

<image>

Northwest Territories

Natural Regions of the Western Northwest Territories

Imagine for a moment that you are floating in space, looking down on Canada. You see no roads, no railways, no cities, no political

boundaries. Just land, large lakes, islands, seas and the faint tracks of rivers. You can tell prairies from mountains, boreal forest from tundra. You can see large weather systems moving across the face of the land. It is a compelling view and it puts the immensity of the natural world into perspective.

These glimpses remind us of our place. What you are seeing are natural regions, areas of similar characteristics and conditions, all interacting. Each region has its own physical features: hills, rivers, plains, lakes and coastlines. Each has its own climate and soils; its own predominant weather patterns. These affect the distribution of plants, which in turn affect the animals that occupy an area.

Now, from your perch in space, look to the North, where the huge expanses of Great Slave and Great Bear Lakes lie like giant moose hides tossed on the



Amethyst

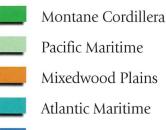
continent. You can see the mighty Mackenzie River flowing north to the sea, and the line of the western mountain wall separating the NWT from the Yukon.

This is the western Northwest Territories, a vast mosaic of diverse natural regions, from the truly Arctic landscapes of Victoria and Banks Islands to the high peaks of the Mackenzie Mountains and the boreal parklands of Wood Buffalo National Park.

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Ecozones of Canada





Arctic Archipelago (marine)



Ecozones

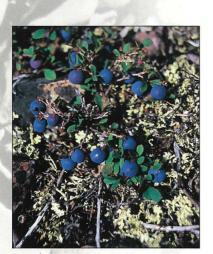
The combination of landscape, climate and living things gives a natural region its character. These regions are also known as ecozones. All of Canada has been classified into ecozones.

The western NWT has seven ecozones which are described in this booklet. Each is distinct, with its own set of physical characteristics, and its own sets of plants and animals that contribute to the web of life.

> N.W.T. LEGISLATIVE LIBEARY MAR = 2 1998 Yellowknife, N.W.T.

Ecozone map of Canada; Data is from Soil Landscapes of Canada, Version 2.1, National Soil Data Base, Agriculture and Agri-Food Canada.

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Southern Arctic





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Taiga Cordillera

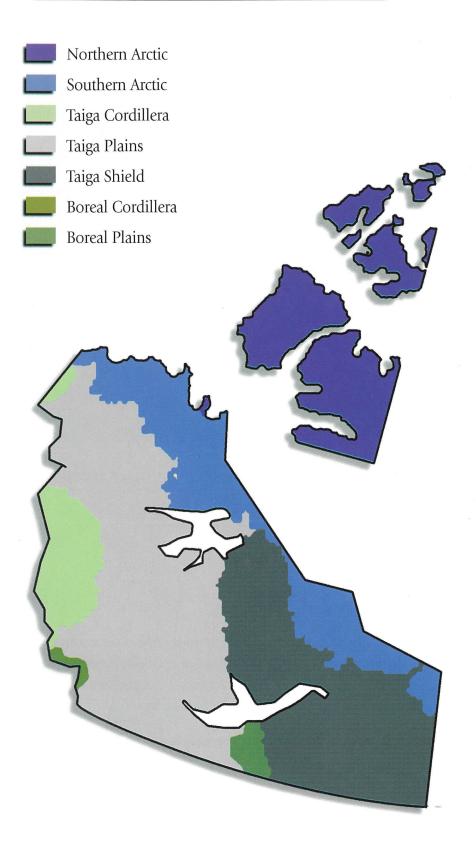


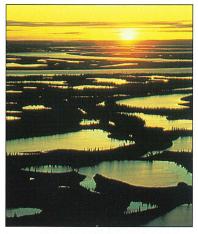
Taiga Shield



Northern Arctic

Ecozones of the Western Northwest Territories

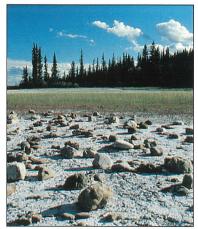




Taiga Plains



Boreal Cordillera



Boreal Plains

Northern Arctic



The bare bones of the land are revealed in all their majesty. The sheer immensity of the landscape captures the imagination in the



Inuksuk

Far North

The Northern Arctic Ecozone is cold desert. The permafrost thaws to a depth of only a few centimetres in summer. Much of the land is rolling plains covered with raw rock debris. In places, there are nothing but frost-patterned soils, shattered limestone and sandstone, and bare rock outcrops.

Within the Western Arctic, you will find this ecozone on the western third of Victoria Island and all of Banks Island, areas covered under the Inuvialuit land claim agreement.

On Victoria Island, tilted beds of sandstone and siltstone, and volcanic rocks, form steep west-facing ridges covered with low tundra. Banks Island is a

Northern Arctic

combination of sedimentary bedrock forming extensive plateaus, broad U-shaped glacial valleys and extensive low wetlands that provide ideal nesting areas for geese.

The climate and scouring effect of the winds is far too severe in this polar desert to permit lush flora. In a few sheltered places, however, the climate is mild enough to create oases. Larger ones, like Polar Bear Pass on Bathurst Island, include tundra ponds, sedge meadows, patterned ground lowlands and heath tundra slopes. These provide habitat for Peary caribou, muskoxen, arctic hares, collared lemmings and a number of tundra-nesting birds. Steep cliffs provide ideal nesting habitat for peregrine falcons and rough-legged hawks. Polar bears migrate through inland areas of Victoria Island, en route to ringed seal pupping areas on Minto Inlet.

Adaptations to this severe climate are remarkable. Translucent hairs on stems and flower bases of Arctic fleabane, woolly lousewort and mastodon flower create tiny greenhouses, allowing the sun's rays to warm the plant tissues.

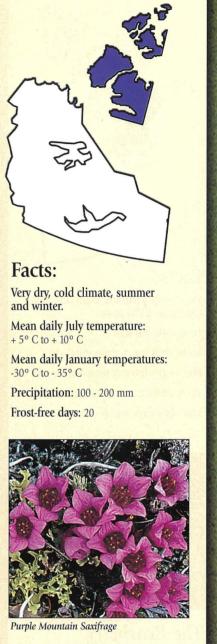
Muskoxen are protected by a dense undercoat, called qiviut, and long guard hairs that block the wind. Ptarmigan develop thick feathers on their feet in winter, which act as tiny snowshoes as well as insulation. Arctic hares group together in "herds", relying on sheer numbers to distract their predators.

Oldsquaw ducks, yellow-billed loons, snow geese, Canada geese and brant come to nest on tundra ponds or in moist coastal wetlands and river valleys. There, they are joined by snowy owls, jaegers, ruddy turnstones, red phalaropes, purple sandpipers, red knots and dunlins.

Not surprisingly, the Northern Arctic Ecozone is sparsely populated. What is surprising is the sheer number of small communities — 16 in Nunavut and the western Northwest Territories alone. Most were established by fur traders in prime hunting areas for marine mammals.

Inuit or Inuvialuit form about 86% of the population. Traditionally, they relied on subsistence hunting and fishing. More recently, people have become increasingly involved in government, mineral exploration and mining, oil and gas development, construction, tourism and community services. Many wage-earners turn to the land and their heritage whenever possible, hunting and fishing to supplement family diets with preferred foods like caribou, fish, beluga and seal.

Others guide an increasing number of tourists, who are attracted by the dramatic landscapes, striking wildlife and the history and cultures of the Arctic.



Solar Collectors

Some arctic plants are solar collectors. Their flowers always face the sun. The parabolic shape focuses the solar rays on the developing seeds in the centre of the flower, warming them several degrees above the surroundings. Insects bask in these flowers, increasing the likelihood of pollination.



Facts:

Short, cool summers, especially along the Hudson Bay coast. Long, cold winters. Mean daily July temperature: +10° C Mean daily January temperature: -30° C Precipitation: 200 to 400 mm Frost-free days: average 40 to 80



The Bearberry

Bearberries, both red and black, are common throughout the Southern Arctic Ecozone. They form mats covering large areas, sometimes mixing with blueberries and cranberries. Bearberry leaves turn a vibrant scarlet in late August. The leaves of the red berry are shed in the fall; those of the black berry remain on the plant until late in the winter.

Southern Arctic

The tundra rolls in a treeless sweep to the horizon. Rivers wind through wide valleys and deep gorges. Early explorers called this place...

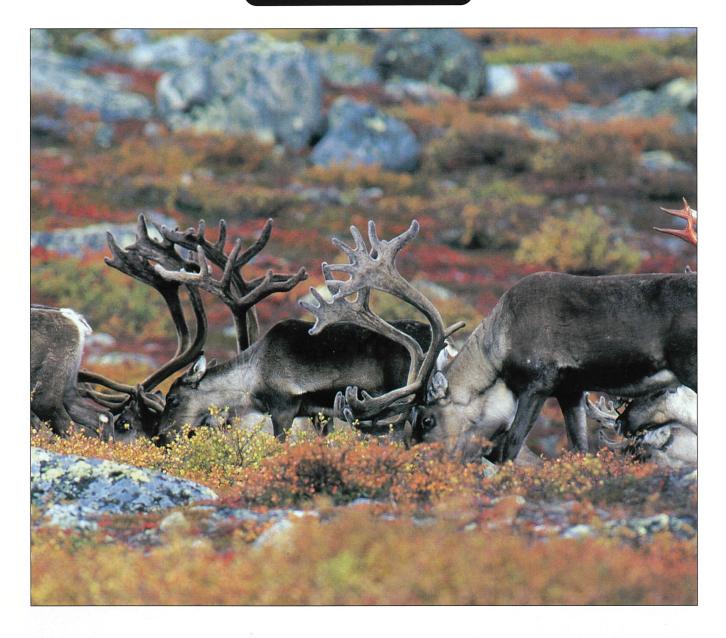
The Barrenlands

They couldn't have been more wrong. This region, also known as the Southern Arctic Ecozone, is vivid and alive. Caribou calves cavort each spring under the watchful eyes of their mothers. The summer bursts with colour as flowering plants reach for the sun. In fall, the sky fills with the sound of beating wings and the cries of migrating tundra swans, sandhill cranes and snow geese. Even the deepest reaches of winter are alive as caribou and muskox wander the uplands, pawing away the thin covering of snow to browse on the grasses and herbs beneath.

The Southern Arctic Ecozone spreads north from the treeline to the Arctic Coast, stretching east from the Yukon to Hudson Bay and on into Nunavik, the Inuit region of northern Quebec. Huge sand and gravel ridges, known as eskers, snake across this land, remnants of rivers that flowed from within the continental ice sheets that retreated more than 6,000 years ago. The ice sheets carved millions of lakes and ponds that sparkle today in the summer sun, providing habitat for nesting loons, ducks, geese, swans, shorebirds — and billions of mosquitoes, food for fledgling sandpipers and plovers.

The ground beneath the tundra is permanently frozen. The upper layer thaws only slightly in summer. Repeated thawing and freezing, and movement of the thawed layer, causes rocks to move to the surface, forming boulder fields and boulder streams. Ice in the soil creates "frost boils" and other patterns in the ground.

Despite the water trapped on top of the permafrost, the barrenlands are dry. They receive only 250-500 millimetres of precipitation annually. Plant life, nevertheless, is abundant. Where the snow cover is thin, mountain avens, bearberry, crowberry, lingonberry and alpine azalea form low mats. On sandy eskers, Arctic poppies, prickly saxifrage, fairy candelabra and several mustards thrust stiff stems above low leaf rosettes. Plants such as wild sweet pea, licorice root and Lapland rosebay create a rich palette in sheltered areas during the short summer.



For thousands of years, the great caribou herds of this land have drawn hunters from both sides of the treeline: Inuit from the coast, forsaking their diet of seal, to hunt caribou at river crossings, the Dene coming up from the boreal forests in search of caribou and migrating waterfowl. Dene and Inuit still hunt here today, some for traditional "country food". Others lead outdoorsmen who want to share an ancient experience.

Many more come to see the beauty of the tundra and its wildlife or to discover the mineral wealth hidden under the ground. The Southern Arctic Ecozone offers the promise of gold, base metals and diamonds. Through wise negotiation, it also offers the promise of jobs and careers for northern people in the years to come.



Arctic Fox



Towering peaks, untamed rivers, windswept uplands



and spruce-lined valleys.

Mountain Grandeur

The NWT and Yukon share the Mackenzie Mountains which straddle the continental devide. Rivers on the west side flow to the Pacific Ocean or the Beaufort Sea. Those on the east run to the Mackenzie River. The terrain is steep and rugged; sharp ridges drop to narrow valleys. The bedrock is mostly

Taiga Cordillera

sedimentary, having formed in a shallow sea half a billion years ago. Over time, it has lifted and folded into tilted ranges. Weathering, erosion and multiple glacial advances have sculpted these mountains.

This is the Taiga Cordillera ecozone where elevation and aspect affect conditions. Higher elevations are cooler, south facing slopes are warmer and west slopes are wetter, resulting in a great variety of habitats. Here in the higher elevations, lichens, mosses and sedges mingle with plants



Dwarf Fireweed

such as net-veined willow, purple mountain saxifrage and alpine azalea. Horned larks and water pipits nest in the sparse vegetation. Golden eagles soar over the canyons. Pikas, hoary marmots and Dall's sheep dwell in the alpine. Grizzly bears forage for roots, small mammals and berries.

At lower elevations you'll find the subalpine transition zone. Willow and dwarf birch form dense thickets here. White and black spruce grow further down.Woodland caribou range from the lowlands to the alpine areas, calving in the high country in summer.

The montane zone lies at still lower levels, featuring spruce-lichen woodlands. Trembling aspen and paper birch also grow in areas that have been burned by forest fires. The montane zone grades into the lowland zone, where dense forests of spruce and a carpet of feather moss cover the slopes. Balsam poplar, willow and alders form thick stands in the river valleys. This is the country of the black bear, lynx, marten and snowshoe hare. Common goldeneye ducks nest in holes in big trees. In the wider valleys, marshes and muskeg provide nesting habitat for canvasbacks, mallards and the rare trumpeter swan.

Because of the severe climate, few people have lived in the portion of the Taiga Cordillera that laps into the NWT. The Mountain Dene and Gwich'in hunt in some of the higher areas. Subsistence hunting and some trapping still occurs in the area today. The Natla-Keele River and the Mountain River provide thrilling whitewater experiences. The Canol Heritage Trail, which curves up and over the Mackenzie Mountain Barrens, is a destination for backpackers. Mountain climbing, canoeing, rafting and sport hunting are begining to attract visitors to this remote country of awe-inspiring beauty.



Virginia Falls

The South Nahanni River thunders through a land replete with legend and mystery. Virginia Falls, twice the height of Niagara, makes the ground tremble. Calcium-rich water from hot springs creates delicate tufa mounds, and golden eagles soar over the sheer canyon walls.



The River Highway

The Deh Cho is a main shipping route, serving river communities and the Western Arctic. Freight is shipped downriver by barge to Tuktoyaktuk, then taken across the Arctic coast by seagoing tugs. Freight that leaves Hay River in June may arrive at Umingmaktok in September!

In winter, the river is still a highway. Ice Roads are built on the river ice and people drive from community to community. <u>The Mackenzie River sweeps north to the</u> <u>Beaufort Sea, carrying water from a quarter of</u> <u>Canada. The Dene call it the "Deh Cho" or</u>

Big River

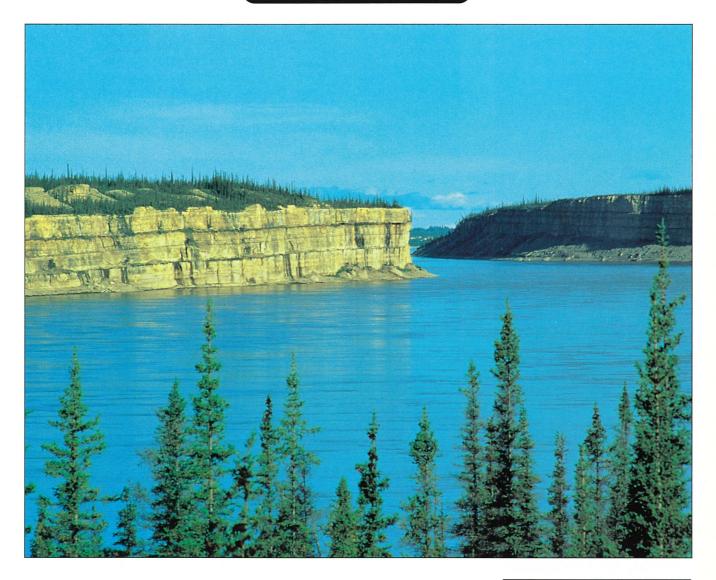
This immense river affects everything around it. Born of the outflow of the Laurentide ice sheet, which also carved out Great Bear and Great Slave Lakes, it was once even larger than it is today.

The Taiga Plains Ecozone is the area of low-lying plains centered on the Mackenzie River. It extends from northern Alberta and British Columbia to a delta north of the Arctic Circle. Because this ecozone is so long, it exhibits great variations in climate and day length. In the north, above the Arctic Circle, the sun remains above the horizon for several weeks in summer. It disappears for weeks in winter. The southern end of zone enjoys a more temperate climate.

Sedimentary bedrock underlies most of this ecozone, creating landforms like Alexandra Falls on the Hay River, the Horn Plateau and the oil bearing strata near Norman Wells. Fossils of clams and ammonites, can be found along the banks of the river. Smouldering seams of coal emit wisps of smoke from the riverbank; they have been burning for hundreds of years.

The entire Mackenzie valley is a major migration corridor for waterfowl, especially lesser snow geese and tundra swans. Large wetlands and muskeg are common on the upper Mackenzie River and where side streams join the river. Areas like Mills Lake are important fall staging areas for migrating waterfowl, including many ducks, geese, tundra swans and several species of loons and grebes. Scaup, canvasbacks, mallards, pintails and ring-necked ducks nest in the marshes. Bald eagles and osprey scoop fish from the river. Peregrine falcons and ravens nest on cliff ledges at the Ramparts, Campbell Lake and elsewhere. Shorebirds forage the riverbanks and ponds while ptarmigan and spruce grouse nip buds in the forest.

Dense boreal forest with islands of brush and deciduous woodland include species of trees such as black spruce, white spruce, tamarack, paper birch, trembling aspen and balsam poplar. The undergrowth is a tangle of willow, alder, Labrador tea, leatherleaf, blueberries, lingonberry, currants and roses. Mosses and lichens cover the ground.



Moose, wolves and woodland caribou roam the forests. Black bears forage for grubs, tender roots and berries. Lynx, red foxes, porcupines and red squirrels are found in the forests. The weasel family is particularly well-represented: ermine, mink, marten, river otter and wolverine are all present.

Lakes, streams and rivers vary considerably in nutrient level and summer temperature. They support an abundance of fish species including cisco, suckers, grayling, lake trout, mountain and lake whitefish, burbot, walleye, northern pike and inconnu.

The rich lowlands of the Deh Cho have been important to the Dene for thousands of years. They hunted and trapped in its dense forests and used the river for fishing and travel. Most communities along the river grew up around fur trading posts established in the 1800s, and now service the river transportation industry. The development of Norman Wells and Inuvik was spurred by the growth of the petroleum industry and regional government. Currently, the lumber industry is important near Wrigley and Fort Liard.





At the northern edge of the boreal forest lies the land known

to the Athapaskan people as the



Fireweed

"Land of little sticks"

Volcanic outcrops trace back to the earliest eruptions of lava that created the earth's crust. Eons of weathering, erosion and glacial carving have removed all but the hardest rock leaving the low rounded hills of the Canadian Shield. Where permafrost occurs, the soils shift and the trees tip randomly, giving an appearance of a "drunken forest".

The Taiga Shield Ecozone occurs where the boreal forest and the Canadian Shield overlap. In wet areas, the forest is comprised of black spruce, low willows, alders,

Taiga Shield

sedges and mosses. Better-drained sites support stands of white spruce, paper birch and trembling aspen on soils carpeted by blueberry, cranberry, dwarf birch, wild rose and soapberry. Where the soil is sandy or rocky, stands of jack pine develop in the aftermath of forest fires.

Bare, rocky outcrops are covered by colonies of lichens. Twisted spruce trees, fragrant shield fern, clumps of prickly saxifrage and kinnikinnick cling tenaciously to fissures in the rocks.

Plant communities here are shaped by frequent fires, most started by lightning. The result is a patchwork of communities in different stages of succession, which renews the vitality of the forest.

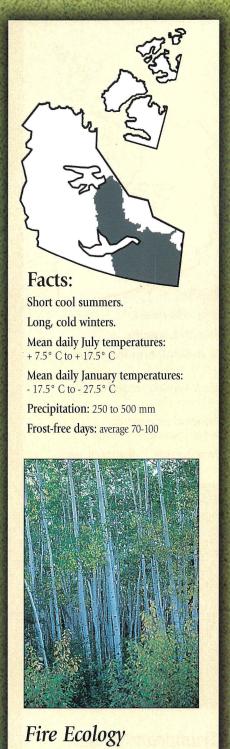
In spring, ducks, geese, loons, swans, sandhill cranes and grebes flock to open water areas. Some remain to nest; most simply wait for open water before striking north across the barrenlands. Huge flocks of Canada and white-fronted geese roll like clouds over the marshes. Lesser scaup, mallards, pintails, green-winged teal and gadwalls wheel and turn in an aerial ballet. Black bears, their shiny hair rippling in the wind, splash through the tawny marshes in a hunt for spawning northern pike.

Summer brings nesting activity. Bonaparte's gulls teeter on their treetop nests and Arctic terns drop like stones into the water after small fish. Rednecked grebes and Pacific loons waddle onto low nesting platforms of marsh grasses. Muskrats munch aquatic vegetation and beavers work industriously on dams and lodges.

Then there's the hustle of fall migration. Moose bellow in the twilight and red squirrels scurry to stash spruce cones. Winter brings a deep silence as the aurora blazes across the sky. Caribou trails meander through the bush. Voles and mice burrow in the snow, hunted by fox, weasels, martens, shorteared owls and goshawks.

The Dene migrated north into the taiga shield after the retreat of the great ice sheets. They were nomadic, hunting on the tundra, wintering in the forest near the caribou, and gathering at superb fishing spots when the fish were running. The first small settlements grew up around fur trading posts. Now, most people live in in Yellowknife and small communities scattered around Great Slave Lake.

Many are now involved in the mineral industry, especially in the establishment of diamond mines in the area around Lac de Gras. Others run traplines or operate sport hunting or fishing camps.



Fire keeps the forest young by killing insect pests and recycling nutrients. It opens the forest floor to sunlight, encouraging pioneer plants like willows, aspens, fireweed, bluberries, rasberries and currants.



Long, cold winters.

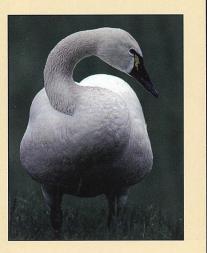
Brief, cool summers.

Mean daily January temperatures: - 15° C to - 27° C

Mean daily July temperatures: + 12° C to + 15° C

Precipitation: plateaus: 400 mm; mountains: 1000 mm

Frost-free days: 20 (east) to 60 (west)



Trumpeter Swans

The strikingly beautiful trumpeter swan migrates over the peaks here, dropping in to feed in the pools in river valleys. These big swans are rare, but, due to protection, are recovering in parts of their original range.

Boreal Cordillera

A hard-to-reach land of mountains and plateaus, aspen and balsam fir, <u>tips into the western NWT</u> north of Fort Liard

Southwest Highlands

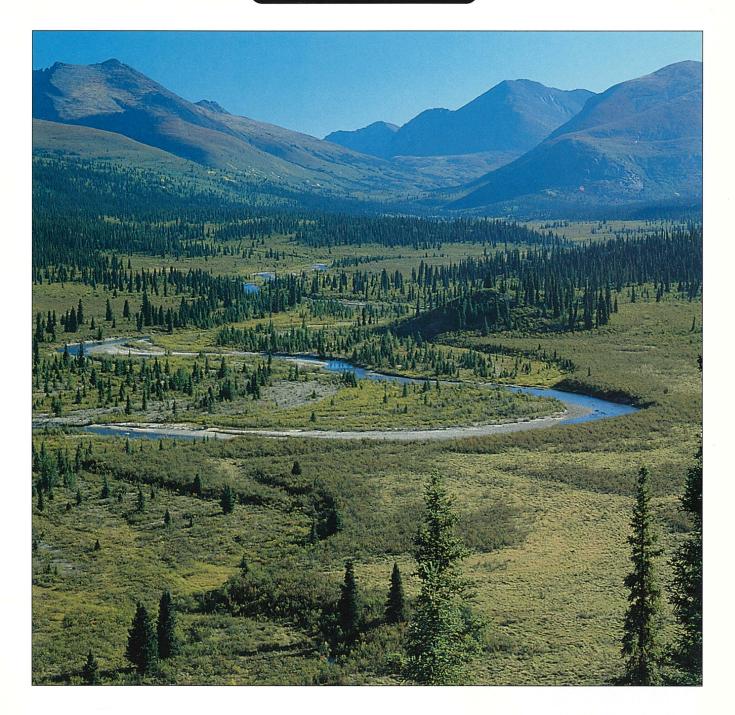
Most of the Boreal Cordillera Ecozone is located in the Yukon and north-central British Columbia. Here, high rolling plateaus are cut by wild rivers and streams in deep valleys. Mountain ranges have been modified by glaciation during the Ice Ages.

The Boreal Cordillera Ecozone tips into the Northwest Territories at its extreme southwestern corner. This area, in the Mackenzie Mountains to the west of Nahanni Butte, is remote and seldom travelled.

In general, plants of the Boreal Cordillera form zones at different altitudes, as they do in the Taiga Cordillera. The highest peaks of the region are dominated by ice, snow and bare rock. Beneath these, alpine tundra blends into stunted and wind-pruned vegetation, mostly subalpine fir and white spruce above a ground cover of dwarf birch and willow. Stone sheep, a subspecies of the bighorn, sometimes wander into this part of the NWT.

At the timberline, the firs and spruce are taller. Groves of aspen and balsam fir occur on the south-facing slopes. Grizzly and black bears forage up into the timberline to hunt arctic ground squirrels, pikas and marmots or to browse on roots and berries. Below, a closed white spruce forest alternates with stands of lodgepole pine and trembling aspen. In lower areas, moose and woodland caribou are widespread, especially in the valleys. Spruce grouse, gray jays, boreal chickadees, red-breasted nuthatches and Northern three-toed woodpeckers all rely on the riches of the tall spruce forest. Occasionally, western birds are seen, such as the Townsend's solitare, Say's phoebe and Clark's nutcracker.

Boreal Cordillera



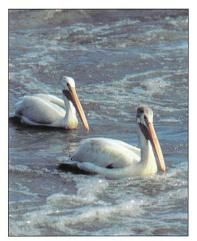
The mountains and plateaus of the Boreal Cordillera area within the NWT are part of the traditional hunting area of the Mountain Dene, but were so isolated that people rarely travelled there. Access is difficult. Today, the striking scenery and challenging peaks of the Mackenzie Mountains attract occasional mountain climbing or hiking parties.

This country has long been associated with placer and hard-rock mining, It has several operating mines. Forestry is a growing industry.





Wood bison graze and whooping cranes nest in the savannah-like



White Pelicans

Slave River Corridor

Only a small portion of the Boreal Plains Ecozone extends into the Northwest Territories. This region is located in a narrow corridor that stretches north along the Slave River to the south shore of Great Slave Lake. Here, sedimentary bedrock, pockmarked with sinkholes, underlies grasslands, marshes and savannah-like salt plains that mingle with boreal woodlands.

The Slave River corridor lies between the Buffalo River and the Taltson River, much of it within Wood Buffalo National Park. Larger than Switzerland, this park provides a refuge for wood bison, the endangered whooping crane and more than a million migrating birds. Waterfowl from all four North American flyways funnel into freshwater marshes along the NWT border, using the deltas of the Athabasca and Slave Rivers as staging areas in their migrations. Thousands of ducks, grebes, sandhill cranes and shorebirds remain to nest. White pelicans reach their northernmost nesting range here.

Boreal Plains

Ospreys, bald eagles, northern harriers, peregrine falcons, merlins and roughlegged hawks hunt over the grasslands. Great grey owls, great horned owls and short-eared owls float through the darkness, seeking prey in the night

Human activities, though distant, have a strong impact. The Bennett Dam, high in the B.C. Rockies, has virtually eliminated the enriching spring floods. The marshes have become drier, rendering more areas susceptible to fire.

Besides the wood bison, approximately 40 species of mammals inhabit the Slave corridor of the Boreal Plains. Species range from shrews and bats to woodland caribou, moose, coyote, timber wolves, black bear, lynx, marten and beaver.

The corridor of the Slave River has been an important hunting and travel route for the Dene for thousands of years. It became a vital fur trading route when posts were established along the Mackenzie River and Arctic coast. Before the construction of the north's road system, all freight for the Mackenzie basin and the western and central Arctic travelled down the Athabasca River and the Slave River to Great Slave Lake. From there, it would move into the Mackenzie River, the great highway to the Arctic.

Local Dene still hunt and trap, but are also involved in tourism, guiding sport hunters and in many small businesses, including lumber production.

The Boreal Plains in General

The Boreal Plains Ecozone is a northern extension of the prairies, which stretch from the edge of the Rockies east to Lake Winnipeg. Meltwater from the great Laurentide ice sheet pooled here, creating vast freshwater lakes. A mixture of boreal and deciduous forest now covers the old lake bottom sediments.

White and black spruce, balsam fir, jack pine and tamarack form patchy dark shadows on the land. The aspen and poplar woodlands are lighter in color. Ghostly trunks of paper birches line the watercourses, which open into sloughs and marshes. Clear-cuts and burn areas from forest fires are thick with brush and berry bushes.

Once occupied by the Chipewyan and northern Plains Indians, the Boreal Plains were vital to the fur trade, yielding valuable furs from beaver skins to buffalo hides. Today, the Boreal Plains produce pulp for paper mills. The oil sands of Alberta yield petroleum products. Agriculture is expanding into areas that once were only forest.



Wood Bison

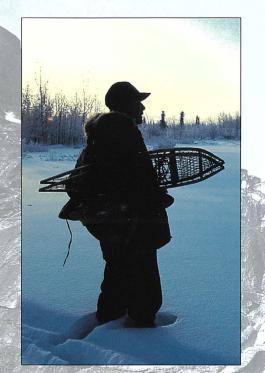
Wood Buffalo National Park, one of the largest protected areas in the world, was established in 1922 to provide a sanctuary for North America's largest mammals.

Protected Areas For Nature An understanding of the

distribution of plants and animals has always been important to people making their living off the land. Similarly, an understanding of how all the different parts of a natural neighborhood work together is essential to keeping an ecosystem healthy. Each species contributes to the web of life. Ensuring each species a place in nature ensures that the magnificence of the North will continue. Creating a system of protected areas is one way to help this happen.

While respect for nature should happen everywhere, there are some places where nature is hardest at work. Key areas such as calving grounds for caribou, nesting grounds for birds, spawning channels for fish, feeding areas for whales and denning sites for bears are crucial for these animals.





There are different kinds of protected areas. Some are strictly for the preservation of nature, others permit some carefully regulated activities, such as tourism, and some commemorate an important cultural or spiritual site. The best known kinds of protected areas are; National Parks, National Historic Sites, National Wildlife Areas, Territorial Parks, Migratory Bird Sanctuaries and Special Management Areas. Marine Protected Areas are new in Canada and recognize that we haven't concerned ourselves as much with protecting the resources of the sea as we have on land. The North has the greatest extent of undisturbed natural areas in Canada. Unlike regions in the south, we have the opportunity of setting aside the best areas for protecting nature and culture in advance of development. The choices we make now will determine the conditions and characteristics of our land in the future.





This publication is part of the Northwest Territories' Protected Areas Strategy, a joint initiative of the federal and territorial governments.

For more information on the Protected Areas Strategy, contact:

Parks and Tourism, Department of Resources, Wildlife and Economic Development Government of the Northwest Territories Box 1320 Yellowknife, NT X1A 2L9 Tel: (867) 873-7903 Fax: (867) 873-0163

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