

St. Olaf College

Local Ecology Research Papers

Ethnobotany of the Dakota and Ojibwe In Minnesota

Braden Pohl and Isabel Istephanous

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Braden Pohl and Isabel Istephanous
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Table of Contents

Acknowledgments	3
History of First Nations in Minnesota	4
Land use and management	7
Fire	7
Agriculture and cultivation	8
Utilization of plants	9
Edible plants	9
<i>Acer saccharum</i>	9
<i>Apios americana</i>	10
<i>Astragalus crassicaarpus</i>	10
<i>Helianthus tuberosus</i>	11
<i>Panicum capillare</i>	12
<i>Prunus virginiana</i>	12
<i>Sagittaria latifolia</i>	13
<i>Scirpus pallidus</i>	14
<i>Zizania palustris</i>	14
Medicinal plants	16
<i>Achillea millefolium</i>	16
<i>Artemisia ludoviciana</i>	17
<i>Echinacea</i> sp.	17
<i>Eupatorium perfoliatum</i>	19
<i>Eupatorium purpureum</i>	19
<i>Impatiens capensis</i>	20
<i>Larix laricina</i>	20
<i>Monarda fistulosa</i>	21
<i>Panax quinquefolius</i>	22
<i>Plantago rugelii</i>	22
<i>Pycnanthemum virginianum</i>	23
<i>Rosa</i> sp.	23
<i>Sanguinaria canadensis</i>	24
<i>Taraxacum officinale</i>	24
Other uses	26

Dyes	26
<i>Typha latifolia</i> , <i>Typha angustifolia</i>	27
Baskets and other uses of birch bark	27
<i>Equisetum</i> sp.	29
Manoomin and the Ojibwe	29
Works Cited	31

Acknowledgments

“We stand on the homelands of the Wahpekute Band of the Dakota Nation. We honor with gratitude the people who have stewarded the land throughout the generations and their ongoing contributions to this region. We acknowledge the ongoing injustices that we have committed against the Dakota Nation, and we wish to interrupt this legacy, beginning with acts of healing and honest storytelling about this place.”

- St. Olaf Student Senate resolution 07/2020 on land acknowledgement

In writing this paper, we hope to create a space for reflection and healing through honest storytelling. We start by standing with the St. Olaf Student Senate resolution and acknowledge that St. Olaf college rests on the stolen land of the Wahpekute Band of the Dakota Nation. Although we recognize that acknowledgement does not reverse the continued atrocities against the Dakota people, the statement helps preserve the fact in our cultural memory so as to never deny that these injustices exist.

We would like to thank professor Kathy Shea for her guidance throughout both this project and our time at St. Olaf. Our gratitude extends to the entirety of the Biology department as well. We must also give a great deal of credit to Minnesota Wildflowers, the nonprofit whose wonderful online field guide has helped many amateurs and professionals alike identify and learn about Minnesota plants. All images are from Minnesotawildflowers.info unless otherwise noted. We chose to sort plants based on their latin taxa, but provide common, Ojibwe, and Dakota names where possible.

History of First Nations in Minnesota

Ethnobotany describes the study of how groups of people view, classify, interact with, and use plants. It is a unique discipline which relies on localized knowledge of a people's environment. In turn, it is a wide-ranging field of study which bridges the gaps between botany, geology, geography, history, ethnic studies, and many, many more subjects. These connections facilitate an understanding that goes beyond the relationships between people and their land. It shares a story and celebrates cultural memory. In this study, we employ ethnobotany as a means of exploring and creating connections with the people in Minnesota first: the Ojibwe and the Dakota.

Despite an obvious spatial closeness between modern Americans and the native nations of pre-contact (and modern) America, there is an unfortunate distance in culture, language, and knowledge for the majority of people. In the words of Anton Truer, executive director of the American Indian Resource Center at Bemidji State University,

“Most Americans have disconnected from their motherland and their mother tongue. I think it's kind of strange that we've engineered an education system and a society that the British brought here and we're still living with the same curriculums and teaching. People learn more about the Roman Empire than they do about this place, and names of places across the ocean than they do of places like -- Bemidji.” (Truer as quoted in Dey 2014).

Our education system certainly neglects Native America, leaving most people with little knowledge of first nations, their complex histories, communities, and relationships. In Minnesota, the Ojibwe and Dakota had developed vast systems of governance and trade. They lived both nomadically and settled across the state and beyond by the time Europeans stepped foot on the American Continent.

Some 20,000 years ago, when the people who would later become the Ojibwe, the Dakota, and all others who called this new continent home crossed the Bering Land Bridge, the Great Lakes region was still covered in glaciers. As the ice retreated and humans began to colonize the area, the vegetation experienced its expected, natural progression from tundra, to



Figure 1. Map of Minnesota and the Dakotas circa 1848 by Aaron Carapella, as it appears in the Grand Forks Herald, July 6th 2014.

shrubland, to boreal forest, until the land began to look roughly like it does today. As the suitable environments sprung north, so did the people, and some 10,000 years ago the Ojibwe came to dominate the areas North and East of Lake Superior, while the Dakota spanned the prairies and woodlands from modern Minnesota and farther West (Waters and Waters 1987).

The Dakota in Minnesota formed what is often called the Woodland or Eastern Dakota, made up of the Mdewakanton, Wahpekute, Sisseton, and Wahpeton tribes (Grave et al. 2003). The Mdewakanton and Wahpekute were located near modern St. Paul and along the Mississippi. The Sisseton and Wahpeton were farther Northeast along the Minnesota River and near the Minnesota/North Dakota border. Collectively called the Isanti, there is a distinction between the name for the tribes and the name for the ancestors alive today. The modern Isanti people are referred to as the Dakota, while the ancestors of the Yanktons farther West are called the Nakota, and even farther west, the Teton, are called the Lakota. The collective term “Sioux” comes from a French misinterpretation of the Ojibwe word for enemy, and is (slowly) being phased out of the common lexicon. By the late 1600’s, the Ojibwe, who had been following the fur trade west, had arrived in Minnesota, pushing the Dakota West as well (ibid).

Beginning in the early 1800’s, both groups signed treaties with the United States Bureau of Indian Affairs. As treaties

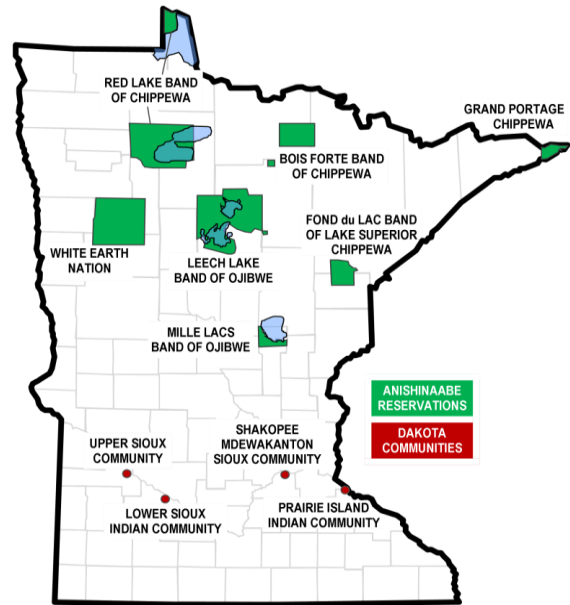


Figure 2. Map of reservations and communities in Minnesota. Courtesy of the Minnesota Department of Health 2020.

were penned, the Dakota and Ojibwe lost more and more land until the Ojibwe were forced into the small reservations found today and the Dakota into two small strips of land adjacent to the Mississippi river. The Dakota revolted in 1862, beginning a weeks-long fight that resulted in 1400 natives and whites dead. 307 Dakota were sentenced to death, though President Lincoln pardoned all but 38 of them. These 38 were hanged in Mankato, resulting in the largest mass execution in American history. After years of further forced immigration and relocation, the Ojibwe have retained seven reservations totalling 1,009,803 acres while the Dakota reside in four communities totalling just 4839 acres (Graves et al. 2003).

Land use and management

There exists a common misconception about Native Americans that before European arrival they lived simple, nomadic lives with little impact on their environment. This view undermines the various ways that indigenous tribes managed and used their land. For instance, the Amazon rainforest is commonly thought of as the last truly wild forest, less 'tainted' by human presence than other places. However, recent studies have found that the majority of the Amazon rainforest's current ecology is more "a product of 8000 years of indigenous agriculture" than it is a natural landscape (Levins 2017). Although many of the first nations of North America were more nomadic than their southern contemporaries, the myth of pristine wilderness with little human impact serves only to negate the sophistication of pre-contact indigenous civilization. The Ojibwe and Dakota are no exception.

Fire

Both the Ojibwe and the Dakota were proficient with fire as a means of creating and maintaining desired landscapes. In the north, the Ojibwe fired vast swaths of land, profoundly changing the ecology of the areas. Swampland was burned to increase caribou and other big-game habitat, while birch forests were burned to create meadows, which promoted ample growth of berries such as blueberries and raspberries. This latter technique was of immense importance during and immediately after the French-Anishinaabe fur trade, which also involved the trading of berries. In fact, according to biologist Davidson-Hunt, the entire fur trade was of a "fire generated landscape" which was "crafted to intensify the production of resources". Along with increasing berry yields, the Ojibwe used fire to expand birch stands (for canoes) and extend the tall grass prairies for easier access to buffalo herds (Davidson-Hunt 2003). While the fur trade marks a distinct period of Ojibwe history, it is not intended to showcase the entire story of the Ojibwe and fire. Rather, it shows the skilled precision with which they could adapt their fire maintenance strategy to their current situation.

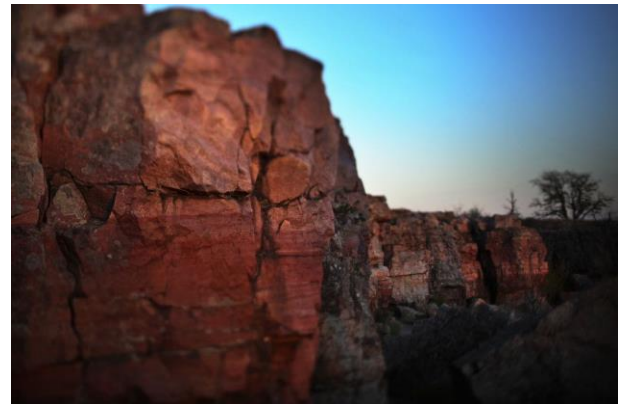
Unfortunately, less is known about the Dakota and their use of fire. It is often difficult to find information on indigenous people before their contact with Europeans. The unending injustices the Dakota faced (and continue to face) obscure their impact. However, it is known that the prairie is largely a fire regime and the Dakota were well versed in managing it efficiently and

safely (Pyne 1949). In one oft-quoted case, a Dakota man survived a tallgrass fire by covering himself in a buffalo blanket, much in the way modern firefighters do with aluminum (ibid).

Agriculture and cultivation

The first nations of Minnesota participated in differing levels of agriculture that were dependent on their respective cultural and social situations and changed depending on such. The most prominent example is the Ojibwe and wild rice. While not traditionally referred to as agriculture, wild rice stands have been both maintained and propagated in lakes and other stagnant bodies of water. Generally, about one third of the wild rice harvest is sown back into the lake during good years, with smaller proportions during bad harvests. This forward thinking ensures a surplus each year (Anderson and Nabhan 1991). The Ojibwe maintained maple sugar stands in a similar way, expanding groves when needed, such as during the fur trade (Davidson-Hunt 2003).

The Dakota often had small cultivation projects that would be both eaten by the community and traded. Plants such as *Apios americana* (groundnut), *Helianthus tuberosus* (jerusalem artichoke), and *Sagittaria latifolia* (arrowroot), among others were bred, harvested, and traded within communities or brought to trading centers. One such trading center is in Pipestone Minnesota. Still home to the Pipestone National Monument, the area honors the significance of the region to the Dakota Nation. As well as an epicenter for trade, the region is home to a unique quartz. The stone has cultural significance to some bands of the Dakota and is used in ceremonies such as the Dakota pipe ceremony (Lorkowski 2002).



Sioux quartzite in Pipestone, Minnesota.

Source: the Star Tribune

<https://www.startribune.com/pipestone-tradition->

Utilization of plants

There are many useful plants in the knowledgeable repertoire of the Dakota and Ojibwe. The following list is not meant to be exhaustive. Instead, we highlight a number of more common plants to the Minnesota region that have significance to either nation. The information below is from a number of written sources, both native and non-native that are listed in the works cited section. The plants are split up into three groups: edible, medicinal, and other uses. Although many plants could be placed in multiple (or all) sections, we place them in the most dominant category.

Edible plants

Acer saccharum

Other names:

Sugar maple, čanĥásanĥ (Dakota), inaatig (anishinaabe)

A. saccharum, or sugar maple, is well known for producing maple syrup. However, there are plenty



more culinary options when it comes to this iconic North American tree. For instance, Sean Sherman, founder of the Sioux chef, includes recipes for making a maple wine (Dooley and Sherman 2017). The ojibwe were critical in aiding the success of the northwest fur trade. Among other important provisions traded between the Ojibwe and the French was sugar made from inaatig (Davidson-Hunt 2006). Traditionally, the Ojibwe used buckets made from birch bark to collect the maple sap, though it is usually done with metal buckets now. Another product of the maple sap is a vinegar, made by letting the liquid sugar turn sour (Herron 2002).

Apios americana

Other names:

ground nut, indian potato, bló (Dakota)

A. americana has a potato-like root system that is more nutritious than a traditional potato. The Dakota have cultivated, traded, and eaten groundnut as a regular part of their diet. It was occasionally eaten by European settlers and appears in the original manuscripts of the Lewis and Clark expedition (Bowen et al. 2004). Recipes for *A. americana* include eating the root raw, boiled, fried, or in stews and soups. The upper green part of the root is also edible and is referred to by the Dakota as bló hu (Black elk 1998).



Astragalus crassicaarpus

Other names:

ground-plum milkvetch, buffalo bean, pté t̃hawóte (Dakota)

A. crassicaarpus, a member of the legume family, produces small, edible seeds that resemble miniature plums in shape and color. They have been a part of both the Dakota and Ojibwe diet and are eaten raw or cooked, but often dehusked (Reeve 1828-94). For the Ojibwe, the blooming of this plant in late Spring/early Summer signals



the beginning of the corn planting season (Moors 1999). Although primarily a snack food, the Dakota also have used it as a medicine for their horses (Black Elk 1998).

Helianthus tuberosus

Other names:

Jerusalem artichoke, pangi (Dakota),

Giizisoojiibik (Anishinaabe)

H. tuberosus is one of the 10 sunflowers native to Minnesota. It has the broadest leaves in its genus and is the only sunflower to produce edible tubers. Both the Ojibwe and the Dakota have cultivated this plant for their roots. When cooked, it has a very sweet flavor due to a high concentration of insulin. It is still cultivated and can be found in most grocery stores in the fall under the name “sunchokes”. (Turner 2012). Geniusz, in her book *Plants have so much to give us, all we have to do is ask* which interweaves storytelling and traditional botanic writing to tell the compelling history of the Ojibwe people and plants, quotes her professor and mentor Keewaydinoquay (Kee) to hint at the cultural significance of giizisoojiibik: “She said that if archeologists and anthropologists want to find a site of a pre-Contact Anishinaabe village, this is one of the plants they should look for. The People always liked to have a stand of sun tubers close by, and the patch will go right on growing, year after year, untended”. Both the latin and anishinaabe names mean ‘roots of the sun’ (Geniusz et al. 2015).



Panicum capillare

Other names:

witch-grass, ité awíchašniyaŋ hú (Dakota),

P. capillare is a common weed throughout Minnesota and beyond, growing almost everywhere there is exposed, dry soil. The plant can grow anywhere from three to six feet

and produces two to three millimeter wide seeds, which are edible. They can be eaten whole, although it is more common for them to be ground into flour by the Dakota (Black Elk 1998).



Prunus virginiana

Other names:

Chokecherry, čhaŋpǎ́ (Dakota), osisaweminaatig (Anishinaabe)



P. virginiana is a common woody perennial of the rose family (*Rosacea*). Its distinct flowers and bright red berries make it stand out in both spring and fall. The majority of the plant is used in the spiritual ceremony the Sun Dance (Wiwanyang wa-c'i-pia), where an individual who receives the calling through a dream dances for 4 days straight under the giving tree, usually represented with a cottonwood (The Native Voice 2004). The leaves are made into a tea for the sundancers and the branches are tied into a bunch as an offering (Black Elk 1998). The berries themselves are eaten

raw or dried, and can then be mixed with water to make Wojapi (Dooley and Sherman 2017). Some present recipes, including that of Sherman and Dooley in the Sioux Chef, include added sugar or corn starch. There has been some controversy about changing the recipe of a long-standing traditional food and some have claimed it is not “real” indigenous food with the added ingredients (Mihesuah 2016).

Sagittaria latifolia

Other names:

broadleaf arrowhead, swamp potato, wapato (Anishinaabe), bdo (Dakota)

S. latifolia is a perennial wetland species native across the United States. The tubers are edible and aggressively reproduce under a variety of conditions, making it valuable as a staple part of any diet. Plants in the genus *Sagittaria* are all edible and found across most of the United States. As a result, aboriginal nations throughout North America, including the Dakota and Ojibwe in Minnesota, have been growing, harvesting, and trading wapato for centuries (Reeve 1828-94). Speaking to the prevalence of the plant as a traded commodity, wapato even appears in the original manuscripts of Lewis and Clark’s expedition (Turner 2012).



Scirpus pallidus

Other names:

pale bulrush, psá (Dakota)

The genus *Scirpus* includes 9 species in Minnesota. Despite its common name, *Scirpus* belongs to the sedge family and is neither a grass nor a rush. The white, tender base of the stem has been eaten by the Dakota both raw and cooked in a similar manner as the base of arrowroot. Pale bulrush has a wispy pollen that the Dakota people add to flour for flavor and to increase nutrition. The remaining stems of the species are woven together to make mats called “psa owinja” (Black Elk 1998).



Zizania palustris

Other names:

wild rice, psin (Dakota), manoomin (Anishinaabe)

The cultural and economic significance of manoomin to the Ojibwe of Minnesota cannot be understated and is discussed at length in the “other uses” section. A quick look at *Z. palustris* as a food source follows here. For some bands of Dakota, wild rice has been a primary food source, though the amount used does not rival that of the Ojibwe.

For instance, the Dakota of Standing Rock in North Dakota had a large cultivation on the Missouri river until the 1950’s when a flood wiped out the population (Black Elk 1998). Aside



from the standard use of the grain, Sioux Chef founder Sean Sherman suggests making flour by grinding the rice (Dooley and Sherman 2017).

Achillea millefolium

Other names:

Common yarrow, waabaanooganzh
(Anishinaabe), Һаҗтэ чарһлóҗа (Dakota).

A. millefolium has been used medicinally for thousands of years, and is commonly found in many parts of the world. It's a very strong medicinal plant that has a wide variety of uses, and it can be ingested or used as a topical treatment. It is an astringent and causes tissue shrinkage to stop bleeding. It was commonly used to treat wounds on battlefields. Additionally, it is an antiseptic and can kill microorganisms that cause infections. Ingesting it can provide a number of different reliefs depending partly on the dose. An overdose on yarrow is possible, and can result in vertigo and a numbing of the body. When ingested, yarrow can be used as a pain-reliever, relaxant, or it can be used to break fevers. Outside of its medicinal properties, Yarrow was also used by the Anishinaabeg to scare off evil, and as a spice.



Artemisia ludoviciana

Other names:

White Sage, bebezhigooganzhii-wiingashk (Anishinaabe)

A. ludoviciana is a widely known and recognizable plant throughout North America. It often plays an important role in spiritual and ceremonial practice by people from both the Dakota and Objibwe nations, and is regarded as a sacred plant. Sage can also be used to serve medicinal purposes. The root of the plant can be used as an anti-convulsive, or it can be made into a poultice and applied to wounds to stop them from bleeding. The sage leaves can be steeped and made into tea, and used to treat stomach and digestive issues.



Echinacea sp.

Other names:

purple prairie coneflower, ičháǰpe hú (Dakota)

Purple coneflower is a bright flower that has a large number of medicinal uses. It can be used to treat topical ailments as well internal ailments. It has very powerful properties and is used by many of the Plains Indians in North America. The Dakota on the Standing Rock Reservation use the powdered root for toothaches and as a poultice for wounds and sores. It can help treat

snakebites, rabies, and worms. Additionally, it is used to treat coughs, colds, inflammation, sore throats, and is used as a painkiller. It can also be used to treat animals, specifically horses.

Eupatorium perfoliatum

Other names:

Boneset, ogaakananiibiish (Anishinaabe),

E. perfoliatum is used to help heal broken bones. Tea is made with the leaves, and can be consumed multiple times a day. A poultice can be made with the leaves as well and applied externally on the broken bone area before a cast is applied. Boneset, similar to Joe Pye, is a diaphoretic meaning it will help break a fever. A tea made with half boneset and half Joe Pye can be made for the fever, or in more serious cases, the leaves can be dried, pulverized, and put into a capsule to be swallowed (since the taste is strong).



Eupatorium purpureum

Other names:

Joe Pye, Bagizowin (Anishinaabe), unžiržintka hú (Dakota)

E. purpureum has the ability to break down and expel stones that form inside the body. It can dissolve kidney stones, bladder stones, and gallstones too. The chemical in Joe Pye that does this is most concentrated in the roots, and less so in the foliage and flowers. Because of this, the different parts of the plant are used depending on the distress of the patient. It is recommended to start with a tea from the foliage, and only use the roots if absolutely necessary.



Impatiens capensis

Other names:

Jewelweed, omakakiibag (Anishinaabe)

Jewelweed is often found growing near poison ivy (*Toxicodendron rydbergii*) and stinging nettle (*Urtica dioica*), and for good reason. A handful of jewelweed stems can



be crushed up and used to wipe down any areas exposed to poison ivy. The stems are full of a golden liquid that washes away the oil of the poison ivy. Jewelweed can also be harvested in advance, and you can extract and save the liquid to help treat poison ivy as well as poison sumac (*Toxicodendron vernix*), poison oak (*Toxicodendron diversilobum*), and stinging-nettle (*Urtica dioica*) rashes. Moreover, it can heal other types of allergic rashes or fungal infections.

Larix laricina

Other names:

Tamarack, mashkiig-mitig (Anishinaabe),

The tamarack is the only northern temperature conifer that is deciduous! The needles of the tamarack turn golden-yellow and fall off



throughout autumn. The wood of the tree is strong and can be used in posts and poles.

Tamarack is a diuretic; it causes an increased amount of urine to be produced and flushes out the system. An infusion of the inner bark of a tamarack can act as a gentle laxative. Additionally,

it is beneficial for the liver, spleen, and lungs. For these treatments, a tea with the bark can be made and consumed. It can be used as a poultice to treat puncture wounds or ulcers. The needles can be made into a tea to treat arthritis, and reduces the inflammation in joints. Tamarack has so many medicinal uses, and each part of the tree individually are medicinal. It's said that when you are in doubt of what to use, use a tamarack.

Monarda fistulosa

Other names:

Bee Balm, Wild Bergamot, aamoogaawanzh (Anishinaabe), heñáka tñawóte (Dakota)

M. fistulosa is a vibrant and fragrant flower that overtakes prairies at the peak of the summer. They are commonly visited by bumble bees, honey bees, and butterflies, hence its name. The flower is used to make tea, the flavor resembles that of true bergamont (Earl Grey). The tea is a very mild stimulant, and it has a strong taste compared to other herbal teas which led to it being used as a substitute for Asian teas by both Anishinaabeg and colonial Europeans. It is called baby saver because it soothes children with infantile colic, and it is used to calm down children.



Panax quinquefolius

Other names:

American ginseng, jiisens (Anishinaabe),

Ginseng used to grow commonly throughout the Big Woods of Minnesota and Wisconsin, and is used medicinally by many people around the world. It's often used to make a general tonic that can be used to treat a wide variety of ailments.

More specifically, it can be used to treat coughs, colic, and oral thrush. The root can be used to treat digestive issues as well as acting as pain relief.

However, ginseng was widely overharvested due to its value and high market demand. It still grows throughout the woods, but is far less common and much harder to find.



Plantago rugelii

Other names:

rugel's plantain, native plantain,
Ginebigowashk (Ojibwe)

Plantains have strong, deep roots that let them come up early in the spring, it will appear right

after the ice melts. Plantain leaves can be used to make a poultice to help heal insect bites, all you need to do is chew up the leaf for it to work. It reduces both pain and swelling of the bite.

The application of a poultice can also help contain the poison of more severe and lethal insect bites.



Pycnanthemum virginianum

Other names:

Mountain mint, Namewashkoon (Anishinaabe),
waǰpé čheyáka (Dakota)



There are many different variations of mint, and all of them serve similar functions. Each type of mint has a distinct taste, and can be mixed with one another to achieve a desired taste. Mint is very versatile and well-loved by many. It can be used in tea to soothe headaches or stomach aches. Distilled oil is often used for medicinal purposes, and is more convenient than using the whole plant itself. The oil can be used to provide aromatherapeutic relief, or it can be applied topically as an insect repellent.

Rosa sp.

Other names:

roses, Oginii-waabigwaniin (Anishinaabe),
uǰǰiǰiǰtka hú (Dakota)



There are four different species of roses that are indigenous to the Great Lakes area; smooth rose (*R. blanda*), wild rose (*R. virginiana*), wild prairie rose (*R. arkansana*), and prickly wild rose (*R. acicularis*). Roses are abundant with vitamin C, specifically the rose hips contain the most vitamin C, and are harvested immediately after the first frost. The rose hips can be made into tea by crushing dried rose hips and adding it to any other herbal or black tea. Rose hips can also

be made into a tonic and cough syrup and are used to treat colds. Rose petals are also used for their fragrance. They can be used in cooking, or they can be dried and added to potpourris.

Sanguinaria canadensis

Other names:

Bloodroot, poughkone (Dakota), ojiibik (Anishinaabe)

S. canadensis' widely-known status as a medicinal herb has led to an explosion of information on remedies for a series of ailments. The blood-red latex which gushes from the stem gives it the common name of bloodroot and has aided in its almost mythic visage. The Ojibwe use the sap of bloodroot as a lozenge for sore throats by adding it to chunks of maple sugar, and in small doses as an aid in tuberculosis treatment. Interestingly enough, large doses can be poisonous to humans and have been used to induce vomiting. The Ojibwe also make herbal tea from bloodroot and another local plant, blue cohosh (*Caulophyllum thalictroides*), to reduce menstrual cramping. As a topical agent, the rhizomes can be boiled, cooled, and added to wounds.



Taraxacum officinale

Other names:

Dandelion, doodooshaaboojiibik
(Anishinaabe), wañčá zí (Dakota)

T. officinale are one of the first flowers to bloom in the spring, and are rich in different



vitamins which makes them a useful medicinal plant. Although they are not native, they provide a lot of nutritional value and have been adopted by Anishinaabe tradition. Dandelion was brought over with Europeans and quickly became a pervasive (and widely recognizable) species throughout North America. The green parts of dandelion are rich in vitamins A,E, B1-thiamine, and C, the roots are full of calcium, protein, phosphorus, iron, riboflavin, niacin, and potassium. Because of this, it is used to treat vitamin deficiencies that may occur after winter, considering that the diet was mostly dried foods. Arguably the best part of dandelion is that it is the only natural source of body-assimilable copper. Dandelions can be used for cooking, but they can also be used to make a spring tonic to cure vitamin deficiency. The tonic is made by pulverizing the roots and steeping them in hot water for ten minutes. Although it won't taste as good, it's a good way to ensure that someone is getting all essential vitamins.

Other uses

Dyes

Both the Ojibwe and Dakota have used various plants to create dyes. The dyes are used for everything from mats to clothes. By adding various animal oils, the dyes can be made into paints. The following is a short list of some of the plants that have historically been used to create dyes, along with how the dye is extracted.

Betula papyrifera (paper birch) → a red dye made from boiling the inner scrapings of the inside of the bark (Herron 2002).

Cornus sericea (red osier dogwood) → The inner bark used as a binding agent for a series of other dyes (Herron 2002).

Juglans nigra (black walnut) → a black dye can be made from the bark of the roots (Black Elk 1998).

Parmelia spp. (lichens) → a deep black dye from boiling any combination of lichens for dyeing porcupine quills (Black Elk 1998).

Populus deltoides (cottonwood) → a yellow dye made from the buds (Black Elk 1998).

Rhus typhina (staghorn sumac) → a yellow dye made by combining the pith of the twigs with red ochre dust made from iron oxide formations. Also added to the sap of *Sanguinaria canadensis* for a red-yellow dye (Herron 2002).

Sanguinaria canadensis (bloodroot) → the sap and roots can be made into plenty of dyes by adding other various ingredients. The base color is red-orange (Schmidt 1983).

Taraxacum officinale (common dandelion) → a magenta colored dye made from the crushed up roots of dandelions. The dye is longer lasting when alum is added (Geniusz et al. 2015).

Vaccinium angustifolium (blueberry) → A deep blue-purple dye made from the berries themselves, often used on porcupine quills. During the Second World War, the United

States had a deficit of blue dye and began using blueberries from Northern Minnesota and Ontario in its place (Davidson-Hunt 2003).

Typha latifolia, Typha angustifolia

Other names:

Common Cattail, apakweshkway (Anishinaabe), “Defender of the Shoreline”

Cattail is another plant that is very versatile and provides a wide range of uses. Many of the uses depend on seasonality, different parts of the plant become available throughout the year. The Anishinaabe name translates to “defender of the shoreline” because it lines many of the Northern lakes and protects them from erosion. In the summer and fall, the leaves can be used as a weaving material, mature leaves (harvested in the summer) can also be used as a cover for lodging. Dried leaves are also used for a variety of crafts including “no face dolls” and other types of children's toys. The cattail fluff can be harvested and used as insulation. It is stuffed in quilts, bedding, winter clothing, and the inner walls of a winter wigwam. Many different parts of cattail are edible as well; the roots can be ground and used as flour, the pollen can be used in recipes such as pancakes, and in the spring, the cattail will grow a green bloom-spike that can be boiled and eaten with melted butter (similar to corn on the cob).

Baskets and other uses of birch bark

Betula papyrifera

The Ojibwe employ birch bark in a variety of useful wares. The bark repels water and is sturdy, but flexible. Harvesting is usually done in the spring, when the tree's sap begins to rise. This is no easy task, but a talented craftsman can remove the bark without harming the tree with

shallow and well-placed cuts (Geniusz et al. 2015). In fact, birch trees have two layers of bark. The inner layer houses the plant's cambium which provides channels for carrying nutrients throughout the tree. Cutting the cambium will kill the tree. However, it is possible to separate the two layers at the right time of year and with careful cutting (Schmidt 1983). Once harvested, the bark is malleable for a short time, before the inner resins harden. If not shaped immediately, heating the bark over a fire will re-soften it. This process also takes skill and patience, since the bark is so flammable (Geniusz et al 2015). Below is a short list of information on birch bark items:

Canoes (jiiimaan) → Birch bark forms the waterproof shell of the canoes. However cedar trees make up the "ribs and gunnels" and spruce roots are often used to bind the bark together (Geniusz et al. 2015).

Boxes, bowls, sap cones, and other forms of storage (makakoon) → makakoon are used to store just about everything - from clothes to food. Before the metal buckets became the norm, sap cones made from birch bark were used to collect maple sap. The bark can also be formed into bowls which are said to have replaced ceramic cookware after the Great Miigis Migration to the Great Lakes region (Geniusz et al. 2015).



Winnowing trays → birch bark winnowing trays are used to remove the chaff on seeds before planting or eating (Schmidt 1983).

A traditional makak (Source: The Ojibwe People's Dictionary)

Wigwams (wiigiwaaman) → Wigwams are semi-nomadic structures that are covered in birch bark to shelter from the weather. These structures are also traditionally sewn with spruce roots (Schmidt 1983).

Moose calls → Birch bark is folded and sewn to produce a small call for attracting moose. Although often decorated and intricate, the basic call is apparently simple enough that it can be constructed on site when needed (Schmidt 1983).

Canvas → Birch bark acted as a canvas for writing and drawing. According to Geniusz et al (2015), “the Sacred Scrolls of the Midewiwin, which record the ancient songs and ceremonies, are written on rolls of birch bark”.

Equisetum sp.

Other names:

Scouring rush, horsetail, aanikawishkoons (Anishinaabe)

Equisetum sp. are a group of wetland rushes that vaguely resemble a horse’s tail. There are 9 species of this species in Minnesota. The scouring rushes, *E. laevigatum* (right), *E. hyemale*, and *E. variegatum* are the most prominent. *Equisetum* tissues are full of air pockets big enough to allow the recrystallization of some of the minerals absorbed through the soil. In Minnesota, the most common crystal found in the tissues is silica. When cut open, the silica acts as an abrasive. This unique trait has been utilized by the Ojibwe for cleaning pots and other dishes, buffing out scrapes in metal, and for sanding down wood (Geniusz et al. 2015). It is used for the same by the Dakota (Black Elk 1998). There is even rumor that *Equisetum* can take up precious metals such as gold. A 1977 article in the journal “Phytologia” found some presence of gold in *E. hyemale* in Illinois (Brussel 1977).



Manoomin and the Ojibwe

Wild rice

Manoomin is of utmost cultural significance to the Ojibwe. Beyond its use as a food source, this “gift that grows out of the water” plays an integral part in Ojibwe customs, stories, and governance. The Great Miigis migration, which saw the Ojibwe move from the east to the Great Lakes region is surrounded in story. At the center, is wild rice:

“Long ago, in the time before European impact, the Ojibwe lived out East, in the area that is today Maine to Newfoundland. When the Creator sent a vision to elders and dreamers that the time had come for the Ojibwe to move westward, our ancestors made the journey called the Great Migration to where we live today. The journey, which took many years and followed a route roughly along the Great Lakes area, was lengthy and difficult. This took fortitude and faith in the message of the vision. Part of that message was that the people would be provided for, that they would arrive at a place where food would miraculously grow out of the water. This was manoomin, the good seed” (Grover 2017).

However, it has recently seen a rapid decline in the great lakes region. According to a 2011 study by Drewes and Silbernagel, the plant has experienced a 32% decline since the early 1900’s with the remaining populations mostly concentrated in Minnesota, Wisconsin, Ontario, and Michigan. The majority of more recent publications agree that its range has only decreased since then, though empirical studies are inconclusive on how much. In Minnesota, increased sulfide levels from iron mining drainage pits are a point of contention. LaFond-Hudson et al. (2018) proposed a biological mechanism which explains how increased sulfur levels leads to a reduction in wetland plants. In a presentation on the study, co-author John Pastor argued that the Minnesota state must lower the already-too-high limit on sulfur levels that the steel companies are allowed to release. An important part of convincing legislators of the need, he continued, is to highlight the cultural significance of wild rice before it is too late.

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