



High Boreal Forest



The High Boreal Forest ecoregion surrounds Lake Melville and extends inland along several river valleys. Its 16,800 km² includes the

Churchill River valley and the coastal plain around Lake Melville, which form two distinctive components of this ecoregion. In the south the coastal plain ends at the steep slopes of the Mealy Mountains, while in the north it meets a broad inland plateau that covers much of central Labrador.

The river valley is extensive and follows the Churchill River several hundred kilometres upstream. The terrain is mostly forested and reaches 500 metres above sea level. This region is part of the great **boreal forest** of northern latitudes around the world. The forests of the High Boreal Forest ecoregion are more extensive and full — that is, there are fewer open spaces — and are less likely to become barrens after a disturbance such as fire, than the neighbouring Low Subarctic and Mid Subarctic Forests.


Flat **river terraces** occur along the Churchill River and separate different forest types within this ecoregion. They are largest and best developed around Goose Bay, near the mouth of the Churchill River. As you travel upstream and the river narrows, terraces become smaller and less developed. Those that flank the larger portions of the river undergo active slumping — portions of the terrace or river bank break off and "slump" into the river.

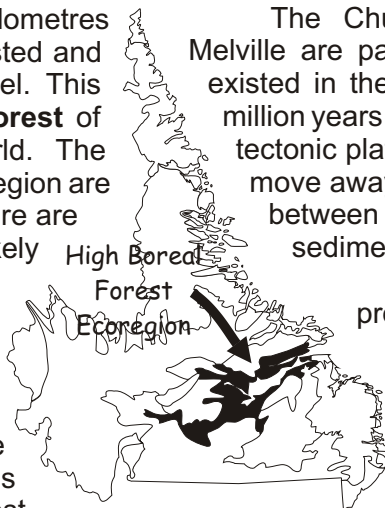
Although summers are cool and winters

cold, this ecoregion has the most favourable climate in Labrador, with warmer summers and shorter winters than surrounding ecoregions. For example, winters are shorter and much less severe here than to the west in the neighbouring Mid Subarctic Forest. This ecoregion has a growing season of 120 to 140 days, which is longer than nearby ecoregions. In addition, it has a frost-free period of 80 days or more. Lake Melville and the Churchill River system are sometimes free of ice until late November. Ice break-up usually starts in May and may last until June. Scattered patches of permafrost are found in some of the bogs.

The Churchill River valley and Lake Melville are part of an ancient rift valley that existed in the late Proterozoic — about 600 million years ago. A rift valley occurs when two tectonic plates or pieces of the earth's crust move away from each other, leaving a gap between them. This rift valley was filled by sediments about 600 million years ago.

As with the rest of the province, the High Boreal Forest ecoregion was once covered by glaciers. The U-shape of the Churchill River valley is a characteristic example of glacial activity. When the last ice age ended about 10,000 years

ago, the rapidly melting glacial ice sent a flood of water down through this river valley, partly filling it with sand. Then, with the tremendous weight of the glaciers gone, the land rose and the sand was eroded by the Churchill River into terraces and bluffs. Ancient changes in sea level can be seen in beach lines 400 to 500 metres above the shoreline of present day Lake Melville. 



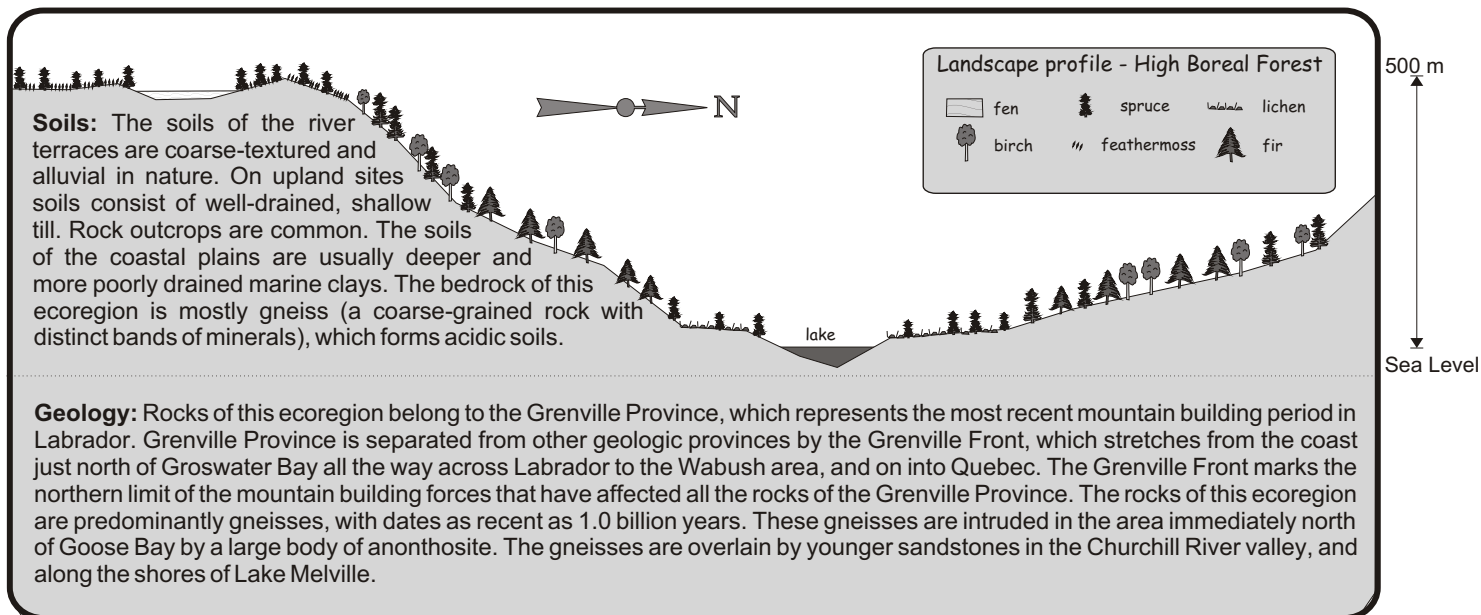
Ecoregion: An area that has distinctive and repeating patterns of vegetation and soil development, which are determined and controlled by regional climate. Ecoregions can be distinguished from each other by their plant communities, landscapes, geology, and other features. These characteristics, in turn, influence the kinds of wildlife that can find suitable

habitat within each ecoregion.

Boreal forest: The mainly coniferous forest found in northern latitudes, which extends in a band around the globe, covering large portions of the northern temperate zones of North America, Europe, and Asia.

River terraces: Formed by the erosional effects of a river on its slopes. As a river meanders and changes course, it cuts steps — or terraces — into the banks. Eventually, the valley deepens and these terraces become higher, drier ground.

Alluvial: Pertaining to or composed of materials deposited by water.



Vegetation Profile

The forests that cover most of the river valley of the High Boreal Forest are highly productive. In fact, the most productive forests in Labrador occur here. This means the trees grow faster and are larger and closer together than in other Labrador ecoregions. The types of trees found in these forests vary with their distance from the river. Forests on valley slopes are generally more productive and have a large number of species, such as balsam fir, white birch, and trembling aspen. Upland forests contain balsam fir and black spruce with a floor covering of feathermoss.

On very moist soils on slopes and river terraces where seepage and/or alluvial conditions occur, forests containing balsam fir, black spruce, and white birch with a rich floor covering of herbs are found. Lower terraces are usually covered by black spruce/lichen forests.

Forest fire activity also has an influence on forest growth here. For example, black spruce, which is well adapted to invading recently disturbed sites, is dominant on the river terraces and upland sites where fire activity is most frequent. However, when fires occur on river valley slopes, forests are replaced

by white birch and trembling aspen rather than by black spruce.

On upland terraces, "ribbed fens" are often found in depressions. These are peatlands with extensive pools that cover the surface at right angles to the slope. The flat, hummocky surface vegetation (mostly sedges) gives it a ribbed appearance when viewed from above.

"Plateau bogs" are very common in the coastal area surrounding Lake Melville. They are underlain by large marine clay deposits and have raised plateau-like surfaces containing large, scattered pools. Sphagnum mosses are the main peat-forming species. Peat depth can range from 2 to 10

metres. The plateau bogs found here have large "palsas" (permanently frozen mounds of peat) distributed throughout them.

Forested areas on the coastal plain are restricted to beach ridges and the natural levees of rivers and streams. Here coarser soils form, which results in better drainage.

This ecoregion is one of the only known provincial locations of common wood sorrel (*Oxalis montana*). This low-growing plant has heart-shaped, clover-like leaflets that fold down around the stem at night. This action most likely reduces moisture loss. 🌱

Species in Focus: White birch (*Betula papyrifera*), a hardwood species found throughout most of the forests of Labrador, occurs in this subregion on moist valley slopes and river terraces. White birch may live to be 100 years or more, and is easily identified by its white, peeling bark.



Photo: Glen Ryan



Photo: Glen Ryan

Wildlife Profile

The mammals of the High Boreal Forest include many species found throughout Labrador. As its name suggests, the northern bog lemming prefers bogs, though it can also be found in moist woods. Lemmings live in colonies where they dig shallow, underground burrows connected by a maze of sunken runways. Food consists of grasses and sedges, which they cut into short sections and store inside their runways for winter use.

Forest mammals found here include moose, porcupine, mink, pine marten, flying squirrel, red squirrel, lynx, woodland jumping mouse, and snowshoe hare. The black bear and red fox occur in most habitats, while the beaver, muskrat, water shrew, and river otter occur near water.

Several bird species typical of more southern regions of Canada are known only from this part of Labrador. A few examples are sora, least flycatcher, red-eyed vireo, and Philadelphia vireo. A variety of woodpeckers are also found in the forests of this ecoregion, including the three-toed woodpecker, black-backed woodpecker, and northern flicker.

Other forest dwelling birds are the gray jay, boreal chickadee, Swainson's thrush, pine siskin, dark-eyed junco, northern waterthrush, and osprey. Common redpoll is found mostly on the barrens, while the white-throated and white-crowned sparrows occur in shrub habitat. Warblers are also common, such as the Tennessee, orange-crowned, yellow, and Wilson's warblers.

Shorebirds breeding in the region include the solitary sandpiper, common snipe, and spotted sandpiper. Low numbers of seabirds and waterfowl also breed here, particularly in the Hamilton Inlet area. Examples are the common loon, common merganser, American black duck, common tern, and ring-billed gull.

The red-tailed hawk, which occurs rarely on the island of



Photo: Paul Linegar

Species in Focus: Although introduced to the island of Newfoundland, the spruce grouse occurs naturally in the coniferous forests of Labrador. It feeds largely on the needles and buds of conifers and various kinds of berries. The breast and throat of the male is distinctive — black narrowly bordered with white — while the rest of the body is finely barred with black, grey, and brown. The female is dark rusty brown and more thickly barred. Because the spruce grouse is amazingly tame — never having learned to fear humans — it is easily killed. As a result, it has rapidly disappeared from those southern parts of its former range where humans have settled.

Newfoundland, has a widespread breeding distribution throughout the forests of this region, as well as throughout much of the forests of Labrador. It usually nests near the tops of trees, where it builds a bulky nest of sticks lined with bark.

The extensive system of rivers, lakes, and ponds are home to many species of fish. The most common are arctic char, Atlantic salmon, three-spine and nine-spine

sticklebacks, brook trout, lake trout, lake whitefish, rainbow smelt, longnose sucker, white sucker, and northern pike.

This ecoregion has the largest number of amphibians in the province. The American toad, northern leopard frog, wood frog, and mink frog are all found here. The blue-spotted salamander and the two-lined salamander have also been recorded. 17



Photo: Bob Halfyard

River terraces along the Churchill River contain different forest types. This is because changes in elevation and distance from the river produce changes in growing conditions.

Climate

The most favourable climate in Labrador. Winters are shorter and summers warmer than surrounding areas.

Growing season is 120 to 140 days.



Annual rainfall
1000 to 1100 mm



Annual snowfall
4.0 m



Mean daily temperatures

February -14°C to -18°C

July +13°C to +14°C

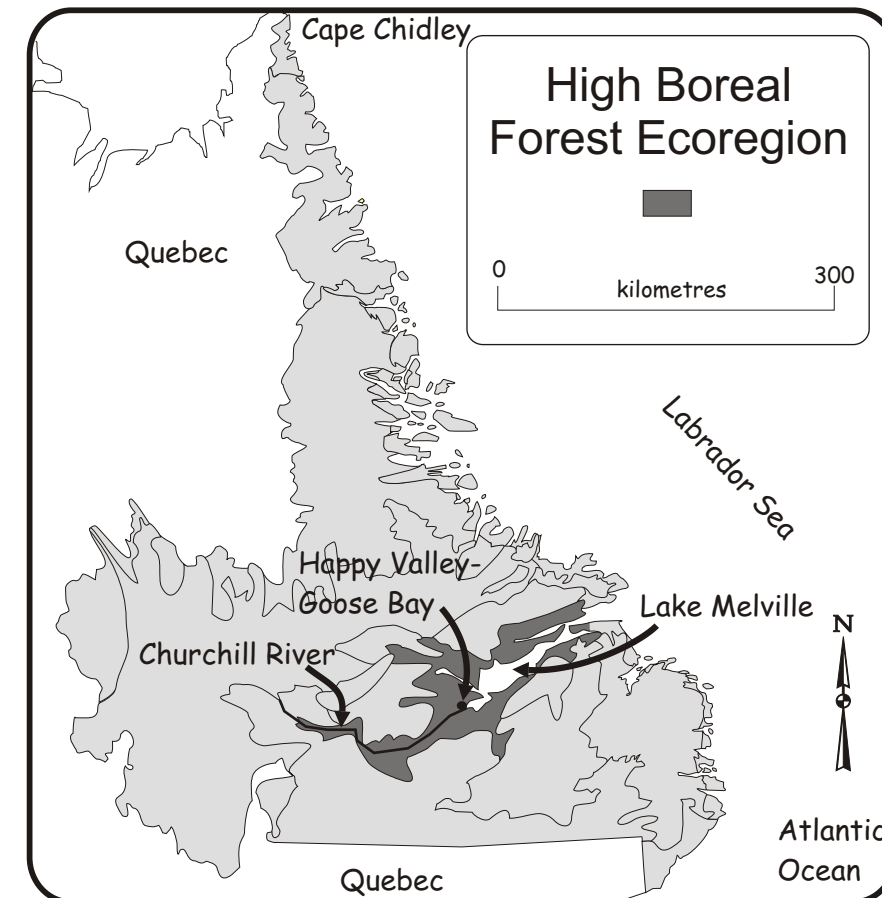
Protected Areas Profile

There are no protected areas presently located in this ecoregion. However, part of it is within the proposed Mealy Mountains National Park.

Focus on Animal Distributions

Many people traveling to Labrador from the island of Newfoundland are struck by the increase in the number of animal species. For example, the woodchuck, an animal common along the Labrador coast where it can be spotted poking its head out of extensive burrow systems, is a sight totally unfamiliar to the Island. Other mammals present in Labrador but absent from the Island include the porcupine, wolf, lemmings, and many others. And in Labrador you can find more salamanders, frogs, and toads as well.

No reptiles occur on the island of Newfoundland. Those



amphibian found on the island are few, have limited ranges, and were introduced. Some of our most popular animal species, such as the moose, have only been introduced to the Island in the last century.

This difference in animal distributions between the island and mainland portions of the province is the result of changes that occurred during the last ice age. Conditions associated with glacial activity removed most

animal species from both regions about 10,000 years ago. Once the ice retreated Labrador was easily recolonized by those animals living in the unglaciated areas of southern North America. The island of Newfoundland, however, was not so easily reached. It was a much more difficult task for land-dwelling animals to make the crossing. Indeed, those animals that did succeed, likely did so by traveling on an ice flow or a piece of drift wood. 🐿



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