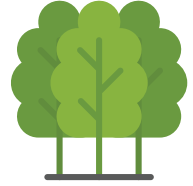


Natural Spaces / Wilderness



The Intergovernmental Panel on Climate Change ([IPCC](#)) [1.5°C Report](#) stated that the only proven pathway to limit catastrophic temperature rise was through the protection of nature. While governments and industry are trying to create carbon capture projects, no technology exists to draw down carbon from the atmosphere at the scale required to fight the climate crisis.

Manitoba has more intact nature and wilderness than many countries in the world. It is this body of functioning natural ecosystems that positions Manitoba to be a global leader in climate action. Protecting vast storehouses of natural carbon and the natural cycles that will continue to allow lands and waters to absorb atmospheric carbon creates climate stabilization and resilience.

Carbon Cycle and Storage in Nature

Intact nature is a constant cycle of water, oxygen, nutrients, and carbon. From the water, to the air, to the soil, to the plants and to the animals, this highly interconnected web has provided a planet that supports human society. Intact nature can also be fragile, with disruptions altering the flow of water, nutrients and carbon.

Living things are made up of carbon. The storage of carbon occurs as plants draw in carbon during photosynthesis, and as decomposing organisms break down into carbon dioxide and methane, although a great deal of carbon remains locked in the ecosystem each year in soil and biomass. For this photosynthesis and decomposition cycle to occur we need tremendous amounts of intact nature.

Development without enough thought to the carbon balance has caused an overload in nature's ability to absorb greenhouse gasses. Nature currently absorbs [26% of our emissions](#). Allowing nature to continue to function and draw down carbon is critical to climate action.

Degraded Nature and Carbon

Studies have shown that disrupting intact nature negatively affects an ecosystem's [ability to sequester and store carbon](#). Letting nature be is the simplest way to ensure we retain this vital tool to combat climate chaos. Protecting intact nature has to be part of a climate plan in Manitoba.

The Push for Protected Areas

Manitoba has incredible potential to be a global leader in climate action through the protection of nature. The recognition of our climate action is contingent upon intact wilderness being given legislated protection from disturbance. The International Union for the Conservation of Nature (IUCN) is the international standard for protected areas, and action in Manitoba must adhere to IUCN qualifications.

In 1990, a worldwide initiative to protect 12% of Earth's lands and waters by 2000 was launched.

Manitoba signed on to this goal, aiming to preserve "enduring features," however progress has been slow. Currently 11.1% of Manitoba is protected from development according to IUCN standards.

Subsequently, scientists recognized that the 12% protected area goal was insufficient to preserve plants, animals and our life support system. A global Sustainable Development goal spearheaded by the United Nations aimed to protect 17% of lands and waters by 2020. The federal government committed to the 17% protected area goal, however the provincial government has not.

The scientific support for protecting nature and wilderness in 1990 was much less prevalent. Instead, “enduring features” were to be protected. Since then an avalanche of scientific studies have driven home the great peril that nature is in while showing that plants and animals need protected habitat to survive. Human activity has altered 75% of the earth’s surface. Scientists are calling for protected areas to halt the alarming decline of biodiversity.

In January 2020 the United Nations Convention on Biological Diversity released their draft plan calling for 30% of the planet to be protected by 2030.

Coupled with the essential need to preserve plants and animals on earth, the protection of intact nature is now doubly important and will be a major component of Manitoba’s climate action.

Indigenous Inclusion and Consent

Protection of intact wilderness is contingent upon free, prior, and informed consent of the Indigenous communities whose territory is involved, as is required under the United Nations Declaration on the Rights of Indigenous Peoples. Further, self-determination of Indigenous communities must be the starting point for movements to protect lands and waters. Finally, societal benefit must flow to Indigenous communities whose territories are being legally protected.

Where’s the Carbon Storage

When it comes to carbon storage and sequestration, not all lands are created equal. Intact nature and wilderness has evolved differently based upon vegetation, soil composition, temperature, and water. As a result, different ecosystems store and cycle carbon differently. Further, these characteristics also determine **how different types of landscapes, and their carbon stocks, will react to climate changes.** Efforts to combat the climate crisis will accomplish the most by protecting resilient carbon-rich lands and waters.

The Climate Powerhouse in Manitoba

In the flat forest expanses of Manitoba we find the province’s ultimate climate action tool – peatlands. Peatlands **cover three per cent** of the world’s surface yet contain 30 percent of the world’s carbon, making them superstars of carbon storage. The peatlands are so extensive here they **cover one-third of the province,** more vast than nearly any other jurisdiction on the planet.

Peatlands are wetlands containing at least 40 cm of decaying vegetation, most often from sphagnum moss, preserved in the low oxygen and acidic waters they’re submerged in. They are natural filters providing and storing clean, clear, fresh water. Peatlands act as water sponges in the landscape, holding tightly to water to sustain flows during drought conditions, or acting as a sink of water and slowing down flood responses during wet conditions. Peatlands also act as an important sponge for excess nutrients, preventing nitrogen and phosphorus from reaching downstream lakes, which would otherwise contribute to eutrophication.

Manitoba’s peatlands may not be much to look at: spindly trees, if any, dot these vast wetlands. However, they provide important habitat for moose and unique plant species like the carnivorous pitcher plant. But the most significant benefit of peatlands is they store vast amounts of carbon – almost half of the peat is made up of carbon.

The Wilderness Committee is calling for the government to commit to a new protected area goal of legal protection for two-thirds of the province’s peatlands by the year 2030. This must be done in accordance with the wishes of local Indigenous communities.

Ecozones in Manitoba

Across the planet, the variations in physiography, nutrients, and vegetation allow similar areas to be identified as **ecozones.** Ecozones are a good classification for examining the carbon processing capacity for nature in Manitoba. Further delineation into ecoregions will create even more nuanced policy for protecting nature’s climate change fighting capacity. The Manitoba government’s Protected Area Initiative work to preserve more of the province’s lands and waters, which was quietly eliminated last year under the current administration, was categorized by ecoregions.



Southern Arctic

Making up a mere 0.4% of the province along northern Hudson Bay, the Maguse River Upland is predominantly permafrost region above treeline. 50% of the carbon on the planet is stored in permafrost, so changes can be major for greenhouse gas emissions. Melting permafrost and the formation of subsequent ponds are shown to dramatically increase methane release as well.

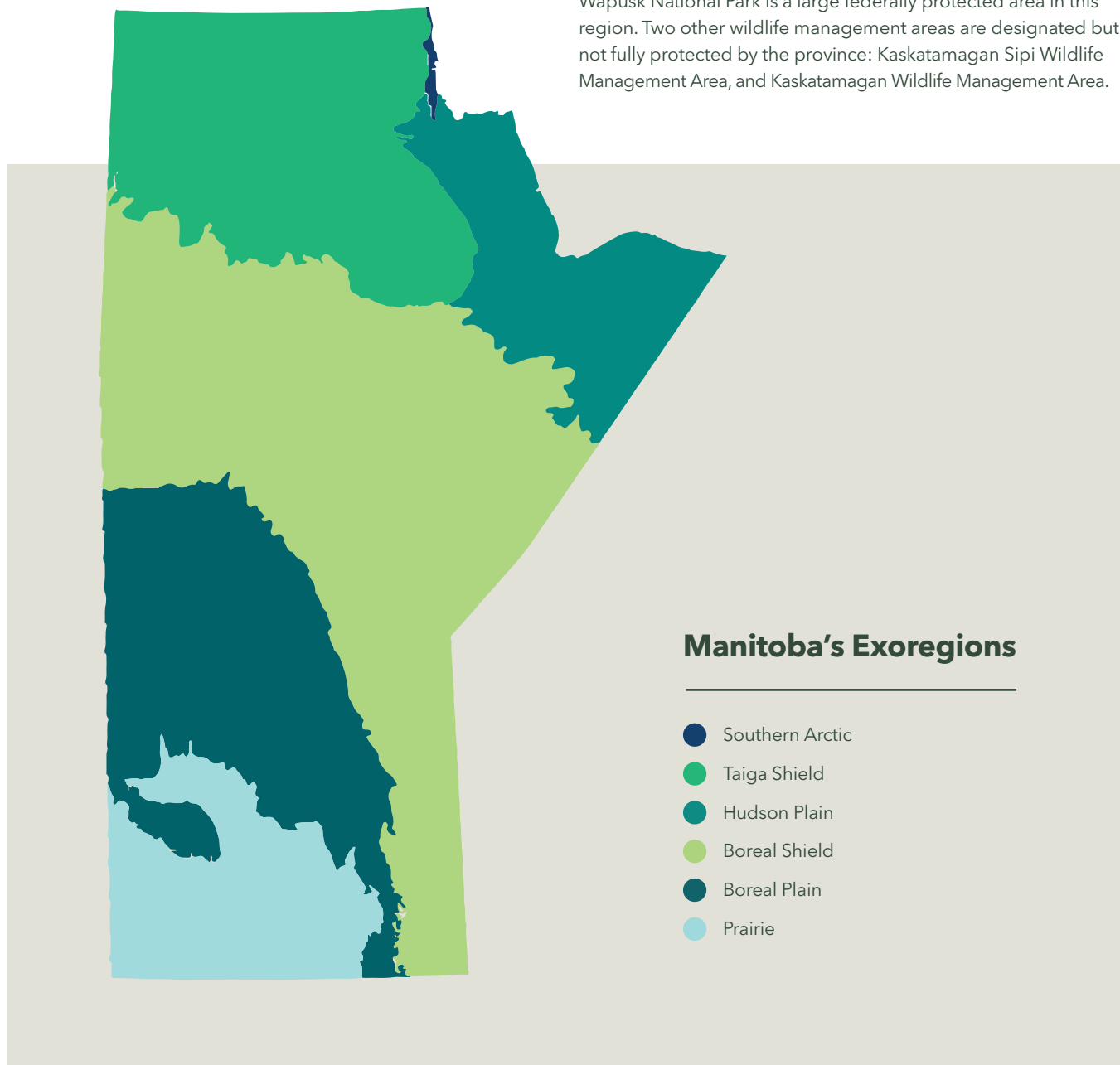
Efforts are underway with Indigenous communities and conservationists to protect the Seal River Estuary in this Ecozone.

Hudson Plains

The Hudson Plains constitute the largest wetland complex in Canada, and the third largest on earth. It is also the largest contiguous peat complex on the planet. The Hudson Plains make up **12.7% of the province** and **67.7% of the Hudson Plains is peatlands**. The preservation of the peatlands here are of global significance.

Warming in this region of continuous (>90% coverage) and discontinuous permafrost, already occurring due to climate change, will continue to exacerbate the release of carbon stored here in the form of carbon dioxide and methane. This area is predicted to be extremely sensitive to warming.

Wapusk National Park is a large federally protected area in this region. Two other wildlife management areas are designated but not fully protected by the province: Kaskatamagan Sipi Wildlife Management Area, and Kaskatamagan Wildlife Management Area.



Taiga Shield

The Taiga Shield makes up one of the largest ecozones in **Manitoba at 19.7% of the province**. Sparsely forested and remote, this area is largely intact. **About 7.2% of this ecozone is peatland**. Much of the ecozone is permafrost, meaning it will be affected by the current warming.

Numaykoos Lake, Sand Lake, Caribou River, and Nueltin Lake Provincial Parks are all large protected areas established in this ecozone in the past.

Boreal Shield

The Boreal Shield is by far the largest ecozone in the province, covering **37.8% of Manitoba**. Interspersed with boreal jackpine uplands are extensive black spruce bogs (a type of peatland). Peatlands account for **12.3% of this ecozone**. While much of the ecozone is intact, logging and mining roads are extending their impact into the forest. Manitoba's portion of the Boreal Shield ecozone is part of the largest intact forest left on the planet.

The majority of Manitoba's peat mining occurs in this ecozone. There is some logging occurring in Manitoba's western Boreal Shield. The provincial government is also trying to restart logging in the southern Boreal Shield area. Mineral exploration is prevalent throughout the Boreal Shield.

Forest fires are a major disturbance in this ecozone, with most of the region burning every 100 years. Frequency of forest fires is tending to be lower in the Manitoba boreal, which may allow longer-term carbon storage in forests, although may lead to larger carbon release when a fire does inevitably occur, part of the natural cycle of forest rejuvenation.

Pimachiowin Aki is the greatest protected area success story in the province and is located on the east side of Lake Winnipeg in the boreal shield. Five First Nations nominated half of their traditional territory for legislated protection and UNESCO World Heritage Site designation. Popular Whiteshell Provincial Park is in this ecozone, but most of Whiteshell is not protected from industrial activity. There are numerous large areas nominated for protection throughout this region, but the provincial government has shelved work on protection. Landscape fragmentation can have serious impacts on the capacity of natural ecosystems to store and retain carbon.

Boreal Plains

The Boreal Plains account for the transition from Prairie to Boreal Shield country, and makes up **18.8% of the province**. 13.2% of this ecozone is made up of peatlands. The transition from intact forest into private land sometimes being utilized for agriculture, coupled with large-scale industrial logging operations, means this region is fragmented.

The two large commercial logging mill operations in Manitoba are operating in the Boreal Plains ecozone. The principal logging method in Manitoba is clearcutting.

Chitek Lake Provincial Park was designated in 2014, and is the first park protected in Manitoba under the new Indigenous Traditional Use park designation. Duck Mountain Provincial Park is in this ecozone, but it is not protected and in fact the only park in the province being logged.

Protected areas progress in this region should include protection for the Saskatchewan River Delta—the largest freshwater delta in North America, protection for the Porcupine Hills which are being heavily clearcut, and expansion of Fisher Bay Provincial Park as requested by Fisher River Cree Nation.

Because of the ongoing and extensive land use off this area, policies and regulations to return carbon to nature should be started here.

Prairies

The Prairies make up **10% of Manitoba**, but include the largest population and the most disturbed land of any region. **Less than 1% of intact tall-grass prairie** remains, and much of the mixed-grass prairie that remains is degraded. The carbon capture and storage potential for this ecozone is immense. Due to the majority of this ecozone being held in private ownership and utilized for agriculture, these carbon sequestration efforts will be covered eventually under the agriculture chapter of this plan.

Accounting for Disturbances in the Force

Protecting intact wilderness from disturbances is the best way to avoid skewing nature's ability to draw down carbon. Disturbances in nature will continue in modern society, so in addition to a protected area timeline and goal, policies and regulations for operations in intact nature need to be enacted.

Impact to the land is referred to globally as Land Use, Land Use Change, and Forestry (LULUCF). On an international level, qualifying and quantifying emissions from LULUCF has been inconsistent and troublesome. Varying ecozones have varying carbon emission changes, seasonally and annually. Due to the complexity of this calculation, and the difficulty in reaching international agreement, LULUCF is not part of international commitments to emissions reductions.

The goal of the Climate Action Team in Manitoba is not to make nice for international agreements but rather saving human society by stopping climate chaos. Tackling the difficulty of regulating LULUCF in Manitoba is something we can and must do.

Policy and Regulations for Destruction of Nature's Carbon Storage

In order for development opportunities to occur, proper policy and regulations need to be established in Manitoba to account for the loss of ecosystem services. The policies and regulations should be informed by the ecozone where development is occurring.

When intact nature is destroyed, the true cost of lost climate stabilization and carbon cycle disruption must be included. However, the commodification of nature—simply putting a dollar value on intrinsic and irreplaceable ecosystem functions—will not get us out of the ecological and climate crisis we have created.

Only a limited amount of intact nature can be disturbed on the planet if we are to preserve natural carbon cycles and follow the science-based path that keeps the world below 1.5 or 2 C warming.

Below is a list of some of the larger nature disruptors and recommendations for policy and regulations.

Carbon Cycle Disruptions from Peat Mining

Peat being mined is used for horticultural products, as a soil additive. Economically, the only reason peat is mined is because we are not charging the full cost to our environment that peat mining causes.

There are 10 peat harvesting companies in Manitoba right now. While there was a brief ban on new peat leases in Manitoba, it was lifted in 2016. Our climate powerhouse peatlands are at risk from expanded harvesting operations. New peat leases have been staked, although new mines have yet to be established.

A 2015 analysis of peat mining in Manitoba, commissioned by the government from the International Institute for Sustainable Development concluded that there is no way to mitigate the release of carbon from mining peatlands, and that carbon offsets are the only way to account for the impacts of mining peat.

We need regulation to account for carbon disruption from peat mining. There should also be a price applied to carbon released.

A policy banning new peat mines and peat mine expansions in the province should be introduced, as has occurred in other jurisdictions around the world.

Carbon Cycle Disruptions from Logging

There are three ways logging impacts carbon emissions. In Manitoba as elsewhere, we are only accounting for one of them. The logging mill in Swan River—Louisiana Pacific's siding board plant—is listed as the fifth largest greenhouse gas emitter in Manitoba, and emissions from the plant are the only carbon release we are counting. Trees are clearcut by machinery in the forest, delimbed and loaded and then hauled some distance to the mill to be processed. The fossil fuel consumption of all that equipment is not counted towards the impact of Louisiana Pacific's logging in Manitoba. The third impact is land use change.

Louisiana-Pacific's mill utilizes hardwoods, mostly aspen, to make its wood product. A 2011 study found aspen forests growing in good soil and logged on a 40-year cycle will sequester more carbon than older forests left to grow for longer periods. The qualifier that would need to be addressed for concerns is the soil quality of the tree plantation they are logging. Much of the Duck Mountain forest region is poor quality soil on gravel. Policy for this operation needs to include carbon analysis of the soil on the scheduled logging rotation.

Canadian Kraft Paper's operation, at The Pas, utilizes softwoods in their mill. A 2017 study analyzed the carbon sequestration of clearcuts in jack pine forests and black spruce forests in Canada—the trees Canadian Kraft Paper logs. In the best case scenario of good soil and ideal growing conditions, it took 67 years for a forest to recover the carbon lost due to land disturbance during clearcutting. In average soil conditions, emissions from clearcut logging contribute substantial atmospheric CO₂ emissions. Canadian Kraft Paper operates in sparse northern forests where tree growth is very slow.

Continued clearcutting of the boreal forest necessitates that Manitoba begin measuring carbon emissions from land use changes due to logging, particularly when considering the cumulative impacts of industrial disturbance and climate changes. A [study in an Alberta aspen boreal plain forest](#) found "regional drying as a result of predicted climatic changes combined with increased industrial activity may result in significant decline in productivity [carbon storage] within these stands over broad regions."

The logging industry, particularly in eastern Canada, is promoting the carbon storage capability of wood as it is used for construction. Durable wood products do lock up carbon for their life cycle, although that doesn't account for the land use change carbon release described above. In Manitoba, Canadian Kraft Paper is making paper products rather than durable wood products so this argument doesn't apply.

Carbon Cycle Disruption for Biomass Burning

Biomass burning as a replacement for fossil fuel burning has been touted in Manitoba. The rationale that it is cheaper than buying fossil fuels is often presented.

The carbon emissions release of biomass can be considerably higher than that of fossil fuels. The wood debris remnants from logging will release the carbon stored slowly over time in the forest, but if collected and burned for biomass the carbon is released immediately.

All biomass operations in Manitoba need to have a full-cost accounting of carbon done that includes fossil fuel for transport of the biomass and land-use change from the woody debris.

Carbon Cycle Disruption due to Forest Clearing for Roads, Mineral Exploration, Mining, Transmission Lines

Currently there is only a passing discussion of the climate impacts of intact nature disruption when roads or transmission lines are built, and none whatsoever for mineral exploration. Land use changes have a carbon cycle cost. Regulations need to be established so the costs to our climate health are qualified and paid for.

Hydro Dam Reservoir Flooding

Manitoba Hydro has begun examining the disruptions to the carbon cycle by its upstream reservoirs. Regulations should be put in place so the climate cost of the carbon cycle disruption is recognized and paid. Again, compensation for climate damage should benefit the Indigenous communities whose territory is being disrupted.

Adaptation and Resilience

Intact wilderness is far more complex than we imagine. Frank Edgar famously stated:

"Forests aren't only more complex than we think, they're more complex than we can think."

As such, adapting nature is not something we are capable of doing, but rather something nature will do for itself. The adaptation may or may not be better for human society. We have little control over this.

Offering resilience to intact nature and wilderness occurs when we give nature and wilderness more space. Scientific thought on protected areas and species is that expanding protected areas, often to the north as temperatures increase, may allow species to adapt to the rapidly changing climate.

A policy of expanding existing protected areas, in addition to creating more protected areas, is the climate resilience needed in Manitoba.

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