



Alpine Tundra

Located just south of the Low Arctic Tundra ecoregion at the northern extent of Labrador is the spectacularly rugged Alpine Tundra ecoregion. This region includes the Torngat Mountains — the highest Canadian peaks east of the Rockies — and all the valleys and fjords that dissect them.

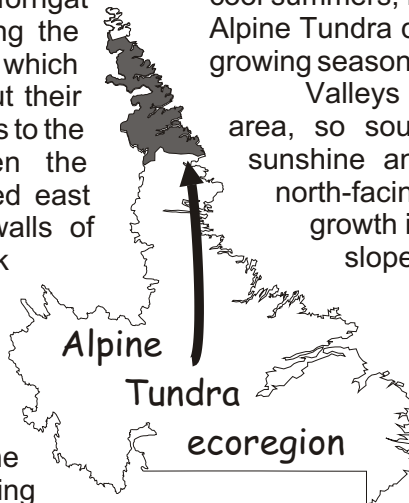
The uppermost tips of the Torngat Mountains were not covered during the advance of the last glaciation, which ended about 10,000 years ago. But their deep, U-shaped valleys bear witness to the ice-scouring that occurred when the tongues of the last glaciers pushed east through this region. The upper walls of these valleys are mostly vertical rock faces, while the lower slopes are often covered with talus. On valley floors fens and marshes are common alongside braided streams and outwash terraces.

As is true for most of the Labrador coast, sea ice has a chilling effect on climate in this ecoregion for several months of the year. This ice usually persists until late June, but sometimes doesn't break up until late July. Inland lakes, too, can still

be frozen in July and in some years snow may remain in isolated pockets year-round. Permafrost is continuous inland, in valleys and mountains, and discontinuous in coastal areas.

Because the elevation in the Alpine Tundra ecoregion varies widely, from sea level to about 1,670 metres, temperature varies widely too. Although the overall climate is similar to the Low Arctic Tundra region to the north — short, cool summers, long and very cold winters — the Alpine Tundra does experience a slightly longer growing season than its neighbouring ecoregion.

Valleys generally run east-west in the area, so south-facing slopes receive more sunshine and are drier and warmer than north-facing slopes. Not surprisingly, plant growth is usually denser on south-facing slopes.



Soil Profile: Soils here are poorly developed with rocklands dominating the landscape. The last glaciation removed most of the soil from this ecoregion leaving only scattered till deposits and bare rock.

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.

Fjord: A deep U-shaped valley formed by a glacier and afterwards filled by sea water to form a long, narrow, steep-sided inlet.

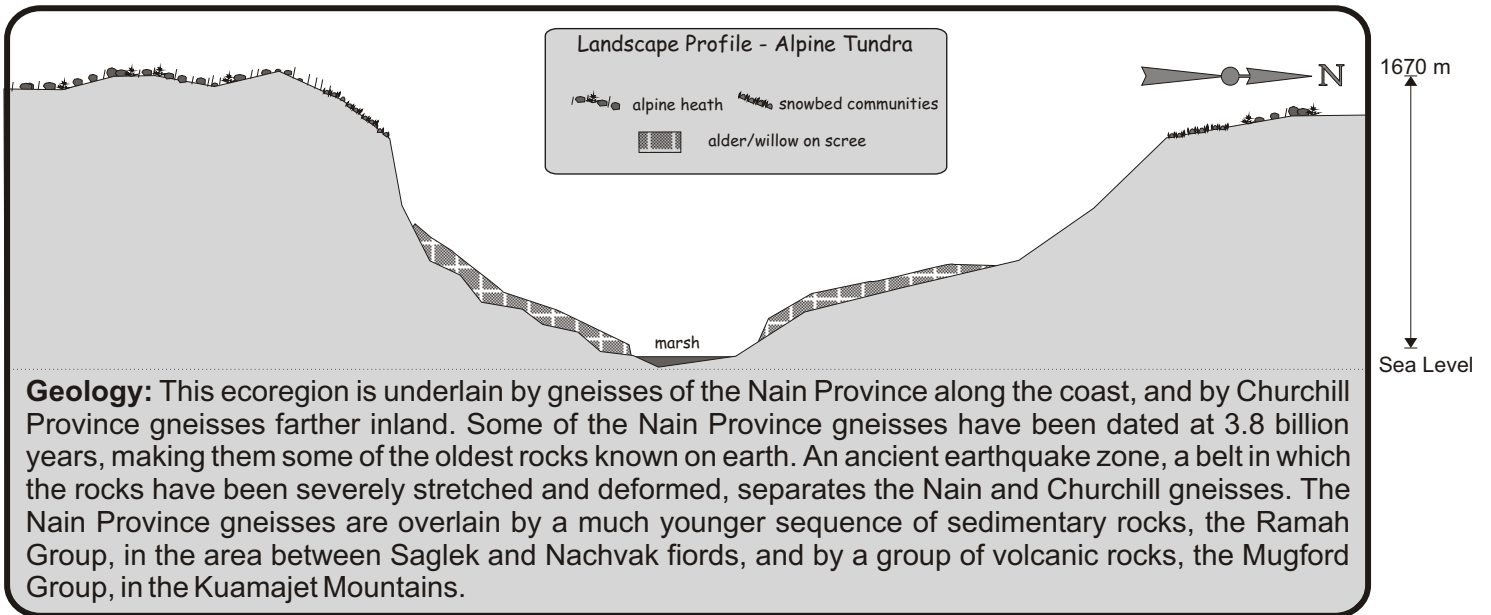
Talus: The collection of rock and rubble that forms at the base of a slope as material erodes off the mountainside above. Commonly known as "scree."

Braided stream: A stream with many constantly shifting, often curved channels, which gives it a "braided" look from above. This is typical of streams formed by melting glaciers, where the water flow and sediment supply varies.

Outwash terrace: A level sand or gravel surface partway up a slope that was laid down by a glacier-fed stream.

Permafrost: Areas where the ground is frozen throughout the year. A "continuous permafrost zone" is where permafrost is present without interruption; a "discontinuous permafrost zone" is where it occurs only in patches.

Check your public library for a full set (36) of these booklets: one introductory document and one for each of the 35 ecoregions and subregions in the province. For more information about the series see page 4.



Vegetation Profile

This ecoregion's classification as "tundra" means it is above the treeline. (Although forests often grade unevenly into tundra, "treeline" refers to those regions above which trees do not grow.) Tundra usually has a very short growing season, and only cold-tolerant plants can survive. Although thickets of willow and alder occur on talus slopes, and groves of white birch and balsam poplar are found here and there on valley floors, no conifer trees grow in this ecoregion. In fact, the harsh climate — which includes cold temperatures and extremely high winds — severely limits plant growth. Poor soil development also plays a role in creating an inhospitable environment, particularly at higher elevations.

On valley floors, seasonal flooding prevents plants from becoming established over large areas. The lower slopes of mountains do support shrubs, sedges, mosses, and lichens, however. These are generally thickest on south-facing slopes, which are warmer. At higher elevations, shrubs are sparse, and plant life is often limited to patches

of lichens and mosses alternating with bare ground. The presence of mountain heath (*Cassiope tetragona*) is characteristic of the plateaus of the Alpine Tundra ecoregion, while dry mountain ridges contain dwarf birch, Labrador tea, and blackcrowberry.

Snowbed communities occur commonly in this ecoregion. These are specific plant groupings in alpine areas where snow

continues late into the growing season. This longer-lasting snow cover provides protection for plants, as well as additional moisture as the snow melts. Because these communities often have a large amount of sedges, they are also referred to as "sedge meadows." Sedge meadows in this ecoregion are dominated by *Carex bigelowii*, and by dwarf willow. 🐾



Photo: A Glen Ryan

Species in Focus: About 23 species of willow occur in Labrador, many of which are dwarf (as shown above). Willows are a difficult group to identify because they show a lot of individual variation, especially in leaf shape. They also frequently hybridize, making it difficult for botanists to agree on the exact number of species.

Wildlife Profile

Sparse vegetation in much of the Alpine Tundra ecoregion limits wildlife to small mammals. In the tundra — which makes up the vast majority of habitat found here — arctic fox, arctic hare, Ungava lemming, and northern bog lemming can occur. In shrub or thicket habitat red fox, heather vole, short-tailed weasel, and snowshoe hare can be found. Mammals known to occupy a variety of habitats are meadow vole, least weasel, deer mouse (coastal only), masked shrew, mink, wolf, and black bear. River otter is found along streams and lakes.

Caribou belonging to the Torngat herd occupy the upland areas of the Alpine Tundra ecoregion. Also, low numbers of muskox have recently migrated into northern Labrador from Quebec, where they were introduced. Muskox, which is native to northern Canada, is a relic of the ice age — its ancestors once roamed with the mastodon, woolly rhinoceros, and hairy mammoth.

Breeding birds that frequent the tundra of this ecoregion include peregrine falcon, rock ptarmigan, snow bunting, northern wheatear, and Lapland longspur. The rough-legged hawk occupies steep cliffs and the short-eared owl occurs in the lower, protected valleys where some trees and shrubs occur.

In freshwater habitats, red-throated loon, oldsquaw, common eider, red-necked phalarope, and harlequin duck breed in low to moderate numbers.

The coastal waters of this ecoregion play an important role as a molting area for a number of ducks, such as Barrow's goldeneye and scoters — primarily surf scoters. The males of these species collect in the bays and mouths of rivers in July and August



Photo: Geoff Goodyear

Species in Focus: The decline of the peregrine falcon has been due to the use of pesticides, particularly DDT. DDT was first introduced in 1946 and was used by farmers to kill insects. Insects exposed to DDT were eaten by small birds. Because peregrines eat little besides birds it wasn't long before DDT built up in their body tissues. This resulted in sterile eggs and thin egg shells, which resulted in fewer young. In 1972 the use of DDT was

banned in North America. Although it continues to be used in South America where peregrines winter, peregrine numbers have begun to show some recovery. In the 1980s there were only two known nests in Labrador. Today there are 60.

where they molt their flight feathers and as a result, are flightless during this time. Breeding females, which remain on the nest to incubate the eggs, begin their molt slightly later — after the chicks have hatched.

Shorebirds also nest in the coastal barrens of this ecoregion, including semipalmated sandpiper and semipalmated plover. Gull species that breed along the coast and on offshore islands include herring gull, black-backed gull, and

glaucous gull (which breeds in the northern coastal regions of Labrador, but not on the island of Newfoundland).

Fish found in the rivers and streams of this ecoregion include arctic char, three-spine stickleback, and nine-spine stickleback. Atlantic salmon is known to occur occasionally, and brook trout may make a few rare appearances. No amphibians or reptiles occur in this ecoregion. 🐸

Rock-strewn valleys and riverbeds surrounded by rugged mountains and precipitous cliffs typify this ecoregion.



Photo: Paul Linegar

Climate

Summers in this ecoregion are short and cool and winters are long, dark and cold. The growing season is 60 to 80 days.



Annual rainfall
850 to 900 mm



Annual snowfall
3.0 m



Mean daily temperatures
February -19°C to -22°C
July +7°C to +9°C

Protected Areas Profile

There are no protected areas presently located in this ecoregion. However, this region is planned for inclusion in the proposed Torngat Mountains National Park.

Focus on Talus Slopes

Talus — the collection of loose rock and rubble found at the base of a cliff — are formed as a result of several factors.

Because gravity is constantly working to pull things downwards, any loose soil and rock easily slips downhill on steep slopes. The bedrock contained within a cliff face, however, is well-anchored and needs stronger forces to dislodge it, but it can be freed by a process known as "frost

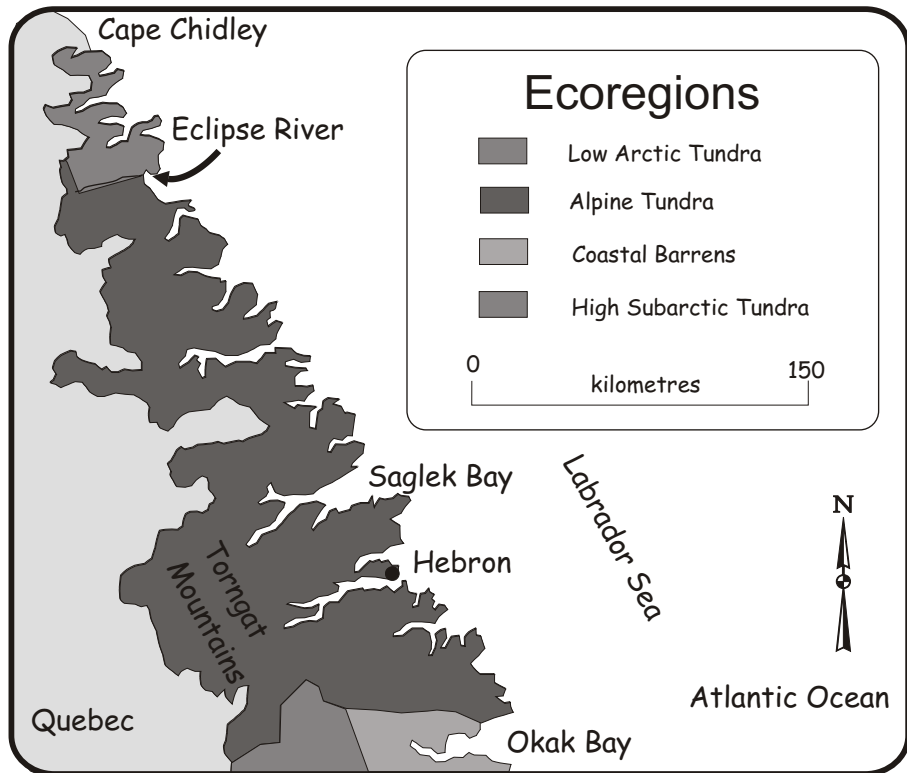
wedging."

Frost wedging occurs when water enters cracks in the bedrock and freezes. Because water expands when frozen, freezing widens the cracks. Eventually pieces of the rock separate from the cliff face and fall off. In northern Labrador, the combination of a cold wet climate, steep cliffs, and lack of vegetation all contribute to the formation of talus slopes.

Talus slopes take one of two general shapes: a "talus apron," in which rock debris simply falls from the cliff face and collects at the base, or a "talus cone," in

which it funnels through a narrow ravine or gully, then spreads out as it nears the base, forming a cone-like mass. Talus cones are often arranged side by side along a cliff.

In both types of talus slopes, the larger, heavier pieces roll to the bottom of the slope, while smaller fragments remain near the top. As a result, material tends to be sorted by size, with the largest at the bottom and the finest at the top. The very largest — boulders — often roll out beyond the base of these slopes. 🐾



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