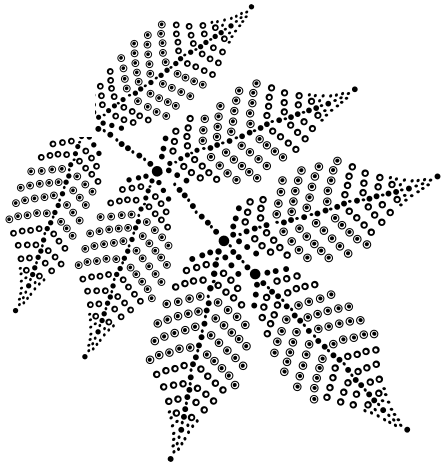

BAAPAAGIMAAK
TEACHINGS

Sponsors

Baapaagimaak Gikinoo'aamading (Ash Teachings)

The Baapaagimaak 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 ash 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 Baapaagimaak Teachings.

7 generations symbolized



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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.

Baapaagimaak 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 Baapaagimaak Teachings, and we invite everyone to reflect on all the traditional territories on which we live. Baapaagimaak 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 Baapaagimaak 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

“When I was first invited to write about Ash trees, a flood of stories rushed through me. This is what it is like to be Anishinaabe, as far as I have come to learn. Over the years, stories are told by different peoples in different places on different occasions and while their focus may not specifically be about Ash trees in the moment of their telling, as someone who has consistently worked with lands, this has been the filter through which I have come to interpret many of these stories and the means by which I have come to paint an image inside my mind and heart of the past. As more and more stories are told and those stories are combined with research, dreams and practical experiences, that picture of the past begins to evolve. My mosaic of stories has made me appreciate the Ancestors in a way that is hard to communicate fully. For this reason, I made my offerings to the land and to the Ancestors so they could help guide what it is I should communicate.

For this Ash Tree Teachings resource, I decided to focus primarily on Ash Baskets—Kokibinaagnanag—in Anishinaabemowin. This is because, as I have come to learn more about and restore Indigenous food systems throughout Turtle Island (present day North America), I have come to realize the extraordinary extent to which baskets or containers (whether they be made from birch, maple, oak, sweetgrass, or even clay), played in the development and establishment of these civilizations. All the people whom I know and/or who work on the land, own an array of different kinds of baskets and containers that they use regularly—baskets or containers once used or continue to be in use, matter now as they mattered before. For example, later in this Baapaagimaak Gikinoo’aamading - Ash tree Teachings resource, we offer an analysis on the amount of corn that may have been harvested by one Iroquoian village of 2,000 people. The total may surprise you. I estimate, based on the best numbers I have available to me now, that in just this one community, approximately 700,000 pounds (317,00 kilograms) of corn was harvested by hand annually. To me, as someone who has grown corn for over a decade, this number is staggering! The number of high-quality baskets to do this work and the work required to make those baskets is something very few can fully appreciate.

While stories and research like this are remarkable in many ways, there is one story that may be even more remarkable. It is a story that has stuck with me and guided my work for nearly two decades and is a story that was shared in a fleeting moment after a ceremony I attended in southwestern Ontario. I hesitated to include this story, because some stories are simply not meant to be shared publicly. However, I feel I would be doing an injustice to the Ancestors if I failed to include it here.

Many people are aware of the famed dikinaagan - Anishinaabe cradleboards. It is said that infants were placed in these Ash tree-based carriers for at least a year before they were allowed to be placed on the aki - earth. And while you can find lots of information about dikinaagan online and even incredible examples of the craftspeople who still make them today and those who've made them in the past, there is a story about an Ash basket that I have heard only one time. It is a story about our Elders.

In this story, a young Anishinaabe man, who I believe worked in the field of Archeology, was speaking about an oddly shaped Ash basket that had been in a collection of Ancient Indigenous artifacts. For some reason, this large Ash basket had two holes in the bottom of it. Many people were perplexed about the practical use that this basket had. Surely it was no good for carrying any harvest material: objects would have simply fallen out the bottom. As the mystery of this Ash basket grew, people started asking the Elders about it and finally one had an Ancestor who was willing to share the story. This Elder spoke about the love we used to have for our Elders. How our Elders were like our living libraries and how some lived very long lives, perhaps into their early hundreds. This Elder explained that this was no harvesting basket. This was used to transport the Elders across long portages when the journey became too difficult for them to do on their own.

For many reasons I have never forgotten this story and I remember at that time it brought tears to my eyes. It made me realize there was a time, not so long ago, when people were different. When Anishinaabe people were able to be so close and so in-tuned with their communities that we would have the kindness and humility to carry our Elders on our backs so that they could continue to travel with us until they finished their journey here on this earth.

As you learn about Ash in this resource, try and keep the memory of this story alive inside of you. Try to imagine what it would be like to carry your grandparents or even your great grandparents on your back to the places to which you travel, to show them how much you love them and how much you appreciate them for the life they have given you. This is what it is like to be Anishinaabe today. While many things have changed in our present society and there are many challenges that face us as Indigenous peoples, by recognizing the importance of trees through the filter of our past actions and our past stories of respect and kindness to our communities, we can begin to restore the wisdom of the Elders who w once carried on our backs in uniquely designed and exp crafted ash basket carriers. "

- Mkomose, Oshkaabewis

BAAPAAGIMAAK GIKINOO' (ASH) TEACHINGS

For Indigenous peoples in Canada, primarily those living within the range of the Kokibinaagnan (in Anishinaabemowin) - Ash Basket - makers, Ash trees (Fraxinus species), or Aagimakoog (White Ash) and Baapaagimaak (Black Ash) in the Ojibwe language, are amongst some of the most iconic tree species. Aagimakoog and Baapaagimaak are valued for their strong wood traditionally used in tool making like canoe paddles, ecological contributions vital to swamp habitat, and cultural significance including in the making of the renowned Kokibinaagnanag (in Anishinaabemowin) - Ash baskets.

Ash trees are currently under severe threat from the invasive Emerald Ash Borer beetle (EAB), which has devastated Ash populations across Turtle Island (North America) and could lead to their extinction before the end of this century. This module will cover the biology of Ash trees, their significance in ecosystems, their cultural importance for Indigenous peoples and their traditions, and the urgent conservation efforts needed to protect these trees for future generations.

WHAT IS THE SPECIES?

Baapaagimaakoog minawaa Aagimakoog - Black and White Ash trees - are found in forests extending from the east coast from Newfoundland down to the start of the Florida panhandle, all the way West to the great plains and rocky mountains, and all the way North to where the Canadian shield and

boreal forests begin. The oldest Ash tree fossil found on Turtle Island dates back to the **Eocene epoch** around 51 million years ago and was found in British Columbia. Ash trees have played a significant role in the lives of Anishinaabe, Haudenosaunee, and Wabanaki peoples throughout the Great Lakes as well as along the east Coast. There are 43 species of Ash tree found around the world. The most common species include Aagimak - White Ash (*Fraxinus americana*) and Baapaagimaak - Black Ash (*Fraxinus nigra*), both of which are integral to forest ecosystems as well as in the cultures of several Indigenous groups. There are also a Green Ash tree species in Canada.

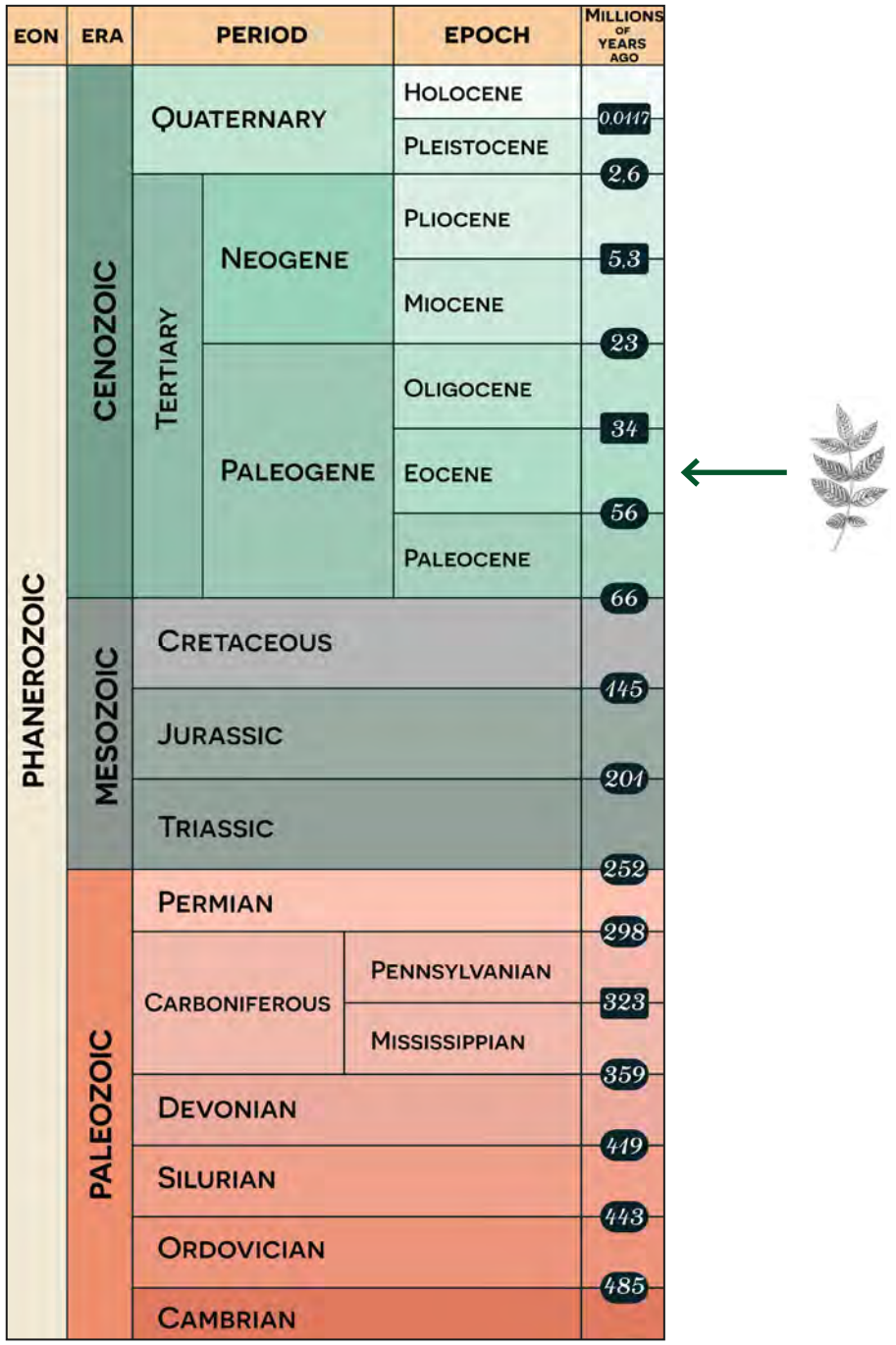
Species of Ash in Ontario:

1. Aagimakoog - White Ash (Fraxinus americana): The largest of the Ontario Ash species, white Ash can grow up to 30 metres in height and is recognized by its diamond-patterned bark and compound leaves with 5 to 9 leaflets. It is traditionally used for paddles due to its straight grain, and flexibility

2. Baapaagimaakoog - Black Ash (Fraxinus nigra): This species prefers wet, swampy areas and is valued for its flexible wood, which is used in traditional basketry and birch bark canoe making, by Anishinaabe, Haudenosaunee, Wabanaki, and other Indigenous peoples.

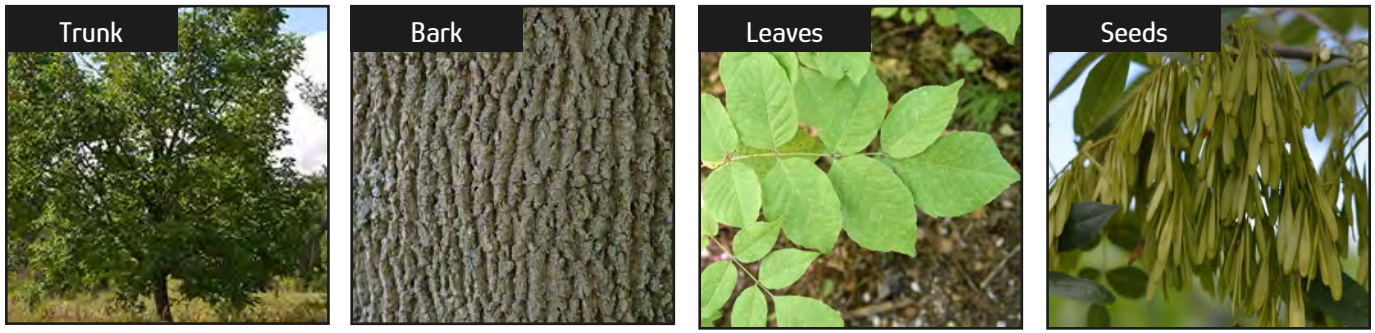
3. Green Ash (Fraxinus pennsylvanica): Often found in riparian zones, green Ash is highly adaptable to different environments and is frequently used in urban planting.

Geologic Time Scale



1. White Ash (Fraxinus americana)

Source: https://www.ontario.ca/page/white-ash



2. Black Ash (Fraxinus nigro)

Source: https://www.ontario.ca/page/black-ash

3. Green Ash (Fraxinus pennsylvanica)

Source: https://www.ontario.ca/page/black-ash

Ecological Role:

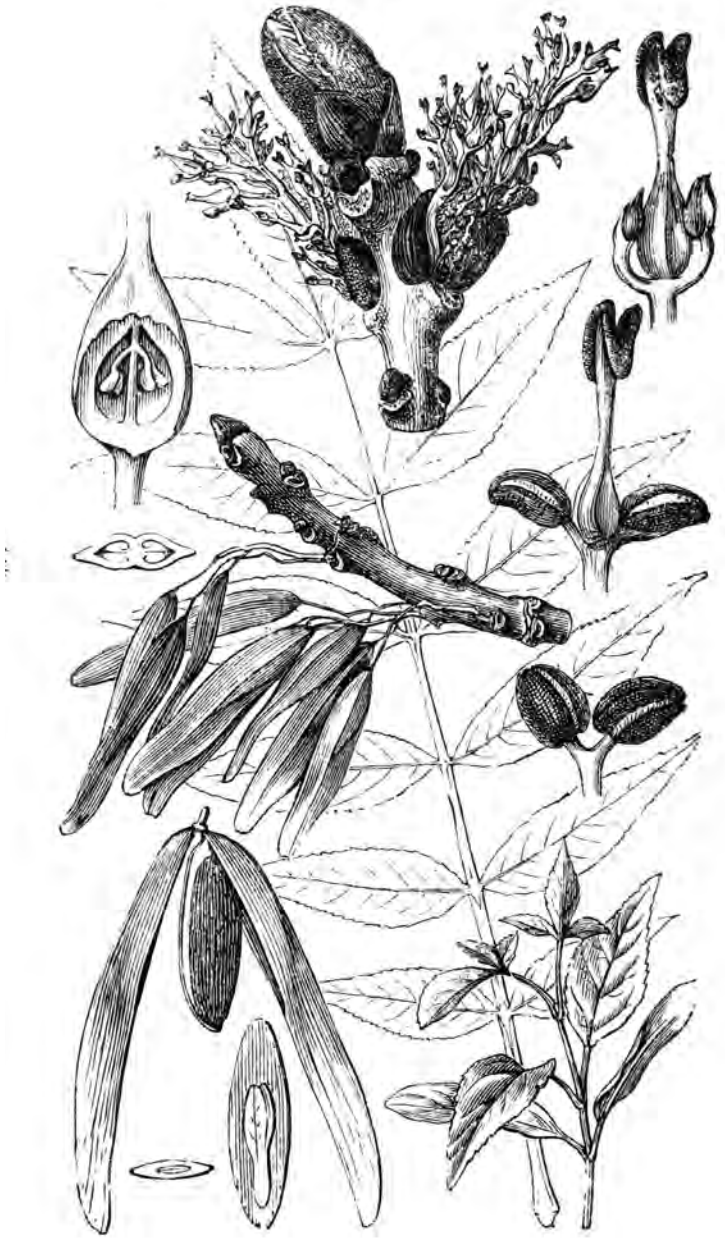
Ash trees contribute to the structure and biodiversity of Canada's forests. Their young leaves provide food for White Tail Deer and their twigs are eaten by Porcupines and Beavers. Their branches and hollows also support bird populations like Woodpeckers, Wood Ducks, and Owls. Their seeds (known as "keys" or samaras) are consumed by mammals like squirrels and mice, and various birds like Nuthatches. Ash trees also enhance soil health, because their deep roots help with water filtration and prevent erosion along riverbanks.

Lifecycle of Ash Trees:

Germination and Growth: Ash trees can be fast-growing, given the right conditions, typically maturing in 40 to 60 years. They reproduce through wind-dispersed seeds, which sprout best in moist soils.

Longevity:

In optimal conditions, white Ash trees can live over 200 years, providing long-term habitat and ecological benefits in forests and urban areas alike.



FIRE

ISHKODE

Ash trees played a critical role in traditional fire practices, which were used to control undergrowth in the forests that were designed by indigenous civilizations. Given that the best Ash trees for basketry grow in or on the edges of swamp lands, these trees were naturally protected from cultural burns. Swamp lands play a crucial role in designed ecosystems as they contain a rich biodiversity of insects, birds, mammals, reptiles, and many other species. Given the extent of the harvesting practices in Southern Ontario to sustain communities, protecting Ash trees from fire or disease was critical to the survival of the Indigenous peoples who made those regions their home. For example, at the Lawson archaeological restoration site, located in present day London Ontario, it was estimated that 600 acres of land was being cultivated by the time of contact in the early 1600s by a community of around 2,000 people. Based on an analysis of 400 acres of this land producing 35 bushels of corn per acre, we can estimate that over 317,514 kg of corn was harvested on average each season. Harvesting this corn would take upwards of 60 individuals working 8 hours everyday for two full weeks. The Ash baskets used to collect the corn had to be strong and expertly crafted to withstand the weight of the corn and as well as being filled up and emptied out nearly 25 times per day by each person. The natural habitat for Ash trees ensured they were in abundance for the communities that relied on them to thrive.

Did you know?

The wood of the Ash tree, known for its strength and flexibility, has been historically valued for making tools, sports equipment, and even furniture. Anishinaabe, Haudenosaunee and Wabanaki peoples utilized Ash for making baskets for transport and harvesting, quivers for arrows, fishing spears, fish traps, frames for snowshoes, lacrosse sticks, bows, **dikinaaganan** (cradle boards), and arrow shafts. If you consider just those uses it becomes clear just how critical Ash trees were in the lives of these Indigenous peoples. Ash trees were considered very sacred and offerings of reciprocity, like the laying down of tobacco, were always made when harvesting.

Recognized for its durability and lightweight nature once split, heavy supplies could be transported long distances securely using splint Ash baskets, which was crucial to the trade networks that various Indigenous groups throughout the great lakes regions, all along the St. Lawrence corridor and far beyond, relied upon for thriving, for generations.

Image Source: **The Ojibwe People's Dictionary**

THE ROLE OF ASH TREES IN FIRE MANAGEMENT

Ash trees, particularly the White Ash (*Fraxinus americana*) and Black Ash (*Fraxinus nigra)*, have a crucial relationship with fire within their ecosystems. While they are not particularly fire-resistant, their presence can influence fire behavior in beneficial ways. Their leaf litter and decomposing biomass can serve as fuel during controlled burns, but when managed appropriately, these fires can clear excess underbrush, preventing larger, uncontrolled wildfires.

Some Indigenous communities employed cultural burning practices to manage Ash populations, especially around swamps which encouraged new growth. Given also the role beavers play in swamp habitat and the importance of Beaver for clothing and food, these symbiotic relationships between the Ash, Beaver, and the peoples start to better be understood. By incorporating fire as a tool, they were able to enhance the productivity of Ash groves and maintain healthy forest habitats, allowing other flora and fauna to thrive.

CLIMATE CHANGE AND ASH TREES

How Climate Affects Ash Trees:

Temperature Changes

Ash trees flourish in temperate climates, making them vulnerable to the shifts in temperature fluctuations associated with climate change. Rising temperatures may lead to heat stress, affecting their growth and overall vitality. This is important especially when it comes to the cultural practice of Ash basketry. Basket makers search for specific characteristics like the size of growth rings, the number of knots and the condition of the bark to select the right tree to harvest. Climate change impacts all of these characteristics and the fluctuations in climate make selecting the right tree more difficult. As their suitable habitat like swamp lands dry out over time with rising temperatures, Ash trees, necessary to continue ancient traditions, will experience population declines.

Precipitation Patterns

Ash trees require moist, well-drained soils to prosper. Increased variability in precipitation can lead to prolonged drought conditions, stressing Ash trees and making them more susceptible to diseases and pests. Conversely, excessive rainfall can result in soil saturation, leading to root rot and a decline in tree health.

Pests and Diseases

The Emerald Ash Borer has devastated Ash populations in Canada and the United States, this invasive beetle poses a significant threat to the surviving Ash tree populations unless a dramatic intervention is found. It is extremely worrisome to note that, as temperatures warm, the beetle has increased its range, threatening entire Ash forest populations, decimating Ash trees, and leading to severe ecological disruption. Additionally, diseases such as Ash dieback further threaten these trees, leading to increased mortality rates.

Extreme Weather Events

With the rise of climate-fueled extreme weather, Ash trees face heightened risks from storms, droughts, and wildfires. High winds can result in broken branches or uprooted trees, while extreme drought can weaken their resilience against pests. The vulnerability of Ash trees to fire becomes a concern especially as their ideal habitat dries out and as they do not possess the thick bark characteristic of more fire-adapted species.

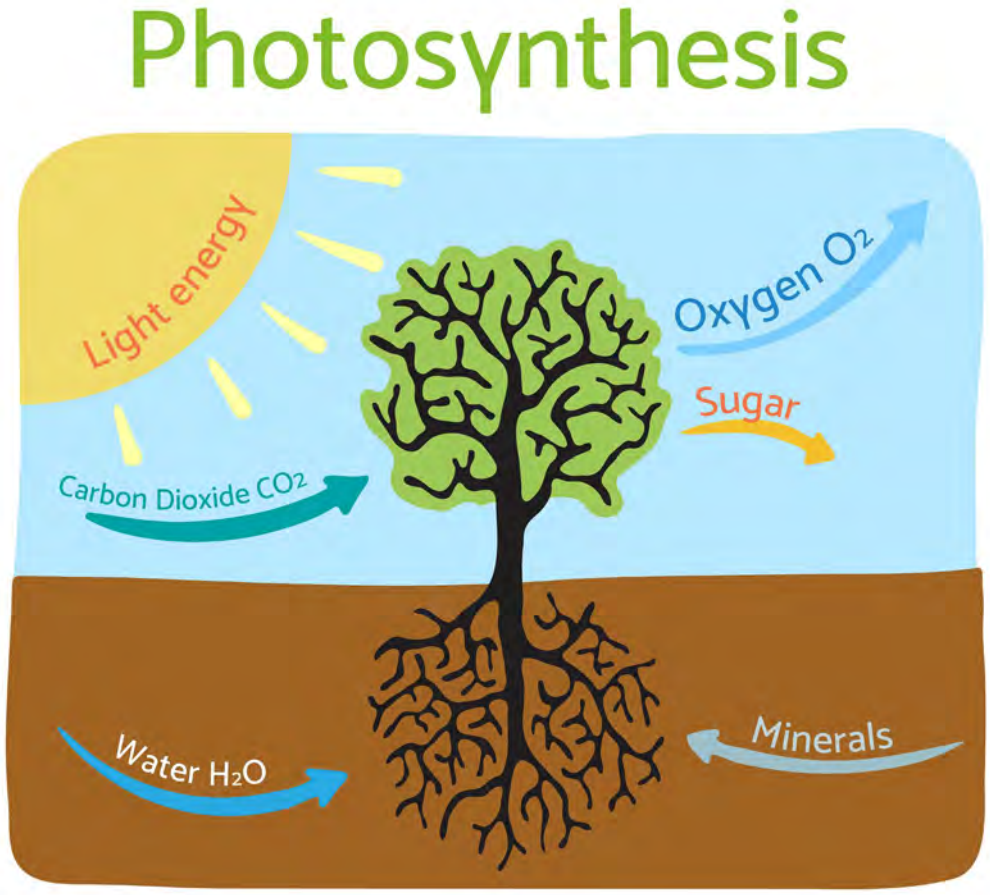
PRACTICAL AND CULTURAL ROLES OF ASH IN FIRE MANAGEMENT

Fuel Wood

The Ash tree, when harvested, provides excellent firewood. Its high heat value makes it an effective source for heating homes and cooking, which is especially important in traditional lifestyles that rely heavily on natural resources for daily sustenance.

Did You Know?

Ash trees are integral to the carbon cycle? Through photosynthesis, mature Ash trees sequester significant amounts of carbon dioxide each year, helping to mitigate climate change impacts. A single mature Ash tree can absorb roughly 60 pounds (27 kilograms) of carbon dioxide annually, contributing to the stabilization of ecosystems.



Soil Enrichment

Ash wood, when burned, leaves behind rich ash residue, which is often used to enhance soil fertility. This ecological practice mirrors the natural process of nutrient cycling, where fire returns essential minerals to the earth. This activity not only supports the immediate growth of plants but enriches the community of organisms reliant on healthy soil.

CHALLENGE FOR TODAY

With the looming threat of climate change on Ash populations due to pests, diseases, and extreme weather, how might we integrate traditional ecological knowledge to safeguard Ash forests? By working with, and learning from Indigenous peoples alongside Western science and conservation approaches, we can develop resilience strategies that protect Ash trees and sustain the ecosystems they support. It starts with recognizing the conserving the habitats in which Ash trees thrive, rekindling the traditional knowledges of communities who still practice the specialized arts of working with Ash to make culturally significant items and looking ahead to the future, as the climate warms, to plant Ash seeds in places where they may not yet be viable, so the cultural knowledge and the trees survive. Together, we can bring forth a future where Ash trees thrive, enriching both the land and the communities that depend on them.

EARTH

AKI

As the lingering chill of winter gives way to the warmth of spring and the ice breaks up on the lakes, rivers, and swamps, Ash trees emerge, from their dormant state, showcasing a robust stature and lush green foliage. The small, delicate samaras, or wing shaped, seeds can flutter long distances aided by the wind in the fall season. Towering giants that grace the forest canopy, Ash trees symbolize growth and resilience within the ecosystem.

Among the different species of Ash, the White Ash (*Fraxinus americana*) and Black Ash (*Fraxinus nigra*) stand out for their ecological significance. Ash trees develop a complex network of roots that interact with beneficial fungi, establishing a symbiotic relationship similar to that of birch and oak. This partnership enhances nutrient absorption and water retention, fostering a fertile foundation that encourages the growth of diverse flora in their vicinity. Moreover, the Ash tree's leaf litter enriches the soil as it decomposes, serving as a vital resource for small mammals and insects, which, in turn, supports a wide array of wildlife.

Did you know?

In a Wabanaki confederacy story, Glooscap shot arrows into the basket tree - the Ash - and out came people singing and dancing.

Forest Regions of Canada: Click here to explore the vast regions where Ash trees thrive, using the interactive map (Million Tree Project)

Ash trees typically flourish in forest types such as:

- White Ash (*Fraxinus americana*): Predominantly found in mixed and deciduous forests, thriving in moist, fertile habitats like river valleys and rich soils.
- Black Ash (*Fraxinus nigra*): Commonly found in wetland areas and along stream banks, often growing in association with other moisture-loving species like Cedar and White Birch.

By gaining an understanding of the Ash tree and its intricate connections with the environment, we can embrace its lessons of perseverance and interdependence, ensuring the vitality of our forests for generations to come.

Storytelling – The Ash Tree and the People's Connection
Mi_kmaq Creation Story (as told by Stephen Augustine)
Read the story here>

HELICOPTER SEED RACE

Ash tree seeds are also known as "keys" or samaras. Their 'helicopter' blade design causes them to spin and twirl as they fall through the air. Gather some of these ash samaras and bring them to the top of a safe ledge such as a playground, bridge, or staircase. With friends or family, each drop a "key" on the count of three. Watch closely to see whose 'helicopter' reaches the ground first! You may wish to use a marker or stickers to help identify whose "key" is whose.

SEED DISPERSAL EXPERIMENT

The 'helicopter' design of the ash samaras help to distribute the tree's seeds far and wide. Toss a handful of ash "keys" has high as you can into the air over asphalt or pavement so you can observe where they land. Using a measuring tape, or non-standard measurement unit like footsteps, measure the greatest distance you can find between two samaras. Is the design effective in dispersing the seeds?

ASH TREES AS A MODEL FOR SUSTAINABILITY

Throughout history, Haudenosaunee, Anishinaabe, and Wabanaki peoples, amongst other Indigenous groups, have benefited from designing, maintaining, and expanding Ash tree habitat throughout their lands. Ash trees play a vital role in their interconnected, and highly functional ecosystems. We look to the masters who locate and nurture the places where Ash groves flourish to teach us so that the trees can eventually be harvested, then cut, steamed, bent, and woven to equip you with an essential new pair of winter snowshoes: snowshoes that would allow you access to the same swamps where the trees were harvested, to trap beavers to feed and clothe your family, or perhaps to collect porcupine quills to accent your grandmother's finely woven Sweetgrass and Birch baskets. The sustainable practices that have ensured Ash trees have survived into the present time period offer invaluable lessons that emphasize a holistic perspective to those challenged with protecting Ash trees from the Ash Borer beetle or from climate change today. The masters of the past, who designed and nurtured incredibly biodiverse habitats in which Ash was just one element, amongst millions, always ensured children learned that when we take, we give back; and that we only take what we need. This simple principle of reciprocity allows the entire ecosystem to flourish, ensuring children yet unborn have the same opportunities to thrive that our grandparents ensured for us.

INDIGENOUS CONSERVATION PRACTICES

Selective Harvesting:

Indigenous peoples, in the regions where Ash were abundant, traditionally harvest only a portion of the Ash trees growing in their lands. The selection process took a keen eye. If trees grew too close together,the tree rings would be too brittle and if they grew too far apart,the rings may be too thick. Since Ash trees being used as baskets for transport and harvest, quivers for arrows, fishing spears, fish traps, frames for snowshoes, lacrosse sticks, bows, and arrow shafts all required different conditions for the highest quality product, it took the keen eye of the specialist in their particular craft to ensure the right tree and the right amount were harvested at the right time.

Land Stewardship:

It is difficult to describe the depths of the connections that the Ash masters had to cultivate to their Mother the Earth. It is the Elders who would have guided the younger generations with the teachings and wisdom passed down to them through generations to ensure that their expertise continued long into the future. Haudenosaunee, Anishinaabe, and Wabanaki peoples, amongst others, take seriously their responsibilities as caretakers and stewards of the land. Their focused highly intentional practices that maintained ecological balance is in stark contrast to the exploitive resource extraction done today.

APPLICATION TO MODERN FORESTRY

Sustainable Forestry Certification:

Organizations like the Forest Stewardship Council (FSC) promote responsible forest management, ensuring Ash trees and other species are harvested in ways that preserve the health of forested ecosystems. The organization has committed to working with Indigenous peoples to ensure traditional use and management practice are upheld.

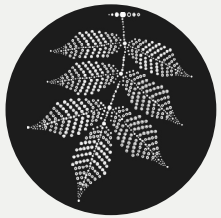
Ecological Restoration:

Understanding how Ash trees contribute to the recovery of ecosystems, especially as Ash relates to the stability of riverbanks and shorelines, makes them a valuable aspect of ecological restoration efforts. As the climate changes and heats up, water levels will rise in some areas. In these areas, especially those affected by human activity, which have altered the flow of waterways or where flooding events have deteriorated embankments, Ash can play a critical role in preventing erosion.

By integrating timeless practices with contemporary approaches, we can develop strategies that honour Ash trees and their role in supporting a thriving ecosystem. In doing so, we fulfil our responsibility to protect and preserve these majestic trees and the ecosystems they inhabit.

WATER

NIBI



Ash trees maintain a vital symbiotic relationship with water. Their extensive root systems influence the ecosystems they inhabit, often reaching deeply into the ground, which plays a crucial role in stabilizing soil along riverbanks. Mature Ash tree roots, under optimal conditions can absorb nearly 8400 litres of water annually. The ability to absorb that much moisture from the surrounding environment, helps to regulate water levels significantly. By slowly releasing that water back into the soil and with the **mycorrhizal mycelium** layer able to transport that water and its accompanying nutrients where it is most needed, Ash trees help to facilitate a balanced hydrological cycle and plant habitat ecosystem. By creating a network that binds soil and regulates water flow, Ash trees contribute significantly to the health of aquatic ecosystems especially.

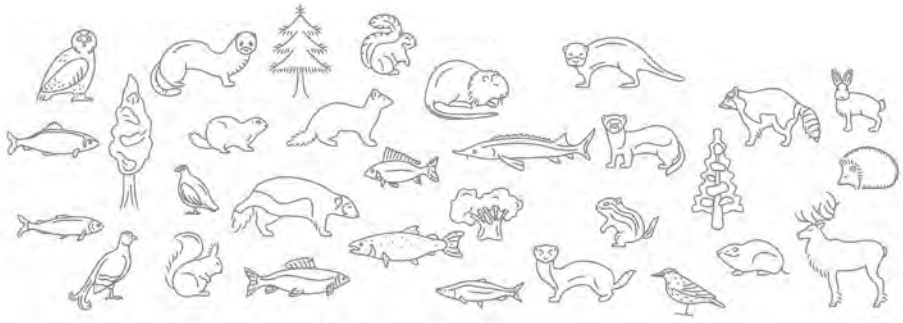
Just like the noble Maple, Ash trees can also be tapped for syrup production. In the early spring, when sap begins to flow, communities would engage in the traditional practice of tapping Ash trees to harvest its sap. This sweet, nourishing liquid serves as a rejuvenating resource after the harsh winter months, symbolizing renewal and the rejuvenation of life. Ash sap is treasured not just for its sustenance, but also for its connection to cultural practices that honor the water cycle and the interdependence of all living beings. Spring ceremonies often celebrate the return of water and the life it supports, reflecting the importance of this vital nutritional resource for the community.

The canopy of the Ash tree also plays a significant role in water management. Its broad leaves intercept rainfall, capturing water and allowing it to percolate gradually into the soil below. This process reduces surface runoff, helps recharge groundwater supplies, and minimizes erosion, contributing to the overall health and water conservation of its surrounding habitat. In this way, Ash trees not only support their ecosystems, but also foster biodiversity by creating environments where various plants and animals can thrive.

Did you know?

Ash trees can absorb and store significant quantities of water, assisting in the maintenance of moisture levels in both the soil and nearby waterways? This allows them to thrive in a variety of habitats, from wetlands to uplands, making them essential components of diverse ecosystems.

Mycorrhizal Mycelium: Beneath the forest floor lies a vast mycorrhizal network, where tiny fungal threads called mycelium connect trees, allowing them to share water, nutrients, and even communicate. Dubbed the "woodwide web," this underground system supports saplings, strengthens ecosystems, and sustains the delicate balance of forest life.



Spotted near the Ash Tree

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

TREES	PLANTS	AMPHIBIANS & REPTILES	MAMMALS	BIRDS	INSECTS
• Maple • Oak • Willow	• Wildflowers • Ferns • Grass	• Toads • Salamanders	• Deer • Squirrels • Raccoons • Beavers • Porcupines	• Woodpeckers • Nuthatches • Owls	• Butterflies • Bees • Beetles

EMERALD ASH BORER

The emerald ash borer is an invasive insect from Asia that has been present in Ontario since 2002 and has killed millions of ash trees in the Great Lakes area. Can you recognize the symptoms of an ash tree affected by the emerald ash borer? When on a nature walk where ash trees are present, look for "D" shaped exit holes about one half centimetre wide on the bark, observe shallow squiggly tunnels on fallen bark, find sawdust-like frass (refuse) around the tree, or notice yellowing or wilting foliage.

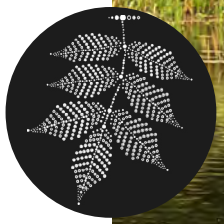
STORYTELLING

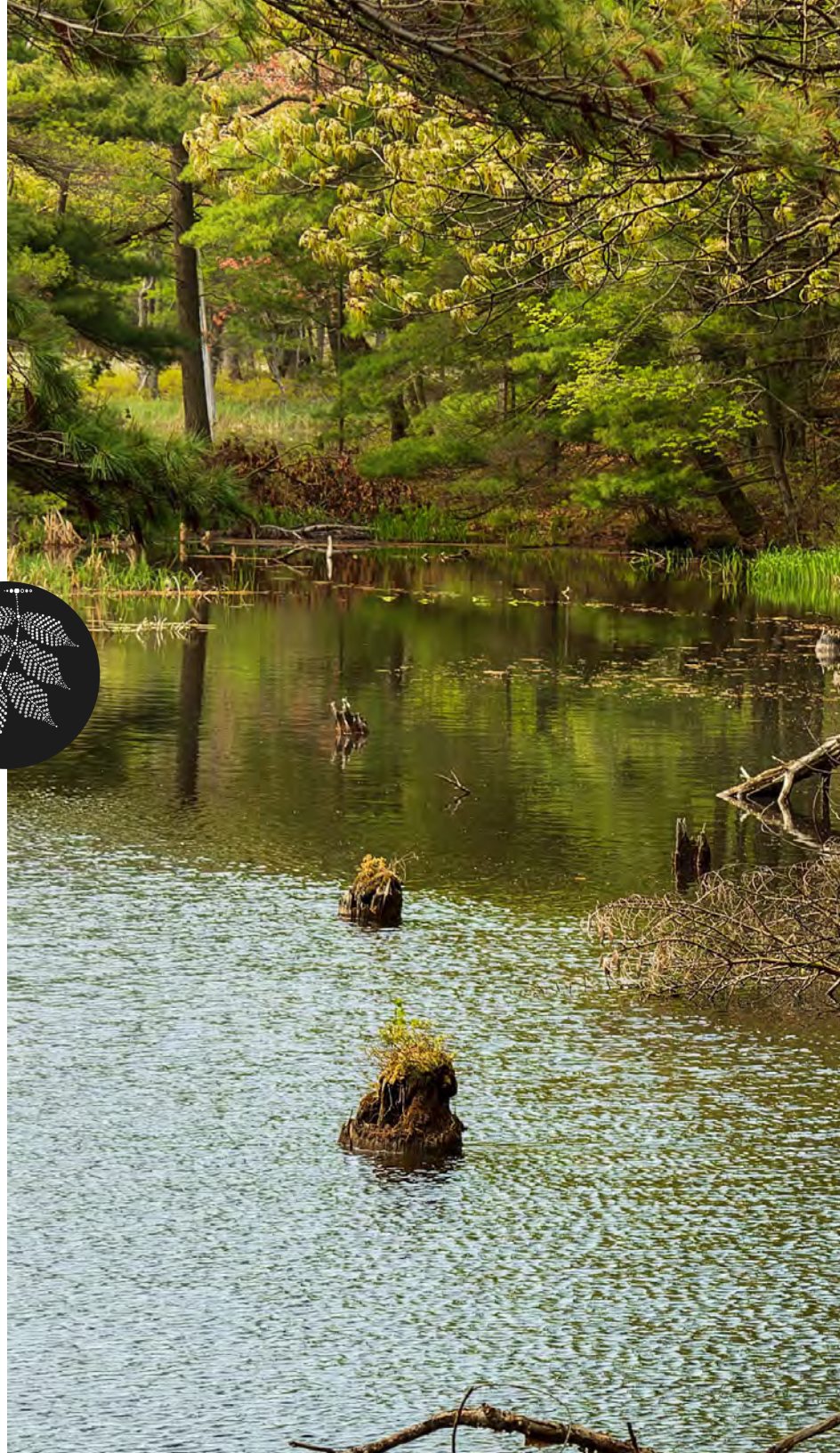
Among Indigenous Peoples, especially Wabanaki peoples, the Ash tree is often regarded as a symbol of resilience and strength, particularly in relation to water. Generations of stories passed down through time reveal how Ash trees serve as guardians of rivers, lakes, and wetlands, standing resolutely to protect these vital habitats. The community's connection to water is deepened through the crafting of the tools noted above and the ribs of canoes. These canoes, made with great care, allow people to navigate waterways, explore distant lands, engage in trade, exchange stories, and foster cultural knowledge transfers. The Ash tree thus stands as a testament to both physical and spiritual bridges connecting communities across time.

REGIONAL KNOWLEDGE

Understanding the specific relationships between Ash trees and water in your area—whether through traditional ecological knowledge or scientific research—can illuminate connection to land and guide sustainable practices in water stewardship.

In Anishinaabemowin, water is called "nibi," underscoring its sacred and essential nature. Recognizing the Ash tree's role in safeguarding nibi helps to reinforce the significance of both the tree and the water it nurtures. By honoring this balance, we can learn to protect these vital resources and ensure that the legacy of Ash trees, water, and the ecosystems they support endure for future generations.





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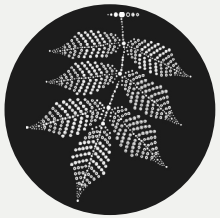


Did You Know?

Ash trees are significant components of various ecosystems, thriving in a range of climates across North America? Known for their towering presence and robust wood, Ash trees can grow quickly, especially in well-drained areas and floodplains. They are dioecious, meaning that male and female flowers develop on separate trees, helping them to efficiently reproduce and facilitate genetic diversity. Ash seeds, which are winged and lightweight, are dispersed by the wind, enabling them to germinate new areas effectively.

The Ash tree's compound leaves are not only beautiful but also play an essential role in air quality through their ability to absorb carbon dioxide and release oxygen. A mature Ash tree can release hundreds of litres of oxygen daily, supporting the life around it.

Ash basket makers and the makers of the other important cultural implements using Ash, understand the extent to which the wind has affected the trees. If the trees are growing too tightly together, they may not have the strength required to produce high quality splints, too far apart and the wind may twist them out of shape. High quality workable Ash requires the tree to be at least 25 years old, have 8 or more rings intact, be devoid of knots, and be as straight as possible. When a tree like that is identified, the relationship to its sacredness and to what it will become, for the artisan, as well as the person benefiting from it, begins.

PRACTICAL USES:

Shelter and Canoe Building

Ash wood is favoured for constructing traditional canoes and tools due to its lightness and strength. The thwarts and ribs of traditional Birch bark canoes were sometime built using Ash. Birch Bark canoes were an essential part of the cultures of many Indigenous peoples throughout Turtle Island because there were no roads and most trade, cultural exchanges, diplomacy and sharing songs, stories, and seeds happened along rivers and lakes.

Tools and Utensils

Ash wood is used to create a variety of tools, including hunting implements like fishing spears and fishing traps as well as everyday utensils. Its durability makes it perfect for crafting strong handles for weapons like the war club.

Food and Medicine

The buds and bark of the Ash tree have been used in traditional medicine for their health benefits. Ash bark infusions may help with muscle pain and inflammation, showcasing the tree's medicinal qualities.

Fire and Fuel

Ash wood burns steadily and efficiently, serving as an excellent source of fuel for warmth and cooking. The Ash's hardwood provides long-lasting fires essential for survival and ceremonial purposes.

Spiritual and Ceremonial Roles

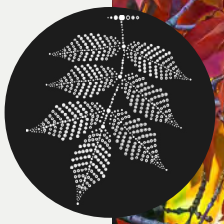
The people who used Ash trees and protected and expanded their habitat speak to the special relationships they have with the bark of the Ash. To collect Ash splints, used for baskets and other implements, the tree must be cut and pounded with a mallet or stone in a rhythmically consistent way, like the beating of the drum during ceremony, or in tune with the rhythm of the heartbeat. Ancient songs were often sung to liven the experience as the entire process from harvesting with tobacco and asking permission from the tree in the swamps, to the weaving of the eventual basket can be grueling hard work. Sacred items can eventually fill the finely crafted baskets and these baskets can last over 100 years.

SCIENCE & ECOLOGY

Forest Succession

Ash trees can be pioneer species, quickly occupying areas after disturbances. Their rapid growth and soil stabilizing qualities, creates conditions suitable for the establishment of other tree species, contributing to forest regeneration.

CONCLUSION



Ash trees are a cornerstone of forests Eastern Canada, contributing to biodiversity, Indigenous culture, and the local economy. However, the threat posed by the emerald Ash borer has created an urgent need for conservation and restoration efforts. By blending Indigenous ecological knowledge with modern scientific approaches, it is possible to preserve these vital trees for future generations. Understanding the role of Ash trees in both ecosystems and cultural traditions will help foster a deeper appreciation for their protection.

CHALLENGES FOR TODAY

How can we enhance the resilience of ecosystems by planting Ash trees alongside other native species? Understanding the relationships between trees and their environments can guide us in restoring ecosystems that benefit both people and nature.

SEASONAL TREE OBSERVATIONS

Pick a local ash tree to visit throughout the year. What changes do you notice in your tree throughout the seasons? What stays the same and what is different?

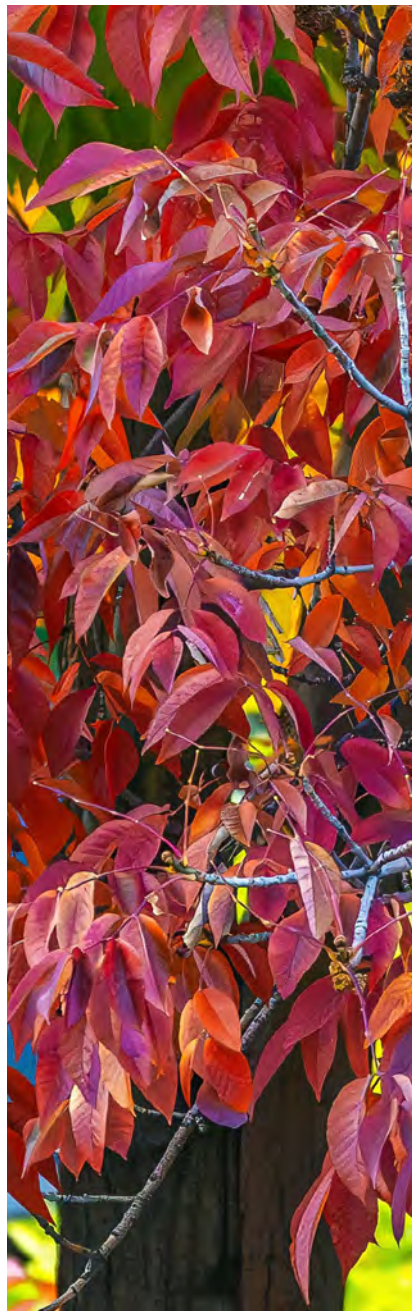
FURTHER READING

BOOKS:

1. “Braiding Sweetgrass” by Robin Wall Kimmerer
   This book beautifully intertwines Indigenous knowledge with ecological science, offering insights into the cultural and spiritual significance of trees, including Ash, and their role in fostering ecological balance.
2. “Ash Tree” by David Haskell
   This book delves into the history, biology, and cultural importance of Ash trees, with a special focus on their significance to various communities, including Indigenous peoples, and the current threats they face from invasive species.
3. “Native Trees of the Southeast: An Identification Guide” by L. Katherine Kirkman, Claud L. Brown, and Donald J. Leopold
   A comprehensive guide that includes detailed information on the various species of Ash trees found in North America, their ecological roles, and conservation efforts.
4. “Ash Trees and the Emerald Ash Borer: Lessons from Indigenous Conservation” (Anthology)
   A collection of essays and case studies that explore how Indigenous ecological knowledge can guide efforts to protect Ash trees from the emerald Ash borer and other environmental threats.

ARTICLES AND JOURNALS:

1. “The Ecology and Conservation of Ash Trees in North America” by Forest Ecology and Management
   This journal article provides an in-depth look at the ecological roles of Ash trees in North American forests, discussing their importance to biodiversity, forest structure, and wildlife habitat.
2. “Ash Trees in Haudenosaunee and Anishinaabe Cultures: Traditional Uses and Spiritual Importance” by Journal of Indigenous Studies
   This article highlights the historical and spiritual significance of Ash trees to Indigenous peoples, especially in crafting, medicine, and ceremonial practices.
3. “Emerald Ash Borer Invasion: Ecological Consequences and Mitigation Strategies” by Conservation Biology
   Focuses on the devastating effects of the emerald Ash borer on Ash tree populations and discusses potential solutions, including Indigenous conservation practices and modern forestry management.
4. “Ash Trees, Indian Communities and the Emerald Ash Borer”, by Nicholas J. Reo (Sault Ste. Marie Chippewa). Native American Institute, Michigan State University. Offers a brief look at the cultural importance of Ash trees to Indigenous peoples.
5. Hinsinger, D. D., Basak, J., Gaudeul, M., Cruaud, C., Bertolino, P., Frascaria-Lacoste, N., & Bousquet, J. (2013). The phylogeny and biogeographic history of Ashes (Fraxinus, Oleaceae) highlight the roles of migration and vicariance in the diversification of temperate trees. PLoS One, 8(11), e80431.



6. Fang, R., Zhang, Y., & Liu, Y. (2017). Aerodynamics and flight dynamics of free-falling Ash seeds. World Journal of Engineering and Technology, 5(4), 105-116.
7. Secret powers of the Ash tree by Della Maguire. Traditional knowledge
   http://wisqoq.ca/wp-content/uploads/2016/04/Secret-Powers-of-the-Ash-Della.pdf
   A short article about the journey of a Mi'kmaq master Ash basket maker.

WEBSITES:

1. Invasive Species Centre – Ash Trees and Emerald Ash Borer
   https://www.invasivespeciescentre.ca
   Offers detailed information on the emerald Ash borer's impact on Ash tree populations in North America, and ongoing efforts to control its spread and mitigate the damage.
2. Ontario Parks – Ash Trees and Conservation Efforts
   https://www.ontarioparks.com
   Provides educational materials on the conservation of Ash trees in Ontario's forests, focusing on restoration efforts and the role of Ash trees in local ecosystems.
3. Woodland Cultural Centre
   https://woodlandculturalcentre.ca
   Offers resources and programs that focus on the cultural importance of Ash trees to Haudenosaunee peoples, including workshops on traditional Ash wood crafts like basket weaving.
4. 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.
5. Environmental Justice and Sustainability Clinic
   https://ejsclinic.info.yorku.ca/2022/04/better-cover-your-Ash
   Talks about the importance of protecting endangered Ash trees according to Bill 108.
6. EAB's Destruction of Black Ash Threatens a Native American Tradition
   https://www.emeraldAshborer.info/blog/3
   Offers information about the various efforts to maintain the cultural significance of Black Ash trees.
7. Species Spotlight - White Ash - National Park Services
   https://www.nps.gov/articles/species-spotlight-white-Ash.htm
   Highlights the ecological significance of White Ash trees in North America.
8. A Silent Killer: Black Ash Basket Makers are Battling a Voracious Beetle to Keep Their Heritage Alive
   https://www.americanindianmagazine.org/story/black-ash-basketry
   Fascinating resources describing the process of making and factors that give rise to Ash baskets.

EDUCATIONAL VIDEOS:

1. "The Ash Tree's Struggle Against the Emerald Ash Borer" by Science North
   A documentary that explores the ecological importance of Ash trees and the invasive emerald Ash borer's impact on North American forests. The video also discusses conservation strategies, including Indigenous knowledge systems.
2. "Ash Trees and Indigenous Crafting: Black Ash Basketry" by National Film Board of Canada.
   This educational video showcases the craft of black Ash basket weaving, a traditional skill passed down through generations of Indigenous artisans. It emphasizes the cultural and practical significance of the Ash tree.

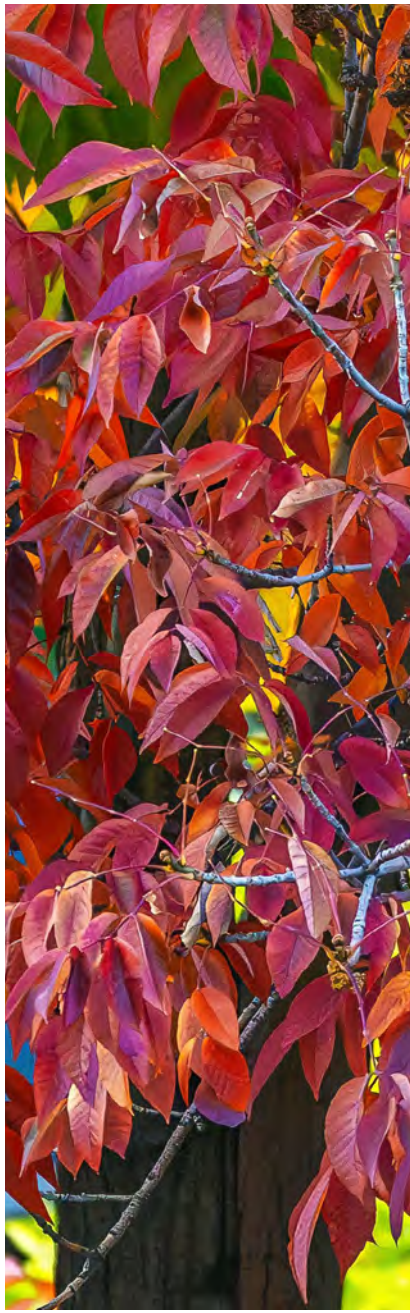
3. “Black Ash” by LTBBOI Tribal Historic Preservation Office.
   This film documents the process of harvesting, pounding, and weaving black Ash. https://www.youtube.com/watch?v=FPC4KirphEo
4. How Much Storm Water Does a Mature Tree Absorb?
   https://www.youtube.com/watch?v=l0N7Wf7UZoU&t=12s
   Short video talking about the importance of Ash absorbing water.

WORKSHOPS AND COMMUNITY PROGRAMS:

1. Black Ash Basket-Weaving Workshops
   Indigenous cultural centers and museums across North America, such as the Woodland Cultural Centre and the Anishinaabe Cultural Centre, offer hands-on workshops on traditional black Ash basket-weaving techniques. These programs teach participants about sustainable harvesting and the cultural significance of Ash trees.
2. Ash Tree Conservation Projects
   Local forestry and conservation groups, such as the Nature Conservancy of Canada, host community tree-planting initiatives and educational programs that focus on the importance of Ash trees and the threats they face. These initiatives often partner with Indigenous communities to integrate traditional knowledge into conservation efforts.

COMMUNITY RESOURCES:

1. Indigenous Knowledge Sharing Circles
   Many Indigenous communities host knowledge-sharing circles focused on sustainable forestry practices and the cultural importance of tree species like Ash. These gatherings foster community involvement in Ash tree conservation efforts and provide a space to learn from Elders and knowledge keepers.
2. Ash Tree Identification and Preservation Initiatives
   Organizations such as Tree Canada run programs that involve Ash tree identification workshops and community-based initiatives to preserve local Ash tree populations, particularly in areas affected by the emerald Ash borer.
3. Spirit of the Basket Tree: Wabanaki Ash Splint Baskets from Maine
   https://hoodmuseum.dartmouth.edu/sites/hoodmuseum.prod/files/hoodmuseum/publications/spirit_of_the_basket_tree_final.pdf
   This resource details the history of Ash basket making by the Wabanaki in present day Maine.



CONSERVATION INITIATIVES AND RESEARCH:

1. Emerald Ash Borer Research and Management by U.S. Forest Service
   https://www.fs.usda.gov
   Offers extensive research on the emerald Ash borer, detailing current scientific methods and collaborative efforts with Indigenous groups to mitigate the impact of this invasive species on Ash trees.
2. Biological Control Methods for Emerald Ash Borer by Natural Resources Canada
   https://www.nrcan.gc.ca
   Provides insights into biological control strategies aimed at combating the emerald Ash borer, with a focus on preserving Ash tree populations in Canada.
3. Forest Gene Conservation Association (FGCA)
   https://fgca.net/2024/06/black-ash-recovering-a-keystone-of-ontarios-forests/
   The Forest Gene Conservation Association (FGCA) is a not for profit organization unique in its focus on gene conservation, the foundation of resilient forests.

CONCLUSION:

This resource list provides a comprehensive collection of tools for understanding the ecological, cultural, and spiritual significance of Ash trees. It blends scientific resources with Indigenous knowledge, offering educators, students, and conservationists a holistic perspective on the importance of Ash trees and the ongoing efforts to protect them from environmental threats.

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