

Eastern Parks

Whiteshell Provincial Park

Forester's Footsteps Self-guiding Trail

Follow the Forester's Footsteps

The Forester's Footsteps Trail is a pleasant walk that loops through a mix of planted Jack and Red pine forest and natural forest. You will get a chance to see, up close, effects of the 2007 windstorm on the original harvest and plant of the 1970s. Most of this trail follows old logging roads, except the last third, which takes you up a granite rock ridge. Part of this trail is also a mountain bike trail, so watch for cyclists.

Silviculture (sil•vi•kul❖❖che'r) is a word you may not have heard before. Silvi is the Latin word for forest. Culture comes from a Latin word meaning "to till". Silviculture is the art and science of growing trees or cultivating a forest. Silviculture is like agriculture, but instead of growing grain, we are growing trees. A forester is to silviculture what a farmer is to agriculture. Foresters have learned a lot over the years, now they try not just to grow trees, but to grow whole forest ecosystems.

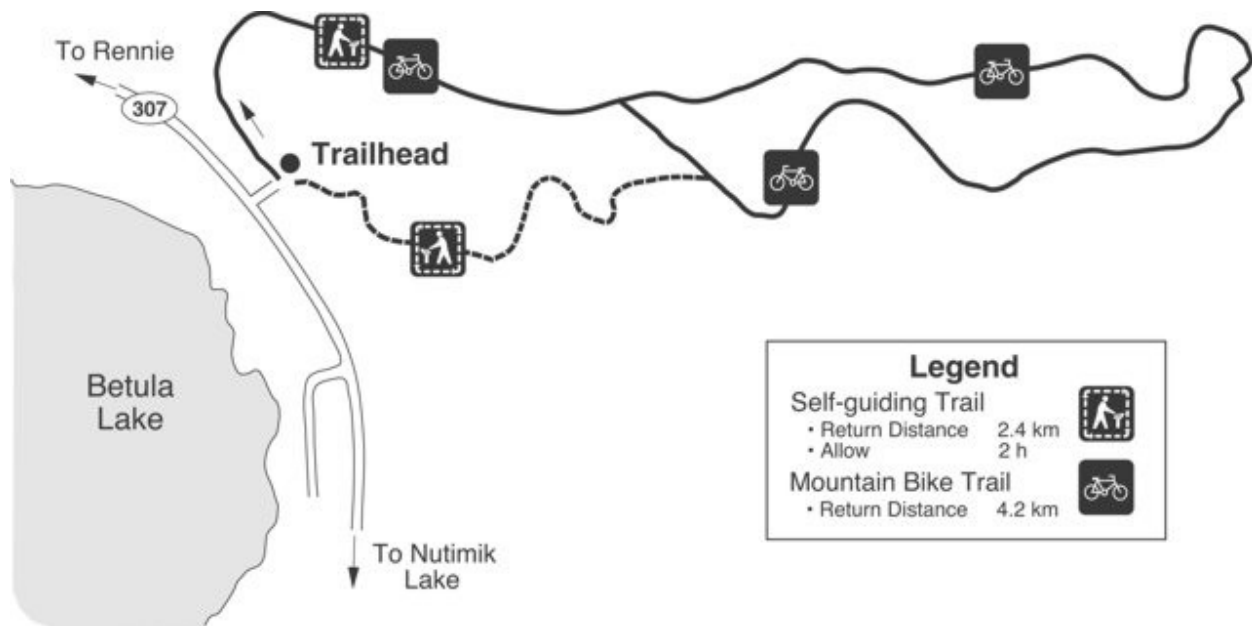
As you follow the forester's footsteps, watch for the numbered stops and read about how we grow a forest. Use the ruler on the back to measure the needles of the trees you find to help you identify them.

When you are done, please return this pamphlet to the box if you do not wish to keep it. You can also access this trail pamphlet online at manitobaparks.com. Enjoy your walk, and remember to leave nothing behind except your footprints.



Three beautiful wildflowers—the crocus, wood lily and the rare moccasin-flower—can be found along the trail in spring. April or May is a good time to find crocus. June is the best time to see the wood lily and moccasin-flower; watch for them between stops 2 and 7. Picking wildflowers in the park is not allowed. When the flower is removed, it cannot reproduce. Please take a picture instead.

Map



1) Fire!

About one hundred years ago before the windstorm a fire blazed over here. It cleared the land and melted the sticky, binding resin on jack pine cones, releasing their seeds. The result is the presence of jack pine throughout this area. Fire and other natural disturbances help renew the forest--it is like re-setting the forest clock.

How can you tell if a tree is a pine? Pine trees have needles in either pairs or packets (more than two). The jack pine has needle pairs about 4cm long. Look up at the tree branches, you may see cones waiting to open. Jack pine cones are easy to identify—when they are closed the ends curl to make them look like the letter J.

Do you buy the paper daily? The average jack pine tree can make 367 newspapers; that's about a year's worth of newspapers for you. Forestry—the business of harvesting and regrowing trees, and making wood



Jack pine cones and needles

products- is important to Manitoba's economy. It gives us products and jobs. In our province, one job in thirty depends on the forest industry.

Look! Watch for other kinds of pine trees along the trail.

2) Timber!

Cutting affects a forest in many of the same ways as fire, which is a natural part of forest ecology. Like fire, it opens the area to sunlight and jack pine does not like to be shaded. The hot sun beating down on exposed soil can reach more than the 46°C which is needed to release the seeds from the cone. Have you ever burned your feet on a sandy beach on a sweltering July afternoon?

Some of this jack pine forest has been harvested again. Over a ten-year period, a total of 110 hectares of trees were harvested, an area about five times the size of the average shopping mall. Most become lumber for building and may have been used to build your home. Some trees were processed into pulp for products like newspaper and some were used for firewood in the campground. Now, much of this area has been harvested again to remove the windstorm damaged trees.

Cutting down all the trees from a part of the forest mimics natural processes like fire or a wind shear. The average size of a forestry cut in Manitoba is less than 40 hectares, about the size of 49 football fields. Occasionally larger areas are harvested if they have been burned by fire, damaged by wind, or to control disease or insects killing the trees.

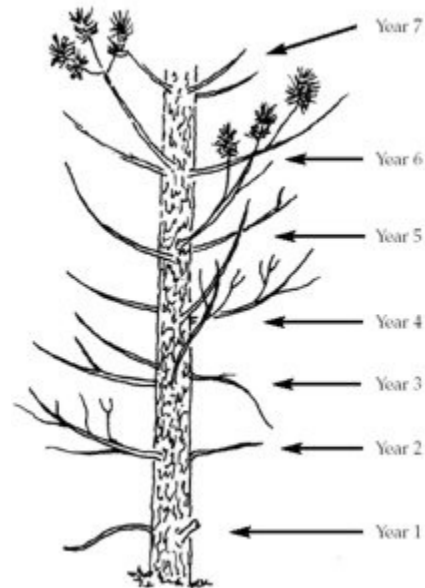
Foresters harvest jack pine, black spruce and aspen trees. When an area regrows the result is often a forest of trees that are all the same age and often the same kind of tree, like what you see here. Pure, even-aged stands are natural for black spruce, aspen and jack pine. Remember where you looked for cones?



Clear over- Forestry Branch

There are different ways to harvest trees. Selective cutting, or the taking individual trees, is a better method when the trees are many different sizes. This is also better on a steep slope or beside lakes and rivers, where soil can be washed away or into the water with vegetation to protect it.

In Manitoba, foresters follow special guidelines to protect fish and wildlife habitats. Trees must be left beside rivers and lakes to stop soil from washing into the water and harming the fish. When an area of the forest is cut, the trees are often left in patches for wildlife cover, bird habitat or to protect smaller immature trees within. Foresters conserve a variety of wildlife habitat by keeping different ages and kinds of tree. Even dead trees are homes to animals. Take a close look at a dead tree to see who is living and eating there.



How to count whorls

Look! Did you notice how some trees grow in a row?

3) Plant, Plant, Plant

Have you spotted another kind of pine tree? Remember, jack pine has curved cones in the shape of a J. This other kind of tree has reddish bark that breaks off in slabs. Feel how scaly the bark is.

These trees are red pine. Like the jack pine, it has needles that are in pairs. Compare the needles. The red pine needles are longer, about 10-15cm.

Do you know how to tell the age of a red pine? There's a trick. Find a big tree with branches close to the ground and count the number of branch whorls. There should be one set of whorls for each year. This method only works with the red pine because often it does not lose its bottom branches when it grows.

Did you figure out how old these trees red pine are? You need to add a couple of years because these are planted trees. After being planted they may not have top growth for two or three years, when most of the growth goes to the roots. Why are the red pines bigger? Red pines grow quickly when they are an intermediate age, like teenagers. You could see this in the tree's growth rings if you looked at a cross section.

How are the trees regrown? Foresters decide which silviculture method is best—planting or natural regeneration. From looking at the type of soil and landscape, we learn how much moisture and seeds are present and how easy it is for machinery to work there. Based on those factors, three-year-old red pine seedlings were planted here.

Foresters and technicians have learned a lot since the federal government started tree planting in Canada in the early 1900s. Now, approximately 85 per cent of the softwood area harvested in Manitoba receives a renewal treatment within two years. A renewal treatment may include tree planting, scarification to encourage natural seed growth, or direct tree seeding. The other 15 per cent is left to grow back naturally, and all harvested areas are monitored to ensure they are meeting Manitoba Renewal Standards. Most seedlings planted in Manitoba are reared at Pineland Forest Nursery, just west of the park, and are grown from seed that originated in the area where the seedlings are destined to be planted.

Growing trees is like growing a garden or a crop—you have to plant it at the right time, hope it gets enough water, and try to protect it from insects and disease.

Look! What signs of wildlife can you find along the trail?

4) Regrowth of the Forest

Do you notice the leaning trees in this area? This scene demonstrates the force of wind that affected Whiteshell Provincial Park in the summer of 2007. The heaviest affected areas were Betula, Big Whiteshell and White Lakes, but the damage spread over 19 000 hectares, about 1/2 the area of the perimeter for the City of Winnipeg. Left alone, this area, along with the rest of the wind damaged areas throughout the park would regenerate naturally. Natural regeneration can happen in two ways: the cleared area can be left to grow back on its own, or the trees can be given a helping hand by scarifying. Using special equipment, scarifying stirs up the soil by dragging heavy chains or barrels with blades over the ground. It mixes nutrient-rich humus and fallen branches into the soil. It also spreads the seed-bearing cones over the ground. Foresters are

always learning better ways to manage our forests, in the past, scarifying would have flattened everything left after cutting or clearing an area. Today, some dead and uncut trees, like the ones you can see here are kept for wildlife habitat.

If natural regeneration does not work, foresters may then plant seedlings. Regrowing the forest is one of the biggest challenges facing foresters.

Look! Watch the different areas as you walk. Can you tell which is planted from seedlings and which is natural regeneration?

5) A Sucker for Aspen

Do you know the name of these trees? They are called trembling aspen, or white polar. Their blade-shaped leaves rustle in the slightest breeze. Like the jack pine, aspen do not like shade. The shade from adult aspen stops young aspen from growing. When a fire or harvest opens the area to sunlight, aspen regrow from suckers, or shoots, off the roots. If no fire or harvest occurs, this stand will gradually change to trees that prefer shade, like white spruce. This change from one type of forest to another is called succession. Forests are always growing and changing.



Aspen twig and leaves

If you have ever cut down an aspen tree, you know there is no need to plant aspen seedlings as they regrow quickly from shoots off the roots.

The new trees or suckers that grow from the roots of a single tree are called clones. If it is spring, you can see how the clones from one tree leaf-out at the same time. Or, if it is autumn, the clones from the same tree will all change colour at the same time.

Look! Can you spot a set of clones?

6) A Forester's Work Is Never Done

As you make your way through the forest, have you noticed a swelling on some of the branches? These bulbs are the result of a fungus called Western Gall Rust. Western gall rust travels from pine to pine. It can stunt the growth of a tree, deform it or even kill a tree. If there is a lot of disease in a plantation, foresters may thin the trees by removing the infected ones.

After the forest is harvested, it is either replanted or encouraged to regenerate from local seeds and roots. But a forester's work doesn't stop there. Foresters must continue to manage the area. They may use herbicides to reduce other leafy plants that shade the young trees or may thin the smaller trees, like thinning a row of carrots. Regeneration is checked by surveys, to see if planting is needed. We also watch the forest for insect problems and disease.

Why all this work? Manitoba's forests are managed by Manitoba Conservation. By law, forests must be managed on a sustainable basis. This means that when a forest is cut, it must grow back at an equal or greater rate than it would naturally, to ensure that it is there for future generations.

We need trees. Think of all the things trees give us—paper, wood, plastic, paints, drugs and even chewing gum. What would your home look like if all the wood and paper disappeared?

Look! In April or May, try to find a crocus flower in the grassy clearing, but remember to leave it there for the next people to see. How many things can you name that come from trees?

Scots pine, native to Europe and northern Asia, was also tried in plantations. Scots pine look much like red pine, but the paired needles are shorter, 4-8 cm (1 1/2-3 1/2 in.). Because they are not native, they have not adapted well in Manitoba. Scots pine grow twisted so are not suitable for lumber. Compare their trunks to the red pine. Scots pine are no longer used for reforestation, but private operators still grow them for Christmas trees.

Today the native jack pine is the most popular for planting in this area. It is used for pulp products like paper and wood for building. But jack pine can also be hurt by disease. Watch for the western gall rust on the jack pine farther along the trail.

Kids: Do you know what Manitoba's provincial tree is? It is the white spruce. It has single needles that feel square when you roll them between your fingers., They have long thin cones. Walk down the trail 15 steps then look behind you and see if you can see a tall white spruce tree.

7) Native Is Best

Red pine and jack pine grow well in the kind of sandy soil that is under your feet. At one time red pine was a favourite for plantations because it grows quickly and can be cut into good straight lumber. It was used a lot for telephone poles. But red pine is easily affected by drought and diseases, like root rot, which can wipe out a young plantation. Now red pine is only planted where it is native or grows naturally.



Western gall rust

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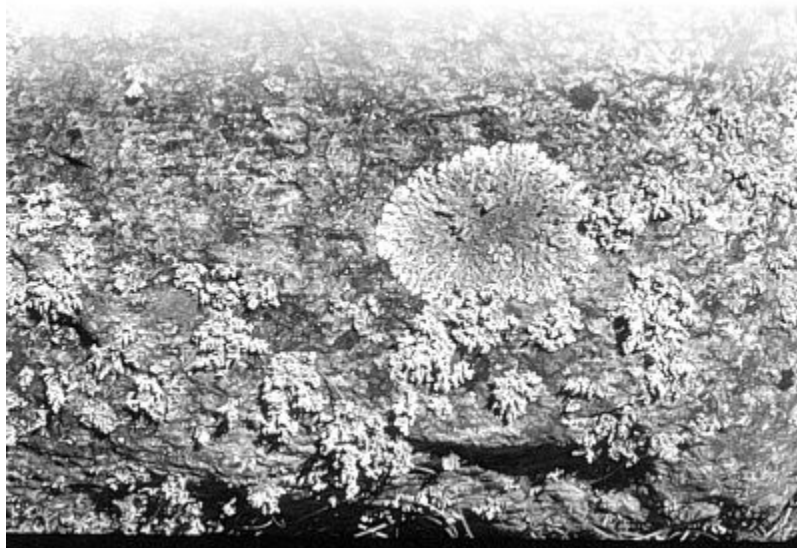
8) A Forest in Time

Look back out over the forest you have just walked through. What do you see now?

Can you spot the different pockets of pines, aspen and spruce, different ages and densities of trees up ahead? Can you see the areas most affected by wind shear? This forest mosaic has regrown since the 1970s. A harvested forest should grow back in your lifetime.

This rock is a good spot to sit and rest. As you enjoy the view consider this. Foresters are trying to imitate nature and natural processes as a way to manage forests. They try to balance the need to regrow trees (for the many things they give us) with the need to regrow forests. Foresters are concerned about the impact of clearcutting and regrowing trees on the forest ecosystem. Can the plantation provide habitat for the same number and variety of plants and animals that the natural forest does? Learning how to regrow a forest takes time. We must wait 30 to 50 years to see the

results. We can regrow the trees, but can we regrow a forest ecosystem? We need to continue to study and improve our techniques to maintain forest ecosystems.



Lichen on rock

The rest of the trail follows rock ridges back to the start. Up here on the rock, fragile moss and lichen grow. Many of these small plants are likely 100 years old, having started growing after the last forest fire scorched these rocks. Please stay to the trail to protect these old and delicate plants.

Look! See if you can name the trees along the trail. This brochure tells you how to identify most of them.

9) Two for Trees

You have left the plantation. The few trees that grow on the rock ridge are mostly jack pine, aspen and birch as these species like sunny, open areas. The soil is too shallow here and could wash away if the trees' roots were not holding it in place.

Many provincial parks started as forest reserves. Under *The Forest Act* of 1930, forest rangers were appointed to protect each reserve, and visitors were encouraged to come to the areas for recreation. Many of today's roads were originally logging roads.

In 1931 the Whiteshell Forest Reserve was established. In 1960 the *Provincial Parks Act* was passed, establishing Manitoba's first provincial parks. Whiteshell was one of the first provincial parks established in 1961, under the Act. In 2009, commercial harvest operations were no longer allowed in provincial parks. Forestry guidelines and rules continue to evolve over time.

Look! Name all the fun things you can do in the Whiteshell Park, in both summer and winter.

10) Keeping the Wild in Life

Have you seen any signs of wildlife? Porcupines have eaten the inner bark on some of the jack pines. Porcupines are most active at night, but you may see them in treetops during the day.

Wildlife is affected by tree harvesting. Some animals, like boreal owls and pine martens, prefer old forests. Manitoba's provincial bird, the great gray owl, hunted this area when it was cut because its prey could easily be seen. Deer liked to eat the young plants when the forest started regrowing. Turkey vultures were here when it was cut, and they could be soaring above you right now. Different animals like different habitats. Good forest management considers what all animals need.

Look! Watch along the trail for other trees the porcupine has eaten.



A porcupine feeding site

11) A Last Thought

Are you making a campfire tonight? If you buy the wood here, it was probably cut from this forest by the local wood supplier. Keeping our forests healthy is everyone's responsibility so please be sure your firewood is purchased locally to prevent the spread of invasive insect species like the emerald ash borer beetle.

While enjoying your campfire tonight, consider this. Trees provide wildlife habitat, clean air and water, recreation, a shady spot to enjoy nature, and wood for paper and paper products. If we are to continue to have those things, we need to improve our ability to regrow the forest for our children's children. But do we need to set aside special places where no harvesting occurs? The Forestry Branch and Parks and Protected Spaces Branch of the Manitoba government think so. Both have pledged to establish a network of protected areas that represents the diversity of each Natural Region in Manitoba, where forests and wildlife can exist. What can you do to protect our forests?