

Anishinaabe: Akiing: The People and the Land to which they belong

*The Anishinaabe person is inseparable from the land; identity, sense of place and history is intimately related to the land. We originated here. The North American Indigenous person did not migrate from anywhere else, nor originate from any other peoples. The Creator took four parts of Earth and molded the form of the first human person. Since then, all of humankind has been related to the Earth in a very intimate way -- the Earth, in fact, is our Mother. The human person is a relative to all other persons of the Earth, and, along with all creatures call the Earth, Mother.*¹

James Dumont (Foushee and Senogles)

...the very definition of "indigenous" intimates a sacred thread or reciprocal tie to land, place, and identity"

(King 2009)

The defining characteristic of Indigenous Peoples is their attachment to their lands, and the foundation of Traditional Cultural Properties which must be preserved, restored, and reaffirmed as an essential part of their continuing way of life. These attachments are the basis of their culture and spirituality. Wherever they travel, this sacred thread attaches them to their homeland. These attachments are not limited to special or ritual sites but extend to the whole of the land. In fact, the boundaries between "sacred sites" and secular sites are often difficult to define or even nonexistent as all land and locations are viewed as sacred (Zarsky 2006). IP belief systems and emotional intelligence descend from these attachments. While typical mainstream conceptualizations of place often have a unidirectional and temporal order, indigenous conceptualizations do not. In her research exploring the role of healing landscapes with the Amuzgo Indians of Oaxaca, Mexico, Elizabeth Cartwright (2007: 10) cites Casey's (1993) description of place to illustrate the idea that "who we are is based on where we are."

As TEK system recognize mutual relations between all things in the natural world--animals, plants, humans, celestial bodies, spirits, and natural forces--they strive to maintain a balance in this system. Instructions for maintaining this balance are handed down, generation to generation through rituals, storytelling, and other means. Often, these rituals and knowledge-transfer activities are directly tied to the place the knowledge relates to.

Place ushers indigenous peoples into what already is: namely, the enviroing subsoil of their embodiment, the bedrock of their being-in-the-world. If imagination projects them out beyond themselves while memory takes them back behind, place subtends and enfolds them, lying perpetually under and around them. In imagining and remembering, they go into the ethereal and the thick respectively. By being in a place, they find themselves in

¹ Foushee, Lea, and Renee Gurneau. Sacred Water: Water for Life. Lake Elmo, MN: North American Water Office, 2010. Pg. 37.

what is subsistent and enveloping. This description illustrates a more complex comprehension of place by appreciating the past and future sensory experiences along with the enveloping and alive process of the present. It brings alive the possibility of place as not occurring at a particular instance but something that happens dynamically in all directions over time.

“Native American intellectual tradition still continues to express the North American landscape in intellectual and spiritual reciprocity, where the more-than-human grants qualities of mind to the human”

Sheridan and Longboat 2006

In TEK, “place” is not given meaning by the human mind, rather, it is understood places express their meaning to IP through the intimate relationship they share. IP converse with places, as though they are relatives. This is demonstrated in the indigenous constructs of place and beings that inhabit place or space as “relatives” or “relations,” as revealed in common references to “mother earth” or to rocks as “grandfathers.”

Gregory Cajete, a Tewa scholar (2000: 186) notes Native people express a relationship to the natural world that could only be called “ensoulment,” which for Native people represents the deepest level of psychological involvement with their land and which provides a kind of a map of the soul. The psychology and spiritual qualities of Indigenous peoples’ behavior...are thoroughly “in-formed” by the depth and power of their participation... with the Earth as a living soul. It was from this orientation that Indigenous peoples developed “responsibilities” and maintain them. This is also referred to as a covenant with the Creator and all that is created--the land, water, and all living things. As Cajete notes, “In the Native mind, spirit and matter are not separate: They are one and the same.”

Place is part of their ancestral heritage, their present, and their future. It links them in immediate and visceral ways to their past, present, and future. In this sense, IP emerge from the place and have a bidirectional relationship of caring with place – place cares for them, and they care for it. In a study investigating the connections between culture, health, and place in First Nations people, Wilson (2003: 88) asked First Nations (Anishinabek) individuals about their views on the influence of the land on spiritual, physical, mental, and emotional health.

“I believe that we came from the earth – just like everything is alive, potatoes, plants, anything comes alive and flourishes with flowers. The earth provides everything, wild animals, insects. The earth provides for us. The earth provides strength, that’s why we call it mother. She provides life...helps us live. Without her we would not live.”

In Anishinabek worldviews, the earth is seen as a feminine being and is regarded as the source of all life-sustaining things (Wilson 2003). Another description from an elder expresses similar sentiments (Wilson 2003: 88):

“Mother Earth is everything that you see. You look everywhere on earth and you see Mother Earth. The way you raise your children, the way people do things together, the way we live among our people. She is in everything we do.”

As Wilson (2003: 88) notes, “the relationship Anishinabek have with the land cannot be captured by the simplified notion of being ‘close to nature.’ The land is not just seen as shaping or influencing identity, but being an actual part of it.”

The Role of Dodaemag - The Anishinaabeg Clan system.

The village is the primary site of Anishinaabeg identity, both socially and politically. Socially, the village is the framework within which the people relate to their respective doodems or clans. This part of Anishinaabeg identity forms the essential guiding narrative for the relationship the people have to the rest of life.

The Dodaem of the Anishinaabeg place a very close relationship between the people and their relatives (Treuer). As explained above, Indigenous Science also values spiritual intelligence. The relationship between Anishinaabeg and their clans is a representation of this spiritual intelligence.

The Story of the Moose in *Native American Animal Stories* by Joseph Bruchac tells of this reciprocity, and exemplifies this spiritual intelligence:

“One night, a family of moose was sitting in the lodge. As they sat around the fire, a strange thing happened. A pipe came floating in through the door. Sweet-smelling smoke came from the long pipe and it circled the lodge, passing close to each of the Moose People. The old bull moose saw the pipe but said nothing, and it passed him by. The cow moose said nothing, and the pipe passed her by also. So it passed by each of the Moose People until it reached the youngest of the young bull moose near the door of the lodge.

‘You have come to me,’ he said to the pipe. Then he reached out and took the pipe and started to smoke it. ‘My son,’ the old moose said, ‘you have killed us. This is a pipe from the human beings. They are smoking this pipe now and asking for success in their hunt. Now, tomorrow, they will find us. Now, because you smoked their pipe, they will be able to get us.’ ‘I am not afraid,’ said the young bull moose. ‘I can run faster than any of the people. They cannot catch me.’ But the old bull moose said nothing more.

When the morning came, the Moose People left their lodge. They went across the land looking for food. But as they reached the edge of the forest, they caught the scent of the hunters. It was the time of year when there is a thin crust on the snow and the moose found it hard to move quickly. ‘These human hunters will catch us,’ said the old cow moose. ‘Their feet are feathered like those of the grouse. They can walk on top of the snow.’ Then they began to run as the hunters followed them. The young bull moose who has taken the pipe ran off with the others. He was still sure he could outrun the

hunters. But the hunters were on snowshoes, and the young moose's feet sank into the snow. They followed him until he tired, and then they killed him. After they killed him, they thanked him for smoking their pipe and giving himself to them so they could survive. They treated his body with care, and they soothed his spirit. That night, the young bull moose woke up in his lodge among his people. Next to his bed was a present given him by the human hunters. He showed it to all of the others. 'You see,' he said. 'It was not a bad thing for me to accept the long pipe the human people sent to us. Those hunters treated me with respect. It is right for us to allow the human beings to catch us.' And so it is to this day. Those hunters who show respect to the moose are always the ones who are successful when they hunt" (5-8).²

First, the village is the primary site of Anishinaabeg identity, both socially and politically. Socially, the village is the site of the relationship of the people to their respective doodems, or clans. This part of Anishinaabeg identity is of the utmost importance as it is a guiding narrative for the relationship of the people to the rest of life.³² Each village is led by a particular doodem. For example Makinak, the village, is led by the makinak doodem, or turtle clan. Bahweting, a political center for that part of Anishinaabe Akiing, is led by the Chejakdoodem, or Crane clan. This doodem structure helps to bring order to the relationships both within the village and with other surrounding villages.

The extended family structure of the village provides a method of social organization that allows the people to successfully negotiate their lives with the rest of life in their particular places. Politically this village structure, with its doodem leadership in a council, is the primary site of the settlement of local conflicts, the organization of the village ceremonies, and the decision making capacity in relationship to other villages. It is important to point out here that this localized social and political structure is where traditionally all Anishinaabeg lived their entire lives, and that this localized life was absent an overarching national identity. While there was recognition that each village was related to other villages in a linguistic and cultural identity as Anishinaabeg, this "national" identity was a distant second in importance as compared to the local village/doodem relationship.

The local village was also the primary site of food and other resource acquisition. It is within this intimate relationship to localized space where the people would grow their food, both in gardens near the villages and by improving the land with selective cultivation and fire technology to keep the surrounding areas healthy for the edible flora like blueberries and for the native fauna. This acquisition of food is reliant upon the ceremonies of the people to help keep balance with the flora and fauna of that localized space, as each taking of life for the purpose of food, clothing, shelter, and medicine represents the death of another life in their local environment. Furthermore, the economics of space are also dependent upon the political structure of the local village to set boundaries for particular extended families to hunt, fish, grow, and cultivate foods and medicines. The acquisition of food and medicine is also dependent upon the familial relationship within the local village for distribution. It is upon family lines of the doodems

² Bruchac, Joseph. *Native American Animal Stories*. Fulcrum Publishing: 1992.

that food and medicine are distributed. Finally, the life of the Anishinaabeg in this complex socio-political-economic milieu is primarily communal. That is to say, the individual is so enmeshed within this complex web of relatedness to both human and other-than-human persons that the individual is of secondary importance when compared to the community. Here the primary social unit is the community, which is much different than the social unit of possessive individualism that the eurowest places as primary in their culture.

Local councils are very inclusive in membership and have to take into consideration the effects of their decisions, for not only the humans of the village but all of the life forms with whom they share their space. These councils are responsible for making decisions that affect the land and the lives of the Anishinaabeg in their places. An effective political council is necessary to organize and settle conflicts about the acquisition of food, boundaries for hunting, and agricultural spaces. They also provide the decision making capacities to send emissaries to other villages when disputes are between adjoining lands and waterways, as well as to larger regional councils that help decide international issues.

In this way, the political aspect of the councils are about the organization and facilitation of the acquisition of food, shelter, clothing, and medicine for the people. Considering that the acquisition of these four necessary elements to sustain human life come at the expense of other life, these activities must be performed with a certain amount of care and adhere to certain customs that help to keep a sense of balance between that human community and the other-than-human persons involved.³

This narrative describes the dependence that indigenous peoples as humans have for the rest of life and helps to guide their daily actions when they go about the acquisition of food, clothing, shelter, and medicine. To honor the plants and animals that give their lives so that the people may live, it is necessary to do ceremony to help keep a sense of balance in the world. These ceremonies may be a simple offering of asema (tobacco) and a few words to tell the plant and animal that the person is sorry for killing them and what they will do with their life. There could also be much more elaborate cleansing rituals and series of songs and dances for entire communities, like ceremonies preparing for planting of or harvesting of corn, or preparations for hunting.

Each clan had a responsibility to two other clans, and major decisions required a consensus of all clans. Following is an example of how this system would have worked.

Issue or decision to be made:

The season has been drier than usual. The loon clan thinks that it may be a good idea to change the location of the summer camp. They have come to this decision because there

³ While occasionally these councils were held at special times for particular decisions, usually these inter-village and international councils were part of a cycle of ritual ceremony and celebration that helped to keep balance not only between humans, but between humans and the rest of life with whom they share the land. In this way, political decisions about land use and boundaries were made within the context of a larger set of ceremonies that help to keep balance in the larger web of relatedness.

will be a smaller harvest for berries and a higher chance for forest fires. The speaker(s) from the loon clan must present their case with the fish clan.

Once the case has been presented to the fish clan they must come to a decision within their own clan on which choice to make. Their choice is to use the same summer camp as before or move the camp to a less dry area. The clan will come to a decision using a sharing circle

Once the entire fish clan has come to a consensus they must take the case and their opinion to the other clan that sits opposite of them within the seven pointed star; the crane clan.

The crane clan will have time to deliberate among themselves to come to a consensus. Upon consensus they would present both their opinion, the unbiased opinion of the fish clan and the purpose of the loon clan's decision to the bear clan.

The bear clan would then have the chance to deliberate using the sharing circle. Upon consensus of a decision they will take the case to the marten clan.

This cycle would continue until every clan had an opportunity to speak and the case would be brought back to the loon clan.

In this way, every member of the community has a chance to speak and voice their opinion, however the process would be lengthy as the choice to change camps would usually have to be a consensus decision of the entire community, as every opinion and person is valued.⁴

Fish Clan:

In the sense of fish, for instance, I am of the Fish Clan, so there are certain species of fish that I cannot eat, because if I do, I won't be here, because I will have eaten myself.

Again, being Clan is another story. But, to us, the leader of the fish of our clan is the Sturgeon.

The Sturgeon and the Catfish are like first cousins. They have a third cousin that is the Bullhead. I am of the Bullhead Clan. So, I cannot eat Sturgeon, I cannot eat Catfish, I cannot eat Bullhead. And turtle, like all people of the water clans, we don't eat turtle.

With each of those fish, there was a gift that was transmitted into humankind via the giving of the Clans.

Like the Bullhead, the Bullhead was given many gifts. You are supposed to know your clan and clan story. If you are Bear Clan, you are supposed to know why the Bear is your Clan. And, what did the Bear give to humankind in that time of need.

Our story relates the chain and reality of relatedness. So, the fish, likewise, came to be in that manner. The fish could not have survived, if they appeared instantly. They could not have

⁴ <http://ojibwresources.weebly.com/the-clan-system.html>

survived, in no way.

So, the story about the fish says that the water and the Earth worked together, so that the fish being giigoo, the underwater beings, would also have food, would also have a food chain. Otherwise they would have eliminated themselves by preying on each other, which does happen in that environment. But, there is a natural balance of that.”

James Dumont⁵

*Fish are the thing from the Great Spirit that would take us to the good life.
Giigoonhyag ningii-miinigoonaan aw Gichi-Manidoo da-izhiwinigooyaang owidi
mino-bamaadiziwining.*

*Fish represent everything that was taken away from us.
Giigoonhyag dibishkooo aawiwag gakina gegoo gaa-makamiggoyaang.*

*We were able to take it back.
Ningii-gashkitoomin da-azhenimaagooyang.*

*It is an important part of the cultural mystique that we have.
Gishi-apiitendaagoziwag gidaadizookaaninaanig gashki'esiziwin wii-ayaamang.”*

Niib Aubid

Mermaids

Ikwewag Wezhigwanaajig (The Women with Fishtails).

(1) Minawaa gaa-inaajimod a'aw nookomisiban iko aangodinong dadibaajimotawid
(More of what my late grandmother used to tell me sometimes when she told me stories).

(2) Gaawin giiwenh aawiiya daa-aazhogesin imaa, daaizhaasin iwidi l'iw minis ayi'ii imaa
ayaamagad, minis imaa misizaaga'i-ganiing ayaamagad

⁵Fish evolved over a long period of time. There is not one species that did not come to being in that manner. Through what we know as evolution, they evolved. The evidence of that is right before our very eyes, but we never take the time to observe that, and that is what is called the tadpole.

If you ever watch that process, from egg, to polliwog to a tadpole that has a tail on it, that eventually becomes a frog. Again, right there is the lesson of how it all came to be. And the word, boodoon, in our language, means that process. Boodoon becomes makakii. Makakii does not become boodoon. Boodoon become makakii. The tadpole becomes frog. So, again, we see that lesson of evolvement. That is in the whole of creation.

Fish came to be in that manner. Again it is emphasized, they could not have survived if not first, before them came their food and their way of survival.

Foushee, Lea, and Renee Gurneau. Sacred Water: Water for Life. Lake Elmo, MN: North American Water Office, 2010. Pg. 106-108.

(Nobody should go across, should go over to that island that is in Mille Lacs Lake).

(3) Gaawin imaa awiia daa-izzhaasiin
(No one should go over there).

(4) Gishpin awiia izhaad iwidi, mii ezhi-gichi-noodining
(if someone goes over there, it gets very windy).

(5) Niiyogon-sh giwenh noodinimaa, giispin awiia imaa izhaad
(There is four days of wind if someone goes there).

(6) Miish I'iw gaa-ikidod: "A'aw iwidi akeyaa biidaabang, wenjbiidaabang," ikido, "aya'aa iidog imaa asin (She said: "Over there towards the east, from where the sun rises," she says, "there is a rock there).

(7) Mii go ezhi-ayaand, gichidesaabikizi (It's like it's flat).

(8) Gichi-mindido a'aw asin," ikido (That rock is very big," she say).

(9) "Mii iidog imaa giiwaabamindwaa inngiw ikewewag, abaasandekewaad" ("Some women were seen there sunning themselves").

(10) Amanj ezhininkazdwaagwen aya'aag ikewewag (I don't know what they call those women).

(11) "Giigoonhozhigwanaawaag," ikido ("they have fishtails," she says).

(12) Mii imaa iidog gii-ayaawaad ingiw inkewag
(That's where those women must have been).

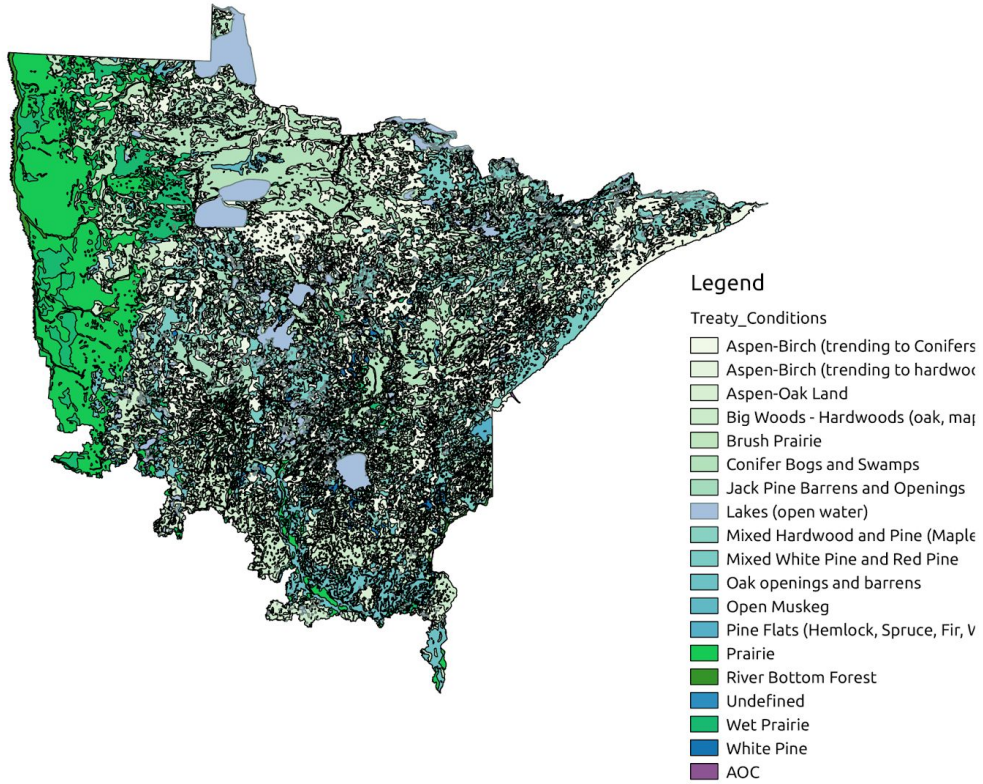
A long time ago, waasaa by the place now called Stillwater, there lived an Ojibwe man who loved fish. And he took care of the fish in the river. And everybody got to know that was what he did, and that he loved fish. These two guys thought it would be funny to trick him into eating fish, so they made up a fish in a stew and went over to see him. They told him they were having a feast and that he should join them. He was hesitant but agreed to join them. And when he took his first bite of the stew, he knew there were fish in it. And so he crawled to the river. And he drank the water and then he got his feet in the river and then he turned into a merman. And then all his descendants were merman clan after that. And the last one of that clan died at Mille Lacs. There was a dodaem marker with a merman on it.

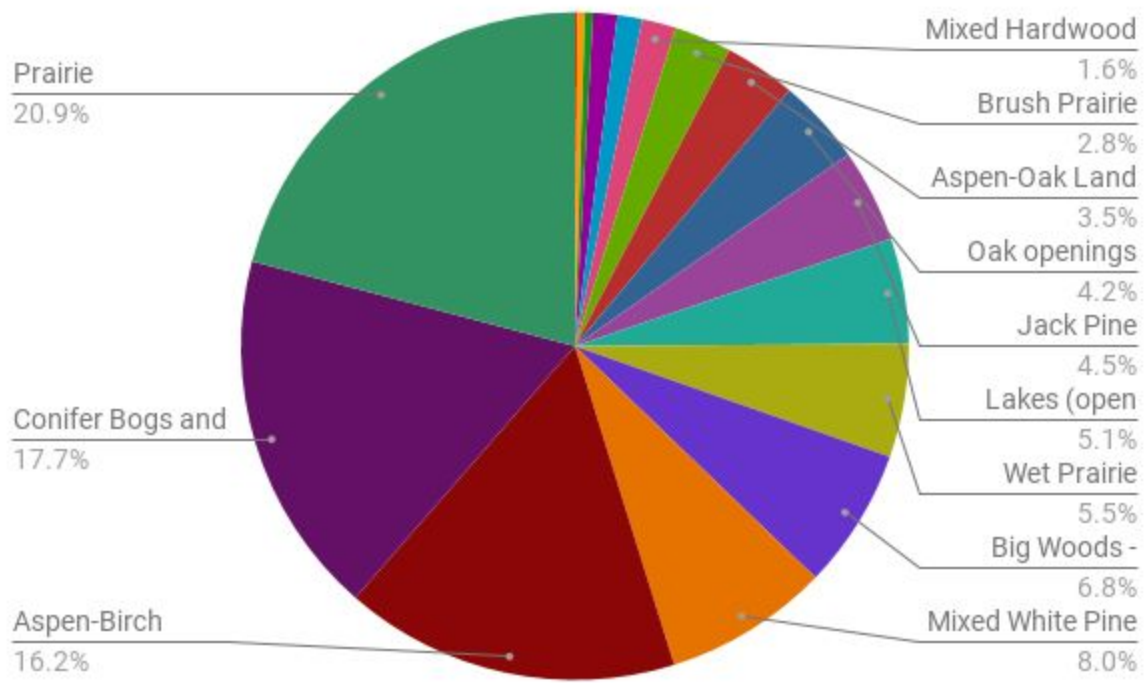
The Land

The land is the repository of the Traditional Cultural Properties (TCP) of the Anishinaabeg. The ecological wealth of the ROI has been depleted since the signing of the treaties. This depletion has also included a loss of access to the TCP for the Anishinaabeg. This loss of

access includes physical, spiritual, and administrative. A simple comparison of pre-settlement and current landcover can illustrate the physical changes to the ROI. Looking at watershed health also provides a snapshot of existing conditions. Loss of physical access to TCPs can be understood through examining the loss culturally significant ecosystems, the constriction of the land base of the various Bands, and the existence of contaminants in the land, water, and soil. Spiritual access is hard to visually convey, but as Anishinaabeg relations to the land require access to the land to maintain their spiritual connection, a loss of physical access is akin to a loss of spiritual access. Harder to quantify is the loss of spiritual connection resulting from the assimilation policies of the US government agencies. This includes both the boarding schools, which strove to remove the “Indianness” of students, and the suppression and criminalization of traditional religious practices. These policies still affect current generations. This has been shown both through oral testimonials and the study of epigenetics. As an element of Anishinaabeg spirituality is the responsibility to the land, the loss of control over land management decisions is also a loss of spiritual access. This loss of administrative access has occurred through the privatization of land, as well as the shift of control to US State and Federal agencies. In a just world, all State and Federal lands within treaty areas would be co-managed by the US State/Federal agencies and signatory Bands. of as well as current physical features of the areas potentially impacted by the pipeline projects.

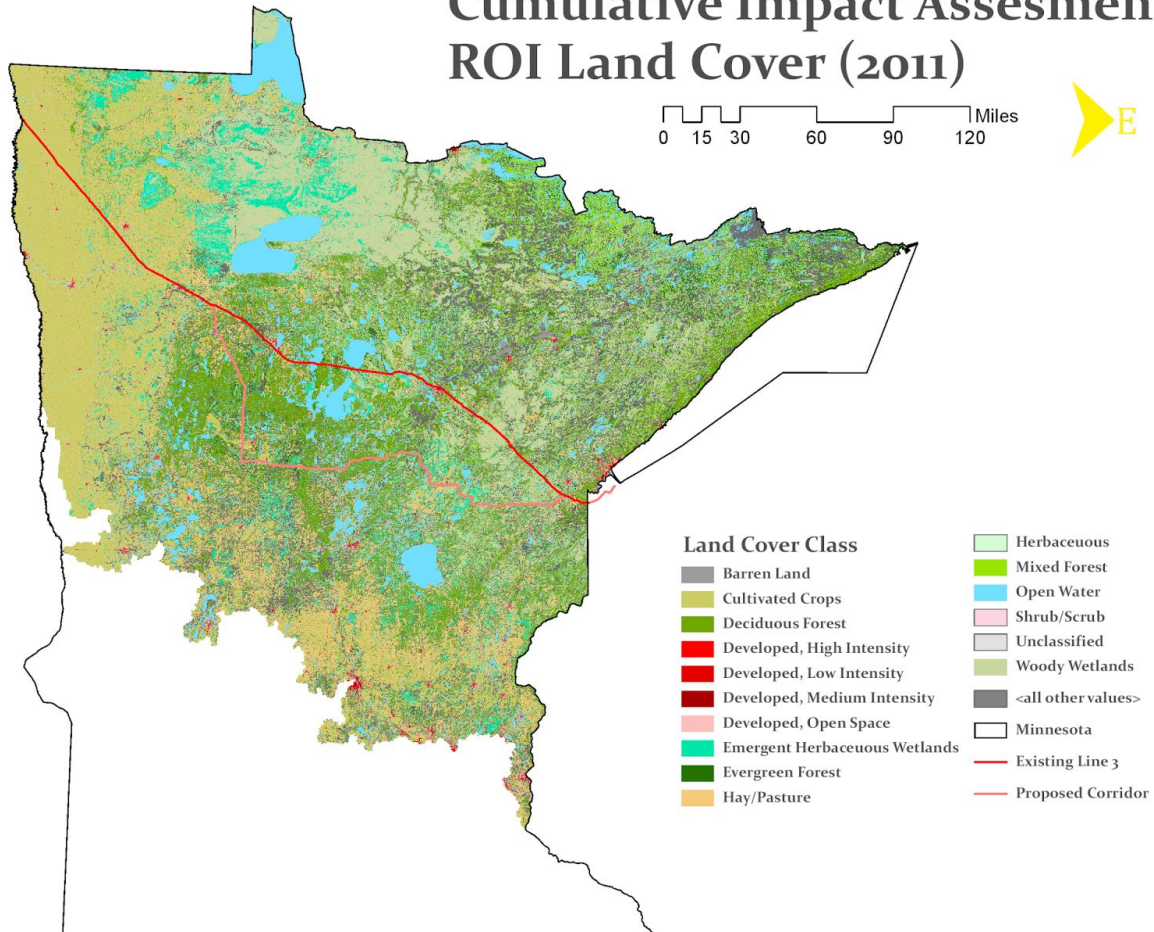
Pre-settlement Land Cover



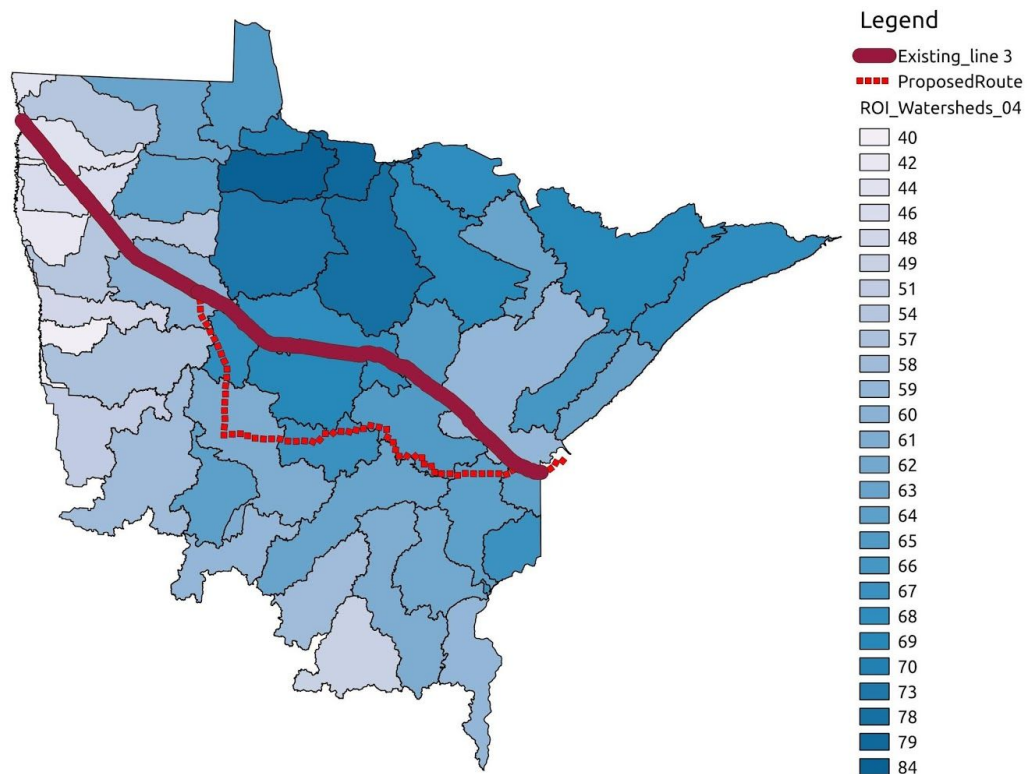


Existing Land Cover

Cumulative Impact Assessment: ROI Land Cover (2011)



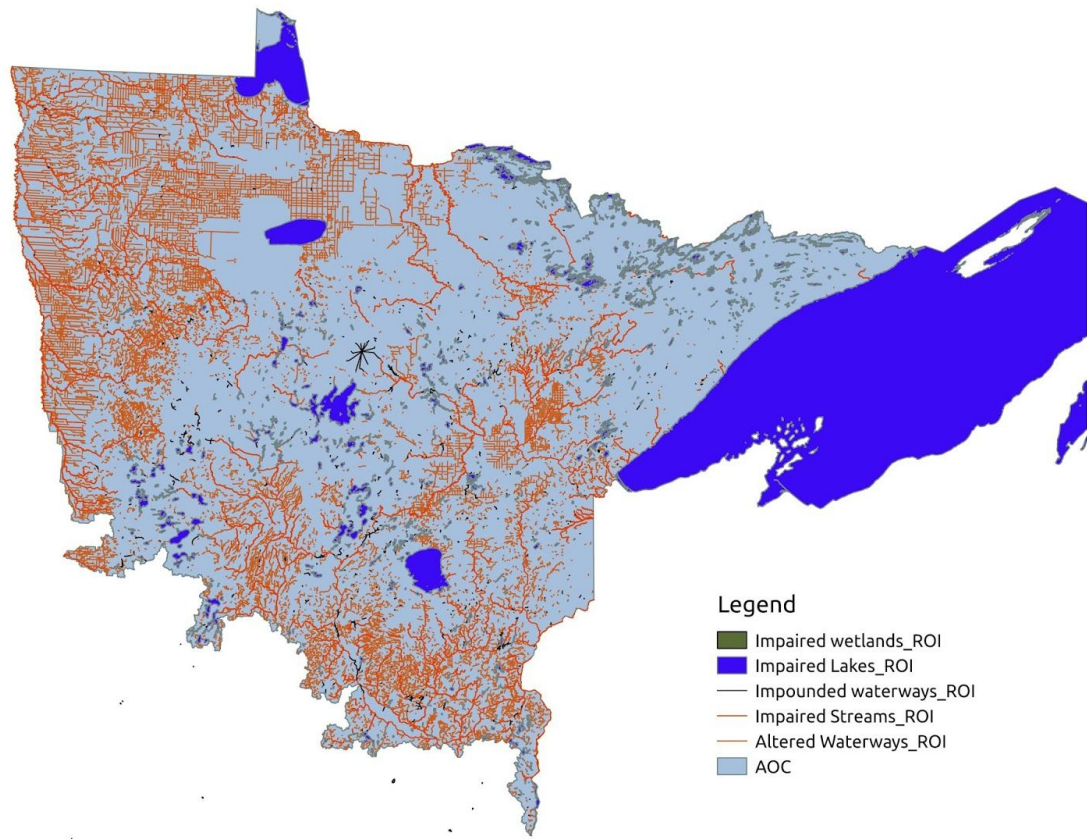
Watershed Health



The above map displays the health of watersheds in the ROI. This ranking is the average of 5 components: Biology, Connectivity, Geomorphology, Hydrology, and Water Quality. Higher numbers indicate better health. While there is no way to compare these health rankings with pre-settlement numbers, optimal health is the desired state.

Existing water pollution burdens

Impaired streams and rivers are waterways already burdened by pollution. Streams are designated as impaired by the EPA or state when water quality is so poor that measures are needed to restrict additional pollutants. Pollution from these waterways could affect groundwater quality where the waterways connect to aquifers and where they impact alternative sources of drinking water.



Manoomin

The practice of harvesting manoomin remains a fundamental element of the way-of-life of many Ojibwe people.⁶ Band members continue to pass along the traditional practices of knocking (threshing the stalks to dislodge the kernels), drying, hulling, and winnowing, to their children and grandchildren, where it remains essential to the identity of the Tribe as a whole, as well as to the well-being of individual Band members.⁷

⁶ See, e.g., Vennum, at 58-150

⁷ See, e.g., Testimony of Meskwanakwad Redsky, Transcript at 19 (“[O]ne of the things I did learn ricing my whole life is you’re always learning . . . You go up there more every year, and you learn more and more every year”); Testimony of Health and Human Services Commissioner Sam Moose, Transcript at 80 (“[Ricing] is an incredible and important part of the process of how this community gains its spiritual . . . health and passes down information to the oncoming generations”); Testimony of Darrell Shingobe, Transcript, at 91 (“[i]f I get a little emotional, it’s because I want . . . [my daughter] to be able to go out there and rice. I want her to be able to take me out there and go out there and knock”); Bibeau Testimony, at 102 (“this is very important to us, because it is probably the most passed down tradition in terms of harvesting that I’m aware of, and that’s probably why it’s the most central part of our culture”); Testimony of Henry Sam, Transcript at 142 (“ricing is part of our culture . . . and once that’s gone, what’s left?”); Killspotted Testimony at 154-55 (ricing is “something that has been passed on from several generations in our family, and it’s something that I am passing on to my three children”)

“[w]hen I’m out ricing, when I’m out collecting, when I’m out harvesting, I know peace and happiness.”

Elgin Goodsky

Manoomin, primarily grows wild in the Great Lakes region and is only harvested for food in Minnesota and Canada.⁸ It is essential to Tribal life because of its rich nutritional value for subsistence, support of tribal economies, and importance culturally and spiritually.⁹ A number of federal treaties in the region specifically reserved wild rice lakes for use by Tribal people, including the creation and support for wild rice camps, still in use today.¹⁰ Wild rice lakes are considered sacred landscapes. The White Earth reservation has designated Lower Rice Lake as a Traditional Cultural Property.¹¹ Many lakes have been lost to habitat fragmentation from dams, recreation, mining, and development. Those that remain provide important economic resources to the Tribal community, including \$1 million in annual revenue from Lower Rice Lake and \$500,000 in revenues from rice lakes in the East Lake community. If an oil spill travelled downstream into wild rice lakes from the proposed pipeline, it could potentially impact the cultural and economic value of the wild rice lakes along the proposed pipeline.

Traditional Diet

The Treaty of 1855¹² said that “there shall be, and hereby is, reserved and set apart, a sufficient quantity of land for the permanent homes of the said Indians.” Under the canons of construction, which says that interpretation must be from the perspective of the disadvantaged party (i.e., the Tribes), this was a way to preserve as much of their homeland and its natural resources as possible, to give them sovereign rights as domestic dependent nations, and to establish support for food sovereignty. The purpose of this section is to describe in general what that diet was, at a time when natural resources were uncontaminated and generally available, given the encroachment of settlers at that time. It is recognized that individual Tribes as they are located today may have somewhat different diets based on the differences in their local ecologies, particularly in the western part of the state. Therefore, this section is entitled ‘Anishnaabeg’ to reflect a reasonable generic diet that is nutritionally complete and supported by ethnographic information from that era as well as by more recent research.

⁸ Wild rice is not native to California, but is cultivated in the state- it is not wild rice- also discuss genetic research.

⁹ Lauren Wilcox. “Going with the Grain.” Smithsonian.com. September 2007.

<http://www.smithsonianmag.com/heritage/going-with-the-grain-161650307/?no-ist>

¹⁰ Federal Legislation. 1937. Wild Rice Campsites: Section 5 of the Indian Reorganization Act of June 18, 1934 (48 Stat. 984) funding authority Act of May 9, 1938 (52Stat. 300) and Act of August 9, 1937 (50 Stat. 573).

¹¹ A Traditional Cultural Property(TCP) is a property that is eligible for inclusion in the National Register of Historic Places (NRHP) based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts or social institutions of a living community

¹² TREATY WITH THE CHIPPEWA, 1855. Feb. 22, 1855. | 10 Stat., 1165. | Ratified Mar. 3, 1855. | Proclaimed Apr. 7, 1855.

The format of this diet is suitable for risk assessment when combined with the other non-food exposure factors (i.e., exposure through direct contact with air, water, and soil).

Approach

As described in Harper (Harper et al., 2007, 2012), the methodology used to reach the conclusions about the diet incorporates information from a variety of disciplines, including archaeology, ecology, and cultural and traditional environmental knowledge. It follows the principles of nutritional anthropology (Goodman et al., 2000). The methodology also follows general scientific criteria adopted from the *Daubert* case¹³ and Rule of Evidence 702. It is not a statistical exercise but a professional judgment based on multiple lines of evidence. In general, this report strives to be based on sufficient facts and data, is the product of reliable principles and methods such that another environmental health professional should be able to repeat the same steps and come to essentially the same conclusion. It strives to be reasonable and factual and to meet the “general acceptance” test set forth in *Frye v. United States*, 293 F. 1013 (App. D.C. 1923), the predecessor case to *Daubert*.

Even though contemporary tribal lands have been lost and resources degraded, the objective of many tribes is to regain their heritage land, restore resources, and encourage more members to practice healthier (i.e., more traditional) lifestyles and eat healthier (i.e., more native and local whole) food. Therefore, the objective of heritage exposure scenarios is to describe original¹⁴ lifestyles and resource uses. This report does not take a catalog or inventory approach to identifying natural resources and each species’ exact role in the diet. The number of species actually used may exceed two hundred, so detailed data does not exist and cannot be obtained, both because an unknown amount of information and resources have been lost, and because surveying contemporary people is intrusive, data-intensive, and inevitably incomplete. Rather, a holistic overview approach is taken, by identifying major food groups and staples, and evaluating how their calories fit into the overall diet such that an adequate and balanced diet can be described. This approach ensures that all calories are accounted for, so while it is less statistically precise it can be considered more complete and accurate.

As Native lands were lost, the heritage lifestyle was compressed into a smaller and smaller

¹³ *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

¹⁴ These traditional heritage diets and scenarios are not tied to a specific year, but rather to a resource condition that is relatively undegraded. When appropriate, these may be referred to as treaty-protected lifestyles and diets, while in other cases they may be referred to simply as rights-protected (referring to aboriginal rights). These resource conditions may be expressed in tribal restoration goals and other tribal policies and codes, which are tribal administrative law.

area. However, the right to pursue a traditional lifestyle and diet is an aboriginal right that is not constrained by contemporary lack of access, or lack of abundance or carrying capacity of a smaller area. It is not necessary to assume that every tribal member obtains a subsistence living from the study area. Rather, it is assumed that everyone has the right to that lifestyle even if only a few, or even none, actually do so during the present snapshot in time. Thus, it is the scenario or diet that is applied to the study area regardless of the population size or contemporary practices, activities, or land uses.

History

People have lived on the land that is now Minnesota for at least 10,000 years. The earliest inhabitants—belonging to what archaeologists classify as the Paleo-Indian (or Big Game) culture—hunted large animals, primarily bison, from which they obtained food, clothing, and materials for shelter. A second identifiable cultural tradition, from around 5000 BC, was the Eastern Archaic (or Old Copper) culture. These people hunted small as well as large game animals and fashioned copper implements through a cold hammering process. The more recent Woodland Tradition (1000 BC to AD 1700) was marked by the introduction of pottery and of mound burials. Finally, overlapping the Woodland culture in time was the Mississippian Tradition, beginning around ad 1000, in which large villages with permanent dwellings were erected near fertile river bottoms; their residents, in addition to hunting and fishing, raised corn, beans, and squash.¹⁵

The French fur traders were the first white inhabitants of the Upper Mississippi country. During the first three decades of the nineteenth century that part of the Upper Mississippi Valley included in the present states of Wisconsin and Minnesota remained practically in its natural with only a few small white settlements at widely scattered intervals.¹⁶ Between 1836 and 1840 the number of people in the Territory of Wisconsin more than doubled; between 1840 and 1846 over one hundred thousand more were added to the population of Wisconsin. Fruit trees and livestock of various kinds had been transported into the Territory. These occupied the country in the southern and eastern parts of the Territory. Comparatively few homes had been built north of Madison and west of the settled area along the lake. A census said to have been taken in 1845 gave to northwestern Wisconsin and to that part of the present State of Minnesota lying between the St. Croix and Mississippi rivers a population of fourteen hundred and nineteen. Until comparatively recent times the lumbermen dominated that territory, and such towns as developed first

¹⁵ <http://www.encyclopedia.com/places/united-states-and-canada/us-political-geography/minnesota>. Note that beans were not identified by various observers, even though the three sisters are generally grown together.

¹⁶

http://penelope.uchicago.edu/Thayer/E/Gazetteer/Places/America/United_States/Iowa/_Texts/journals/laJHP/17/3/American_Settlers_into_Wisconsin_and_Minnesota*.html

were essentially centers of lumbering interests.

A primary factor in bringing settlers into Wisconsin and Minnesota was the extensive advertising which the sale of government lands. In the meantime lumbermen, farmers, and tradespeople had pushed up north of St. Anthony's Falls and had made settlements along the banks of the Mississippi and its important branches. When Minnesota was organized as a Territory in 1849 it contained an estimated population of four thousand and fifty-seven. A year later, according to the United States census of 1850, there were six thousand and seventy-seven people who produced 71,709 bushels of grain and potatoes, on 5,035 acres in agriculture and livestock and buildings. This increased to an estimated population of one hundred and forty thousand in 1854, and one hundred and fifty thousand in 1857, with 546,951 acres with settlements or agriculture, of which 133,267 were tilled.¹⁷

Many histories of the Anishinaabeg peoples have been written (Warren 1885; Densmore 1929; Vizenor 1984, many others). William Warren provides first-hand observations and ethnography of conditions in the recent post-treaty era (Warren 1885). In his own words,

“The region of the country from which the Mississippi derives its source is covered with innumerable fresh and clear water lakes, connected with one another, and flowing into the “Father of Rivers” through rapid and meandering streams. All these lakes and streams abound with fish of the finest species and flavors. In Leech, Winnepeg, Cass, and other of the larger lakes, the whitefish are found equal in size to the celebrated whitefish of Lake Superior. And also are the salmon trout which are only to be found in Puk-a-gum and Trout lakes. Muskelunge have been found to grow to the great size of from four to six feet in length. Brook trout, sturgeon, and catfish are not found in the waters of the Mississippi above the Falls of St. Anthony. The shores of these beautiful lakes are lined with groves of the tall pine, and the useful maple from which the Indian manufactures sugar. The birch tree also abounds, from which the Ojibway has long been accustomed to procure the coverings to his wigwam, and material for the formation of his ingeniously wrought canoe. In many of these lakes which lie clustered together with an area of several hundred miles, the wild rice grows in large quantities and most luxuriantly, affording the Indian an important staple of subsistence. In former times this region of the country abounded in buffalo, moose, deer, and bear, and beaver on every stream and tributary.”

Kohl JG (1860) recorded his observations from living among the Anishinaabeg, and described many foods. Among his observations:

- At least a dozen plants are named after the bear, since the bear likes the same things that people do, such as bear potatoes, bear roots, bear nuts, bear berries (service berry).
- Swan potatoes, a root that grows in shallow water.
- Wadapinig, a thin knotted root that tastes like watercress.
- They also collect and eat fresh several herbs, plants and leaves.

¹⁷ <http://history.rays-place.com/mn/mn-agriculture.htm>;
<http://www.encyclopedia.com/places/united-states-and-canada/us-political-geography/minnesota>

- Trout herb, used with boiled fish soup.
- Venison soup made from dried venison “which is found in every lodge.” Take a couple handfuls and throw it in a saucepan with dried plums or whortleberries, making a soup.
- Sugar is made by boiling sap into a crystalline form, which is the principal stock. Cake sugar is poured into molds before it crystallizes, and gum or wax sugar is made by pouring thick-boiled sugar into the snow to cool rapidly, which causes it to remain pliable.
- Wild plums made good preserves when mixed with sugar and formed into fruit leather, then they cut off pieces and boil it with meat.
- Wild cherry grow at the edges of forests and fields, called sand cherry, and collected in fall along with whortleberry. One way of preserving is to mash them, mix with animal fat, form cakes, and cache in makaks.
- Little red apples from the forest.
- Whortleberries are very important; English call them cranberries but they are larger and finer than European cranberries.
- Hazelnuts, used instead of butter when eaten with bread.
- Clear water filtered from white wood ash can be poured on maize cakes as a sort of salt.
- Trout – speckled trout in the rivers and large lake trout in Lake Superior.
- Siskawet – resembles the salmon-trout.
- Variety of herring on the shoals.
- Sturgeon is the king of fish, caught year round, can be eaten for any meal.
- “Fish-catching is not the principal means of existence among the Ojibways, as among many of the other tribes, for they depend mainly on hunting. The deer-hunter and beaver-trapper are held in high esteem.

Frances Deunsmore prepared a lengthy report to the American Bureau of Ethnography in 1929, based on first hand observations and research circa 1900-1920. We present the following excerpts regarding foods (somewhat condensed):

The country of the Chippewa abounded in vegetable products, which women prepared in a variety of ways and stored for winter use by drying. The principal vegetable foods were wild rice, corn, and maple sugar. Rice was the staple article of food and was boiled in water or in broth, as well as parched. Corn was roasted in the husks or parched in a hot kettle, or dried and boiled. Pumpkins and squash were cultivated in gardens and with eaten fresh or dried for winter use. Maple sugar was prepared in the form of granulated sugar, “hard sugar,” and “gum sugar.” The grained sugar was used as a seasoning, and all forms of the sugar were extensively eaten as a delicacy. Wild ginger, bearberry, and mountain mint were used as seasonings, and corn silk and dried pumpkin blossoms were used to thicken broth as well as to give it an agreeable flavor. The Chippewa did not habitually drink the water they encountered when traveling, but boiled it an added leaves or twigs¹⁸. Among the materials used in this manner were the leaves of the wintergreen, raspberry, spruce, and snowberry, and the twigs of the wild cherry. Wild potatoes were used, and the Chippewa obtained white potatoes at an early date. Acorns were gathered and cooked in several ways. The flowers of the milkweed, the root of the bulrushes, the sap of the basswood and aspen, a sweetish substance beneath the outer bark of the woodbine, and the moss from white pine were among the somewhat unusual vegetable foods of the Chippewa. Berries and fruits were extensively used. Dried berries

¹⁸ Note: This might also have prevented Giardia infection, since beaver are a primary reservoir of Giardia, and beaver were found on virtually every suitable stream.

were boiled when used and either seasoned with maple sugar or combined with other foods. A Canadian Chippewa said that his people combined dried berries with moose fat or deer tallow. Salt was unknown in the old days. The Chippewa had both pumpkin and squash before the coming of the white man.

It was the custom to store food obtained during the summer in caches or pits dug near the village. The food kept perfectly, the pits were never disturbed, and this method of storage was safe and practical. The women of two or three families usually combined in the work of storing food, and often put rice, sugar, and vegetables in several pits. A food cache was usually about 6 feet deep and was lined with birch bark. The rice and sugar were in makuks, and after they were in place the spaces between them were filled with hay. When the pit was nearly filled a covering of birch bark or has was added. Beams of wood were laid across and the whole was covered with a mound of earth. Dried meat was stored in bags and dried fish were packed together and tied in bundles.”

A typical complete meal comprised meat or fish, broth, rice with maple sugar, and dried berries prepared in the same way. Other meals (one or two during the day) were lighter. A form of bread called “Legolet bread” was made from flour and salt, mixed with water, and kneaded very hard into round flat loaves. Soda was used when it became available, and lacking this the women put a little lye in the bread.

Fish was caught in a seine, and was eaten fresh or stored by either frying or freezing. It could be sweetened with maple sugar. The heads of fresh fish, especially suckers, were boiled and greatly liked. Fish were cooked on wood splints or boiled and the broth used. Fish roe were fried along with cleaned intestines and sweetened with maple sugar. Fish powder mixed with new sugar and packed in makuks where it would last a long time. Fish were dried over a slow fire on a rack or by hanging them over the fire. Fish were dried until hard and then packed in layers without salt. When needed for food they were boiled. Small fish such as perch were dried without cleaning. Sunfish were split lengthwise and laid on the horizontal poles of the rack, while large fish such as pickerel or bullpout were split along the sides with the head still attached and dried. For winter fish were frozen without cleaning.

Ducks, pigeons and other wild birds were boiled with rice, also with potatoes and meat. They could be cooked in hot ashes without cleaning, or by cleaning and impaling them before the fire.

The principal game animals were deer, moose, fox, and wolf. Deer could be boiled, roasted, roasted and dried and packed in makuks¹⁹, chopped and mixed with bear oil and packed in makuks, or mixed with deer tallow and stored in makuks until it was sliced for eating. Deer tallow was rendered and stored. Moose was similar. Bear was cut into strips and dried, and then cut into little pieces and boiled. All parts of the bear were eaten or used. Rabbits were caught in snares, and eaten roasted while the bones were pounded and boiled. Otter, muskrat, and beaver were eaten, but marten was not.

The Industrial Year. After food was stored for the winter, bulrush mats were made using thornapple thorns and cord. When the ice froze on the lakes, they went to winter camp. They carried light food such as rice and dried berries, along with pumpkin flowers to thicken meat gravy. Early spring was time to tap the sugar bush, before the ice was gone on the lakes and ice fishing still being pursued.

¹⁹ Various spellings: makuks, maccucs, mokoks, other. Bark boxes.

The food caches that had been stored near the maple trees contained cranberries, blueberries, dried potatoes, and apples. As soon as the little creeks opened the boys caught lots of small fish which were dried. Birch bark was used for bowls, but the large shells from the lakes were preferred.

The berries were eaten with the new sugar. The inside of the cedar bark could only be gotten in the spring and was used for making mats and bags. Toward the end of the sugar season there was lots of syrup and dried fish, which was food while the gardens were made. People typically went from sugar camp to fish camp before going to their summer camps with gardens. Each family had a bark house and a garden with potatoes, corn, and pumpkins as the principal crops. Passenger pigeons were numerous and caught with nets held in the air on poles. They were boiled with potatoes and meat. Wild potatoes were gathered in the spring, and blueberries in the summer, gooseberries, chokecherries, raspberries, and June berries. By then reeds for mats were ready. Next came the rice season, and families traveled there to camp. Then they returned to the summer camp and harvested the potatoes, corn, pumpkins, and squash. By this time the men were gone to fall trapping while the women began their fall fishing until the snow came. Then the men returned from trapping and they all went to winter camp.

Fishing was done mostly by women except for ice fishing. Every camp had poles to dry nets on. Larger fish could be speared at night with a torch. Larger fish such as sturgeon in Lake Superior could be caught in traps when they returned up the rivers to spawn.

Most medicinal plants were gathered in the fall, although roots were gathered in the spring and fall, and bark in the summer. Tobacco was always offered before roots were dug.

Rice camp in the autumn was a communal activity. Each family had its own tract, marked by tying clumps of grass into sheaves or stakes.

Densmore (1928) also reported on how wild plants were used for food, medicine, and crafts, with extensive lists of plants, the diseases or conditions they were used for, and how they were prepared. Her complete list included approximately 200 plant species, of which about 80 are medicinal, 40 are food, 8 are beverages (leaves, twigs and several flowers), 6 are flavorings (mint, bearberry, wild ginger, corn silk, pumpkin blossoms, sugar, woodbine syrup), 14 are dyes (along with some minerals and other early traded pigments), 16 are charms and amulets, and 35 plants were used for bark, twine, awls, toys, absorbents, frames, waterproofing, utensils, overlay patterns, and other uses. Grains include rice and corn; wild rice (*Zizania palustris*) is boiled in water with or without maple sugar, boiled with meat, pemmican (rice, berries, fat), cooked with blueberries, or parched then rehydrated. Corn is cultivated, and roasted in husk, parched and ground, made into hominy using lye from wood ash, with seasonings and fat. Vegetables including pumpkin and squash are cultivated, and eaten fresh or cut into strips for drying, and their blossoms are used for flavor and thickening. Other vegetables include Jerusalem artichoke, *Sagittaria latifolia* (arrowhead or water potato), and a dozen others. Fruits and berries include thornapple, chokecherry, grape, bunchberry, wild cherry, red currant, wild currant, chokecherry, blackberry, raspberry, shadbush, cranberry, and blueberry.

An extensive Anishinaabeg ethnobotany was published in 1932 that mentions several kinds of beans, some of which seem to predate settlers (Smith, 1932).

Holzkamm (1985) discussed Anishinaabeg horticulture to explain that horticulture was practiced long before western settlers arrived. Although gardens and garden crops are known to have been widespread among the native peoples during the 19th century, little attention has been paid to the full significance of horticultural gardens within the Anishinaabeg economy. As more of the ethnohistoric record has become available, it has become evident that horticultural activity among the Anishinaabeg of the boundary waters and the Upper Mississippi was more widespread and pervasive than had been previously thought. When Schoolcraft asked the Anishinaabeg at Cass Lake about their gardens in 1832, he was told that “the corn crop was always relied on, and that is preserved from year to year, and has not been known to fail.”

The nutrition of the original diet was also discussed by Holzkamm (1985), who noted that preserving cached corn and wild rice for winter consumption would have provided the Anishinaabeg with a nutritionally balanced diet when combined with the other dietary components. Further, the hunter-gatherer diet was higher in carbohydrates in the winter when fatty meats were not as abundant as would have been predicted from the relative abundance of carbohydrates and fats in those environments, indicating that the people selectively stored foods that provided a balance of nutrients. An observer in 1833 stated that most lodges had a surplus of ten sacks of corn for sale.

Spangler (2009) described the seasonal round of activities, traditions and technologies to cope with the climate and physical geographies of the environments. Across territories now occupied by the northern tier of these United States, native people moved with the seasons, occupying semi-permanent sites and temporary encampments, as necessary, to participate in a seasonal round of hunting, fishing, and gathering food and medicinal herbs. This round included, in the Great Lakes area, fishing for whitefish at points of seasonal aggregation, spearing walleye and suckers in spring spawning runs, hunting deer, bear, pigeons and waterfowl, making maple sugar in spring sugar camps, gathering tubers, nuts, and berries during the summer, harvesting wild rice in late summer, and trapping furbearers and hunting during fall and winter. “Just as the circle of life in native spiritual traditions conveyed an all-encompassing relationship between the landscape and animate beings, so too did the succession of seasons and activities come full circle each year in a rhythm providing adequate time for advance preparation, and marked by the “counting sticks” of the heads of Anishinaabeg households (Frances Densmore’s narrative by Nodinens at Mille Lacs).

Jenks AE (1902) discussed the abundance of manoomin (*Zizania aquatic*, also known as Z.

latifolia or *Z. palustris* and other names). Because the plant is an annual, growing from new seed each year, seeds are carefully not over-harvested and may be rotated. Wisconsin and eastern Minnesota had “prodigious” quantities of wild rice. The headwaters of the Mississippi River in Minnesota are in the heart of the Minnesota manoomin fields. Fish are very plentiful in all of the lakes about the sources of the Mississippi. One simple description of the seasonal diet is that “in the spring they subsist on sugar and fish; in the summer on fish and game; in the fall on wild rice and corn and fowl, and in the winter on fish and game” ignoring the preservation of foods for year round use. The common term by which the Indian granary is now known by the French term *cache*, or hiding place. An observer in 1820 said that a family ordinarily makes about 5 sacks of rice (5 bushels).

Jenks (1902) also reviewed previously published authors and noted that most said it was as good or better than white rice. The nutritional content of wild rice was studied in 1862, showing that wild rice is more nutritious than maize, green corn, corn meal, white hominy, berries, fish, and dried beef (as a surrogate for buffalo), as well as more nutritious than oats, barley, wheat, and rye. An observer in 1899 said that, during rice harvest, every meal included rice.

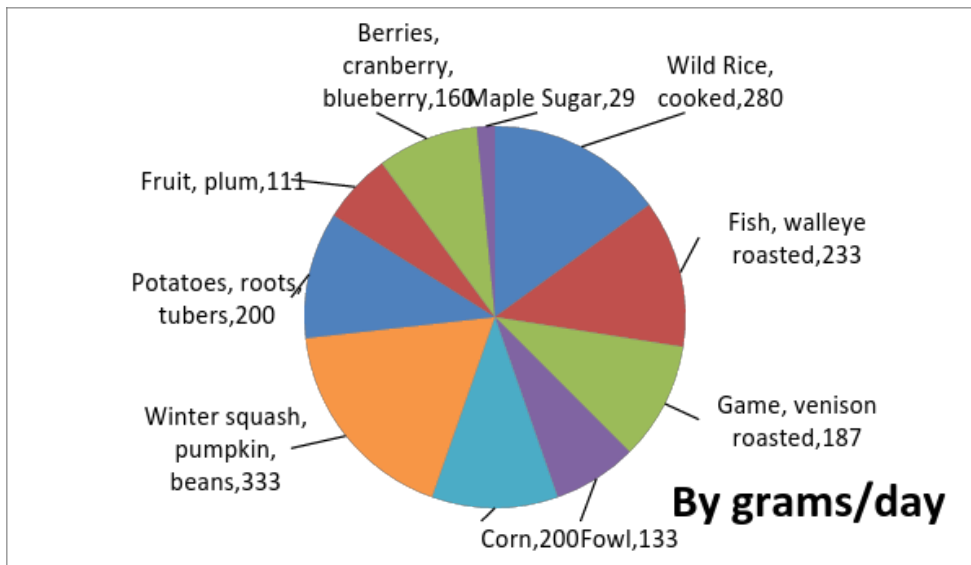
McAvoy and Shirilla (2005, 2006) confirmed that traditional activities are still practiced by 60% of Leech Lake residents, albeit in national forests that used to be part of the homelands, and more people would have benefitted from the materials obtained. Activities include gathering wild rice, fishing/netting, berry picking, hunting, gathering fuelwood, pine cones, swamp tea and bough cutting. 57% of respondents hunted, 50% picked berries, 50% camped, 38% fished, 22% gathered foods, and most engaged in multiple activities.

The Heritage Diet

Based on the information presented above, a reasonable distribution of major food categories is presented in table x.x. The information about the energy content in 100 gram portions is taken from USDA (<https://ndb.nal.usda.gov/ndb/search/list>). For most categories, an average among various individual foods within the category was used, or where indicated a single food was selected as a surrogate for other similar foods in the same category. For example, the category of greens and medicines includes several dozen species, some ingested in very small amounts, so a wild green (nettles, blanched) was selected as a surrogate. The caloric total of 2000 kcal/day is a generally accepted value for average diets. This diet includes those species that were identified as being cultivated both before contact (e.g., corn, beans, squash) as well as those that were introduced relatively early after contact and observed in use by 1855 (e.g., potatoes).

Table x.x Estimations of food categories, calories, and amounts.

Category	% of calories	Cal within 2000kcal daily intake	Kcal/100g	Amount eaten to supply kcal (g/day)
Wild Rice, cooked	14	280	100	280
Fish (walleye roasted)	14	280	120	233
Game (venison roasted)	14	280	150	187
Fowl	10	200	150	133
Corn	10	200	100	200
Winter squash, pumpkin, beans, other vegetables	10	200	60	333
Potatoes, roots, tubers	10	200	100	200
Fruit (plum)	5	100	90	111
Berries, cranberry, blueberry	4	80	50	160
Maple Sugar	5	100	350	29
Beverages, Medicines, greens (blanched nettles)	4	80	40	200



Because the general risk assessment methodology uses annual averages to derive daily intakes as inputs into the risk equations, seasonal variations are masked. It is recognized that the food availability was quite seasonal, even though many foods were preserved for year round use. For individual applications, or for local variations in species availability, amounts can be altered within the same caloric total.

