

Western Newfoundland Forest

Serpentine Range subregion

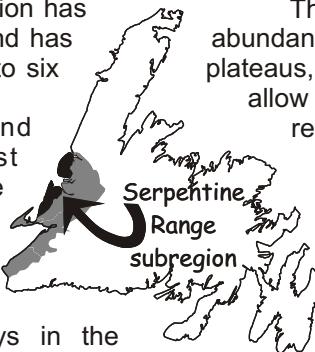


One of the largest ecoregions on the island of Newfoundland, the Western Newfoundland Forest includes more than one million hectares in the western portion of the Island. It stretches from the Codroy Valley in the south to Bonne Bay in the north and extends from the west coast inland, including much of the Long Range Mountains.

Its neighbouring ecoregions are the Maritime Barrens to the south, the Long Range Barrens and Central Newfoundland Forest to the east, and the Northern Peninsula Forest and Long Range Barrens to the north. Local variation in the geology of the Western Newfoundland Forest ecoregion has affected its geography and biology, and has led to this ecoregion being divided into six subregions.

The Western Newfoundland Forest ecoregion has the most favourable growing conditions on the Island, with typically warm summers and cold winters. There are large local variations in precipitation and growing season, however, because of the many mountains and valleys in the ecoregion. On mountain slopes and summits, winters are generally colder and the growing season is shorter than in the protected valleys. Mountain slopes also tend to receive more precipitation than low-lying valleys.

The Serpentine Range subregion covers 1,451 km², taking in southern Bonne Bay, the coastal area surrounding the Bay of Islands, and the Lewis



Hills area. While the entire Western Newfoundland Forest ecoregion ranges from very hilly to mountainous, the Serpentine Range subregion is at the mountainous end of the spectrum. In fact, the Lewis Hills boast the highest peak on the Island at 810 metres above sea level, while the barren mountain tops of the Tablelands and Blow Me Down Mountains are visible when looking westward from Corner Brook.

The steepness with which the mountains of the Serpentine Range rise from the surrounding terrain results in **talus** in many areas. Other unusual geographic formations, such as **solifluction terraces** and **stone polygons**, are formed along some of these slopes.

This subregion is also characterized by an abundance of **serpentine rock** in its mountains and plateaus, which in turn contributes to conditions that allow only certain kinds of plants to grow. As a result, the landscape is often barren or covered with sparse vegetation. The presence of serpentine rock distinguishes this subregion from the remainder of the Western Newfoundland Forest, where none of these rocks occur.

The subregion is not all serpentine rock barrens, however. But where forests do occur, they are not as full and the trees are not as large as elsewhere in the Western Newfoundland Forest.

The advance and retreat of glaciers over the last 20,000 years has greatly affected this region. The community of Trout River, for example, was built on a delta formed by glacial meltwater about 12,000 years ago. Trout River Pond is a landlocked fjord created by this glaciation.

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. Subregions occur when distinctive variations within ecoregions are on a smaller scale than between ecoregions. The Western Newfoundland Forest is broken down into six subregions.

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."

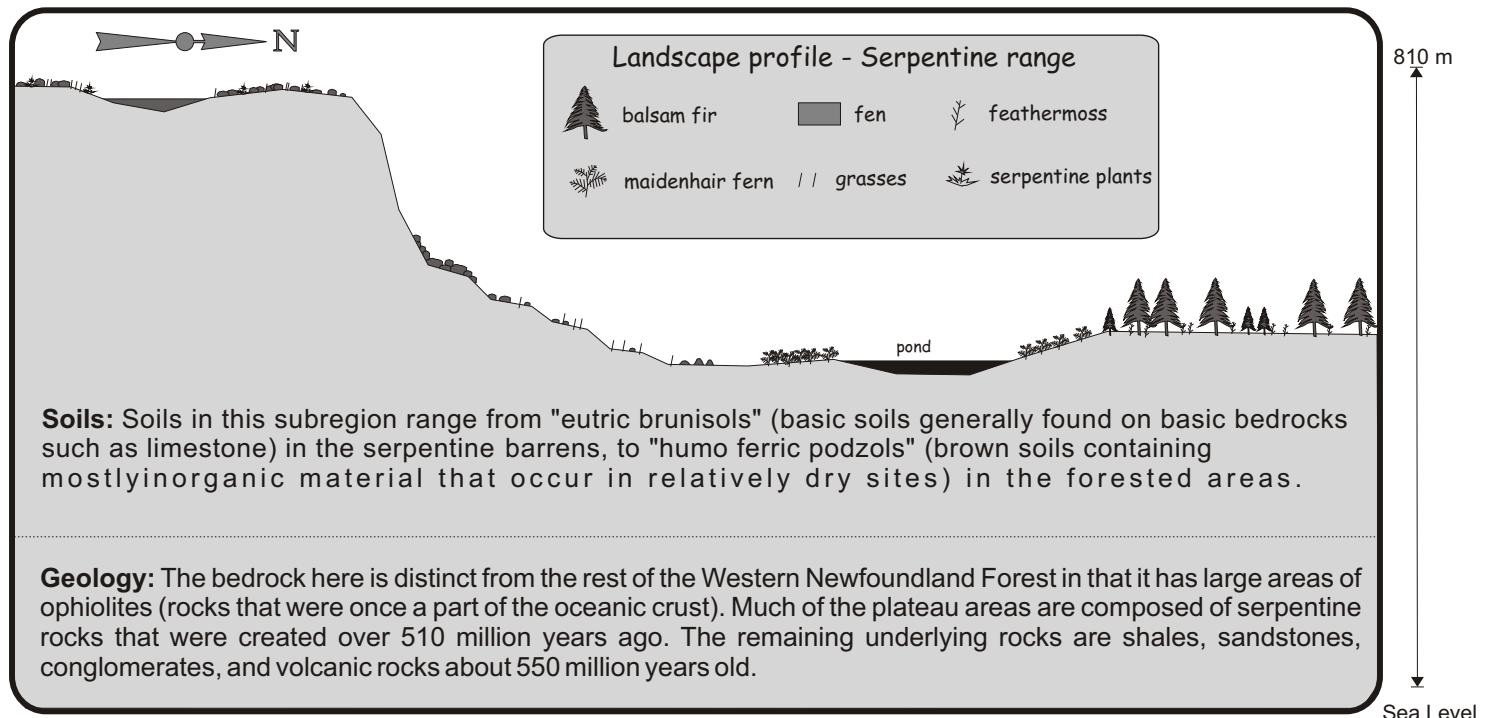
Solifluction terraces: Stepped formations on mountain slopes that are formed in spring when the land begins to thaw. Surface soil can thaw before the underlying layers and become waterlogged. This waterlogged soil layer droops and slides slightly, forming terraces or steps. This condition is usually associated with arctic tundra areas.

Stone polygons: A series of ring-like structures made of materials such as

pebbles and rocks. Polygons are formed by frost action, which separates the coarser materials and lifts them into ringed structures.

Serpentine rock: A greenish metamorphic mineral found in western Newfoundland that results in serpentine barrens vegetation. It contains fibrous and flaky crystals, and has a soapy feel. Serpentine rock forms a basic substrate that many plants cannot tolerate. It was created in the deep sea as part of oceanic crust and mantle that were uplifted and pushed to the surface. Serpentine rock belongs to a group that also includes asbestos.

... more on back



Soils: Soils in this subregion range from "eutric brunisols" (basic soils generally found on basic bedrocks such as limestone) in the serpentine barrens, to "humo ferric podzols" (brown soils containing mostly inorganic material that occur in relatively dry sites) in the forested areas.

Geology: The bedrock here is distinct from the rest of the Western Newfoundland Forest in that it has large areas of ophiolites (rocks that were once a part of the oceanic crust). Much of the plateau areas are composed of serpentine rocks that were created over 510 million years ago. The remaining underlying rocks are shales, sandstones, conglomerates, and volcanic rocks about 550 million years old.

Vegetation Profile

The most striking vegetation feature in the Serpentine Range subregion is its serpentine barrens. Only a few serpentine-hardy plants manage to survive on them, forming a unique serpentine heath that covers most of the plateau areas.

Plateaus in the subregion are large areas of elevated land bordered by steep slopes. The serpentine rocks making up these flat-surfaced mountains result in **basic soils** from which many common plants on the Island cannot take up nutrients, and so cannot grow.

In addition, many of the plants found in the subregion are **Gulf of St. Lawrence endemics** or **Cordilleran disjuncts**. Sandwort and alpine campion grow only in the serpentine-rich areas. Alpine bunchberry, alpine billberry, lapland rosebay, heath moss, thrift, moss campion, butterwort, bluebells, and deer grass grow here, and are also found on the limestone barrens of the Corner Brook subregion.

In some of the small valleys that drain the plateaus bottlebrush, pitcher plant, and maidenhair fern are found. Plant cover is more continuous in these valleys than on the slopes and plateaus.

At lower elevations along the

coast and in protected valleys, the vegetation gradually changes to forest cover similar to that found elsewhere in the ecoregion: forests dominated by balsam fir, with a floor covering of mostly wood ferns and some feathermoss.



Photo: Todd Boland

Species in Focus: The alpine campion (*Lychnis alpina*) is a hardy plant well adapted to the basic soils found on the serpentine barrens of this subregion. Erect, eight-inch purple stems bear rose-coloured flowers that provide a striking contrast to the surrounding rocky landscape.

Wildlife Profile

Wildlife in the Western Newfoundland Forest ecoregion is among the most diverse on the Island. Caribou, moose, mink, snowshoe hare, lynx, black bear, red fox, beaver, muskrat, and otter are known to occur, while little brown bat, eastern chipmunk, masked shrew, and red squirrel also find habitat in the area.

In forested areas the bald eagle, osprey, yellow-bellied flycatcher, American robin, and tree swallow can be found. A variety of finches, such as white-winged crossbill and pine grosbeak, also occur in the forests, along with a number of warblers: blackpoll warbler, black-and-white warbler, ovenbird, and northern waterthrush, for example.

In shrublands, marshes, bogs, and other open areas song sparrow, mourning warbler, and Lincoln's sparrow find habitat. Aquatic birds include spotted sandpiper, black duck, red-breasted merganser, and common tern. Rock and willow ptarmigan inhabit the higher elevations that occur inland along the edge of the Long Range Mountains.

A seabird colony containing more than 500 pairs of black-legged kittiwakes is located in the Bay of Islands.

The rivers and ponds host arctic char, Atlantic salmon, brook trout, rainbow smelt, American eel, black-spotted stickleback, three-spine stickleback, and nine-spine stickleback. There is only one amphibian and no reptiles recorded for this subregion. The green frog, an introduced species, inhabits small quiet ponds and marshes in low numbers. 



Photo: Parks and Natural Areas Division

Species in Focus: Although both male and female caribou bear antlers, they are absent in up to 30 percent of the females in Newfoundland. Antlers are much larger in males (as in the one above) and are extremely variable.

In Focus: The little brown bat is the most common of the three species of bats recorded for the Island. It is active at night as it hunts insects on the wing. By morning it returns to its colony — located in caves, hollows, and other sheltered places, including cabins — where it spends the day sleeping. Using high-pitched sounds that we cannot hear, bats locate their prey and scoop them up in mid-air with the help of their tail and wings. Bats are a major predator of flying insects.



Photo: A. Glen Ryan

The breathtaking scenery of the Serpentine Range is an extension of the Appalachian Mountain system, which was formed by the uplifting of oceanic crust and the eastern margins of ancient Laurentia.

Climate

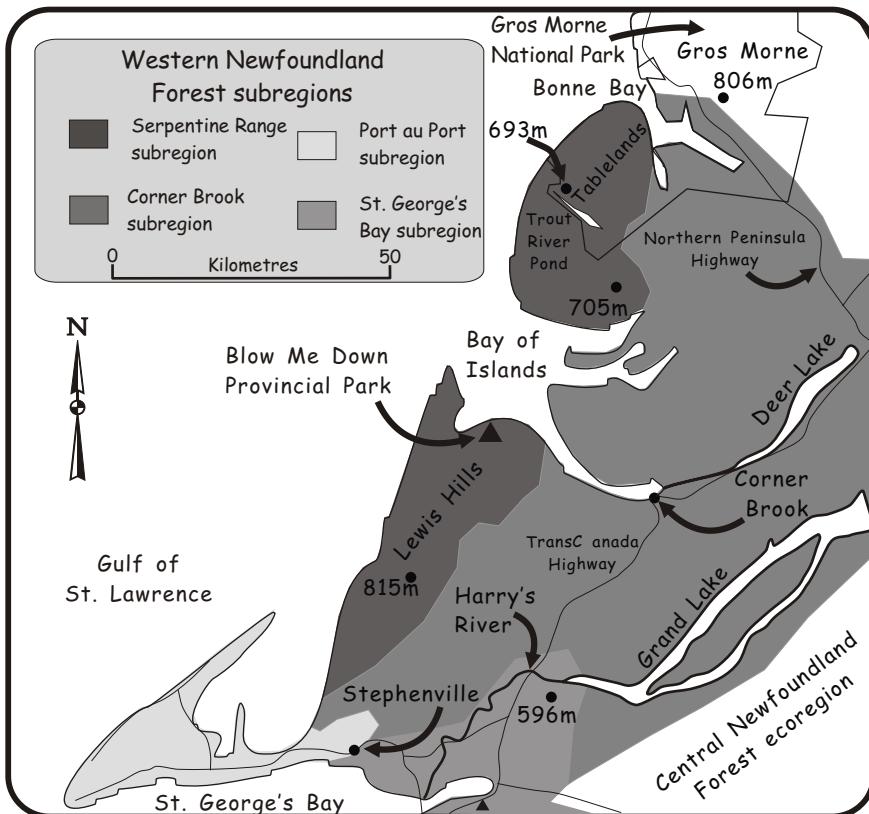
This subregion, with its coastal location, has a humid climate. Generally, the area has some of the most favourable growing conditions on the Island, although in places basic soils restrict what can grow. The Western Newfoundland Forest ecoregion has the highest number of frost-free days on the Island, with typically warm summers and cold winters.

 Annual rainfall	1200 mm (in NE)
 Annual snowfall	2-4 m
Mean daily temperatures	
February	-5°C to -8°C
July	+14°C to +16°C

Protected Areas Profile

Gros Morne National Park protects the northwestern section of the Serpentine Range subregion. Unique geology has made Gros Morne internationally famous, and the 1805 km² park was proclaimed a World Heritage Site by UNESCO (United Nations Educational, Scientific, and Cultural Organization) in 1987.

With almost 300 campsites, Gros Morne features spectacular scenery with many hiking trails and scenic lookouts. The magnificent Tablelands occur in the southern portion of the park and include serpentine barrens. All essential features of this subregion are present in the Tablelands area, and are therefore protected by



Gros Morne National Park.

Although very small, Blow Me Down Provincial Park includes 2.26 km² of coastline west of Corner Brook and offers an impressive view of both the Bay of Islands and Blow Me Down Mountains. The park captures forested land typical of the fir-dominated forests of the Western Newfoundland Forest, as well as coastal cliffs reflecting the

rough topography of the region.

These two areas protect a combined total of 18.8% of the Serpentine Range subregion. Gros Morne also protects a portion of the Northern Peninsula Forest (Coastal Plains subregion) as well as the Corner Brook subregion within the Western Newfoundland Forest ecoregion. ■

Basic soils: Soil can be described in terms of its acidity, which is measured as a pH level. Most soils in Newfoundland are acidic, and have a low pH. Basic soils have a high pH — which is true of the calcium found in limestone, for example. A soil's acidity level affects a plant's ability to take

up nutrients. Different plant species adapt to specific pH ranges, and cannot survive if soil is too acidic or too basic.

Gulf of St. Lawrence endemics: Plant or animal species that grow in the Gulf of St. Lawrence area and nowhere else in the

world.

Cordilleran disjuncts: A plant or animal species that has its main distribution in western North America and a smaller distribution in eastern North America.



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