

VISITOR'S GUIDE

(CONNAUGHT TRAIL)

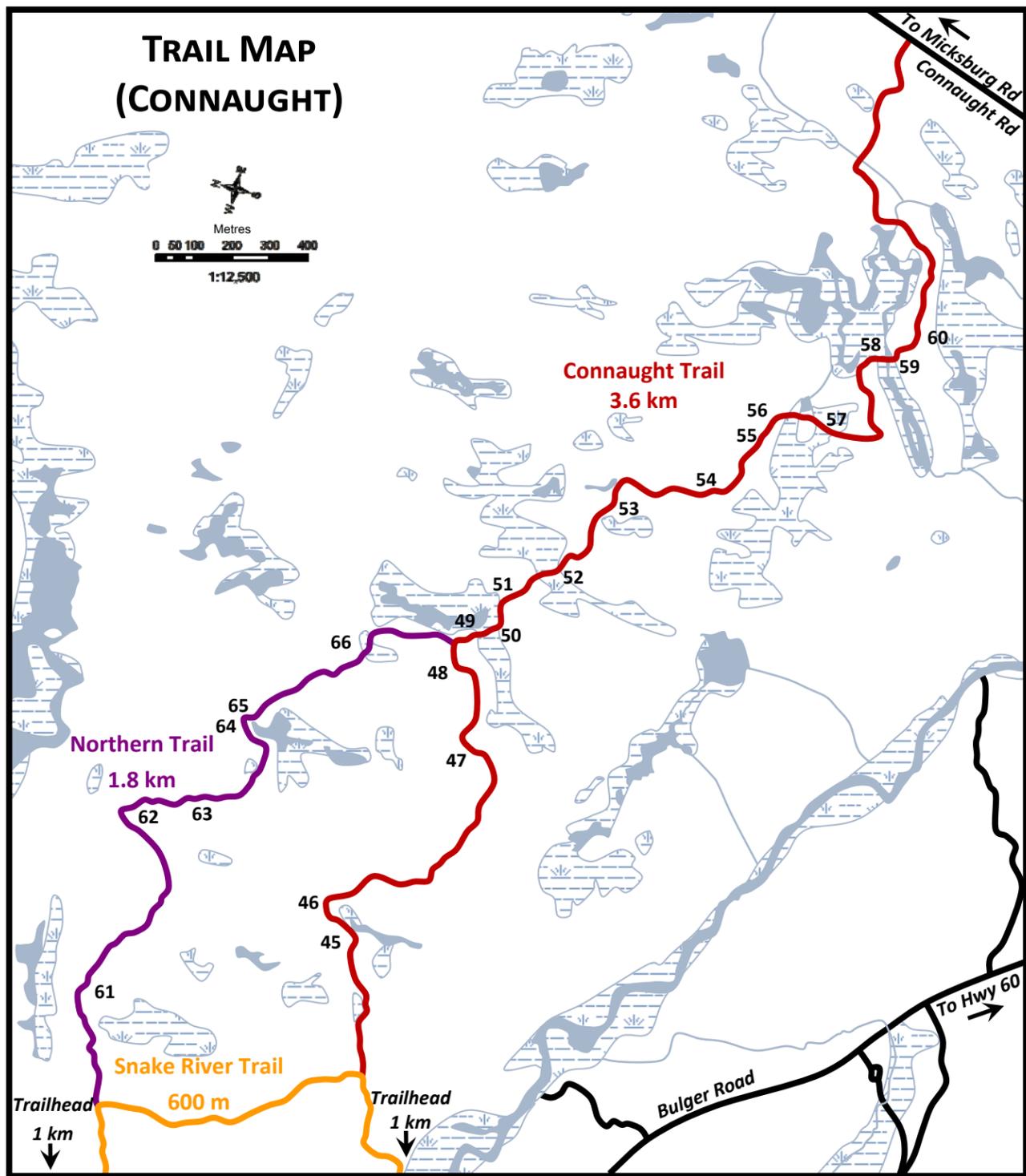


WELCOME TO THE CONNAUGHT TRAIL

This trail will take you over the Dore Scarp through a variety of forests and habitats from bogs to rock barrens. A complex system of wetlands is highly interspersed throughout this upland forest environment. The contrast between open wet and dry forested landscapes provides for an especially rich biodiversity. Most all of these lands were settled as homesteads during the 19th century and are now returning to forest cover as they should be. The link with the Connaught Settlement dates from 1847 when farmers there would carry their grain across the "Micksburg Mountain" to be ground at the new gristmill on Shaws Pond. We hope you enjoy your journey back in time!

SHAW WOODS

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61. PROTECTION FOREST

Site class is a term used in forestry to express the productivity of a stand through the age-height relationships of the leading tree species. The soil conditions in site class "X" would produce the best possible height growth for the age of the tree where "1" represents very good, "2" is good, "3" is poor and where "4" is referred to as a "protection forest". A class 4 site has very slow and stunted growth often because of shallow, dry soil over bedrock making it difficult to implement forest management strategies. Such areas of poor growth (e.g. red oak knolls) are often left unharvested to avoid damaging the already limited soils. Regeneration is slow and difficult to achieve in these types of sites.



62. STRENGTH IN THE UNDERSTORY

Ironwood is typically a forest understory tree but under heavy browsing of competing species such as sugar maple by deer or cattle, it can form pure open stands. The buds, catkins and nutlets are consumed by ruffed grouse who return the favour by dispersing seed throughout the hardwood ecosystem. True to its name, ironwood is extremely strong and was once used for tool handles, sleigh runners, mill cogs and levers. First Nations peoples boiled heartwood chips to make a tonic to treat fevers, scaly skin and indigestion.



63. SOMETHING IN THE AIR

Do you feel a change in the air around you? Take a moment to look around and notice the differences between the forest behind you and in front of you. You have just crossed between two different forest stands that differ in soil type and topography. In the downslope, the stand is dominated by more shade-tolerant hardwoods such as sugar maple that prefer deeper, moister soils. The forest is denser here because any gaps in the canopy have been "captured" by regenerating tolerant species which do not require much sunlight to germinate. Such trees grow at a slow rate while waiting for a gap to be created when neighbouring trees die or fall over. This type of regeneration leads to an "unevenly aged" forest since trees are replaced one-by-one after small disturbances over time. Up the hill, mid-tolerant tree



species such as red oak and white pine generally depend on larger disturbances including fire, harvesting, or large-scale blow downs to create enough light for seeds to germinate and start growing.

64. ROOM TO GROW

All trees need room to grow if they are to achieve their full potential. Red pine is a shade-intolerant species and all trees within a stand usually originate at the same time – after a large disturbance such as fire or blow down. Trees grow vigorously until they become crowded and limited for space. In a managed forest, we target unhealthy or suppressed stems for removal. As you can see from this small demo site, about one third of the trees are marked for removal to leave the healthier trees with more resources (soil, nutrients, water and sunlight) that will stimulate improved growth.



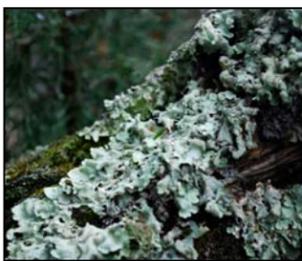
65. BUTTERFLY HOSTS

The edges of wetlands provide sunny conditions for butterfly host plants such as swamp milkweed (monarch), willow (mourning cloak), violets (fritillary) and nettle (for this Milbert's tortoiseshell). Most caterpillars live solitary lives staying well-hidden during daylight hours. If you spot one, it is likely quite distasteful to predators or has defensive spikes. A few species such as this tortoiseshell will lay all its eggs on a single plant. In contrast, most species will spread the eggs to a number of individual plants. The various butterfly species also have very different adult life spans. For some species, a few days is the norm but this particular species will overwinter in protected crevices and down woody debris, seeking out tree sap during the first mild spells of spring.



66. A LICHEN IS

You may not have paid much attention to them, but lichens are growing on the trees, rocks and exposed soil surfaces all along this trail. A lichen is a composite of two distinct species – a fungus plus an algae and/or cyanobacteria – that combine to make a third lifeform. The fungus provides the organism's form and the algae or bacteria contribute the photosynthetic "engine" to generate the energy and nutrients on which both mutually depend. This relationship is called symbiosis. The hummingbird uses lichens intertwined with spider webbing to decorate and camouflage its nest.



GENERAL INFORMATION

Within these woods you will find one of eastern Canada's premier examples of an old growth maple/beech/hemlock forest. It supports a wide variety of ecological communities and has been carefully protected for generations. In addition, the property features a variety of managed forests, plantations and wetlands.

Please note that motorized vehicles, bicycles, horseback riding, overnight camping and open fires are not permitted. In order to protect sensitive habitats, visitors must remain on trails and dogs must be on a leash.

Enjoy your visit but remember to take only pictures and leave only footprints.

MISSION STATEMENT

To foster an ethic of responsible environmental stewardship by providing courses and/or seminars that teach sound environmental practices to local school groups, community organizations and the public at large. In conjunction with the foregoing, to teach generally accepted proper forest management practices for the purpose of achieving sustainable forest utilization while respecting the concept of creating reserves of undisturbed forest areas as examples of old growth forest.

ABOUT US

The Shaw Woods Outdoor Education Centre Inc. is a not-for-profit volunteer-based organization.

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Grant

45. INDIAN ICE CREAM

Soapberry, seen at this post, is a deciduous shrub found in open forests throughout Canada. The roots bear small nodules containing nitrogen-fixing bacteria which allow this species to colonize and improve coarse and infertile soils. In this symbiotic relationship, the plant supplies photosynthetic energy while the bacteria captures and converts nitrogen from the air into ammonia. First Nations people in Western Canada have traditionally collected and processed the edible red berries. Crushed with a little water and vigorously beaten, the fruit is transformed into a foamy confection known as *sxusem* or "Indian Ice Cream".



46. OTTER SLIDE CREEK

River otters use this narrow ravine as an overland route between ponds searching out fish, frogs, crayfish, molluscs, salamanders and muskrats. In late fall after the ponds have frozen over, otters will sometimes dig into the upstream side of a beaver dam causing a hole to form and the water level to drop. The resulting air cavity below the ice then allows for easier hunting. Their long, sinuous and streamlined bodies are ideally adapted for aquatic life. They can remain submerged up to eight minutes and their numerous, highly sensitive whiskers can sense the vibrations of potential meals in the dim light. Smell, hearing and sight are equally acute. In winter, they take great advantage of the snow alternately running and sliding up to 30 km per hour as they travel over their home range.



47. ON THE BARRENS

In areas where there is little to no soil over bedrock, severe environmental limitations such as rooting depth, nutrient availability and drought restrict the establishment of trees and shrubs. In such a setting, conditions vary widely over time from very wet to very dry, and very cold to very hot. Despite the vegetative limitations of such sites, they can be valuable for wildlife. Rocky environments heated from a sunny day can become thermal refugia during cool evenings for a variety of insects. The native wood roach resides in the shelter of such rocks where bats also take cover. Some mosses and lichens flourish as pioneer 'plants' that contribute over time to the accumulation of soil in cracks, crevices and depressions. The open glades of such areas are favoured by ground-nesting nighthawks.



48. DRIVEN TO EAT

Aside from winter hibernation, a black bear's primary preoccupation is finding food and gaining weight. Larger and stronger males are invariably the ones chosen by females as mates, so there is an evolutionary advantage to be as big as possible to have the opportunity to pass on one's genes. After emerging from the den in spring, bears eat vast amounts of grass, dandelions and clover. By early summer in years when fruits such as these serviceberries are plentiful, weight gain can be as much as 1 kg per day. Bears are opportunistic feeders and the removal of attractants such as garbage will resolve most problem interactions with humans.



49. "BEDROCK-CONTROLLED" WETLAND COMPLEX

Bedrock is relatively impervious to water and resistant to erosion and, where there is shallow soil cover, the bedrock becomes the controlling feature for wetlands and vegetation. The uneven nature of the bedrock surface results in alternating rock knobs and hollows which form natural catchments for water. In the wet catchment areas, the variability in soil and water depth, the water chemistry and rate of exchange determines the wetland vegetation. Similarly in the upland areas, the soil type, depth and chemistry largely determine the forest tree species. In an area such as this with rolling bedrock at or close to the surface, a wetlands complex may be highly interspersed with upland forests creating contrasting open wet and dry forest environments. This edge effect in the vegetation and the ready availability of water results in valuable wildlife habitat at different scales. An active beaver lodge may be viewed along the short trail starting 30 m north of this post.



50. TWIST IN TIME

Initially attracted by the hilly aspect of the land which they were quite familiar with from their homeland, Irish immigrants settled this area during the mid-nineteenth century. In exchange for bringing 12 acres into cultivation within 4 years and building a house of not less than 18 by 20 feet, full title to a 100-acre lot was granted. However, in a few short decades, the thin soil became depleted of its organic matter and proved inadequate even for subsistence-level farming. Families drifted off; in some cases to lower, more fertile land only a few kilometres away. This very old wire fence is a testament to the considerable effort once expended here to establish a homestead amongst the rock outcrops and beaver ponds.



51. THE WILD WEST

By 1850, the district to the west of this post had yet to be surveyed even though much of the land had already been settled. This caused a great deal of insecurity and friction amongst residents who were without title and essentially squatters on their own land. For a number of years, the people petitioned the government for an official survey to define the legal land boundaries. In the Lake Dore district, gangs of fifty men on either side came together in mortal combat to "settle" boundary disputes between neighbours. Two years later, an official survey gradually returned peace to the semi-lawless region.



52. HIGH-GRADING TO UPGRADING

Forest management has come a long way in the last 100 years. Traditional harvesting up until the 1940s was often "high-grading" or cutting of mainly the best trees, which had a negative effect on the gene pool. The result was a much-depleted forest. In the late 1940s, diameter-limit cutting (only trees over a minimum size) came into vogue. This was an improvement, but this practice still primarily removed the fastest growing trees. By the 1970s, forest science had begun to adopt a holistic approach to forest management including single tree selection techniques meant to emulate natural disturbances. Forest managers now consider such factors as species diversity, provision of habitat and maintenance of a variety of structure, both vertical and horizontal. Trees of all diameters that have matured to or past their peak or are likely to die are those chosen for harvest with a view towards upgrading the forest stock.



53. BEAVER CLEAR CUT?

The beaver is capable of manipulating the forest environment more than any animal species other than humans. Typically, beavers will not use red oak for food or in the construction of dams and lodges. But with the oaks gone, aspen trees, which are shade-intolerant and coincidentally the beavers' preferred food source, can suddenly flourish. So one might speculate that chopping down this stand of mature oaks was a wise management decision from the beaver's perspective. However, the most probable explanation is that beavers simply cut down trees faster than they can be replaced. So the beavers must either move on or use less desirable species. The suppression of fire as an agent of renewal means that many otherwise "beaver-suitable" wetlands have become dominated by conifers. Forest management plans now consider the benefits of carefully harvesting up to the waterline as an alternative to the stand-replacing disturbance formerly provided by fire.



54. A BOG WAY OF LIFE

The shrubby bog just downhill of the short side trail started as a depression carved out by the advancing glacier and was subsequently filled by its melt water. During the past 10,000 years, decaying vegetation and runoff from small streams slowly built up sediment and reduced the exchange of water and nutrients. With further decomposition, the oxygen levels of the water dropped and the accumulating organic material formed soil and became increasingly acidic. You will notice that many of the plants here, including this Labrador tea, are broad-leaved evergreens. With nutrients at a premium, holding on to one's foliage year to year has its advantages. The trade off though comes in winter when water-logged soils freeze and the leaves continue to transpire without much capacity to replenish moisture. With curling leaf margins and densely hairy under-surfaces, this plant species has evolved numerous coping mechanisms for life in a bog.



55. LIMITED RESOURCES

Tree roots are limited in how deep they can grow in search of the nutrients and water they require. As a tree increases in size, it requires more and more resources. Less-than-ideal conditions will stimulate increased root growth, but once the roots reach bedrock there is no more room to grow. On a site like this, the white pine have held on for a number of years but a drought year has led to their abrupt death. You can observe a few hardier red oaks starting to fill in the gaps.



56. A DECIDUOUS HOLLY

As the leaves are shed in fall, the showy orange-red fruit of winterberry provide a splash of colour along this section of trail. This is a deciduous holly with separate male and female plants (termed dioecious) which often form dense thickets on the soggy, poorly-drained soils here. The berry-like fruit are persistent well into winter if not consumed by songbirds, waterfowl and mammals from mice to bears. The First Nations use of this plant as medicine gave it another common name – "fever bush". A decoction was prepared by boiling the bark to use as a tonic, astringent and cathartic.



57. HEFTY SALAMANDERS

Salamanders are rarely seen although, in terms of sheer animal biomass, they outweigh all of the birds and large mammals living in these woods. Like most amphibians, this blue-spotted salamander divides its life between water and land. Shortly after the spring thaw, adults congregate at these breeding ponds to mate and lay eggs. After hatching in May, the aquatic larvae live under water for a few months before emerging as adults to spread out hundreds of metres into the forest. There, they feed on crickets, sowbugs, snails and other invertebrates under the protective woody debris of the forest floor.



58. COTTON BALLS IN THE BOG

The fluffy, white masses dotting this bog are cottongrass. These are the seed heads whose insulating properties help the plant carry on photosynthesis at cooler temperatures. Growing 20 – 70 cm tall, this rhizomatous perennial sedge is found in acidic bog habitats throughout the temperate northern hemisphere. Historically, they have been used for pillow stuffing, wound dressing, baby diapers and candlewicks. First Nations peoples used this plant as food and as a treatment for digestive problems.



59. SHELTERWOOD SYSTEM

Red oak has an intermediate tolerance for shade. Seedlings will survive only a few years under a dense canopy. Before we started putting out forest fire, oak would regenerate very successfully and was able to outcompete other species such as maple and beech. In a managed forest, we attempt to create similar conditions through the uniform shelterwood harvesting system. First, a "prep-cut" is carried out, thinning the area slightly to promote crown development of healthy, young red oaks that will provide the seed for the future stand. Once mature trees have full, acorn-producing crowns, a "regeneration cut" is performed to reduce the canopy to create proper light conditions for regeneration and seedling development. When oak regeneration is well-established, the trees requires more light to keep growing. At this time, the mature trees are harvested in one or more harvests.



60. POLLINATORS MEADOW

In this forest opening, pollinators rely on a series of food sources throughout the growing season including wild strawberry in the spring, New Jersey tea in summer and asters in the fall. To effectively transfer their pollen, almost 80% of all flowering plants depend on bees, flies, wasps, butterflies, moths or hummingbirds. Bumblebees should be particularly noticeable and abundant here in the fall. Some of the fertilized queens will soon find a solitary place to hibernate until next spring when they emerge to start a new colony.

