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THE BLUEBERRY LAKE CANDIDATE NATURAL HERITAGE AREA, TEMAGAMI, ONTARIO

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Introduction

Blueberry Lake is a very special place - a beautiful lake surrounded by pristine forest with centuries-old trees that pre-date the first European settlements in the Ottawa valley. In the heart of historic Temagami, Blueberry Lake is only a few hours paddle east of the town of Temagami, a short portage away from Cassels Lake, where it has remained surprisingly remote and undeveloped – or pristine. Blueberry Lake is Temagami in a microcosm. In Ojibway name is Min Dow-oways-zawning.

The tremendous variety of environments in such a small area invites exploration. Giant cedars and yellow birches, red, white, and jack pine forest, bogs with carnivorous pitcher plants and sundews, and a pine forest that burned in a 1996 forest fire - all these things are calling you to leave behind your canoe for a few hours and learn more about them. We invite you to do so, by following our guided tour of the Blueberry Lake trails. Just read on!

Scientific Values

The candidate site encompasses roughly 2,000 ha, much of which is pristine old growth forest of all kinds, but notably including several stands of the endangered old growth white pine ecosystem. The design of the site has been based on the watershed ecosystems surrounding AFER's research sites, with 100 m buffers around the boundary to minimize the influence of disturbed areas on the research sites (maps??). While the protection of the Blueberry Lake Area is essential to ongoing scientific research, there are also other benefits that can come from non-consumptive uses of the area.

Recreational and Educational Values

Blueberry Lake can be reached in under two hours by canoe from Temagami, and thus offers excellent potential for recreational and educational activities in the old growth forests. Although very close to the Town of Temagami, it offers a surprisingly peaceful sanctuary that is noticeably more remote than White Bear Forest. White bear is already protected as a natural heritage area. The addition of the Blueberry Lake Area to the protected areas system would make the region more attractive as a place to see Temagami's legendary old growth pine. White Bear Forest and Blueberry Lake together would make for a world-class opportunity to hike and paddle the old growth pine forest, that could be experienced over a weekend.

Our experience working with international volunteers in the area tells us that Blueberry Lake is a popular place to explore, and that people are very impressed with hiking in the pine forests around

it. There are ideal places to build trails around the Lake, which is reached by a well-groomed 400 m portage from Cassels Lake. It is a beatiful sheltered lake that could accommodate a fair number of campsites.

The Temagami Landscape

Temagami is the region immediately west of Lake Timiskaming, at the headwaters of the Ottawa River. Fire and ice have shaped the landscape we see here; ten thousand years ago ice blanketed Temagami hundreds of metres thick, and scraped the ancient rock bare. Fire has periodically swept the landscape ever since the ice retreated. Disturbance maintains and renews these forests - again and again on the Blueberry Trails you will see how Temagami forests depend on a fine balance of disturbance for their survival. Too much fire, or too little, and they couldn't exist.

The forests here are in a transition zone between two extremely different forest types, and are a unique and unusual combination of each one. To the south, the maple-dominated hardwood forests are called the "Great Lakes St-Lawrence" forest type. To the north is the boreal forest, also called taiga in Russia and Europe.

The southern hardwood forests usually renew themselves with small disturbances. Older trees blow down or are killed by disease and saplings that have been growing very slowly under the shady canopy start growing very quickly to fill the gaps. Fires may occur every few hundred years, or in very protected spots only every few thousand years. Some sheltered spots in New England have apparently never burned since the retreat of the glaciers.

The northern boreal forest, on the other hand, is created and re-created by fire. Fires in the boreal forest burn on average aound every 100 to 200 years. In places boreal forest may live hundreds of years without burning, in other places much less. But when fires happen in the boreal forest, they are usually catastrophic - they kill all or most trees in the areas that burn. So boreal forest tends to have patches of "even-aged" forest. The dominant tree species in boreal forest are spruce, balsam fir, jack-pine, paper birch and aspen.

In Temagami, and on the Blueberry trails, in moist undisturbed areas you will see maple-dominated forests reminiscent of southern forests, and you will see patches of boreal forest that have been renewed by catastrophic fire. You will also see an entirely different forest type that thrives in the transition zone - red and white pine forest.

Red and white pine are perfectly adapted to exist in this transition zone, and have a very interesting relationship with fire. These species, particularly red pine, depend on fire to renew the forest - fires in pine forests are *more* frequent even than in the boreal forest. But red and white pine have extremely thick fire resistant bark, and most fires aren't hot enough to kill the mature trees. The frequent fires that burn the highly flammable layer of pine needles on the forest floor, killing the competing understory of shrubs and tree saplings, are called surface fires. Surface fires also prepare the soil for the pine seedlings to grow by exposing a seedbed and releasing a flush of nutrients that were held in the thick carpet of needles. Charcoal Trail is a good place to see a surface fire that happened just a few years ago.

Pristine or 'ancient' forests, that have never been logged, have many values besides economic ones - spiritual value for some; and scientific value, to learn more about how forests function and how to

manage them. (not sure where the best place for this is!)

Some History

The Temagami region is the homeland of the Teme Augama Anishnabai, who have hunted and trapped here for over 5,000 years. The Teme Augama Anishnabai have been fighting for recognition since European settlement, logging, mining and tourism began ---- around the turn of the century and have been virtually excluded from development decisions affecting their lands.

The Teme-Augama Anishnabai people lived with the forests for thousands of years without dramatically changing them, though they occasionally burned areas to get a good blueberry crop. They also used an extensive network of trails to hunt and trap throughout the year. These trails, called Nastawgan, are often still used today as portages, though their ancient beginnings may be forgotten by most people who use them. Historically a Nastawgan lead from the east arm of Blueberry lake, through two lakes and down a wetland stream to Lorraine Lake. Parts of this old portage have recently been reopened, but it has been re-routed to Rabbit Lake.

With the arrival of Europeans here, the future for the forest changed dramatically. From the time of the first settlers in the 1600's until this century, white and red pine trees was considered to be the ideal for construction lumber. The wood is light and rot resistant. Until the mid to late 1800's virtually all the construction lumber cut in North America was white and red pine. In that time literally millions of white and red pine trees, some as much as 2m (six feet) in diameter and 60 m (18 stories) high, were cut. White and red pine literally founded two nations (Should you specify the two nations here?) - all the pioneer homes, the factories, the workshops, and often the furniture, were made from pine for nearly three centuries. The city of Ottawa was founded as Bytown in 1800, and for most of its history it's economy was based on saw-mills milling white pine from the Ottawa valley.

Temagami was one of the last refuges of the old growth pine forest - today most of the old growth in Temagami has also been logged, but it still has the greatest concentration of old growth pine left in the world. The Ottawa River and its adjacent forests was an important logging corridor for white and red pine throughout the 19th Century, and after, during which time millions of pine logs were floated to mills in Bytown (now Ottawa) (this sentence is choppy/confusing – should smooth it out – and integrate it with the above historical stuff). Because it was at the headwaters of the Ottawa and hard to access, Temagami mostly escaped logging until the turn of the century. But as other pine forests vanished, eyes turned to Temagami. In 1900 a Globe reporter wrote that Temagami 'is one of the finest timber districts in the province, having an abundance of white and red pine in virgin forest.' Even now after a century of logging Temagami is home to some of the oldest and most dense pine forest in eastern North America, with towering trees as old as 400 years or more. It has many of the last remnants of forests that were once common (do you think we should be more specific here – re: old-growth white and red pine???).

These forests are controversial. Many people want to cut the last old growth forests to create jobs in communities that traditionally have depended on lumbering. Corporations with head offices in Toronto and Montreal also see them as a source of short term profits. But others in the same communities see the forest as a as a long-term investment; a source of employment for towns that, like Temagami, now earn most of their revenues from tourism. This conflict between tourist users, the forest industry, and natives, has existed for nearly a century, during which time the forest

industry has usually come out ahead. Only now, in the fight for the last fragments of old growth, is that beginning to change.

In 1989, Temagami was the site of the largest act of civil disobedience in Ontario's history as a province, with 289 protestors arrested for blocking road-building equipment on red squirrel road (at that time it was the largest single act of civil disobedience in the history of Canada). This campaign began with the Teme Augama Anishnabai fighting destructive forest practices and asking for more control over their lands, but was quickly joined by conservation groups like the Temagami Wilderness Society. The non-violent protests saved the Obabika North or Shish Kong old growth stand, the largest old growth red and white pine stand remaining in the world. It also lead to the closing of the last sawmill still operating in Temagami.

Blueberry Lake was also part of the first portage route to the town of Temagami, from lake Temiskaming and the Ottawa river. (not sure where this should go)

Logging around Cassels Lake (formerly known as White Bear Lake) began in 1946 when Gillies Bros. & Co. built a sawmill on the shore of Cassels lake, across from what is now called White Bear Forest. You can still see evidence of this mill - a large red barn that is still standing on the north shore of the lake was used for storage, and some of the foundations of the mill can be seen farther down the shore.

Pretty much all of the forest nearby Blueberry was logged in the 1940's, but Blueberry's shores mostly escaped the logging. Only the west shore of Blueberry was logged at the time. The portage trail between Cassels and Blueberry lake was used as a winter road to haul pine cut from the west shore and areas north of Blueberry, down to Cassels Lake, to be floated to the mill in the spring. At that time logs were carried on horse-drawn sleds, and pine trees were cut using two-man cross-cut saws. Within the next decades gas chainsaws replaced the muscle-powered crosscut saws, and horses were replaced by skidders. The old growth that's left in Blueberry probably survived because of a combination of luck, and steep topography that made logging difficult - at the time there was lots of other pine that was easier to get out.

Getting to Blueberry Lake

The lakes east of the town of Temagami, though very scenic, receive fewer visitors than those lakes to the west ---, (you could expand on this a bit) and you may find your Shangri-La there (I'm not sure that I would put this in). Blueberry Lake is most easily accessed by canoe - you can visit it for a weekend, or make it part of a longer canoe trip. The quickest way to get to Blueberry Lake is to start at the Cassels Lake landing. To get to the Cassels Lake landing, turn to the east just south of the Temagami train station in downtown Temagami. Shortly after crossing the train tracks make another left turn, and within a minute or two you'll reach Cassels Lake. One canoe route passes through Blueberry Lake, down the east arm and through two lakes southward to Rabbit Lake, making a number of routes possible. Other canoe routes also pass near Blueberry and continue down Rabbit Lake, or onto Lorraine Lake. For more information consult Hap Wilson's book *Temagami Canoe Routes* or one of the other resources listed at the back of this guide, or you might ask at one of the canoe outfitters in town.

The Ecology Trails

Blueberry Lake is outstanding for its ecological diversity. The ecology trails explore some of this diversity.

The Old Growth Trail explores several distinct forest types, and will help you to understand why each of them is there, and what is happening to this day. This is the longest trail, and it is at the heart of the ecology trails; it explores a greater diversity of old growth forest than any other trail in Temagami. Allow 2-3 hours to hike this entire trail.

Blueberry Trail (is this the best name for this trail – what about "Red Pine Trail"?)climbs onto a high red-pine ridge; a rare opportunity to spend time in a pure red pine forest, and a nice place to relax and enjoy a great view after the climb. **Careful:** sections of the trail are steep and rugged.

The **Charcoal Trail** explores a mixed red and white pine forest that burned in 1996. Most of the mature trees survived, but throughout large areas, all the shrubs and understory plants were killed. Don't miss this opportunity to see a surface fire - a great illustration of red and white pine fire ecology in action! You can see it in as little as half an hour.
The wetlands north of the lake (near charcoal trail) are a good spot to see three carnivorous plant species: pitcher plant, sundews, and bladderworts. No hiking is required.

If you follow the portage at the end of the east arm of Blueberry, you'll see a beautiful **Old-Growth Cedar and Yellow Birch Forest.** (you should provide some basic description of this feature – e.g. at the end following "The Wetlands")

The Old-Growth Trail

Explore old growth red and white pine, jack pine, poplar, and sugar maple forest along this trail. Have you wondered what old growth forest is, how old it is? Or what's the difference between old growth and ancient forest? The answers to these and many other questions await you...

As you hike the Old Growth Trail, you'll follow the portage to Dalton Lake for the first 50 metres or so. The aluminum portage sign here was posted just after World War II. To follow the interpretive trail, look for a turn to the right. You'll climb out of the cedar valley and into pine forest. Cedar and yellow birch trees thrive in the moist valley, while pines prefer the drier uplands. A white pine giant, almost a metre across greets you to the old growth forest.

Charcoal Trail

Charcoal Trail is a short trail that leads to a 1996 forest fire that was started when a white pine tree was hit by lightning. The fire killed many of the trees around the lightning strike then burned along the ground under the pine trees, killing a few of them and all the understory of spruce, fir, cedar and birch. Because of their very thick bark and high branches that remained high above the fire, most of the pine trees were unharmed. --- Notice the difference in the shrub layer between the burned area and the unburned forest. If you like, walk around in the burn - it's open, and the walking is good, but be careful to remember where you came from so you can get back to the trail!

Blueberry Trail

Blueberry Trail leads up the side of an escarpment and along it's edge, through a beautiful and rare pure red pine forest. The terrain is steep and difficult in some spots, and flat and open in other places. Although it may seem like young forest, it has never been logged. This forest regenerated after a hot fire roughly 120 years ago. At this age we consider this a young old-growth forest. Don't let size fool you either - at the end of the trail you'll find a sign marking a tree that is 100 years old and only eight inches in diameter. On the dry, thin soil, trees grow very slowly. Despite the small size of many of these trees, this red pine forest is threatened by logging. It's one sign of the uncertain future of our unsustainable industrial logging practices; tomorrow's forests are being logged today.

The Wetlands

There is no trail for the wetlands. Just paddle up the inlet stream that feeds Blueberry Lake. The deepest channel is along the east shore. Look for three species of carnivorous plants here - the first one is under your canoe. If you keep your eyes open you should see a lacy plant floating underwater, a network of very fine leaves with tiny pouches of 'bladders' attached, a millimetre or two across. These are traps for tiny unsuspecting creatures who swim by. The victims spring the trap by hitting trigger hairs that open the bladder suddenly. The suction from the bladder opening sucks in the prey, and the bladder closes just as suddenly, trapping the small creature which is then digested. Bladderworts, like all so-called carnivorous plants, get their energy from the sun, and catch prey and digest them only for the nutrients they contain. They don't 'eat' the organisms at all, in the sense we think of it. It's more like taking a vitamin pill. The other carnivorous plants you can see here are located on the floating sphagnum mat alongside the course of the stream.

Pitcher plants are small vases, or pitchers, about 15 to 30 cm (six to 12 inches) high that fill with water. The sides of the pitcher are lined with downward-pointing hairs. Unsuspecting insects fall into the water, drown there, and are digested by the plant. Sundews more actively trap insects and are quite small - less than five centimeters (two inches) across and low to the ground. Their leaves are little more than a centimeter across, fringed with red hairs, each with a sticky drop on the end. These sticky little dew-drops attract insects that get stuck in them, causing the whole leaf and all the hairs to close very slowly over the victim, trapping and digesting it.

If you continue up the inlet stream that feeds these wetlands, you'll find a rough portage to a large system of wetlands and small lakes to the north-east. This is a place to explore in high water, and potentially to see moose. Along with an abundance of the carnivorous plants you've already seen, you'll find cranberries trailing across the moss here. Most of the forest north of this wetland system is allocated for logging - by the time you read this, you will likely have a good opportunity to see some shelterwood logging close-hand.

Shelterwood logging is a form of even-aged logging in which some of the trees (usually half, in pine forest) are cut and the others are left to seed into new gaps created by logging. Following germination of the next crop of seeds, the remaining mature trees serve as shelter for the small regenerating trees. In about 20 to 30 years the remaining trees are cut. For this reason, critics of this silvicultural system often call it a "two-stage clearcut." Since 1995, shelterwood logging has been the preferred harvest method used in white and red pine dominated stands because it emulates the fire ecology of these forests much more closely than clearcuts do. But without actual fire, the pines

often regenerate poorly after the logging. Fire, unlike logging, naturally prepares a seedbed by burning the thick pine needle litter and killing competition.

The Future for Blueberry Lake

The forests around Blueberry Lake may have been discovered too late. Ancient and old growth forests are as valued by the forest industry as they are by the tourism and outdoor recreation industries. Poor forest management in the past has left little for anyone to use and enjoy today. Much of the forest north of Blueberry Lake and possibly even the large red pine stand that Blueberry Trail runs through, is scheduled to be logged in the next five years. The future for all the stands around Blueberry looks bleak, even though it's among the closest old growth areas to the Town of Temagami.