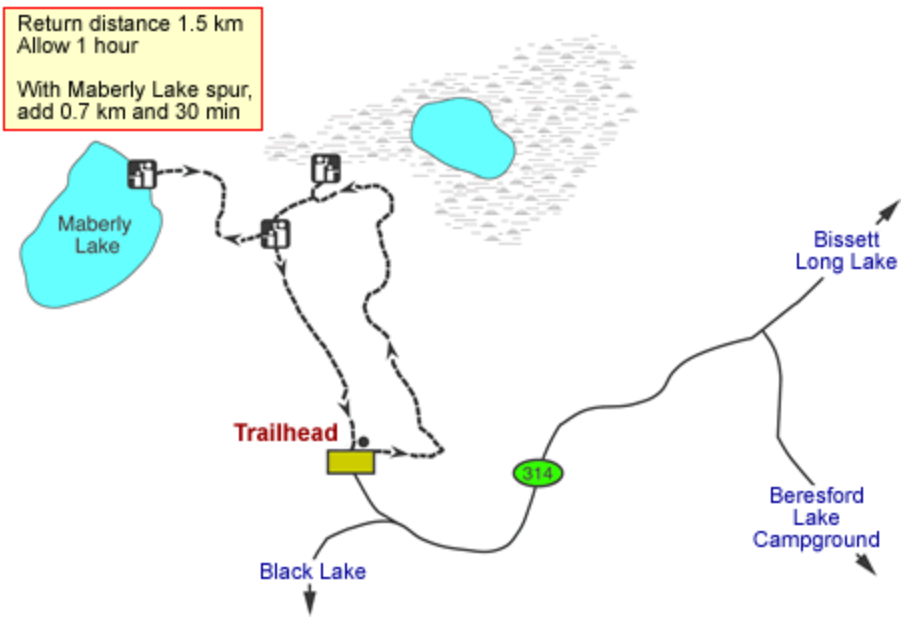
Manitoba
Sustainable Development

Eastern Parks

Nopiming Provincial Park

Trail Information

- This is a short, fairly difficult hike on uneven rock surface, with frequent but short inclines. Some stairs have been provided. Walk cautiously, especially after a rainfall. Sturdy footwear is recommended.
- Numbered posts along the trail correspond to numbered texts in the accompanying brochure.
- Although sparse and limited to a few sites, there is poison ivy along the trail. Learn to recognize and avoid this shrub with three-part leaves.
- Please do your share to protect our park resources. Removing minerals, plants or animals is not permitted. Take only pictures and leave only footprints.
- Overnight camping and open fires are prohibited.



Introduction

Welcome! When you're visiting Nopiming Provincial Park, you're in a tiny fragment of a forest that stretches from Alaska to Newfoundland. Much of it between northern Saskatchewan and Canada's east coast is on an ancient rock foundation. It is known as the Precambrian boreal forest. You are about to explore a rocky upland (also called rock outcrop) which is typical of the landscape. As you walk over the local greenstone, you'll notice veins of white quartz which attracted gold prospectors in the 1920s.

The region's harsh climate (long, cold winters; short, hot summers and little precipitation) and generally thin soils, limit plants' growth rates and species composition. Vegetation is dominated by jack pine trees. It also includes scattered aspen, balsam poplar, birch, black spruce, white spruce, balsam fir, a variety of shrubs, soft-stemmed plants, some ferns, mosses and lichens. Different-aged plant communities are usually found side by side.

The Precambrian boreal forest is well-adapted to, and dependent on, periodic visits from fire to maintain its vitality and wildlife diversity. Fire, naturally started by lightning, has been a force of change and renewal since the forest appeared here about 8,000 years ago. Lightning fires often start in dry, rocky places where moisture is scarce. Fire revisited this area on the September long weekend in 1983.

Jack pine cone opened by fire

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1. Reborn of Fire

As fire swept through jack pine crowns on the nearby rock, heat melted the resin which held the seeds in tight cones for years. Cones opened in an instant, and fiery wind scattered their seeds. In the next three years-without shade-the black ground surface was hotter than usual, helping jack pine seeds and those of other plants to germinate and to gain footholds, and start the next episode in the forest's life.

The heated ground also encouraged the growth of aspen shoots that sprouted from the roots of their burned predecessors. Aspen have an advantage because of the food resources in their parents' unburned roots. In the spring of 1984, cotton-like aspen seeds from trees that had been spared by fire (or from trees outside the burn area) landed here ensuring that aspen would be present in the new forest's lifecycles.

After a quick start, aspen and jack pine are both competing here for sunlight, moisture and nutrients in the ground. Aspen which grew taller more quickly, now dominate the canopy. Shade-intolerant jack pine in their midst will likely be crowded out. Pines which took root in less shaded areas such as a rock outcrop, will continue to grow in the more rugged environment.

Nopiming Fire News: Thursday, September 1, 1983

<> *More than a thousand people were looking forward to a relaxing, September long weekend at the cottage, favourite campground or backcountry campsite in the park. Environment Canada's prediction for the Bissett area was mainly sunny skies with occasional thundershowers in the evening. Highs near 33ºC. Probability of* <>

precipitation, 60 per cent. Due to lack of rainfall, fire conditions in the eastern part of the province had been deteriorating since July 15.

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2. Snags

Above the green foliage ahead are snags, or burned trees, that are still standing (in 1997) well after the fire. They provide habitat for many specialized animals. Insects such as flathead borers and bark beetles thrive on dead, standing trees especially in years after the fire while the bark is still on the tree trunks. Abundant insects attract a variety of woodpeckers. Tall snags are also important for nesting, and perching by ospreys, bald eagles, hawk owls (illustrated on the cover), swallows and flycatchers.

Some wildlife species benefit and some are adversely affected by fire. The major change brought by fire, is a change in habitat. Animals specifically adapted to the pre-burn forest are displaced, forced to find another suitable location. They are however, quickly replaced by species that are specifically adapted to post-fire habitats.

Aspen's cotton-like seeds

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3. A Missing Carpet

Mature jack pines on rock outcrops are usually scattered. A ground layer of plants forms a living carpet over the spaces between them. Drought before the fire, dried out the carpet's plants-lichen, mosses, grasses, other soft-stemmed plants and shrubs-so they burned off completely in places, exposing the bare, smooth bedrock. The missing carpet was home to insects and small mammals like mice and shrews.

Nature's process of remaking the missing carpet however, is well underway. Look for circular, light-green plants growing in patches on the bare rock. Lichens have already reappeared along with mosses which are also colonizers and sponge-like water conservers.

Lichen are an important group of plants which can grow on bare rock. Caribou lichen forms large mats, however, they are very slow growing, taking about 60 years to reach 18 cm (7 in.) in

height. This is the same period of time it takes a jack pine tree to reach maturity. Other lichens important to woodland caribou include hanging tree lichen such as old man's beard, which only grow on mature tree branches. When fire burns an area where these two lichens are thriving, the burned area will not be a suitable, potential food source for woodland caribou for more than half a century.

Caribou lichen with 25-cent coin

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4. Survivors

Take a minute to scan the horizon...from the road to the north, to east, and then south. There are many individual trees and even plant communities which did not burn.

Fire consumes only about a third of the living material (biomass) in a burn area. Survivors-trees and other plants-are left to reseed. The entire burn area (29,138 hectares or 72,000 acres) is scattered with patches of such survivors. The entire forest is a mixture of younger plant communities standing beside older communities. The age of each was determined by past fires.

To the northeast, you can see the fire line, the northern limit of the Long Lake fire. Trees that burned here and those standing today at Beresford Lake, began growing after the fire of 1949. Even without human intervention, wildfires eventually burn out-they may run out of continuous fuel, the wind may change direction or rain may dampen their fuel.

Nopiming Fire News: Saturday, September 3, 1983

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During the late evening of Friday, September 2, a dry lightning storm passed over the area east of Lake Winnipeg, including Nopiming and Whiteshell parks.

Lightning started 45 fires in the region, and more in Ontario. High winds pushed fires in an easterly direction. Several small fires between Black and Beresford lakes merged in the course of a few days and eventually became known as the Long Lake fire. A few kilometres from here, three cottages and part of the campground burned, late Friday evening.

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5. Decay

Decay is a natural process that releases energy from the sun and minerals from soil, that living organisms use and store during their lifetimes. Fire does this almost instantly when a plant burns to ashes.

Partly burned, fallen trees on rock outcrops decay very slowly after a fire. Because there is little shade, moisture (which enhances decay) evaporates quickly. The lack of soil, which provides habitat for numerous decomposers, also slows down the rate of decomposition.

Look at the fallen logs in shady areas and you may see fungi and lichens colonizing these logs, increasing the diversity of life and speeding up the decay process. A good time to see new growth is after a rainfall, when moisture collects in cracks. Fallen tree trunks may be used as drumming logs by ruffed grouse and as runways by chipmunks and red squirrels.

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6. Shrubs

This clearing was quickly invaded by shrubs following the fire. Many are able to resprout from their roots and re-grow in the same season as a burn. They thrive in areas that are open to sunlight.

Seeds are also spread by berry-eating wildlife such as songbirds, grouse, black bears, coyotes and people.

Rosehips

Many of these shrubs are characteristic of rock outcrops. You can find pincherry*, saskatoon*, chokecherry*, rose*, raspberry*, honeysuckle, blueberry*, bearberry* and sumac. Look for their blossoms in spring and sample the edible (*) ones in summer, fall and winter. (Guide books for

the boreal forest's edible berries are available at bookstores and libraries.)

Nopiming Fire News: Sunday, September 4, 1983

On Saturday it was noticed that the fires were spreading quickly with the strong wind. Initial efforts were to evacuate visitors from the park. About a thousand people were on canoe routes, in isolated lakes and in built-up areas. Thirty-seven people had to be evacuated from isolated areas by helicopter.

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7. More Than Trees

Loons

The Precambrian boreal forest region is more than just tree communities. More than a third of it is made up of bogs, fens, marshes, peatlands, grasslands, lakes and rivers. Wetlands form natural barriers to fires. They also add to the diversity of life that can be supported within the mosaic of wet (aquatic) and dry (terrestrial) plant communities. Some boreal forest animals, like beaver and moose, thrive in this mixture of habitats.

From the air, the boreal forest is an immense mosaic or patchwork quilt of constantly changing patterns and colours.

Nopiming Fire News: Thursday, September 8, 1983

Yesterday, progress was made in securing fire guards in strategic areas around the Beresford, Cat Lake, Pine Creek and Beaver Creek fires. Warmer weather with light, southerly winds had increased the fire indices in the area but fire fighters were able to prevent appreciable advance of the fires. There are approximately 1,000 men manning the fires and 32 aircraft. At Beresford, this included 320 men, one waterbomber and four helicopters.

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8. Mixed Forest

Did you notice a whiff of pleasant, earthy odour as you entered this aspen grove? Broad-leaved trees such as aspen and birch, usually grow in small pockets of clay. Their annual leaf production enriches the soil, like compost from a home garden. On the other hand, needles from evergreens take much longer to decompose and are highly acidic in composition.

In shade from spring to fall, this kind of forest floor holds moisture longer than a sun-exposed rock outcrop. Microorganisms and bacteria which live in the soil decompose dead plants and animals, enriching the soil layer below the ground litter (duff), even in winter. Aspen stands are the most fertile terrestrial plant communities in the boreal forest.

Because moisture is held by soil and litter on the shaded forest floor, fire passes through areas like this quickly, seldom penetrating deeply into the soil where decomposers live.

Decay occurs here much more quickly than on a rock ridge, where a fallen tree may take as long to decay as it did to grow. Fallen trees create shelters and are store-houses of nutrients that attract decomposing plants, insects and animals. Look closely at one of the fallen logs or stumps to see the variety of life they support.

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9. Maberly Claims

Early in the 20th-century, large scale development came to this area. Remote mining towns with a population of about 500 people thrived at nearby Beresford Lake, then Long Lake. Prospecting was carried out extensively with hopes of prolonging the lives of local mines. Prospectors were at work here in the summer of 1923. There is wide evidence of their test pits, such as the one about 30 m to the left. The Maberly group of claims, and others, did not become producing

mines so operations in the area were short-lived. Gold mining activities gradually shifted to Bissett.

Today, northern communities like Flin Flon, Snow Lake, The Pas and even Bissett are in the heart of the boreal forest. With their modern industries and developments-logging, mining, hydro sites, highways, rail and recreation- they are part of, or citizens of, the boreal forest.

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10. Wetland

> *A wetland viewpoint is located 75 m from here to the right. Site marker 10 is repeated at end of spur. Return here to resume the trail.*

Wetlands covered with emergent plants and shrubs, are more resistant to fires than treed areas because of their moisture. Can you see burned stumps below? This shrubby wetland did burn in 1983 because of the extaordinarily dry conditions which preceeded the fire. Wetlands are very resilient, with willows regrowing in the same or next growing season following a fire.

The plant-cover is lush compared to the two, burned rock ridges that flank it. Wetlands provide moose with a variety of food during all seasons and mature forest provides shelter. Moose may be displaced temporarily after a fire until their food supplies are re-established. If you haven't already seen moose sign (clusters of oblong droppings about 1 inch long and 1/2" wide) look for them on or near the trail.

The September fire didn't disrupt birds that nested below in that spring and reared their young. At the time of the fire they were preparing for migration or had already left.

Nopiming Fire News: Wednesday, September 14, 1983

<> *The fire fighters aided by cool, calm weather are making steady progress on the four major fires in the region. Fire crews continue to extinguish hot spots and ground fires. 135 fire fighters were released and plans are being made to release another 100 fire fighters today. About 160 will be released on Thursday.* <>

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11. Maberly Lake, an Island

A spur trail goes downhill from here to the edge of Maberly Lake. Return distance is 670 metres, or about 30 minutes walking time. Site marker 11 is repeated at the end of the spur.

The main loop trail to site marker 12 and the parking lot, continues at the stairs to the left.

Maberly Lake and its surrounding mature plant community is an unburned "island." It was too wet to burn in the fire of 1983. Trees around the lake include black spruce, and tamarack grow near the water edge. Scattered balsam fir which are not well-adapted to fires, grow better in old forest stands. This type of plant community burns less frequently (once every 200 years) than the jack pine dominated rock outcrop (once every 100 years).

Tree lichen

Black spruce are prolific seed producers and their seeds are long-lived (15 years in cones) ensuring post-fire survival through numbers. As an "island" of mature trees, this community still accommodates birds like pileated woodpeckers and other animals that require old forest. It provides shelter and a rearing area for lynx which can prey on hares, grouse and squirrels living in the adjacent regenerating area. Lichen can grow on its tree branches, providing an "island" with winter food for woodland caribou.

Emergent vegetation along the lakeshore provides nesting sites for one or two loon families. The lake is suitable for beavers although they must "portage" into regenerating areas to find building materials and food, such as aspen and willows. In fall, the lake is a resting place for families of Canada geese and other migrating waterfowl.

Maberly Lake's unburned shoreline

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12. Conclusion

Fire is part of the boreal forest picture. During its 8,000 year presence, the forest, including its plants and animals, has evolved as a changing mosaic with built-in systems to cope with disruptions such as fire, disease and insect infestation.

Use of its resources by people, up to 100 years ago, was relatively light and therefore sustainable. Early lifestyles were finely meshed with seasonal abundances and changed easily with the forest's changes. Modern ways of life are more consumptive, sedentary and less able to change.

We are continuing to learn about the long term effects of modern activities like logging, recreation and fire suppression on the forest's health and diversity. Researchers are studying the role of fire in the boreal forest with hopes of better understanding its intricate workings. As a result we will be able to tailor our uses of the forest so that our activities do not-or minimize-impact on the long-term health and biodiversity of a forest that is such an important part of our daily lives.

To fully appreciate the nature of fire in the boreal forest, perhaps requires a change in perception that recognizes a burned landscape as a forest transformation and renewal, rather than a "blackened wasteland" or "moonscape."

<> ***Nopiming Fire News: Thursday, September 15, 1983*** <>

The Department of Natural Resources actions fires that threaten life, property and economically important stands of timber. Remote fires which do not threaten life,

or property are not actioned. Accomplishments in suppression of these fires include:

1. *no loss of life and minimal injuries;*
2. *saved Beresford cottage subdivision and protected Black Lake campground, an area which last burned in 1936; and*
3. *saved Abitibi-Price major timber stands near Shallow Lake and Maskwa Lake, and stopped fire from spreading into reforested areas near Bird Lake.*

Further Reading

Cottrell Jr., William H. *The Book of Fire*. Mountain Press Publishing Company, Missoula, Montana, 1989.

Wein, Ross E. and MacLean, David A. eds. *SCOPE 18: The Role of Fire in Northern Circumpolar Ecosystems.* John Wiley and Sons, Toronto, 1983.

Fungi on burned stump