980 population census for the

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<sup>6</sup> Edwards (1954), p.525.

<sup>7</sup> Edwards & Ritcey (1958).

<sup>8</sup> MOE (1981), pdf p.2.

<sup>9</sup> MOE (1981), pdf p.2.

Thompson-Okanagan Resource Management Region is 300, a decline of 100 since the last census in 1975.”

MOE (1981) emphasizes “the importance of habitat adjacent to Wells Gray Park to the Park caribou herds” – a concept later referred to as matrix habitat. The report states:

“Analysis of the implications of the four resource management options for caribou habitat make it clear that protection of Park habitat alone will not ensure maintenance of the existing caribou numbers in the Park, as these animals utilize habitat in the Raft and North Thompson PSYUs.”<sup>10</sup>

Ritcey (1982) discusses mammal populations in Wells Gray Park. Regarding mountain caribou he estimates that “at least 700 animals were in the park prior to the extensive burns of the 1920’s and 1930’s.”

## **2.2 Southern Selkirk caribou “endangered” under U.S. *Endangered Species Act***

In 1984, American state and federal agencies declared the southern Selkirk population, which straddles the Canada-USA border, as endangered under the U.S. *Endangered Species Act*.<sup>11</sup>

As southern mountain caribou populations continued to decline, British Columbia began efforts to develop a recovery plan in 1988.<sup>12</sup>

A seminal report on the “Ecology of Woodland Caribou in Wells Gray Provincial Park” was issued by the BC Ministry of Environment in March 1990. Seip (1990) found that caribou numbers in and immediately adjacent to Wells Gray Park were

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<sup>10</sup> MOE (1981), pdf p.10. PSYU means Public Sustained Yield Unit, a term used regarding timber harvesting and forest management.

<sup>11</sup> Harding (2009), pdf p.3.

<sup>12</sup> Harding (2009), pdf p.3.

well below population levels in the 1960s and early 1970s.<sup>13</sup> The research project examined, among other things, predator-prey interactions between caribou, wolves and moose. The author reported that the subpopulations of caribou within the park that spend the summer in close proximity to moose and wolves appear to be declining.<sup>14</sup>

A B.C. preliminary recovery plan was published in 1994, but was not implemented.<sup>15</sup>

### **2.3 Toward a Mountain Caribou Strategy**

In November 1997, the BC Ministry of Environment, Lands and Parks issued a working report titled “Toward a Mountain Caribou Management Strategy for British Columbia: Habitat Requirements and Sub-population Status.”<sup>16</sup> The authors’ findings include the following:

- (a) “Mountain caribou are of special concern provincially because of their dependence on some of the old-growth forests that are being removed by forest-harvesting activities.” This was not new information: the conflict between caribou habitat requirements and timber harvesting in B.C. had been the subject of an extensive review by the Ministry in 1985.<sup>17</sup>
- (b) “Forest harvesting has been recognized as a key management concern in most mountain caribou ranges outside of parks.”<sup>18</sup>

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<sup>13</sup> Seip (1990), pdf p.27.

<sup>14</sup> Seip (1990), pdf p.4.

<sup>15</sup> Harding (2009), pdf p.3.

<sup>16</sup> Simpson et al. (1997).

<sup>17</sup> Simpson et al. (1997), pdf p.10.

<sup>18</sup> Simpson et al. (1997), pdf p.14.

- (c) Hunting, human disturbance and predation are important factors. However, “threats to caribou habitat represent the greatest challenge.”<sup>19</sup>
- (d) The Wells Gray south sub-population is one of six linked sub-populations that make up 87% of the total population in B.C.<sup>20</sup>
- (e) The authors distinguish “inoperable” and “protected” habitat. They indicate that relying on inoperable areas to provide adequate caribou habitat will not be sufficient.<sup>21</sup>
- (f) “In Wells Gray and the Quesnel Highlands, wolves, which are thought to be mainly dependent on moose, have caused significant losses to caribou populations. Both areas had been significantly altered by logging or by wildfires and wolves were considered capable of reducing or even eliminating the caribou populations.”<sup>22</sup>
- (g) The North Thompson portion of the Wells Gray south sub-population received “protection and integrated management solutions” during the Kamloops Land and Resource Management Planning (LRMP) process. Some caribou habitat was zoned to exclude all timber-harvesting activity; other areas were subject to “modified harvesting guidelines.” In the latter areas, the forest management prescriptions are “substantially less restrictive than the regional guidelines and may not meet provincial objectives [for caribou]...”<sup>23</sup>
- (h) The Wells Gray south and Wells Gray north subpopulations were ranked second

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<sup>19</sup> Simpson et al. (1997), pdf p.6.

<sup>20</sup> Simpson et al. (1997), pdf p.6.

<sup>21</sup> Simpson et al. (1997), pdf p.6.

<sup>22</sup> Simpson et al. (1997), pdf p.12.

<sup>23</sup> Simpson et al. (1997), pdf p.22.

in conservation priority (after the Cariboo subpopulation) among the 13 subpopulations, based on population viability, habitat threats, level of habitat protection, and habitat capability/suitability.<sup>24</sup>

#### 2.4 **Mountain caribou red listed and designated “threatened”**

In May 2000, Caribou (southern mountain population)<sup>25</sup> was assigned Provincial Conservation Status “S1,” meaning “Critically Imperiled” at the sub-national (provincial) level.<sup>26</sup>

Also in May 2000, COSEWIC designated as “threatened” what it then referred to as part of the “Western population” (de-activated in May 2002) and later referred to as the Southern Mountain population.

In May 2002, COSEWIC re-examined and confirmed its designation as “threatened” for the Woodland Caribou within the Southern Mountains National Ecological Area (SMNEA), which includes the “mountain caribou ecotype” at issue. The reason for the designation:

“Local herds in the Southern Mountain population are generally small, increasingly isolated, and subject to multiple developments. Their range has shrunk by up to 40% and 13 of 19 herds are declining. The most southerly herds are likely to disappear. Many herds are threatened by decreasing habitat quantity and quality, harassment and predation.”<sup>27</sup>

In 2002, the B.C. government appointed a team of biologists who produced a new

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<sup>24</sup> Simpson et al. (1997), pdf pp.28-29.

<sup>25</sup> Scientific name: *Rangifer tarandus* pop. 1.

<sup>26</sup> B.C. Conservation Data Centre. 2017. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <http://a100.gov.bc.ca/pub/eswp/> (accessed Mar 30, 2017).

<sup>27</sup> COSEWIC (2002), pdf p.4.

“Strategy for the Recovery of Mountain Caribou in British Columbia.”<sup>28</sup>

A September 2002 report for the BC Ministry of Water, Land and Air Protection estimated the population of the Wells Gray South Mountain Caribou at 325. The trend was categorized as “stable” but with a low reliability.<sup>29</sup>

## 2.5 ***Species at Risk Act***

In 2002, the Parliament of Canada enacted the *Species at Risk Act*. “Caribou, Woodland (*Rangifer tarandus caribou*) Southern Mountain population” is listed in Schedule 1, Part 3 Threatened Species, which came into force June 5, 2003. As such, SARA, s.42(2) required the Minister of the Environment to prepare a recovery strategy for the southern mountain caribou within four years of the species being listed, i.e., June 2007.

On April 21, 2004 the federal Minister of the Environment filed on the SARA Registry a response statement regarding the southern mountain caribou saying that “A recovery strategy under SARA is to be developed by June 2007.”<sup>30</sup> (A recovery strategy was issued in 2014, as discussed below.)

In May 2005, Canada and B.C. entered a ten-year Agreement on Species at Risk creating an administrative framework for both levels of government to “cooperatively exercise their respective powers and duties to ensure a coordinated and focused approach to the delivery of species at risk protection and recovery through legislation, policies and operational procedures in B.C.”<sup>31</sup>

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<sup>28</sup> Mountain Caribou Technical Advisory Committee (2002).

<sup>29</sup> MWLAP (2002) pdf p.6.

<sup>30</sup> Minister of the Environment (2004).

<sup>31</sup> Canada-B.C. Agreement (2005), section 4.1. On its terms, the Agreement terminated in April 2015. The SARA Registry does not indicate that it has been renewed.

In 2005, a “Recovery Implementation Plan” for the Hart and Cariboo Mountains recovery area (which includes the Wells Gray herds) was produced by the Recovery Implementation Group, consisting of members of a variety of government ministries, industries, and public groups.<sup>32</sup>

Regarding population estimates for the Wells Gray herd (North and South combined), Recovery Implementation Group (2005) reports 628 as of 1995 and 307 as of 2004, with a trend (Lambda) of 0.92.<sup>33</sup> Lambda is the annual population growth rate where 1 is a stable population. A Lambda of 0.92 is a substantial annual decline.

## 2.6 BC MCRIP

In October 2007, the B.C. government announced a Mountain Caribou Recovery Implementation Plan (MCRIP) with a goal to restore the mountain caribou population (then 1,900) to the pre-1995 level of 2,500 animals within 20 years.<sup>34</sup> The focus of MCRIP is on high elevation habitat and not on matrix habitat. For Wells Gray-Thompson (which includes part of the southern portion of Wells Gray Park), MCRIP provides a 2006 estimate of 274 and a target of 326.<sup>35</sup>

In November 2009, the B.C. Ministry of Environment issued a study team’s “Review of Management Actions to Recover Mountain Caribou in B.C.” The study team defined and acknowledged the importance of “matrix habitat.”<sup>36</sup> However, it confirmed that “Forest management in the matrix habitat was not a government

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<sup>32</sup> RIG (2015) notes that Wittmer (2004) concluded that the Wells Gray North and Wells Gray South herds are not distinct. Pdf p.12.

<sup>33</sup> RIG (2005), p.15.

<sup>34</sup> Cover letter, A Review of Management Actions to Recover Mountain Caribou in British Columbia, November 23, 2009.

<sup>35</sup> Mountain Caribou Recovery Implementation Plan, Map, October 2007.

<sup>36</sup> 2009 Review, pdf p.10.

commitment as per the MCRIP.”<sup>37</sup>

The study team also concluded that the BC government’s wolf control efforts were ineffective in achieving the MCRIP objectives and that as a result there would be pressure to prohibit timber harvesting and road building within matrix habitat.<sup>38</sup>

In 2011, COSEWIC reconfirmed the “Southern Mountain caribou of southern British Columbia” (including the Wells Gray herds) as Designatable Unit DU9, with some modifications of boundaries.<sup>39</sup> COSEWIC concluded that Southern Mountain caribou differs markedly from other caribou, based in particular on arboreal lichens being its single forage type during winter. COSEWIC expressed the significance of DU9 as follows:

“Continued loss of these most southerly populations of caribou would result in an extreme northward contraction of the species range, and the certain disappearance of caribou in adjacent Idaho, which are classified as endangered under the U.S. Endangered Species Act.”<sup>40</sup>

In May 2013, the B.C. Ministry of Environment issued a guidance document titled “Implementation Plan for the Ongoing Management of South Peace Northern Caribou,” focused on caribou herds to the north of the Southern Group. Notably, the importance of matrix range is emphasized:

“Industrial landscape changes at low elevations over the past few decades have coincided with declining numbers of caribou in the south Peace. The decline in caribou is believed to be a result of habitat changes that favour increased moose and wolf populations that subsequently alter the regional predator–prey system and subject caribou to higher risk of predation.”<sup>41</sup>

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<sup>37</sup> 2009 Review, pdf p.11.

<sup>38</sup> 2009 Review, pdf p.10, underline added.

<sup>39</sup> COSEWIC (2011).

<sup>40</sup> COSEWIC (2011), p.51

<sup>41</sup> Implementation Plan (2013), pdf p.7, underline added

## 2.7 COSEWIC upgrades southern mountain caribou to “endangered”

In May 2014, COSEWIC reviewed the classification of the southern mountain caribou and upgraded the Southern Group (as well as the Central Group) from “Threatened” to “Endangered.” COSEWIC states:

“The current estimate for the population is 1,356 mature individuals, which has declined by at least 45% in the past three generations [of caribou], and 27% since the last assessment in 2002. All but two extant subpopulations are estimated to contain fewer than 250 mature individuals, with 9 of these having fewer than 50, and 6 with fewer than 15 mature individuals. Dispersal within the ranges of 11 subpopulations is severely limited. Surveys have shown consistently high adult mortality and low calf recruitment, accelerating decline rates. Threats are continuing and escalating.”<sup>42</sup>

SARA provides a mechanism for a COSEWIC reassessment from threatened to endangered to be reflected in an amendment of the species’ classification on the SARA List. However, the federal Minister of the Environment has said<sup>43</sup> that consultations with the B.C. government, Aboriginal peoples, stakeholders, and the public would be undertaken before the Governor in Council makes a decision on amending the SARA List to reflect the endangered status of the Southern Group and the Central Group. There is no indication on the SARA Registry that such consultations have begun.

## 2.8 2014 Federal Recovery Strategy

On June 3, 2014, the federal Minister of Environment and the Minister responsible for Parks Canada posted on the SARA registry a final “Recovery Strategy” under SARA for the Woodland Caribou, Southern Mountain population, which is referred to in the document as “southern mountain caribou.” The 2014 Recovery Strategy

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<sup>42</sup> COSEWIC (2014), pdf p.3, underline added

<sup>43</sup> Minister’s Response Statement (2015).

divides the southern mountain caribou into a Northern Group, a Central Group and the Southern Group. These are sub-classified into Local Population Units and Subpopulations. Wells Gray-Thompson LPU #18 is comprised of the Wells Gray (South) subpopulation and the Groundhog subpopulation.<sup>44</sup>

The 2014 Recovery Strategy is highly significant in the following respects:

- (a) It provides the Ministers' determination under section 40 of SARA that recovery of southern mountain caribou is considered to be both technically and biologically feasible across the species' distribution in Canada.<sup>45</sup> Legally, this triggers the requirement in s.41 of SARA that the recovery strategy must address survival threats, identify critical habitat, state population and distribution objectives for the recovery and survival of the species, and state when one or more action plans will be completed.
- (b) The Recovery Strategy specifically determines that matrix range is critical habitat for the southern mountain caribou. Matrix range is outside the designated seasonal ranges. Type 2 matrix range consists of areas surrounding annual ranges where predator/prey dynamics influence caribou predation rates within the subpopulation's annual range.<sup>46</sup> This is important because B.C.'s legislative framework and MCRIP policy provides mandatory protection only within defined subareas within what B.C. refers to as "core habitat," which does not generally include matrix range.

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<sup>44</sup> The 2014 Recovery Strategy recognizes the Wells Gray South and Wells Gray North herds as one subpopulation, however the Wells Gray South portion is included in the Wells Gray-Thompson LPU #18 and the Wells Gray North portion is included within the Quesnel Highlands LPU #17.

<sup>45</sup> Recovery Strategy (2014), pdf pp.6, 8.

<sup>46</sup> Recovery Strategy (2014), pdf p.6. Type 1 matrix range consists of areas within an LPU's annual range that have not been delineated as summer or winter range, and may include seasonal migration areas and areas of lower use compared to delineated seasonal ranges.

- (c) The Recovery Strategy sets population and distribution objectives at the LPU level. It establishes a recovery goal to achieve self-sustaining populations in all LPUs within their current distribution.<sup>47</sup> The Strategy provides maps for each of the LPUs showing “Critical Habitat (Matrix Range)” as well as “Critical Habitat (High/Low Elevation Range).” The map on page 87 of the Strategy shows the Critical Habitat of the Wells Gray-Thompson LPU. Because of its importance, a copy is provided in Appendix F. The map clearly identifies areas on both sides of the Upper Clearwater Valley adjacent to Wells Gray Provincial Park as matrix range critical habitat. As shown on the map in Appendix B and discussed below, considerable logging has already occurred in this critical habitat since the issuance of the Recovery Strategy, and the impending clearcut logging cutblocks are located within this Type 2 matrix critical habitat.
- (d) The Recovery Strategy determines that “the primary threat to most LPUs of southern mountain caribou is unnaturally high predation rates as a result of...habitat alterations [that] support conditions that favour higher alternate prey densities (e.g., moose, deer, elk), resulting in increased predator populations (e.g., wolf, bear, cougar) that in turn increase the risk of predation to southern mountain caribou.”<sup>48</sup>
- (e) Further, the 2014 Recovery Strategy provides an objective measure of “low predation risk” in terms of wolf density. It states that “Type 2 matrix range critical habitat provides for an overall ecological condition that will allow for low predation risk, defined as wolf population densities less than 3 wolves/1000

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<sup>47</sup> Recovery Strategy (2014), pdf p.38, underline added. And see: Section 5.2 Population and Distribution Objectives, pdf pp.39-40.

<sup>48</sup> Recovery Strategy (2014), pdf p.8, Latin citations omitted.

km<sup>2</sup>.<sup>49</sup> Wolf density in the Type 2 matrix critical habitat of the Wells Gray-Thompson LPU already considerably exceeds 3 wolves/1000 km<sup>2</sup>, as addressed in Appendix C and discussed below.

- (f) Finally, the 2014 Recovery Strategy confirms that, as required by SARA, the Minister of the Environment and the Minister Responsible for Parks Canada “will complete one or more action plans under this recovery strategy, which will be included on the Species at Risk Public Registry by December 31, 2017.”<sup>50</sup> This heightens the urgency of preventing clearcut logging within critical matrix habitat in the Upper Clearwater Valley in the coming months before the action plans are completed under SARA.

## 2.9 **SARA: critical habitat protection on non-federal lands**

In 2016, the federal Minister of Environment and Climate Change issued a proposed Policy on Critical Habitat Protection on Non-federal Lands under SARA.<sup>51</sup> The context is that:

- SARA s.61(2) provides that the s.61(1) prohibition against destroying critical habitat applies on non-federal lands (such as the subject matrix range critical habitat) only where ordered by the Governor in Council under s.61(2) on the recommendation of the Minister under s.61(3) after consultation with the appropriate province as required by s.61(4).
- SARA s.61(4) requires that, if the Minister forms the opinion that any portion of critical habitat on non-federal lands is not effectively protected by the laws of the province, and there are no effective federal measures or laws to protect that

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<sup>49</sup> Recovery Strategy (2014), pdf p.7, underline added.

<sup>50</sup> Recovery Strategy (2014), pdf p.7, underline added.

<sup>51</sup> ECCC (2016).

portion of critical habitat, then the Minister must recommend that the Governor in Council make an order that extends the prohibition against the destruction of critical habitat to that portion.

The proposed policy sets out the factors guiding the Minister's<sup>52</sup> assessment of whether existing provincial laws and federal provisions and measures effectively protect critical habitat on non-federal lands, and the actions to be taken following the completion of that assessment. Key provisions include the following:

(a) "Effective protection" is defined by SARA and not by provincial standards.

Critical habitat will be considered to be effectively protected for the purposes of s.61(4) where the existing provincial laws or federal measures and statutory provisions are, based on the available evidence, having the same "protection outcome" as would be the case if SARA s.61(1) prohibitions were in place.

Notably, the "protection outcome" is that critical habitat is not being, and will not be, destroyed, except in ways that SARA's discretionary measures would allow.<sup>53</sup>

(b) All "parts" and "portions" of critical habitat for a species will be considered in determining whether existing protection is effective.<sup>54</sup> The parts of critical habitat are the biophysical attributes. "A portion of critical habitat is the geographic area within which a common set of land ownership, land tenure or management type, and protection mechanisms apply."<sup>55</sup>

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<sup>52</sup> The federal Minister of the Environment is the competent Minister under SARA to assess the protection of critical habitat on non-federal lands for terrestrial species at risk, such as the southern mountain caribou.

<sup>53</sup> ECCC (2016), pdf pp.4, 11.

<sup>54</sup> ECCC (2016), pdf p.5.

<sup>55</sup> *Ibid.*

(c) “Destruction [of critical habitat] may result from a single or multiple activities at one point in time or from the cumulative effects of one or more activities over time.”<sup>56</sup> This would include, in the present case, both the history of logging and road building in the subject matrix range critical habitat and the impending new timber harvesting in the area.

## 2.10 **First mountain caribou protection study under SARA**

In 2016, the federal Minister of Environment and Climate Change and the B.C. Minister of Environment initiated a joint study of “legislative tools in place to protect the southern mountain caribou and their habitat with the ultimate goal of determining what additional steps may need to be taken by federal or provincial governments to protect and recover southern mountain caribou.” Notably, the announced joint study was not limited to the Central Group but was focused on “southern mountain caribou,” i.e., the Northern, Central and Southern Groups defined in the 2014 Recovery Study.

In February 2017, Canada and B.C. released a “Canada-British Columbia Southern Mountain Caribou (Central Group) Protection Study.” The focus is on the Central Group, though the Southern Group and topics relevant to the Southern Group are also discussed. Highlights include the following:

- (a) ECCC will use the Protection Study to inform federal decisions under SARA s.61 regarding whether the caribou and their critical habitat on non-federal lands are effectively protected.
- (b) The Study notes that “SARA looks first to provinces to protect species at risk

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<sup>56</sup> ECCC (2016), pdf p.4.

under their jurisdiction where they are found on provincial or private land.”<sup>57</sup>

However, the Study confirms that:

“If the Minister of ECC forms the opinion, after consultation with the provincial Minister, that critical habitat is not effectively protected under provincial law and there is no protection under SARA (e.g. through an agreement) or under other federal law, the Minister must make a recommendation to the Governor in Council (federal Cabinet) for an order which would prohibit destruction of critical habitat on the unprotected portions. If an order were in place, prohibited activities may be exempted or permitted under the Act.”<sup>58</sup>

- (c) The federal approach to southern mountain caribou recovery is reflected in the 2014 Recovery Strategy.<sup>59</sup> This is the standard against which the effectiveness of the *status quo* protection is measured.
- (d) B.C.’s 2007 MCRIP provides management guidance for subpopulations referred to in the federal recovery strategy as the Southern Group. It is not legally binding.
- (e) The disturbance threshold for Type 2 Matrix Critical Habitat applicable to the Southern Group (as well as the Central and Northern Groups) is a Wolf density of less than 3 wolves per 1000 km<sup>2</sup>.<sup>60</sup>
- (f) For the Central Group, about 41% of the area outside high elevation caribou habitat, which would be considered critical habitat by ECCC, is not provided spatially-explicit protection by any of the B.C. legislative instruments examined. Some of this area would not even be considered caribou habitat by B.C.<sup>61</sup> It is

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<sup>57</sup> Protection Study (2017), p.4.

<sup>58</sup> Protection Study (2017), p.5.

<sup>59</sup> Protection Study (2017), p.6.

<sup>60</sup> Protection Study (2017), p.23.

<sup>61</sup> Protection Study (2017), p.71. In general, B.C. “core habitat” is equivalent to Canadian

submitted that this large gap between the provincial concept of core habitat and the federal concept of critical habitat is likely to be similar regarding the Southern Group.

- (g) All lands that are contained within the Timber Harvesting Land Base (THLB) are considered by B.C. to be feasible for harvest and contribute to the Allowable Annual Cut. Those areas, unless otherwise constrained, are assumed to be harvested at some point in a normal forest rotation (between 80 and 100 years).<sup>62</sup> This applies equally to the lands within the THLB that are matrix range critical habitat for the Southern Group.

### **3.0 Southern Mountain Caribou: Declining Numbers**

This section addresses the estimates of population size and trends with particular emphasis on the Wells Gray-Thompson LPU. Section 3.1 presents results from the B.C. Ministry of Environment aerial surveys of caribou “in and near southern Wells Gray Park.” Section 3.2 summarizes the conclusions of COSEWIC (2014) regarding the Wells Gray-Thompson LPU. Section 3.3 provides the results regarding the Wells Gray-Thompson LPU presented in the 2017 Protection Study regarding the Central Group. All the results show considerable declines.

#### **3.1 B.C. MOE census, “in and near southern Wells Gray Park”**

The B.C. Ministry of Environment conducts aerial surveys of Mountain Caribou “in and near southern Wells Gray Park” in the spring, roughly every two years. Sometimes the results include the Groundhog herd and sometimes not. As stated

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Wildlife Service “high elevation critical habitat.” (L. Harding – pers. comm.)

<sup>62</sup> Protection Study (2017), p.90.

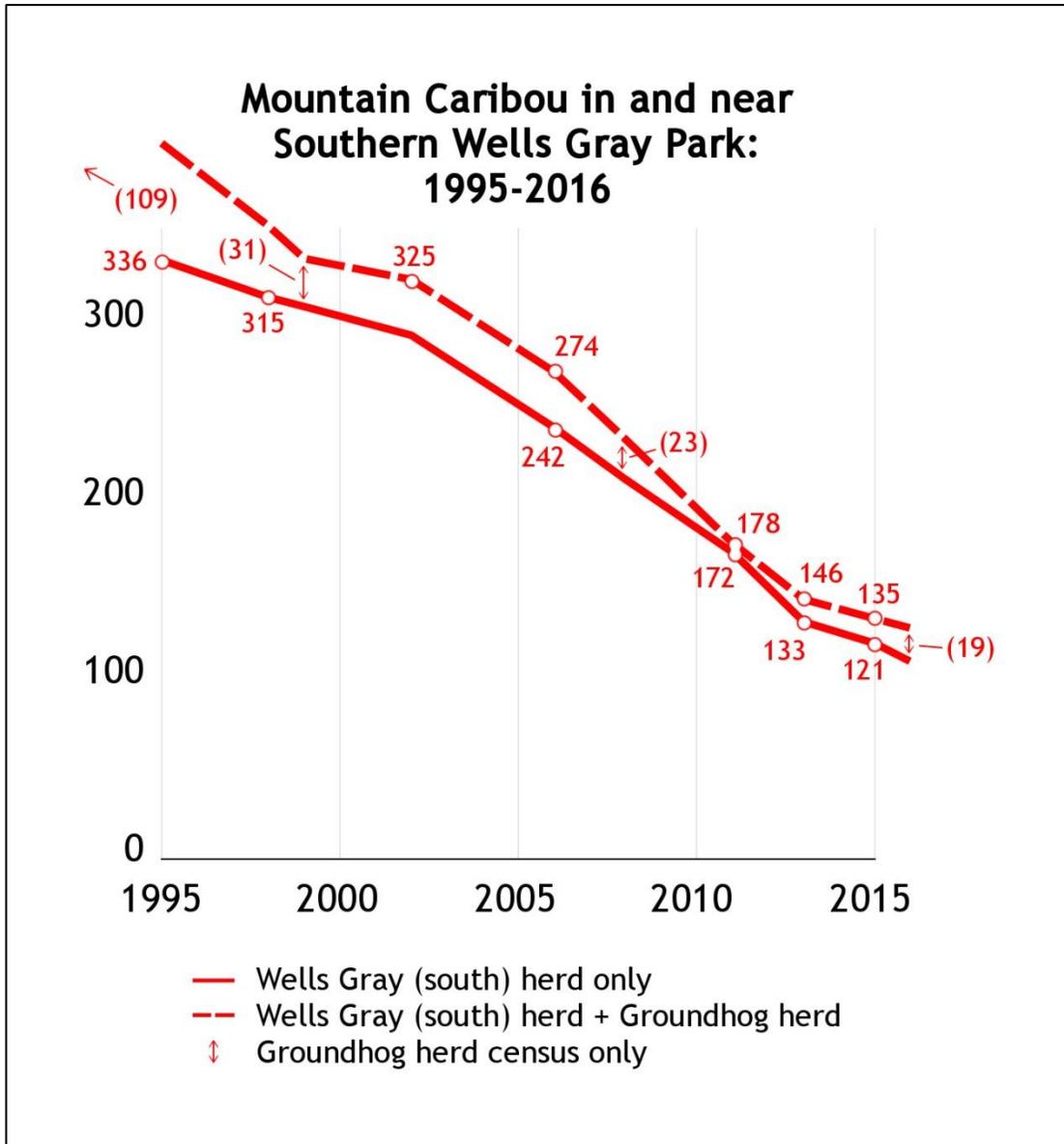
above, in the federal terminology the Wells Gray-Thompson LPU includes the Wells Gray (South) subpopulation and the Groundhog subpopulation.<sup>63</sup> Table 1, below, shows the provincial aerial census results for “in and near southern Wells Gray Park” both including and excluding the Groundhog numbers. A detailed breakdown and reconciliation of the figures is provided in Appendix E. As shown in Table 1, the population figures for caribou in and near southern Wells Gray Park indicate a substantial, relentless decline between 1995 and 2015, both with and without the Groundhog numbers.

<b>Table 1. Mountain Caribou population estimates in and near southern Wells Gray Provincial Park including and excluding the Groundhog herd, by year</b>			
<b>Year</b>	<b>Estimated Number including Groundhog</b>	<b>Estimated Number excluding Groundhog</b>	<b>Comments (See Appendix E for details)</b>
1995		336	Does not include Groundhog herd
1998	~346	315	May include Groundhog herd, which had an estimate of 31 in 1999
2002		325	May include Groundhog herd
2006	274	242	
2011	178	172	
2013	146	133	
2015	135	~121	

The figure below shows graphically the declining population of the caribou in and near southern Wells Gray Park including the Groundhog herd (equivalent to the Wells Gray-Thompson LPU). The population is seen to have declined to less than half of the 1995 numbers by 2015.

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<sup>63</sup> Recovery Strategy (2014), pdf pp.20-21.



### 3.2 COSEWIC (2014)

COSEWIC (2014) reported the number of mature individuals in the Wells Gray subpopulation as 341.<sup>64</sup> This includes the Wells Gray (south) and Wells Gray

<sup>64</sup> COSEWIC (2014), pdf p.18.

(north) subpopulations. The trend is declining, by 46% over the past three generations (27 years) and by 26% over the past two generations (18 years).<sup>65</sup>

COSEWIC (2014) reported the number of mature individuals in the Groundhog subpopulation as 11.<sup>66</sup> The trend is declining, by 87% over three generations and by 56% over the past two generations.<sup>67</sup>

### **3.3 Central Group Protection Study (2017)**

The 2017 Central Group Protection Study provides population size and trend information for southern mountain caribou subpopulations in B.C. and Alberta. This is grouped by Northern Group, Central Group, and Southern Group, Local Population Unit, and Subpopulation. Table 2, below, provides a reproduction of excerpts from a table from the report<sup>68</sup> showing population estimates for the Wells Gray-Thompson LPU, the Wells Gray (South) subpopulation, the Groundhog subpopulation, and the Southern Group Total.

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<sup>65</sup> COSEWIC (2014), pdf p.63.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.*

<sup>68</sup> 2017 Protection Study Central Group, pdf pp.10-12.

**Table 2. Population size and trend information for southern mountain caribou subpopulations in Canada (BC and Alberta (AB)). Reproduced from Central Group Protection Study (2017)**

# <sup>ii</sup>	Prov	Local Population Unit (LPU)	Subpopulation	Population Estimate <sup>iii</sup>		Population Trend <sup>iv</sup>	
				Estimate	Year	Current	Long-term
18	BC	Wells Gray-Thompson	Wells Gray (South)	121 <sup>xviii</sup>	2015	Decreasing	Decreasing
			Groundhog	19	2016	Increasing <sup>xxix</sup>	Decreasing
	BC	<b>Southern Group Total</b>		<b>1,205</b>		<b>Decreasing</b>	<b>Decreasing</b>

“Population sizes” are estimates of total animals in the population

For the Wells Gray-Thompson LPU, the population is approximately 140.<sup>69</sup> The long-term trend is categorized as “decreasing” for both the Wells Gray (South) and the Groundhog subpopulations. The authors explain that the “long-term trend” metric is “derived from three-generation (27 years) trends based on survey data for Southern and Northern Groups.”<sup>70</sup>

For the Wells Gray (South) subpopulation, the population estimate as of 2015 is approximately 121 caribou, and the “current trend” is categorized as “decreasing.”

For the Groundhog subpopulation, the population as of 2016 is 19. While the “Current” Population Trend for the Groundhog subpopulation is “Increasing,” the footnote explains: “The population estimate was 14 and 19 caribou for the

<sup>69</sup> Wells Gray (South) 121 in 2015 + Groundhog 19 in 2016 = approximately 140.

<sup>70</sup> 2017 Protection Study Central Group, pdf p.111, underline added.

Groundhog subpopulation in 2015 and 2016, respectively (J. Surgenor, pers. comm. 2016).”<sup>71</sup>

To put the Wells Gray-Thompson LPU trend in the context of the larger grouping of which it is a component, the Southern Group is rated : current trend – decreasing, and long-term trend – decreasing.

#### 4.0 **Matrix range is critical habitat for Mountain Caribou**

As discussed above, the 2014 Recovery Strategy under SARA expressly includes matrix range within the critical habitat of the southern mountain caribou, whereas the B.C. mountain caribou implementation plan (MCRIP) limits spatially-explicit protection to “core habitat,” most of which does not include matrix habitat. This section addresses in more detail the role of predation and disruption of matrix range in the decline of the southern mountain caribou and the Wells Gray herds in particular.

#### 4.1 **Recovery Implementation Group (2005)**

The report of the Recovery Implementation Group (RIG) defines “matrix habitat” as follows:

“Matrix habitat is defined as habitat adjacent to core caribou habitat. Matrix habitat is the source of predators that are impacting the caribou population. It may also contain migration routes used by the caribou.”<sup>72</sup>

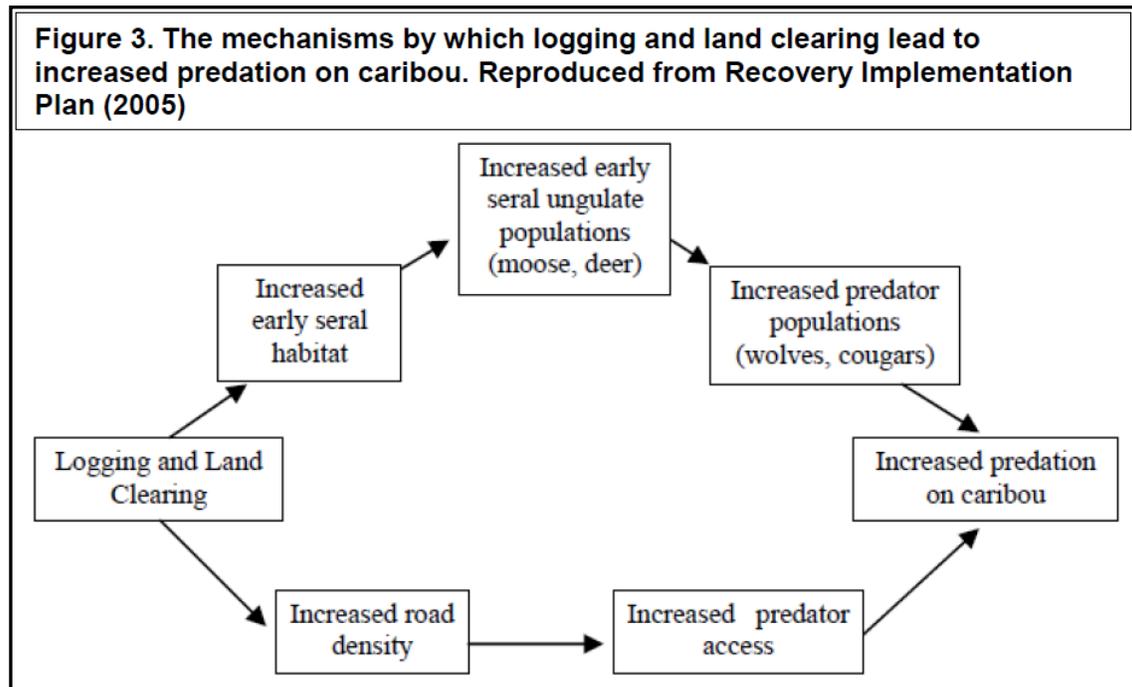
The RIG provides a schematic illustrating the mechanisms by which logging and land clearing lead to increased predation on caribou, reproduced in Figure 3,

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<sup>71</sup> 2017 Protection Study Central Group, pdf p.113.

<sup>72</sup> RIG (2005), p.23, underline added.

below.<sup>73</sup>



The RIG (2005) states:

“The primary cause of declining mountain caribou populations in B.C. appears to be predation by wolves, bears and cougars (Bergerud 1974, Seip 1992, Kinley and Apps 2001, Wittmer 2004, Wittmer et al. 2005). The intensity of predation is related to the abundance of other ungulate prey species such as moose, elk or deer within the range of mountain caribou. It appears that the presence of those other ungulate species attracts and supports increased predator numbers that results in increased predation on caribou (Seip 1992). Within the Hart and Cariboo Mountains Recovery Area, enhancement of the moose-wolf system appears to be the primary threat to mountain caribou, although the deer-cougar system may be becoming increasingly important.”<sup>74</sup>

With reference to forest harvesting in particular, RIG (2005) states:

<sup>73</sup> RIG (2005), p.29.

<sup>74</sup> RIG (2005), p.16, underline added.

“Human settlement and forest harvesting have increased the amount of early seral habitat, roads and linear corridors within and adjacent to mountain caribou habitat. The early seral habitat can increase the abundance and distribution of moose, elk and deer within caribou habitat. Roads and linear corridors can increase the movement of other ungulates and predators into caribou habitat (James and Stuart-Smith 2000). Some members of the Secwepemc people reported that forest harvesting brings in different animals and changes the food chain within caribou habitat, resulting in an increased number of predators (Markey and Ross 2005).”<sup>75</sup>

The RIG (2005) observes that “Enhancement of early seral ungulates in matrix habitat is likely to result in increased predators and predation risk to the caribou.” It states:

“Matrix habitat is the habitat adjacent to core caribou habitat. Much of the low elevation habitat adjacent to mountain caribou ranges may not be regularly used by caribou, but the habitat conditions within those areas may have significant impacts on the predator-prey relationships of the caribou. Matrix habitat also serves as migration routes for caribou in areas where migration corridors are unknown or poorly defined. Enhancement of early seral ungulates in matrix habitat is likely to result in increased predators and predation risk to the caribou.”<sup>76</sup>

The RIG emphasizes the importance of reducing disturbance in matrix habitat:

“Existing caribou management strategies usually did not address this concern, although some did recommend that moose enhancement should not be done in areas that were close to caribou habitat. The RIG believes that reducing and then maintaining early seral ungulates and predators at numbers that would occur within a natural forest age class distribution must be part of the recovery strategy.”<sup>77</sup>

The RIG (2005) acknowledges the potential for disturbance of matrix habitat outside Wells Gray Park to be a cause of caribou decline within the Park:

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<sup>75</sup> *Ibid.*, underline added.

<sup>76</sup> RIG (2005), p.21, underline added.

<sup>77</sup> *Ibid.*

“Population declines have recently occurred in areas with little significant human impact on the landscape, such as Wells Gray Provincial Park. However, it may be that those declines are related to activities that are occurring outside the park.”<sup>78</sup>

While it acknowledged prey control as an option, the RIG’s primary recommendation was to limit the amount of habitat for early seral ungulates at levels that would occur under natural disturbance conditions:

“The management strategy that is most consistent with an ecosystem management approach, and establishing a self-sustaining caribou population, is to limit the amount of habitat for early seral ungulates at levels that would occur under natural disturbance conditions. This is the primary approach recommended by the RIG.”<sup>79</sup>

#### 4.2 RIG recommends protection of matrix habitat in Kamloops Region

Regarding the Kamloops Region, within which the Upper Clearwater Valley is located, the RIG states that “Areas of important caribou habitat were delineated as Resource Management Zones [RMZ] during the Kamloops Land and Resources Management Plan process.”<sup>80</sup> However, the RIG notes that “Forest harvesting is permitted in these [RMZ] areas with objectives to retain some old growth attributes.”<sup>81</sup> The RIG evaluated the Kamloops LRMP caribou strategy and concluded that it “was likely inadequate for caribou recovery.”<sup>82</sup>

The RIG recommended that “Critical Core Habitat should be reserved from forest harvesting and road-building”<sup>83</sup> (a status already in place for Wells Gray Park). Notably, the RIG also recommended that matrix habitat be mapped as critical

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<sup>78</sup> RIG (2005), p.17, underline added.

<sup>79</sup> RIG (2005), p.29, underline added.

<sup>80</sup> RIG (2005), p.27.

<sup>81</sup> *Ibid.*, underline added.

<sup>82</sup> RIG (2005), p.28, underline added.

<sup>83</sup> *Ibid.*

habitat and protected. This is significant for present purposes because the recommendation has not been implemented effectively in the subject area (or elsewhere). The RIG states:

“A buffer area of matrix forest surrounding the caribou habitat zones should be mapped as critical habitat that will be managed to maintain natural levels of early seral ungulates and predators. That area should extend far enough to incorporate areas that are likely to significantly impact the predator-prey relationship of caribou.”<sup>84</sup>

Regarding the Wells Gray herd, the RIG has the following comments in its summary table:

“Large core population with most of habitat within parks. Management practices must apply to both inside and outside the parks.”<sup>85</sup>

Regarding the Groundhog herd, the RIG states:

“Small, extremely isolated population experiencing rapid decline. Risk of both wolf and cougar predation.”<sup>86</sup>

The RIG presented a Critical Habitat map for the Hart and Cariboo Mountains. It identifies Matrix Habitat in addition to Core Habitat. Notably, the Upper Clearwater Valley is identified as Matrix Habitat.<sup>87</sup>

#### **4.3 Type 2 matrix range in the 2014 Recovery Strategy**

The federal government’s 2014 Recovery Strategy provides an authoritative description of Type 2 matrix range and its importance to southern mountain caribou. It states:

“Although caribou primarily use high elevation areas and/or habitat types where they are spatially separated from other prey and

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<sup>84</sup> RIG (2005), p.28, underline added.

<sup>85</sup> RIG (2005), p.40, underline added.

<sup>86</sup> *Ibid.*

<sup>87</sup> RIG (2005), Appendix A, Map: Mountain Caribou Habitat in the Hart and Cariboo Mountains, p.51.

predators (Seip 1992a, Stotyn 2008, Hebblewhite et al. 2010a, Steenweg 2011, Robinson et al. 2012, Williamson-Ehlers 2012), the habitat/prey/predator dynamics at lower elevations, and in areas adjacent to annual ranges, contribute to prey/predator dynamics and mortality on caribou within their annual ranges.<sup>88</sup>

The report explains:

“This is because predators move beyond valley bottoms and also use higher elevations, especially during summer and fall (Whittington et al. 2011). At the broad scale, wolf predation on caribou in the Southern Group occurs primarily at low elevations (Apps et al. 2013).”<sup>89</sup>

Type 2 matrix range also provides connectivity within and between subpopulations.

The report states:

“In addition, Type 2 matrix range provides connectivity between subpopulations within and among LPUs and thereby allows for immigration and emigration, which helps to maintain genetic diversity and the species’ consequent resilience to environmental stressors (e.g., disease, severe weather). Weckworth et al. (2012) have demonstrated that isolation of subpopulations as a result of disturbance to the landscape (i.e., any form of human-caused or natural habitat alteration) can result in a significant reduction in genetic diversity. In addition, connectivity among annual ranges maintains the possibility of ‘rescue effects’, thereby facilitating recovery.”<sup>90</sup>

In summary, the Recovery Strategy states:

“Type 2 matrix range influences predator/prey dynamics within southern mountain caribou annual ranges and provides connectivity between subpopulations within and among LPUs. Recovery of southern mountain caribou requires that Type 2 matrix range be recognized and managed to maintain a low predation risk.”<sup>91</sup>

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<sup>88</sup> Recovery Strategy (2014), pdf p.24.

<sup>89</sup> *Ibid.*

<sup>90</sup> *Ibid.*

<sup>91</sup> *Ibid.*

#### 4.4 **Johnson et al. (2015)**

Johnson et al. (2015) “used an extensive set of caribou locations ... collected over 11 years within the Central Mountain Designatable Unit to develop species distribution models that quantified avoidance by caribou of anthropogenic and natural disturbance features.” The authors discuss the mechanism of population decline in terms of predation and “apparent competition”:

“Although [caribou] habitat loss is dramatic, we speculate that the mechanism of population decline is complex. Across much of the range of woodland caribou, predation, facilitated by environmental change, is thought to be the proximate cause of low survival or recruitment (Wittmer et al., 2005; Festa-Bianchet et al., 2011; Latham et al., 2011a,b; Apps et al., 2013). Referred to as apparent competition, more abundant and widely distributed ungulate populations do not directly compete with caribou for nutritional resources, but support greater numbers of predators (Wittmer et al., 2007; DeCesare et al., 2010; Serrouya et al., 2011).”<sup>92</sup>

#### 4.5 **2017 Central Group Protection Study**

The 2017 Protection Study for the Central Group reports that a primary prey reduction program in the Kootenay Region reduced wolf density from over 3 wolves/1000 km<sup>2</sup> to about 1.2 wolves/1000 km<sup>2</sup> from 2003 to 2014. During that time period, the Columbia North caribou subpopulation stabilized and may have increased, while similarly sized caribou populations such as Wells Gray and Central Selkirks, adjacent to but outside the moose reduction area, declined.<sup>93</sup>

#### 5.0 **Imminent Threats to Survival and Recovery**

This section addresses timber harvesting and related road building in the Upper Clearwater Valley within matrix range critical habitat and the imminent threats to the

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<sup>92</sup> Johnson et al. (2015), p.184, pdf p.176, underline added.

<sup>93</sup> 2017 Central Group Protection Study, pdf pp.16-17.

Wells Gray-Thompson caribou herd.

Subsection 5.1 addresses the existing and impending disturbance of critical habitat by timber harvesting in the Upper Clearwater Valley.

The fact that B.C. allows timber harvesting in matrix range critical habitat is addressed in subsection 5.2.

In Subsection 5.3, Canfor's logging plans in the Upper Clearwater Valley are outlined in detail.

Subsection 5.4 sets out the results of a 2017 report on wolf density provided in Appendix C. The report estimates the current wolf density in the subject area. It compares that result with the wolf density criterion for "low predation risk" in the 2014 Recovery Strategy.

Subsection 5.5 provides the results of the 2017 report (in Appendix C) regarding how the proposed timber harvesting in the Upper Clearwater Valley would affect the wolf density in the matrix range.

#### **5.1 The Upper Clearwater Valley is heavily disturbed by timber harvesting and more is planned**

The map in Appendix B shows Industrial Logging in the Clearwater Valley north of Spahats Creek ("Upper Clearwater Valley"). The Clearwater River flows from north to south in the centre of the map. The areas in green are portions of Wells Gray Provincial Park at the southern end of the park. The areas in yellow are Type 2 matrix critical habitat identified by the 2014 Recover Strategy.<sup>94</sup> There is a small area in light blue in the upper right quadrant showing Type 1 matrix critical habitat.

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<sup>94</sup> Recovery Strategy (2014), p.87.

The areas in plain brown are commercial logging sites from the 1978 to 2014 period. These show extensive logging in the Upper Clearwater Valley outside the Park, including within matrix range critical habitat. Of interest, the large cutblock between the Trophy Meadows label and the Clearwater River is the infamous “Big Bertha” cutblock.

The areas in brown with dots were logged by Canfor in 2015 to 2016, and the areas in brown with diagonals were logged in 2015 to 2016 through B.C. Timber Sales. This logging occurred after the public release of the 2014 Recovery Strategy, much of it within matrix range critical habitat. This demonstrates that B.C. is not providing effective protection of critical habitat in accordance with the standard required under SARA.

The areas in red with dots are Canfor cutblocks slated for logging in the near future.<sup>95</sup> The areas in red with diagonals are B.C. Timber Sales cutblocks slated for logging in the immediate future. Much of it is within matrix range critical habitat.

## 5.2 **B.C. allows timber harvesting in matrix range critical habitat**

In November 2002, the British Columbia government passed the *Forest and Range Practices Act (FRPA)*,<sup>96</sup> intended to help meet its target set in 2001 to eliminate one-third of all then-existing regulations.

In January 2004, the B.C. government completed the legal transition from the *Forest Practices Code (FPC)* to a professional reliance model under the *FRPA*. Under *FPC*, the Ministry of Forests (MoF) district manager had final authority to withhold cutting permits and road permits. However, under the *FRPA* that authority

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<sup>95</sup> See: Kamloops Timber Supply Area Planning Base ([http://services.forsite.ca/kamloops\\_tsa/](http://services.forsite.ca/kamloops_tsa/)).

<sup>96</sup> SBC 2002, c.69.

was removed and decision-making was transferred to the logging companies and their professionals.

Under the *FRPA*, all logging proposals that are consistent with the objectives stated in an MoF approved forest stewardship plan and signed off by the company's professionals must be approved by MoF (if MoF decides that First Nations rights and title have been respected). Forest licensees and their professionals make the final decisions about how to balance resource values and minimize risks.<sup>97</sup> The MoF district manager has no authority to deny a cutting permit or road permit even if he or she is of the opinion that carrying out the actions authorized by the permit would destroy critical habitat of an endangered species.

The B.C. Forest Practices Board observes in a 2015 report that:

“The only planning document that requires approval by government officials is the forest stewardship plan. Yet these plans only set the legal parameters for practices broadly over vast areas. They do not contain specific information about what licensees are planning to do.”<sup>98</sup>

The Board continues:

“Within the current legislative framework, normally the first opportunity for government officials to see what and where logging and road-building are proposed is when licensees apply for a cutting permit or road permit. However, government officials have very limited authority to intervene at this stage to protect the public interest.”<sup>99</sup>

The Forest Practices Board confirms that MoF district managers lack authority to review and approve cutting permits and road permits and that this can in some cases put local environmental values at risk. The Board recommended that district

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<sup>97</sup> FPB/SR/52, pdf p.3.

<sup>98</sup> *Ibid.*

<sup>99</sup> *Ibid.*

managers be given conditional discretion over the issuance of cutting permits and road permits in order to strengthen their role in safeguarding, among other things, conservation of species at risk.<sup>100</sup> However, this recommendation has not been implemented.

The Forest Practices Board also expressed similar concerns regarding the B.C. Timber Sales (BCTS) Program, which is allocated 19% of the provincial allowable annual cut. As noted above, BCTS has authorized timber harvesting in cutblocks within matrix range critical habitat on the west side of the Upper Clearwater Valley. The Board notes that in the BCTS program “harvesting is done under timber sale licences issued by timber sales managers [and] BCTS and its licensees do not need to obtain cutting permits in order to harvest timber.”<sup>101</sup>

In a separate report in 2015, the Forest Practices Board addressed whether Forest Stewardship Plans under the *FRPA* are meeting expectations.<sup>102</sup> The Board states:

“The FSP is the only operational plan that must be made available for public review and comment, and is the only operational plan that requires government approval. In the FSP, license holders propose how they will meet government’s objectives. The FSP is meant to provide government with a set of measurable or verifiable results or strategies against which government enforces compliance and to assure the public that all resource values are being conserved and protected.”<sup>103</sup>

The Board concludes:

“The Board finds, based on our sample, that most FSPs contain results or strategies that do not demonstrate consistency with objectives, and, that **all** have significant problems with measurability

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<sup>100</sup> *Ibid.*

<sup>101</sup> FPB/SR/52, pdf p.8.

<sup>102</sup> FPB/SIR/44.

<sup>103</sup> FPB/SIP/44, pdf p.3.

or verifiability. In addition, many FSPs cover vast and overlapping areas of the province making it very difficult for public understanding and review.

The existing culture associated with FSP preparation and approval is unacceptable. Licensees write FSPs in a manner that renders them of little value to the public. Yet, in many cases these plans are approved, and extended, by government decision makers, despite the fact that they do not meet the required approval tests.<sup>104</sup>

The Board's conclusion is particularly relevant because Canfor Vavenby is still operating under a Forest Stewardship Plan dated 2006.

The B.C. Forest Planning and Practices Regulation, BC Reg. 14/2004, is clear that timber supply takes priority over habitat protection. Section 7(1) states:

"7(1) The objective set by government for wildlife is, without unduly reducing the supply of timber from British Columbia's forests, to conserve sufficient wildlife habitat in terms of amount of area, distribution of areas and attributes of those areas for (a) the survival of species at risk, (b) the survival of regionally important wildlife, and (c) the winter survival of specified ungulate species."<sup>105</sup>

In 2009, the British Columbia government cancelled its Special Resource Management/Wildlife Management Area and Area Specific Objective "to maintain a viable population of caribou within the defined area" on the western slopes of the Trophy Mountains, which had been in place under the Kamloops Land and Resource Management Plan (LRMP) since March 1996.<sup>106</sup>

### **5.3 Canfor logging plans in the Upper Clearwater Valley**

The Upper Clearwater Referral Group is a citizen committee established at the

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<sup>104</sup> FPB/SIP/44, pdf p.3, underline added.

<sup>105</sup> [http://www.bclaws.ca/civix/document/id/complete/statreg/14\\_2004#section7](http://www.bclaws.ca/civix/document/id/complete/statreg/14_2004#section7).

<sup>106</sup> Kamloops LRMP, Higher Level Plan Order and Subsequent Amendments, Compilation. April 18, 2013.

request of the B.C. MoF in 2000. Its mandate is to act as a liaison between industry, government and local residents with regard to forestry initiatives in the Upper Clearwater Valley.

On January 28, 2012, Canfor informed the Referral Group of its intention to conduct commercial logging on B.C. Crown land on the northwestern slopes of the Trophy Mountains between Spahats Creek and Grouse Creek. This is on the east side of the Clearwater River and close to Wells Gray Park. Most of the cutblocks are within caribou matrix range critical habitat. These cutblocks are shown on the map at Appendix B, and in more detail on the map at Appendix D. The Appendix D map shows the Type 2 matrix critical habitat with a light grid overlay and the annual range critical habitat with a dotted overlay (from the 2014 Recovery Strategy).

Up to 425 ha would be cut in Canfor's scenario. Canfor told the Referral Group in 2012 that this would be one in a series of passes that will continue until all available merchantable timber has been cut and then the cycle will be repeated on regrown stands.

Between 2012 and 2016, the Referral Group and the Wells Gray Gateway Protection Society (then called the Wells Gray Action Committee) took all reasonable steps to try to persuade Canfor not to pursue these cutblocks within critical habitat for the endangered caribou. The groups also tried to persuade the MoF district manager to protect this matrix habitat by denying approval of the timber harvesting or by arranging a land swap in which Canfor would receive forest land outside critical caribou habitat.

Canfor was adamant that it would carry out its intended timber harvesting. It said that "As a Resource Management Zone under the Kamloops Land and Resource Management Plan, integrated forest management is identified as an economic activity appropriate for the Upper Clearwater Valley."

For its part, the MoF told the Referral Group that it had no legal authority to deny approval of the logging plans and cutblocks on the basis of protecting caribou habitat. The MoF maintained that provincial policy objectives regarding protection of mountain caribou operate only as a guide informing Canfor's provincially approved 2006 Forest Stewardship Plan and that it was entirely up to Canfor to decide whether and how to proceed with clearcut logging in the area regardless of any impacts on caribou.

In addition to the cutblocks on the east side of the Clearwater River, the Referral Group learned in April 2016 that MoF had approved two permits for logging on the west side of the Clearwater Valley and that the logging had already begun.

In September 2016, Canfor informed the Referral Group that Canfor had submitted a permit application to MoF for block "T121," a 32 ha cutblock immediately south of Buck Hill within matrix range critical habitat. T121 is approximately in the centre of the Appendix D map. Despite a commitment by MoF to engage with the Referral Group prior to any decision being taken, in December 2016 the MoF district manager approved the cutting permit for T121 as well as an extension for another cutting permit in the Upper Clearwater Valley area. The district manager told the Referral Group by email:

"CANFOR has met the conditions for issuing or amending these permits and none of the limited circumstances in which permits can be refused apply. Accordingly, I am required by law to issue the cutting and road authorities, which I have now done."

In short, the B.C. Ministry of Forests disavows legal authority to prevent timber harvesting in order to protect critical habitat for caribou in the subject area. Accordingly, despite the 2014 Recovery Strategy, the recommendations of the Upper Clearwater Referral Group and the expressed concerns of the Wells Gray Gateway Protection Society, MoF has approved, and says it will continue to approve, permits for clearcut logging within Type 2 matrix critical habitat in the

Upper Clearwater Valley. The Referral Group was informed by Canfor in February 2017 that logging of T121 will begin as soon as weather and snow melt permit, i.e., no later than May 2017. Simply put, B.C.'s legislative regime does not allow for the B.C. government to protect the southern mountain caribou or to prevent timber harvesting and road building within the matrix habitat that is required to protect the caribou.

#### 5.4 **Wolf density in the subject area exceeds “low predation risk”**

The map on page 87 of the 2014 Recovery Strategy (reproduced in Appendix F) identifies matrix range critical habitat for the Wells Gray-Thompson LPU. The Recovery Strategy defines Type 2 matrix range as habitat that requires “low predation risk,” defined as wolf population densities less than 3 wolves/1000 km<sup>2</sup>.<sup>107</sup> This raises two crucial questions: What is the existing wolf density in the matrix range? And, how would the proposed commercial logging affect the wolf density in the matrix range?

These questions are addressed in a March 2017 report by Kate A. Field, Paul C. Paquet and Chris T. Darimont of the Department of Geography at the University of Victoria. Their report titled “Wolf Density and Probable Effects of Logging in Matrix Range Critical Habitat within the Wells Gray-Thompson Local Population Unit for Woodland Caribou” (Field et al. (2017)) is provided in Appendix C. The full report is commended to the reader.

Field et al. (2017) use wolf density results from areas within B.C. with biogeoclimatic zones similar to those of the Wells Gray-Thompson LPU as a basis to estimate wolf density in the subject area. They conclude, with caveats, that wolf density in the subject area could be as high as 5.5-6.7 wolves/1000km<sup>2</sup>. They state:

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<sup>107</sup> Recovery Strategy (2014), pdf p.7.

“Based on common biogeoclimatic zones, we can coarsely infer that maximum wolf density in the subject area episodically could be as high as 5.5-6.7 wolves/1000km<sup>2</sup>, contingent on the successional state of the area and fluctuating carrying capacity for ungulates other than caribou.”<sup>108</sup>

Field et al. (2017) compare this estimate with the “low predation risk” criterion in the 2014 Recovery Strategy. They conclude that the inferred wolf density in the subject area “would not allow for low predation risk as it is defined in the Recovery Strategy.” They state:

“Notably, the subject area is currently defined in the Recovery Strategy as habitat that allows for low predation risk, defined as wolf population densities less than 3 wolves/1000 km<sup>2</sup>. The inferred wolf density in the subject area of 5.5-6.7 wolves/1000km<sup>2</sup> would not allow for low predation risk as it is defined in the Recovery Strategy.”<sup>109</sup>

Parenthetically, Field et al. (2017) emphasize that their report does not justify lethal control of wolves:

“We by no means offer this information to justify lethal control of wolves. In fact, abundant ethical concerns aside, there is scant evidence that wolf control can increase beleaguered caribou populations (see Hervieux *et al.*, 2014).”<sup>110</sup>

## 5.5 Effect of timber harvesting on wolf density

Field et al. (2017) review species composition and forest age structure associated with the wildlife population dynamics in the Wells Gray-Thompson LPU area. Again, the reader is encouraged to read the full report. Notable for present purposes is their conclusion that “wolf density is more likely than not to increase in the subject area if logging persists.” They state:

“In conclusion, given that wolf density likely reflects prey abundance,

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<sup>108</sup> Field et al. (2017), p.3, underline added.

<sup>109</sup> Field et al. (2017), p.4, underline added.

<sup>110</sup> Field et al. (2017), p.4.

which in turn responds to age structure and composition of forest stands, and given the influence of habitat modification on predator-prey dynamics, our opinion is that wolf density is more likely than not to increase in the subject area if logging persists.<sup>111</sup>

## 6.0 Legal Framework

### 6.1 *UN Convention on Biological Diversity*

Canada signed the *United Nations Convention on Biological Diversity* on June 11, 1992 and ratified it on December 4, 1992. The Convention came into force on December 29, 1993, and now has 196 parties.

Canada is required by Article 6 of the Convention to take measures for conservation and sustainable use as follows:

“Article 6. General Measures for Conservation and Sustainable Use.  
Each Contracting Party shall, in accordance with its particular conditions and capabilities:

(a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and

(b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.”

In 1996, federal, provincial and territorial ministers responsible for wildlife entered a national *Accord for the Protection of Species at Risk*. The Accord is a commitment to a national approach for the protection of species at risk. The goal is to prevent species in Canada from becoming extinct as a consequence of human activity.

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<sup>111</sup> Field et al. (2017), p.6, underline added.

Among the commitments in the Accord is a commitment to establish complementary legislation and programs that provide for effective protection of species at risk. Canada eventually enacted the *Species at Risk Act* in 2002. B.C. has not enacted species at risk legislation.<sup>112</sup> Whether B.C. has otherwise provided effective protection of species at risk is a topic best addressed on a species-specific basis. This is the role of an “effective protection study” under SARA s.61, discussed below.

## 6.2 **Federal *Species at Risk Act***

The federal *Species at Risk Act*, S.C. 2002, c.29 (SARA), received assent on December 12, 2002. The listing and emergency order sections and came into force on June 5, 2003. The ‘safety net’ provision (section 61, discussed below) came into force on June 1, 2004.

Points acknowledged in the preamble of SARA include:

- Canada’s natural heritage,
- the value of wildlife in all its forms,
- Canada’s commitments under the UN Convention on the Conservation of Biological Diversity,
- the Government of Canada’s commitment to conserving biological diversity,
- the precautionary principle that, if there are threats of serious or irreversible damage to a wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty,

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<sup>112</sup> The B.C. *Wildlife Act*, RSBC 1996, c.488, s.6, does authorize the Lieutenant Governor in Council to designate a species as endangered or threatened. However, this provision has rarely been used and the Act provides no comprehensive mechanisms for assessing and listing species at risk or for identifying and protecting their habitat.

- shared responsibility and cooperation among the governments of Canada for protection and recovery of species at risk,
- the roles of the Aboriginal peoples of Canada, and
- habitat of species at risk being key to their conservation.

The statutory purposes of SARA are set out in section 6:

“6. The purposes of this Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.”

The purposes of SARA can be characterized as (a) survival, (b) recovery and (c) prevention. Recovery can be a higher and more difficult standard to meet than survival.<sup>113</sup>

Generally, the cycle of steps for wildlife species at risk under SARA includes assessment, listing, recovery strategy, action plan, and permits, agreements and exceptions.

Section 5 specifies that SARA is binding on a province. This was affirmed by the Federal Court in *Centre Québécois du Droit v Canada*, 2015 FC 773, para. 7. For present purposes, however, the more important topic is the applicability of SARA and the various provisions of SARA to non-federal land.

### **6.3 Application of SARA to habitat of terrestrial wildlife species on non-federal land**

SARA is carefully crafted to be consistent with the constitutional division of powers between the provinces and the federal government while also exercising federal

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<sup>113</sup> ECCC (2016), Policy on Survival and Recovery [Proposed], pdf pp.2-3.

constitutional authority to protect the habitat of listed wildlife species where necessary.

Many of the provisions of SARA apply to both the traditional areas of federal proprietary and legislative authority – federal lands, migratory birds and aquatic species – and to terrestrial<sup>114</sup> species on non-federal land. In particular, the listing, response plan and action plan provisions of SARA apply to terrestrial wildlife species, such as caribou, on non-federal land.

However, some provisions of SARA, notably the general prohibition (s.58) against destruction of critical habitat, apply only to federal lands, migratory birds and aquatic species and not to terrestrial species on non-federal land. Instead, SARA provides two mechanisms by which the destruction of critical habitat<sup>115</sup> of terrestrial species on non-federal land can be prohibited under SARA:

- a ‘safety net’ order under section 61, and
- an emergency order under section 80.

In both cases the order is made by the Governor in Council on the recommendation of the “competent minister.”

#### 6.4 **Safety net orders**

The mechanism for safety net orders is set out in s.61. Wojciechowski et al. (2011)

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<sup>114</sup> The term “terrestrial” is used here to mean wildlife species that are neither migratory birds nor aquatic species, following the use of the term in the 2016 Proposed Policy on Critical Habitat Protection on Non-federal Lands.

<sup>115</sup> The present application relates to protection of habitat, not individuals. The SARA s.32 prohibition against killing or harming individuals of a listed species does not generally apply to terrestrial wildlife species on non-federal land. However, s.34 provides a mechanism under which the prohibition can be made applicable to terrestrial wildlife species on non-federal land. The mechanism is similar to the safety net mechanism under s.61.

state:

“The safety net provisions of SARA are designed to enhance the likelihood that species listed under SARA are afforded effective protection whether they occur on federal or non-federal lands.”<sup>116</sup>

SARA s.61(2) provides that the s.61(1) prohibition against destroying critical habitat applies on non-federal lands (such as the subject matrix range critical habitat) only where ordered by the Governor in Council under s.61(2) on the recommendation of the Minister under s.61(3) after consultation with the appropriate province as required by s.61(4).

SARA s.61(4) requires that, if, after consultation with the province, the Minister forms the opinion that any portion of critical habitat on non-federal lands is not effectively protected by the laws of the province, and there are no effective federal measures or laws to protect that portion of critical habitat, then the Minister must recommend that the Governor in Council make an order that extends the prohibition against the destruction of critical habitat to that portion.

As noted above, the 2014 Recovery Strategy for all three Groups (Northern, Central and Southern) of the “southern mountain caribou”<sup>117</sup> was posted on the SARA Registry on June 3, 2014. In 2016, pursuant to the consultation requirement in s.61(4), the federal Minister and her B.C. counterparts initiated a joint study of whether B.C. provides effective protection of the southern mountain caribou. This resulted in a February 2017 ‘effective protection report’ for the Central Group (but not for the Southern Group). An ‘effective protection report’ for the Southern Group is a crucial next step and should be expedited. Pending completion of that process, new timber harvesting and road building will add incremental damage to matrix

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<sup>116</sup> Wojciechowski et al. (2011), p.213, underline added.

<sup>117</sup> I.e., Woodland Caribou, Southern Mountain population.

range critical habitat unless it is prevented by an emergency order under SARA.

#### **6.5 Emergency order to protect listed species on non-federal land**

An emergency order under s.80 is not limited to federal lands. This is exemplified by the 2013 “Emergency Order for the Protection of the Greater Sage-Grouse,”<sup>118</sup> which applies to provincial Crown land in Alberta and Saskatchewan (discussed further, below). The applicability of an emergency to non-federal lands was also affirmed by the Federal Court in *Centre Québécois du Droit*, para. 21, in the context of judicial review of a decision regarding an application for an emergency order under SARA s.80 concerning a listed species of terrestrial wildlife (Western Chorus Frog) located within Quebec.

#### **6.6 Emergency order under s.80 and s.97(2)**

The mechanism for an emergency order is set out in subsections 80(1) to (5) and 97(2). The following paragraphs set out the structure of the emergency order provisions, with a focus on how they apply to the current application.

Subsection 80(1) sets out the authority of the Governor in Council to make an emergency order to provide for the protection of a listed wildlife species. It states:

“Emergency order

80 (1) The Governor in Council may, on the recommendation of the competent minister, make an emergency order to provide for the protection of a listed wildlife species.”

The legal authority to make an emergency order lies with the Governor in Council. A statutory prerequisite is a recommendation of the competent minister, i.e., the federal Minister of the Environment.

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<sup>118</sup> SOR/2013/202.

Subsection 80(2) addresses the role of the Minister in making a recommendation for an emergency order. It states:

“Obligation to make recommendation

80 (2) The competent minister must make the recommendation if he or she is of the opinion that the species faces imminent threats to its survival or recovery.” [underline added]

Technically, the Governor in Council is permitted by s.80(1) to make an emergency order on the recommendation of the Minister in situations other than those contemplated by s.80(2),<sup>119</sup> i.e., where the Minister makes a recommendation without necessarily forming an opinion that the species faces imminent threats to its survival or recovery. The legal effect of s.80(2) is that the Minister must make the recommendation if he or she is of the opinion that the species faces imminent threats to its survival or recovery.

Subsection 80(3) states:

“80 (3) Before making a recommendation, the competent minister must consult every other competent minister.”

“Competent minister” is defined in s.2(1) as the Minister responsible for Parks Canada with respect to wildlife species on land administered by Parks Canada, the Minister of Fisheries regarding aquatic species other than ones for which the Minister responsible for Parks Canada is responsible, and the Minister of the Environment for all other species. The 2014 Recovery Strategy states that the Minister of the Environment and the Minister responsible for Parks Canada are the competent ministers under SARA for southern mountain caribou.<sup>120</sup> At the present time, the Honourable Catherine McKenna is both the Minister of the Environment (and Climate Change) and the Minister responsible for Parks Canada.

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<sup>119</sup> *Adam*, para.39(ii).

<sup>120</sup> Recovery Strategy (2014), pdf p.3.

On the topic of consultation, it is notable that s.80 does not require the Minister to consult with an affected Province before forming an opinion whether the species faces imminent threats to its survival or recovery. In contrast, the s.61 safety net mechanism does require the Minister to consult with the Province prior to making a recommendation to the Governor in Council.

In the Canada-B.C. Agreement on Species at Risk, Canada agrees to consult with provincial ministers prior to the Governor in Council making an emergency order (not prior to the Minister making a recommendation for an emergency order). However, that Agreement appears to have expired in 2015.

The contents of the emergency order requested in the application is governed by s.80(4), which states:

**“Contents**

(4) The emergency order may ... (c) with respect to any other species [not an aquatic species or a migratory bird species], ... (ii) on [non-federal] land

(A) identify habitat that is necessary for the survival or recovery of the species in the area to which the emergency order relates, and

(B) include provisions prohibiting activities that may adversely affect the species and that habitat.”

Component (A) allows the emergency order to identify the habitat to which the emergency order relates. Among other things, this implies that the area to which an emergency order applies is not required to be co-extensive with the habitat of the listed wildlife species of which the emergency order provides protection. For example, the requested emergency order can relate to provincial Crown land that is matrix range critical habitat of the Wells Gray-Thompson LPU. It does not have to apply to other areas.

Component (B) expressly allows an emergency order to include provisions prohibiting certain activities (i.e., activities that may adversely affect the species and that habitat). This makes it clear that an emergency order is a regulatory prohibition, not a planning document.

In this respect, s.80(4)(B) is augmented by s.97(2) of SARA, which states:

“97 (2) A regulation or emergency order may prescribe which of its provisions may give rise to an offence.”

Thus, an emergency order may not only include provisions prohibiting certain types of activities, it may prescribe that violation of some or all of these provisions constitutes an “offence” under SARA.

Section 80(5) exempts an emergency order from the application of section 3 of the *Statutory Instruments Act*. This has the effect of expediting the in-force status of an emergency order.

Section 81 states:

“81. Despite subsection 80(2), the competent minister is not required to make a recommendation for an emergency order if he or she is of the opinion that equivalent measures have been taken under another Act of Parliament to protect the wildlife species.” [underline added]

Section 81 has no relevance to the present case. “Act of Parliament” here means a statute of the federal Parliament, and there are no measures under a federal statute that prohibit timber harvesting in matrix range critical habitat of the Wells Gray-Thompson caribou herd.

#### **6.7 Southern mountain caribou population and distribution objectives are at the Local Protection Unit level**

The “Woodland Caribou, Southern Mountain Caribou population (*Rangifer tarandus caribou*)” is a listed wildlife species and, as such, the entire listed wildlife species

could be the focus of an emergency order. However, it is submitted that the Wells Gray-Thompson LPU is also an appropriate unit for protection and determination of imminent threats to survival or recovery in an emergency order under s.80.

The 2014 Recovery Strategy defines the “population and distribution objectives” for the “recovery and survival” of the southern mountain caribou at the level of the Local Population Unit. It states: “The recovery goal for southern mountain caribou is to achieve self-sustaining populations in all LPU’s within their current distribution.”<sup>121</sup>

This is significant because where, as here, the Minister has determined that the recovery of the listed wildlife species is technically and biologically feasible, s.41(1)(d) requires the recovery strategy to include a “statement of the population and distribution objectives that will assist the recovery and survival of the species...” The “recovery and survival of the species” in s.41(1)(d) is the same concept as the “recovery and survival of the species” in s.80. Reading s.80 in the context of s.41(1)(d) and SARA as a whole, it is clear that protection of, and threats to, the “listed wildlife species” in s.80 is not confined to the entire “listed wildlife species.” Rather, certainly where population and distribution objectives have been finalized, as here, the recovery and survival of the species for the purposes of an emergency order can be defined in terms of those objectives. Here, an approved objective under SARA is to achieve self-sustaining populations of caribou in the Wells Gray-Thompson LPU within their current distribution. It follows that an emergency order can focus on the protection of, and threats to the survival or recovery of, the Wells Gray-Thompson LPU.

Alternatively, if the entire “southern mountain caribou” unit is necessarily the only focus of an emergency order, then imminent threats to the survival or recovery of

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<sup>121</sup> Recovery Strategy (2014), pdf p.38, underline added. And see: Section 5.2 Population and Distribution Objectives, pdf pp.39-40.

the Wells Gray-Thompson LPU, contrary to the approved population and distribution objective, can and do constitute imminent threats to the survival or recovery of the southern mountain caribou, and protection of the southern mountain caribou can and does require an emergency order defined in geographic scope to provincial Crown land within the matrix range critical habitat of the Wells Gray-Thompson LPU.

#### **6.8 The Minister's opinion and recommendation under s.80(2)**

The following principles are applicable to the Minister's decision whether to recommend an emergency order under s.80(2). Many of these points were addressed by Mr. Justice Crampton of the Federal Court in *Adam v. Canada (Environment)*, 2011 FC 962.

Section 80 of SARA must be given a liberal interpretation: *Centre Québécois du Droit v Canada*, para. 20. This includes recognition that, as Mr. Justice Russell states in *David Suzuki Foundation v. Canada (Fisheries and Oceans)*, 2010 FC 1233, para. 299:

“...critical habitat protection under SARA must be mandatory and not discretionary. Parliament did not intend to allow ministers to ‘choose’ whether to protect critical habitat.”

The Minister's decision under 80(2) requires an objective inquiry based on the best available scientific information. However, the Minister's inquiry is not confined to considering the best available scientific information, for example the Minister may also consider legal advice with respect to the meaning of the language in s.80(2).<sup>122</sup>

The Minister must not take into account socio-economic factors. The 2017 Protection Study states regarding the Minister's decision under s.61 that “The

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<sup>122</sup> *Adam*, paras. 38(iv) and 39(iii).

Minister cannot consider socio-economic factors such as impacts on tenure holders and community interests, nor the benefits of any non-habitat related actions, in forming her opinion on critical habitat protection.”<sup>123</sup> While the Study is not legally binding, presumably the same approach applies to the Minister’s decision under s.80(2).

The Minister must not take into account the possibility of future laws or mandatory requirements such as those that might arise under a s.61 safety net order. This follows from the reasoning of Mr. Justice Russell of the Federal Court in *David Suzuki Foundation*. He states in para. 306 that “Provisions that rely on the prospective exercise of legislative authority cannot and do not legally protect until that authority is exercised.” While that decision involved a protection statement under s.58 of SARA, the principle applies equally to a determination under s.80(2).

Inaction due to a lack of full scientific certainty is not permitted.<sup>124</sup>

Imminent threats need not be guaranteed to materialize.<sup>125</sup>

The impact of threats must be considered over a biologically appropriate timescale.<sup>126</sup> This is particularly relevant in the present case where the adverse effect of timber harvesting on predation of caribou is an ecologically complex process that occurs over time.

The imminent threats referred to in s.80(2) can relate to only a portion of the range of the species. “[N]othing in...subsection 80(2)...limits the mandatory duty imposed on the Minister to situations in which a species faces imminent threats to its survival

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<sup>123</sup> Effective Protection Study (2017), p.5.

<sup>124</sup> *Adam*, paras. 38(v) and 39, cited with approval, *Centre Québécois du Droit* at para.19.

<sup>125</sup> *Adam*, paras. 38(vi) and 39, cited with approval, *Centre Québécois du Droit* at para.19.

<sup>126</sup> *Adam*, paras. 38(vii) and 39, cited with approval, *Centre Québécois du Droit* at para.19.

or recovery on a national basis.”<sup>127</sup>

Subsection 80(2) is triggered by threats to recovery or to survival, or both. The Federal Court in *Centre Québécois du Droit* emphasized the distinction:

[23] Lastly, it is important not to confuse the “survival” of a species with its “recovery”, as they are two separate concepts. The concept of “recovery” goes well beyond that of the “survival” of a species. Although there is no statutory definition of the term “recovery”, Environment Canada adopted a definition in the amended *Recovery Strategy for the Roseate Tern (Sterna dougallii)*, which indicates that “recovery is the process by which the decline of an endangered, threatened, or extirpated species is arrested or reversed and threats are removed or reduced to improve the likelihood of the species’ persistence in the wild”. Under that definition, the recovery of a species therefore includes a halt to or reversal of the decline of its population.”

In short, the Minister’s decision under s.80(2) must be exercised within the legal framework provided by the legislation. Further, the Minister’s s.80(2) decision is subject to judicial review. In *Alberta Wilderness Association v. Canada (Attorney General)*, 2013 FCA 190, the Federal Court of Appeal rejected the Minister’s position that a decision by the Minister not to recommend an emergency order under s.80 of SARA cannot be reviewed by the courts. The Court states:

[48] If the position asserted by the [federal government] respondents is correct, it would have the effect of sheltering from review every refusal to make a recommendation for an emergency order. This cannot be so. The Minister’s discretion to decline to make a recommendation to Cabinet must be exercised within the legal framework provided by the legislation. The authority for that proposition is at least as old as the seminal case of *Roncarelli v. Duplessis*, [1959] S.C.R. 121, at page 140.” [quote omitted]

If the Minister decides under s.80(2) that the species does not face imminent threats to its survival or recovery then the Minister must provide a meaningful explanation

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<sup>127</sup> *Adam*, para. 39(vi).

of how the Minister reached this conclusion so as to allow the Court to conduct a meaningful review of the decision.<sup>128</sup> The Minister's reasons for decision must "fit comfortably with the principles of justification, transparency and intelligibility."<sup>129</sup>

A key purpose of an emergency order under SARA is to protect critical habitat where protection under other SARA provisions will not be put in place in a sufficiently timely manner to ensure the survival or recovery of the species.<sup>130</sup> In the present case, what is awaited is a decision regarding a s.61 safety net order for the Southern Group. In *Adam v. Canada (Environment)*, the Federal Court agreed that a key purpose of a s.80 emergency order in that case was to protect habitat of the listed boreal caribou in Northeastern Alberta while awaiting the production of a recovery strategy.<sup>131</sup>

Similarly, *Centre Québécois du Droit* was also a case where a recovery strategy had not been completed; there, for the Western Chorus Frog. The Federal Court found that "The primary objective of [SARA section 80] is to protect the critical habitat of a listed species while awaiting a recovery strategy."<sup>132</sup> The Court said:

"An emergency order will therefore contain protective measures that would normally be found in an action plan (federal, provincial or territorial) in the absence of an urgent need for action."<sup>133</sup>

Recovery objectives and performance indicators identified in a Recovery Strategy are relevant factors that the Minister should consider in deciding whether to

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<sup>128</sup> *Adam*, paras. 49, 50, 62, 66, 68.

<sup>129</sup> *Canada (Minister of Citizenship and Immigration) v Khosa*, 2009 SCC 12, [2009] 1 SCR 339, at para. 59, cited in *Adam*, para.51.

<sup>130</sup> Draft Species at Risk Act Policies (2009), p.17.

<sup>131</sup> *Adam*, paras. 38(iii) and 39, cited with approval, *Centre Québécois du Droit* at para. 19.

<sup>132</sup> *Centre Québécois du Droit v Canada*, para.20.

<sup>133</sup> *Ibid.*

recommend an emergency order.<sup>134</sup> In the present case, the population and distribution recovery objectives stated in the 2014 Recovery Strategy are to:

- stop the decline in both size and distribution of all LPUs;
- maintain the current distribution within each LPU; and
- increase the size of all LPUs to self-sustaining levels and, where appropriate and attainable, to levels which can sustain a harvest with dedicated or priority access to aboriginal peoples.”<sup>135</sup>

Performance indicators, and critical habitat in particular, are the means by which progress towards achieving the population and distribution objectives can be measured.<sup>136</sup> The Recovery Strategy identifies critical habitat necessary to achieve the population and distribution objectives for all LPUs of southern mountain caribou. In the present case, it is the Type 2 matrix critical habitat of the Wells Gray-Thompson LPU that the Minister must consider in determining whether to recommend the emergency order.

## 6.9 Timely decision-making

Last but not least, timely decision-making is required.<sup>137</sup> The Federal Court in *Adam* observed that the Minister should respond to an application under s.80 within a short period of time. The Court states at para. 39(iv):

“Keeping in mind the “emergency” nature of the power contemplated in section 80, it may nevertheless be legitimate for the Minister to take a short period of time, following a request such as was made by the Applicants to: (a) obtain information necessary to make an informed opinion under subsection 80(2); or (b) obtain receipt of scientific or other information that is in the process of being prepared.”

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<sup>134</sup> *Adam*, para.42.

<sup>135</sup> Recovery Strategy (2014), pdf p.6.

<sup>136</sup> *Ibid.*

<sup>137</sup> *Adam*, paras. 38(ix) and 39, cited with approval, *Centre Québécois du Droit* at para. 19.

#### **6.10 Previous emergency order under SARA s.80**

The Governor in Council's authority to make an emergency order under s.80 and s.97(2) of SARA has been exercised in the past. In 2013, the Governor General in Council, on the recommendation of the Minister of the Environment, made the "Emergency Order for the Protection of the Greater Sage-Grouse," SOR/2013/202. Section 2 of the Emergency Order identifies certain geographic areas of provincial and federal Crown land within Alberta and Saskatchewan as habitat that is necessary for the survival or recovery of the Greater Sage-Grouse. Sections 3 and 4 define certain activities that are prohibited, along with defined exclusions. Section 5 provides an exception for provincially-approved activities related to public safety or health, or to the health of animals or plants. Section 6 identifies the subset of prohibited activities that may also be offences under s.97 of SARA.

#### **7.0 Conclusion**

The Applicants ask the Minister to recommend, and the Governor in Council to make, an emergency order under SARA s.80 to prohibit timber harvesting on provincial Crown land in the matrix range critical habitat of the Wells Gray-Thompson caribou herd in British Columbia. The Applicants also ask the Minister to expedite completion of the process for a 'safety net' order under s.61 for the Southern Group of the southern mountain caribou.

The first step toward an emergency order is for the Minister to form an opinion whether the Wells Gray-Thompson caribou herd faces imminent threats to its survival and recovery. This decision must be made objectively, based on the best available scientific information. Inaction due to a lack of full scientific certainty is not permitted. The Minister must not take into account socio-economic factors or the possibility of future laws or mandatory requirements. Imminent threats need not be guaranteed to materialize, and the impact of threats must be considered over a

biologically appropriate timescale. It is sufficient that the threats relate to only a portion of the range of the species. The threats can be to survival or recovery or both, and the concept of “recovery” goes well beyond that of “survival.” The Minister should take into account the recovery objectives and performance indicators identified in the 2014 Recovery Strategy. These include matrix range critical habitat that provides a low risk of predation, defined by wolf density. If the Minister concludes that the Wells Gray-Thompson caribou herd faces imminent threats to its survival and recovery, then the Minister must recommend to the Governor in Council that it make an emergency order.

The Applicants respectfully submit that, upon consideration of all the available scientific information within the legal framework provided by the *Species at Risk Act*, the Minister must reasonably conclude that the test for an emergency order is met. The wolf density in the critical habitat of the Wells Gray-Thompson caribou is already well above the level defined as low predation risk in the 2014 Recovery Strategy. New timber harvesting within critical habitat is imminent and the Province of B.C. is unwilling to prevent it. If that logging is carried out it will further increase the wolf density and exacerbate the threat to the Wells Gray-Thompson caribou. The population of the herd has already declined drastically and the long-term trend is continued decline. COSEWIC has recently reassessed the Southern Group from threatened to endangered. The threats to the survival of the Wells Gray-Thompson caribou herd are imminent and real.

The crucial purposes of the *Species at Risk Act* as it applies to the Wells Gray-Thompson caribou herd at the present time is to prevent the subpopulation from becoming extirpated and to provide for its recovery. Survival and recovery is technically and biologically feasible, but it cannot be taken for granted. The 2014 Recovery Strategy found that matrix range is critical habitat. The imminent threats pertain to matrix range critical habitat on provincial Crown land. SARA is carefully

crafted to be consistent with the constitutional division of powers while also exercising federal constitutional authority to protect the habitat of listed terrestrial species on non-federal land where provincial legislative instruments are ineffective. SARA provides two mechanisms to achieve these purposes: a 'safety net' order under section 61, and an emergency order under section 80. Both are urgently required. The mechanism for developing and making a safety net order must be expedited. And an emergency order must be put place to halt imminent destruction of critical habitat until the safety net mechanism is completed and effective protection is established.

Finally, it is respectfully noted that the Minister's decision under s.80(2) must be made in a timely manner, bearing in mind the emergency nature of the order requested.

**ALL OF WHICH IS RESPECTFULLY SUBMITTED.**

**April 7, 2017**



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**Counsel for the Applicants listed above**

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## 9.0 Appendices

**Appendix A.** Names and Descriptions of Applicants

**Appendix B.** Map of Upper Clearwater Valley Showing Recent and Pending Timber Harvesting within Critical Habitat for Caribou

**Appendix C.** “Wolf Density and Probable Effects of Logging in Matrix Range Critical Habitat within the Wells Gray-Thompson LPU”

**Appendix D.** Map of Canfor Cutblocks within Matrix Range Critical Habitat, Upper Clearwater Valley

**Appendix E.** Caribou Census Detail: Estimates of Southern Mountain Caribou in and near Wells Gray Provincial Park over time

**Appendix F.** Map of Critical Habitat, Wells Gray-Thompson Local Population Unit, 2014 Recovery Strategy, page 87

## **Appendix A. Names and Descriptions of Applicants**

The **Wells Gray Gateway Protection Society** is a registered non-profit society, formerly known as the Wells Gray Action Committee which was formed in 2012. WGGPS works to protect the Clearwater River watershed and Mountain Caribou habitat in the Clearwater Valley, which is the southern corridor entrance to Wells Gray Provincial Park. Most of the society's members live and work in the Clearwater area. They are inspired by the unique world-class wilderness values of Wells Gray Park and the Clearwater gateway, and they are motivated to help foster the tourism product that is central to the economy of Clearwater.

The **Upper Clearwater Referral Group** is a citizen committee established at the request of the B.C. Ministry of Forests in 2000. Its mandate is to act as a liaison between industry, government and local residents with regard to forestry initiatives in the Upper Clearwater Valley. The Referral Group has five members, three of whom have served since its inception. The Referral Group has 'hands-on' experience with the technical details of logging proposals including Canfor's proposed cutblocks that are the subject of this application.

**BC Nature** is a registered non-profit society formed in 1969. It is a federation of 53 naturalist clubs with over 6,000 members, including respected naturalists, environmentalists, biologists, academics and other nature experts. BC Nature provides naturalists and nature clubs of BC with a unified voice on conservation and environmental issues. BC Nature's member clubs are at the forefront of many conservation and stewardship projects and help shape public policy on our environment. BC Nature is very active in conservation work around the province, focusing on biodiversity, species at risk, parks and other natural areas. BC Nature's motto is "To Know Nature and Keep It Worth Knowing."

The **Western Canada Wilderness Committee**, founded in 1980, is a registered non-profit society with charitable status. The Wilderness Committee has more than 60,000 supporters, volunteers and activists from coast to coast

to coast working together to preserve wilderness, protect wildlife, defend parks, safeguard public resources and fight for a stable and healthy climate. The Committee's campaigns have helped gain the protection of many important wilderness areas, including critical wildlife habitats and some of the world's last large tracts of old-growth temperate rainforest and boreal forest. The Wilderness Committee's head office is in Vancouver, with field offices in Victoria, Winnipeg and Toronto.

**Sierra Club British Columbia** works to defend B.C.'s wild places and species, within the urgent context of climate change. Sierra Club BC's history goes back to 1969 and spans more than four decades of successful, science-based activism and education. In 2016, Sierra Club BC signed the historic Great Bear Rainforest Agreements and won two prestigious international environmental awards, the Buckminster Fuller Award and the EarthCare Award, for this precedent-setting collaboration. The group's official name is Sierra Club of BC Foundation.

The **Kamloops Naturalist Club** is a registered non-profit society dedicated to protecting, promoting, and enjoying nature. The Club conducts activities and community actions promoting preservation of the natural environment, bird and wildlife watching, study of botany, easy hikes/walks, and trail maintenance and clean up.

**Kamloops Unitarians for Social Justice** has worked for 20 years to raise public awareness and encourage action on a variety of environmental issues, such as elimination of cosmetic pesticide use, water & power conservation, and green transportation. They have also advocated for environmental protection and sustainability through letter writing campaigns and delegations to all levels of government.

The **Shuswap Naturalist Club** has members in Salmon Arm and the surrounding areas. The Club is an active and respected advocate for wildlife,

natural areas, and the protection of the environment. The Club members promote conservation at all levels of government. They promote an interest in nature, particularly among young people. The Club provides opportunities for naturalists to record and report observations and for persons interested in natural history to meet and exchange information encourage.

The **Working Group on Indigenous Food Sovereignty** creates awareness of the underlying issues, concerns and strategies impacting food security in Indigenous communities. Formed in 2006, the Working Group applies culturally appropriate protocols and ancient ways of knowing through a consensus-based approach to critically analyzing issues, concerns and strategies as they relate to Indigenous food, land, culture, health, economics, and sustainability.

The **Vermilion Forks Field Naturalists Society** is a registered non-profit society that encourages conservation of ecosystems and our natural environment. The Society promotes the enjoyment of nature, and fosters public interest and education in the appreciation and study of nature.

The **South Okanagan Naturalists' Club** is a very engaged and well established organization with a history of successful nature conservation and policy development activities going back to the 1960s. The Club maintains a Habitat Garden, leads field trips, sells locally-oriented bird books, participates in conservation land acquisition projects and holds monthly meetings. SONC provides a dynamic local focus for experiencing the natural world of B.C. and for promoting its conservation.

The **Squamish Environmental Conservation Society** is a registered non-profit society that formed in 1982 as a result of a proposal by BC Rail to construct a port facility that would have reduced productive estuarine habitat to zero. Its efforts have been instrumental in improvements to the Squamish Estuary Management Plan and the creation of the Skwelwil'em Wildlife Management Area. It is a passionate, pro-active organization, dedicated to

wildlife and habitat preservation and it seeks to engage the community in enjoyment, respect and responsibility for the natural world, through advocacy, research and education.

The **Chilliwack Field Naturalists** formed in 1971. It provides an opportunity for people of all ages to get acquainted with our natural world and to enjoy and interpret the natural history of the Upper Fraser Valley. The CFN aims to appreciate and promote conservation of the natural ecosystems that support us all and to ensure the future of wild species and spaces.

**Trevor Goward** is an accomplished field naturalist, lichenologist and author/co-author of 100 scientific papers, three books and more than 100 popular publications. He has worked extensively on the ecology, taxonomy and biogeography of lichens and is acknowledged internationally as a leading authority on *Bryoria*, the sole winter food of Mountain Caribou. Mr. Goward served on the lichen subcommittee of COSEWIC from 1995 through 2011. Since 1988 he has held the position of Curator of Lichens at the University of British Columbia. His firm, Enlichened Consulting Ltd, is based in the Clearwater valley, where he has been following the behaviour and decline of the south Wells Gray caribou herd for more than 30 years.

**Roland Neave** is the president and owner of Wells Gray Tours. He started the company in 1972 and it is now one of British Columbia's largest tour operators. Mr. Neave has been exploring Wells Gray Park since his teen years. He is the author of the guidebook *Exploring Wells Gray Park*, the 6th edition of which was published in 2015. Mr. Neave lives in Kamloops and also has a residence in the Clearwater Valley. He was the founding president of the Friends of Wells Gray Park in 1986. In 2014, he and his wife donated 160 acres of their Clearwater Valley land to Thompson Rivers University for student research.

**Erik Milton** began visiting the Wells Gray area regularly in 1991. The region made such a deep impression that he became a resident of the Upper

Clearwater Valley in 2002. He remains in awe of the diversity and scale of the wilderness in the Wells Gray Park and Gateway area. Mr. Milton is an active member of the community and divides his time between work and personal interests, of which exploring Wells Gray Park is a large part.

**Dr. Cathie Hickson**, Ph.D., P.Geo., is geoscientist and volcanologist. Her lengthy professional involvement in Wells Gray Provincial Park and the Upper Clearwater Valley goes back to 1981 when she joined the Geological Survey of Canada as a summer assistant in the Park. She conducted geological field work in the Park and completed her doctoral thesis on the volcanic history of the area in 1987. Dr. Hickson actively promotes the development of tourism opportunities in the Clearwater area as a gateway to Wells Gray Park. She recently spearheaded the nomination of Wells Gray Park for UNESCO Geopark status. She is a co-author with Trevor Goward of *Nature Wells Gray: Volcanoes, Waterfalls, Wildlife, Trails & More*, Lone Pine Publishing.

**Dr. Lyn Baldwin** is a plant ecologist and assistant professor at Thompson Rivers University in Kamloops. Dr. Baldwin has been leading her botany and ecology students on annual pilgrimages to Wells Gray Park for the last eight years. Her scholarly work focuses both on bryophyte ecology and on making the science and art of natural history available to the general public.

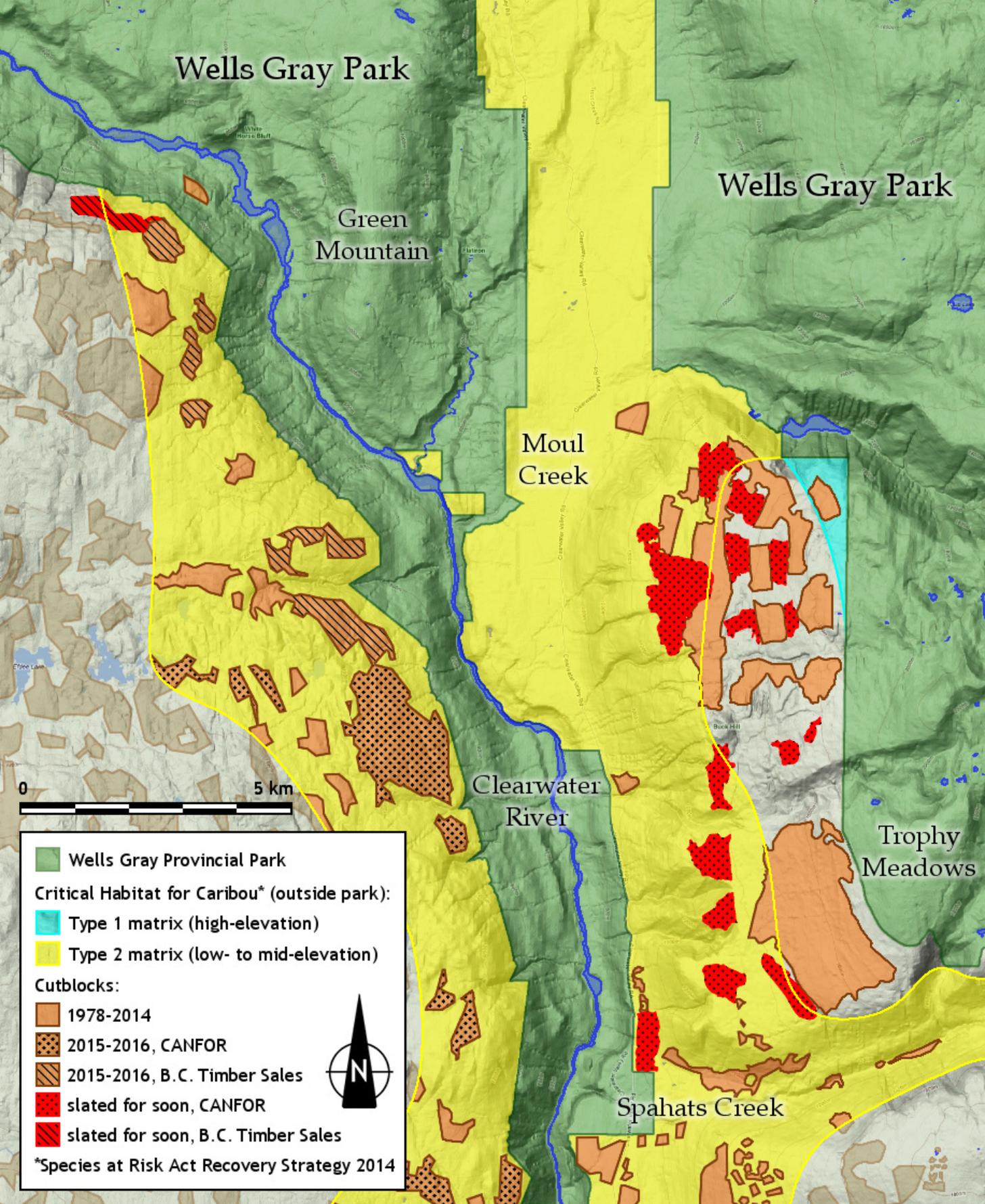
**Dr. Nancy Flood** is an ornithologist with an expertise in evolutionary biology. She is a faculty member in the Department of Biological Sciences at Thompson Rivers University. Dr. Flood's connection to Wells Gray Park goes back over twenty years to when she served on the executive of the Friends of Wells Gray. This connection continues strongly today through her role in teaching field courses in Terrestrial Ecology out of TRU's Education and Research Centre in the Clearwater Valley.

**Dawn Morrison**, is a Secwepemc Nation educator and community self-development facilitator. She is the Founder, Chair and Coordinator of the B.C.

Food Systems Networking Group on Indigenous Food Sovereignty. Her Secwepemc heritage, her technical and practical background in horticulture and ethonobotany, and her passion for environmental and cultural revitalization have sustained her lengthy career in Aboriginal adult education and community self-development. As a Community Self-Development Facilitator, Ms. Morrison works from a basis of Indigenous food sovereignty and eco-cultural restoration. Her educational background is in horticulture, adult instruction, restoration of natural systems, and business management.

**Kanahus Manuel** is a Secwepemc Nation activist, birth keeper, and warrior. She appeared in a documentary film made by Doreen Manuel, called "Freedom Babies". Ms. Manuel is the on-air host and producer of the "Creating A Culture of Resistance," a radio show which interviews activists from different cultures.

**Appendix B.**  
**Map of Upper Clearwater Valley B.C. Showing Recent and Pending Timber  
Harvesting within Critical Habitat for Caribou**



Industrial Logging in the Upper Clearwater Valley North of Spahats Creek. The areas in yellow were federally designated as Critical Habitat for Caribou in 2014 but have since been heavily logged. The areas in red are cutblocks to be logged in the near future.

**Appendix C.**  
**“Wolf Density and Probable Effects of Logging**  
**in Matrix Range Critical Habitat within the Wells Gray-Thompson LPU”**

**Wolf (*Canis lupus*) Density and Probable Effects of Logging in Matrix Range Critical  
Habitat within the Wells Gray-Thompson Local Population Unit for Woodland Caribou  
(*Rangifer tarandus caribou*), Southern Population.**

Prepared by Kate A. Field<sup>1</sup>, Paul C. Paquet<sup>2</sup> and Chris T. Darimont<sup>3</sup>

March 28, 2017

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## **Preface**

Over millennia, woodland caribou (*Rangifer tarandus*) co-evolved and adapted to an environment that no longer exists because of loss and alteration of forest ecosystems owing to overwhelming anthropogenic activities. At present, the main threat to woodland caribou is habitat deterioration, either from fragmentation, degradation, or loss. Habitat quality is a fundamental driver of species distributions and population outcomes, however it is often difficult to measure and compare alongside varied degrees of habitat amount and fragmentation.

Woodland caribou need large patches of intact forest, and are adapted to an ecosystem in which forest fires are the main type of disturbance. Reasons why habitat loss and deterioration cause caribou decline are complex, but in theory increases in early-seral stage forests attract animals such as moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and elk (*Cervus canadensis*), which graze on shrubs and other plants found in these regenerating areas. This in turn attracts large predators like wolves and bears (*Ursus* spp.). Increases in the number and distribution of predators throughout caribou ranges are thought to have resulted in levels of predation with which caribou are not able to cope. It is important to bear in mind, however, that other factors including poaching, parasites, disease, weather, climate change – as well as their interaction – can also adversely affect woodland caribou populations.

This report draws from existing peer-reviewed and unpublished agency research to make inferences about: i) wolf density in matrix range critical habitat within the Wells Gray-Thompson local population unit for Woodland Caribou (*Rangifer tarandus caribou*), Southern Mountain population, as defined in Canada's Recovery Strategy (Environment Canada, 2014), herein referred to as the 'subject area' and ii) whether proposed logging in the subject area would likely increase wolf density. We define wolf density as the number of wolves per unit of area.

**(i) Wolf densities in east central British Columbia and west central Alberta**

At the broadest scales, wolves show a range of population densities. Late winter wolf densities in Alberta and B.C. range from 2-14 wolves/1000 km<sup>2</sup>, reflecting factors such as physiography and successional conditions (Paquet & Carbyn, 2003). To focus on habitat similar to the subject area, we report here wolf densities recorded during a sterilization program that took place in south central British Columbia from 2004-2012. We then compare the biogeoclimatic zones of the estimated wolf density in these sterilization program study areas with the biogeoclimatic zones of the subject area to make an inference about wolf density in the subject area. We also report wolf densities estimated in west central Alberta, however we only compare biogeoclimatic zones of study areas within British Columbia.

The Quesnel Highland wolf sterilization project attempted to reduce wolf abundance through fertility treatment and lethal methods in south central British Columbia. Roorda and Wright (2004) estimated wolf densities to be 5.4 to 6.7/1000km<sup>2</sup> in March, 2004, in a study area of approximately 9,540 km<sup>2</sup>, which included portions of the Quesnel Highland, Bowron Valley and Cariboo Mountains Ecoregions in south central British Columbia. Roorda and Wright (2010) also reported wolf densities in March 2010, to be 5.5 wolves/1000km<sup>2</sup> within an area of approximately 7,100km<sup>2</sup> located outside of Wells Gray Provincial Park, and 6.4 wolves/1000km<sup>2</sup> over an area of 8,830km<sup>2</sup> within the Quesnel Highland Mountain Caribou Population Unit (caribou core and matrix habitat). A notable caveat to wolf density estimates from the Quesnel Highland wolf sterilization project is that densities were estimated while wolf population control was underway. Additionally, they did not estimate variation around these estimates, which compromises the utility of our use of these estimates. Hayes (2013) reported that wolf densities were reduced by 39-48% during this program. During a subsequent period of no control, wolves

had recovered to original unexploited density levels (Hayes, 2013), thereby suggesting densities would be higher if populations were not controlled.

In another study in similar habitat, Webb and Merrill (2009) estimated densities for three populations in autumn over a 22,994km<sup>2</sup> study area for lower foothill, upper foothill and mountain subregions in west central Alberta. They estimated densities of 22.3, 14.9 and 9.7 wolves/1000 km<sup>2</sup>, respectively. Density estimates of wolves have also been reported in Jasper National Park and Banff National Park as 2.5 to 9.2 wolves/1000km<sup>2</sup> and 2.7 to 4.8 wolves/1000km<sup>2</sup>, respectively (Cowan, 1947; Carbyn, 1974; Dekker, 1986; Huggard, 1991; Hebblewhite, 2000; Callaghan, 2002; Hebblewhite, 2006, as cited in Webb & Merrill, 2009).

There are several caveats to consider around the above reported densities. Firstly, autumn densities are usually considerably higher than those in late winter because winter mortality has not yet occurred. Accordingly, most surveys are carried out in late winter. Also, densities were not all estimated in the same manner and might not be comparable. Further, density estimates should be shown with measures of variation, but these estimates are often not provided.

Matrix critical habitat within the Wells Gray-Thompson local population unit is distributed across the following five biogeoclimatic zones: Alpine Tundra, Engelmann Spruce-Subalpine Fir, Interior Cedar-Hemlock, Interior Douglas-Fir and Sub-Boreal Spruce (Biogeoclimate zones of B.C, 2007; Ministry of Parks, 1991). Three of the above reported wolf density study areas within British Columbia lie within 4 out of 5 biogeoclimatic zones that characterize the subject area (Tables 1 and 2). Based on common biogeoclimatic zones, we can coarsely infer that maximum wolf density in the subject area episodically could be as high as 5.5-6.7 wolves/1000km<sup>2</sup>, contingent on the successional state of the area and fluctuating carrying capacity for ungulates other than caribou. Notably, the subject area is currently defined in the

Recovery Strategy as habitat that allows for low predation risk, defined as wolf population densities less than 3 wolves/1000 km<sup>2</sup>. The inferred wolf density in the subject area of 5.5-6.7 wolves/1000km<sup>2</sup> would not allow for low predation risk as it is defined in the Recovery Strategy. We by no means offer this information to justify lethal control of wolves. In fact, abundant ethical concerns aside, there is scant evidence that wolf control can increase beleaguered caribou populations (see Hervieux *et al.*, 2014).

Study Area	Wolf Density	Biogeoclimatic Zones
Quesnel Highland, Bowron Valley and Cariboo Mountains ecosections, 9,540 km <sup>2</sup> (Roorda and Wright, 2004)	5.4-6.7/1000km <sup>2</sup>	Alpine Tundra Interior Cedar-Hemlock Engelmann Spruce-Subalpine Fir Sub-Boreal Spruce
Quesnel Highland, Bowron Valley and Cariboo Mountains ecosections, 7100km <sup>2</sup> (Roorda and Wright, 2010)	5.5/1000km <sup>2</sup>	Alpine Tundra Interior Cedar-Hemlock Englemann Spruce-Subalpine Fir Sub-Boreal Spruce
Quesnel Highland, Bowron Valley and Cariboo Mountains ecosections, 8830 km <sup>2</sup> (Roorda and Wright, 2010)	6.4/1000km <sup>2</sup>	Alpine Tundra Interior Cedar-Hemlock Englemann Spruce-Subalpine Fir Sub-Boreal Spruce

**Table 1.** Biogeoclimatic zones of reported wolf density study areas within British Columbia.

Biogeoclimatic Zones	Study Areas	Subject Area
Alpine Tundra	Yes	Yes
Interior Cedar-Hemlock	Yes	Yes
Englemann Spruce-Sub alpine Fir	Yes	Yes
Sub-Boreal Spruce	Yes	Yes
Interior Douglas-Fir	No	Yes

**Table 2.** To illustrate common zones, Yes or No indicates whether the biogeoclimatic zone occurs in the study areas and subject area

### (ii) Effects of forestry on wolf density

Species composition and age structure of forest stands constitute prominent factors in determining population dynamics of wildlife in Wells Gray Provincial Park (Ritcey, 1982).

Predators and prey in the subject area include grizzly bears (*U. arctos*), black bears (*U. americanus*), wolverine (*Gulo gulo*), coyotes, (*C. latrans*) foxes (*Vulpes vulpes*), white-tailed deer, moose, mountain goat (*Oreamnos americanus*), caribou, beaver (*Castor canadensis*) and Chinook salmon (*Oncorhynchus tshawytscha*). Wolf density likely reflects changes in prey composition and abundance, which in turn responds to seral stages of forest recovery from disturbance. Historically, wolves have been recorded to increase markedly in response to establishment of moose post-fire disturbance (Edwards, 1954). Anthropogenic conversion of old-growth forests to early seral stands (i.e., logging) has been shown to significantly increase resource use overlap between caribou and moose, the primary prey for wolves (Peters *et al.*, 2013). Other studies have reported that preferential ungulate habitat via logging has increased ungulate density, at least in the short term (Seip, 1990, 1992). Responses of ungulate and wolf densities to disturbance are dynamic, however, and cannot be assessed without considering spatial and temporal ecological complexities. For example, fire and logging disturbances differ in that forestry companies often accelerate their cutting regime by replanting climax species (e.g., conifers), resulting in ephemeral seral stages. Natural stages of succession are therefore temporally altered, which results in short-lived changes to wolf densities because the density of their prey will respond to short-lived preferential habitat. In other words, disturbance will increase wolf density at certain stages in succession, but densities will likely change as forests recover. These dynamics will also depend on the rate, area, and spatial distribution of logging.

In addition to disrupting natural stages of succession, forestry involves habitat modification through creation of cutblocks and development of road networks (Houle *et al.*, 2010). Although research is limited that shows forest harvesting directly increases wolf density, habitat modification via logging has indirect effects on wolf population dynamics. For example,

wolf populations are sustained by prey that have been put at a disadvantage due to structural changes in habitat from logging. Bergman *et al.* (2006) found that wolves use areas with high edge density where cutblock edges create a structural change that could impede movements of prey towards forest cover, thus providing a predatorial advantage (Houle *et al.*, 2010). In addition, linear features such as open forestry roads can facilitate movement of wolves during winter when snow has been compacted by human activities, which could potentially increase rate of predation. This suggests that structural habitat modification from proposed logging in the subject area could sustain or increase wolf populations by facilitating predation at certain times of year.

In conclusion, given that wolf density likely reflects prey abundance, which in turn responds to age structure and composition of forest stands, and given the influence of habitat modification on predator-prey dynamics, our opinion is that wolf density is more likely than not to increase in the subject area if logging persists.

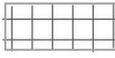
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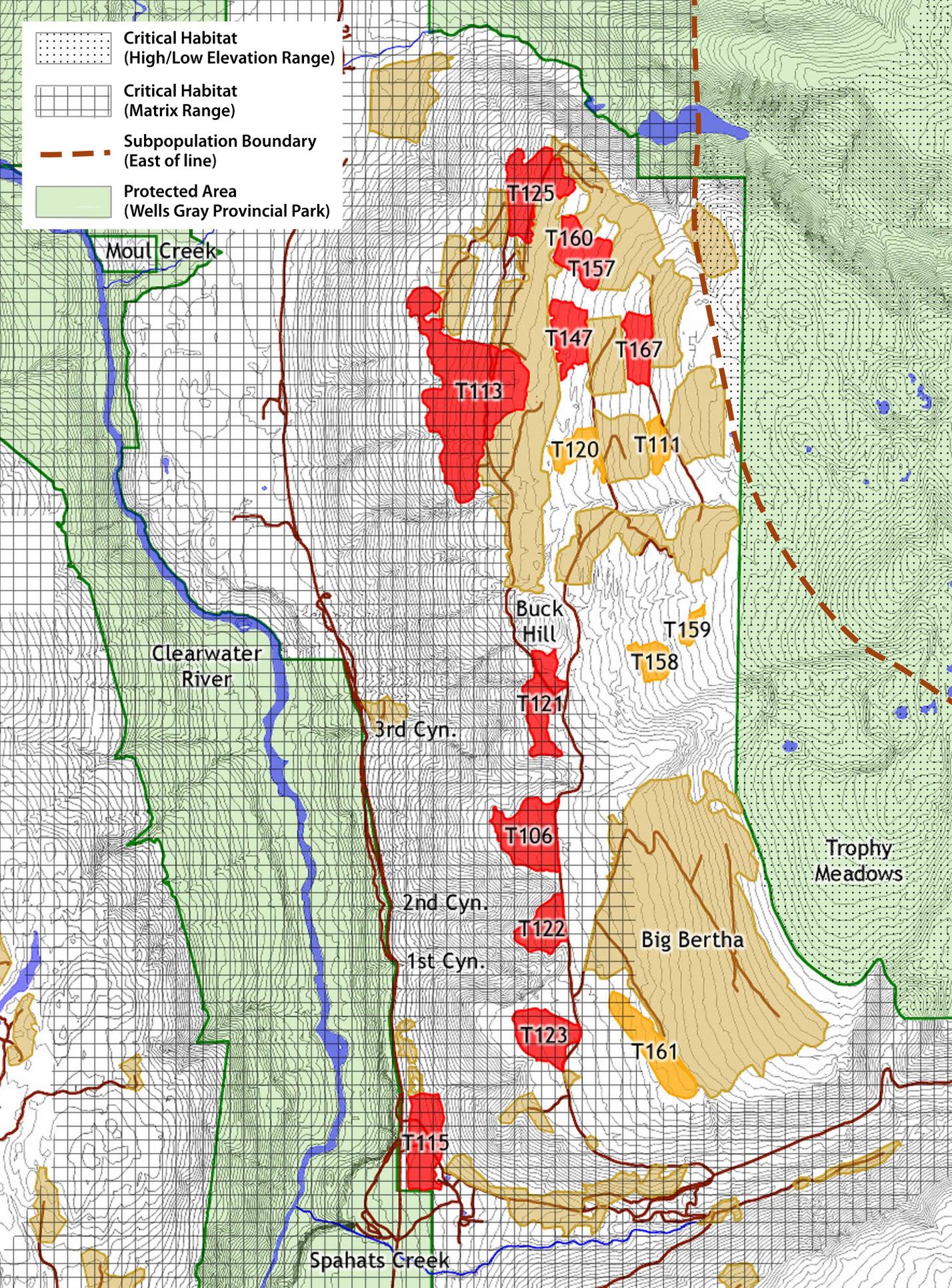
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**Appendix D.**  
**Map of Canfor Cutblocks within Matrix Range Critical Habitat,**  
**Upper Clearwater Valley B.C.**

-  Critical Habitat (High/Low Elevation Range)
-  Critical Habitat (Matrix Range)
-  Subpopulation Boundary (East of line)
-  Protected Area (Wells Gray Provincial Park)



## Appendix E. Caribou Census Detail

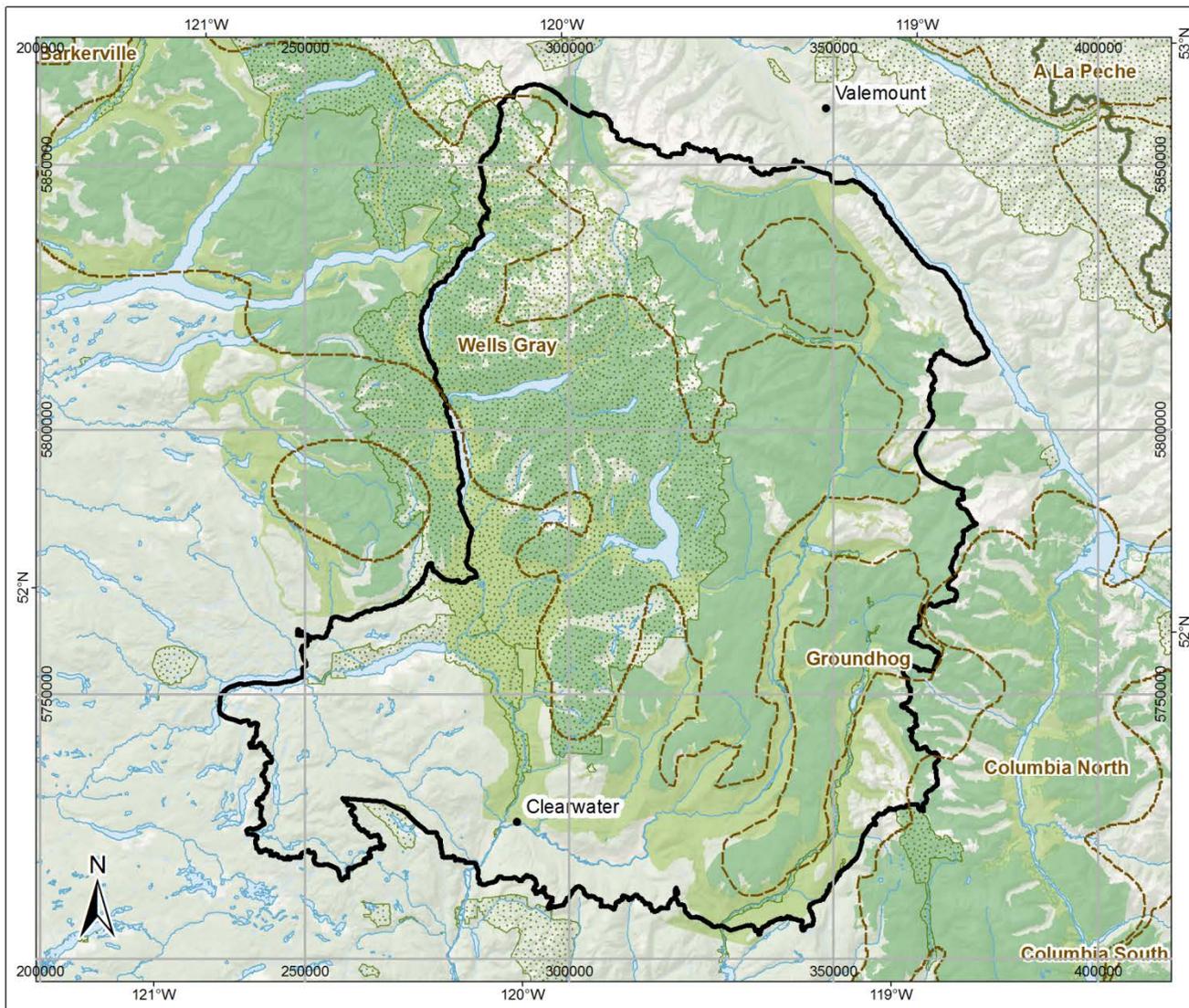
Table. Estimates of total numbers of Southern Mountain Caribou in and near Wells Gray Provincial Park over time, based on aerial census reports by B.C. Ministry of Environment between 1988 and 2016. Compiled by Trevor Goward & Jason Hollinger.

	Wells Gray - Thompson		Quesnel Highlands		Wells Gray	1000ccuts
	WG south	Ground-hog	WG north	Barkerville	WG total	WG south (graphed)
1988	---	---	---	46 <sup>8</sup>	---	---
1989	---	---	---	---	---	---
1990	---	109 <sup>8</sup>	---	---	---	<u>Ghog 109</u>
1991	---	---	---	---	---	---
1992	---	---	---	---	---	---
1993	---	---	---	---	---	---
1994	---	---	---	---	---	---
1995	336 <sup>8</sup> (not incl Groundhog!)	---	295 (256-398) <sup>8</sup>	---	628 <sup>3</sup> / 620 <sup>4</sup> / 631 <sup>8</sup>	<u>336/xxx</u>
1996	---	---	---	---	---	---
1997	---	---	---	50 (50-129) <sup>8</sup>	---	---
1998	315 <sup>1</sup> (not incl Groundhog?)	---	---	46 <sup>8</sup>	390 <sup>4</sup>	<u>315/xxx</u>
1999	---	31 <sup>8</sup>	---	---	441 <sup>4</sup>	Ghog 31 ~310 <sup>11</sup>
2000	---	---	200 <sup>1</sup>	---	---	---
2001	---	---	---	---	---	---
2002	325 <sup>2</sup> (incl Groundhog?)	---	---	---	516 <sup>4</sup>	<u>~294<sup>12</sup>/325</u>
2003	---	---	---	---	---	---
2004	---	---	---	---	307 <sup>3</sup> / 355 <sup>4</sup>	---
2005	---	---	---	---	---	---
2006	242 <sup>8</sup> (274 <sup>5</sup> incl. Groundhog?)	prob. 32 <sup>5,8</sup>	239 (212-375) <sup>8</sup>	---	422 <sup>4</sup> / 481 <sup>8</sup>	<u>242/274</u>
2007	---	---	---	---	---	---
2008	[census incomplete] <sup>6</sup>	23 <sup>6</sup>	---	---	---	<u>~213<sup>13</sup></u>
2009	---	---	---	---	---	---
2010	---	---	---	---	---	---
2011	172 <sup>9</sup> (= 178 w Groundhog)	6 <sup>9</sup>	---	---	---	<u>172/178</u>
2012	---	---	---	90 <sup>8</sup>	---	---
2013	133 <sup>8</sup> / 121 <sup>9</sup> / 133 <sup>10</sup> (=146 w Groundhog)	13 <sup>8</sup> / 11 <sup>9</sup>	259 <sup>7,8</sup>	---	392 <sup>8</sup>	<u>133/146</u>
2014	---	---	---	---	341 <sup>8</sup>	---
2015	~121 <sup>10</sup> (=135 w Groundhog)	14 <sup>10</sup>	200 <sup>10</sup>	---	---	<u>~121<sup>14</sup>/135</u>
2016	---	19 <sup>10</sup>	---	72 <sup>10</sup>	---	<u>~115<sup>15</sup></u>

<sup>1</sup>[Page 92 in] Thomas, D.C. & D.R. Gray (2002). Update COSEWIC status report on the woodland caribou Rangifer tarandus caribou in Canada. Pages 1-98 in: COSEWIC assessment and update

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- <sup>2</sup>[Page 6 *in*] Anonymous (2002). A strategy for the recovery of Mountain Caribou in British Columbia. BC Ministry of Water, Land and Air Protection. 73 pages.
- <sup>3</sup>[Page 15 *in*] Anonymous (2005). Recovery Implementation Plan for Threatened Woodland Caribou (*Rangifer tarandus caribou*) in the Hart and Cariboo Mountains Recovery Area, British Columbia. August 2005.
- <sup>4</sup>[Appendix 2 *in*] Hatter, I. (2006). Mountain Caribou Survey Results, Subpopulation Trends and Extinction Risk. 9 pages + 10 figs & tables.
- <sup>5</sup>Anonymous (2004). Mountain Caribou Recovery Implementation Plan Map: [https://www.Mountain%2BCaribou%2BRecovery%2BImplementation%2BPlan%2Bmap\\*&spell=1&sa=X&ved=0ahUKEwjWyf71\\_nSAhVB6CwKHWEaBngQvwUIGSgA&biw=1012&bih=834](https://www.Mountain%2BCaribou%2BRecovery%2BImplementation%2BPlan%2Bmap*&spell=1&sa=X&ved=0ahUKEwjWyf71_nSAhVB6CwKHWEaBngQvwUIGSgA&biw=1012&bih=834) [accessed 28 Mar 2017].
- <sup>6</sup>Furk, K. (2008). Population Census of Mountain Caribou in Wells Gray Park, the North Thompson Watershed and a portion of the Adams River Watershed of the Ministry of Environment Thompson Region. BC Ministry of Environment, Thompson Region and BC Ministry of Forests Research Branch.
- <sup>7</sup>[Pages 10-11 *in*] Environment Canada (2014). Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. viii + 103 pages.
- <sup>8</sup>[Page 97 *in*] COSEWIC (2014). COSEWIC assessment and status report on the Caribou *Rangifer tarandus*, Northern Mountain population, Central Mountain population and Southern Mountain population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxii + 113 pp. ([www.registrelep-sararegistry.gc.ca/default\\_e.cfm](http://www.registrelep-sararegistry.gc.ca/default_e.cfm)).
- <sup>9</sup>John Surgenor, B.C. Ministry of Environment, pers. comm. 2015. [in e-litt. to Louise Ludham-Taylor 19 June 2015]
- <sup>10</sup>[Pages 11 & 113 *in*] Anonymous (2017). Canada-British Columbia Southern Mountain Caribou (Central Group) Protection Study February 2017. 113 pages.
- <sup>11</sup>~310 = interpolated between 315 and ~294.
- <sup>12</sup>~294 = 325 – 31.
- <sup>13</sup>~213 = interpolated between 242 and 172.
- <sup>14</sup>~ estimate by John Surgenor, B.C. Ministry of Environment, 2016.
- <sup>15</sup>~115 = assumes a continuing decline of ~5 caribou per year based on 2013 and 2015 census numbers for the Wells Gray (south) herd.

**Appendix F.**  
**Map of Critical Habitat, Wells Gray-Thompson Local Population Unit,**  
**from**  
**“Recovery Strategy for the Woodland Caribou, Southern Mountain population**  
**(*Rangifer tarandus caribou*) in Canada,” 2014, page 87**



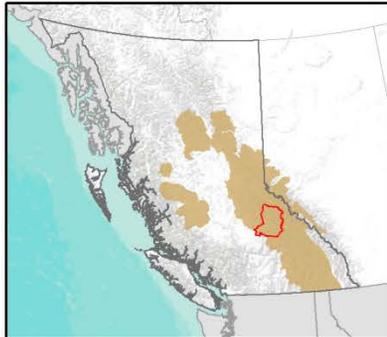
 Environment Canada / Environnement Canada

**Southern Mountain Caribou**  
*(Rangifer tarandus caribou)*  
**Critical Habitat**  
 Wells Gray-Thompson  
 Local Population Unit  
 British Columbia

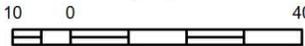
**Legend**

-  Local Population Unit
-  Subpopulation Boundary
-  Critical Habitat (High/Low Elevation Range)<sup>1</sup>
-  Critical Habitat (Matrix Range)<sup>1</sup>
-  Protected Area<sup>1,2</sup>

<sup>1</sup>Mapped critical habitat is based on current best available information. Further work is required to complete mapping and identification of critical habitat, including that noted in the Schedule of Studies. Type 2 Matrix range may exist outside of the LPU boundary. As information becomes available, maps will be updated to reflect this. <sup>2</sup>Includes National Parks, Provincial Parks and Protected Areas, Ecological Reserves, and Recreation Areas.



UTM Zone Number 11  
 North American Datum 1983  
 1:1,300,000


  
 Kilometres

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