Welcome to the Old Ausable River Channel. Originally named “La Rivière aux Sables” - The River to the Sands - by early French voyageurs, this river has a rich cultural history and, since its creation, has always been full of life. Use this guide to discover the natural and cultural history hiding behind every bend of the Old Ausable River Channel. Set aside 1 – 2 hours to paddle along this unique water body, reading the numbered sections within the booklet at your leisure.
Imagine being here during the Wisconsin Glaciation. Ice, a kilometer and a half thick moved slowly, grinding and crushing the land. Twenty to thirty thousand years before present day these massive glaciers covered much of Canada, advancing and retreating as temperatures rose and fell, for more than twelve thousand years. Eventually, as the Earth's temperatures continued to rise, the last of these glaciers began their retreat, carving out the Great Lakes. Their melt waters also created streams and rivers, like the Ausable River, part of which flows before you.
Workers stand by the Canada Cut which they dug by hand, removing the sand with horses and buggies.

For thousands of years the Ausable River flowed, twisting and turning in its course. Then, in 1876, pioneer settlers carried out a dramatic plan to drain several lakes and change the course of the river. In a partnership with the Canada Company, a channel was cut into the river, diverting the water flow from Arkona into Lake Huron, cutting off the flow through the remainder of the river. In addition, another channel was cut from Grand Bend in 1892, creating a harbour for their growing tourist industry.
The two cuts left 19km of the Ausable River without water flowing into them, including the stretch that flowed through Pinery. Instead of drying up, this stranded section of riverbed - now referred to as the Old Ausable River Channel - was fed by hundreds of underground springs. These springs still fill the channel, creating the winding, pond-like environment you now see before you. As you paddle, take a look into the water to see the springs, which appear as sandy patches in the riverbed.

The drastic changes to the Ausable River have created a unique ecosystem in Pinery. The present day Ausable River runs through cities, towns, and agricultural land picking up pollution, pesticides, fertilizers, and silt. None of these pollutants, or silt, enter any portion of the river within Pinery because of the two drainage channels that forever altered the course of the Ausable.

Today the Old Ausable River Channel has clean, clear water. As a result of extremely high water quality, rare fish species, such as the Pugnose Shiner, can be found within Pinery’s protective boundaries. Beneath you, a unique collection of flora and fauna exists today much as it did 150 years ago.
3. Swim Like a Catfish, Sting Like a Bee

Tiny but tough, the Tadpole Madtom

The Old Ausable River Channel is home to more than 35 species of fish. Northern Pike lie motionless, waiting to ambush any hapless fish that stray too close; Bass prowl the weeds; four species of Sunfish flash a brief rainbow of colour as they dart among the lilies. In addition, there are several species of catfish that can be found slinking among the vegetation, tasting and feeling their way with sensitive whiskers.

The smallest of the Old Ausable's catfish grows no longer than your finger and spends most of its time among the weeds and leaves.
at the bottom of the river. This tiny fish, called the Tadpole Madtom, gets its name from its small size and the habit of swimming madly in circles.

Despite its small stature, the Tadpole Madtom is not defenseless—there are hollow spines hidden in its fins. If the catfish is ambushed, it will pierce its attacker with these spines. The assault however, does not stop here. Predators are in for an even bigger surprise when the Tadpole Madtom injects mild venom through the spines, stinging its predator much as a bee does. This defense protects these small catfish from larger predators, such as bass or pike, in the river.

As you paddle along the Old Ausable River Channel, look down into the water and watch for fish; you just might see the little catfish that packs a punch.

The smallest of the Old Ausable’s catfish, the Tadpole Madtom, grows no longer than your finger.

The Old Ausable River Channel provides a wonderful habitat for many fish species.
Yellow Pond Lilies and Fragrant White Water Lilies dapple the surface of the Old Ausable River Channel, particularly along the shoreline. These beautiful flowers live in the river for a reason. Tilt your face upward; can you feel the sun on your skin? Sun is something for which all green plants must compete for. In a forest, trees, shrubs, and wildflowers all compete with each other in a constant struggle for precious sunlight. Along the river’s edge, there are fewer trees and shrubs casting shade on smaller plants and there is an abundance of sunlight. The
Old Ausable River Channel has another added bonus as an aquatic habitat for lilies – very little water movement, or current. This means there is no danger of lily pads being broken off by strong water currents, which is ideal for a plant with such long, delicate leaf stems.

Growing in water up to 15 feet deep does require some special adaptations. The large leaves, known as lily pads, have pores on their surface that allow for gas exchange. As well, Lilies pump air down their stems, which causes the stem and leaves to float to the water’s surface. Water Lilies also have a thick, starchy root, called a tuber. These tubers store crucial energy, as the plants have to replace their stems, leaves, and flowers each spring.

Water Lily tubers are high in sodium and, consequently, are eaten by many animals, including Snapping Turtles, White-tailed Deer, and Beavers. Beavers often distribute the plant throughout the water by eating half the tuber then dropping the uneaten portion in a new location where it can take root.
5. The Damsel and the Dragon

A Chalk-fronted Corporal rests, warming its body with the sun’s rays.

Picture yourself flying over the river at speeds of up to 30 km/hr, striking fear into the hearts of mosquitoes everywhere. Constantly on the lookout for predators, you patrol your territory, engaging in acrobatic aerial battles when another of your species intrudes on your set boundaries; this is the life of a dragonfly.

Dragonflies and damselflies may look scary, but both play a very important role in the riparian, or riverbank, environment. They can also be beneficial to humans, quickly clearing out swarms of biting insects, such as mosquitoes and blackflies.
As adults, these primitive insects are fast flying. The first part of their life however, is jet propelled, and it is spent underwater in the form of an aquatic larva, called a nymph, or naiad (pronounced n-eye-add). When required to make a hasty getaway, naiads suck water into their abdomen and then push it out again, darting away from danger on a puff of water. These fearsome predators use this jet propulsion and a projectile jaw to catch and feed upon insects, tadpoles, and even small fish. In fact, during the nymph stage, a dragonfly may eat as many as 3000 mosquitoes! After spending up to four years underwater, naiads undergo a dramatic change. They climb out of the water, shed their skin, and emerge as winged adults. After their new skin has hardened, the adults will fly away - reborn as voracious predators ready to eat any insects they can catch.

Sometimes you may see two damselflies, or two dragonflies, flying while attached together. The pair, a male and female, are mating mid-flight, in what is known as the wheel position. Watch them carefully and you may be rewarded by seeing the female lay her eggs, dipping the tip of her abdomen into the water near, or on, an aquatic plant. This act ensures that future generations of damselflies and dragonflies will soar the skies over the Old Ausable River Channel.
Slowly stalking the shallow waters along the shoreline of the Old Ausable River Channel, the Great Blue Heron patiently hunts. There, it waits for a fish or frog to appear. Once spotted, the heron uses its dagger-like bill, quickly impaling the prey. Great Blue Herons are opportunists, eating over 1 pound per day of just about anything they can swallow - from frogs and fish, to snakes, mice and even chipmunks.

If you are fortunate enough to see a Great Blue Heron spear a fish, you may then see the bird toss the fish off its bill, up into the air,
and catch it again, swallowing it head first. This act prevents certain death for the heron as it ensures that the fish’s spines fold flat and do not become caught in the heron’s throat.

All species of herons have been hurt by human development, pollution, and wetland drainage. The unpolluted waters and marsh-like shoreline of the Old Ausable River Channel create an ideal habitat for many aquatic creatures, which makes this a superb hunting ground for Great Blue Herons. They can frequently be seen in the shallows along the Channel’s shores, so keep your eyes open and scan the riverbank as you paddle along.
A group of Whirligig Beetles spin on the surface of the water. As you dip your paddle into the water, take a moment to watch the ripples swirl and twist around the paddle blade. These ripples travel across the water’s surface until they fade from sight. Some of the creatures in the Old Ausable River Channel, such as the Whirligig Beetle, take advantage of similar ripples, using them like sonar to learn what is around them. About the size and shape of a coffee bean, adult Whirligig Beetles often swim in large groups, sometimes numbering into the hundreds.
Supported by the tension on the surface of the water, these beetles touch the water with their antennae to feel for vibrations as they use their paddle-like legs to swim. With eyes that are split to allow for vision both above and below the water, Whirligig Beetles are always on the lookout for predators; danger may lurk in the depths beneath them or swoop from the skies above. Adult Whirligig Beetles also use these specialized eyes to search out freshly deceased insects and other larvae, scavenging their food from the banks of the river.

Unlike many other types of insects whose larvae are abundantly seen, the larval stage of a Whirligig Beetle is rarely spotted. They are slender, voracious predators that swim sinuously along the riverbed, searching for mayfly or dragonfly larvae. When it comes time to transform into the commonly seen adult stage, Whirligig Beetle larvae climb onto dry land and create a pupal case made of dirt and saliva, which hangs near the river’s edge.

As you travel the river, watch not only for adult Whirligig Beetles swimming in frenzied circles, but also for the more uncommon larvae slinking along the shoreline.
If you are lucky, you may see Canada’s largest reptile slowly swimming through the water. The Snapping Turtle is an amazing creature, able to reproduce until the ripe old age of 70, and live up to 90 years in the wild. When you see a large Snapping Turtle, stop to reflect on the fact that the turtle may be older than you are.

Turtles have existed on Earth for 200 to 250 million years! Over these millions of years, Snapping Turtles have developed an unusual - but successful - reproductive strategy. Reproduction doesn’t begin until around the
age of 16. From then on, Snapping Turtles lay an average of 30 rubbery eggs each year. Eggs are laid in a small, excavated nest in the sandy banks of the river. Temperature determines whether the nest will produce males or females. Eggs that are incubated at temperatures between 25-29°C result in male offspring, while those incubated at 30°C or higher result in female offspring. Within most nests the temperature at the top of the nest is much warmer than that at the bottom, and a mixture of males and females are produced.

Raccoons, skunks and foxes quickly predate upon the majority of these nests, destroying up to 90% of them. For the new hatchlings that emerge from the remaining eggs, the odds of survival are almost insurmountable. Predatory birds and fish eat many of them while their shells are still soft from hatching. A young Snapping Turtle’s greatest chance for survival involves burying into the mud and going into hibernation without even getting a first meal. To compensate for these factors, Snapping Turtles will lay thousands of eggs over their lifetime, in the hopes that just one will make it to adulthood.

Today, Snapping Turtles face a problem common to many other wild animals
Turtle eggs incubated between 25-29°C result in male offspring, while those incubated at 30°C or higher, result in female offspring.

Throughout the world: loss of habitat. In Southern Ontario alone, over 75% of the wetlands have been drained, filled in, or otherwise altered. This destruction is disastrous as thousands of plants and animals rely on wetlands to meet a number of their needs, such as water for drinking, food and shelter. Humans also use these wetlands for recreation activities like swimming and boating.

If we do not make a concerted effort to protect those wetlands still remaining in North America, parks and conservation areas may be the only refuge left for many wildlife species, including the Snapping Turtle.

As wetlands disappear, highways become a major threat to the survival of Snapping Turtles.
If you look at the western shore of the river - the side furthest from the road - you can see some of the globally rare Oak Savanna habitat for which Pinery is famous. Oak trees tower over shrubs and prairie grasses, which in turn carpet the hills of sand, keeping the dunes from blowing away. Alongside the unique Oak Savanna are several other ecosystems to be explored in Pinery. One such example would be the riparian, or riverbank, habitat found along the Old Ausable River Channel. During the summer months these banks are alive with
wildflowers, such as Turtlehead, Blue-flag Iris or Fringed Loosestrife, Fragrant Sumac shrubs and towering trees, including Sycamore and Shagbark Hickory. You can also find Eastern White Cedar.

This aromatic conifer had numerous uses in times past. First Nations built canoes out of the trunks of White Cedars as well as burned the wood and leaves to purify sacred artifacts. Early European settlers created White Cedar concoctions to treat various illnesses. Sailors used a tea made from the leaves of the tree, which are rich in vitamin C, to treat scurvy. The Eastern White Cedar was so highly thought of by these sailors, that it was given the name “Arbor Vitae” or, the Tree of Life.

Humans were not the only mammals to develop a dependance on the valuable cedars. White Cedar is a favourite winter food of the White-tailed Deer. If you look at the cedars growing along the riverbank you can see a distinct browse line where the deer have eaten the leaves on the lower branches of many of the trees. This problem is not only seen in the riparian habitat, but also throughout the park. As a result, park managers are taking steps to manage Pinery’s deer herd.
Crack! The peace and tranquility of an evening paddle is shattered as a beaver slaps its flat tail on the surface of the water. Often called “Nature’s Engineer”, beavers are one of the only animals, aside from humans, that can change their environment at will to create a more beneficial habitat. If need be, in order to make a pond for itself, a beaver will block the flow of water, flooding an area of forest. A lodge is then built out of sticks and mud in the centre of this newly created pond, providing safety from predators. Along with this central lodge, many beavers also
build lodges into the banks along their river or lake of choice. Pinery’s beavers are somewhat unusual in that they prefer to use these bank lodges all the time instead of a central lodge. This habit has earned them the nickname “Bank Beavers”.

It was long thought that beavers were very intelligent creatures because they built elaborate dams that could hold back thousands of tons of water. Science, however, has shown beavers to be creatures of instinct, rather than reason. The trigger for dam building is, quite simply, the sound of running water. The instinct to stop water from running is so strong that, by playing the sound of moving water on a tape recorder, scientists have been able to make beavers build dams on dry land.

The best time to see or hear a beaver is in the early morning or evening, but you can see signs of their presence at any time of the day. Fallen trees, sticks gnawed clean of their bark, and bank lodges along the shores of a river are all signs of beaver activity. As not all lodges are used actively, here are some guidelines to help you determine whether or not a beaver family has set up residence:

<table>
<thead>
<tr>
<th>Abandoned Lodge</th>
<th>Occupied Lodge</th>
</tr>
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<tbody>
<tr>
<td>Flat</td>
<td>Peaked and high</td>
</tr>
<tr>
<td>Sticks are dry, logs old</td>
<td>Made of wet mud and fresh sticks</td>
</tr>
<tr>
<td>Plants growing on top</td>
<td>No plants growing on it</td>
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</tbody>
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River Guide
On warm spring or summer evenings, you may hear several species of male frogs singing. Whether it’s the bird-like trill of a Gray Treefrog, or the banjo-like plunk of a Green Frog, each call has the same purpose - to attract a mate.

The odds of getting from egg to adulthood are slim since predators, such as fish, turtles, snakes and birds, are abundant. As only 1% of tadpoles get to adulthood, an adult frog is truly an amazing thing! Having large numbers of young ensures the survival of a frog species. Each year, females lay
thousands of eggs and, even though most die before reaching maturity, some will survive. During their lifetime, the survivors will in turn fertilize thousands of eggs of their own. This method has worked for millions of years and is successful under natural conditions. However, when extra pressures - like collecting or over hunting - are placed on a population, it can collapse. This was the case with Pinery’s Bullfrogs.

The Bullfrog is North America’s largest frog and is a common sight in many waterbodies across Canada. In this area, Bullfrogs were collected and sold to restaurants. Prior to Pinery being established, there was no local area that provided a safe haven for these much-desired amphibians. Over the years, so many Bullfrogs were collected that the population collapsed, and Bullfrogs became extirpated (locally extinct). Today, Pinery protects wildlife to prevent this tragedy from being repeated. When you hear a frog’s song, think about how lucky that frog is and remember the Bullfrog, whose call has not been heard in Pinery for many years.
Looking down into the Old Ausable, you will see that the majority of the riverbed is covered by thick, green vegetation. The most common plant is Chara (pronounced kara), a primitive ancestor to a group of modern day plants known as stoneworts. Chara thrives in aquatic areas with very little current, making the Old Ausable River Channel an ideal habitat due to its minimal water flow. Unfortunately, it is growing in such abundance that other types of vegetation are quickly being choked out.

What does the future hold for the Old Ausable River Channel?
Along with life, comes death, and as these dead plants decay they release an excess of nutrients (a process known as eutrophication), allowing the living plants to grow even faster. As this process occurs, the Channel will slowly fill in; more and more plants will replace the clear, open waters and the ecosystem will begin to change. Eventually, new animals and plants will move in replacing those that can no longer survive in the swamp-like environment that was once the Old Ausable River Channel.

With time, there will eventually be a forest where once a pristine body of water flowed. If we lose this river, we will lose many of the birds, plants, fish, and insects that presently call Pinery their home. Many of the inhabitants in the Old Ausable River Channel are quite rare in Ontario. How can we ensure our children and grandchildren enjoy this river as we have? How do we manage the river to protect its species diversity and keep it from filling in? Should we attempt to control the natural process of eutrophication? These are questions that park managers and park users alike will need to address in years to come.
We sincerely hope that your canoe paddle with this guide has raised some unanswered questions about Pinery.

Please speak to a naturalist at the Visitor Centre or at an interpretive program for more information about aspects of the park that interest you.

If you wish to keep this guide, please pay at the location where you received it. If not, please place it in the box at the canoe launch when you are finished, so that others may use it later. Your payment covers the cost of production and supports the projects of the Friends of Pinery Park.

If you would like to learn more about the Friends of Pinery Park, or to become a member, please inquire at the Visitor Centre or visit www.pinerypark.on.ca
The Friends of Pinery Park is a non-profit charitable organization dedicated to the development of interpretive, educational, historical & scientific projects and programs to ensure that Pinery Provincial Park’s natural legacy will remain for future generations.