

December 14, 2017

The Honourable Catherine McKenna Minister of Environment and Climate Change House of Commons Ottawa, Ontario K1A 0A6 Catherine.McKenna@parl.gc.ca

VIA ELECTRONIC MAIL

Dear Minister McKenna:

Re: Petition for an Emergency Order to protect Southern Mountain Caribou (Designatable Unit 9), pursuant to section 80 of the *Species at Risk Act*

On behalf of the Petitioner Valhalla Wilderness Society, we request that you immediately recommend that Federal Cabinet issue an emergency order to protect the endangered 10 most-southerly local populations of Southern Mountain Caribou (Designatable Unit 9) and the habitat they need to survive and recover. This request is made pursuant to section 80 of the *Species at Risk Act* ("SARA")

The facts presented in the Petition below -- facts already available within your Department -- prove conclusively that the said Caribou face imminent threats to their survival and recovery. By law, s. 80(2) compels you to recommend an emergency order if you are of the opinion that a species faces such imminent threats.

In this situation there is no doubt that these caribou face such imminent threats. This is clearly an emergency: at this very season caribou are migrating down from the high country to low elevation forests that they need to survive. Photo 1 shows that this is not hypothetical:



Photo 1. Five mountain caribou in low-elevation cedar-hemlock forest near Nakusp. Photo taken November 14, 2017 through the windshield by Craig Pettitt at 50°16.680' N x 117°45.635 W. This is about 10 km outside of (downhill from) the area protected by the BC recovery plan, but within the zone designated as "critical habitat – matrix" by Environment Canada (2014b). These five caribou are 18% of the total remaining caribou in a herd that only 20 years ago numbered almost 300.

These caribou will not find the mature forest they need for winter forage and to escape from wolves. Instead, they face clear cuts and active logging (Photo 2):



Photo 2. Smoke from logging slash burning in the Nakusp caribou population winter range. Photo taken by Lee Harding on 23 October 2017 at Galena Bay. Recent clear cuts can be seen. All of the recent logging has been in "critical habitat – matrix" as designated by Environment Canada (2014b).

Four of the 10 local populations discussed below (the southern group of Southern Mountain Caribou) are extinct or nearly so -- and five others are approaching extinction. All 10 populations have declined dramatically since the 2008 provincial recovery plan, and continued to decline after the 2014 federal recovery strategy.

As noted below, your own Department and its caribou recovery strategy have acknowledged:

For southern mountain caribou Local Population Units that are declining, stabilizing the LPU by halting its decline will require immediate action...

A section 80 order is urgently needed because, as Environment Canada (2014b) and COSEWIC (COSEWIC 2014) have noted, too little low elevation range now remains for the populations' requirements and **any** further logging reduces their chances of survival. Moreover, by late winter, caribou will move up in elevation to where the deep snow is compact enough to support them as they forage for arboreal lichens—their sole winter food—but they will be chased away by snowmobiles that have become pervasive in those habitats.

Southern Mountain Caribou face this plight because the British Columbia government irrationally continues to authorize both timber harvest and motorized winter recreation in federally-defined "Critical Habitat" of Mountain Caribou.

The plight of these caribou is exacerbated by Canada's continued failure to complete the identification of all relevant critical habitats for Southern Mountain Caribou so that protections can be implemented – despite Canada's commitment to do so by 2014.¹

The arguments and data presented in the attached petition focus on Designatable Unit 9 (the southern group of the Southern Mountain Caribou subpopulation). However, your Department's own documents show that other groups of the Southern Mountain Caribou subpopulation, and of other subpopulations, are similarly declining -- and several of them have also gone extinct. Therefore, we urge equal actions for those groups, as appropriate for their population status and threats.

¹ Such critical habitat mapping of all relevant ranges of Southern Mountain Caribou was scheduled to be completed in 2014, as committed to in Environment Canada. 2014. *Recovery Strategy for the Woodland Caribou, Southern Mountain population in Canada*. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa at p. 49.

This is an emergency. These caribou will not survive without your intervention. And future generations will judge us harshly if we allow populations of Southern Mountain Caribou – powerful icons of Canadian wilderness -- to go extinct.

Respectfully submitted on behalf of Valhalla Wilderness Society,

Calvin Sandtom

Calvin Sandborn, Barrister and Solicitor

Chelsea Harris, Law Student²

² We would like to thank Sean Nixon of Ecojustice Canada for reviewing and commenting on this Petition.

Petition for an emergency order under section 80(2) of the Species at Risk Act to immediately stop logging and motorized winter recreation in critical winter habitats of the Southern Mountain Caribou subpopulation of woodland caribou (Rangifer tarandus caribou).

20 November 2017

Edited by Dr. Lee Harding, former Canadian Wildlife Service Senior Scientist

Submitted by the Valhalla Wilderness Society

THE VALHALLA



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I. Legal Principles relating to the Species at Risk Act ("SARA")

A. Purposes

The purposes of the *Species at Risk Act* (SARA) are found in s.6 of the Act (direct quotes from legislation are indented and given in italics):

...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.

Note that Southern Mountain Caribou are "wildlife species" within the meaning of SARA, and are listed as a threatened species on schedule 1 of the *Species at Risk Act*.

B. Preamble

The Preamble to SARA explicitly recognizes the fundamental ecological principle that "the habitat of species at risk is key to their conservation". The Preamble to SARA also includes the following important Government commitment:

The Government of Canada is committed to conserving biological diversity and to the 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.

The Minister is therefore required to act in a precautionary manner in deciding whether to make recommendations for the protection of Southern Mountain Caribou and their habitat under SARA. We ask that the Minister's consideration of this request be guided by this precautionary approach of not postponing action when an at-risk species faces a threat of serious or irreversible damage to individuals or to the habitat the species needs for its survival and recovery.

The Supreme Court of Canada in *114957 Canada Ltée (Spray-Tech, Société d'arrosage) v. Hudson (Ville)* 2001 SCC 40 at paragraph 31 has further clarified the appropriate application of the precautionary principle towards policy measures in the face of a lack of full scientific certainty:

.... In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Note that in the context of a caribou's generational turnover time (a criterion that COSEWIC uses to assess status of wildlife species), there is nothing more irreversible than clear-cut logging of old-growth caribou winter habitat.

The inclusion of the precautionary principle in SARA's preamble means that the provisions of the Act must be given a generous and liberal interpretation, with ambiguity resolved in favour of creating a higher likelihood that the species at risk will survive and recover.

Notwithstanding, in this particular instance there is no real uncertainty about the need for urgent action. There is no uncertainty as to what has caused and continues to cause the alarming demise of the caribou at issue: clear-cut logging destroys their winter habitat and snowmobiles and heli-skiing chase them from their winter range. Nor is there uncertainty as to the distribution of suitable habitat and the current and former distribution of caribou across their ranges: all this has been mapped and well-described in published, peer-reviewed reports.

C. Section 11

Section 11 enables a federal minister to enter into an agreement with any other government in Canada, organization, or person to benefit a species at risk or enhance its survival in the wild. These agreements must provide for the taking of conservation measures and any other measures consistent with the Species at Risk Act, including measures with respect to:

- monitoring the status of a species
- developing and implementing recovery strategies, action plans, and management plans
- protecting the species' habitat, including its critical habitat
- undertaking research projects in support of recovery efforts for the species

[We are aware that on 23 November 2017, Environment Canada and Climate Change proposed a draft agreement with British Columbia that "describes how the parties will work together to support the survival and recovery of southern mountain caribou, starting with the population known as the Central Group."³ However positive this proposed agreement may become for the Central Group, it does nothing to help the Southern Mountain Caribou in Designatable Unit 9 that are the subject of this Petition.]

D. Critical Habitat and Recovery Planning

Section 2 of SARA defines critical habitat as:

....the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.

When a recovery strategy for a species at risk is created, the strategy must identify critical habitat to the extent possible, based on the best available information. If the available information is inadequate to identify critical habitat, the minister must include a schedule of studies to identify critical habitat:

³ <u>https://www.canada.ca/en/environment-climate-change/news/2017/11/canada-british_columbiaconservationagreementforsouthernmountainc.html</u>

41. (1) If the competent minister determines that the recovery of the listed wildlife species is feasible, the recovery strategy must address the threats to the survival of the species identified by COSEWIC, **including any loss of habitat**, and must include:

[....]

(c) an identification of the species' critical habitat, to the extent possible, based on the best available information....

(c.1) **a schedule of studies to identify critical habitat**, where available information is inadequate;

[emphasis added]

Further, the statute requires that the precautionary principle be followed when preparing a recovery strategy:

38. In preparing a recovery strategy, action plan or management plan, the competent minister must consider the commitment of the Government of Canada to conserving biological diversity and to the principle that, **if there are threats of serious or irreversible damage to the listed 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.**

[emphasis added]

The recovery strategy may be amended at any time by the Minister:

45. (1) The competent minister may at any time amend the recovery strategy. A copy of the amendment must be included in the public registry.

Note that the recovery strategy for the Southern Mountain Caribou promised to update critical habitat identification by the end of 2014, yet that promised identification of critical habitat has not yet been completed. Under court order (Federal Court 2014), your Department revised the January 2014 Recovery Strategy (Environment Canada 2014a) to add preliminary delineation of Critical Habitat and published a new version in May 2014 in which **it committed to complete delineation and description of Critical Habitat by the end of 2014** (Environment Canada 2014b). That commitment has not been honoured.

E. Emergency Order

Cabinet can order emergency protections for a species upon the Minister's recommendation:

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.

(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.** [emphasis added] An emergency order may include provisions prohibiting activities that may adversely affect the species and the habitat necessary for its survival and recovery on provincial lands:

80 (4) The emergency order may

[...]

(c) with respect to any other species,

(i) on federal land, in the exclusive economic zone of Canada or on the continental shelf of Canada,

(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 requiring the doing of things that protect the species and that habitat and provisions prohibiting activities that may adversely affect the species and that habitat, and...

(ii) on land other than land referred to in subparagraph (i)...

The terms 'imminent threats', 'survival' and 'recovery' are not defined in SARA. However, the Federal Court in *Centre Québécois du droit de l'environnement v Canada (Environment),* 2015 FCC 773 at paragraph 23 ("Centre Québécois"), sheds some light on the latter of these terms:

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."

The Federal Court in *Centre Québécois* at paragraph 76 sheds further light on the interpretation of s 80(2) of SARA, particularly on the use of the precautionary principle and the reasoning that must guide ministerial determinations on the imminent threats to a species' survival or recovery:

The Minister **is required to act** in accordance with the federal Act. The precautionary principle applies to material determinations made under the federal Act. This principle stands in contrast to administrative or ministerial laissez-faire. Where no provincial measure exists to **sufficiently** protect a wild species registered on the federal List, an imminent threat to the survival or recovery of the species can obviously be expected in the relatively short term. The reasoning applied must conform to the spirit and intent of the federal Act, as well as any rational, objective criteria previously used within the Department to judge the imminence of a threat. [emphasis added] Therefore, the Minister is required to act in accordance with the purposes and scheme of SARA. Section 80(2) requires the Minister to recommend an emergency order if the Minister is of the opinion that the "species faces imminent threats" to either recovery or survival. In making a decision under that section — that is, in assessing the existence of imminent threats to survival or recovery—the Minister is required to apply the precautionary principle. Note that the word "sufficiently" in *Centre Québécois* above implies that the Minister **must** appraise the province's measures with respect to their effectiveness in protecting the species and its habitat. She may not simply assume that if provincial measures are in place, she has discharged her responsibilities under SARA.

This is precisely the dire situation of the mountain caribou at issue here -- provincial measures are not sufficiently protecting them, as detailed below.

F. National Accord for the Protection of Species at Risk

The provincial, territorial and the federal governments are all signatories to the 1996 National Accord for the Protection of Species at Risk.⁴ Under this Accord, the provinces and territories committed to establishing complementary legislation and programs that provide for effective protection of species at risk throughout Canada, and that will, among other things:

d. Provide immediate legal protection for threatened or endangered species;

e. Provide protection for the habitat of threatened or endangered species;

...

i. Implement recovery plans in a timely fashion; and

...

n. Provide for effective enforcement.

The National Accord was referenced numerous times in Parliamentary debates during the passage of SARA regarding the responsibilities of the provinces and territories to protect species. The provincial, territorial and federal governments all have responsibilities to protect species and their habitat. SARA allows the federal government to intervene to protect a species on provincial or territorial lands when the species faces an imminent threat to its survival or recovery and/or when the provinces or territories are not providing effective legal protection for the species, its residences or its critical habitat.⁵

As demonstrated below, by its actions -- as well as their results -- the Province is clearly in abrogation of its responsibilities under the 1996 *national Accord for the Protection of Species at Risk* and the 2005 *Canada–British Columbia Agreement on Species at Risk*. Since these agreements were intended to fulfill,

⁴ National Accord for the Protection of Species at Risk, Federal, Provincial and Territorial Governments of Canada (1996), http://www.gov.ns.ca/natr/wildlife/genstatus/pdf/specris.pdf.

⁵ Species at Risk Act, sections 61 and 80.

in part, Canada's obligations under the United Nations Convention on Biological Diversity, it would seem that Canada is in default internationally as well.

II. Decline of Mountain Caribou

G. Mountain Caribou Subpopulations

The Central and Southern Mountain Caribou are endangered subpopulations of Canada's woodland caribou (*Rangifer tarandus caribou*). The Southern and Central subpopulations occur only in central and eastern British Columbia ("BC") and western Alberta, with "hundreds" formerly ranging into northern Idaho and Washington (COSEWIC 2014; Wiles 2017). **They have been assessed by COSEWIC as endangered, unique and irreplaceable.** The subpopulations are further divided into Local Population Units (LPU) as shown in Figure 1.

The federally-designated Southern Mountain Caribou subpopulation equates to "Mountain Caribou" as designated by the province; BC divides these into northern, central and southern "groups" based on somewhat different environments and consequent ecology and behaviours. This petition concerns the 10 most-southerly local populations of Southern Mountain Caribou (Designatable Unit 9) as defined by your department (COSEWIC 2011; Environment Canada 2014b); or the "southern group" in BC parlance. They live in the Monashee, Selkirk and Purcell ranges of the Columbia Mountains.

The 10 local populations in Designatable Unit 9 at issue here are: South Selkirks, Purcells South, Purcells Central, Nakusp (also called Central Selkirk or Central Kootenay), Monashees, Duncan, Frisby-Boulder, Columbia South, Columbia North, and Central Rockies (also called Kinbasket). Starting recently, the Duncan herd has sometimes been combined with the Nakusp herd and at other times not. Figure 1 shows both within the Central Kootenay LPU; they are discussed separately herein and in Figure 5 of Appendix 1. An eleventh local population, Purcells North, had 10–30 caribou in the mid-1970s (Russell et al., 1982, cited by Stevenson and Hatler 1985), but has been extinct since at least 2002 and is not shown in Figure 1.



Figure 1. Northern, Central and Southern subpopulations of woodland caribou as defined by COSEWIC and Environment Canada. Local Population Units (LPU) correspond with provincially designated Mountain Caribou Planning Units, or, colloquially, "herds". From Environment Canada 2017.

H. Ecological Distinctiveness

Southern Mountain Caribou habitats are so well known and so thoroughly reviewed by Environment Canada (2014b; 2017) and COSEWIC (2014) that more than a cursory summary would be redundant here. For the purpose of this Petition, we will limit this review to:

- 1. Why do they need extensive, intact forest as winter range?
- 2. How is their ecology distinct from more northerly groups of Mountain Caribou? and,
- 3. How is their ecological distinctiveness reflected in their genetic distinctiveness?

In winter, Mountain Caribou depend most heavily on mature and old stands of forest on slopes of less than 45% gradients (Stevenson et al. 2001). They require large seasonal ranges of relatively undisturbed, interconnected habitat that allow the caribou to separate themselves from predators (extensive science summarized by Environment Canada 2014b). Access to a broad distribution of habitat also allows them to modify their geographic range use in response to both natural and human-caused habitat disturbances (summarized by Environment Canada 2014b).

Both Central and Southern Mountain Caribou require abundant arboreal lichens (those that grow on trees) for their survival, particularly in winter (Terry et al. 2000). Both have evolved a unique, double migration (Edwards 1954; Edwards 1958; Edwards and Ritcey 1959; Edwards *et al.* 1960): in spring they calve in alpine habitats near tree line, spend their summers in high elevation subalpine/alpine habitats

and then in early winter descend to low elevation forests (the cedar-hemlock zone in the case of the southern group) as the snow deepens higher up. They find a variety of evergreen forage plants there, such as false box (Pachistima myrsinites), which is high in protein and may be an important supplement to their diet throughout their range in the Columbia Mountains (Terry et al. 1996; Kinley et al. 2003; Serrouya et al. 2007). Windfall lichens are also important. As snow deepens they climb again to the Engelmann spruce-subalpine fir (ESSF) zone in early to mid-winter where they are totally dependent on arboreal lichens. They descend again to low elevation in the spring to seek the first early growth, and then repair again to subalpine/alpine habitats in summer where forbs (non-woody plants that are not grasses) and grasses constitute their main diet. This double migration pattern is even more striking for the more southerly herds treated herein (Freddy 1974; Scott and Servheen 1985; Antifeau 1987; Simpson et al. 1987; Simpson and Woods 1987; Rominger and Oldemeyer 1989; Servheen and Lyon 1989; Rominger et al. 1994; Apps and Kinley 2000; Hamilton et al. 2000; Apps et al. 2001; Poole and Mowat 2001; Stevenson et al. 2001; Hamilton and Wilson 2002; Newhouse and Kinley 2002; Utzig 2002; Hamilton and Wilson 2003; Wittmer 2004; Goward and Campbell 2005; Wittmer et al. 2005a; Apps and McLellan 2006; Kinley et al. 2006; Wittmer et al. 2006; Kinley 2007; Serrouya et al. 2007; Wittmer et al. 2007; Serrouya et al. 2008).

Arboreal lichens grow slowly: old and mature forests provide an abundance of lichens not available in younger forests (summarized by Environment Canada 2014b). Southern Mountain Caribou are entirely dependent for three or more months in mid-late winter on tree lichens, which are their sole food at this critical survival period. By contrast, Central Mountain Caribou have a mixed foraging strategy, with some individuals or herds tending to rely more on terrestrial lichens at certain times and places, depending on the snow cover. However, even these individuals or herds also require old forests with abundant tree lichens in the overall mix of seasonally available forage.

The two subpopulations of caribou have evolved their distinct ecological behaviours because of the qualitative and quantitative differences in snow cover (reviewed by COSEWIC 2011; 2014). Snow in the Columbia Mountains is very deep (e.g., > 12 meters may fall over the winter at Revelstoke) and very dense, relative to the shallower, less dense snow cover to the north. In early winter mountain caribou habitat, the dense canopies of the old-growth cedar-hemlock forest intercept snow, resulting in lower snow depths on the forest floor compared to clear-cut land. The low snow cover allows the caribou to dig for plants, such as false box, and forage on lichens from litter fall. When the snow becomes too deep for digging at low elevation, there is usually a deep, consolidated snowpack in the subalpine. Unlike other mountain cervids, mountain caribou have evolved a unique anatomical feature where their hooves grow in an enlarged spread-out pattern that enables them to travel easily on packed subalpine snow. Without this evolutionary feature, the caribou would not be able to move around easily on deep packed subalpine snow and access the tree lichens for food (Kinley et al. 2006).

By contrast, the Central subpopulation caribou can often find terrestrial lichens at high elevation where the wind has blown the lighter snow away; and because the snow is less dense, they can dig through it to reach terrestrial lichens. This is impossible for the Southern Mountain Caribou.

In addition to providing Mountain Caribou with a much-needed food source, old and mature forests also help keep caribou spatially separated from other prey species such as elk and moose, and therefore from predators. Mountain Caribou ranges that have:

- 1. high levels of habitat disturbance
- 2. young forests, and
- 3. lower levels of old growth forest

are correlated to lower caribou survival rates (Wittmer 2004; Wittmer *et al.* 2005b; Wittmer *et al.* 2007). For the southern groups in the Columbia Mountains, early winter habitat is low- to mid-elevation Interior Cedar-Hemlock (ICH) forest, at least 140 years old: 47% of winter satellite telemetry locations occurred in forests between 241 to 250 years old, and 42% in forest older than 250 years (summarized by Environment Canada 2014b). The Columbia herds in the Revelstoke region spend 30-50% of the year in lower elevation cedar-hemlock forest (Serrouya *et al.* 2008; Serrouya and McLellan 2017). In the South Selkirk Mountains from southern BC and across the border into the US, 49% of early-winter habitat was hemlock-leading cedar-hemlock (Servheen and Lyon 1989), although the fragmented remnants of that local population today are isolated at higher elevations in BC (DeGroot and Wakkinen 2013), and they are now rarely seen on the US side (Wiles 2017).

I. Genetic Distinctiveness

Woodland caribou evolved as a subspecies distinct from barren-ground caribou (*R. t. groenlandicus*) and other caribou before the last ice age (McDevitt *et al.* 2009; Weckworth *et al.* 2012; Yannic *et al.* 2013). During the last ice age, however, woodland caribou became isolated in at least three refugia: in the Rocky Mountains, in forests west of the Mississippi River and in Appalachia (Klütsch *et al.* 2012; Weckworth *et al.* 2012). Isolated, they adapted to their very different habitats. As the glaciers receded, these caribou expanded northwards, each ecotype retaining its distinctiveness and further adapting genetically and behaviourally to their new environments. Those from the Rocky Mountain refugium were the ancestors of the Southern Mountain Caribou subpopulation.⁶ Those of the Central Mountain Caribou subpopulation had a different history: they have a mixed ancestry that includes mountain and prairie woodland ecotypes (McDevitt et al. 2009). Within the Southern Mountain Caribou subpopulation, every local population sampled is genetically distinct from all the others (Zittlau 2004; Cronin *et al.* 2005; Serrouya *et al.* 2012), and these as a group are distinct from the Central Mountain and other subpopulations (Eger *et al.* 1999; McLoughlin *et al.* 2004).

Ecological and genetic distinctiveness of the Southern Mountain subpopulation was recognized by COSEWIC (2011; 2014). As Ray *et al.* (2015) commented, referring to Designatable Unit (DU) 9:

Caribou of the Southern Mountain DU differ from Central and Northern Mountain DU caribou based on inherited traits for behavioural strategies and habitat selection that have resulted from the steep terrain and deep snow... Hence, this group of caribou differs markedly from all other

⁶ A fourth refugium on the British Columbia coast may have given rise to the extinct Dawson caribou, *R. t. dawsoni*, formerly of the Queen Charlotte Islands.

caribou, as they have persisted in an ecological setting unique to the species that has given rise to local adaptations.

Genetic and ecological distinctiveness adds urgency to their need for protection and protection of the habitats to which they are uniquely adapted. When they are gone, they are gone forever.

J. Critical Habitats of Southern Mountain Caribou

Seasonal Habitats

In the designation of critical habitats in the recovery strategy as required by SARA, Environment Canada (2014b:iv) noted that, "critical habitat for southern mountain caribou is identified as habitat possessing biophysical attributes required by southern mountain caribou to carry out life processes". The federal recovery strategy further stipulates for the Southern Mountain Caribou that critical habitat will include high elevation winter and summer range for all groups, plus low-elevation early winter and spring range. Habitat attributes and functions are so well known, and summarized by Environment Canada (2014b), that detailed review is unnecessary here.

One point, however, bears repeating. During calving in the spring, and when calves are most vulnerable in the early summer, habitat that is separated from predators is especially critical. Mountain Caribou that rely on high elevation alpine or subalpine habitat experience higher rates of calf survival (Simpson et al. 1987; Simpson and Woods 1987). Simpson found that caribou in the Columbia Mountains used "unpredictable ranges" in spring and summer, and said it may be a "useful predator avoidance strategy" (Simpson et al. 1987; Simpson and Woods 1987). Large tracts of old forest distributed across the landscape provide separation between their calving areas and the valley bottoms where moose, elk and deer, and therefore wolves, are more abundant (Bergerud and Elliot 1986; Bergerud and Page 1987; Bergerud and Ballard 1988; Bergerud *et al.* 1990; Bergerud 1992; Bergerud and Elliott 1998; Wittmer 2004; Wittmer *et al.* 2005a; Wittmer *et al.* 2005b). Likewise, in winter, these and other authors showed that caribou need extensive, mature, low-elevation forest to provide separation and escape from wolves, as well as to provide forage not available higher up.

Matrix Habitat

For this reason, Environment Canada (2014b) defined "matrix" range for Southern Mountain Caribou, which is in addition to seasonal ranges within their annual range. Matrix range includes seasonal migration areas -- as well as areas surrounding annual ranges where predator/prey dynamics influence predation within the annual range. Relatively undisturbed matrix range is necessary for seasonal migrations and to provide the connectivity between ranges that reduces risk of predation, maintains or increases genetic diversity and facilitates response to changing conditions caused by climate change (COSEWIC 2014). Matrix habitat allows Mountain Caribou to move among habitats that have the different resources needed to satisfy their life history. The habitat connectivity and space provided by matrix habitat also allow Mountain Caribou to respond to habitat disturbance such as wildfires, and habitat recovery (Saher and Schmiegelow 2005; Environment Canada 2014b).

Environment Canada (2014b:47) asserted that, unlike the Central and Northern groups, which could tolerate some disturbance up to 35% of area of the matrix habitat across the landscape, the:

... undisturbed threshold for the Southern Group, where the high and low elevation seasonal ranges are identified essentially as 100% of the remaining amount, and with minimal disturbance. ... low elevation spring and/or early winter range for the Southern Group, critical habitat includes that which is currently undisturbed as well as adjacent habitat that over time would become undisturbed through restoration.

Environment Canada (2014b:99) noted that:

Historically, Type 2 matrix habitat contained good quality range for southern mountain caribou in the Southern Group prior to extensive habitat alteration due to industrial activities.

In other words, timber harvest has already removed identified critical habitat old forests that caribou need at both high and low elevations, as well as matrix forests mainly at low elevations, beyond the disturbance threshold that caribou can tolerate -- and there should be no more logging.

III. Failure of BC Provincial Recovery Plans

As concern over declining populations and calls for protection mounted (Edwards 1954; Freddy 1974; Harding 1975; Bergerud 1978; 1979; Harding 1985a; b; Scott and Servheen 1985), the BC Ministry of Forests convened a workshop on caribou in 1985. Acknowledging the threats, BC appointed a committee to work on a recovery strategy in 1988, culminating in a preliminary recovery strategy in 1994 (Stevenson et al. 1994). However, this was not implemented because the committee called for restrictions on timber harvest in critical habitats. The government appointed another team, the Mountain Caribou Technical Advisory Committee, that included some of the same members. It produced another recovery strategy in 2002 (Kinley 2001; Stevenson *et al.* 2001; Kinley 2002; Mountain Caribou Technical Advisory Committee 2002). It, too, was rejected at the political level because it recommended limiting logging in critical habitats.

The provincial government assessed the conservation status for the southern mountain caribou as S1 (Red List) on March 3, 2003. It confirmed this assessment again in 2006 (http://a100.gov.bc.ca/pub/eswp/esr.do?id=16822, downloaded March 29, 2008).

In 2005, the BC Government reconstituted the recovery team as the "Mountain Caribou Science Team," which produced a number of scientific study summaries and proposed action plans. It was supplemented by regional teams of biologists, timber company representatives and ENGO representatives. The process was managed by senior managers in a Directors Committee who reported to a group of Cabinet Ministers. The final plan was produced in 2008, with some legal mechanisms coming into force in 2009. This is discussed further below.

Meanwhile, mountain caribou (defined federally at that time to include populations in the central Coast Range) caught the attention of the Canadian Wildlife Service because, as a transboundary population,

they would come under the impending new *Species at Risk Act*. COSEWIC listed them as "threatened" in 2002 (http://www.sararegistry.gc.ca/ downloaded 27 March 2008). A federal "response statement" pursuant to the *Species at Risk Act*, which came into effect in 2004 (http://www.sararegistry.gc.ca/ downloaded 27 March 2008) stated that:

Local herds in the Southern Mountains 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.

The *Species at Risk Act* (SARA s.42 & 43) sets timelines for completion of recovery strategies for species listed in Schedule 1 of the Act and requires that these strategies are prepared in cooperation and consultation with provincial and territorial governments, wildlife management boards, Aboriginal organizations and stakeholders the Minister considers appropriate. However, the proposed recovery strategy for the Southern Mountain caribou population, due for posting on the SARA Public Registry by June 5, 2007 for a 60-day public comment period, was in default of this legal requirement. On June 6, 2007, the federal government posted the following statement as justification for the delay (http://www.sararegistry.gc.ca/ downloaded 27 March 2008):

The recovery strategy for this species is in final stages of preparation. After it is completed, the Province of British Columbia will provide it to the Government of Canada for adoption and posting on the SARA Registry. Environment Canada will continue to work in cooperation with the Province of British Columbia to ensure a draft is completed and posted on the SARA Public Registry in a timely manner.

The same notice was still posted there years later, and a proposed recovery strategy was not produced until seven years later in January, 2014 (Environment Canada 2014a) -- and that only pursuant to a court order in a suit brought by Western Canada Wilderness Committee and others (Federal Court 2014). However, that strategy failed to identify critical habitat for the species, as required by SARA. Environment Canada then produced a new recovery strategy in May, 2014, that was identical except that it partially identified critical habitat and included 24 critical habitat maps for the southern subpopulation's local population units (Environment Canada 2014b). This second version committed to completing full mapping and description of critical habitat by the end of 2014. **Regrettably, this key commitment remains unfulfilled and delinquent.**

The Federal Recovery Strategy (Environment Canada 2014b) has identified, as its recovery goal, achieving self-sustaining populations in all local population units (LPUs) within their current distribution. All LPUs are included in this recovery goal due to their contributions to connectivity, representativeness and redundancy. The following populations and distribution objectives were set to guide recovery efforts:

- 1. stop the decline in both size and distribution of all LPUs;
- 2. maintain the current distribution within each LPU; and

3. 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.

LPUs are considered to be "self-sustaining" (Environment Canada 2014b) when:

- the LPU on average demonstrates stable or positive population growth over the short term (≤20 years), and is large enough to withstand random events and persist over the long term (≥50 years), without the need for ongoing active management intervention; and,
- 2. there is an increase to at least 100 caribou within LPUs that currently consist of fewer than 100 caribou, and there is no reduction in the number of caribou within LPUs that currently consist of over 100 caribou.

The federal recovery strategy (Environment Canada 2014b:31) requires that [emphasis added]:

For southern mountain caribou LPUs that are declining, stabilizing the LPU by halting its decline **will require immediate action**...

and notes that small LPUs (less than 50 animals) are at a greater risk of not becoming self-sustaining. According to the 2017 Canada-BC Protection Report (Environment Canada 2017), four of the Southern Mountain Caribou's 14 extant LPUs have fewer than 50 animals. This, however, understates the gravity of the population declines. Since the *COSEWIC Assessment and Status Report* (2014) and *Federal Recovery Strategy* (2014b) were released, several caribou subpopulations and LPUs have continued to steeply decline, particularly in the southern group (see population trajectory graphs in Appendix I, Figure 5). They include (total caribou, numbers from COSEWIC 2014; Environment Canada 2014b except as noted):

- 1. Southern Selkirks, augmented in 1980s and 1990s with 103 caribou; 11 in 2017—none in Washington or Idaho (DeGroot 2017b; Wiles 2017)
- 2. Central Selkirks (Nakusp), 28 in 2017 (DeGroot 2017a)
- 3. Columbia North, 152 in 2013 (Legebokow and Serrouya 2013)
- 4. Columbia South, 4 in 2016 (Serrouya et al. 2016)
- 5. Frisby-Boulder, 11 in 2013 (Legebokow and Serrouya 2013)
- 6. Kinabasket, 3 in 2008, considered extinct
- 7. Duncan, 0 in 2017 (DeGroot 2017a), considered extinct
- 8. Purcell South, 15 in 2017 after augmentation with 19 caribou from NW BC (DeGroot 2017c)
- 9. Purcell Central, 0 when last surveyed in 2009, considered extinct
- 10. Monashees, augmented with 9 caribou in 1984-1985, 1 seen in 2016, considered "functionally extirpated" (van Oort and Laubman 2016:5)

These sorry numbers reflect the failures of both the provincial recovery plan and federal recovery strategy, and they portend worse things to come for mountain caribou in BC.

From the outset, the British Columbia recovery plan was doomed to failure.

It does not exist as a single document. A 2-page news release was published on 16 October 2007, setting out the objectives and main actions to be taken. The recovery plan took shape during 2008 as a series of Government Acts and Regulations (GAR) orders accompanied by maps showing protection zones. These designated ungulate winter range (UWR) and wildlife management areas (WMA) for caribou. A separate

set of maps showed proposed snowmobile and heli-skiing closures. It is remarkable that the 2008 recovery plan was designed to recover caribou populations in only three of the 11 planning units in the southern group of Southern Mountain Caribou to a "self-sustaining" level. It was designed to maintain five of the populations at levels that would not be viable without continued intensive management, including predator control. For the remaining three units (Monashee, Kinbasket and Mt. Robson), there is no recovery plan: no ungulate winter range (UWR) designated, no limitation on timber harvest, no restriction on motorized winter recreation. These goals fall short of effective conservation and recovery standards (e.g., Simberloff 1988; e.g., Ballou *et al.* 1995; Beissinger and McCullough 2002; Noss *et al.* 2002; Soulé *et al.* 2003; Stockwell *et al.* 2003).

Timber Harvest

Prior to the 2007–2009 recovery plan, some protections for caribou habitat had been included in the various land use plans of the mid-1990s and early 2000s. For example, the Kootenay-Boundary Land Use Plan (1997; 2002) reserved from logging:

ESSF [Engelmann Spruce-Subalpine Fir biogeoclimatic zone], a minimum of 30% of the operable landbase in age class 8 or older of which at least one third must be in age class 9, [and] in the ICH [Interior Cedar-Hemlock zone] a minimum of 40% of the operable landbase in age class 8 or older of which at least one quarter must be in age class 9... (b) Access Management, Restrict snowmobiling to areas outside late winter range habitat, Avoid road access in the upland Parkland area...

Most of the area actually "protected" from logging in no-harvest zones was above the "caribou line" that essentially equated to the elevation above which the terrain was too steep to log, or there was no merchantable timber there. But this left large proportions of caribou habitat open to logging, and much was logged during 1997–2009.

The land use plans also contained "modified harvest" zones ostensibly to preserve forest attributes needed by caribou while allowing some logging, i.e., partially cutting or "selective logging". But these modified harvest zones provide less forage for caribou. The big, old trees with heavy lichen loads are taken preferentially, and the thin, young forest left has less forage value than unlogged stands (Rominger *et al.* 1994; Miège *et al.* 2001; Coxson *et al.* 2003; Stevenson and Coxson 2003) and no canopy to intercept the snow to permit browsing at ground level.

Despite specific targets expressed as achievements by specific dates (Ministry of Agriculture and Lands 2007), the process used made it virtually impossible to meet the stated goals and targets:

- 1. Arbitrary caps on caribou habitat that could be protected in each planning unit—to maintain timber flow to mills—precluded inclusion of all available, high-suitability winter habitats.
- 2. The commitment to ensure no threats to sawmill and pulp mill viability ensured that, where insufficient critical caribou habitat was left after the mills stated their needs, the caribou lost.
- 3. The commitments changed during the process. For example, the *a priori* restriction on mill viability morphed into "no net loss" of fibre supply to the mills (The Hon. Pat Bell 2008). The

Ministry of Forests continued issuing cutting permits in caribou winter range throughout the planning process.

- 4. The amount of important caribou habitat to be protected cannot be determined precisely but does not total the October 2007 BC government's commitments of 2.2 million hectares of caribou habitat or 95% of high suitability winter habitat. The approximately 1.0 million hectares in parks are not necessarily caribou habitat. They include areas of rocks, glaciers, permanent snow patches and areas that do not necessarily have the biophysical attributes of caribou habitat and have not been verified to be used by caribou.
- 5. Approximately 380,000 additional hectares of so-called protected winter habitat (the exact amount can't be determined for various technical reasons) is only nominally caribou habitat that was defined as such in the 1994-2005 land use management plans. It does not necessarily meet the biological and physical attributes of "high suitability winter caribou habitat" and has not been verified to be used by caribou. Of the 77,000 "high suitability winter habitat" that was to come from the timber harvest land base (THLB) 76,412 ha were designated, but an undefined amount is in "modified harvest" zones or non-spatialized zones; and some of it consists of lower suitability habitat that was traded for higher suitability habitat at a ratio of 2:1. A clear accounting of how much total and high suitability caribou habitat was available before October 2007 and how much has been or will be protected as a result of the recovery plan is needed.
- 6. The 2008 recovery plan, like the previous land use plans, contains large areas of "modified harvest" of various types, which are of little use to caribou.
- 7. Forest Health—the predicted amount of forest annually lost to fires and forest insect pest infestations— was not incorporated into the GAR Orders.
- 8. Since the 2008 recovery plan was announced and maps published, the provincial government has apparently changed boundaries to reduce caribou protection zones and changed the criteria within zones, e.g., by allowing a higher level of harvest in "modified harvest zones". For some northern groups of Southern Mountain Caribou, the "protection study" (Environment Canada 2017) recognized this erosion of protected area in Annex 1, Table 3, "Forest Harvesting and Oil & Gas-related authorizations issued after legislative instruments (LI) were established." This analysis has not been undertaken for the southern local populations, but ArcView maps downloaded from BC government's digital data warehouse in 2014 (e.g., an ArcView file labeled WCP_UWR_SP_polygon) contain hundreds of caribou winter range polygons that are different compared to the 2009 maps. These do not appear to increase the amount of old forest habitat preserved for caribou.

Part of the explanation for the lack of proper caribou protection in post-2009 changes to the GAR orders that were supposed to protect caribou may be found in the GAR orders themselves. For example, for the Central Selkirk, explanatory notes in the GAR order memorandum state:⁷

⁷ Order—Ungulate Winter Range, # U-4-014 Mountain Caribou Central Kootenay Planning Unit 19 December 2008. See Appendix 2 of this Petition for background on the role of GAR (Government Action Regulation) orders in protecting caribou habitat.

- 4. GWM A(3): The intent of GWM A(3) is to identify those specific circumstances where the requirements of no timber harvesting and no road building do not apply in order to provide operational flexibility around no harvest zone boundaries. The intent of this GWM is to recognize that issues arise when reconciling a mapped boundary, often mapped at a much smaller scale, to a line on the ground. All the conditions in GWM 3 must be met. Where the conditions cannot be met an exemption is required. GWM 3(d) MoE will work with MoFR to track the harvesting and road building that has occurred within the no harvest zone and make this information available to *Forest Act* agreement holders in order to meet the requirements of GWM 3(d).
 - •••
- 6. **Operability review in Planning Unit 2B:** In the Healy Trout area and the west side of the northern part of Duncan Lake, the operable area is to be removed from the no harvest zone after the 2009 operability review. At the same time any contiguous area of new inoperable area is to be added to the no harvest zone.

Moreover, timber companies had until June 30, 2010 to complete planned harvesting within one of the "no harvest" zones, and until January 1, 2028 to complete planned harvesting within six other "no harvest" zones.

Although how individual stands of critical caribou habitat were included or excluded from the BC recovery plan is too complex for summarization here (but should be subject to an audit to discover why things have gone so catastrophically wrong), one point should be made. Almost all low-elevation early winter/spring habitat in the Interior Cedar-Hemlock (ICH) biogeoclimatic zone was allocated for timber harvest. The Central Selkirk local population serves as an example:

- 1. Caribou protection zones were based on habitat inventory, caribou surveys and modeling by Hamilton and Wilson (2002; 2003), employed by timber companies Slocan Forest Products Ltd., Meadow Creek Cedar Company and Pope & Talbot Ltd.. The caribou "core herd boundaries" used by the BC recovery planners and later adopted by Environment Canada (2014b) used a statistical procedure designed to encompass the central part of an animal's home range that eliminated about 50% of radio- and telemetry locations. Most of these were in low elevation early winter/spring habitat, and were therefore not captured in either the provincial recovery plan or the federal strategy. Figure 2 illustrates this for the Central Selkirk local population. Figure 3 shows how much high-to medium suitability caribou habitat was left out of the final "core herd boundaries" and subsequently not protected by the GAR orders.
- 2. Hamilton and Wilson (2003) recommended two caribou protection zones, with "no harvest" in the central, high elevation part of the range and "partial harvest with retention of mature/old forest stand characteristics important to caribou (*i.e.*, appropriate forest stocking levels, old forest attributes and lichen productivity)" in the lower elevation portions of the range. These were carried through the planning process and largely reflected in the GAR orders for caribou summer range protection. However, partial retention was never implemented: instead, nearly

all timber harvest in the "special management" zone, or various versions of "modified harvest"—mainly low-elevation early winter/spring habitat—is by clear-cut.



Figure 2. Figure 8 from Wilson and Hamilton (2003) showing 1999-2002 caribou telemetry locations in the Central Selkirks for early winter (25 October—15 January): (a) The final BC recovery plan timber harvest restrictions were essentially based on the 50% home range contour. (b) Snowmobile closures in this area, despite the overlap of high caribou usage with daily snowmobile riding, were a fraction of those recommended.



Figure 3. Central Selkirk "Core herd boundaries" overlaid on habitat suitability maps produced by the Science Team in 2006. Suitability is shown as dark green (high suitability) and progressively lighter shades of green from high to medium suitability. Red cross-hatch zones are protected areas and Tree Farm License boundaries (red) are noted. These maps show that virtually all seasonally occupied, low-elevation winter and spring habitat were omitted from the caribou protection zones and allowed to be logged (Photo 2 gives an example).

Motorized Winter Recreation

Abundant research, summarised by COSEWIC (2014) and Environment Canada (2014b) and elsewhere, has shown that motorized winter recreation (snowmobiling and heli-skiing) drives caribou from their winter range, increases energy expenditure, causes abortion and reabsorption of fetuses in females and increases wolf predation (because wolves follow snow machine trails up into the high country where caribou are wintering). Although the Science Team produced maps in 2006 recommending snowmobile closures in critical winter ranges, it was decided at the political level (e.g., Krogel 2008) to either leave them open or manage them under Stewardship Management Agreements (SMAs) with snowmobile clubs and Best Management Practices (BMPs) for commercial backcountry recreation (CBR) tenure holders, rather than legal closures. Approximately 12 SMAs were negotiated, but were not made public. No BMPs were in place with CBR tenure holders at the time of an independent review in January, 2009 (SciWrite Environmental Sciences Ltd. 2009). An order prohibiting public snowmobile traffic in specified zones in most planning areas (all except southwest Kootenay and the three "status quo" planning areas) was signed December 15, 2008, and became effective February 15, 2009. However, only a miniscule proportion of the Science Team recommendations of 2006 were actually closed (Ministry of Agriculture and Lands 2008).

Figure 4, which should be seen in the context of point (b) in Figure 2, illustrates this:



Figure 4. Snowmobile closures for the Central Selkirks in the final BC recovery plan (Ministry of Agriculture and Lands 2008 and ArcView map dated 25 May 2010). The Science Team had recommended closures of the whole of these two polygons, based on mid-winter caribou distribution and attributes associated with mid-winter habitat; however, following negotiations with the riding clubs, only the areas where clubs said they did not ride (green) were closed.

An additional problem is that Stewardship Management Agreements and public closures are ineffective -- because there is no effective enforcement mechanism or capability, and clubs signing the agreements cannot be held accountable for the 90% of snowmobilers who do not belong to clubs.

Since the 2008 BC recovery plan, snowmobiling and heli-skiing have increased markedly, so that intensive use occurs in areas beyond those claimed as riding areas by the clubs as noted above. Therefore, caribou winter habitat that was not threatened in 2008 is threatened now. Caribou biologists monitoring caribou populations find that snow machine and ski trails are ubiquitous in caribou winter habitat, including areas that the Science Team wanted closed (e.g., DeGroot 2013; DeGroot and Wakkinen 2013; DeGroot 2017a).

Appendix 2 provides further details on the inadequacies and failures of the BC recovery plan and the federal strategy on which it is based.⁸

K. Federal Legal Protections for Mountain Caribou

When the recovery strategy for Mountain Caribou was produced in 2014, it did not identify all critical habitat. This is acknowledged by the federal government in the recovery strategy itself – the strategy explicitly states that critical habitat is only partially identified for all LPUs and, "does not currently include all critical habitat that exists for each LPU" (Environment Canada 2014b:46). Yet s. 41 requires that critical habitat be identified in a recovery strategy to the fullest extent possible – and a schedule of studies is required if critical habitat mapping is incomplete as further information is required.

The 2014 recovery strategy's schedule of studies clearly identifies 2014 as the timeline to complete mapping of critical habitat (Environment Canada 2014b:49). It calls for "Complete mapping for high elevation summer/winter range in Northern and Central Group local population units including current disturbances. Complete habitat mapping for southern mountain caribou in national and provincial parks where gaps still exist. Complete mapping of all high elevation summer and winter range for local population units in the Southern Group" (Environment Canada 2014b:49). However, today, more than three years later, the only further identification of Mountain Caribou critical habitat that has been made available on the SARA public registry is in the national parks, which are already protected areas.

It has been 15 years since the SARA was enacted in 2002, and 10 years since the provincial Implementation Strategy was announced for Mountain Caribou. Since 2002, data on every possible attribute of every inch of the Southern Mountain Caribou's range has been entered into BC government computers and those of independent researchers. There is simply no excuse for further delays in finalizing the critical habitat mapping.

⁸ Spatially, at least.

IV. Remedies

L. Emergency Orders

If the destruction of the habitat that southern mountain caribou need for survival and recovery is not stopped, there seems little chance at recovering local population units to self-sustaining levels. In BC's Mountain Caribou Science Team 2005 situation analysis of Mountain Caribou, *all populations* in the Southern Mountain Group, with the exception of the Hart Ranges in the north, were held to be at a high risk of extirpation under current conditions (Mountain Caribou Science Team 2005). The situation is worse now (Appendix 1, Figure 5), after 12 years of recovery planning and implementation.

Given the dire circumstances facing caribou at this very moment —they are moving down from the high country seeking old forests, mainly in the cedar-hemlock zone—it is clear that the listed species faces "imminent threats to its survival or recovery." If the Minister agrees with this assessment, the law requires that she recommend that Cabinet make an emergency order to stop the imminent threats to the caribou at issue, under s. 80 of SARA.

In addition, as documented above, motorized winter recreation (snowmobiling, heli-skiing) drives caribou from their winter range, increases their energy expenditure, causes abortion and increases wolf predation. Such activity clearly "harasses" and "harms" these threatened animals. Since s. 32 of SARA prohibits any person from harming or harassing a threatened species -- and provincial laws are not effectively protecting this species -- s. 34(3) of SARA comes into play. In these circumstances, S. 34(3) requires that the Minister recommend that the Governor in Council make a section 34(2) Order that the prohibition against harassing and harming the threatened species of Southern Mountain Caribou applies on provincial lands in British Columbia.

M. Other Federal Orders

After taking action to issue s. 80 and s. 34 Orders to save caribou at immediate and mortal peril this winter, the Minister and Federal Cabinet should consider longer term remedies for the province's longstanding failure to protect caribou habitats. These may include combinations of the following sections of SARA:

National Standards or Guidelines

The Minister could issue national standards or guidelines for caribou protection under s. 56 of SARA:

56 The competent minister may, after consultation with the Canadian Endangered Species Conservation Council and any person whom he or she considers appropriate, establish codes of practice, national standards or guidelines with respect to the protection of critical habitat.

These would presumably include effective enforcement measures, or measures to compel provincial authorities to enforce them and may be a useful adjunct to an effective s. 11 conservation agreement and a section 61 order, discussed below.

Section 61 Order

SARA, provides an additional direct and powerful remedy [emphasis added]:

61 (1) No person shall destroy any part of the critical habitat of a listed endangered species or a listed threatened species that is in a province or territory and that is not part of federal lands.

(2) Subsection (1) applies only to the portions of the critical habitat that the Governor in Council may, on the recommendation of the Minister, by order, specify.

(3) The Minister may make a recommendation if

(a) a provincial minister or territorial minister has requested that the recommendation be made; or

(b) the Canadian Endangered Species Conservation Council has recommended that the recommendation be made.

(4) The Minister **must** make a recommendation if he or she is of the opinion, after consultation with the appropriate provincial or territorial minister, that

(a) there are no provisions in, or other measures under, this or any other Act of Parliament that protect the particular portion of the critical habitat, including agreements under section 11; and

(b) the laws of the province or territory do not effectively protect the critical habitat.

The information summarized here and by Environment Canada (2017) itself clearly establishes that the laws of British Columbia are not effectively protecting mountain caribou in the province. Therefore, serious consideration should also be given to issuing a section 61 Order to protect mountain caribou in British Columbia.

Minister's legal obligations under SARA

The Petitioners submit that the foregoing shows indisputably that the Southern Mountain Caribou in Designatable Unit 9 face imminent threats to survival or recovery, thereby satisfying the requirements of s 80(2) and compelling you as federal Minister of the Environment and Climate Change to recommend an emergency order. The foregoing also shows that the BC government's recovery plan does not adequately address these threats and that the alarming decline of caribou will continue if you do not act soon.

The Petitioners submit, based on the foregoing, that you as the Minister must fulfill your statutory duties as set out in s 80(2), as well as in sections 34, 56, 61 described above. To do otherwise would be unlawful, unreasonable and inconsistent with the stated purposes of SARA, Parliament's intent in enacting the provisions at issue, and the precautionary principle.

The Petitioners submit that the critical components of such an order would be:

- 1. To immediately halt the destruction of the habitat that the Southern Mountain Caribou at issue need for their survival and recovery, according to the criteria for habitat destruction set out by the federal recovery strategy. Forest removal, and further fragmentation of habitat by linear corridors and roads must also be prohibited.
- 2. To immediately prohibit snowmobiles, snowcats, snowshoeing, cross-country skiing, trapping, heli-skiing and any other human activity in critical winter habitat for the Southern Mountain Caribou at issue.

We ask that you make an order under s. 80(2) and follow up with the province of British Columbia with other orders or agreements as needed to fully implement the federal recovery strategy and protect all Southern Mountain Caribou from the imminent threats they face.

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VI. Appendix 1. Graphs of Southern Mountain Caribou local populations

Figure 5. Population trajectories of 10 local populations of the Southern Mountain Caribou subpopulation. Trend lines are 2-year moving averages. Note the longer time scale for the Monashees LPU. The Central Purcell and South Selkirk local populations have been augmented with animals from northwestern BC, of a different ecotype, but survival has been poor. Data points from the mid- to late 1990s and 2013–2016 are from Environment Canada (2014b) or COSEWIC (2014). Other data points are from published, peer-reviewed sources or government reports. The Duncan "herd" has not been reported separately from Central Selkirk since 2014, but none has been seen there since then.



Figure 5 continued next page...



Figure 5, continued.

VII. Appendix 2. Failures of the BC Mountain Caribou Plans

The following comments relate to two caribou recovery plans: the Mountain Caribou Recovery Implementation Plan, MCRIP (2008) and/or the Peace North Caribou Plan (PNCP), 2013. These plans concern the southern and central groups of the Southern Mountain Caribou subpopulation, as defined by Environment Canada and COSEWIC (COSEWIC 2014; Environment Canada 2014b).

Overview

- No area was fully or permanently protected by either of the two BC caribou recovery/management plans, and the BC government has not, under any other auspices, created protected areas in the Interior Wetbelt or South Peace regions large enough to be of relevance to mountain caribou conservation. Only the parks created by previous government administrations offer complete habitat protection; but, tragically, these were almost always shaped to exclude lower elevation caribou habitat.
- 2. The BC government used the Forest Range Practices Act (FRPA), in particular Ungulate Winter Ranges (UWRs) and Wildlife Habitat Areas (WHAs), to provide legal protection to Mountain Caribou and their habitat. UWRs and WHAs are designated by the Ministry of the Environment under the Government Action Regulation (GAR) of the FRPA. FRPA only controls forestry, thus permitted activities in the UWRs and WHAs may include road clearing, oil, gas and mineral exploration, hydroelectric projects, heli-pad construction, lodges, snowmobiling and glading (grooming) of ski runs. The Oil and Gas Commission sets up separate restrictions, but these are very weak.
- 3. Many UWRs and WHAs allow some logging and road building, which means that caribou habitat continues to be fragmented, and some of these areas have already been fragmented beyond the threshold set by the federal government for caribou protection. Many UWRs and WHAs are a mixture of no logging bans and modified harvest zones. Many of them do not have spatially identified protection, but only protection of a percentage of the volume of timber. This allows timber companies to cream the most valuable old-growth on the most accessible terrain, leaving caribou poor quality forest, sometimes on steep slopes. All the UWRs and WHAs offer exemptions to logging companies. For instance, the federal Protection Study for the central group reported that 4% of no logging UWRs in the South Peace region had logging authorizations on them, amounting to 16,537 hectares. The Forest Practices Board found 66 openings totalling 1,377.7 ha. in 283,468-hectare UWR in the Blue River area, created by seven licensees from the forest, hydroelectric and tourism sectors.
- 4. Both management plans have objectives that selectively apply protective measures only to winter habitat. While there are some exceptions, on the whole habitat protection is concentrated at high elevations while habitat destruction is concentrated at lower elevations. This selectively excludes parts of the migratory route for subpopulations, therefore the plans cannot be considered to provide for the survival and recovery of these caribou.
- 5. It would be possible to actually create an increase in critical winter habitat by excluding recreation, especially motorized recreation, from these areas. Again, measures have been taken, but only half way. Some of our smallest and most endangered herds have snowmobiling and/or heli-skiing in their winter habitat and ATVs in their summer habitat.

Southern Mountain Caribou ("Mountain Caribou" in BC Parlance)

According to the 2007 Terms of Reference for the Mountain Caribou Recovery Implementation Plan (MCRIP), other public statements and subsequent updates (Ministry of Environment Lands and Parks 2007; Ministry of Forests and Range and Ministry of Energy Mines and Petroleum Resources 2007; Ministry of Environment Lands and Parks 2008; 2009), habitat protection areas, high and low suitability habitat combined, could not exceed 1%, or 115,000 hectares of the commercial Timber Harvesting Land Base (THLB) within the Southern Mountain group's range. The Allowable Annual Cut and short-term forest operations could also not be significantly affected by the new protection of caribou habitat.

Subsequent to the setting of the Terms of Reference, in closed-door negotiations with the timber industry and other "stakeholders," the allowable amount of THLB protection was reduced. Ultimately 75,044.05 hectares, or 0.65% of the THLB, by government accounting, was included in no-harvest zones (Ministry of Environment Lands and Parks 2007; Ministry of Forests and Range and Ministry of Energy Mines and Petroleum Resources 2007; Ministry of Environment Lands and Parks 2008; 2009). The remainder of the projected 380,000 hectares of new "incremental" habitat protection appears to have no legal protection.

Dr. Lee Harding, a former Canadian Wildlife Service senior scientist and manager, has documented that the GAR orders have not been issued for all areas that are considered critical caribou habitat for the Southern Mountain group (SciWrite Environmental Sciences Ltd. 2008a; b; 2009). Large areas recommended as critical caribou habitat by the BC Mountain Caribou Science Team biologists were excluded from the GAR orders. Thus, the BC recovery plan failed to protect all the habitat caribou required for their survival and recovery.

Figure 6 illustrates how severely the political and other constraints affected the final 2008 plan for timber harvests for the Nakusp (Central Selkirk, Central Kootenay) local population, as an example. The Science Team (Mountain Caribou Science Team 2006) recommendations include large zones of "modified harvest" (beige hatching in) surrounding the "no harvest zones"; in the final 2009 plan, the "no harvest zones" were larger (there is not much merchantable timber in those alpine tundra zones), but there were no "modified harvest" zones in the surrounding, lower elevation early winter/spring habitats. Similar reductions were applied to all local populations, although they differed according to which regional team was negotiating them. The map at right also shows the disconnect between the provincial plan and federal recovery strategy: there is no protection of critical "matrix" habitat in the former.



Figure 6. 2006 Science Team recommended closures (left) and final 2009 recovery plan Government Acts and Regulations (GAR) orders for caribou protection (right). GAR order layers downloaded from BC government spatial mapping web site in 2014; federal map layers provided by Environment Canada.

In order to avoid significant reduction of the commercial timber supply, the GAR orders included:

- 1. Some areas that had already been extensively logged and fragmented.
- 2. Extensive areas above the forest industry operability line usually high elevation areas with poor or sparse forest, or steep slopes which are not profitable to log.
- 3. Non-forest areas such as alpine tundra, glaciers and permanent snow patches, rocky outcrops and ridges and avalanche slide paths.

In other cases, logging companies were traded high quality forest elsewhere for forest set aside for mountain caribou. In the Revelstoke Area two caribou herds, the Columbia South and Frisby-Boulder, are on the verge of extirpation, and a third, the Columbia North herd, is declining (Figure 5). The Mountain Caribou Recovery Implementation Plan (MCRIP) granted only 7,400 hectares of new THLB protection in their planning unit in 2007.⁹ According to the Forest Practices Board (FPB), by 2013, 7,049 hectares that had previously been protected in Old-growth Management Areas (OGMAs) were removed from protection (Forest Practices Board 2013). The stated purpose was to address "mill viability" concerns. Some of these OGMA areas were mountain caribou habitat.

⁹ "Preliminary Report on the Allocation of Incremental Habitat in the Revelstoke/Shuswap Caribou Planning Unit, 2007.

The largest licensee in the TSA is Downie Timber, Ltd.; about 60-70% of its cutting area overlaps the core ranges of both the Columbia North and Columbia South herds. Downie Timber's volume of actual cut went *up* the year after the caribou recovery plan was announced, and stayed higher than the 2007 amount until 2015, when it dipped temporarily below the 2007 level. For instance, in 2012, Downie logged 130,000 cubic metres, near its legal limit: this was 47,000 cu. m. higher than in 2007 when the caribou recovery plan was announced. In 2010 clearcuts by Downie Timber Ltd. sprang up in prime Mountain Caribou habitat in La Forme Creek, a valley adjacent to Mount Revelstoke National Park, in ancient forest that would likely have been spring and early-winter habitat for the remnant Columbia South herd that resides in the park.

Inadequate regulation of motorized winter recreation

Heli-skiing

There are no maps showing heli-skiing closures because there are no closures, despite the fact that heliskiing is known to cause caribou to flee and to cause stress which can result in pregnancy failures. Some areas in the range of the Southern Mountain Caribou are covered with overlapping heli-skiing tenures held by a number of companies.

Snowmobile Closures

In 2006 the Science Team involved in the Mountain Caribou Recovery Implementation Plan (MCRIP) recommended snowmobile closures in many areas of critical winter caribou habitat. Former Canadian Wildlife Service biologist, Dr. Lee Harding, published a map showing that many of the areas recommended for closure were never closed (SciWrite Environmental Sciences Ltd. 2014). An example was given above in the main text.

The MCRIP claims 1 million hectares of land have been closed to snowmobiling, but the "closures" are actually a mixture of full closures, partial closures, closures to some people but not to others, legal closures, and voluntary closures that have resulted in numerous violations. In some cases, "closed" areas allow snowmobiling along existing roads and in clearcuts. In others, "closed" areas have open areas, or designated riding areas, in their core, and the closed portion is crossed by an open snowmobile trail, which may be lengthy.

The government offered snowmobile clubs an opportunity to avoid the closures by negotiating Stewardship Management Agreements (SMAs). The negotiations occurred behind closed doors, the general public was never notified or consulted and most of the SMAs remain inaccessible to the public to this day. The clubs generally agreed to participate in the installation of information signs and boundary signs, maintain the signs as needed, inform any snowmobilers entering the area of the presence and risk to caribou and what to do if caribou are encountered, and ensure that no caribou suffer negative impacts.

In some cases snowmobile clubs were given exclusive access to some riding areas, and even exemptions from closed areas, in return for their services. One permit found online grants an exemption from a

closure in the habitat of the Monashee herd.¹⁰ At the time (2009) it had only five animals. The exemption permit states that ONLY members of the particular snowmobile club are allowed to use the area. The Monashee herd was declared functionally extirpated in 2016. Signs posted along other snowmobile trails in Mountain Caribou habitat suggest that this was not the only instance.

A 2007-2010 Ministry of Environment monitoring report based on aerial observations of winter motorized recreation in several of the Southern Mountain LPUs' ranges, concluded that the risk of displacing caribou from preferred habitat had not been addressed by the limited areas and conditions of closure (DeGroot 2010). For instance, in the Central Selkirk Mountains (home to the Central Kootenay LPU) there are only three small areas of closure: two at Hamling Lakes and one at Silvercup Ridge. As a result, there are several areas of prime late winter caribou habitat that experience significant unmanaged snowmobile use. The report recommended closing most late winter caribou habitat to snowmobiling (DeGroot 2010:17).

Nevertheless, four years later, the yearly census report noted "suitable but unused late winter habitat that is heavily used by snowmobilers and/or snowcat operators and/or heli ski operators" (DeGroot 2015). By 2016 the Central Selkirk census reported that the subpopulation had dropped to 35 animals — a sudden decline of 61% in the five years since 2012 (DeGroot 2016). It stated:

The large increase in forestry no harvest zones in the Central Selkirk Mountains in the past decade should increase the probability that this caribou sub population can be recovered in the long term. However displacement of caribou from preferred habitat by recreational activities remains a significant concern.

The 2007-2010 report, covering three southern LPUs, documented numerous instances of noncompliance throughout the survey area. By March 2015 the situation was so severe that three top BC managers of the MCRIP issued a scathing report to the MCRIP Progress Board (Ritchie *et al.* 2015), which includes representatives of the snowmobile and heli-skiing industry. The report cited numerous violations of both legal and voluntary closures, as well as tracks showing snowmobilers riding very close to caribou.

The 2015 Annual Report of the Progress Board (Mountain Caribou Recovery Implementation Plan Progress Board 2015) notes that the snowmobile clubs represent only about 10% of sledders in BC, and that the clubs are "ill-equipped for an enforcement role" (Ritchie *et al.* 2015). It also blamed the government's failure to make some closures legal instead of voluntary:

If areas are closed for legitimate reasons, such closures should not be voluntary. Voluntary closures reduce the likelihood of public compliance with closed areas and eliminates any opportunity for enforcement.

¹⁰ Amended Permit V109-52625, between the BC Ministry of Environment and the Seymour Arm Snowmobile Club, April 21, 2009,

www.seymourarm.net/docs/SEYMOUR%20ARM%20SNOWMOBILE%20CLUB.AMENDED%2052139.pdf

At the time, snowmobile usage in mountain caribou habitat was skyrocketing. In some areas such as the North Thompson region, this was aided by the government, which was giving the snowmobile clubs permits for trail grooming machines in Mountain Caribou winter habitat. The clubs were charging \$20-\$25 per snowmobiler, advertising the trails on their websites, and attracting hundreds of users. Developments that draw increased usage, such as toilets, kiosks and warming huts, began to appear. One SMA signed off in 2009 by the Regional Manager of the Thompson Region, states:

"This SMA does not authorize trail grooming on crown land. The appropriate government agencies should be contacted in order to seek approval for grooming activities if trail grooming is required for any of the riding areas."¹¹

In 2015 there were at least 16 watersheds in caribou winter range with groomed trails providing more than 300 kilometres of packed snow highways for wolves and cougars to access caribou.¹² The trail grooming attracts increasing numbers of users and allows them to travel faster to reach open areas above tree line.

The Frisby herd that used Frisby Ridge is down to 10 animals (Figure 5). Maps show that the MCRIP designated most of the ridge for snowmobiling, and only a small part, the steepest northerly section, was entirely closed for caribou. The Revelstoke Snowmobile Club advertises groomed trails onto and along Frisby Ridge for 25 kilometres.

The South Selkirk herd has been the subject of international conservation efforts for years, but plummeted to about 12 individuals in 2016 (Figure 5) despite augmentation with 103 animals in the 1980s and 1990s; none was seen in Idaho or Washington in recent surveys (Wiles 2017). About 30% of its small winter range is open to snowmobiling. The Petitioners have documented the parking lot packed with snowmobile trailers and a sign stating: "Snowmobile access beyond this point is limited to members of the Kokanee Country Snowmobile Club only!" and in addition:

¹¹ Stewardship Management Agreement (SMA) between the Minister of Environment and Blue River Powder Packers Snowmobile Club, Dec 21, 2009.

¹² This figure was calculated from information provided on the websites of snowmobile clubs, including the Blue River Powder Packers in the North Thompson, the Valemont & Area Recreation Development Association, the Revelstoke Snowmobile Club, the Arrow Lakes Ridge Riders.



Photo 3. Kokanee Country Snowmobile Club signs in the South Selkirk caribou LPU, a population that has declined from "hundreds" on the Idaho-Washington side of the border to zero (Wiles, 2017), and about 90 in 1990 to about 12 at last count on the British Columbia side, despite augmentation with > 100 caribou in the 1980s and 1990s.

This situation makes a mockery of British Columbia's *faux* protection of caribou from winter motorized recreation.

Central Mountain Caribou Subpopulation ("Northern Caribou" in BC Parlance)

The Peace Northern Caribou Plan (PNCP) is not a recovery or conservation plan at all, but a management plan that puts economic activity as the top priority. It states in its preface that implementation actions and objectives are "subject to the priorities and budgetary constraints of participatory agencies and organizations." Thus the whole plan is underlain with administrative discretion.

The plan also states that:

Where there are significant residual impacts after efforts have been exhausted to avoid, mitigate and restore impacts to South Peace Northern Caribou and their habitat, financial offsetting will be used as a management prescription to fund management activities for South Peace Northern Caribou. In other words, under the PNCP, companies can purchase the right to do irreparable damage to Mountain Caribou habitat, by taking over some of the government's caribou conservation costs. In a letter to the Petitioners dated 29 October 2015, the government explained that:

"Under the Peace Northern Caribou Plan announced in 2012, all industrial activities causing disturbance in high-elevation winter range (which is prime caribou habitat) must enter the habitat and financial offsetting program. Companies are required to set aside caribou habitat that will not be disturbed at a 4:1 ratio (i.e. for every 1 hectare disturbed, 4 must be undisturbed). As an example, the conditions of approving the Roman coal mine included a \$3.5 million payment for caribou recovery, and 1,852 hectares of habitat being secured for caribou."¹³

This enables the destruction of high quality caribou habitat by putting a larger quantity of low quality habitat into so-called protection. According to Steve Thomson, Minister of Forests, Lands and Natural Resources, offsetting in the Peace Northern Caribou Plan area contributed \$3,375 to the Boreal Caribou Habitat Trust Fund in 2013–2014:

"These payments are based on disturbance within high-elevation winter range (HEWR) and calculated at a rate of \$9,000 per hectare of very-high-quality habitat, and \$4,000 per hectare of high-quality habitat. For disturbances smaller than 25 hectares, proponents may provide an inlieu payment at a rate of \$5,000 per hectare of HEWR."¹⁴

There has been no publicly released information on the location, size, quality, or degree of protection of lands set aside in a 4:1 ratio. Such a violation of Canada's *Species at Risk Act* should not be tolerated by federal authorities.

The Peace North Caribou Plan (PNCP), created in 2013, promised to create 400,000 hectares of existing and new protected areas, however new protection has never materialized. All the Ungulate Winter Range (UWR) and Wildlife Habitat Areas (WHAs) that restrict forestry in the range of the central group were created between 2003 and 2009. Information that the South Peace has expanded coal reserves, or prohibited new tenures for oil and gas or wind farms, cannot constitute protection, when there are so many other ways to develop the land.

The low-elevation habitat appears to be mostly or entirely consigned to the "conditional harvest" units. One example is U-7-001, designated to protect low-elevation winter range for the Kennedy Siding herd. The conditions of this GAR order require half of the entire area to be logged at a time on a 100-year rotation, so that 45-55% is 0-50 years old and 45-55% is 50-100 years old. Clear cutting is prescribed in large patches, 250-1400 hectares.¹⁵

¹³ Paul Rasmussen letter to Valhalla Wilderness Society dated 29 October 2015.

¹⁴ Min. of Forests, Lands and Natural Resource Operations, Estimates Binder, 2015/16 Spring Legislative Session, letter of Minister of FLNR Steve Thomson to MLA Bill Routley, Ref. No. 205741, 2015, Pg. 394.

¹⁵ Ministry of Environment website, approved Ungulate Winter Range, http://www.env.gov.bc.ca/wld/documents/uwr/uwr_u7_001.pdf

For the most part, the "conditional-harvest" units restrict road building, and sometimes little else. At best they offer forest retention percentages and suggestions that the licensees log on snow to prevent damage to lichens -- but the fragmentation of the habitat continues. Forty-four percent of UWRs are "conditional harvest," yet they are all lumped together as "habitat protection" and counted in the gross hectares that the government claims it has "protected" in the South Peace.

N. British Columbia's Recovery Plan is Inconsistent with the Federal Recovery Strategy

Despite British Columbia's commitment under the *National Accord for the Protection of Species at Risk* to establish complementary legislation and programs that provide for the effective protection of species at risk, its recovery planning for Mountain Caribou fails to complement the federal recovery strategy.

A chief difference is found in the foundational goals of the federal versus the provincial planning. For example, while the federal recovery strategy sets as its goal the recovery of all LPUs to self-sustaining levels, the BC government plans do not aim at this level of recovery. BC's Mountain Caribou Science Team concluded that six LPUs could feasibly reach self-sustaining levels with management strategies aimed at "restoring and maintaining habitat conditions that allow mountain caribou populations within planning units to withstand random events and other environmental variables without the need for long-term, predator-prey management" (Mountain Caribou Science Team 2006). In spite of this, for five of these LPUs, the Province's Mountain Caribou Recovery Implementation Plan opted instead for "assisted long-term sustaining," a management option that will require long-term ongoing management in order to sustain populations, and for three others, "status quo" management that put no limitation of timber harvest or restriction on recreational use of caribou habitat.¹⁶ Caribou herds that could have recovered with good management have been extirpated from three ranges.

British Columbia's mapping of critical caribou habitat is also inconsistent with the federal recovery strategy's description of Mountain Caribou critical habitat as "the habitat that is necessary to maintain or recover self-sustaining LPUs throughout their distribution". In particular, low elevation and early winter sites currently used by caribou have frequently been excluded, as clearly documented above.

The MCRIP goal of protecting only 95% of identified high-value winter habitat, or the PNCP goal of protecting 80% or 90% of the high-elevation winter habitat, conflict with SARA because they fail to provide for the full seasonal migration of the caribou. These strategies simply accept the increasing isolation of these migratory animals at the high-elevations of their range, cutting them off from key resources for their nutrition and safety from predators.

As mentioned previously, the federal recovery strategy bases its definition of critical habitat upon the *biophysical attributes* of the species' preferred habitat. In 2002 Canada's Recovery of Nationally Endangered Wildlife (RENEW) Working Group advised that the necessary procedure is to first identify *all* of the species' habitat within its range, and then decide what is critical to survival and legislate its "critical habitat" status.

¹⁶http://www.env.gov.bc.ca/wld/speciesconservation/mc/files/Oct16 2007 Implementation Plan Map.pdf

The provincial plans for the more southerly local populations (not for the northern local populations of the Southern Mountain Caribou) have avoided the word "critical" and instead opted to create "identified" core habitat based on telemetry records, and also keeping within the caps imposed to limit impacts on logging. For instance, the MCRIP Habitat Terms of Reference instructed habitat teams that, "The initial maps produced by the herd experts must not exceed the cap unless there is written agreement from licensees" (Ministry of Environment Lands and Parks 2007).

Aside from that, telemetry has numerous limitations for this purpose; first and foremost it only showed the habitat that caribou occupied in good flying weather as aircraft surveillance was required to receive the telemetry signals and no one flew the mountains during inclement weather. Telemetry would not pick up, for instance, critical winter habitat from which caribou have been displaced by snowmobiles; it would not pick up transmissions from animals that are deep in the forest or in deeply incised mountain valleys. But more importantly, caribou need to change their range over time. They will not survive if simply confined to their currently occupied areas.

An audit of the BC recovery planning process (SciWrite Environmental Sciences Ltd. 2008a; b; 2009) showed that the biologists on the Science Team and on the regional teams (several of whom were employed by timber companies and winter recreation companies) were pressured to omit lower-elevations (commercial timber supply) from the mapping. And, whereas the location of critical habitat should have driven how much habitat received protection, instead arbitrary amounts were prescribed and the biologists were required to distribute it according to economic criteria (the 1% cap on Timber Harvesting Land Base protection, mentioned above, and numerous other provisions that made economic goals the determining criteria).

BC Environmental Assessment Process

The 2017 Canada-BC Protection Study for Central Mountain Caribou lists six major fossil fuel projects within the Central Mountain Caribou LPU boundaries that have been approved by the Environmental Assessment Office (EAO) processes since 2005 (Environment Canada 2017:64-66).

The Prince Rupert Gas Transmission Pipeline and the Westcoast Connector Gas Transmission Pipeline were approved in 2014 despite the finding of significant adverse effects (SAE) on caribou (Environment Canada 2017). These would affect the Moberly/Scott and Kennedy Siding herds of the Central Group, as well as several Northern Mountain Caribou herds.

In addition, the Roman Coal Mine was approved by the BC EAO in 2012 despite biologists assessing major impacts on the Quintette herd. It was approved in high-suitability winter habitat against the strenuous objections of First Nations (Wilson 2012):

Best available information suggests that habitat loss on Roman Mountain will cause a portion, or perhaps the entire group, of woodland caribou wintering there to abandon the area and winter at low elevations, where the risk of predation is much higher. Over time this will reduce or could even extirpate this component of the Quintette caribou herd. The BC Environmental Assessment Office approved the new Hermann open pit coal mine in 2008, despite testimony from the Ministry of Environment that the site was a caribou calving area.¹⁷

In addition, the Murray River Coal project is a striking example of BC's failure to adequately protect Mountain Caribou – a failure that you have already dealt with in another statutory context. This coal project was issued an environmental assessment certificate by the province of British Columbia on October 1, 2015 following an EA under British Columbia's *Environmental Assessment Act (2002)*. Issuance of this certificate reflects the Provincial Government's lack of precautionary management of caribou. This certificate was issued despite the fact that the EAO had concluded that the project would likely contribute to significant cumulative adverse effects on forested ecosystems, rare ecosystems, and rare plants and lichens within the region. The BC EAO also failed to properly consider or assess the potential impacts of the project on the Quintette herd of the Central Mountain Caribou.

On October 7, 2016 pursuant to subsection 52(1) of the *Canadian Environmental Assessment Act, 2012*, you (the Minister of Environment and Climate Change) decided that the Murray River Coal Project is likely to cause significant adverse cumulative environmental effects to the current use of lands and resources for traditional purposes by Aboriginal Peoples due to cumulative adverse environmental effects on the Quintette caribou herd. As a result, the matter has been referred to the Governor-in-Council to determine if the significant adverse environmental effects are justified in the circumstances pursuant to subsection 52(4) of the *Canadian Environmental Assessment Act, 2012*.

In sum, taken together, the evidence presented here does not diverge from that already gathered by Environment Canada (2017) -- and provides proof that the British Columbia recovery plan for mountain caribou is ineffective, that many individuals of these caribou are in mortal danger from the identified threats and that the local populations that have not already become extirpated soon will. The only thing that can arrest their slide towards extinction is an emergency order under s. 80 of SARA.

¹⁷ Submissions by the BC Min of Environment were available on the BC EAO website at <u>http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_doc_list_266_r_pga.html for some time, but have since been removed.</u>