

Protect the Peel

Yukon's great boreal wilderness

Scientific and Professional Findings Supporting Protection of the Peel Watershed

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Summary of Key Points

The Peel River Watershed is a vital, continental-scale conservation opportunity of interest to Canadians and Americans. It is:

- An immense 77,000km² tract of virtually intact boreal forest and northern mountain ecosystems (the Yukon portion is more than 68,000km²).
- Among the largest constellations of wild mountain rivers in North America.
- An aboriginal cultural heritage and historic landscape of Canadian significance.
- A critical part of winter range for the Porcupine Caribou Herd, which migrates to Alaska's Arctic National Wildlife Refuge in summer.
- The northern anchor of the Yellowstone to Yukon Conservation Initiative, seeking to maintain connectivity of ecosystems in the Northern Rockies of the United States and Canada.
- A future climate change "refugium" for wildlife and plants in the Yellowstone to Yukon region.
- A benchmark of healthy predator-prey ecosystems within a vast primeval wilderness.
- An area with important wetlands for North American migratory waterfowl nesting and staging areas; key habitat for peregrine falcon, other raptors and a host of nesting shorebirds and neo-tropical songbirds.
- A region with unusual biodiversity for a northern latitude, resulting from the merging of three boreal and sub-arctic biomes and the evolution of endemic species in the ancient Beringia landscape, an area in northern Yukon that escaped glaciation during the Pleistocene.

“As a large, substantially intact ecosystem in western Canada, the Peel River drainage is an important storehouse of Arctic and boreal diversity; because of this, its ecological integrity should be safeguarded into the future.”

**(Jedediah F. Brodie,
Joel Berger, 2008)**

The world-class features of the Peel have been highlighted by major conservation initiatives. For example:

The [Yellowstone to Yukon Conservation Initiative](#) has highlighted four areas in the Yukon and Northwest Territories as priorities for conservation action, which include the Peel. These northern landscapes contain the largest, most intact, wildest lands remaining within the Yellowstone to Yukon region. (Y2Y, 2010)

The [Boreal Forest Conservation Framework](#), with corporate, NGO and First Nations signatories, work to “*conserve the natural, cultural, and sustainable economic values of the entire Canadian boreal region*” and aim to:

- Protect at least 50 percent of the region in a comprehensive network of large protected areas, and
- Support sustainable communities, world-leading ecosystem-based resource management practices and state-of-the-art stewardship practices in the remaining landscape.

In addition, the Bonnet Plume River, a major tributary of the Peel River, is a designated [Canadian Heritage River](#), a symbol of these globally important free-running fresh clean waters—rare in the world.

Overview

It's a challenge to get one's head around the scale of the Canadian North. As Alaskan author Richard K. Nelson wrote with only a touch of irony, “the Canadian boreal is to Alaska what Alaska is to New Jersey.”

Located in the Yukon Territory, the Peel watershed is 68,000 square kilometers of boreal and subarctic landscapes. The entire watershed is about 77,000 km². The proposed Peel protected area is comparable in size to New Brunswick, or the combined size of Vermont, New Hampshire and New Jersey. The area is 7 times the size of Yellowstone National Park.

Yet that vast area is fully under the command of nature, with only the faintest traces of industrialized human beings. There are currently no permanent settlements within the Peel Watershed planning region. Four First Nations have traditional territory there and are still closely associated within the region: Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Teet'it Gwich'in and Vuntut Gwitchin First Nations.

Biologically speaking, the region overlaps portions of two of Canada's terrestrial ecozones: the Taiga Cordillera and the Taiga Plain. In the mountainous ecoregions, the wide range of elevations and diverse drainage patterns create the greatest diversity of plant communities and ecosystems. Much of the Ogilvie and Richardson Mountains were part of the Beringia refugium—a region that was free from ice that smothered much of Canada in the Pleistocene. As a result of this prehistory, the refugium today support unusually high numbers of endemic and rare plants, especially in the un-forested habitats.

Global and North American Context for Conservation

“... our boreal forest is still one of the largest intact ecosystems left on the planet. About 70 percent remains in a natural state, 30 percent is tenured for industrial uses, and 10 percent is protected. In the Yukon the amount of boreal forest protected roughly matches the 10 percent national average, but is far short of the 50 percent protection goal established by scientists and conservation organizations such as the Canadian Boreal Initiative and CPAWS.” (Juri Peepre, in *Three Rivers: The Yukon's Great Boreal Wilderness*)

The report prepared for Yukon Parks, “Peel Watershed, Yukon: International Significance from the Perspective of Parks, Recreation and Conservation” (Green et al. 2008) examined the extent and quality of the wilderness, and ecological and recreational values of the Peel Watershed in comparison to the Arctic as a whole. That review found that the majority of the Peel Watershed lies within the largest remaining uninterrupted Arctic wildernesses, outside of Siberia.

Noted expert on northern ecology, Jim Pojar, Ph. D., (Pojar, 2004) noted several global benchmarks that apply to the Peel:

- “Intact large watersheds with pristine water quality and aquatic habitat (intact freshwater aquatic habitats are one of the rarest class of ecosystems in the world).”

- An intact, large-mammal predator-prey system, enhanced by the topographic and habitat diversity of the mountain boreal landscapes, persists and is globally significant ... refuge for large carnivores such as wolves, grizzly bears, lynx, wolverine, species that require large wilderness to survive.” (Dr. Jim Pojar, 2004).
- “...continentally important populations of grizzly bear, Dall’s sheep, woodland caribou, grey wolf, and wolverine.” (Dr. Jim Pojar, 2004).

Ecosystems and Biodiversity

The Peel River watershed is a hotspot of arctic and boreal biodiversity. The reason for this dates back millions of years to the ancient realm of Beringia (an area in northern Yukon that escaped glaciation during the Pleistocene). Essentially the only large tracts of Beringia in Canada are in the upper Peel River drainage and surrounding areas, such as the Porcupine Basin. (Jedediah F. Brodie, Joel Berger, 2008)

The Peel is poised at the junction of Beringia and the ice-free corridor by which species spilled back and forth between Asia and North America. Thus, the Peel was a biological crossroads in the distribution and exchange of organisms during the Pleistocene and Holocene. This left a lasting influence on the life forms found there today. Many of the organisms in the ecosystem are relicts from these times, with higher genetic or morphological diversity in the Peel Watershed than anywhere else in their ranges. (Jedediah F. Brodie, Joel Berger, 2008).

Water, Watersheds and Aquatic Species

Fresh water is critical to life itself— yet is also increasingly scarce and valuable. Fresh water and pristine aquatic habitats are among the most rare ecosystems on Earth. A large part of the earth’s biodiversity is found in freshwater, yet this ecosystem accounts for only 0.8 percent of earth’s surface. As our planet faces an unprecedented future of global climate disruption, these ecosystems become even more precious.

“Perhaps the most significant environmental feature of the Peel Watershed is its entire large unregulated watersheds, with the full range of aquatic ecosystems and processes, and with pure water and intact hydrologic connectivity. These large watersheds are the fully functioning ecosystems with the greatest likelihood of accommodating climate change and maintaining ecological integrity over the long term...

“Major undeveloped watersheds are regionally and globally significant conservation opportunities.” (Dr. Jim Pojar, 2004).

Wildlife

The Peel watershed is home to spectacular wildlife—grizzly bear, wolf, caribou, Dall’s sheep—that roam vast areas and behave here essentially as they have for thousands of years. Many of these species are rare or imperiled elsewhere in their range.

The biological richness of the Canadian North is seen and enjoyed far beyond the Yukon. Typical of northern regions, much of the bird life in the Peel Watershed is migratory. For example, thirty percent of North American land birds nest in the boreal, and 40 percent of waterfowl nest in the Canadian boreal – 230 species and a total population of more than 5 billion. (Boreal Songbird Initiative)

“... major North American flyways with important wetland staging and breeding areas for waterfowl; one of these flyways crosses west from the Mackenzie Valley into the upper Peel and beyond. Continentally important populations of migratory species, including Peregrine Falcon, Trumpeter Swan, and many songbirds.” (Dr. Jim Pojar, 2004).

The lower elevation Peel plateau breaks the continuous northern sweep of the Mackenzie Mountains. With continuous forest and concentrated wetland complexes, this portion of the planning region provides an important route for waterfowl and other birds to break through the cordillera, in both directions. Migrants to and from the Old Crow Flats, Mackenzie Delta or Arctic stage and pass through, but many taiga species stop to nest. Wetlands, such as the Turner Lakes, provide a particularly valuable nesting and stopover function for waterfowl. (Peel Planning Commission Conservation Priorities Assessment, 2008)

The use of these areas by water birds, particularly during the moulting period and migration, is due to the Peel Watershed's natural connection as a flight path for birds travelling to and from Alaska and the Mackenzie Valley. (Peel Planning Commission Resource Assessment, 2008)

Peregrine Falcons, which nest in the watershed, prey mainly on wetland birds, so they can be considered an indicator of wetland ecosystem health. They also are a threatened species under the federal Species at Risk Act (SARA), and therefore require explicit attention.

As discussed earlier, the diversity of wildlife in the Peel watershed is remarkably high for a taiga region at these latitudes. Examples include the stately (such as the Alaska-Yukon moose, the world's largest moose subspecies) to the more humble arctic ground squirrel, the Ogilvie collared lemming, wandering tattler, and surfbird. The range of this lemming and the breeding range of the surfbird are almost exclusively within the Yukon. The wide range of elevations, and consequently habitat types, also contributes to present-day diversity in this remarkable landscape. (Peel Planning Commission Resource Assessment, 2008)

The Peel watershed provides intact habitat for the Yukon's largest woodland caribou herd (Bonnet Plume Herd), a species vulnerable elsewhere. It also includes parts of the ranges of three other woodland caribou herds, notably the Hart River Herd, and part of the winter range of the trans-boundary barren ground Porcupine Caribou Herd. The fabled Porcupine herd summers in Alaska's Arctic National Wildlife Refuge and undergoes the longest land migration of any animal in North America.

Some tundra and montane species (such as Dall's sheep, Willow Ptarmigan and Gyrfalcon) live in the same landscapes as more typical forested taiga residents (such as moose, Spruce Grouse and Merlin). Conservation in the Peel offers special opportunities to ensure a future for a unique assemblage of species, and for some species with limited distributions. (Peel Planning Commission Resource Assessment, 2008)

Species that are at risk of extinction, or are in significant population decline, deserve particular attention. These are listed as being of conservation concern by various management authorities such as Committee on the Status of Endangered Species in Canada. Twelve such species are thought to nest in the Peel Watershed, but two, Peregrine Falcon and Harlequin Duck, are considered as part of other indicators. (Peel Planning Commission Resource Assessment, 2008)

Wilderness

"Wilderness without beginning or end. Wild spaces big enough for a journey of discovery almost beyond the imagination of most Canadians – that's the country of the Wind, Snake and Bonnet Plume rivers." (Juri Peepre, in *Three Rivers: The Yukon's Great Boreal Wilderness*, 2005)

With the Earth's population at 7 billion people, it's increasingly difficult to find vast areas remaining in largely in their natural condition – without roads, cities and industrial development. The Peel is one of the greatest examples of true wilderness that remains in the 21st Century. Since this large watershed is still mostly wilderness, it still supports the unimpeded, wide-ranging animal movements so characteristic of northern boreal and tundra ecosystems. Most notable are the caribou. These herds persist in healthy predator-prey systems that require large space to function. Large spaces provide extensive habitat choices for animals facing declines in habitat quality elsewhere, following fires (e.g., caribou winter range) or the periodic fluctuations in abundance of prey (e.g., lynx and the snowshoe hare cycle). (Peel Planning Commission Conservation Priorities Assessment, 2008)

"Most of Canada's remaining wilderness has no legal protection, yet it is recognized worldwide as an indispensable though dwindling reservoir of biological wealth. This country has about 20 percent of the planet's remaining intact landscapes, and a good portion of that lies within the Yukon." (Juri Peepre, in *Three Rivers: The Yukon's Great Boreal Wilderness*, 2005)

Climate Change

In the Peel watershed, the fossilized tusks of mammoths spill from the ground, clues left over from the last great era of climate change. But scientists say this northern wilderness may prove priceless for avoiding mass extinction in the coming age of climate change.

The Peel River ecosystem is important for its role in harboring biodiversity and relicts of the past. But given the pace of current climate change (Walther et al. 2002, Parmesan and Yohe 2003, Root et al. 2003), the Peel River may once again become a crucial corridor and refugia for the shifting distributions of species. (Jedediah F. Brodie, Joel Berger, 2008)

Recent studies in climate adaptation suggest that the best hedge against climate disruption may lie within landscapes characterized by inherent resilience. These areas have substantial adaptive capacity, and the ability to absorb the disturbances created by climate change, because of their immense scale, relative intactness, still-functional ecosystems, high degree of ecological representation and redundancy, high potential for creation of climate refugia, and a high degree of robust or restorable connectivity.

Probably the best way that we can manage natural systems so as to ensure resilience to climate change is through protecting large habitat areas and links between different ecosystems (Honnay et al. 2002, Opdam and Wascher 2004, Heller and Zavaleta 2009). The Peel River is exactly such a place. (Jedediah F. Brodie, Joel Berger, 2008)
The Peel is connected to the rest of the continent by the mountain ranges that form the spine of western North America. This cordillera provides one of the most important opportunities in the world for large-, even continental-scale, poleward and altitudinal migration and restoration in face of global warming and precipitation change. [Graumlich, L. and W.L. Francis (Eds.) 2010]

Protecting the Peel can also help mitigate the impacts of climate change by keeping carbon in the ground instead of in the air. Conservation targets should also include ecosystems, like peatlands on the Peel Plateau, which sequester tons of carbon. (Dr. Jim Pojar, 2004)

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