Proposal for the Protection of the **Quesnel Lake Wilderness**



Submission to the Governments of British Columbia and Canada for Provincial or National Park Status

On the urgent need to preserve British Columbia's Inland Temperate Rainforest and secure habitat for critically endangered Deep-Snow Mountain Caribou.

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Executive Summary

This is a proposal to protect the wilderness of the North and East Arms of Quesnel Lake, including the Penfold River valley, as a 267,889-ha class-A Provincial Park or National Park in British Columbia's Cariboo region.

Quesnel Lake and the proposed wilderness park are of great cultural significance to the Secwépemc First Nations, including the Xat'sūll (Soda & Deep Creek), T'exelc (Williams Lake), Tsq'escen' (Canim Lake), and Stswecem'c Xgat'tem (Canoe & Dog Creek) bands of the Northern Shuswap Tribal Council that hold treaty rights over the proposal area.

If protected, the Quesnel Lake Wilderness would, be a major improvement to British Columbia's fragmented parks system by adding a significant amount of low-elevation old growth forest habitat for Deep-Snow Mountain Caribou that the adjacent parks sufficiently lack. It would also support the conservation of three watersheds, including spawning habitat for one of the largest Sockeye Salmon stocks of the Fraser River Basin.

The proposal encompasses a significant high-biodiversity wilderness, including the very wet ancient Inland Rainforest ecosystem known to be inhabited provincially by at least 156 listed species at risk and 56 known COSEWIC-listed species at risk. Preserving the Quesnel Lake Wilderness as a Class A Provincial Park or National Park will leave a legacy of ancient forest for generations to come, and will provide the best possible outcome for preservation of Canada's rare Deep-Snow Mountain Caribou.



The Park Proposal

Quesnel Lake

With depths up to 610 metres, Quesnel Lake is the deepest lake in British Columbia and thought to be the deepest fjord lake in the world. It is a major tributary of the Fraser River; contributing genetically unique salmon of record-breaking size to the Pacific coast (COSEWIC 2002).

Quesnel Lake is sacred to many First Nations communities who, along with other communities and wildlife populations within the Fraser River Basin, greatly depend on its restoration and protection.



Left: Looking toward the Junction block between the North and East Arms of Quesnel Lake. Right: The Penfold River Valley; prime habitat for Grizzly Bears, Mountain Caribou, and other threatened and endangered species. [Photos: Craig Pettitt]

Fisheries

The existing park system surrounding Quesnel Lake has left out three major watersheds that contribute significantly to British Columbia's Pacific Salmon stocks. This includes the Quesnel River, a major tributary to the Fraser - the largest salmon-producing river in the world.



Spawning Sockeye Salmon. [Photo: Craig Pettitt]

Quesnel Lake and its tributaries have been estimated to contain a quarter of the natural spawning sites of Fraser River Sockeye Salmon (Babcock 1902). The proposal also covers ample Chinook Salmon spawning grounds; a species necessary to sustain the endangered and declining B.C. Southern Resident Killer Whales. Quesnel Lake and Quesnel River support major anadromous Pacific Salmon and resident trout and salmon stocks. These stocks maintain diverse and productive aquatic and terrestrial ecosystems across a great distance. They are keystone species that feed Canadians, First Nations and wildlife throughout the province and beyond.

Quesnel Lake salmon stocks have a particularly vast distribution compared to other Fraser River stocks, enriching an extensive area as they migrate as far as Kodiak Island off the coast of Alaska (Beacham 2014).



Quesnel Lake is a popular destination for guided fishing tours. [Photo: Craig Pettitt]

Quesnel Lake fish populations sustain multiple commercial, sport, and Indigenous fisheries.

Secwépemc First Nations



A member of the Xat'sūll First Nation with an ancient cedar. [Photo: Craig Pettitt]

Archaeological surveys have found signs of Secwépemc Nation occupancy dating back 4000 years within the proposal.



A member of the Xat'sūll First Nation at the shore of Quesnel Lake. [Photo: Craig Pettitt]

The proposed park is of great cultural significance to multiple First Nations bands of the seventeen that form the Secwépemc Nation.

Four of these bands hold treaty rights in the proposal area.

These include the Xat'sūll (Soda & Deep Creek), T'exelc (Williams Lake), Tsq'escen' (Canim Lake), and Stswecem'c Xgat'tem (Canoe & Dog Creek) bands that form the Northern Shuswap Tribal Council.

The Secwépemc Nation traditionally relied on this land for fishing, hunting, and gathering of roots and berries (T'exelc Williams Lake Indian Band 2018; Teit 1909).

A joint VWS-First Nations expedition confirmed extreme value for First Nations cultural sites, oldgrowth rainforest, and an unexpected system of lakeshore-spawning salmon, Grizzly Bear, and Bald Eagle ecology producing the highest concentration of oceanic lichen species recorded in the Interior of British Columbia at the time of the survey.

The Williams lake band recognizes important cultural heritage sites within the park proposal including multiple Quigley holes or pit-house sites and sites of culturally modified trees.



A First Nations pit house site; a historic remnant of past inhabitants of the Quesnel Lake rainforest. [Photo: Craig Pettitt]

Today, cultural use sites are designated in the existing 872-ha Quesnel Lake Park. There are at least two recorded archaeological sites with high potential for more archaeological resource discovery within the proposal area (B.C. Parks 2015).

With clearcut logging encroaching on this remnant wilderness, little remains intact of the traditional territory of local First Nations.

Anglers, nature guides, and local First Nations still rely on Quesnel Lake and its surrounding intact wilderness for their livelihoods and for uses of cultural and spiritual significance.

Tourism and Recreational Values

With record breaking trophy trout and salmon, Quesnel Lake boasts a sport fishery that is said to be unparalleled anywhere in British Columbia and perhaps anywhere in the world. Sport fishing is extremely renowned, attracting people from all over North America and internationally to the various fishing adventure businesses (Cariboo Regional District 2009). Sandy beaches along Quesnel Lake are



another attractive feature, making this wilderness a popular destination for campers, wildlife watchers and backcountry recreationists.

Popular activities include:

- Canoeing Biking
- Kayaking
- Wildlife viewing
- Fishing
- Swimming
- Sailing
- Nature tours
- Rock climbing Hiking

This intact wilderness promises high potential for nature-based tourism, providing economic opportunities to First Nations and other groups interested in bear viewing and other local conservation-based industries.

Left: An array of hiking trails already exists within the park proposal.

Biodiversity

The Quesnel Lake Wilderness will contribute substantial ecosystem diversity to the adjacent park system, securing more high-value habitat for Grizzly Bears and Mountain Caribou. The proposal includes a significant addition of intact old Engelmann Spruce-Subalpine Fir (ESSF) and very wet Interior Cedar-Hemlock (ICH wk) forest to the existing park system, totalling 168,472-ha of intact old forest defined in Appendix C. Wetlands, spawning channels, waterfalls, and ancient old-growth redcedar forest form a diverse habitat that supports an outstanding degree of biodiversity.



Craig Pettitt

Left: Sockeye Salmon spawning offshore of Quesnel Lake. Middle: S. venerabilis, S. tuckermannii, S. fulignosa, and S. oroborealis. This is the furthest north in the interior that coral lichens venerabillis and tuckermanii have been found. Right: A healthy population of eagles thrives on spawning fish and deposits nitrates that support lichen growth throughout the forest.

Surrounding Quesnel Lake is one of the wettest and most species rich ITR ecosystems surveyed in Valhalla Wilderness Society's 20+ year Inland Temperate Rainforest project. This intact rainforest supports critically endangered Deep-Snow Mountain Caribou and other rare and endangered species.

Research on B.C. forest fires has shown that environmental precipitation is a greater determining

factor for forest fires than temperature, and that preservation of precipitous ecosystems could contribute to a reduction in the intensity of wildfires in British Columbia (Meyn et al. 2013).

These forests rarely burn at high intensity, and are home to huge cedars up to four meters in diameter, with individual trees estimated at up to 2000 years old.

Unfortunately, wildfires and Mountain Pine Beetle outbreaks have devastated the drier ecosystems of the Interior Plateau surrounding the Quesnel Lake Wilderness.

Designating greater protection for this ancient, humid, and resilient haven of biodiversity now is fundamental to pursuing long-term ecosystem stability amidst a rapidly changing landscape and climate.

Substantial biodiversity is partly attributed to heavy nutrient loading within the Interior Cedar - Hemlock forest, which allows for lush and diverse growth of lichens and other or-



Mossy cedar branches are an indicator of true rainforest.

ganisms. This may be attributed to productive fish spawngrounds ing along Quesnel Lake's shoreline. Spawning trout and salmon attract eagles, Grizzlv Bears. and scavengers that deposit nutrients in the surrounding forest.

A survey of the Quesnel Lake Wilderness found oceanic lichen species in abundance and some in forms not known to science at the time of the survey.





A rare discovery within the park proposal; the lichen species Stitca oroborealis in its flowering stage. [Photo: Craig Pettitt]



Craig Pettitt

University of Alberta biologist Toby Spribille surveys an ancient redcedar tree for lichens.

Sticta oroborealis and *S. fuliginosa, Platismatia norvegica,* and the COSEWIC species of special concern *Nephroma occultum* are some of the species found that are usually endemic to coastal ecosystems. These are just a few of the hundreds of lichen species that can be found within the wet ICH rainforest. – The Inland Temperate Rainforest -

British Columbia's remaining intact interior rainforest contributes to the overall health of the landscape in B.C. through the persistence of ecosystem services that resilient ecosystems provide. Some of these services include active carbon sequestration and storage, biodiversity preservation, cooler climate-refugia, the supply and filtration of massive volumes of freshwater, wild food production for humans and wildlife, habitat for bats and birds that control agricultural pests, and the production of pollinating insects.



Another rare find within the park proposal; the COSEWIC species of special concern Nephroma occultum. [Photo: Craig Pettitt]



A waterfall in the Inland Rainforest off the shore of Quesnel Lake. [Photo: Craig Pettitt]

While the province's countless plantation forests continue to burn at an alarming rate, the oldest of our remaining Inland Temperate Rainforest largely continues to remain as wet forest ecosystems that are more resilient to a heating climate than our younger, less structurally complex forests.

These forests have evolved to rarely be impacted by significant stand-replacing disturbance events, and they become more resilient over time. However, their values are deeply threatened by extensive logging today.

Dr. Lance Craighead of the renowned Craighead Environmental Research Institute conducted an indepth analysis of the Inland Temperate Rainforest Region from which he concluded that:

- 55% of the ITR must be fully protected to maintain species such as salmon, Grizzly Bears, and Mountain Caribou (Craighead 2004).

- 85% must be managed for ecosystem values to maintain biodiversity.

A 10-year GIS mapping project with Baden Cross of Applied Conservation GIS found dismal protection of the remnant Inland Temperate Rainforest (ICH vk; wk) within the Inland Rainforest Region (IRR).

IRR land base: 14.31 million hectares.
Parks in the IRR: 2.44 million hectares (17% of land base).

- Only 15% of forest in the IRR is Inland Rainforest.

- Only 18% of the Inland Rainforest is protected* (263,376-ha of ICHwk & 51,075 -ha of ICHvk).

- Only 51,457 hectares of old-growth ICHwk

and 10,014 hectares of old-growth* ICHvk exist in fully protected areas.

- Only 20% of the protected Inland Rainforest is old-growth (140 yrs +). Ancient old-growth over 1000 years is far less protected.

- Two-thirds of protected ITR are over 1000m in elevation with far less species diversity than low-elevation ITR.

- 47% protected ITR is on steep slopes largely avoided by Mountain Caribou.

*"Protected" means permanently, legally, and fully protected with designations such as parks, conservancies, and ecological reserves. "Old-growth" describes tree stands of 140 years or older as per B.C. Forest Service standards.

- At-Risk Species -

Mountain Caribou

The Quesnel Lake Wilderness is home to the second largest remaining population unit of Deep-Snow Mountain Caribou. Habitat protection for this large population is necessary to preserving the ecotype found nowhere else in the world but in B.C's Interior Wetbelt.

Under the Federal Species at Risk Act, the valley-bottom old growth forest along Quesnel Lake is critical habitat for endangered and red-listed Deep-Snow Mountain Caribou.

195,505 hectares of the proposal are designated as a Caribou Wildlife Habitat Area. If this population is extirpated, the weak no-harvest protection could be lifted, putting this rare ecosystem and its long list of at-risk species at greater risk of extirpation and extinction.

The Quesnel Lake Wilderness covers much of the habitat range of the Wells Grey North herd of 236 animals. This is the second largest remaining herd and its range overlaps with the Wells Grey South - North Thompson, Barkerville, and North Cariboo Mountains sub-populations of 135, 65 and 145 animals respectively. Note these numbers are from the 2020 census and represent estimates or known numbers (B.C. Caribou Recovery Program 2021).

- Population mixing is believed to occur between these four sub-populations (Young & Freeman 2001).

- The proposal area is an important trans-population migration corridor.

- The proposal creates high potential for population gene flow, establishing greater long-term population stability.





Mountain Caribou on the shore of Quesnel Lake. [Photo: Elysia Resort]



Left: The ancient Inland Rainforest along the shores of Quesnel Lake supports the growth of hair lichens (Alectoria and Bryoria spp.) - a staple winter food item for Mountain Caribou. [Photo: Craig Pettitt]

Mountain caribou need a wide range of connected habitat types to survive, and their range has been shown to shift slightly each year, demanding a greater protected habitat area for long-term conservation (Seip 1992).

The 2014 federal recovery strategy reveals that 65% intactness is necessary for Mountain Caribou survival (Environment Canada 2014). The Quesnel Lake Wilderness would add substantial intact Englemann Spruce Subalpine Fir, Interior Cedar - Hemlock (ICH), and wet Inland Rainforest ICH to the existing park system (see Appendix C).

Much of the low-mid elevation ICH old growth the Deep-Snow Mountain Caribou need in spring and early winter is outside of existing park boundaries in British Columbia.



The Mountain Caribou is an iconic Canadian species whose decline is an indicator of overall ecosystem health of the Interior Wetbelt. [Photo: Wayne McCrory]

The North Arm of Quesnel Lake and the Penfold Valley may be the largest and most intact body of Inland Temperate Rainforest in existence today, rivalled only by the Walker Wilderness in the Robson Valley.



69% of the Interior Cedar-Hemlock (ICH) forest within the park proposal is outside of the no-harvest boundary, and the forest inside the no-harvest area is still subject to mining, mineral tenure logging and development, leaving this wet rainforest habitat for Mountain Caribou grossly unprotected.

Almost all of the ICH old-growth in the park proposal is outside of the No-Logging Wildlife Habitat Area (WHA), and much of the proposal area's ICH forest within the no-logging area is covered in one of 180 mineral, placer or coal tenures or applications.

This population is the largest to exist predominantly within a protected area, and focussing on the expansion of this habitat is an important strategy for their conservation.

Protection of the remaining old growth forest around Wells Grey Park is the most urgent necessity for the second largest population unit of this iconic Canadian migratory animal.

Grizzly Bears

The Quesnel Lake Wilderness includes ample habitat for a large population of blue-listed Grizzly Bears, a Federally-listed Species of Special Concern.

At the North and East Arms of Quesnel Lake, critical spawning habitat for salmon and Bull Trout are abundant at the convergence of most rivers and creeks (Cariboo Regional District 2009).

Wide-bed Sockeye Salmon spawning habitats create plentiful foraging sites for Grizzly Bears and viewing areas for various wildlife tourism businesses within the proposal area.



The range of Grizzly Bears has decreased severely across North America. [Photos: Craig Pettitt]

The B.C. Auditor General's review of Grizzly Bear management in British Columbia (2017) found:

- Major uncertainty in population estimates.
- Unsustainable maximum allowable mortality rate has persisted despite the uncertainty.
- British Columbia's fragmented park system cannot sustain Grizzly Bears long-term.
- Cumulative effects of decline should ring alarm bells for urgent protection.

Other At-Risk Species

The Quesnel Lake Rainforest is a significantly large and intact remant of the globally rare Inland Temperate Rainforest ecosystem. At least 156 species at risk are known to inhabit British Columbia's wet Interior Cedar-Hemlock forest, but it is likely there are also species yet to be discovered.



The wettest and richest remaining inland rainforests in British Columbia's Interior Wetbelt have biodiversity comparable to some tropical forests. Research suggests that many of these species may not have been discovered or described by scientists yet. [Photo: Craig Pettitt]

Appendix A lists provincially or COSEWIClisted animal species that may occur in the proposal area based on a B.C. Conservation Data Centre (CDC) search in 2024. This search revealed at least 102 at-risk animals that potentially inhabit the proposal area, including 21 red-listed and 69 blue-listed species, and 43 COSEWIC-listed species. The CDC also lists at least 19 at-risk plant and lichen species, including 12 red-listed and 6 blue-listed species, and 7 COSEWIC-listed species (Appendix B), though surveys by Dr. Toby Spribille estimated substantially greater species diversity. Finally, the CDC lists at least 19 at-risk ecological communities, including 17 blue and 2 red-listed communities that may be present in the proposal.

Why British Columbia Need More Parks

Wide-Ranging Species



The Quesnel Lake Wilderness will enhance the existing, surrounding protected areas, creating a more viable range for long-term protection of Mountain Caribou and other wide-ranging species such as Grizzly Bears.

Other methods of protection are not working.

Since the Mountain Caribou Recovery Implementation Plan was announced in 2008, the Wells Grey North herd has dropped from 265 to an estimated 236 individuals in 2020, and the Wells Grey South herd from 223 to 135 recorded individuals (B.C. Caribou Recovery Program. 2021).

Starting in 2001, the Quesnel Highland Wolf Project significantly reduced and sterilized wolf populations within the proposal area. The

substantial reduction in wolves and increase in hunters' bag limits and season lengths all failed to produce a significant increase in Mountain Caribou (Roorda & Wright 2004; Hayes 2013).

Restoration of the Quesnel Lake Ecosystem

Historically, The Quesnel River produced the largest Sockeye Salmon runs in the entire Fraser Basin. Construction of the Quesnel River Dam and the Hell's Gate rockslide caused drastic declines in this salmon run. In the late 20th century, the Quesnel River began to once again outnumber the famous Adams River Sockeye run, making it the largest Sockeye producing river in the Fraser Basin (Department of Fisheries and Oceans 1995).

Though the Mt. Polley tailings pond breach of 2014 is a serious concern for wildlife and people inhabiting the Quesnel Lake area, we have repeatedly witnessed the incredible resilience of nature and its ability to bounce



Despite the decline, Wells Grey herds are in numbers far higher than all but one herd of remaining Mountain Caribou [Photos: Jim Lawrence].

back from catastrophe if given the chance to rejuvenate without further disturbance.



The Mitchell and Horsefly Rivers are the two greatest sources of Sockeye Salmon to the Quesnel Lake stock. These stocks have experienced steep declines throughout history, but have shown great potential for restoration with rapidly increasing returns from extreme lows to 1.6 million and 11 million respectively in 1993 (Department of Fisheries and Oceans 1995).

Impacts of the tailings pond breach on the Quesnel Lake ecosystem are not fully known. Further disturbance to the area could cause catastrophic effects for the entire Quesnel Lake ecosystem and others within the Fraser River Basin.

Supporting this stunning wilderness through its recovery is important to all British Columbians. The Quesnel Lake Wilderness would provide the protection the caribou and the Inland Rainforest need, and be a cultural and ecological legacy for future generations.

APPENDIX A - At-Risk Animal Species

The following table lists provincially or COSEWIC-listed animal species confirmed or that may occur in the proposal area. It was compiled through the BC Species and Ecosystem Explorer using a custom polygon encompassing the Quesnel Lake Wilderness proposal. Search Criteria: Animals; Vertebrates & Invertebrates AND BC Blue or Red-listed OR COSEWIC listed as Endangered (E), Threatened (T), or Special Concern (SC) (B.C. Conservation Data Centre 2024). Note that data is limited and complete animal inventories are still needed.

Table 1: Provincially or COSEWIC-listed animal species confirmed or that may occur in the proposal area.

Scientific Name	English Name	BC List	COSEWIC
	American Goshawk, atricapillus sub-		
Accipiter atricapillus atricapillus	species	Blue	NAR
Acipenser transmontanus	White Sturgeon	No Sta-	E/T
	White Sturgeon (Upper Fraser River		
Acipenser transmontanus pop. 5	Population	Red	E
Acroloxus coloradensis	Rocky Mountain Capshell	Blue	NAR
Aechmophorus occidentalis	Western Grebe	Red	SC
Aeronautes saxatalis	White-throated Swift	Blue	
Anaxyrus boreas	Western Toad	Yellow	SC
Ardea herodias herodias	Great Blue Heron, herodias sub-	Blue	
Asio flammeus	Short-eared Owl	Blue	Т
Athene cunicularia	Burrowing Owl	Red	E
Bartramia longicauda	Upland Sandpiper	Red	
Boloria alberta	Albert's Fritillary	Blue	
Botaurus lentiginosus	American Bittern	Blue	
Branta bernicla	Brant	Blue	
Buteo lagopus	Rough-legged Hawk	Blue	NAR
Buteo swainsoni	Swainson's Hawk	Red	
Butorides virescens	Green Heron	Blue	
Calcarius pictus	Smith's Longspur	Blue	
Calopteryx aequabilis	River Jewelwing	Blue	
Charina bottae	Northern Rubber Boa	Yellow	SC
Chondestes grammacus	Lark Sparrow	Blue	
Chordeiles minor	Common Nighthawk	Blue	SC
Chrysemys picta	Painted Turtle	No Sta-	T/SC
	Painted Turtle - Intermountain - Rocky		
Chrysemys picta pop. 2	Mountain Population	Blue	SC
Cicindela hirticollis	Hairy-necked Tiger Beetle	Blue	
Coccothraustes vespertinus	Evening Grosbeak	Yellow	SC
Colias meadii	Mead's Sulphur	Blue	
Coluber constrictor	North American Racer	Blue	Т
Contopus cooperi	Olive-sided Flycatcher	Yellow	SC
Cypseloides niger	Black Swift	Blue	E
Dolichonyx oryzivorus	Bobolink	Red	SC
Enallagma civile	Familiar Bluet	Red	

Scientific Name	English Name	BC List	COSEWIC
Enallagma civile	Familiar Bluet	Red	
Enallagma clausum	Alkali Bluet	Blue	
Erebia magdalena	Magdalena Alpine	Blue	
Eremophila alpestris merrilli	Horned Lark, merrilli subspecies	Red	
Euphagus carolinus	Rusty Blackbird	Blue	SC
Falco mexicanus	Prairie Falcon	Red	NAR
Falco peregrinus	Peregrine Falcon	No Sta-	SC
Falco peregrinus anatum	Peregrine Falcon, anatum subspecies	Red	NAR
Falco rusticolus	Gyrfalcon	Blue	NAR
Galba obrussa	Golden Fossaria	Blue	
Galba parva	Pygmy Fossaria	Blue	
Gulo gulo	Wolverine	No Sta-	SC
Gulo gulo luscus	Wolverine, luscus subspecies	Blue	SC
Gyraulus crista	Star Gyro	Blue	
Hesperia nevada	Nevada Skipper	Blue	
Hirundo rustica	Barn Swallow	Yellow	SC
Hydroprogne caspia	Caspian Tern	Blue	NAR
Icteria virens	Yellow-breasted Chat	Red	E
Larus californicus	California Gull	Red	
Lasionycteris noctivagans	Silver-haired Bat	Yellow	E
Lasiurus cinereus	Hoary Bat	Blue	E
Limnodromus griseus	Short-billed Dowitcher	Red	
Magnipelta mycophaga	Magnum Mantleslug	Blue	SC
	Western Screech-Owl, macfarlanei		
Megascops kennicottii macfarlanei	subspecies	Blue	Т
Melanerpes lewis	Lewis's Woodpecker	Blue	Т
Melanitta perspicillata	Surf Scoter	Blue	
Myotis lucifugus	Little Brown Myotis	Blue	E
Myotis septentrionalis	Northern Myotis	Blue	E
Myotis yumanensis	Yuma Myotis	Blue	
Nannopterum auritum	Double-crested Cormorant	Blue	NAR
Numenius americanus	Long-billed Curlew	Yellow	Т
Nycticorax nycticorax	Black-crowned Night-Heron	Red	
Oeneis jutta chermocki	Jutta Arctic, chermocki subspecies	Blue	
Oncorhynchus clarkii lewisi	Cutthroat Trout, lewisi subspecies	Blue	SC
Ophiogomphus occidentis	Sinuous Snaketail	Blue	
Oreamnos americanus	Mountain Goat	Blue	
Oreoscoptes montanus	Sage Thrasher	Red	E
Ovis canadensis	Bighorn Sheep	Blue	
Patagioenas fasciata	Band-tailed Pigeon	Blue	SC
Pelecanus erythrorhynchos	American White Pelican	Red	NAR
Phalaropus lobatus	Red-necked Phalarope	Blue	SC
Physella propinqua	Rocky Mountain Physa	Blue	
Physella virginea	Sunset Physa	Blue	

Table 1 continued.

Scientific Name	English Name	BC List	COSEWIC
Pisidium fallax	River Peaclam	Blue	
Pituophis catenifer	Gophersnake	No Sta-	XT/T
Pituophis catenifer deserticola	Gophersnake, deserticola subspecies	Blue	Т
Planorbella columbiensis	Caribou Rams-horn	Red	
Planorbula campestris	Meadow Rams-horn	Blue	
Pluvialis dominica	American Golden-Plover	Blue	
Podiceps nigricollis	Eared Grebe	Blue	
Psiloscops flammeolus	Flammulated Owl	Blue	SC
Rangifer tarandus pop. 1	Caribou (Southern Mountain Popula-	Red	E
Rangifer tarandus pop. 15	Caribou (Northern Mountain Popula-	Blue	SC
Recurvirostra americana	American Avocet	Blue	
Salvelinus confluentus	Bull Trout	Blue	SC
Setophaga castanea	Bay-breasted Warbler	Red	
Setophaga tigrina	Cape May Warbler	Blue	
Setophaga virens	Black-throated Green Warbler	Blue	
Somatochlora brevicincta	Quebec Emerald	Blue	
Somatochlora forcipata	Forcipate Emerald	Blue	
Spea intermontana	Great Basin Spadefoot	Blue	Т
Sphaerium occidentale	Herrington Fingernailclam	Blue	
Sphaerium striatinum	Striated Fingernailclam	Blue	
Stagnicola traski	Widelip Pondsnail	Blue	
Taxidea taxus	American Badger	Red	E
Troglodytes hiemalis	Winter Wren	Blue	
Tympanuchus phasianellus	Sharp-tailed Grouse, columbianus		
columbianus	subspecies	Blue	
Tyto alba	Barn Owl	Blue	Т
Ursus arctos	Grizzly Bear	Blue	SC
Valvata tricarinata	Threeridge Valvata	Red	
Vertigo arthuri	Callused Vertigo	Blue	

APPENDIX B - At-Risk Plants, Lichens and Ecological Communities

Table 2 below lists provincially or COSEWIC-listed plant and lichen species confirmed or that may occur in the proposal area. It was compiled through the BC Species and Ecosystem Explorer using a custom polygon encompassing the Quesnel Lake Wilderness proposal. Search Criteria: Lichens AND Plants; Vascular plants and Bryophytes AND BC Blue or Red-listed OR COSEWIC listed as Endangered (E), Threatened (T), or Special Concern (SC). Note that initial inventories have confirmed far more species presented than listed here and that complete inventories and lichen ID from initial inventories are still needed.

Table 3 lists provincially at-risk ecological communities that may be present in the proposal area (B.C. Conservation Data Centre 2024).

Scientific Name	English Name	BC List	COSEWIC
Bartramia halleriana	Haller's apple moss	Blue	Т
Botrychium michiganense	Michigan moonwort	Blue	
Botrychium montanum	mountain moonwort	Blue	
Cladonia cyanipes	blue-footed pixie	Blue	
Cladonia decorticata	strip-tease pixie	Blue	
Cladonia parasitica	fence-rail pixie	Red	
Collema coniophilum	crumpled tarpaper	Red	Т
Dendriscosticta gelida	greater green moon	Red	
Draba ventosa	Wind River draba	Blue	
Evernia divaricata	mountain oakmoss	Blue	
Leptogium cyanescens	blue-blue vinyl	Red	
Lobaria retigera	smoker's lung	Blue	Т
Nephroma isidiosum	pebbled paw	Blue	
Nephroma occultum	cryptic paw	Blue	Т
Peltigera gowardii	northwest waterfan	Red	SC
Phaeophyscia adiastola	granulating shadow	Blue	
Pinus albicaulis	whitebark pine	Blue	E
Pterygoneurum kozlovii	alkaline wing-nerved moss	Yellow	Т
Taraxia breviflora	short-flowered evening-primrose	Red	

Table 2: Provincially or COSEWIC-listed plant and lichen species confirmed or that may occur in the proposal area.

Scientific Name	English Name	BC List
Alnus incana / Cornus sericea / Athyrium filix-femina	mountain alder / red-osier dogwood / lady fern	Blue
Betula nana / Carex spp. / Sphagnum spp.	scrub birch / sedges / peat-mosses	Red
Carex lasiocarpa / Drepanocladus aduncus	slender sedge / common hook-moss	Blue
Carex limosa - Menyanthes trifoliata / Drepanocladus spp.	shore sedge - buckbean / hook-mosses	Blue
Carex limosa - Menyanthes trifoliata / Sphagnum spp.	shore sedge - buckbean / peat-mosses	Blue
Dulichium arundinaceum Herbaceous Vege-	three-way sedge	Red
Equisetum fluviatile - Carex utriculata	swamp horsetail - beaked sedge	Blue
Menyanthes trifoliata - Carex lasiocarpa	buckbean - slender sedge	Blue
Pinus contorta / Carex aquatilis / Sphagnum	lodgepole pine / water sedge / peat-mosses	Blue
Pinus contorta / Carex pauciflora / Sphag-	lodgepole pine / few-flowered sedge / peat-	Blue
Pseudotsuga menziesii - Thuja plicata / Di- cranum polysetum	Douglas-fir - western redcedar / wavy- leaved moss	Blue
Salix sitchensis - Salix lasiandra var. lasian- dra / Lysichiton americanus	Sitka willow - Pacific willow / skunk cabbage	Blue
Scheuchzeria palustris / Sphagnum spp.	scheuchzeria / peat-mosses	Blue
Schoenoplectus acutus Deep Marsh	hard-stemmed bulrush Deep Marsh	Blue
Thuja plicata / Gymnocarpium dryopteris / Hylocomiadelphus triquetrus	western redcedar / oak fern / electrified cat's-tail moss	Blue
Thuja plicata / Paxistima myrsinites	western redcedar / falsebox	Blue
Trichophorum cespitosum / Campylium stel-	tufted clubrush / golden star-moss	Blue
Tsuga heterophylla / Juniperus communis - Paxistima myrsinites	western hemlock / common juniper - false- box	Blue
Tsuga heterophylla - Thuja plicata / Cladonia	western hemlock - western redcedar / clad	Blue

Table 3: Provincially-listed ecological communities that may occur in the proposal area.

APPENDIX C - Intact* Old Forest Breakdown by Biogeoclimatic Zone:

Quesnel Lake Park proposal

BEC Zone	Area (ha)	%
ESSFwc 3	44751.51	36.68%
ESSFwcp	4331.03	3.55%
ESSFwcw	12259.55	10.05%
ESSFwk 1	30164.00	24.72%
ICH wk 2	28384.45	23.27%
ICH wk 4	1871.17	1.53%
IMA un	4.30	0.00%
IMA unp	234.40	0.19%
TOTAL	122,000.42	100.00%
Total ESSF	91,506.09	75.00%
Total ICH	30,255.62	24.80%
Total wet ICH (wk & vk)	30,255.62	24.80%

Cariboo Provincial Park

BEC Zone	Area (ha)	%
ESSFwc 3	10794.16	25.52%
ESSFwcp	1363.40	3.22%
ESSFwcw	1944.97	4.60%
ESSFwk 1	9892.04	23.39%
ICH wk 1	0.00	0.00%
ICH wk 2	14568.66	34.45%
ICH wk 4	3070.03	7.26%
IMA un	55.89	0.13%
IMA unp	600.42	1.42%
TOTAL	42,289.58	100.00%
Total ESSF =	23,994.57	56.74%
Total ICH =	17,638.69	41.71%
Total wet ICH (wk & vk)	17,638.69	41.71%

Horsefly Provincial Park

BEC Zone	Area (ha)	%
SBS dw 1	19.90	10.76%
ICH mk 3	165.06	89.24%
TOTAL	184.96	100.00%

* "Intact" forest analysis was guided by the criteria and definitions developed by Global Forest Watch Canada.

Bowron Provincial Park			
BEC Zone	Area (ha)	%	
BAFAun	0.57	0.00%	
ESSFwc 3	11791.91	21.87%	
ESSFwcp	1364.16	2.53%	
ESSFwk 1	18592.90	34.49%	
ICH mk 3	1467.58	2.72%	
ICH wk 4	6894.33	12.79%	
IMA un	0.00	0.00%	
IMA unp	381.06	0.71%	
SBS vk	596.15	1.11%	
SBS wk 1	12825.06	23.79%	
TOTAL	53,913.73	10 <mark>0.00</mark> %	
Total ESSF	31,748.97	58.89%	
Total ICH	8,361.91	15.51%	
Total SBS	13,421.21	24.89%	
Total wet ICH (wk & vk)	6,894.33	12.79%	

Wells Gray Provincial park

BEC Zone	Area (ha)	%
ESSFmm 1	8.29	0.00%
ESSFmmp	1.98	0.00%
ESSFwc 2	76111.58	29.57%
ESSFwc 3	17969.33	6.98%
ESSFwcp	5489.39	2.13%
ESSFwcw	39750.36	15.45%
ESSFwk 1	12658.79	4.92%
ICH dw 3	5,912.86	2.30%
ICH mw 3	32,628.80	12.68%
ICH vk 1	16,635.51	6.46%
ICH vk 1c	1,007.89	0.39%
ICH wk 1	49,010.38	19.04%
ICH wk 2	147.62	0.06%
IMA un	29.35	0.01%
TOTAL	257,362.11	100.00%
Total ESSF =	151,989.71	59.06%
Total ICH =	105,343.05	40.93%
Total wet ICH (wk & vk)	66,801.39	25.96%

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