



January 4, 2001

The Honorable Bruce Babbitt
Secretary of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Re: Petition for the certification of Canada pursuant to 22 U.S.C. § 1978 for failing to consider and prevent the impact of the proposed development of the Taku River watershed on the vulnerable Atlin woodland caribou herd and an internationally significant population of grizzly bears.

Dear Secretary Babbitt:

On behalf of The Wilderness Society, Defenders of Wildlife, National Resources Defense Council, American Rivers, Sierra Club, National Audubon Society, Southeast Alaska Conservation Council, Taku Wilderness Association, Yukon Conservation Society, Yukon Wildlands Project, Sierra Legal Defence Fund, and Earthjustice Legal Defense Fund, we submit this petition for certification of Canada, pursuant to the Pelly Amendment to the Fisherman's Protective Act of 1967,¹ for Canada's failure to protect woodland caribou (*Rangifer tarandus caribou*) and grizzly bear (*Ursus arctos*) populations threatened by proposed development in the Taku watershed in northwestern British Columbia.

I. INTRODUCTION

Under the Pelly Amendment, the Secretary of the Interior must certify a country if its nationals are engaging in trade or taking which diminishes the effectiveness of any international program for endangered or threatened species. The proposal to develop the Tulsequah Chief Mine, which includes a 95-mile access road into a previously unroaded and largely undisturbed watershed, meets these conditions.

The proposed development, and in particular the access road, will have significant adverse effects on a vulnerable herd of woodland caribou, the Atlin herd, and a significant international grizzly bear population. The road will cause direct effects on the woodland caribou and grizzly bear, including increased mortality from vehicle collisions and poaching, and will also result in significant reductions in the value of the habitat for these species in the watershed, with potential long term population level impacts. These impacts amount to a taking under the Pelly Amendment which diminishes the effectiveness of an international program for endangered or threatened species – the

¹ 22 U.S.C. § 1978, as amended by Pub. L. No. 95-376, 92 Stat. 714 (Sept. 18, 1978).

Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere (“Western Hemisphere Convention” or “WHC”).²

The governments of Canada have not taken action to prevent these impacts from the Tulsequah Chief mine project. Canadian and provincial governments conducted a joint environmental assessment of the project in which the Canadian government concluded that “the proposed project is not likely to cause significant adverse environmental effects.”³ Based on that assessment, the governments approved the project. The environmental assessment, however, failed to evaluate meaningfully the potential impacts of the mine in several significant ways, including the impact of the access road on caribou and grizzly bear populations. Recently, a Canadian court determined the Canadian governments’ review of the project’s environmental impacts was unlawful and remanded the assessment for further review. That process is now underway, but already it appears that the provincial government is unlikely to conduct an adequate reassessment of the project’s impacts.

Accordingly, we ask you to urge Canada to reject the Tulsequah Chief Mine access road proposal and instigate a thorough and meaningful environmental assessment, including an evaluation of cumulative impacts for the Taku River watershed as a whole, before permitting any development of the mine project. We support the requests made by the United States and the State of Alaska that the project be referred to the International Joint Commission for a thorough review of the project’s potential significant impacts and believe such a referral would be an important step toward actions that could avoid the need for a certification under the Pelly Amendment.

Until the Canadian governments take action to assess and prevent impacts to woodland caribou and grizzly bear populations, this petition requests that pursuant to the Pelly Amendment you certify to the President that a taking which diminishes the effectiveness of the Western Hemisphere Convention will result from development of the Tulsequah Chief mine project. This petition also seeks your recommendation to the President that he direct the Secretary of the Treasury to prohibit the importation of appropriate Canadian products into the United States until Canada has acted to prevent the harmful ecological impacts from development of the Taku River watershed.

II. PELLY AMENDMENT AND WESTERN HEMISPHERE CONVENTION

A. The Pelly Amendment.

Congress enacted the Pelly Amendment in 1971 in response to concerns about the harmful effect of international salmon fishing in the high seas, and in recognition that international agreements often lack the necessary enforcement provisions to conserve

² 56 Stat. 1354, 1942 WL 8084 (October 12, 1940, entered into force April 30, 1942).

³ Letter from Herbert D. Klassen, Major Projects Biologist, Fisheries and Oceans Canada, to Norm Ringstad, Environmental Assessment Office, British Columbia, March 12, 1998, at 2 (hereinafter Fisheries and Oceans Canada Letter).

species effectively. Under the Pelly Amendment, when the Secretary of the Interior determines that "nationals of a foreign country, directly or indirectly, are engaging in trade or taking which diminishes the effectiveness of any international program for endangered or threatened species," the Secretary must certify that fact to the President of the United States.⁴ An "international program for endangered or threatened species" is defined as "any ban, restriction, regulation, or other measure in effect pursuant to a multilateral agreement which is in force with respect to the United States, the purpose of which is to protect endangered or threatened species of animals."⁵

Revisions to the Pelly Amendment in 1992 define the term "taking" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" or to "attempt" to engage in any such conduct.⁶ This definition tracks the definition of "take" in the Endangered Species Act (ESA), 16 U.S.C. § 1532. The U.S. Supreme Court has upheld regulations issued by the Department of Interior which construe the ESA definition to prohibit "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."⁷

To implement the Pelly Amendment, the Secretary of Interior must periodically monitor the activities of foreign nationals that may affect international endangered and threatened species programs and must promptly investigate activities that may be cause for a Pelly certification.⁸ The Secretary's duties are mandatory; he or she must conduct the prescribed monitoring and investigations and certify countries when the statutory criteria are met.⁹ Upon receipt of a Pelly certification, the President may direct the Secretary of the Treasury to prohibit the bringing or importation into the United States of any products from the offending country for any duration the President deems appropriate and to the extent that such prohibition is sanctioned by the World Trade Organization (WTO) or multilateral trade agreements.¹⁰ Within 60 days of certification, the President must notify Congress of any action taken pursuant to the certification.¹¹

B. The Western Hemisphere Convention.

The Western Hemisphere Convention – negotiated under the auspices of the Organization of American States – entered into force with respect to the United States in 1942. The Convention begins by stating the objective of the Parties:

[T]o protect and preserve in their natural habitat representatives
of all species and genera of their native flora and fauna,

⁴ 22 U.S.C. § 1978(a)(2).

⁵ *Id.* § 1978(h)(4).

⁶ *Id.* § 1978(h)(5)(A), (B), as amended by Pub. L. No. 102-582, 106 Stat. 494 (Nov. 2, 1992).

⁷ 50 C.F.R. § 17.3 (1999); *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 704 (1995).

⁸ 22 U.S.C. § 1978(a)(3).

⁹ *Japan Whaling Ass'n v. American Cetacean Soc'y*, 478 U.S. 221 (1986).

¹⁰ 22 U.S.C. § 1978(a)(4); 19 U.S.C. §§ 3501(4), 3511(d).

¹¹ 22 U.S.C. § 1978(b).

including migratory birds, in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control.¹²

At the outset, the Convention calls on the contracting parties to establish national parks, national reserves, nature monuments, and wilderness reserves, in part to protect living species of flora or fauna.¹³ The Convention also seeks to promote this goal by requiring countries to adopt measures to protect wildlife. In particular, the Convention calls for the creation of an annex identifying species whose protection is "of special urgency and importance."¹⁴ Species listed in the annex are to be protected "as completely as possible," and their hunting, killing, capture, or taking is allowed only with governmental permission, to be given only under special circumstances.¹⁵ The annex lists several species that range in both the United States and Canada, including woodland caribou, a particularly sensitive population of which resides in the Taku watershed, and grizzly bear, for which the watershed provides significant habitat.¹⁶

The Western Hemisphere Convention is, therefore, a multilateral agreement which has as one of its purposes the protection of threatened and endangered species. Takings of wildlife that diminish the effectiveness of this treaty are, as a result, subject to action under the Pelly Amendment.

III. DEVELOPMENT OF THE TULSEQUAH CHIEF MINE AS PROPOSED WILL RESULT IN A "TAKING" OF WOODLAND CARIBOU AND GRIZZLY BEAR AND UNDERMINE THE EFFECTIVENESS OF THE WESTERN HEMISPHERE CONVENTION.

A. The Taku River and the Tulsequah Chief Mine.

1. *The Taku Watershed and the Taku River Tlingit First Nation*

The Taku watershed is the fifth largest watershed in the province of British Columbia, covering 18,000 square kilometers or 4.5 million acres, about the area of the state of Massachusetts.¹⁷ With the exception of the Golden Bear mine road that barely crosses its southern boundary, the Taku watershed remains entirely unroaded and in pristine condition. This makes it the largest unprotected wild river system on the western coast of North America.¹⁸

¹² Western Hemisphere Convention, Preamble.

¹³ Id. Articles I-IV.

¹⁴ Id. Article VIII.

¹⁵ Id.

¹⁶ See Organization of American States, *Listas de Especies de Fauna y Flora en Vias de Extincion den los Estados Miembos* (Washington, D.C. 1967).

¹⁷ See Maps of Taku region.

¹⁸ Rivers Canada, Wild Rivers Committee, *Imminent Threats to the Survival of a Wild Taku Rivershed*, November 12, 1996 (hereinafter *Imminent Threats*).

At the heart of the Taku watershed lies the Taku River, which weaves from its headwaters in northwestern British Columbia for 280 km through five different bio-geo-climatic zones, before emptying into the Pacific Ocean near Juneau, Alaska.¹⁹ The river hosts abundant runs of all five species of Pacific salmon, which are a critical part of the commercial fishery in both Alaska and Canada.²⁰ The Taku region is remote and accessible only by foot, air, or riverboat from Alaska. As a result, in addition to the woodland caribou and grizzly bear, the Taku watershed is endowed with sizeable populations of mountain goat and stone sheep. Other boreal species, such as moose and black bear, are also present in the watershed, along with several species of migratory birds, including trumpeter swan.

The Taku watershed is the traditional unceded territory of the Taku River Tlingit First Nation (the “TRTFN” or “Tlingits”). The TRTFN are involved in ongoing treaty negotiations with the government of British Columbia. They claim title to the land on which the mine is to be developed as well as the territory along the proposed road route.²¹ The Tlingits oppose the development of this project and have continuously raised concerns about the potential impacts of this project on all wild species in the watershed. According to the Tlingits, their continued health and survival is rooted in the land and a project which destroys the land and the wildlife on the land destroys the Tlingits. As one of the Tlingit leaders has described it:

The Taku River and the Nakina River are very sacred to the Tlingits... This river, the Taku and Nakina – I think of them as the same river – is a sacred place for our people. It is the heart of the Tlingit territory.²²

Many people share a recognition of the special wilderness and wildlife values of the Taku watershed. After traveling by foot, paddle, small plane, and river boat through the watershed, Bristol Foster Ph.D. – a leading advocate for ecological reserves in British Columbia – had this to say about the Taku:

¹⁹ *Nomination of the Taku Mainstream & Nakina River Tributary for British Columbia and Canadian Heritage River Status*, prepared by Ian Kean, November 14, 1996, at 3-4.

²⁰ Throughout the Canadian environmental assessment process, the State of Alaska, the United States Environmental Protection Agency, and various citizen groups including the United Southeast Alaska Gillnetters, the United Fishermen of Alaska, and the Douglas Indian Association raised serious concerns about the potential environmental impacts of this development on the salmon resources of the Taku River. These potential impacts to the Taku fishery are the subject of ongoing discussions between Canada and United States, and have resulted in an official request by the US State Department for a referral of the proposed development to the International Joint Commission established pursuant to the Boundary Waters Treaty of 1909.

²¹ See generally An Aboriginal Cultural and Sustenance Impact Assessment of the Tulsequah Chief Mine Project, Appendix B.4-1 in Rescan, *Redfern Resources Ltd., Tulsequah Chief Project Report*, Vol. III Appendices, Part 2 of 2, at 11-15 (hereinafter *Project Report*).

²² Affidavit of Bryan Jack, ¶13, sworn February 5, 1999, in support of the TRTFN lawsuit challenging the Canadian environmental assessment (hereinafter Jack Affidavit).

Never have I spent so long traveling through such beautiful wilderness ... without seeing a trace of a human being while at the same time seeing so much wildlife. Not on the Tatshenshini ... not on the Serengeti ... not anywhere.²³

2. *The Tulsequah Chief Mine Project*

The Tulsequah Chief Mine Project is a proposal by Redfern Resources Ltd., a mining company incorporated in the province of British Columbia, to redevelop an abandoned zinc, copper-lead, and precious metals mine on the Tulsequah River, at its confluence with the Taku River. Ore from the original Tulsequah Chief Mine, which operated for eight years before closing in the early 1950's, was barged down the river to Juneau.²⁴ To begin new operations on the site, the company proposes to build an open pit mixed metal mine with accompanying tailing ponds, airstrip, and other facilities. Ore will be hauled off site to Skagway, Alaska, where it will be shipped out for processing.

In order to get the ore to Skagway, Redfern proposes to construct a 95-mile access road from the mine site to Atlin, British Columbia, and substantially upgrade the existing highway from Atlin through the Yukon Territory to Skagway. The proposed route would traverse steep walled valleys, high passes, avalanche chutes, and unstable side slopes. From the mine, the road would follow the Shazah, Nakonake, and Silver Salmon tributaries to the Taku and Tulsequah Rivers before crossing the O'Donnel and Wilson Creek drainages and connecting to the existing road network near Atlin. As proposed, the road would require nine major bridge crossings, 60 smaller stream crossings, and 320 culverts. The ore will be hauled from the site at a rate of approximately 12 trucks per day.²⁵ Additionally, it is estimated that another 20 or so service vehicles will visit the mine each day, amounting to about 64 vehicle transits in a 24-hour period. The mine is expected to operate for nine to ten years.²⁶

3. *The Environmental Assessment of the Project*

Due to the size and scope of the project, the proposed mine redevelopment triggered both the Canadian provincial and federal environmental assessment regimes. A joint federal--provincial environmental assessment was conducted over a period of three years. The TRTFN, State of Alaska, US Department of Interior, and the US Environmental Protection Agency participated as part of a project review committee. The British Columbia Environmental Assessment Office coordinated the assessment. The environmental assessment process generated a multi volume environmental

²³ Cited in *Imminent Threats*.

²⁴ The original Tulsequah Chief Mine was never properly decommissioned and the ongoing acid rock drainage which flows daily from the abandoned site into the river is the subject of a complaint, filed in June 1998 by Canadian conservation organizations, currently under investigation by the Commission on Environmental Cooperation.

²⁵ See *Project Report*, Vol. II, at 10.19-10.44 (full description of the Selected Access Alternative).

²⁶ Tony Pearse, *Report Respecting the Environmental Assessment and Approval of the Tulsequah Chief mine re-opening project*, at 1-2 (hereinafter Pearse); *Project Report*, Volume II, at 1.1.

assessment report prepared by Rescan, an environmental consulting firm hired by Redfern.²⁷

In addition, the process resulted in a number of independent reports which critiqued the work done in that environmental assessment report, including:

- (i) Norman Barichello, *An Evaluation of Rescan's Environmental Assessment of the Proposed Tulsequah Chief Mining Development*, October 1997 (hereinafter Barichello 1997);
- (ii) Allejandro Frid, *An Evaluation of Wildlife Research Related to the Tulsequah Chief Mine*, October 1997 (hereinafter Frid 1997);
- (iii) Joanne Siderius, Ph.D., *Tulsequah Chief Project Review, Prepared for the Taku River Tlingit First Nation*, November 29, 1997 (hereinafter Siderius 1997);
- (iv) Rick Farnell, *Review of Tulsequah Chief Project Environmental Assessment Studies* (hereinafter Farnell);
- (v) Brian L. Horejsi, *Report on the Proposed Tulsequah Chief Mine Road; Its Expected Impacts on Wildlife and Prospects for Mitigation*, February 6, 1999 (hereinafter Horejsi 1999);
- (vi) Dr. Francois Messier, *Report on the Tulsequah Chief Mine Concerning Monitoring Plans for Ungulates and Grizzly Bears*, February 1999 (hereinafter Messier 1999);
- (vii) Tony Pearse, *Report Respecting the Environmental Assessment and Approval of the Tulsequah Chief mine re-opening project* (hereinafter Pearse); and
- (viii) Dr. David M. Shackleton, *Report on Tulsequah Chief Mine Concerning Wildlife and Wildlife Habitat Information, and Prediction of Impacts*, February 1999 (hereinafter Shackleton 1999).

In the end, two separate recommendations came from the project committee: one from Canadian Federal and Provincial government representatives recommending approval of the project, and one from the TRTFN recommending against approval of the project.²⁸ The US representatives refused to endorse the government recommendation due to the number of outstanding issues that had been left unaddressed or unresolved.²⁹

²⁷ *Project Report*, Volumes I-V, with Appendices, July 1997.

²⁸ British Columbia Environmental Assessment Office, *Report and Recommendations of the Tulsequah Chief Project Committee With Respect to: A Decision on A Project Approval Certificate by the Minister of Environment, Lands and Parks and the Minister of Energy and Mines and Minister Responsible for Northern Development AND Fulfilling the Requirements of A Screening Report Pursuant to the Canadian Environmental Assessment Act*, March 1998 (hereinafter *Report and Recommendations of the Project Committee*); *Tulsequah Chief Mine Re-Opening Project, Report and Recommendations of the Taku River Tlingit First Nation*, March 6, 1998 (hereinafter *Report and Recommendations of the TRTFN*).

²⁹ See, e.g., Letter from Chuck Clarke, Regional Administrator, USEPA, to Norm Ringstad, Tulsequah Chief Project Assessment Director, Environmental Assessment Office, March 6, 1998; Letter from Willie Taylor, Office of Environmental Policy and Compliance, USDO, to Norm Ringstad, March 6, 1998; State of Alaska, *Response to Tulsequah Chief Project Report and Recommendations*, March 6, 1998 (hereinafter *State of Alaska Response*).

On March 12, 1998, the Canadian Department of Fisheries and Oceans made a determination pursuant to section 20 of the *Canadian Environmental Assessment Act*, S.C. 1992 c. 37 (“CEAA”), that the project is not likely to have significant adverse environmental effects.³⁰ According to the provisions of CEAA, this freed Canadian federal authorities to take steps to permit the development of the project. A week later, the British Columbia provincial government issued a Project Approval Certificate to Redfern Resources pursuant to the provisions of the *British Columbia Environmental Assessment Act*, R.C.B.C. 1996, c. 119.³¹

The Project approval resulted in actions on both sides of the U.S.-Canada border. First, Alaska Governor Tony Knowles requested the U.S. Department of State to refer the proposed mine development to the further review of the International Joint Commission (IJC) established pursuant to the Boundary Waters Treaty of 1909.³² Second, the TRTFN challenged the issuance of the Certificate in the Supreme Court of British Columbia in February 1999. TRTFN’s claims focused on the failure of the environmental review process to incorporate the Tlingits’ concerns regarding the effects of the development, and particularly the road, on their traditional territory in the watershed. In June 2000, the Court ruled in favor of the TRTFN, setting aside the Project Approval Certificate, and remanding the matter back to the Project Committee.³³ If the project is approved upon reconsideration, the construction of the road could begin as soon as early 2001.³⁴

B. The Access Road Will Result in a Taking of Woodland Caribou,
Diminishing the Effectiveness of the Western Hemisphere Convention.

The annex to the Western Hemisphere Convention specifically lists the woodland caribou as a species of special urgency and importance, thereby triggering an obligation under the treaty to protect the woodland caribou as completely as possible.³⁵

As the only major ungulate in North America specifically adapted to life in mature, lichen-rich, coniferous forests, woodland caribou fill a niche occupied by no other wildlife species. Humans and woodland caribou have enjoyed a special relationship in North America for many thousands of years.

³⁰ Fisheries and Oceans Canada Letter, at 2.

³¹ Province of British Columbia, Ministry of Environment, Lands and Parks et al., Project Approval Certificate M98-02, March 19, 1998.

³² Letter from Tony Knowles, Governor of Alaska, to Madeleine K. Albright, Secretary of State, March 30, 1998; Letter from Tony Knowles, Governor of Alaska, to Strobe Talbott, Deputy Secretary of the State, January 6, 1999.

³³ Taku River Tlingit et al. v. Ringstad et al. [06-28-00] 2000 B.C.S.C. 1001.

³⁴ The Supreme Court did not invalidate the conditional Special Use Permit (SUP) granted to Redfern in May 1999. This permit, when accompanied by a valid Project Approval Certificate, allows Redfern to begin road construction after meeting the additional technical requirements set in the SUP. See Province of British Columbia, Ministry of Forests, Special Use Permit No. S23154 (May 21, 1999) (hereinafter Special Use Permit).

³⁵ See Organization of American States, *Listas de Especies de Fauna y Flora en Vias de Extincion den los Estados Miembros* (Washington, D.C. 1967).

Once one of the largest ranging species in North America, woodland caribou now survive in isolated pockets in remote areas, which are rapidly becoming the focus of future development initiatives. In Canada, the woodland caribou's historic range has been dramatically reduced. Except for a small relict herd on the Gaspé Peninsula, caribou are now absent from their original ranges in Canada's Maritime Provinces and the New England and Great Lakes States. The related, little known caribou of the Queen Charlotte Islands has been extinct since the mid-30s. From Quebec to British Columbia, the caribou range and numbers have diminished along the southern edge of its range, and the southernmost herds tend to be small and isolated.³⁶ In the United States, woodland caribou persist only in Alaska and in a small, endangered Selkirk Mountain herd whose international range spans from northeastern Washington and northwestern Idaho to southern British Columbia.³⁷

Woodland caribou are dependent on various seasonally changing habitats including mature, lichen-bearing forests, open muskegs and bogs, as well as alpine and high altitude tundra.³⁸ During the late 1800's and early 1900's, much of the caribou's habitat in Canada, especially in the south and southeast, was destroyed or fragmented by logging, mining, roads, and encroaching settlement. Highways, railroads, and other linear developments easily isolate caribou populations, particularly if logging, settlement, or agriculture accompanies such development. The winter ranges are especially sensitive because of the caribou's need for an adequate food supply and also important are calving areas protected from predators and insects.³⁹

1. The Atlin Herd

The caribou herd that ranges into the Taku watershed is commonly known as the Atlin herd.⁴⁰ The entire distribution of this herd generally covers the area between the Atlin and Teslin Lakes, with the majority of the herd ranging south of the Yukon border.⁴¹ Since the early 1900's, with the advent of the gold rush, the Atlin herd has been subject to heavy exploitation.⁴² As a result, the herd has declined in both numbers and distribution from historical times.⁴³ According to the most recent population estimates,

³⁶ John P. Kelsall, COSEWIC, *Status Report on Woodland Caribou, Rangifer tarandus caribou* (1984), at 1.

³⁷ *Id.* at 19.

³⁸ *Id.* at 1, 39-40.

³⁹ *Id.* at 40.

⁴⁰ The Atlin herd is also known as the Atlin East herd. *See* Letter from Sean Sharpe, Ministry of Environment, Lands and Parks, to Don Weir, Taku Wilderness Association, September 21, 2000 (hereinafter Sharpe Letter).

⁴¹ *See* Farnell R. *et al.*, *The Status of Rangifer tarandus caribou in Yukon, Canada*, Rangifer, Special Issue No. 10:131-137 (1998) (hereinafter Farnell *et al.* 1998), Figures 1 and 4a, at 133 and 136, respectively.

⁴² *See, e.g.*, *Project Report*, Vol. III, Part 2 of 2, at 3.150.

⁴³ Farnell *et al.* 1998, at 134 (discussing Atlin herd together with two other close ranging herds, the Ibex and Carcross herds).

the size of the herd varies between 500 and 1,000 animals.⁴⁴ Such small numbers raise questions about the herd's long-term biological viability.⁴⁵

In 1993, Yukon and British Columbia First Nations established the Southern Lakes Caribou Recovery Program in response to fears that the region's caribou would be extirpated. The mission of the Recovery Program is to rehabilitate three regional herds on the brink of extinction, including the Atlin herd. The program coordinates efforts among one British Columbia and five Yukon First Nations to develop a recovery plan that includes a voluntary ban on hunting of caribou until the populations are stabilized.⁴⁶ British Columbia's Ministry of Environment, Lands and Parks (MELP) recently became part of this program.⁴⁷

While the Recovery Program has thus far been successful in halting the decline of other caribou herds, no recovery has been reported for the Atlin herd.⁴⁸ Loss of even a few breeding adults could still jeopardize the long-term viability of the Atlin herd.

2. *The Importance of the Caribou Habitat Adjacent to the Access Road*

The Southern Lakes Caribou Steering Committee, the body that governs and administers the recovery program, is very concerned about the potential impacts of the proposed mine access road on the Atlin herd.⁴⁹ It is the Committee's opinion that the road transects important habitat for the herd. According to Art Smith, chair of the Steering Committee, the O'Donnell River lowlands are part of the winter range for the herd, and the Wilson Creek–Spruce Creek pass is important habitat for caribou during calving and fall rutting. These areas are both along the access road.⁵⁰ With respect to the O'Donnell River lowlands, Smith concludes: "I fully expect that there would be substantial impacts resulting from roads there."⁵¹ And regarding Wilson Creek-Spruce Creek pass, he states that "[a] road through this area is highly likely to also effect the movement and distribution of these caribou as well as increasing the probability of higher traffic fatalities."⁵²

⁴⁴ Id. Table 1, at 132 (1995 estimate). See also Letter from Art Smith, Chair, Southern Lakes Caribou Steering Committee, to Don Weir, Taku Wilderness Association, May 23, 2000 (hereinafter Smith 2000 Letter) (estimate of 800 animals based on surveys conducted in 1999).

⁴⁵ Farnell et al. 1998, at 134.

⁴⁶ Smith 2000 Letter.

⁴⁷ Sharpe Letter.

⁴⁸ Smith 2000 Letter; See also Letter from Art Smith, Southern Lakes Caribou Recovery Program, to Don Weir, Taku Wilderness Association, February 2, 1999 (hereinafter Smith 1999 Letter) (little new information derived for the Atlin herd).

⁴⁹ Id.

⁵⁰ Id.; See also Sharpe Letter.

⁵¹ Smith 1999 Letter; Smith 2000 Letter; See also Sharpe Letter ("having year round roads through the area may increase the mortality of caribou and displace caribou from important habitat resources.")

⁵² Id. According to Sharpe, "[i]ncreased traffic in this area may result in greater occurrence of caribou collisions with vehicles and may result in a new and likely significant source of caribou loss for the Atlin herd." Id.

Rick Farnell, a Yukon government caribou biologist, agrees that caribou make use of the Wilson Creek–Spruce Creek pass during calving, summer, and fall rutting periods. He also cites the importance of the winter habitat in the O’Donnel River lowlands, noting the failure of the environmental assessment to identify this area’s importance for the Atlin herd. He says:

Because caribou will have to cross and re-cross the road in the O’Donnel lowland portion of the road throughout the winter months they will be exposed to ... road collision problems ... and require intensive monitoring and management.⁵³

His evaluation concludes, “[i]t should be acknowledged that the road will bisect important ranges used by caribou and the disturbance associated with the road will have an effect on their distribution and activity.”⁵⁴

Tlingit elders agree that the Access Road will disrupt an important calving area south of Atlin and transect portions of the herd’s annual migration route “up to Surprise Lake and then back down towards O’Donnel and Wilson Creek.”⁵⁵

According to Brian Horejsi, a wildlife biologist who reviewed the environmental assessment documents for the project, “[w]oodland caribou common to the Atlin area typically descend to low elevation habitat in winter where they utilize open habitats, including lakes, and adjacent forest stands for the options these areas offer relative to food, security and snow depth and hardness.”⁵⁶ These are the types of areas along which the road route is charted.

3. *The Impact of Roads on Caribou*

Roads affect wildlife in both direct and indirect ways. These include mortality from road construction, mortality from collision with vehicles, modification of animal behavior, disruption of the physical environment, alteration of the chemical environment, spread of exotic species, and changes in human use of land and water.⁵⁷

Of the various ways in which roads affect wildlife, the most significant threats to woodland caribou are mortality from collision with vehicles, modification of animal behavior, and changes in human use of land and water. In his independent review of the potential impacts of the mine project, wildlife biologist Horejsi summarizes the critical relationship between caribou mortality and roads:

Roads impact caribou through direct mortality, harassment, displacement and subsequent avoidance of an ecological and behavioral zone of impact which

⁵³ Farnell at 5.

⁵⁴ *Id.* at 4-5.

⁵⁵ Jack Affidavit, ¶18.

⁵⁶ Horejsi 1999, at 14.

⁵⁷ See Stephen C. Trombulak & Christopher A. Frissell, *Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities*, Conservation Biology Vol. 14, No. 1, at 18-30 (February 2000) (hereinafter Trombulak & Frissell).

caribou associate with the road. Indirect mortality results from these factors and varies by season, year and ecosystem. While the vulnerability of any one group of animals to road impacts depends partly on ecological considerations, the overall risk of impact increases dramatically as roads invade caribou habitat and as human use increases...

Woodland caribou, which occur in relatively low numbers, are highly sensitive to mortality...In low density, small populations *human induced mortality is almost always additive to natural mortality.*

The vast majority (83%) of man-caused woodland caribou mortality in west central Alberta occurs within 50 m of a road....

Roads, as acknowledged by some management agencies (U.S. Fish and Wildlife 1994), are one of two major forms of caribou habitat degradation and fragmentation....

...

When habitats are fractured by roads, these incremental mortality events are inevitable; the road becomes a constant in the displacement = mortality = population viability equation that always increases the risk to caribou, always limits their ability to move freely in response to environmental variables, and *always imposes a cost on the population not associated with roadless areas.*

...

The significant issue in the maintenance of viable caribou populations is, in small populations, the virtual elimination of contact, and in larger populations, extremely precise control of contact, between caribou and roads, motorized road and off road activity and armed people... The absence of road access and a long term planning horizon will be major factors in achieving this necessary separation.⁵⁸

Studies have shown that caribou can be particularly vulnerable to the effects of roads through impacts on patterns of animal movement. A recent article summarizing literature on terrestrial and aquatic impacts of roads found that “[c]aribou...in Alaska preferentially travel along cleared winter roads that lead in the direction of their migration.”⁵⁹ In heavy snow regions like the Tulsequah area, caribou are drawn to roads as they provide easy passage through deep snow.⁶⁰ When caribou use roads as travel corridors, increased caribou mortality results from vehicle collisions and predation by wolves.⁶¹

⁵⁸ Horejsi 1999, at 14-15 (emphasis in original).

⁵⁹ Trombulak & Frissell, at 20 (citation omitted).

⁶⁰ Barichello 1997, at 5; Smith 1999 Letter, at 1; Smith 2000 Letter, at 2; Sharpe Letter.

⁶¹ Trombulak & Frissell, at 20; See also Adam R.C. James & Kari Stuart-Smith, *Distribution of Caribou and Wolves in Relation to Linear Corridors*, J. Wildlife Management 64(1):154-159, at 158 (2000) (hereinafter James & Stuart-Smith) (risk of predation from wolves higher with proximity to linear corridors).

In many cases, however, roads have an opposite but equally damaging impact on caribou. Some caribou, females with calves in particular, tend to avoid roads—perhaps because of the increased contact with human traffic or the threat of increased predation—and as a result are displaced from otherwise preferential habitat.⁶² Female caribou seek secluded areas for calving and “[a]ny form of road access that facilitates use of these habitats by humans or natural predators will incrementally increase adult and calf mortality.”⁶³ In either case, whether roads attract or repel caribou, roads result in the disruption of caribou’s normal pattern of movement and enhanced mortality.

Particularly in undeveloped regions like the Taku watershed, roads mean increased access to an area and therefore increased hunting pressure from both authorized and unauthorized users of the road. Caribou are particularly vulnerable to increased hunting efforts because of their very low reproductive levels and the way they react to predation. Caribou flee when they smell animals they consider to be a threat. When alerted by movement not accompanied by scent, however, caribou will often stand and appraise the situation. As pointed out by Horejsi, “[o]nly in the case of humans does this strategy fail for humans can kill from several hundred metres distance or they can close the gap quickly using motorized means of travel.”⁶⁴ And even where caribou hunting is curtailed, either through regulated seasons or voluntary initiatives, poaching pressure on the species remains. According to Horejsi’s survey of wildlife impacts resulting from mining access and winter roads, access roads tend to be associated with a decline or extinction of local populations of caribou from illegal and legal hunting:

Viable populations have disappeared from 6 other areas as a consequence of road construction and subsequent human activity, including illegal hunting. Illegal hunting is attributed to increased access and logging activity. Increased use of snowmachines has exposed previously inaccessible populations to decline.⁶⁵

For all these reasons, the proposed access road is likely to significantly increase mortality of the herd both directly and indirectly. This, in the opinion of the Tlingit, the Steering Committee, and independent biologists, will likely result in further population decline and destabilization of an already fragile population.

4. Failure of the Canadian Environmental Assessment to Evaluate Potential Impacts to Caribou

During and after the Canadian environmental review process, Tlingits and independent scientists reviewing the environmental assessment documents raised serious questions concerning the adequacy of the assessment, particularly with respect to wildlife impacts.⁶⁶

⁶² Trombulak & Frissell, at 20 (citation omitted); James & Stuart-Smith, at 157.

⁶³ Horejsi 1999, at 14.

⁶⁴ *Id.* (emphasis omitted).

⁶⁵ *Id.* at 8 (internal citations omitted).

⁶⁶ *Report and Recommendation of the TRTFN*, at 4-15, 25, 30-37, 40-47; Pearse, at 33-62; Reports listed *supra* at 7.

As a preliminary stumbling block, the assessment failed to determine or compile thorough baseline information on existing caribou populations. Baseline population estimates are needed so that monitoring of populations during the life of the project can determine whether the project is adversely affecting the caribou population. In her review of the assessment, one reviewer expressed the concern that “despite the fact that these animals are great wanderers and are a conservation concern over their range, only an aerial census was done....”⁶⁷

Second, the assessment failed to determine patterns of caribou migration or evaluate and consider key habitat areas.⁶⁸ Species such as caribou move across landscapes and require travel corridors between areas of important habitat. Again, an independent reviewer stated that in the assessment “[n]o travel corridors were identified nor was there any provision for accommodating animals that might find the road an obstacle to movement.”⁶⁹

In addition to failing to gather data itself, Redfern chose to ignore obvious sources of knowledge about caribou patterns of movement and habitat by failing to seek input from either the Southern Lakes Caribou Recovery Program or the Tlingits. As explained by Yukon government biologist Farnell, “[h]ad this study made use of Taku River Tlingit First Nation (TRTFN) local/traditional knowledge it would have provided a more reliable information resource standardized to a form of long term monitoring. ... Limitations of the survey and habitat evaluation techniques used in the study failed to identify the importance of the O'Donnel R. lowlands as a winter range for the Atlin caribou herd. Local/traditional knowledge of people with long term experience in the area clearly indicate that significant numbers of caribou winter in these boreal forest habitats during some years.”⁷⁰

Although independent scientists who reviewed the environmental assessment expressed concerns about the adequacy of the assessment, one, for example concluding that the “Rescan data are not useful for evaluating cause and effect relationships between human activities and wildlife populations,”⁷¹ the Canadian government accepted the conclusions of the environmental assessment as valid. As a result of the recent decision of the Canadian court remanding the assessment, the government has an opportunity to cure these substantial defects. Early indications are, however, that neither the provincial government nor the mining company is prepared to address these fundamental issues.⁷²

⁶⁷ Siderius 1997, at 6.

⁶⁸ As the reviewer Siderius pointed out, “there is no consideration of landscape level issues (i.e. migration routes etc.)” Id.

⁶⁹ Id. at 3.

⁷⁰ Farnell at 2, 4.

⁷¹ Frid 1997, at 4.

⁷² While some further study of certain species is planned during the permitting stage for the access road, none of the proposed studies focuses on caribou. Special Use Permit, Schedule A, at 9-10.

5. *Failure of Mitigation and Monitoring Plans to Address the Effects of the Access Road on the Caribou Population*

The major proposals for minimizing impacts to wildlife from the mine project are controlled access to the road south of the O'Donnell crossing, a no-firearms policy for employees and contractors using the road, and the decommissioning of the road at the end of the life of the mine. These proposed mitigation techniques have been strongly criticized as ineffective and unrealistic.

The company proposes to limit public access to the road with a gate near its northern end, but experiences in other situations in British Columbia and elsewhere have shown that such access control measures are largely ineffective in preventing either use or hunting.⁷³ To assess the effectiveness of such measures, Rescan conducted an access management survey covering 11 other resource development roads located mostly in northern B.C.⁷⁴ Rescan asserted that the survey showed that a staffed gate was the most effective way to control unauthorized use and to regulate abuse by authorized users.⁷⁵ According to the Tulsequah Chief Road Advisory Group, however, Rescan's interpretation of the survey results was subjective and the Group concluded the survey contributed little to the lack of documentation on the effectiveness of access control measures in B.C.⁷⁶

The effectiveness of access control measures has been questioned particularly in areas, such as the Taku-Tulsequah Area, that experience already high hunting pressure.⁷⁷ "[I]t takes noncompliance by only a small percent of users to result in direct illegal or licensed mortality...."⁷⁸ The presence of a gate also ignores the use of the road by hunters or poachers travelling on foot, by ATV, or snowmachine. In his report to the TRTFN, Horejsi outlines a number of examples of unsuccessful restricted access programs in the United States. He also warns that there are significant differences between the United States and British Columbia that make success in British Columbia less likely, such as existing legislation in the U.S. to protect wild species and spaces and additional resources available in the U.S. to implement and enforce access controls.⁷⁹

The proposal to introduce a no-firearms policy to eliminate the threat posed to caribou by increased hunting by mine staff is unrealistic. As pointed out by Horejsi, "[b]ased on my observations this is an exceptionally difficult policy to enforce" in part because of the generally young and transient workers in the resource extraction

⁷³ Pearse at 48-55; Horejsi 1999, at 9-11; See also Province of British Columbia Land Use Coordination Office (compiler), Tulsequah Chief Road Advisory Group, *Tulsequah Chief Project: Access Management: Options*, December 1997 (hereinafter Road Advisory Group), at 21 (experiences with Golden Bear Mine Road near Telegraph Creek, BC).

⁷⁴ See *Project Report*, Vol. IV, at 6.47-6.51.

⁷⁵ Id. at 6.48.

⁷⁶ Road Advisory Group, at 23. The Tulsequah Chief Road Advisory Group was formed at the request of the Environmental Assessment Office to assess the implications for future land uses in the access corridor. Id. at 3.

⁷⁷ Id. at 13.

⁷⁸ Horejsi 1999, at 9 (emphasis omitted).

⁷⁹ Id. at 9-10.

industry.⁸⁰ Furthermore, officials from British Columbia will be of limited help in enforcing this policy. According to a Regional Director of the B.C. Ministry of the Environment, Lands and Parks, “[s]ince this policy does not have the force of law, it cannot be legally enforced by our enforcement personnel.”⁸¹ Additionally, these restrictions will not apply to the “approximately 500 hunters who annually travel to the Atlin region”⁸² and the licensed guide outfitters already operating in the region who will all have increased access to the area.

Finally, decommissioning and permanently eliminating a road of this length would be unprecedented in North America.⁸³ Past history shows that once built, resource users rely on roads and it becomes difficult to deactivate such roads.⁸⁴ The probability of rendering a substantial resource access road unusable by any motorized vehicle “is expected to be zero.”⁸⁵ The decommissioning proposal also ignores relevant provincial mining legislation which guarantees access to mining claims and permits all industrial users to access industrial roads, gated or otherwise.⁸⁶ Even if decommissioning were successful, ten years of open access to an area of abundant natural resources will create patterns of behavior and expectations which will be difficult to reverse.

In addition to the inadequacy of the mitigation proposals, independent evaluation of the proposed monitoring plan for wildlife in general, and caribou in particular, highlights several important deficiencies. First, there have been no estimates of the cost of monitoring or specific identification of funding sources.⁸⁷ Second, Redfern’s responsibilities in the program are limited to an unspecified annual donation to a government monitoring program and an annual update on the government’s progress.⁸⁸ Third, the government’s monitoring plan sets out several objectives, but is missing key details necessary to analyze its potential effectiveness.⁸⁹ According to Francois Messier, a Professor in Wildlife Ecology at the University of Saskatchewan, “[i]t is my professional judgement that the proposed [ungulate] monitoring plan does not contain the level of details to evaluate its scientific merit.”⁹⁰ Particularly, he identified major problems with

⁸⁰ *Id.* at 4.

⁸¹ Letter from Jim Yardley, Regional Director, Skeena Region, British Columbia Ministry of the Environment, Lands and Parks, to Tony Pearse, March 2, 1998.

⁸² Horejsi 1999, at 7.

⁸³ *See, e.g., Report and Recommendation of the TRTFN*, at 57 (“no apparent examples of industrial roads of this scale being successfully reclaimed and abandoned” in B.C., Yukon, and Southeast Alaska); Letter from Kerry Howard, Office of the Governor, State of Alaska, to Stephen Sheehan and Norm Ringstad, B.C. Environmental Assessment Division and Environmental Assessment Office, respectively, November 5, 1997, at 5 (“we know of no previous examples of a new road, of the length and profile of that being proposed for this project, that has been decommissioned.”) (hereinafter Howard Letter).

⁸⁴ Pearse at 59-62; *Report and Recommendation of the TRTFN*, at 57-58.

⁸⁵ Shackleton 1999, at 10 (based on experiences elsewhere in B.C. and North America, and the assumption that the road will be more substantial than a logging road). *See also* (Trombulak & Frissell, at 19 (selective road removal and remediation can be costly and fraught with uncertainty).

⁸⁶ Mining Right of Way Act, R.S.B.C. 1996 Chap. 294; Mining Rights Amendment Act, S.B.C. 1998 Chap. 10.

⁸⁷ Pearse at 58.

⁸⁸ *Id.*

⁸⁹ *Report and Recommendation of the TRTFN*, at 47-55.

⁹⁰ Messier 1999, at 3.

the plan's study design, such as the lack of adequate sample sizes and independent control sites, which would undermine a meaningful assessment of the road's effects to caribou and other ungulate species. He concludes: "I cannot see how this monitoring plan can detect project-related impacts, and how results can be used to develop effective mitigation measures."⁹¹

C. The Access Road Will Result in a Taking of the Grizzly Bear,
Diminishing the Effectiveness of the Western Hemisphere Convention.

The annex to the Western Hemisphere Convention also lists the grizzly bear as a species of special urgency and importance, thereby triggering the obligation under the treaty to protect the grizzly bear as completely as possible.⁹²

Few terrestrial mammals are as closely associated with vast expanses of remote wilderness as grizzly bears. Once numerous throughout the western half of North America, grizzly bears today can be found only in the least inhabited regions of the continent -- British Columbia, Yukon, Northwest Territories, Alberta, Alaska, and a few mountainous pockets in the Rocky Mountain region of the United States.⁹³ Canada is home for 40 percent of the entire North American grizzly bear population. An estimated 10,000-13,000 grizzlies are found in the Province of British Columbia.⁹⁴

Grizzly bears are listed as "vulnerable" and "of special concern" in Canada by the Ministry of Environment.⁹⁵ This status is granted to species that have characteristics making them particularly sensitive to human activities or natural events. One such feature is the grizzly bear's low reproduction rate, which is one of the lowest of all terrestrial animals⁹⁶ and the lowest of all animals in British Columbia.⁹⁷ A low reproductive rate makes grizzlies "extremely susceptible to population declines caused by hunting and unintentional human bear altercations or habitat displacement."⁹⁸ At the same time, it makes any significant population declines difficult to reverse.⁹⁹

⁹¹ Id. at 1-3.

⁹² See Organization of American States, *Listas de Especies de Fauna y Flora en Vias de Extincion den los Estados Miembos* (Washington, D.C. 1967).

⁹³ Pre-settlement time grizzly numbers in the western half of North America (west of Mississippi River) have been estimated at 100,000 animals. See Province of British Columbia, Ministry of Environment, Lands and Parks, *A Future for the Grizzly: British Columbia Grizzly Bear Conservation Strategy*, June 1995 (hereinafter *Grizzly Bear Conservation Strategy*).

⁹⁴ For various grizzly bear population estimates, see, e.g., Banci, V., *The Status of the Grizzly Bear in Canada in 1990*. COSEWIC Status Report commissioned by BC Environment, Wildlife Branch; Alberta Forestry, Fish and Wildlife Division; Yukon Government, Department of Renewable Resources, Victoria, B.C. (1991); James M. Peek *et al.*, *Grizzly Bear Conservation and Management: A Review*, Wildl. Soc. Bull. 15:160-169, at 160 (1987).

⁹⁵ *Grizzly Bear Conservation Strategy*.

⁹⁶ John W. Schoen, *Bear Habitat Management: A Review and Future Perspective*, Int. Conf. Bear. Res. and Management 8:143-154, at 144 (hereinafter Schoen 1990).

⁹⁷ Horejsi 1999, at 19.

⁹⁸ Farnell at 5.

⁹⁹ Schoen 1990, at 144.

Due to their large size, omnivorous feeding habits, and wide-ranging movements, grizzly bears depend on a variety of habitats.¹⁰⁰ These range from alpine and sub-alpine areas to avalanche chutes and riparian and estuarine ecosystems. Use of the most productive lands in valley bottoms, in particular, brings bears into conflict with humans that prefer the same high quality land base.¹⁰¹ The B.C. government readily admits that “nearly all grizzly bear ecosystems in British Columbia are at risk under current land use activities.”¹⁰²

1. *Taku Watershed Grizzly Bear Population*

The Taku-Tulsequah watershed provides excellent grizzly bear habitat and is home to a substantial population.¹⁰³ Based on the results of aerial and track surveys conducted in the mine site and road access areas of the watershed, the project assessment conducted by Rescan “confirm[ed] the designation of the Tulsequah/Taku study area as high value, high density grizzly bear habitat.”¹⁰⁴ Several observers have expressed concern, however, that grizzly bears are declining in the Taku region, including in areas that would be affected by the proposed development.¹⁰⁵

2. *Grizzly Bear Habitat Use and Movements in the Project Area*

The available survey data indicates that grizzly bears use habitats in different seasons throughout the area to be affected by the mine, including areas around the mine site itself and substantial portions of the proposed access road.

Sightings in the Tulsequah River Study Area suggested that bears were most active in valley bottoms, foraging for new growth in the spring and salmon in late summer-fall. Indeed, most records were from valley bottoms below the 100 m elevation.¹⁰⁶ Specific sighting sites included salmon spawning streams such as Chasm, Wilms, Whitewater, and Shazah Creeks, as well as the Nakina River, many back-channels along the Tulsequah River, and, particularly, the Taku River floodplain.¹⁰⁷ Denning and digging signs were located in 11 general areas with a considerable

¹⁰⁰ Id.

¹⁰¹ Id.

¹⁰² *Grizzly Bear Conservation Strategy*, Introduction.

¹⁰³ *Project Report* Vol. III, Part 2 of 2, at 3.113, 3.157.

¹⁰⁴ Id. Vol. IV, at 7.11. Rescan conducted three aerial surveys for grizzly bears as part of their wildlife studies in the project area. The aerial surveys took place between May 1995 and June 1996 and were done separately for two areas, the Tulsequah River Study Area and the Access Road Study Area. Results from the former area included 39 grizzly sightings involving at least 60 individual bears. In the latter area, bear sightings, sign, and denning activity were less abundant. Only five individual grizzlies and one sow with two cubs were seen. In addition to the aerial surveys, Rescan conducted a three day track survey in 1996. This survey covered 35 sites scattered through lowland portions of the project site and the access road study area. A total of 326 separate sets of bear tracks were counted, 82.2% of which were attributable to grizzly bears. Altogether, 94% of the study sites showed evidence of bear sign. See id. Vol. III, Part 2 of 2, at 3.114, 3.159; Vol. IV, at 7.10-7.14; Vol. IV & V Appendices, Appendix C.7-1.

¹⁰⁵ *Report and Recommendations of the TRTFN*, at 27; Letter from Phil Timpany to Don Weir, undated.

¹⁰⁶ *Project Report* Vol. III, Part 2 of 2, at 3.92-3.95; See also at 3.123 (on bear habitat relationships).

¹⁰⁷ Id. at 3.114; Table 3.4-13, at 3.116-117.

concentration located in the Tulsequah watershed, particularly the upper Wilms Creek area. Also, probable dens occurred in several other tributary valleys, including Shazah Creek. According to Rescan, “[t]he apparent abundance of dens in some valleys suggests that they are not randomly distributed, and that some sites have a long history of use.”¹⁰⁸ Other specifically identified grizzly bear use areas within the project area include the Tulsequah floodplain as well as both the Flannigan and Shazah Sloughs.¹⁰⁹ These heavy use areas identified in the study are within or near the mine site and lower road access portions of the project area.

In the Access Road Study Area, bears were most commonly encountered in the Tahltan Highland region in the southern half of the study area, including the relatively moist and productive zones of the Nakonake and Sloko Rivers.¹¹⁰ Most denning evidence was found on steep avalanche slopes of the Nakonake River watershed in elevations between 915 and 1,460 m.¹¹¹ Lower parts of the alpine zones are used to dig squirrels and to forage for crowberries and dwarf blueberries.¹¹² Valley bottoms, in turn, provide access to spawning salmon and Dolly Varden in several places including the Kuthai Lake outlet, Silver Salmon River, Cold Bottom Creek, as well as along the Sloko and Nakonake Rivers.¹¹³ These rivers are scattered along the proposed road access route from the Shazah Pass to its terminus near Atlin.

Grizzly bear movement and habitat requirements generally reflect their dependency on seasonally changing foraging habits combined with unusual mobility. Studies in Alaska have shown that the annual home ranges for adult female brown bears vary between 24 km² and 382 km², with male home ranges being several-fold larger.¹¹⁴ Indeed, “the normal movements of bears are so extensive that bear habitat must be evaluated and managed on a landscape scale often exceeding thousands of square kilometers.”¹¹⁵ Thus, even though the road and mine site development may physically affect only a small portion of the Taku watershed, the impact on bears will reach far beyond the footprint of the development.

In a transboundary watershed like the Taku, grizzlies can freely move across the U.S.-Canada border.¹¹⁶ There is substantial evidence to confirm that grizzly bears inhabit areas along the Taku on both sides of the Alaska and British Columbia border and

¹⁰⁸ *Id.* at 3.118.

¹⁰⁹ *Id.* at 3.125.

¹¹⁰ *Id.* at 3.159.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.* at 3.159, 3.163.

¹¹⁴ Schoen 1990, at 146 (with references to other studies).

¹¹⁵ *Id.*

¹¹⁶ See, e.g., Alaska Department of Fish & Game, cited in *Imminent Threats* (“Fish and game resource residing within the river and the surrounding valley move freely across international borders...”); Letter from Lance Craighead, Craighead Environmental Research Institute, to Don Weir, Taku Wilderness Association, August 28, 2000 (hereinafter Craighead Letter) (“many of the brown bears inhabiting that area move back and forth across the international boundary.”)

routinely cross the border.¹¹⁷ These movements are driven by the seasonal foraging opportunities -- lush vegetation in the spring and summer and salmon and berries in late summer and fall -- on both sides of the border.¹¹⁸ No evaluation of the grizzly bear population's international nature was included in the Project Assessment. However, if there was an impact on the grizzly population on the Canadian side of the border, this would certainly affect the Alaska population of bears in the Taku Drainage. In fact, it is likely the B.C. population provides the major source of bears for Alaska's Taku brown bear population. Immigration of bears to Alaska's Taku River Delta would most likely come from upriver in B.C. rather than from the precipitous fjord lands of the lower Taku Inlet in Alaska.

Though the Taku-Tulsequah grizzly bear population is not well studied, the watershed undoubtedly provides significant grizzly bear habitat and harbors an important, international population. Grizzlies depend on the entire watershed during their life cycle, including the majority of the areas proposed for development by Redfern.

3. *Impacts of Roads and Human Activity on Grizzly Bears*

The negative impacts of roads on grizzly bears are well documented in the scientific literature. Most significantly, these impacts are associated with increased human access into bear habitat followed by increased human activity and, inevitably, human-bear contact.¹¹⁹ This results not only in direct bear mortality but also causes a variety of adverse behavioral responses.¹²⁰ Such responses include displacement and disruption of activity, which, together with mortality, habitat fragmentation, and potential impacts on salmon populations, far outweigh the relatively inconsequential impact of direct loss of habitat associated with road developments.¹²¹ Rescan's conclusions in the

¹¹⁷ Craighead Letter; Letter from Neil Barten, State of Alaska Department of Fish and Game, to Don Weir, Taku Wilderness Association, August 1, 2000 (hereinafter Barten Letter).

¹¹⁸ *Id.*

¹¹⁹ B.N. McLellan & D.M. Shackleton, *Grizzly Bears and Resource-Extraction Industries: Effects of Roads on Behavior, Habitat Use and Demography*. *J. of Applied Ecology* 25:451-460, at 459 (1988) (hereinafter McLellan & Shackleton 1988); Richard D. Mace *et al.*, *Relationships among grizzly bears, roads and habitat in the Swan Mountains, Montana*, *J. of Applied Ecology* 33:1395-1404, at 1395, 1402 (1996) (hereinafter Mace *et al.* 1996); Horejsi 1999, at 20 ("Outside human population and agricultural centers most contact between bears and human is road induced."). See also Mace, R. and J. Waller, *Demography and population trend of grizzly bears in the Swan Mountains, Montana*. *Conservation Biology* 12:1005-1016 (1998); Schoen 1990, at 146-149; John W. Schoen *et al.*, *Habitat-capability model for brown bear in southeast Alaska*. *Int. Conf. Bear Res. and Manage.* 9:327-337 (1994) (hereinafter Schoen *et al.*); Kim Titus & L. Beier, *Population and Habitat Ecology of Brown Bears on Admiralty and Chichagof Islands*. Alaska Dep. Fish & Game. Fed Aid in Wildl. Restor. Prog. Proj. W-23-4. Juneau. 32 pp. (1991) (hereinafter Titus & Beier 1991).

¹²⁰ Horejsi 1999, at 22-23.

¹²¹ *Id.* at 20-22; Messier 1999, at 4; Barichello 1997, at 4.

project report regarding impact on grizzly bears were based almost entirely on habitat loss.¹²²

i. Bear mortality.

According to wildlife biologist Horejsi, “[b]ears die at a disproportionate rate when they are within 1.2 km (1 mile) of a drivable road.”¹²³ Road induced direct bear mortality is mostly associated with increased hunting and kills made in defense of human life and property (DLP kills). Enhancing human access to bears also increases the likelihood of poaching.

With regard to hunting, roads provide easy access for legal and illegal hunters including ready escape for the latter.¹²⁴ For example, on northeast Chichagof Island, Alaska, researchers found a direct correlation between autumn brown bear kills and cumulative kilometers of road construction during the period 1978-89.¹²⁵ In another example in northwest Alberta, 75-89% of legal and 71-90% of illegal bear kills have been shown to occur within 1-2 km of roads. Similar results have been reported from other study areas.¹²⁶ Increased hunting pressure may also shift toward females because female bears with cubs (as well as young males) may select road corridors to avoid aggressive adult males that tend to avoid the roads.¹²⁷ Efforts to curb authorized and unauthorized hunting with access control measures, like those proposed for the Tulsequah Access Road, have shown to be largely ineffective especially where hunting pressure is already high.¹²⁸

Mortality from DLP kills is also closely associated with roads.¹²⁹ Increased human presence can lead to habituation to humans resulting in less fear of humans and bear attraction to human food and refuse.¹³⁰ Bears that are drawn to people routinely get destroyed: In the four years between 1992 and 1996, at least 245 grizzly bears were destroyed in British Columbia alone.¹³¹ In Yellowstone National Park, habituated grizzly bears were killed over three times as often as non-habituated bears.¹³²

¹²² Barichello 1997, at 4; See also *Report and Recommendations of the Project Committee*, at 59 (“[o]ther than the immediate footprint of the road and mine site, no other direct [wildlife] habitat-related impacts related to the mine development are anticipated.” The subsequent wildlife subcommittee review of the Project Report “generally found the impacts of the ‘footprint’ to be of secondary importance compared to potential impacts associated with increased human access.”)

¹²³ Horejsi 1999, at 21.

¹²⁴ Id.; See also Trombulak & Frissell, at 24.

¹²⁵ Titus & Beier 1991.

¹²⁶ Horejsi 1999, at 21 (citing Nagy et al. 1989). Other studies cited by Horejsi include Benn 1998 (Southern Canadian Rocky Mountains, 89% of all brown bears were killed within 500m of roads) and USFWS 1993 (Northern Montana, 66% all killings and 74% of illegal killings happened within 1.8 km of roads).

¹²⁷ Barichello 1997, at 6.

¹²⁸ See supra text accompanying notes 77-79.

¹²⁹ Horejsi 1999, at 21.

¹³⁰ Id. at 20; David J. Mattson, *Human Impacts on Bear Habitat Use*, Int. Conf. Bear. Res. and Manage. 8:33-56 (1990), at 47.

¹³¹ Horejsi 1999, at 20 (citing Ciarnello et al. 1997).

¹³² Id. at 23-24 (citing Mattson et al. 1987).

ii. Avoidance, displacement, and disruption of activity.

Though roads can attract some grizzly bears with potentially lethal consequences, mortality can also flow from more subtle impacts resulting from road avoidance by bears, including reduction in habitat capability, food availability, and body condition.¹³³ Some bears are known to avoid roads, displacing them from important habitat. Studies have shown avoidance extending from 300 m up to 914 m from roads in Yellowstone, Rocky Mountains, and Western Montana.¹³⁴ A 78% decline in female brown bear use of habitat was also recorded within 150 m of logging roads during log hauling operations.¹³⁵ Evidence of avoidance seems to be independent of traffic volume, suggesting that even a few vehicles can displace bears.¹³⁶ Studies have indicated that avoidance occurs even on roads closed to traffic.¹³⁷

Road induced displacement occurs when bears are pushed away from their preferred habitats, such as stream-side habitats. Disruption of activity can involve any changes in the bears' normal behavior including feeding, traditional seasonal movement, and denning activity.¹³⁸ Since most roads are built in low elevation valley bottoms, they encroach upon preferred grizzly bear habitats in riparian areas and lower reaches of avalanche chutes. Disturbance resulting in displacement from primary habitats and valuable resources can affect fitness and contribute toward increased mortality particularly during poor food supply years.¹³⁹ At a minimum, low elevation roads create "a significant conflict relative to displacement of bears and disruption of [their] activity."¹⁴⁰ Mere human presence including dispersed non-motorized activity -- hiking,

¹³³ See, e.g., Schoen *et al.* 1994 (model predicted reduced habitat capability in areas of human activity and increased human mortality near roads on Admiralty and Chichagof Islands in southeast Alaska); Horejsi 1999, at 21 (citing to Mattson *et al.* 1992) (bear mortality in low elevation habitats such as in the proposed access road area has been shown to increase 2.3-3.3 times during years of poor food supplies); Mattson, David J. *et al.*, *The Effects of Developments and Primary Roads on Grizzly Bear Habitat Use In Yellowstone National Park, Wyoming*, *Int. Conf. Bear. Res. and Manage.* 7:259-273 (1987), at 271 (avoidance of roads and human developments probably resulted in poorer condition of adult females, and consequently higher mortality and lower fecundity rates) (hereinafter Mattson *et al.* 1987).

¹³⁴ *Id.* at 22 (with citations to original studies).

¹³⁵ Wayne F. Kasworm & Timothy L. Manley, *Road and Trail Influences on Grizzly Bears and Black Bears in Northwest Montana*. *Int. Conf. Bear. Res. and Manage.* 8:79-84 (1990), at 84 (citing Archibald *et al.* 1987).

¹³⁶ McLellan & Shackleton 1988, at 455-56. In Montana, one study showed that bears avoid roads with traffic volume of 11 or more vehicles per day. Mace *et al.* 1996, at 1396, 1402.

¹³⁷ See, e.g., Mace *et al.* 1996, at 1403 (in the Swan Mountains, some bears avoided high road density areas even though roads were closed to public travel); Horejsi 1999, at 23 (in western Montana, bear use was 58% less than expected had there not been a road). See also text accompanying *infra* note 153.

¹³⁸ Mattson *et al.* 1987, at 269; Horejsi 1999, at 20-23; Messier 1999, at 4.

¹³⁹ See, e.g., Frid 1997, at 7 (with citations to other studies); Horejsi 1999, at 21 (citing to Mattson *et al.* 1992) (bear mortality in low elevation habitats such as in the proposed access road area) has been shown to increase 2.3-3.3 times during years of poor food supplies).

¹⁴⁰ Horejsi 1999, at 22.

fishing, berry picking -- along the road can cause stress and cause bears to abandon habitat, temporarily or permanently.¹⁴¹

All of these impacts can be expected from the proposed Tulsequah Chief access road and mine site development. The road would intercept several high value bear habitats and side roads that would be built to mine gravel for construction would reach even further into the important streamside habitats.¹⁴² The mine site development itself will affect several high use areas. Tlingits of the area have asked a relevant question in this context:

I know from my personal observations that sometimes the bears don't go along river, especially if the river is too low for the salmon. Then they move up 5-10 miles into the bush for the berries but that will be right where the road is. If the road is there the bears won't have that extra space they need to survive. *Where will they go then?* This alone tells me there will be an impact from the road.¹⁴³

iii. Habitat fragmentation.

Bears are said to be “species of landscapes.”¹⁴⁴ This means that they require large, intact areas for their survival; their long-term conservation cannot be based on small, separated pockets of suitable bear habitat. Industrial road-building through remote and previously undeveloped bear territory is a typical example of an activity causing, and facilitating ensuing, habitat fragmentation, the overall threat to grizzly bears.¹⁴⁵ Fragmentation resulting from road access was one of the main issues that led an independent panel of scientists to conclude that the B.C. government “is seriously mismanaging their grizzly bear population and habitat.”¹⁴⁶ Approval of the proposed access road in this important, intact watershed would fundamentally fragment this critical habitat and subject the Taku grizzly bear population to a likely significant increase in both direct and indirect mortality, and potentially significant population decline.

iv. Salmon Impacts.

As discussed above, the grizzly bear's seasonally changing diet includes salmon, five species of which occur in the Taku drainage.¹⁴⁷ Changes in the watershed affecting the abundance of salmon could adversely affect the bears particularly during years of food scarcity. The proposed access road and mine would bisect the watershed in a manner that could destroy world class salmon habitat by way of sedimentation, siltation,

¹⁴¹ See, e.g., Horejsi 1999, at 23 (dispersed non-motorized activity “can displace bears from a distance of 3 km and alter their activity for at least 24 hours”) (citing Schleyer *et al.* 1984); Bruce N. McLellan, *Relationships Between Human Industrial Activity and Grizzly Bears*, Int. Conf. Bear. Res. and Manage 8:57-64, at 58-59 (1990) (hereinafter McLellan 1990)(effects of hikers on bear behavior).

¹⁴² Horejsi 1999, at 22.

¹⁴³ Jack Affidavit, ¶20 (emphasis added).

¹⁴⁴ Schoen 1990, at 151.

¹⁴⁵ See, e.g., Trombulak & Frissel, at 25 (fragmentation in general); McLellan 1990, at 62.

¹⁴⁶ Horejsi 1999, at 19 (citing Horejsi, Gilbert and Craighead 1998).

¹⁴⁷ See text accompanying *supra* notes 20, 106-107, 113, 118.

and decreased fish passage – key concerns for the State of Alaska throughout the project review process.¹⁴⁸ Any future developments enabled by the improved access to the area would further exacerbate the problem.¹⁴⁹

4. *Fundamental Flaws in Redfern’s Project Assessment and Mitigation and Monitoring Plans Related to Grizzly Bears*

The Tulsequah Chief Project Report fails to acknowledge the adverse effects on grizzly bears flowing from the proposed mine development and, in particular, the access road. For example, the report projects minimal impacts because animals will habituate to mine activity and road traffic. However, its evaluation of habituation to disturbance was “biased and shallow” because it failed to consider the substantial evidence in the literature, referred to above, documenting adverse impacts from roads on wildlife, including impacts resulting from habituation.¹⁵⁰

The report’s response to dislocation caused by the access road is based on the assumption that dislocated grizzlies will move to an unoccupied area. This assumption fails to consider the likely adverse impacts associated with such relocation arising from the spatial and density limits that bears can tolerate.¹⁵¹

As discussed above, the various measures proposed to reduce wildlife impacts, including access control measures and road decommissioning, are likely not to be successful. Road closure measures in particular are not likely to reduce bear impacts significantly. According to Horejsi, administrative measures “have little impact on reducing bear mortality” and can only “marginally reduce the level of displacement resulting from human activity.”¹⁵² Mortality related to closed roads has been demonstrated with bear populations elsewhere, including with the endangered Selkirk grizzly bear population, which suffered 11 deaths associated with open roads and four deaths associated with “closed” roads between 1982 and 1996.¹⁵³ Even if the access restrictions controlled human-induced grizzly mortality along the road for the duration of the project, it still would not mitigate other road impacts such as habitat displacement.¹⁵⁴

¹⁴⁸ See, e.g., Howard Letter, at 4, 6; *State of Alaska Response*, at 2-3; Letter from Tony Knowles, Governor of Alaska, to Madeleine Albright, Secretary of State, January 27, 2000. For a description of impacts on aquatic life and habitat, see *Project Report*, Vol. V, at 3.1-3.8.

¹⁴⁹ See, e.g., Howard Letter, at 6.

¹⁵⁰ Frid 1997, at 7 (with citations to other studies). Reviewers of the report highlighted several types of impacts not addressed, including behavioral and physiological adjustments -- increased heart rates with subsequently higher metabolic rate and energy consumption, for example -- resulting from disturbance, which “predispose animals to predation, or reduce foraging efficiency and increased energy costs, which can lead to deterioration of body condition and reproductive success.” Barichello 1997, at 4 (citations to Bradshaw 1994; Dehn 1994 omitted). In addition, the report failed to assess long-term, low level stress that “can be cumulative and result in population-level impacts. Such impacts will be difficult if not impossible to detect by the types of surveys, habitat analyses, or monitoring measures used or proposed [by Redfern].” Shackleton 1999, at 6.

¹⁵¹ Shackleton 1999, at 6.

¹⁵² Horejsi 1999, at 21.

¹⁵³ *Id.* (referencing other studies); See also *supra* note 137.

¹⁵⁴ *Report and Recommendations of the TRTFN*, at 56.

D. Failure to Evaluate Meaningfully the Long Term, Cumulative Effects of Future Development in the Taku Watershed Including Effects on Caribou, Grizzly Bear, and Other Wildlife.

Construction of the proposed Tulsequah Chief mine project will change forever the nature of the Taku watershed by introducing a major road through the most ecologically sensitive part of the drainage and the center of its biological diversity. The road will become the pathway for future development projects, including mining and logging. Though the impacts to caribou, grizzly bear, and other wildlife from the proposed project alone will be significant, the potential cumulative affects associated with future developments could be much more substantial. Despite major concerns raised by the United States and the Tlingits, Canada failed to conduct a meaningful assessment of cumulative impacts of the potential future developments in the Taku region resulting from the construction of the access road including their long-term impacts on fish and wildlife.¹⁵⁵

In the Project Report, Redfern provided minimal treatment of potential cumulative effects, asserting that there were no past, existing, or imminent other projects or activities in the Taku watershed which would require a separate cumulative effects analysis under the law.¹⁵⁶ Rescan failed to take into account such factors as the increased access to future industrial activities a new road will provide, repeated vehicle or helicopter traffic, and extended chain reactions set off by the immediate impacts of the road.¹⁵⁷ In fact, several “reasonably foreseeable” activities were identified in the course of the project assessment process relating to the potential re-activation of nearby mining properties, such as Polaris Taku and Big Bull, and in particular, to the continued use of the road after the mine closure. As the State of Alaska and Tlingits described, access into a previously untouched watershed could open the doors for increased use of fish and wildlife resources, timber harvesting, hydroelectric development, and tourism operations in the area.¹⁵⁸

The key reviewing agencies determined that Redfern’s treatment of cumulative effects in the Project Report was inadequate and established a separate subcommittee under the Environmental Assessment Office to coordinate the subsequent production of a Cumulative Effects Assessment Report. The primary focus of this report, however, was on water quality issues, with no consideration of the long-term effects on caribou or other wildlife.¹⁵⁹ The Project Committee took the position that any long term and post-project

¹⁵⁵ See, e.g., *United States Concerns – Tulsequah Chief Mine & Long Term Development of the Taku River Watershed*, November 13, 1998, at 4-5 (“the United States has major concerns regarding cumulative effects of long term development of this currently roadless watershed” and “the proposed mine access road is likely to contribute to additional developments of the area which could dramatically increase environmental risks to the watershed”); *Report and Recommendation of the TRTFN*, at 57-58 (containing a detailed account of the Tlingits’ concerns relating to the “post-project world”).

¹⁵⁶ *Project Report*, Vol. V, at 8.1.

¹⁵⁷ Barichello 1997, at 6, 8-9.

¹⁵⁸ *State of Alaska Response*, at 3; *Report and Recommendation of the TRTFN*, at 57-60.

¹⁵⁹ *Report and Recommendations of the Project Committee*, at 76 (summary of the scope of the assessment excluding explicitly, for example, potential timber operations in the future).

impacts from the access road would be mitigated in the Land and Resource Management Planning (LRMP) process scheduled for the Atlin area in the next few years.¹⁶⁰ As pointed out by the TRTFN, this approach is backward. It allows “the road to proceed in advance of a land use plan”, and thus, “largely pre-ordain[ing] the planning outcome.”¹⁶¹

IV. CONCLUSION

Development of the Tulsequah Chief mine project as proposed will have significant impacts on the woodland caribou and grizzly bear populations of the Taku watershed. The direct mortality increases for both species and adverse modification of their habitat likely resulting from the project will result in a “taking” within the meaning of the Pelly Amendment. Canada has failed to take any meaningful steps to ensure that the development does not affect these important populations, and in so doing has diminished the effectiveness of the Western Hemisphere Convention, and in particular, its provisions requiring special protection for the species listed in the annex to the convention, including woodland caribou and grizzly bear.

In light of the recent decision by a Canadian court remanding the project environmental assessment, the Canadian federal and provincial governments have another opportunity to address the fundamental inadequacies of their original assessment and decision approving the proposed project. So far, however, it does not appear that the governments intend to undertake such a basic reexamination of the project and its impacts.

Accordingly, the undersigned groups respectfully request that you urge the Canadian governments to reevaluate meaningfully the potential environmental impacts to wildlife from the Tulsequah Chief mine project, including the cumulative effects associated with future development it will facilitate. Under the circumstances, we believe the most appropriate course for such a reevaluation is a reference to the International Joint Commission. Given the ongoing reticence of Canada to take appropriate action to prevent adverse impacts to woodland caribou and grizzly bear from this project, until Canada does take such action, we ask that you open a docket and proceed with a certification of the project under the Pelly Amendment.

Sincerely yours,

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¹⁶⁰ *Report and Recommendation of the TRTFN*, at 59.

¹⁶¹ *Id.* (emphasis in original).

*Pelly Amendment Petition,
January 4, 2001*

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