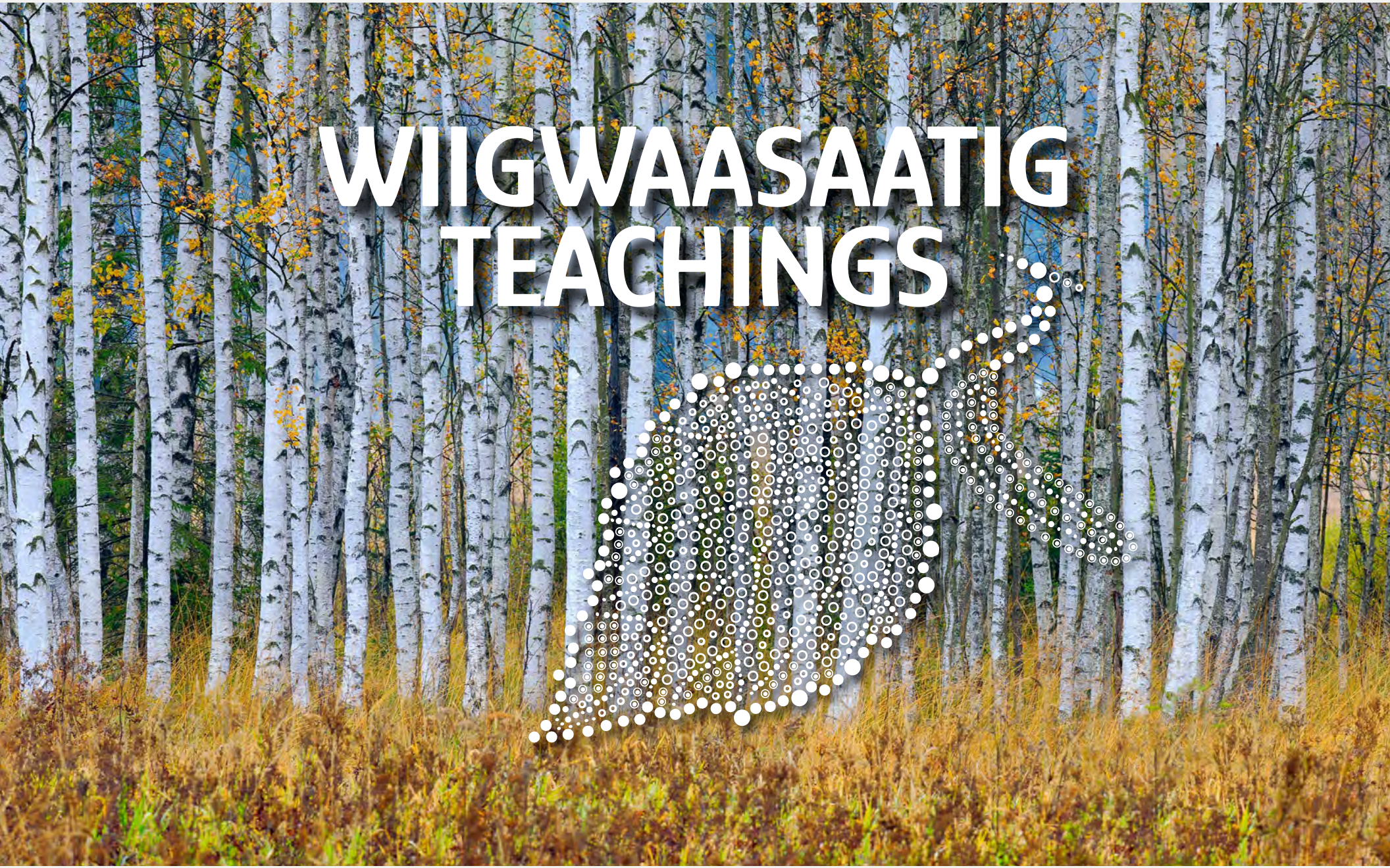
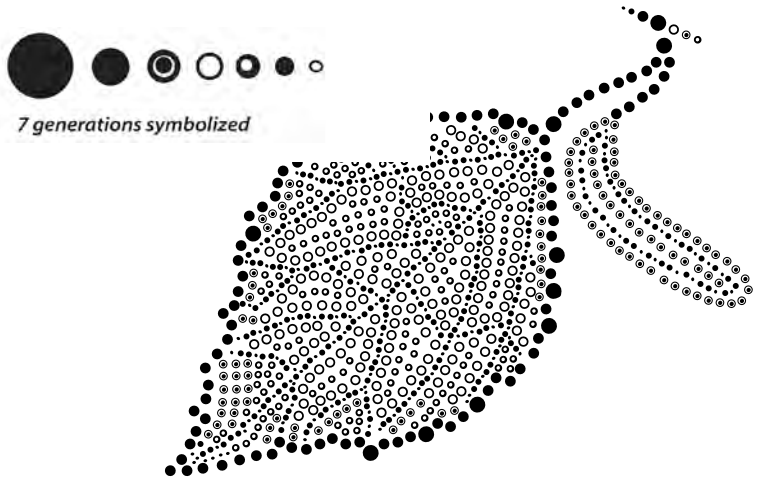

WIIGWAASAATIG
TEACHINGS

Sponsors

Wiigwaasaatig Gikinoo'aamading (Birch Teachings)

The Wiigwaasaatig Gikinoo'aamading, emblem was crafted with intention. It bears the essence of seven generations through stylized bead designs weaving a tapestry that echoes the wisdom of our ancestors. At its heart lies the strength of the birch tree, a symbol of growth, resilience, and interconnectedness. Just as circles abound in nature's patterns, from Indigenous art to biological rhythms, our logo beckons you to delve into the stories and lessons that bind us together. Join us as we honour the past, embrace the present, and shape the future through Wiigwaasaatig Teachings.



This work was made possible by National Science Engineering Research Council [NSERC] PromoScience Funding PROSC/577339-22.

ACKNOWLEDGEMENT

Acknowledging a traditional territory involves recognizing a history that predates establishment of the earliest European colonies. It also means acknowledging the territory's significance for Indigenous peoples who lived, and continue to live, upon it, and whose practices and spiritualities are tied to the land and continue to develop in relationship to the territory and its other inhabitants.

Wiigwaasaatig Teachings was created in what's now called Kingston, Ontario. It's our understanding that this territory is included in the Dish with One Spoon Wampum Belt Covenant, an agreement between the Haudenosaunee Confederacy and the Confederacy of the Ojibwe and Allied Nations to peaceably share and care for the resources around the Great Lakes. The Kingston Indigenous community reflects the area's Anishinabek and Haudenosaunee roots. Métis peoples and First Peoples from other Nations also live here today.

We hope that people across Turtle Island will use Wiigwaasaatig Teachings, and we invite everyone to reflect on all the traditional territories on which we live. Wiigwaasaatig reminds us of our responsibility to reciprocate the gifts the land brings us by revitalizing our relationship with our Mother the Earth. We hope that this guide becomes a stepping stone for moving beyond acknowledgement of the land to an understanding of the importance of Wiigwaasaatig and our Mother the Earth as a whole.

As educators, it's our responsibility to teach our students the true history of Turtle Island and the impacts of settler-colonialism on this land. We must help students become empathetic and culturally aware so that they can recognize their roles and responsibilities as Treaty people on Indigenous lands. Education rooted in equality, diversity, and inclusion will prepare our future leaders to build a better future for seven generations to come.

– Lindsay (Kawennenha:wi) Brant and Liv Rondeau

Acknowledgement & Gratitude

“In preparation for writing about Wiigwaasaatig Gikinoo’aamading, which roughly translates to “Learning about birch trees”, in the Ojibwe language, I sought out a master wiigwaasi—jiimaan—birch bark canoe—builder. Out of respect, and in following Anishinaabe protocol for seeking knowledge, I offered tobacco to Chuck Commanda. Chuck has been building wiigwaasi-jiimaan for nearly two decades and fondly recalls learning this skill from his grandparents beginning at the age of 12. Chuck carries the knowledge of an endearing legacy passed on to his grandparents from their great grandparents, a tradition that extends back to a time long before Europeans arrived in the lands where the birch trees grow today.

In this document we will examine some of the important qualities of birch trees, which Indigenous peoples have relied upon for centuries, in the regions where they’ve grown them. We will also introduce you to the legacy of birch bark scrolls, examine the sophistication of the Birch Bark Canoe, and expose you to some of the important medicinal qualities of birch, which can bring awareness to the intelligence and ingenuity in birch tree applications by Indigenous populations to expand their civilizations. Additionally, we will discuss other important aspects of birch trees, especially as they relate to various Indigenous groups of peoples of Turtle Island (present day North America), focusing primarily on Anishinaabe peoples of the great lakes.

To speak and teach about certain trees from an Indigenous lens (in my case an Anishinaabe knowledge-based lens) it is important to do so through reflections of the purpose of the trees to the peoples who utilized and selectively grew them for different purposes. It is difficult to convey the significance of any tree to any Indigenous peoples, especially when referring to the past, without grasping the importance of that tree to the functioning of the cultures that utilized them. For example, when writing about mitigomizhiig— Oak trees—I focused on mitigominan—acorns—because acorns were once a significant food source in the ranges where the Oak Trees were grown and far beyond as result of trade. When writing about baapaagimaakoog— black ash trees—I focused on the celebrated ash baskets, since those baskets were crucial to the cultures who made them, for harvest, trade, and the transport of supplies across land and water. Now, in writing about wiigwaasaatigoog—birch trees, I do so through the lens of some of the most important aspects of the cultures of the Indigenous peoples living within the birch trees’ range; travel, communications, diplomacy, and the transportation of supplies for trade.

Image source: **Paddling Magazine** | *Chuck Commanada's birchbark canoes are crafted by hand, using traditional methods he learned from his grandparents. | Photo: Bob Tymczyszyn*

Imagine a time when there were no roads, no wheeled carts, and no electronic communications. Travelling from one place to another across water was necessary to share important news, strengthen diplomatic relations, transport supplies between villages, and for trade across vast distances and convey information to others that could be preserved in writing for generations to come. The peoples who wrote the birch scrolls and built birch bark canoes were highly skilled people and navigating complex river and lake networks took great discipline and intense physical training. In the Eastern woodlands and beyond, the birch bark canoe was critical to the rise of civilization.

Did you know?

Some of these scrolls survive today in the hands of knowledge keepers, while others are housed in museums like the Smithsonian? The scrolls were used to share ceremonial teachings and songs, and were sometimes singed at the edges to signify the sacred nature of the knowledge they contained.

Image Source: **ROM Collections** | *Anishinaabeg (Ojibwa) Birchbark scroll, early 20th century, Great Lakes region*

The pre-contact populations of the region of Turtle Island where birch was prevalent was believed to be over 1.5 million peoples, all whom would have utilized birch bark canoes in some way. The average 7.5 metre canoe could fit six people comfortably, and if there were enough canoes to move everyone, a realistic estimate suggests that 250,000 birch bark canoes could have been in use at the time of contact in the early 1500's. Not only is that a lot of birch bark canoes, but that's a lot of birch trees that had to be harvested with specific characteristics. Indeed, as I spoke with Chuck he understood that our ancestors didn't simply go out and find the ideal birch tree, as he does today. In the past, grandmothers and grandfathers must have methodically tended birch stands so their grandchildren could access the best materials for the watercraft.

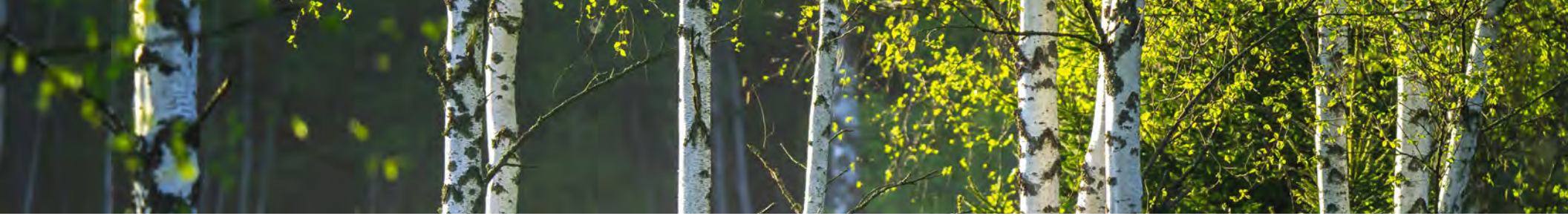
One thing that Chuck made obvious from our conversation is that it is becoming ever more challenging to find birch trees with the right characteristics to build high quality birch bark canoes. This challenge is the result of factors such as clearcutting of the mixed hardwood (i.e.,Boreal, and Great Lakes forests where birch trees thrive); the impacts of climate change; and, the failure of conservation efforts to consider that to keep important cultural knowledge of Indigenous peoples alive, forests have to be designed and nurtured in specific ways. As a result of these challenges, Chuck has begun to limit the number of canoes he builds each season. He also has to travel much further distances to get the highest quality supplies which makes the costs of building these canoes rise significantly.

Ultimately, we all have a big responsibility to ensure that birch trees continue to thrive. Doing so may ensure that the genius of the Indigenous peoples who expertly crafted their birch bark canoes remains alive. This wiigwaasaatig gikinoo'aamading—birch trees resource—will not only offer a glimpse of the significance of birch trees to some of the Indigenous peoples of present day Canada, with a succinct focus on wiigwaasi jiimaan—birch bark canoe builders—it will offer practical Indigenous based knowledge to restore and preserve forests so birch trees can once again reign for future generations to benefit."

- Mkomose, Oshkaabewis

WIIGWAASAATIG GIKINOO'(BIRCH) TEACHINGS

Wiigwaasaatig—Birch trees (genus *Betula - scientific name*)—are among the most iconic and ecologically significant trees in Canada's eastern woodland forests. They also grow in Montane Boreal forests, cool temperate forests, mixed broadleaf and conifer forests, upland hardwood forests, Acadian forests, pioneer forests, and floodplain forests. In present day North America, birch trees are classified into four different types including Paper Birch (*Betula papyrifera*) or White Birch, Yellow Birch (*Betula alleghaniensis*), Gray Birch (*Betula populifolia*), and Black of Cherry Birch (*Betula lenta*). This document will focus primarily on the Paper Birch, which is the type of birch needed for canoes and birch bark scrolls. The Paper Birch has distinctive white or silvery bark, delicate leaves, and a graceful stature, which make them easy to recognize. White Birch plays a vital role in the ecosystems where it thrives and, are critical to the Indigenous cultures where they grow, including amongst the Anishinaabe of the Great Lakes, the Algonquin of present day Quebec and Ontario and the Wabanaki confederacy of the East Coast. This document will further explore the biology of birch trees, their importance in the environment, their cultural significance for some Indigenous communities, and efforts to conserve them, in light of modern environmental challenges and the pressures imposed by the Canadian forestry industry.



WHAT IS THE SPECIES?

Birch trees are widely distributed across Canada, thriving in diverse habitats ranging from wetlands and riverbanks to upland forests. These trees are a pioneer species, meaning they are often among the first to grow in disturbed lands, such as areas cleared by fire, logging or other human activities.

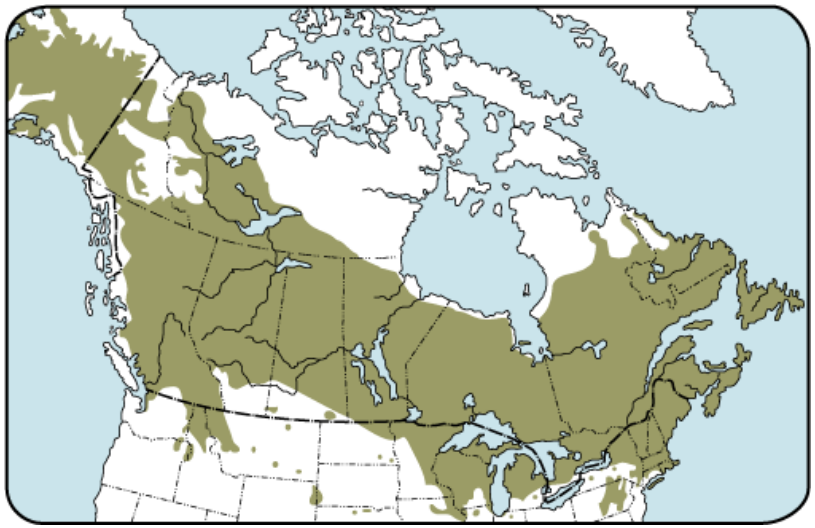


Image Source: **Natural Resources Canada** | *White birch distribution map*

Birch trees can establish quickly, making them essential in forest regeneration and soil stabilization efforts. Though their root systems are shallow, their flexible trunks allow them to bend and slow storm winds. In this way they can prevent erosion caused by storms and they can establish ideal conditions for other understory plant species to grow, like labrador tea and red willow, both of which can thrive in the wet soil conditions birch trees love. Their swift overstory succession offers nesting sites for red tailed hawks, and the understory growth attracts birds like red winged black birds that can thrive in swampy areas. These fast growing birch forests support mammals like mice and white tailed deer, reptiles like snapping turtles, arthropods like the Eastern Tiger Swallowtail, and a host of fungi like Chaga, which is used by Anishinaabe peoples as medicine. The whole ecosystem replenishes from the rise of the fast-growing birch, especially in disturbed areas. So the next time you see a disturbed area to be planted consider spreading some birch seeds.

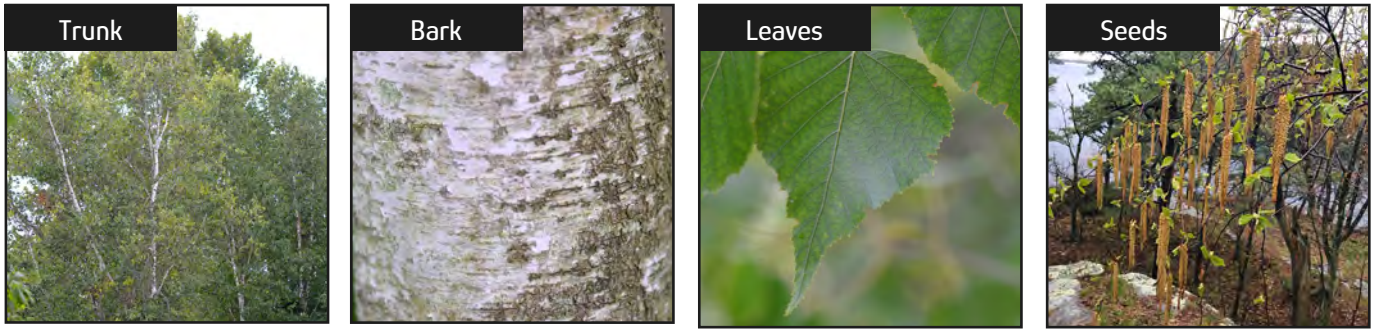
Species of Birch in Canada:

1. **White Birch** *(Betula papyrifera)*: Also known as paper birch, this species is the one of the most well-recognised tree species in the forest. It is easily identifiable by its striking white bark, which can peel off in thin layers during a certain season. This is the bark used for canoes, baskets, scrolls, and traditional Anishinaabe wiigiwam - lodge - coverings.
   Image source: www.ontario.ca/page/white-birch

2. **Yellow Birch** *(Betula alleghaniensis)*: Characterized by its golden-yellow bark, this species prefers moist, rich soils and is commonly found in older, undisturbed forests. Chaga mushroom is more likely to be found in the swampy areas where Yellow Birch near their end of life. This fungi is used for a variety of purposes by Anishinaabe peoples.
   Image source: www.ontario.ca/page/yellow-birch

3. **Gray Birch** *(Betula populifolia)*: This smaller birch species often grows in poorer soils and is known for its triangular leaves. Like other birch, their roots are often quite shallow, which makes them vulnerable as individuals but strong in bunches.

   Image source: www.ontario.ca/page/gray-birch

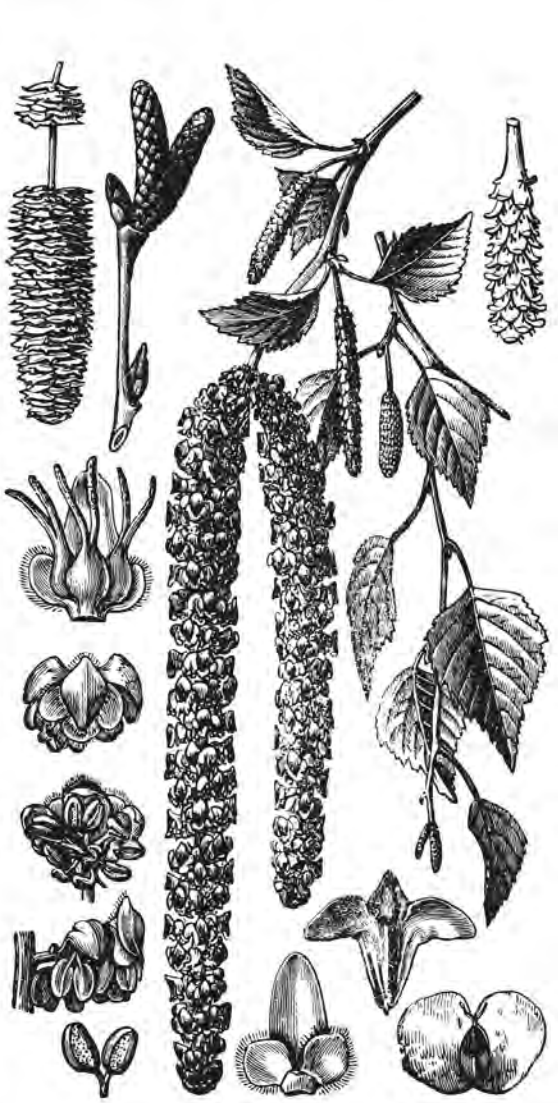


4. **Black Birch** (*Betula lenta*) or **Cherry Birch**: Can most often be found in upland hardwood forests, growing alongside Eastern Hemlock.

   Image source: www.ontario.ca/page/cherry-birch

Birch Tree Life Cycle:

- **Seedling Stage:** Birch seeds are dispersed by the wind. They are tiny in size, and have little wings that are about 3-4 mm long. The seeds begin growing in spring and look like two antennas growing from the ends of branches. They begin falling in late spring and early summer and just one small antenna can host hundreds of seeds.
- In optimal conditions, birch seeds can germinate and grow quickly. Birch trees can grow nearly 60 cm per year, reaching heights of 15 to 20 metres, in 25 - 33 years. When the paper birch tree reaches approximately 40 years, its bark starts being ideal for the wiigwaasi jiimaanike - birch bark canoe build.
- **Maturity:** Birch trees can live to between 30 and 100 years, depending on the species and environmental conditions. As they mature, their bark thickens, and they develop a broad, spreading canopy. There is a point in the life cycle of birch trees when they can become too old to be used for canoes.
- **Ecological Role:** Birch trees are home to a variety of wildlife, including birds, insects, and small mammals. Their leaves decompose rapidly, enriching the soil with nutrients, and their shallow root systems help them retain moisture in the soil, which benefits surrounding plants.



Birch Seed Estimations

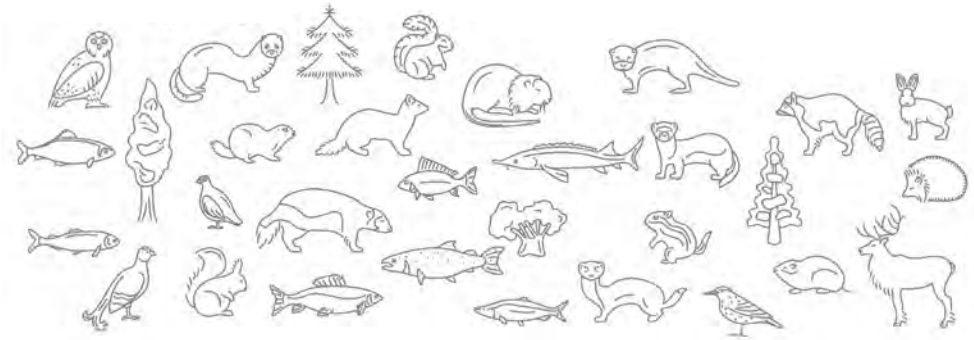
A birch tree's seeds are packed tightly together in groups called "strobiles." In the fall, or when you notice the strobiles changing colour from green to brown, collect one or two from a nearby birch tree to bring indoors. When dry, the strobilus can be separated into tiny individual seeds. Make an estimate of how many seeds you think the strobilus contains, then separate and count the seeds to see how close your estimate was. The average strobilus contains 30 to 100 seeds—one tree can produce over 100,000 seeds in a single season!

Spotted near the Birch Tree

Here are just a few of the plants and animals that often live near birch trees:

TREES	PLANTS	AMPHIBIANS & REPTILES	MAMMALS	BIRDS	INSECTS
• Aspen • Willow • Alder • Ash • Cedar • Maple	• Wild Mint • Cattails • Ferns • Dogwood • Raspberries	• Frogs • Salamanders • Turtles	• Beavers • Moose • Otters • Deer • Mice • Bears • Weasles	• Kingfishers • Herons • Woodpeckers • Red winged black bird • Crows • Hawks	• Dragonflies • Mayflies • Water Beetles • Fireflies

According to Chuck Commanda, the ideal circumference of a paper birch needs to be around 120 centimetres for canoe building. The trunk must be straight and at least 4 metres in height and it can not contain knots.



FIRE

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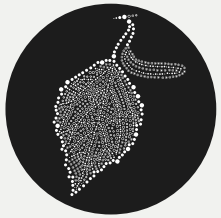

Did You Know?

Birch bark is highly flammable, even when wet, due to its natural oils and resins. Even if birch bark gets wet, its water repelling qualities still allow it to burn. These water repelling qualities also make the bark ideal for canoe hulls. It is not uncommon to see Anishinaabe firekeepers carrying rolls of birch bark in the bundles and pieces of chaga mushroom for their fire keeping responsibilities. While the chaga mushroom can hold a spark, the bark ignites quickly and burns really hot. This makes both chaga and birch bark essential tools for fire starter for Indigenous peoples in survival situations and traditional Anishinaabe ceremonial practices. It is also important to carry some dry birch for survival situations in case you need to start a fire in a damp environment.

CULTURAL BURNS

The Anishinaabe and Haudenosaunee are known to have utilized controlled burns to maintain healthy birch groves as a way to manage the forests where their civilizations thrived. This practice is known as cultural burning. Cultural burning reduced the risk of larger wildfires, encouraged new growth in the understory (which enabled many other beings to thrive); suppressed bugs in the early spring; and enabled the peoples to select and preserve the best birch and other trees for canoe building or other essential tools and supplies for later harvesting. Burned birchwood ash was used in various cultural practices. The ash, rich in nutrients, could be mixed with soil to enhance the soil's fertility or used in rituals symbolizing purification and renewal.

FOREST REGENERATION

Birch, known for its ability to regrow in disturbed areas quickly, plays a significant role in forest regeneration, especially after forest fire. The fast-growing birch trees can stabilize soil and create shade, allowing the ground to cool and other animal and plant species to re-establish themselves over time, forming the healthy, layered ecosystem needing for true ecological restoration.

CLIMATE CHANGE AND BIRCH TREES

How Climate Affects Birch Trees

Temperature Changes

Birch trees are adapted to cooler climates, making them vulnerable to rising temperatures. As climate zones shift northward, as a result of human caused global warming, birch populations may decline in their southern ranges further reducing biodiversity in those regions. Rising temperatures also pose a significant threat to the livelihoods of individuals in these regions responsible for carrying and sharing cultural teachings, especially as they relate to building birch bark canoes and wiigiwaaman—lodges—and birch bark basket making, which are arts stillpracticed by Anishinaabe peoples.

The art of the wiigwaasi jiimaanike - birch bark canoe build, is already steadily in decline due to many factors, but one of the most significant factors was the interruption of cultural learning for Indigenous children during Canada's residential schooling era. Both the knowledge and the connections to the land are needed to build birch bark canoes, which are important to the Anishinaabe culture. Canoe teachings also instil certain Anishinaabe language words and actions that connect the builders to the land and water.

Master birch bark canoe builder Chuck Commanda offers tobacco every time he takes something from the land, as his grandparent taught him, as a sign of reciprocity and respect.

Minoominike, which translates roughly to harvesting the wild rice in ojibwe, is but one example of an important cultural action connected to wiigwaasi jiimaanan—birch bark canoes—that may be lost due to global warming. Warmer winters may also affect the tree's dormancy cycles, leading to stress, slower growth rates, and an inability for the tree to produce its birch sap in spring, which like the maple tree can be boiled to make delicious birch syrup.

Did You Know?

That makakoon—birch containers—were also used to harvest maple and birch sap? The containers were not only waterproof but they were also water tight. The extent of the birch syrup collected largely depended on the number of trees available for tapping and the time community members had to do that important work. Unlike maple trees, which take about 40 litres of maple water to make one litre of maple sugar, it takes about 80 litres of birch sap to make one litre of birch syrup. Birch syrup was therefore an important delicacy that provided the body with antioxidants and high levels of magnesium, manganese, and vitamin C.

Birch Bark Basket Image Source: **Science Museum of Minnesota**

Precipitation Patterns

Changes in precipitation, especially prolonged droughts or irregular and heavy rainfall can weaken birch trees. Though they prefer moist, well-drained soils, excessive dryness can make them more susceptible to disease and pests. Conversely, heavy rainfall can lead to soil erosion and root rot, further stressing the trees.

Pests and Diseases

As temperatures rise, pests like the birch leaf miner and bronze birch borer beetle are becoming more prevalent. These insects weaken birch trees, making them more vulnerable to secondary infections. Fungal diseases, such as birch dieback, are also becoming more widespread due to the changing climate, leading to increased mortality rates in birch populations. As more and more birch trees are impacted by pests and diseases, their ability to grow to the size needed for canoes is severely impacted. The quality of the bark is also affected so even if they grow to size they may not be viable.

Extreme Weather Events

Storms, droughts, and wildfires, which are becoming more frequent due to climate change, can also damage birch trees. High winds can break branches and/or uproot trees, while intense wildfires can destroy entire groves including the ecological biome they support. Birch's thin bark makes it less resistant to fire than species with thicker bark, increasing its vulnerability during wildfires, which are becoming more frequent in Canada's forests.

CHALLENGE FOR TODAY

As the climate warms, how can we incorporate traditional fire management techniques to protect and restore birch forests? By turning to Indigenous knowledge systems like that of the Anishinaabe peoples, we can gain valuable insights into the ways fire is used, not only as a tool for sustaining ecosystems, but strategically to establish forest that can benefit the cultural practices of future generations. By blending some of the traditional practices where specific trees and tree stands are nurtured for specific purposes (e.g. for future birch bark canoe builds and birch syrup harvesting) while employing modern science techniques (e.g. using drones to monitor protected areas) we can create resilient landscapes that benefit both humans and nature.

BIRCH FIRESTARTER

Due to its high oil content, birch is a particularly flammable wood. The next time you are building a safe fire with an adult in a fireplace or fire pit, try using birch wood to begin your fire. Take a moment to take in the sweet smell of the burning birch—it has a unique aroma that many people find particularly pleasant.

EARTH

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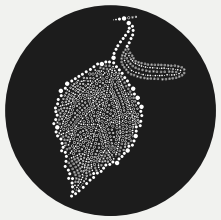


Did you know?

Birch bark can only be properly harvested at certain times in the season in order to ensure the tree survives from peeling its bark? According to Chuck Commanda, the best time to harvest birch is at the height of summer when the temperature is above 20 degrees Celsius. This is when there is the least amount of water in the tree's cambium layer. A skilled harvester will cut two parallel lines around the trunk at a certain distance apart, depending on the need, followed by a straight cut connecting them. When done correctly and at the right time of season the bark should easily open up and can be gently peeled off the trunk. In this way, the tree survives. These techniques have been used for centuries by Anishinaabe as well as Wabanaki peoples for harvesting bark for their shelters, canoes, containers and birch bark scroll paper.

Grandfather William Commanda | Keeper of the Seven Fires Wampum Belt of the Anishnabe (Algonquin) Peoples and often called "The Gandhi of the Indian World" | Source: Prayer Vigil for the Earth

It is believed that Anishinaabe diplomats used to affix the front of their diplomatic canoes with a T bar. This is where wampum belts were hung to signify the position of authority of the travellers, as well as the treaty under which the party travelling was taking place. The people in the vessel would be carriers of the language of those belts as the belts were not just symbolic but could be read like books. People have said that these diplomats were 'untouchable'—fluent in multiple languages, and specialists in the cultural customs of their own and their neighboring nations. Any act against these diplomats would be considered an act of war.

Prior to and even long after contact with Europeans, wampum was the means by which sacred diplomatic treaties and agreements between differing groups of Indigenous peoples and later Europeans, were made. Especially in the forests where birch trees thrive. Chuck Commada spoke fondly about his Mishomis—Grandfather—William Commanda, who was carrier of a seven fires prophecy wampum belt. This belt is thought to be the original treaty amongst the Anishinaabeg nations that directed their migration from the east coast to the Great Lakes. This wampum belt captures the story of the seven prophecies, which says that humanity will ultimately end up with a choice between materiality and spirituality. Choosing the second option of a life of spirituality would lead humanity through the current 7th fire and onward to the lighting of the 8th and final fire, which would be a time of peace between all people and beings of the earth.

BIRCH TREES AS A MODEL FOR SUSTAINABILITY

Birch trees have been used by Indigenous peoples for centuries as a resource for crafting, building, and sustaining livelihoods without depleting habitat. By studying birch trees, modern society can learn valuable lessons in sustainability, resource management, and the importance of reciprocity—the practice of giving back to nature for what is taken.

INDIGENOUS CONSERVATION PRACTICES:

Selective Harvesting: Only mature birch trees are harvested, and great care is taken not to damage the tree's inner bark after harvesting, ensuring it can continue to grow. Chuck Commanda spoke about how, when he seeks trees for his canoe build, he tries to find trees that are nearing the end of their lifecycle to harvest. His grandparents taught him to spot viable trees that may only live for 5-10 more years. He learned to speak to these trees with tobacco, to let them know that he was taking from them so they could be repurposed and that they would live on in a new form long into the future. This kind of relationship with trees is being lost today and this is the kind of cultural knowledge we are trying to restore through these tree documents.

Land Stewardship: Anishinaabe and Haudenosaunee peoples who still practice their cultures view themselves as stewards of the land. This land stewardship philosophy can inform modern conservation efforts by ensuring students learning about conservation recognize that as humans they are just one part of the ecosystem. Anishinaabe and Haudenosaunee groups, amongst other Indigenous peoples, who are focused on restoring their traditional cultures and lands are informing conservationists about the importance of seeing far into the future. Rather than exploiting forests and clearcutting them for profits, a practice that produced a lot of waste and toxicity, Anishinaabe and Haudenosaunee knowledge can teach communities, especially forestry industries, to ensure the balance within ecosystems is maintained as harvesting unfolds. We must ensure future generations can witness trees that are hundreds of years old, but that means changing our destructive forestry practices now so future generations can benefit. This is why initiatives like the Canadian Council of Forest Ministers Indigenous Engagement committee effort is so important.

BIRCH BARK ARTWORK

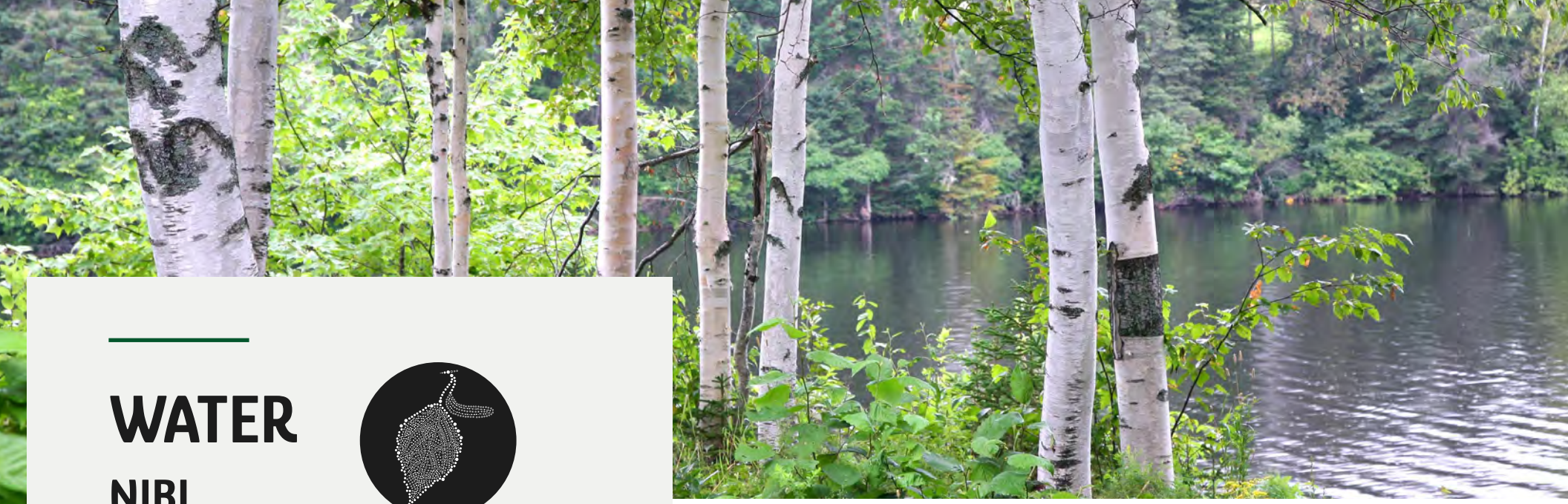
The paper-like texture of birch bark makes a unique canvas for painting or drawing. Gather pieces of naturally shed birch bark and bring them indoors to dry. When the bark is fully dry, use markers, paint, or pencil crayons to create a piece of artwork on your bark.

APPLICATION TO MODERN FORESTRY:

Sustainable Forestry Certification: Programs such as the Forest Stewardship Council (FSC) aim to promote responsible forest management, ensuring that birch trees and other species are harvested in a way that maintains the health of forest ecosystems.

Ecological Restoration: The knowledge of how birch trees act as pioneers in forest recovery is valuable for ecological restoration efforts, particularly in areas affected by logging, mining, or natural disasters. That said, seed saving efforts are also needed to ensure enough variety and acclimatization happens over the coming years. Birch tree seed collection however is a science. It requires knowledge of correct timing, appropriate collection methods, an assessment of the ripeness of the seeds, knowledge of the right places to harvest from, post harvest handling and seed storage conditions, cold stratification, as well as proper seed planting techniques. Schools today can play a role in including some of this knowledge, especially in areas where birch is viable, to lessen the responsibility on the forest industry.

Click to view: **Harvesting Birch Tree Seeds** *(Video: 2:58)*



WATER

NIBI

Birch trees have a profound relationship with water, playing essential roles in both natural ecosystems and cultural practices. Their shallow but expansive root systems make them highly effective at stabilizing the soil along riverbanks and preventing erosion. These roots slow the flow of water, allowing sediment to settle and contributing to the clarity and health of bodies of water. Birch trees also act as natural water purifiers, absorbing excess nutrients and filtering contaminants from the soil, which helps maintain balanced aquatic ecosystems.

During early spring, birch sap—often referred to as birch water—is harvested for its hydrating and medicinal properties. This clear, slightly sweet liquid is considered a gift from the Earth, offering nourishment after a long winter. Among the Anishinaabe and Haudenosaunee, birch sap is valued not just for sustenance but also for its ceremonial significance, often used in spring renewal ceremonies that honor the water cycles and the interconnectedness of all life.

Birch leaves and bark also play a role in hydrology by capturing rainwater and slowing its descent to the ground. This reduces surface runoff, minimizes erosion, and helps recharge groundwater supplies. In this way, birch trees contribute to water conservation and the overall health of their surrounding environments.

Did you know?

Birch trees can absorb and transport large quantities of water, helping to regulate moisture levels in the soil and nearby waterways. This ability allows them to thrive in both wetland and upland areas, making them crucial components of diverse ecosystems.

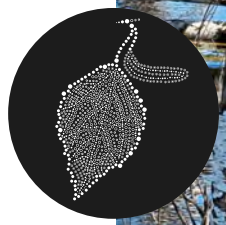
STORYTELLING

Among Indigenous peoples, including the Anishinaabe and Haudenosaunee, birch is often seen as a symbol of resilience and protection, especially in relation to water. Stories passed down through generations teach that birch trees are guardians of rivers and lakes, standing tall to protect these vital sources of life. Birch bark canoes, crafted from the tree's bark, allowed Indigenous communities to navigate waterways, connecting distant villages and facilitating trade, storytelling, and cultural exchanges. This relationship with water remains a testament to the birch's enduring role as both a physical and spiritual bridge across generations.

REGIONAL KNOWLEDGE

The role of birch in water ecosystems can vary by region. In the northern boreal forests, birch trees often grow alongside wetlands, lakes, and rivers, where they are essential to maintaining healthy water systems. Knowing the specific relationship between birch and water in your region—whether it's through traditional knowledge or ecological studies—deepens connections to the water and helps guide sustainable practices in water stewardship.

Water is called nibi in Anishinaabemowin and cultural teachers emphasize its sacred and life-giving nature. By understanding the birch tree's role in safeguarding nibi, we learn the importance of protecting both the tree and the water, honoring the balance they sustain.



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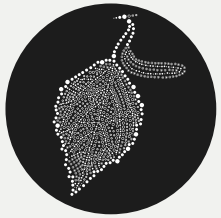


Did You Know?

Birch trees are vital to many ecosystems, thriving in diverse climates across the Northern Hemisphere. Birch trees are monoecious, meaning they bear both male and female flowers on the same tree. A mature paper birch can produce around 130,000 seeds in a single season and millions over its lifetime.

The birch's distinctive white bark, can reflect sunlight, reducing heat stress on the tree. Birch trees contribute to air quality by absorbing carbon dioxide and releasing oxygen. A mature birch tree can produce up to 100 litres of oxygen daily, helping to support life around it.

ACTIVITY

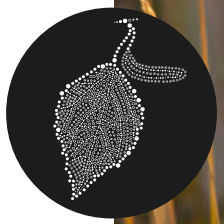
Next time you see a birch tree, take a moment to observe its bark, leaves, and surrounding ecosystem. Listen to the sounds the leaves make in the wind. Try making bark rubbings with paper and charcoal or sketch the tree's surroundings to see how many plants and animals are connected to its presence.

Did You Know?

Birch's natural oils and tannins give it a distinct aroma, often described as fresh, sweet, and slightly minty. Birch essential oils are used in modern herbal medicine and aromatherapy for their calming and cleansing effects.

CHALLENGE FOR TODAY

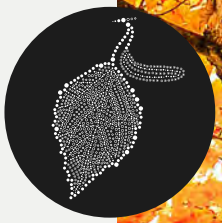
How can we restore ecosystems by planting birch alongside other native species to rebuild thriving, biodiverse landscapes? Indigenous practices of deliberately planting and nurturing these relationships offer a blueprint for future ecological restoration.



BIRCH BARK BUOYANCY

Many birch trees naturally shed moderate amounts of bark. Collect pieces of birch bark from beneath a local birch tree to bring indoors. Fill a large container or bathtub with water and gently place a dry piece of birch bark on the surface of the water. Birch bark is a naturally water-resistant material due to its high content of betulin, a waxy substance that repels water and protects the tree. See how many small sinkable objects you can balance on your floating birch bark without it tipping or sinking. Possible sinkable objects from around the house may include paperclips, dimes, glass beads, bobby pins, or binder clips.

CONCLUSION



Birch trees represent more than just a component of Ontario's forests; they symbolize resilience, interconnectedness, and sustainability. From their role in local ecosystems to their cultural importance in Indigenous communities, birch trees offer valuable lessons in how we can live reciprocally with nature. By combining traditional Indigenous knowledge with modern conservation practices, we can ensure that birch trees, and the ecosystems they support, continue to thrive for future generations.

BIRCH WALK

There are multiple species of birch trees that vary in appearance. Next time you are out for a walk in a wooded area, see if you can find more than one type of birch tree. What features can you identify to tell them apart? What is the same and what is different?

FURTHER READING

CHILDREN & TEENS

Cochrane, T. (2023). *Making the carry: The lives of John and Tchi-Ki-Wis Linklater*. University of Minnesota Press.

"An extraordinary illustrated biography of a Métis man and Anishinaabe woman navigating great changes in their homeland along the U.S.-Canada border in the early twentieth century John Linklater, of Anishinaabeg, Cree, and Scottish ancestry, and his wife, Tchi-Ki-Wis, of the Lac La Croix First Nation, lived in the canoe and border country of Ontario and Minnesota from the 1870s until the 1930s. During that time, the couple experienced radical upheavals in the Quetico-Superior region, including the cutting of white and red pine forests, the creation of Indian reserves/reservations and conservation areas, and the rise of towns, tourism, and mining. With broad geographical sweep, historical significance, and biographical depth, Making the Carry tells their story, overlooked for far too long. John Linklater, a legendary "Indian game warden" and woodsman without peer, was also the bearer of traditional ecological knowledge and Indigenous heritage, both of which he was deeply committed to teaching others. He was sought by professors, newspaper reporters, museum personnel, and conservationists-among them Sigurd Olson, who considered Linklater a mentor. Tchi-Ki-Wis, an extraordinary craftswoman, made a sweeping array of necessary yet beautiful objects, from sled dog harnesses to moose calls to birch bark canoes. She was an expert weaver of large Anishinaabeg cedar bark mats with complicated geometric designs, a virtually lost art. Making the Carry traces the routes by which the couple came to live on Basswood Lake on the international border. John's Métis ancestors with deep Hudson's Bay Company roots originally came from Orkney Islands, Scotland, by way of Hudson Bay and Red River, or what is now Winnipeg. His family lived in Manitoba, northwest Ontario, northern Minnesota, and, in the case of John and Tchi-Ki-Wis, on Isle Royale. A journey through little-known Canadian history, the book provides an intimate portrait of Métis people. Complete with rarely seen photographs of activities from dog mushing to guiding to lumbering, as well as of many objects made by Tchi-Ki-Wis, such as canoes, moccasins, and cedar mats, Making the Carry is a window on a traditional way of life and a restoration of two fascinating Indigenous people to their rightful place in our collective past"-- Provided by publisher.

Flahive, J., & Donald, S. (2019). *The canoe maker: David Moses Bridges, Passamaquoddy birch bark artisan.* Maine Authors Publishing.
Young Tobias is on a quest with his father, David Moses Bridges, the tribe's master canoe maker. Together they go deep into the Maine woods to find the perfect birch and to gather spruce roots, cedar, and spruce gum to build a canoe in the "old ways." In this magical tale, David weaves Native American storytelling into the ancient art and spirituality of canoe making, including the heart-rending mythological legend of the partridge, the first canoe maker.

FOR TEACHERS

Basket-making: from traditional craft to gallery exhibit | Made from this Land [Video]

Deyohahá:ge:- Indigenous Knowledge Centre Hodinohso:ni Art Lesson #13: Basket making [lesson]

How to build a canoe, using birchbark and materials harvested from the land | Mi'kma'ki : Gwitna'q [Video]

Inspired to Make: Stories of the Onkwehón:we - Stephen Jerome [Video]

GENERAL READERS

Erickson, B., & Krotz, S. W. (2021). *The politics of the canoe*. University of Manitoba Press.

"Popularly thought of as a recreational vehicle and one of the key ingredients of an ideal wilderness getaway, the canoe is also a political vessel. A potent symbol and practice of Indigenous cultures and traditions, the canoe has also been adopted to assert conservation ideals, feminist empowerment, citizenship practices, and multicultural goals. Documenting many of these various uses, this book asserts that the canoe is not merely a matter of leisure and pleasure; it is folded into many facets of our political life. Taking a critical stance on the canoe, The Politics of the Canoe expands and enlarges the stories that we tell about the canoe's relationship to, for example, colonialism, nationalism, environmentalism, and resource politics. To think about the canoe as a political vessel is to recognize how intertwined canoes are in the public life, governance, authority, social conditions, and ideologies of particular cultures, nations, and states. Almost everywhere we turn, and any way we look at it, the canoe both affects and is affected by complex political and cultural histories. Across Canada and the U.S., canoeing cultures have been born of activism and resistance as much as of adherence to the mythologies of wilderness and

nation building. The essays in this volume show that canoes can enhance how we engage with and interpret not only our physical environments, but also our histories and present-day societies."-- Provided by publisher.

Frey, J., Secord, T., Mize, R., Hamilton, A. J., Hoska, D., DeSimone, J., Portland Museum of Art, Art Institute of Chicago, & Bruce Museum. (2024). Jeremy Frey: *Woven*. Rizzoli Electa.

Frey (Passamaquoddy) is one of the most respected Indigenous basket makers working today. Descended from a long line of basket makers, his work is known for its intricate design and exquisite artistry, which reflect both traditional techniques and his own creative vision.

This catalogue considers his work from a variety of perspectives. Secord, whom Frey credits for guiding his career as the founder of Maine Indian Basketmakers Alliance, contributes a detailed biographical essay. DeSimone situates Frey's work in the broader field of contemporary art, with a specific focus on the new video work he is making for the exhibition. Hoska focuses on Frey's art in the broader context of Native basket and fiber arts. And Mize considers the ways in which his expanding practice registers ecological knowledge, time, and the impact of climate change.

Gidmark, D. (2023). *Birchbark canoe: Living among the Algonquin*. Firefly Books.

Discover the dying art of birchbark canoe building as seen through the eyes of someone who is passionate about it. In this book David Gidmark tells the story of the building of a traditional birchbark canoe and his apprenticeship learning the skills and the language of the Algonquin of western Quebec. Through learning how to do (how to strip the bark from the tree, fashion gunwales from the cedar logs, carve the ribs with a crooked knife and sew the huge sheets of bark onto the frame with spruce root) David Gidmark learns how to see the wilderness and relate to it in Algonquin ways that are very different from ours. As his knowledge increases, so does his respect for the culture and wisdom of native peoples. Part way through this odyssey, he meets his future wife, Ernestine, a young Ojibway woman who was taken at the age of five from her family and placed in a residential school. As she and David made a life together in the woods, she was able to begin relearning her language and culture. --Provided by publisher.

"Braiding Sweetgrass" by Robin Wall Kimmerer
This book explores the intersection of Indigenous wisdom and environmental science. It includes discussions on various trees, including birch, and how they are interwoven with cultural practices and ecological balance.

"Birch: A Human History" by Anna Lewington
An in-depth look at the history, uses, and significance of the birch tree across different cultures, including its role in Indigenous societies for crafting, shelter, and medicine.

"The Hidden Life of Trees" by Peter Wohlleben
Although not focused solely on birch trees, this book offers a fascinating look at how trees, including birch, communicate, grow, and support ecosystems. It ties ecological insights with Indigenous ideas of interconnectedness in nature.

"The Nature of Things: Birch Trees and Indigenous Knowledge" (Anthology)
A collection of essays and stories from Indigenous perspectives, offering insights into the cultural, spiritual, and ecological importance of birch trees, especially for the Haudenosaunee and Anishinaabe peoples.

Wiigwaaskingaa, "land of birch trees" : Ojibwe stories

ARTICLES AND JOURNALS:

1. "The Ecological Role of Birch Trees in Boreal Forests" by Canadian Journal of Forest Research
   This article discusses the role of birch trees in maintaining forest ecosystems, particularly in boreal forests. It provides scientific insights into the tree's contribution to biodiversity and soil health.
2. "Birch Bark Canoes: The Indigenous Craft that Shaped North America" by Canadian Geographic
   This article examines the historical and cultural significance of birch bark in canoe making, with particular emphasis on its role in the survival and mobility of Indigenous peoples in the Great Lakes region.
3. "The Medicinal Uses of Birch Trees in Indigenous Communities" by Journal of Ethnopharmacology
   This peer-reviewed article explores the traditional medicinal uses of birch tree bark, sap, and leaves in Indigenous healing practices across North America.
4. Anderson, D. G. (1991). Examining prehistoric settlement distribution in eastern North America. Archaeology of Eastern North America, 1-22.
5. Liu, Z., & Evans, M. (2021). Effect of tree density on seed production and dispersal of birch (Betula pendula Roth and Betula pubescens Ehrhs). Forests, 12(7), 929.

WEBSITES:

1. Ontario's Biodiversity Council
   https://ontariobiodiversitycouncil.ca
   Provides information about biodiversity in Ontario and conservation strategies for various species, including birch trees.
2. Indigenous Environmental Network
   https://www.ienearth.org
   Focuses on Indigenous-led environmental conservation efforts, with resources and case studies related to forest and land stewardship.
3. Invasive Species Centre – Birch Trees
   https://www.invasivespeciescentre.ca
   Provides up-to-date information on the threats posed to birch trees by invasive species and pests, along with conservation efforts to protect these vital ecosystems.
4. Ontario Parks – Birch Trees and Forest Ecology
   https://www.ontarioparks.com
   Offers educational resources on birch trees, their ecological role in Ontario's forests, and how park conservation programs are helping to preserve them.
5. Woodland Cultural Centre
   https://woodlandculturalcentre.ca
   A rich resource for understanding the cultural significance of birch trees to the Haudenosaunee and Anishinaabe peoples, with an emphasis on art, traditional crafts, and historical teachings.
6. Forest Stewardship Program
   https://fsc.org/en
   FSC is a non-profit organization, providing trusted solutions to help safeguard the world's forests and tackle today's deforestation, climate, and biodiversity challenges
7. History on the fox: Those marvelous Ojibwa birch bark canoes
   https://historyonthefox.wordpress.com/2013/11/04/those-marvelous-ojibwa-birch-bark-canoes/
   A brief story about the importance of birch bark canoes and their uses at the time of contact.
8. Seven Fires Prophecy of the Anishnabe People and the Process of Reconcillation
   https://www.oneprayer.org/Seven_Fires_Prophecy.html
   This site provides an explanation of the seven firest prophecy, along with an image of William Commanda holding up the famed seven fires prophecy wampum belt.
9. Canadian Council of Forest Ministers
   https://www.ccfm.org/canadians-and-communities/indigenous-peoples-and-forests/
   Site that highlights the efforts for indigenous engagement in the forestry sector.

10. Forest Resources Ontario 2016
    https://www.ontario.ca/document/forest-resources-ontario-2016/white-birch-forest-type Website with maps highlighting the range of White Birch in Ontario.
11. Ferns and Feathers - Woodland wildlife gardening and photography - How long before Paperbark Birch trunks turn white?
    https://www.fernsfeathers.ca/main-blog/how-long-before-birch-trees-turn-white
12. Georgian Bay Biosphere - Mnidoo Gamii - Wiigwaas Jiimaan - Birch Bark Canoe
    https://georgianbaybiosphere.com/wiigwaas-jiimaan/
    Website showing images and video of a community effort with youth to build a birch bark canoe.
13. Canada's Local Gardener - Common Birch Tree Pests
    https://localgardener.net/common-birch-tree-pests/
    Website highlighting common birch tree pests, what to look out for, and the impact on the trees.
14. What Is Birch Water? Benefits and Downsides
    https://www.healthline.com/nutrition/birch-sap#_noHeaderPrefixedContent
    This website highlights some of the health benefits of birch water and syrup.

EDUCATIONAL VIDEOS:

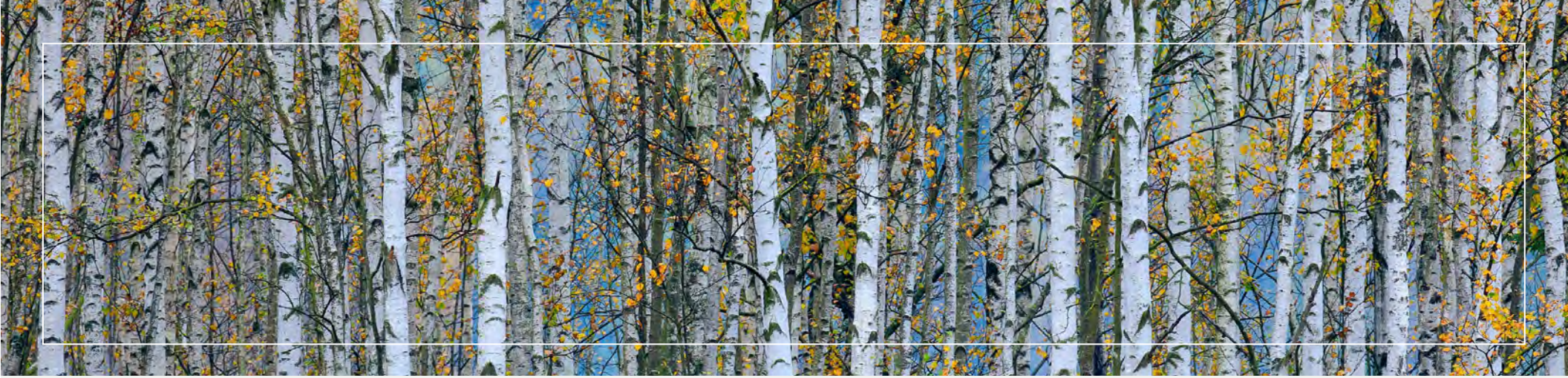
1. "Birch Bark Canoe: Traditional Crafting Techniques" (Documentary)
   Available on YouTube or the National Film Board of Canada website, this documentary showcases Indigenous master crafters building birch bark canoes, offering an educational look into the techniques and cultural significance of this traditional practice.
2. "The Birch Tree's Role in Boreal Forests and Indigenous Culture" by Science North
   This educational video explains the ecological importance of birch trees in northern forests and highlights Indigenous perspectives on birch trees' cultural and spiritual roles.
3. "The power of a tree: why birch and its bark are so important to Anishinaabe culture | Wiigwaasabak" - CBC documentary (Can be found on youtube) - Anishinaabe women share how the birch tree, its bark and the traditional crafts that come from this significant tree have transformed their lives.

WORKSHOPS AND COMMUNITY PROGRAMS:

1. Birch Bark Canoe-Building Workshops
   Various Indigenous cultural centers across Canada, such as the Anishinaabe Cultural Centre, offer hands-on workshops where participants can learn traditional birch bark canoe-making techniques from Indigenous knowledge keepers.
2. Sustainable Birch Tree Harvesting Programs
   Some organizations, such as the Sustainable Forestry Initiative, collaborate with Indigenous communities to teach sustainable harvesting techniques, focusing on birch trees and their role in traditional crafts and ecological preservation.

CONCLUSION:

This resource list offers a comprehensive set of tools for educators, students, and conservationists interested in exploring the ecological, cultural, and spiritual significance of birch trees. It integrates both Indigenous knowledge systems and scientific perspectives, ensuring a holistic understanding of the role birch trees play in ecosystems and Indigenous cultures. Many of the above resources were used to inform the development to this resource.



CREDITS

PROJECT LEAD

Dr. Lynda E. C. Colgan
Executive Director,
Education and Development,
Science Rendezvous

PROJECT ADVISOR

Kathleen Miller
Science Rendezvous

CONTENT DEVELOPMENT

Tyler Ashford

Dr. Lindsay (Kawennenha:wi) Brant

Mkomose, Oshkaabewis

INDIGENOUS KNOWLEDGE KEEPERS

Mkomose, Oshkaabewis

Chuck Commanda

QUEEN'S EDUCATION LIBRARY

Brenda Reed

Shelley Woods

GRAPHIC DESIGN

Cheryl Hallam
Hallam Design

WIIGWAASAATIG TEACHINGS