

VISITOR'S GUIDE (EAST SIDE)

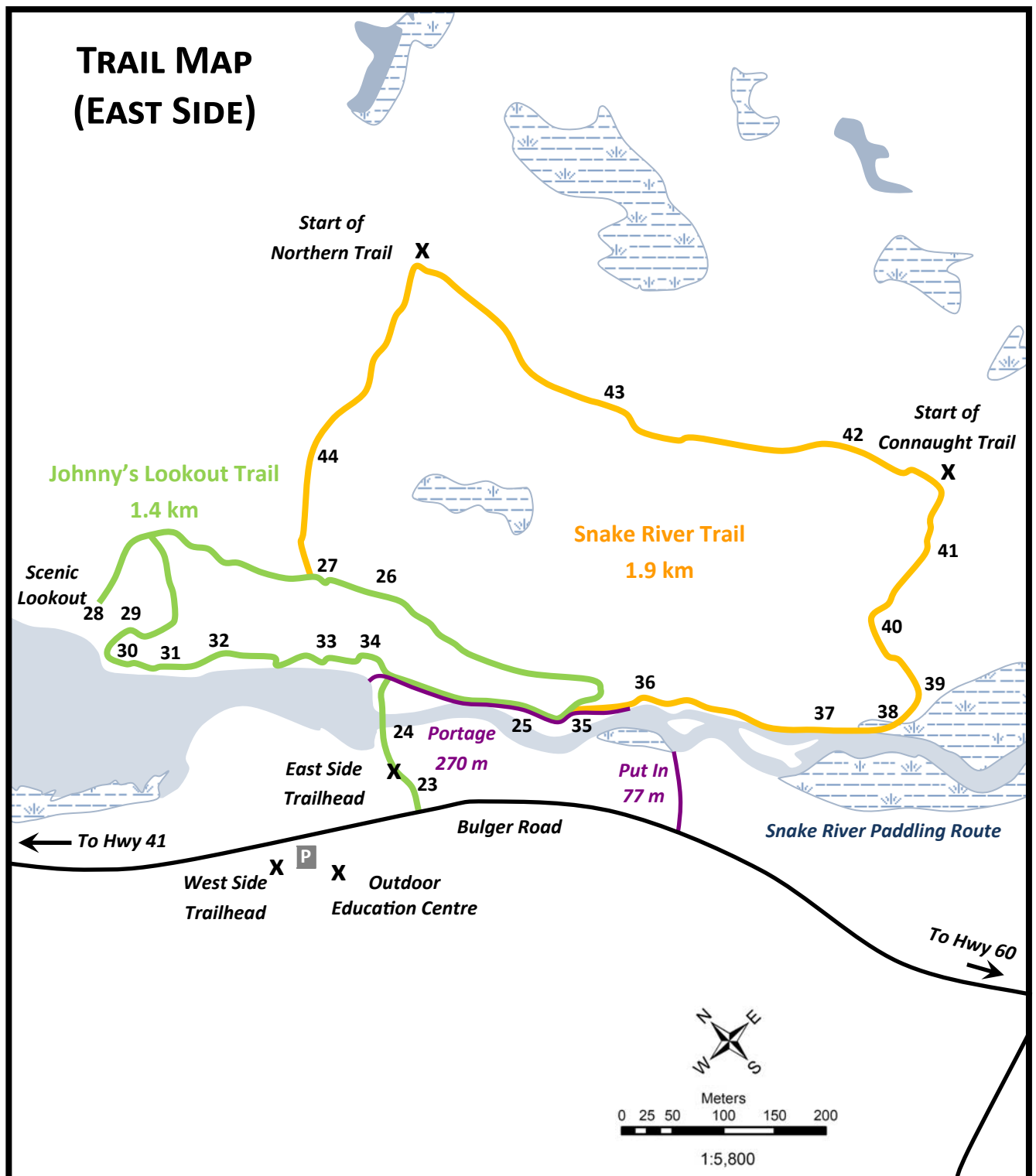


WELCOME TO THE SHAW WOODS EAST

These trails will take you along the Snake River, Dore Scarp and Shaws Pond. From atop the scenic lookout in times of low water, it is still possible to see the river channel as it was before the dam was built in the eighteenth century to create the millpond. The landscapes and diversity of life forms found here stand in sharp contrast to the hardwood forest spreading out before you to the southwest. Pre-1900 forest fire regimes and more recent logging has influenced the forests growing today. However, as you will soon learn, there are numerous connections linking the natural, geological, and human histories of the land along both sides of the waterway. We hope you enjoy your journey back in time!

SHAW WOODS

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2065 BULGER ROAD
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39. RIVER AS HIGHWAY

Rivers were once key transportation routes and the archaeological evidence suggests that the Snake River has linked people living along the shores of Lake Dore with the rest of the Ottawa River watershed for thousand of years. During the "Beaver Wars" of the 17th century, Iroquois raiding parties spread north along many area rivers. Standing at this peaceful vantage point we can only muse if this remained a safe haven. We do know that during the time of the Fenian Raids (1865-1871), Frank LaRonde, a local man of Algonquin heritage and perhaps the original River Keeper, kept silent vigil against American invasion. The stone turret where he steadied his musket still stands above the river's bank just upstream from Osceola.



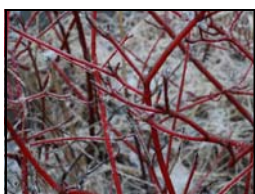
40. MASTING CYCLE

Masting is a reproductive mechanism where trees produce an abundance of seed in one year and then little or nothing during the next year. This boom or bust strategy provides more food than seed predators can consume during the bumper year leaving surplus seed to remain on the forest floor to germinate. The squirrels, mice, and birds ramp up their reproduction, and then starve the following bust year when the trees shut down one of their primary food sources. An example of masting is red oak's approximately three-year cycle of heavy seed crops.



41. VERNAL POOLS

Vernal pools are a class of woodland pools that fill with meltwater in the spring and dry out by the late summer or fall. Such pools are typically small, shallow, isolated from streams, and are characterized by alternating periods of flooding and drying. Once dry, they can be recognized as ground depressions having little-or-no ground vegetation. Since vernal pools are isolated and typically have a dry period, they rarely support fish. This provides a unique habitat for a diversity of invertebrates and vertebrates. Vernal pools are often critical breeding and nursery habitats for wood frogs, spring peepers, and yellow-spotted and blue-spotted salamanders. Shrubs such as red-osier dogwood often grow along the margins and provide excellent locations for salamanders to attach their egg masses.



42. OAK ESTABLISHMENT STRATEGY

Red oak has an unusual reproductive strategy. Germinating from an acorn, the seedling rapidly puts down a large tap root. Investing in roots means there are few resources to grow a shoot tall enough to stand above its competitors and gather sunlight. Instead, the oak depends on ground fire or browsing by deer and moose to reduce competing saplings. Using the food reserves in its larger root system red oak then shoots up taller than before and gets the jump on any nearby competitors.



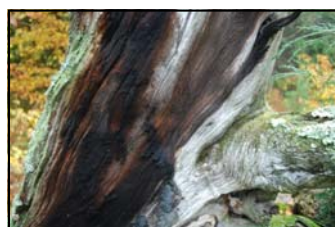
43. A FOREST REGENERATES



This section of land was purchased in the early 1970's. Since then, it has been undergoing a natural succession process from the exploitive forestry management practices of the previous owner. The northern temperate forest regenerating here is characterized by a combination of three biotic components that is unique in all the world's forests: wood warblers, spring ephemerals and salamanders. All these components arrived and evolved together from residual populations south of the glacier's reach. They have successfully adapted to living under this particular forest canopy over the past few thousand years.

44. FIRE-FORMED WOODLAND

On your walk along this trail, you may have noticed the occasional charred stump such as this one. Given the age of this pine stand, it is very likely that you are looking at surviving evidence of the great fire that swept through from the Micksburg area in August of 1881. As devastating as it was for farm families, it created ideal conditions for the stand regeneration that you see here today. White pine requires either natural or human-created disturbances to reproduce and it is unable to reproduce under the shade of a closed canopy. In this case, fire opened up the forest floor to sunlight by killing some of the vegetation, destroying the humus layer and exposing the underlying mineral soil to new seedlings.



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

23. STONE GROUND

This shallow canal once directed water from the millpond to a three-story gristmill erected by John Shaw, a miller from Inverness, Scotland. John arrived here in 1847 by canoe from Bytown with his wife Barbara Thompson (niece of the Hon. Thomas McKay who built Rideau Hall and the locks of the Rideau canal) and their two-year-old son, John II. John Shaw also served as an early postmaster for the Lake Dore hamlet. Two of the original 450-kg grist stones can be seen just ahead near the dam. Imagine the many challenges that must have been overcome to bring them here all the way from Scotland. In this sparsely populated district, early settlers would leave home at dawn, walk up to 20 km with a 30-kg bag of grain on their back and return by nightfall with the ground flour.



24. SAWING LOGS WITH WATER

Adjacent to this dam was the water-powered sawmill which, by 1851, produced 93,000 board-feet of lumber per year. Primarily during the winter, local farmers would draw logs to the mill to be sawn into lumber or cut into shingles. Recording the flourishing commerce of a young business, two of the surviving "day books" had a page dedicated to each customer. These books were used in tabulating and settling the accounts every year or two. Trading and bartering of goods and services was common. For example, the local carriage and sleigh maker would receive basswood lumber (which is lightweight and easily worked) in exchange for manufactured items for the mill's forest operations.



25. OLD-GROWTH PINE

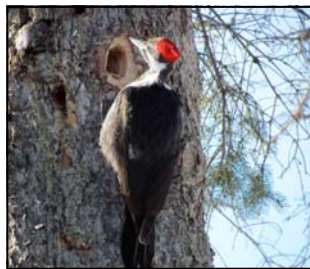
This fallen giant may not have reached the venerable four-century mark nor the species maximum height of 68 metres, but it is nonetheless an impressive example of the species' potential. White pine could be called the 'Ever-ready of Trees' for its ability to continue a youthful vigour into old age. However, note the evidence of interior deterioration typically found in over-mature white pine and indicative of what eventually happens to "Old Growth" trees. Small stands and scattered individual patriarchs such as this one, were certainly



seventeenth-century upland landscapes. But the lower, moister soils a few kilometres east would have been largely dominated by white pine. Red pine is quite often found in association with white pine but is notably rare at the Shaw Woods. It prefers drier, sandy soils where a hotter fire regime perpetuated its competitive advantage.

26. THE HABITAT MAKERS

With the many dams just downstream along the Snake River, it is easy to visualize how beavers create habitat for a wide range of wetland species from ducks to duckweed. Another species that is quite effective is the pileated woodpecker whose tell-tale feeding cavities are in evidence in this snag. While foraging for insects over their large home range, a pair of birds will inadvertently provide shelter for numerous other bird species and mammals. Man has also altered wildlife habitats for a very long time. Native peoples used fire to enhance the production of fruit and nut bushes and to create lush, vegetative growth that would boost the populations of game animals for hunting.



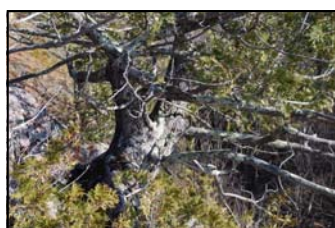
27. WINDOW TO THE PAST

Notice how different this pine tree looks from the tall, straight ones growing along the river bank. Within the first few decades of its life, it was attacked by a small brown beetle called the white pine weevil. We know this because of the tell-tale forked trunk and contorted shape (limiting its value as lumber) that can result from a single attack to the terminal leader. And since this insect generally only persists under open, sunny conditions (hence the common term "pasture pine") we can also conclude that there was a very different landscape present here at the turn of the nineteenth century.



28. A VERTICAL OLD GROWTH

Clinging to the cliff below you are some very old trees. Much older than you might expect from their small stature, white cedar are well adapted to this unique and particularly harsh environment. Most tree species collect water and nutrients like upside down funnels with water pouring in from the wide-ranging roots, mixing and flowing together up the trunk. White cedar is different in that it has sectorized hydraulic pathways



whereby separate roots are dedicated to specific sections of the trunk and branches. If a rock dislodges and tears out a root, only the portion of the trunk connected to that specific root will die. White cedar can potentially live several thousand years. One of the most sacred herbals of the Algonquin people, it is aptly named *Arborvitae* - "The Tree of Life".

29. A MICROCLIMATE TAKES SHAPE

As the Wisconsin glacier swept across the rock above you, it sheared off and transported the glacial erratics you can see across Shaws Pond along the Old Growth trail. Some years later during the northward retreat of the glacier, great volumes of meltwater carved the small gully which



encloses the main trail uphill from here. Today, this granite escarpment with its southwest orientation and resulting warm, dry microclimate, supports species with a more southerly affiliation. Most at home in the limy soils near Lake Ontario, eastern red cedar (*Juniperus virginiana*) is present as a small relict population here. Offering nesting cover and berries for food, this small tree is a wildlife retreat for many species. New Jersey tea (*Ceanothus americanus*) is another shrub well suited to the coarse soils of this dry open cliff top. Its dried leaves were once used as a tea substitute during the American revolution.

30. WARM IN WINTER

An absolutely amazing and critical property of water is that it not only expands and floats when it freezes but that its highest density is at 4°C. As a result, our large bodies of water have a protective ice cover in the winter months with a relatively warm water layer of 4°C being insulated on the bottom. This environmental condition favours the chemical and biological processes necessary for the winter survival of many aquatic and semi-aquatic life forms from giant water bugs to painted turtles.



31. BACK FROM THE BRINK

The enormous stick nest visible high up in a white pine across Shaws Pond belongs to our resident bald eagles. It is a constant hub of activity as the parents tend to a pair of eggs in the spring and then provide for the young eaglets through mid-summer when they make their first tentative flights. Juvenile birds do not attain the characteristic white head until 4 or 5 years of age. The adult birds share the parenting duties and are thought to mate for life. With a wingspan up to 2.4 m and an average weight of 5 kg, these impressive birds can live up to 28 years in the wild. They are opportunistic foragers and they can see up to 8 km. They eat fish, mammals, birds and any carrion that they can scavenge. Once endangered with extinction, the majestic bald eagle has been nesting here since 2009.



32. SHAWS POND

The relatively quiet freshwaters of Shaws Pond provide excellent habitat for a large number and variety of aquatic insects and plant species. Such ponds act as a natural sink for local nutrient sources in their catchment area. The variation in soils, vegetation, shade, water depth and temperature provides a multitude of microhabitats. Aquatic insects flourish in such environments and they contribute to a complex food web providing an essential role in converting nutrient sources and making them available to other life forms. The aquatic insects include midges, beetles, flies and dragonflies which become prey for other larger insects, amphibians and birds. Be on the lookout for very large bullfrogs or birds such as the eastern phoebe, the great-crested flycatcher, or the tree swallows that feed on the aquatic insects of Shaws Pond.



33. LIFE IS WHAT YOU MAKE IT

High above you along the Dore Scarp stand several large white pine seemingly growing straight out of the granitic bedrock. Making the best of their chance at life, these trees survive by snaking their roots into solution hollows - small indentations in the rock that trap bits of soil and moisture. A symbiotic web of mycorrhizal fungi infiltrate the tree roots and convert air-borne nitrogen into components that the tree can assimilate. This may not be as ideal a site for white pine as along the pond's edge, but it does offer the one big advantage of a shorter list of competitors for that critical patch of the sun's vital energy. In comparison to the red oak trees growing above, these evergreens also have the advantage of holding onto absorbed water and mineral nutrients much longer.



34. DORE SCARP

About 450-500 million years ago during the Paleozoic era at a time when life on earth was beginning to rapidly diversify, major catastrophic events shaped the backbone of the landscape around you. This happened when the earth's crust moved downwards about a kilometre between the Mattawa and Petawawa faults. The dropped-down block of bedrock, several tens of kilometers wide, formed a rift valley known as the Ottawa Bonnechere Graben. Within it are 3 minor breaks. One of them, the Dore Scarp, is visible here extending from Lake Dore to beyond Renfrew. Note the much different ecosystem here than that of the old growth forest to the west.



35. GREAT MASTER OF THE SKIES

White pine played an important role in the history of the Ottawa Valley. Beginning in 1806 with the harvesting of trees for sailing ship masts, the square timber trade opened up the region to European settlement. By mid-nineteenth century, water-powered mills such as the Shaw Mill were beginning to make use of smaller logs. At this site, you can see a small example of the dense pine stands that built North America. Note the height, the proximity between trees and the branching pattern. Also observe the thick lower bark and lack of lower branches which reduces the potential for fire to ladder-up and spread through the canopy. All of these factors combine to achieve the highest basal area (most volume of wood per area) of all our native trees.



36. DOWN WOODY DEBRIS

Down woody debris (DWD) is all the woody material that accumulates on the forest floor. Many forest animals use DWD for escape routes, to stash food under, or to elevate themselves above the brush. Bark and fine twigs comprise the bulk of some important elements like calcium that need to be recycled through decomposition. Nature tends to place DWD in a messy arrangement that functions much better than man's 'cleaned up' forests. Some of the old logs in the Shaw Woods have been on the forest floor for over 100 years.



37. CRIMSON ALONG THE RIVERBANK

Growing in abundance along moist streams and riverbanks such as this one, the cardinal flower's late-summer burst of intense crimson is always striking. The flower's stamen and stigma extend outward in such a position as to touch the top of a ruby-throated hummingbird's head (whom it depends on for pollination) as it feeds on the plant's rich nectar. *Lobelia cardinalis* is a copious seed producer, yielding up to 5000 tiny seeds per stem. Being so small, the seed does not have the luxury of expending a lot of energy in struggling up through layers of fallen leaves or soil. So it pins its success on a light-sensitive pigment called phytochrome which activates germination, perhaps many years later and only when exposed to open sunlight. Legend has it that this 2-4 foot herbaceous perennial was named after the red robes worn by the cardinals of the Catholic Church.



38. CONSERVATION SUCCESS STORY

The wood duck was nearly hunted to extinction in the early twentieth century and its resurgence is a notable conservation success story. Eating seeds, nuts, fruit and insects, and characterized by strong claws that easily grip tree branches, it has been described by many as the world's most beautiful duck. A high-quality wetland habitat for this species consists of standing live and dead trees, stands of grass and cattails, tangles of brush, plenty of aquatic invertebrates and extensive surrounding stands of mature oak. The limiting factor at many sites, including here, is often a lack of suitable natural tree cavities for nesting. Nesting boxes such as this one are readily adopted and the clutch of 10-14 eggs is less vulnerable to raccoon predation. Interestingly, offspring born in cavities will look for them first, but offspring from nest boxes are more likely to select these for their own brood. By understanding these breeding dynamics, we can be strategic in box placement to increase the population up to a threshold capacity of one pair per acre of suitable habitat.

