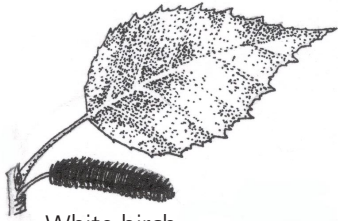


White Birch Trail

Pictured Rocks National Lakeshore
National Park Service
U.S. Department of the Interior



Welcome to Twelvemile Beach Campground and the White Birch Forest, prominent features of this portion of Pictured Rocks National Lakeshore. This trail guide provides an introduction to the nearby forest environment and its inhabitants. The White Birch Trail is two miles long. It stretches over flat terrain except for a short steep climb up the bluff at the beginning, a couple of small hills, and the descent down the bluff at the end. The trail ends on the campground road, one-quarter mile east of the trailhead. Allow at least one hour for an enjoyable walk. Numbered posts along the trail correspond to paragraphs in this guide. *Before you begin, let someone know where you are going and how long you intend to be gone.*



White birch

ONE

As the sounds of the campground fade away, what sounds replace them? Look at the leaf cover overhead. Are the trees deciduous or evergreen? Feel the ground. Is it moist or dry, warm or cool, hard or spongy? What else do you sense? Take a long deep breath and smell the forest. Remember these things, for they will soon change.

TWO

During the Pleistocene Age, a succession of several one mile thick glaciers pushed across this area like giant bulldozers. The last glacier melted out of this region about 9,500 years ago. Some 3,800 years ago waves from Lake Nipissing, a post-glacial level of Lake Superior, lapped against this bluff. Today, trees, flowers and a campground occupy the lake bottom, and the bluff stands high and dry, 40 feet above the lake.

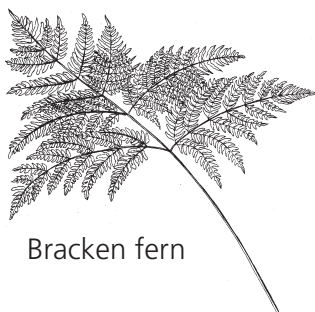
THREE

Breathtaking - in more ways than one! Lake Superior is all its name implies. By surface area, it is the largest freshwater lake in the world. Its deepest point, 1331 feet, lies 25 miles northwest of here. As you look north, the rocky Canadian shoreline is over 120 miles away. At times atmospheric conditions play tricks on us, making cloud layers look like the distant shoreline.

The lake has a great capacity to store heat. Compared to rock, soil, and air, lake water temperatures change much slower from season to season. The lake also influences the local climate and weather conditions surrounding the forest communities along the shoreline. Lake air bathes the vegetation with cool, moist air. Greater amounts of snow fall here, and it lingers later in the spring. Trees bud and fruits mature later. Leaves turn colors later in the autumn than their inland or downstate counterparts. Can you hear the lake today? Is it affecting the temperature and humidity around you? How does it affect the plants and animals?

FOUR

Notice how high the bracken ferns come up on your leg. How tall are they? Is there a shaft of light coming through this hole in the forest canopy today? Does it have anything to do with the abundance of ferns?



Bracken fern

FIVE

Become a detective for a few minutes. How tall was this tree that the trails runs through? What was its trunk diameter? Can you find its base? This fallen giant was once Michigan's state tree - a white pine. It is now a "nurse tree" for



a new generation of balsam fir and moose or striped maple. These seedlings have done well in the moist fertile "greenhouse" of a fallen tree.



Striped maple

SIX

We normally think of forest change as a ploddingly slow process. But as we explore this matchstick woods, we see that occasionally catastrophic natural or human-caused disturbance alters the forest community quickly. What happened here? (If you guessed that this even-aged stand of balsam fir were blown down in a Lake Superior gale, you would be correct.) The stand may have gotten started because of a disturbance such as fire or logging.

SEVEN

As you leave the blowdown area we enter a red pine forest. Notice the lack of understory plants in this even-aged stand. Bracken fern, lichens, blueberries, and fungi are the main plants on the forest floor. This limited array of vegetation is due to the sandy soil left here by the last glaciation. Over time, pine trees create acid soil conditions as they drop their needles. What environmental conditions prevail here? How are they different from those in the campground?



Blueberries

EIGHT

Three varieties of pine grow within the Lakeshore. From a distance, branches of red or Norway pine look "clumpy." They have two long needles per leaf bundle. Their bark is platey greyish-pink. White pine look "airy" and the upper branches lift toward the sky. They have five needles to a bundle. Their bark is fairly smooth and light to dark grey. Jack pine, the "scruffy" looking trees ahead of you, have two short needles per bundle. Their bark is scaly and rough.

NINE

Again the forest community changes, and jack pine become more dominant. Jack pine grow in the poorest, sandiest, driest soil of the three pines. What then, does this tell you about the soil here? How does it differ from soil at the base of the bluff?



Pine siskin

TEN

The common ground cover here is lichen or "reindeer moss." Lichen are slow growing, long-lived, sun loving plants that flourish in cold, dry climates. They are actually two plants in one; a combination of algae and fungus which "cooperate" symbiotically. The fungus, usually the most conspicuous part of the plant, provides the minerals and helps keep the plant moist. The algae contributes photosynthesis to the joint venture providing needed carbohydrates. Lichens are sensitive to pollutants in the air and are important indicators of air quality. Over 200 species grow within the Lakeshore. Can you name them? (Just kidding.)



Jack pine

ELEVEN

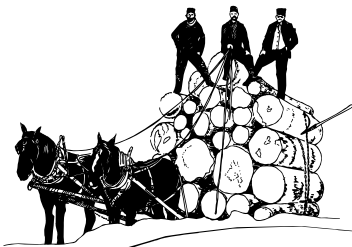
Jack pine require fire to complete their life cycle. As the cones are heated by fire, they open, releasing seeds to colonize the scorched seed bed. Jack pines support several species of birds. In lower Michigan and parts of the Upper Peninsula, the rare Kirtland's warbler survives in young jack pine forests. Here, black capped chickadees, white breasted nuthatches, and brown creepers search for food in the trees.

TWELVE

Have you noticed the fern understory along the trail? For a while it was completely absent. Here the bracken fern abound. These ferns survive on dry soil that is poor in nutrients. Their rootstock often grows ten inches deep which helps protect the plant from periodic drought.

THIRTEEN

Here we see charred evidence of a once great forest of red and white pine. In the 1880's and 90's lumberjacks swarmed over this region cutting the virgin pineries. Lumber from Michigan, Wisconsin, and Minnesota provided the materials to build the burgeoning midwest. After the logging, fires often swept across the landscape, burning the leftover slash. The fires burned away the topsoil, which had slowly accumulated since the retreat of the glaciers. How thick is the topsoil today?



Lumberjacks

FOURTEEN

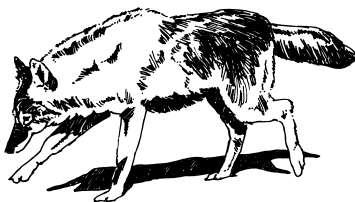
This tree began growing about 200 years ago from a white pine seed. About 100 years ago the tree was cut and a "planter" was created. A bit of detective work shows two types of stumps in this area. Stumps with buttresses were red pine, while those which rise vertically from the base were white pine. What kind was this one?

FIFTEEN

"Freeze." Listen. What sounds do you hear? Have you been hearing any birds? With the possible exception of the wind in the treetops, this is a pretty quiet place. Why is this so? Probably because few birds or animals build their homes in this type of forest.

SIXTEEN

Ascent. Butterflies. Warm, dry, blue skies? Open vistas straight ahead. Coyote tracks on the trail? Birds in conversation. Solitude ringing in your ears. One more hill, then the birches.



Coyote

SEVENTEEN

Do you feel the cooler air? This forest is bright with white trunked birch trees, contrasting with the lush green ferns, balsam fir, and other hardwoods. White birch, like many other forest trees, are opportunistic, filling in an area after disturbance. Birch often follow fires where the soil quality is better.

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Stump sprouting is common, and clusters of trees are often found in the birch woods. How has the understory changed here compared to the jack pines? Can you find the pipsissewa, princess pine, and bunchberry?



Pipsissewa

EIGHTEEN

You will soon descend the Nipissing beach bluff and re-enter the busy world of the campground. Before doing so, consider the changing environments you have just walked through. Compare your thoughts with those of your companions. How may of these words roll around in your mind? *glaciers... beach bluff... balsam fir... wind storm... redpines... chattering squirrels... sunlight... warmth... chirping chickadees... fire... white birch... disturbance.*

NINETEEN

As you descend the trail, your thoughts may return to activities in camp. Soon you may hear the sound of an automobile.



Red squirrel

TWENTY

While walking the trail, you have focused your attention on the sights, sounds, and smells of a small part of Pictured rocks National Lakeshore. Though you may have only spent a few minutes on the trail, chances are the memory of it will be with you for a long time.



Bunchberry

