

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF THE STATE OF SOUTH DAKOTA**

**IN RE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE, LP  
FOR A PERMIT TO CONSTRUCT KEYSTONE XL PIPELINE**

**DOCKET NO. HP 001**

**PREFILED TESTIMONY BY WASTE' WIN YOUNG  
TRIBAL HISTORIC PRESERVATION OFFICER  
STANDING ROCK SIOUX TRIBE**

**APRIL 2, 2015**

Q. State your name and address for the record.

A. My name is Waste' Win Young. I reside at 950 Meadowlark Street in Fort Yates, North Dakota.

Q. What is your occupation?

A. I am the Tribal Historic Preservation Officer for the Standing Rock Sioux Tribe.

Q. Summarize your education and professional background.

A. I graduated from the University of North Dakota in 2001. I have a Bachelor's of Arts in English Language and Literature. I have a Bachelor's of Arts in American Indian Studies as well as a minor in psychology. I have worked in the Tribal Historic Preservation Office for the Standing Rock Sioux Tribe since 2003.

Q. Describe your duties as Director of the Tribal Historic Preservation Officer?

A. As the Tribal Historic Preservation Officer I review archeological and cultural resource surveys for projects within the exterior boundaries of the SRST. After reviewing the report I base my decision on the "determination of effect", whether a project will have an adverse effect or not on the resources. I also consult with agencies on projects off the reservation.

The National Historic Preservation Act ("NHPA") was passed in 1966, was an act to "Establish a Program for the Preservation of Additional Historic Properties throughout the Nation." In 1992 it was amended to include Tribal Nations. Subsequently it recognized the authority of tribes to establish "tribal historic preservation offices" and make determinations on projects that would impact their land, as well as cultural resources which may be located off reservation lands pursuant to section 101(d)(6)(B) of the National Historic Preservation Act.

Q. Is it challenging to protect cultural resources on and near the Standing Rock Reservation? Explain.

A. Yes. The National Historic Preservation Act and its implementing regulations require all agencies involved with federal approvals of projects to “gather information from any Indian tribe... to assist in identifying properties, including those located off tribal lands which may be of religious and cultural significance.” 36 CFR §800.4(a)(4). The regulations provide a process for resolving conflicts over the evaluation of identified sites and for resolving adverse impacts to them. 36 CFR §800.4(d); 800.5(c)(2); 800.6(b). The resolution to these issues, especially when they involve off-Reservation development projects sponsored by large corporations such as TransCanada, is complicated by the inordinate amount of political influence that the project beneficiaries exercise with federal and state agencies. Our cultural sites are vulnerable to impacts caused by development projects that promise jobs and profits for non-Indians. This is precisely the situation with the Keystone XL Pipeline.

Q. Describe the process that agencies normally follow under section 106 of the National Historic Preservation Act?

A. Agencies are required to initiate the consultation process early on, and to fully include all eligible parties in the identification and evaluation of historic properties, as well as the determination of effects and proposed mitigation. The process should be straightforward and transparent.

Q. Describe the process that State Department used under section 106 of the National Historic Preservation Act for the Keystone XL Pipeline?

A. The State Department sent a boilerplate letter to our office that did not establish a meaningful process for the participation of my office in the NHPA Section 106 process. The agency attempted to combine historic preservation consultation (SHPO’s and THPO’s) required under Section 106 of the NHPA with Tribal government consultation required under Executive Order 13175 and SDCL §1-54-5. Consequently, my office was not given the opportunity to participate in a well-defined process for identifying and evaluating historic properties. The

process established for the requisite consultation was akin to getting one's flu shots at the DMV – different functions were combined and as a result neither consultation process was properly conducted. The consultation process has been exaggerated and mischaracterized by the State Department and by TransCanada – in violation of both federal and state law.

The SRST was not afforded a meaningful opportunity to participate in identification efforts for historic properties along the Keystone XL Pipeline route. Keystone XL and other pipelines have the potential to damage (through construction or failure of equipment) and destroy cultural resources that have not been identified through pedestrian surveys.

This has real world consequences. The limited number of historic properties identified in current surveys illustrates the failure of TransCanada's archaeologists to conduct proper identification in accordance with the NHPA. The State Department Final Supplemental Environmental Impact Statement was not available when the Final Order was entered granting TransCanada a permit on June 29, 2010. Now that this information has been released, it is apparent that there have not been adequate surveys with proper Tribal involvement.

In fact, my office requested additional information on sites 24MC0480; 24VL1900; 24VL1905; 24VL1911 and VL1928 – the status of which remains unresolved at this late date.

Many historic properties of Lakota and Dakota origin are difficult for untrained persons to evaluate – the location of rocks, certain striations in rocks or rock formations – may point to ceremonial uses of sites that non-Lakotas and non-Dakotas may not understand. Moreover, TransCanada's role in the consultation and identification process has been unclear from the beginning. The level of expertise invoked in the 106 process has not been established even now.

There are no specific mitigation provisions. The provisions of the Programmatic Agreement ("PA") are too general. I have not signed it on behalf of the Standing Rock Sioux Tribe. Accordingly, an alternative process of resolving disputes over adverse effects and undiscovered historic properties must be put in place. But it has not been. In the absence of a process involving my office as an alternative to the PA, the project remains out of compliance with the NHPA.

For these reasons, the required processes for consultation and evaluation under NHPA Section 106 have not been followed by the State Department or TransCanada. As a result, the 2014 Final Supplemental Impact Statement fails to provide a sufficient basis for approval of a Presidential Permit for the Keystone XL Pipeline.

Q. Did TransCanada cooperate with your office on cultural resources issues related to the Keystone XL Pipeline?

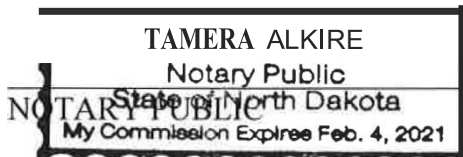
A. No.

Q. Is there anything else you would like to say to the Public Utilities Commission?

A. The Keystone XL pipeline (and other pipelines) will cross aboriginal and treaty territory that was exclusively set aside by the U S government for the Sioux Nation (Ft Laramie Treaties of 1851 and 1868). The Sioux people were nomadic people and followed the buffalo. Our valuable cultural resources are located throughout the path of the Keystone XL Pipeline. Yet the proper procedures to make the requisite determinations have not been followed. The Keystone XL Pipeline is unable to continue to comply with Amended Condition number 43 in the Amended Conditions to the Final Order in HP 09-001. The petition to certify should be denied.

Waste'Wir Young

SUBSCRIBED and SWORN  
to before me this \_\_\_ day of  
April, 2015.



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OF THE STATE OF SOUTH DAKOTA

IN RE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE,  
LP FOR A PERMIT TO CONSTRUCT KEYSTONE XL PIPELINE

DOCKET NO. HP 001

PREFILED TESTIMONY BY PHYLLIS YOUNG  
TRIBAL COUNCIL REPRESENTATIVE  
STANDING ROCK SIOUX TRIBE

APRIL 2, 2015

Q. State your name and address for the record.

A. My name is Phyllis Young. I reside in Fort Yates, North Dakota on the Standing Rock Indian Reservation

Q. What is your occupation?

A. I serve as a Tribal Council representative on the Standing Rock Sioux Tribal Council. I have spent my career addressing housing needs on the Reservation as a longtime commissioner of the Standing Rock Housing Authority, and working for the protection of our natural resources, both within our Reservation and in the sacred Black Hills.

Q. Did you grow up on the Standing Rock Reservation?

A. Yes, as a child, I lived in the most beautiful place in the world, in the river bottom of the Missouri River, for my first ten years. I was free. I ate a healthy diet from the gardens we planted and the natural foods growing on the land. We drank water right from the Missouri River. It was pure then.

Q. Tell us a little bit about your childhood.

A. I am a child of Oahe. When I turned 10, the Oahe Dam inundated our homeland. One hundred and ninety-seven families on our Reservation were forced to move, in the middle of the winter in January, 1960. Our homes were never re-built or compensated for. For the first time, we knew hunger, and I experienced homelessness due to the development of the dams, in the national interest. Our lives were totally disrupted. The dam created welfare and took away our Tribal self-sufficiency. It created all of the social pathologies that result from removal from one's homeland.

Q. The Oahe Dam is a big energy project, but it is approximately 100 miles from the Standing Rock Reservation. Can an off-Reservation project have that much impact on the reservation?

A. The Oahe Dam is a federal project, and the government took 56,000 acres of our Reservation land pursuant to the Act of September 2, 1958 (Public Law 85-915), and

subsequently the Act of October 30, 1992 (Public Law 102-575). The Standing Rock Sioux Tribe was forced to sue the Corps of Engineers from illegally condemning Treaty-protected land, under the Fifth Amendment of the United States constitution. Our Tribe has always defended our Treaty rights, and we shall do so in light of the Treaty violations poised by the Keystone Pipeline.

The Standing Rock Sioux Tribe possesses Treaty rights that cannot be delegated to a corporation such as TransCanada. We also have aboriginal rights, and as a result all development projects must comply with the National Historic Preservation Act. We are concerned with the environment throughout what is now Western South Dakota, but which is our Treaty-protected land. The environment is not defined by artificial boundaries.

Q. Explain the Treaty rights of the Standing Rock Sioux Tribe.

A. The Standing Rock Sioux Tribe is comprised of constituent bands of the Great Sioux Nation. The Great Sioux Reservation was established in the Treaty of Fort Laramie of April 29, 1868, comprising the Missouri River and all of present-day South Dakota west of the Missouri. (15 Stat. 635). The pipeline route runs directly through our Treaty-protected lands. Consequently, I am also concerned with the potential environmental impacts in our Treaty territory and the effect on our Treaty rights.

Article 12 of the 1868 Fort Laramie Treaty prohibits any cession of Sioux Nation Treaty lands without % majority consent of the Sioux. (15 Stat. 638). Nevertheless, the clamor for gold in the Black Hills led Congress to enact the Act of February 28, 1877 (19 Stat. 254), which was an unconstitutional taking of over 7 million acres in the sacred Black Hills, from the Great Sioux Reservation. In response to land pressure for homesteaders, Congress subsequently passed the Act of March 2, 1889 (25 Stat. 888), which further reduced our land base and divided the Great Sioux Reservation into our present-day Reservation lands.

The Standing Rock Sioux Tribe and Great Sioux Nation have continuously asserted our Treaty rights to the Black Hills and 1868 Fort Laramie Treaty lands.. In 1975, the United States Court of Claims awarded the Sioux Nation \$108 million, including interest, for the unconstitutional taking of this land. (*United States v. Sioux Nation of Indians*, 518 F.2d 1298 (Ct. Cl. 1975)). The court declared that, "A more ripe and rank case of dishonorable dealings will never, in all probability, be found in our history." (*Id* at 1302). The Supreme Court



affirmed the Court of Claims ruling, but the Great Sioux Nation and Standing Rock Sioux Tribe have not accepted the monetary damages. ( *United States v. Sioux Nation of Indians*, 448 U.S. 371 (1980). Accordingly, we retain our claim to this land under the Fort Laramie Treaty.

There have been various proposals in Congress to resolve the Sioux Nation land claim. (E.g. 99th Cong., S. 1453, *Sioux Nation Black Hills Act*). We continue to pursue a just and honorable resolution to the Treaty violations of the United States. In fact, on May 4, 2012, the United Nations Special Rapporteur for the Rights of Indigenous Peoples, S. James Anaya, issued the following statement about the claim of the Great Sioux Nation and the Standing Rock Sioux Tribe, under the 1868 Fort Laramie Treaty:

The Black Hills in South Dakota... hold profound religious and cultural significance to the (Sioux Nation). During my visit, indigenous people reported to me that they have too little control over what happens in these places, and that activities carried out around them at times affront their values. It is important to note, in this regard, that securing the rights of indigenous people to their lands is of central importance to indigenous people's socio-economic development, self determination and cultural integrity.

Our land claim under the 1868 Fort Laramie Treaty is acknowledged at the United Nations. Our Treaty rights are the basis of our existence as a Tribal Nation. They are not a historical anomaly; they are valid existing legal claims under federal and international law. As the U.S. Supreme Court stated,

The Indian nations had always been considered as distinct, independent political communities, retaining their original rights, as the undisputed possessors of the soil, from time immemorial... The very term "nation" so generally applied to them, means "a people distinct from others." The constitution, by declaring treaties already made, as well as those to be made, the supreme law of the land, has adopted and sanctioned the previous treaties with the Indian nations, and consequently admits their rank among those powers who are capable of making treaties. The words "treaty" and "nation" are words of our language, selected in our diplomatic and legislative proceedings, by ourselves, having each a definite and well understood meaning. We have applied them to Indians, as we have applied them to other nations of the earth. They are applied to all in the same sense.

( *Worcester v. Georgia*, 31 U.S. (6 Pet.) 515, 559-560 (1832)).

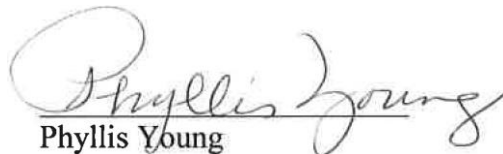
Under the Fort Laramie Treaty, we have the right to a healthy environment. Article 2 of the Treaty describes our ownership interest to the lands of the Great Sioux Reservation, as "set apart for the absolute and undisturbed use and occupation..." of the Great Sioux Nation. (15 Stat. 635). The revised route of the Keystone XL Pipeline would cross this land, for hundreds of miles. Under Article 11 of the Fort Laramie Treaty, "Should such roads or other works be constructed on the lands of their reservation, the Government will pay the tribe whatever amount of damage may be assessed by three disinterested commissioners to be appointed by the President for that purpose, one of said commissioners to be a chief or head man of the Tribe." (15 Stat. 638). Thus, under Article 11 of the Fort Laramie Treaty, we are entitled to have a seat at the table on decisions involving projects such as the Keystone XL Pipeline.

Q. Did the State Department consult with the Standing Rock Sioux Tribal government on the Keystone XL Pipeline?

A. No.

Q. Did TransCanada consult with the Standing Rock Sioux Tribal government on the Keystone XL Pipeline?

A. No. Instead, there were efforts to co-opt certain Tribal communities. I reference the TransCanada memorandum dated November 13, 2013, exhibiting disrespect to Tribal members of the Cheyenne River Sioux Tribe; and the TransCanada letter dated July 18, 2012, attempting to bribe the Ideal community on the Rosebud Reservation. TransCanada has never demonstrated any respect for the Indian Nations. That is why the PUC should deny certification of the permit for the Keystone XL Pipeline Project.

  
Phyllis Young

STATE OF NORTH DAKOTA )

SIoux COUNTY )

SUBSCRIBED and SWORN to before me  
this .....\_.

TAMERA ALKIRE  
Notary Public  
State of North Dakota  
My Commleelon Expire& Feb. 4, 2021

NOTARY PUBLIC

My Commission Expires \_\_\_\_\_

BEFORE THE PUBLIC UTILITY COMMISSION  
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IN RE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE,  
LP FOR A PERMIT TO CONSTRUCT KEYSTONE XL PIPELINE

DOCKET NO. HP 001

PREFILED TESTIMONY BY DOUG CROW GHOST  
DIRECTOR, DEPARTMENT OF WATER RESOURCES  
STANDING ROCK SIOUX TRIBE

APRIL 2, 2015

Q. State your name and address for the record.

A. Errol D Crow Ghost Jr., 207 1st Avenue W, McLaughlin, South Dakota.

Q. What is your occupation?

A. Director / Administrator of the Standing Rock Sioux Tribe Department of Water Resources.

Q. Summarize your education and professional background.

A. I earned a Bachelor's Science Degree in Restoration Ecology, from the Salish-Kootenai College in 2002. I have worked as a professional Fire Fighter for Chief Mountain Hotshots in the U.S. Bureau of Indian Affairs from 1997-2002. I have served on the Standing Rock Tribal Council as a District Representative of the Bear Soldier District 2009-2013, and served on the Health, Education and Welfare Committee. I am a veteran of the armed forces, with an honorable discharge in 1996. (Army Active).

Q. Describe your duties as Director of the Standing Rock Sioux Tribe?

A. I supervise all of the Department's activities involving the regulation of water flows and water quality on the Standing Rock Indian Reservation. I oversee implementation of the Standing Rock Sioux Tribe Water Code, which requires permits for most diversions of surface and groundwater. I also supervise all Clean Water Act Section 106 activities, including the maintenance of baseline water quality data through the sampling and analysis of surface water and ground water resources, and the development of water quality standards for the Standing Rock Reservation. This involves calibration of testing and sampling equipment, including maintaining required updates, sample collection methods, chain of custody forms, quality control practices and quantitative analysis procedures, and use designations of our waters. As needed, our Department also samples for domestic drinking water source supplies for appropriate parameters, and consults with the Standing Rock Municipal, Rural and Industrial Water Supply system on compliance with the Clean Water Act and Safe Drinking Water Act.

I assist with the coordination between the Standing Rock Sioux Tribe and state and federal water management agencies. The Standing Rock Sioux Tribe is engaged in a multi-year effort to identify needed water flows and perfect our reserved water rights, through negotiations

with water teams appointed by the governors of South Dakota and North Dakota. I serve as the lead Tribal agent with the Army Corps of Engineers on the management of Missouri River water flows. I also serve as a lead organizer on the Standing Rock Emergency Response Committee, for purposes of responding to chemical or other spills, flood management and related emergency response by the Tribal government.

Q. What is the Winters Doctrine?

A. The judicially crafted *Winters Doctrine* (1908) provides water for the needs of Native Americans who reside on Tribally-reserved lands. This judicial guarantee is highly significant, given the demands for this critical natural resource in a region where water is often not abundantly available.

Water policy in the Great Plains is shaped by powerful political forces. Economic demands translate into political pressures and ultimately into water law. State water laws are generally designed to allocate water for "beneficial uses," following the doctrine of prior appropriation. Stressing uses, rather than needs, is inconsistent with Native American ideals, whereby water, like other aspects of the environment, is connected to a higher sacred order. Consequently, European American water schemes have often been in conflict with Native American concepts. As Director of the Department of Water Resources, it is my job to reconcile Lakota values with modern regulatory requirements, for the optimal protection of our water.

In 1908, Native Americans prevailed in the landmark case *Winters v. United States*, 207 U.S. 564 (1908). The case involved the Gros Ventres and Assiniboines of the Fort Belknap Reservation in Montana and their right to use the water of the Milk River. When farmers upstream diverted water upstream, the United States brought an injunction against them, reasoning that this left insufficient water for agriculture on the reservation. The farmers appealed. On January 6, 1908, the Supreme Court ruled in favor of the United States and the Native Americans, arguing that the establishment of the Fort Belknap Reservation entitled the Native Americans to perpetual use of the water that it contained. Their rights were "reserved" at the date of establishment (1888), and, contrary to the doctrine of prior appropriation, those rights could not be lost through nonuse.

The Winters Doctrine was a major victory for all Native Americans, serving notice that state laws are secondary to federally reserved water rights and preventing prior appropriation

schemes from extinguishing Native American needs. In 1976, in *Cappaert v. United States*, 426 U.S. 128 (1976), the doctrine was extended to groundwater use on or near federally created reservations.

As a result of these court cases, under federal law, the Standing Rock Sioux Tribe possesses reserved water rights for all present and future beneficial uses that are necessary for our Reservation to be a permanent homeland for our people. We own land, and we own the water rights needed for our land to sustain our people through the generations. In times of shortage, our priority date traces back to the establishment of our Reservation in the 1868 Fort Laramie Treaty. We possess the senior water right. Our reserved water rights are very important to our Tribe.

While the Winters Doctrine protects Native American water rights, this protection is still vulnerable to changes in the prevailing political climate. Consequently, I am very concerned with the water use by TransCanada in the construction of Keystone Pipeline, as well as the potential pollution that would result from the release of oil near one of the many river crossings in South Dakota. (Peter J. Longo University of Nebraska, Kearney).

Q. What waters does the Tribe claim a right to under the Winter Doctrine?

A. We possess reserved water rights to all waters arising on, bordering or crossing our Reservation, and aquifers subsurface to our lands. This includes extensive rights to divert water from the Missouri River, Grand River, Cannon Ball River, Cedar Creek, Porcupine Creek, Oak Creek and our groundwater.

Q. Does the Winters Doctrine include the right to future water use on the Reservation?

A. Yes. It extends to all reasonable, beneficial uses that are needed in the present and in the future.

Q. How do you know much water you will need in the future?

A. We are engaged in a process with the States of South Dakota and North Dakota, by which a Tribal water team appointed by the Tribal Council meets bi-monthly with teams appointed by the governors. The purpose is to address the present and future water consumptive





needs of the Tribe, and the Missouri River water levels and Grand River instream flows that are needed to fulfill our needs.

Q. Is the Winters Doctrine a federal law?

A. Yes. Compliance with the *Winters Doctrine* would be required under Amended Condition number 1 in the 2010 Final Order in HP 09-001.

Q. Will construction of the Keystone Pipeline affect the waters claimed by the Tribe under the Winter Doctrine?

A. Yes. Keystone has estimated that the construction of the pipeline will require 79 million gallons of water. The Standing Rock Sioux Tribe asked TransCanada interrogatories about the points of diversion for all of this water, and they gave unclear, even conflicting answers. So we really do not know the sources from which TransCanada will take water. But 79 million gallons equals approximately 250 acre-feet – and that is a significant amount of water to be taken from tributaries to the Missouri River in western South Dakota, even if for temporary use. I do question that amount as too conservative for a construction project of that magnitude. We asked TransCanada for information supporting that calculation, and none was provided.

Q. How has the recent drought affected the waters the Tribe?

A. Our waters are in danger. The snow melt from the Rocky Mountains is declining annually. Data from stream gages of the U.S. Geologic Survey preliminarily indicate diminished streamflows is a long-term trend, for important tributaries to the Missouri River. I also make reference to Cook et al, *Unprecedented 21st Century Drought Risk in the American Southwest and Central Plains*, J. ADVANCEMENT OF SCIENCE (Feb. 12, 2015), which states,

In the multi-model mean, all three moisture balance metrics show markedly consistent drying during the later half of the 215<sup>1</sup> century... the consistent cross-model drying trends are driven primarily by the forced response to increased greenhouse gas concentrations, rather than any fundamental shift in ocean-atmospheric dynamics.

Consequently, I remain concerned that the drought is indeed long-term. This jeopardizes our way of life as hunters. Some people call it being an outdoorsman, but to the Lakota, subsistence hunting has always been a way of life, and it remains so today. The long-term

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drought affects wildlife. There is less vegetation cover in the riparian areas. Farmers are being forced to take land out of the CRP program to maintain their harvest of hay and feed for livestock, which further diminishes wildlife habitat. Our surface waters are increasing in temperature, resulting in fish kills, on the Standing Reservation – right here in South Dakota. I reference the study by the National Wildlife Federation, *Great Plains: Wildlife in the Grips of Heat Waves and Drought*.

Q. TransCanada has identified the Little Missouri River, Cheyenne River, North Fork of the Moreau River, Bad River and White River s water sources for significant depletions for hydrostatic testing and other construction activities. Are these river systems in South Dakota potentially impacted by long-term drought?

A. Yes.

Q. If Keystone withdraws water from these river systems, is it possible that downstream water users, including Tribal water uses and non-Indian farmers and ranchers, will have adequate water supplies?

A. Yes, in a drought condition, these rivers do not carry unappropriated water in the quantities needed by TransCanada for construction of Keystone XL. TransCanada has not complied with Finding of Fact number 41, in which the temporary water use permitting process was deemed underway.

The treatment of water in the Construction Mitigation and Reclamation Plan (CRMP) reflects the problem with the CRMP generally, from an ecology standpoint. It is too general, too vague. For example, it states, "Throughout construction, the contractor shall maintain adequate flow rates to protect aquatic life and to prevent the interruption of downstream uses." (TransCanada 2008) p. 53. However, no specific steps are identified. Instead, TransCanada identified stream systems throughout South Dakota from which it seeks to divert water, which are already over-appropriated during drought conditions. There is already environmental stress in these riparian habitats. The platitudes in the CRMP are meaningless, in light of the water requirements for construction. Amended Conditions number 13-14 will not be achieved due to the lack of specificity with respect to mitigation in the CRMP.

Q. Will construction of the Keystone Pipeline affect water quality?

A. Yes. We have learned more about the potential impacts of pipeline construction from the release of the U.S. State Department Supplemental Environmental Impact Statement (SEIS) in January, 2014. The SEIS identifies "Construction-related impacts" as including "Temporary increases in total suspended solids (TSS) concentrations and increased sedimentation during stream crossings." (US DOS 2014). The pipeline will cross the Little Missouri and North Fork of the Grand River, which directly flows onto the Standing Rock Reservation. Both of these waters are currently listed as impaired waters under the Clean Water Act, due to high levels of TSS. The 2012 S.D. *Integrated Report for Surface Water Quality Assessment* states, "The Little Missouri River is listed as impaired for TSS... (and) Elevated specific conductance and sodium absorption ratios (SAR) are typical of the entire (Grand River) basin." (S.D. DENR 2012, pp. 96, 111). The construction activities associated with stream crossings will exacerbate the current water quality impairments of these waters of the Standing Rock Sioux Tribe.

The EPA has urged that this issue be addressed, in order to ensure that Indian water rights are not adversely impacted by Keystone XL. I reference the EPA letter dated July 16, 2010, stating "We recommend ... (that the State Department) address the potential impacts to areas where Tribes may have unadjudicated claims to water bodies that could be affected by spills. From the proposed pipeline." Giles July 16, 2010, encl. p. 6. However, this has never been done. Consequently, the project will infringe upon the reserved water rights of Standing Rock and other South Dakota Tribes, in violation of Amended Condition number 1 in the 2010 permit, requiring compliance with all applicable laws.

Q. Would a release of oil from the Keystone Pipeline near the Grand River or Missouri River affect the waters claimed by the Tribe under the Winter Doctrine?

A. Yes, very possibly.

Q. Are you concerned about that?

A. The most direct threat to our water stems from potential spills. Many recommendations for pipeline safety and spill response have been ignored or glossed over. The EPA explained in a letter dated July 16, 2010,

The potential human health impacts associated with both air emissions from refineries and the potential contamination of drinking water supplies from an oil spill have not been evaluated. We recommend that the State Department prepare a health risk assessment to specifically address these issues as they relate to low income, minority and Tribal communities. (Giles, July 16, 2010, p.6).

For these reasons, the State Department FEIS on the Keystone XL Pipeline was rated as insufficient by the Environmental Protection Agency. (Giles, June 6, 2011).

Q. In the Final SEIS volume on "Potential Releases" the State Department estimated that any spills would likely be minor. So why are you concerned?

A. There have been numerous significant oil spills since TransCanada was awarded its S.D. permit on June 29, 2014. In the last three months there have been significant spills affecting the Missouri River basin – the Bridger Pipeline spill which released 40,000 gallons of crude into the Yellowstone River and shut down the drinking water system in Glendive due to benzene in the water, and 3 million gallons released from a Summit Midstream Partners pipeline near Williston, N.D. From Montana, to Arkansas to Michigan, communities are affected by oil pipelines, especially when heavy tar sands crude is transported.

TransCanada's spill frequency estimates are widely considered by objective commentators to be too conservative. I reference the Congressional Research Service, *Oil Sands and Keystone XL Pipeline: Background and Selected Environmental Issues*, CRS REPORT TO CONGRESS (2012): "the pipeline's operating parameters – temperature and pressures higher than conventional crude pipelines – would yield spill frequencies above historical averages ... Keystone has operated the Keystone mainline pipeline and the Cushing Extension since 2010. Since that time **the Keystone Pipeline has generated 14 unintentional releases.**" p. 39; Daniel J. Graeber, *Are Pipeline Spills a Foregone Conclusion*, May 21, 2013, posted at <http://oilprice.com/TheEnvironment/Oil-Spills/Are-Pipeline-Spills-a-Foregone-Conclusion>. (emphasis added).

Q. Are you familiar with TransCanada's safety record? Explain.



A. From 2011-2013, the Coast Guard National Response Center indicates that TransCanada had 34 reported spills, and was required to contribute \$118 million for remediation. The Pipeline and Hazardous Materials Safety Administration has been critical of TransCanada's safety record, denying numerous waiver requests (reference PHMSA letters dated June 27, 2011, June 27, 2011, June 27, 2011, July 26, 2010, July 16, 2010 and May 5, 2010). PHMSA wrote "PHMSA is denying your May 26, 2010 special permit application based on operator compliance issues related to not performing weekly aerial patrols and quarterly ground controls as required." (PHMSA, June 26, 2011). That is a repeated complaint by the federal regulators with TransCanada – a lack of on-going monitoring for leaks.

Safety may be further compromised by the low cost of oil at present. The production of tar sands is jeopardized by high production costs generally. The decreasing cost of oil enhances the importance of Keystone XL as a cost-effective means of transporting tar sands crude, as compared to rail. So the Keystone XL Pipeline will result in the production of greater amounts of tar sands, and will increase greenhouse gas emissions.

That exacerbates the long-term severe drought currently affecting the northern plains and the Standing Rock Indian Reservation. On November 23, 2003, the Tribe's drinking water intake at Fort Yates for our community drinking water system malfunctioned, due to low water levels caused by drought. Three Standing Rock Reservation communities and 6,000 Tribal members were without potable water for two weeks. Schools were affected, and Tribal elders on kidney dialysis were forced to travel to Bismarck for treatment, 60 miles away. The Standing Rock Sioux Tribe already suffers the effects of long-term drought and climate change.

Meanwhile, companies like TransCanada may compromise on safety, due to lower revenues. This could pose further adverse effects on our water. In any event, TransCanada can no longer demonstrate the capability to comply the Findings of Fact number 43-45 in the Final Order, HP 09-001, with respect to spill frequency estimates. It also fails to meet Finding number 52 regarding the threat of contamination to surface water.

Q. You testified that as Water Resources Director you assist with emergency management on the Standing Rock Reservation. Are you satisfied with TransCanada's Emergency Response Plan?

A. TransCanada is hiding it. They will not release a copy of a Facility Response Plan for the Keystone XL Pipeline, as required in the Clean Water Act and in Finding of Fact number 51. The PUC order also requires TransCanada to engage in training for local emergency response personnel in Finding of Fact number 51, and that has not occurred. TransCanada is unable to certify to the PUC that important findings have been complied with.

Q. Have you ever seen an oil pipeline emergency response plan?

A. Yes. The Kinder Morgan Canada, Inc. *Emergency Response Plan for the Puget Sound Pipeline System*, wholly unredacted, is posted at ([ecy.wa.gov/programs/spills/preparedness/cplan/Kinder\\_Morgan\\_Plan\\_Review\\_4\\_7\\_08.pdf&keyword=kinder](http://ecy.wa.gov/programs/spills/preparedness/cplan/Kinder_Morgan_Plan_Review_4_7_08.pdf&keyword=kinder)). The Washington State Department of Ecology also makes public and posts online a HazMat Spill Contractors List and Approved Primary Response Contractors list – information that TransCanada has refused to disclose for the Keystone XL Pipeline. This is all standard emergency response cooperation. However, TransCanada will not provide this information to the South Dakota PUC as required in Finding of Fact number 52, or to the Standing Rock Sioux Tribe.

Q. Do you know why Washington State has emergency response plans for the release of oil from pipelines and lists of available contractors and equipment, but TransCanada refuses to provide this information in proceedings before the South Dakota Public Utilities Commission?

A. No, TransCanada is totally unjustified in keeping Tribal, state and local emergency responders in the dark.

Q. As Director of the Water Resources Department, if an oil company initiated a dialogue or consultation with the Standing Rock Tribal government, in the ordinary course of business, would this be the type of meeting you would be informed of, and participate in?

A. Yes.

Q. Do you know Lou Thompson is?

A. No.



Q. Did you ever meet Lou Thompson?

A. No.

Q. Do you know Sarah Metcalf is?

A. No.

Q. Did you ever meet Sarah Metcalf?

A. No.

Q. Is there anything else you would like to say to the Public Utilities Commission?

A. The State Department released the Final Supplemental EIS in January, 2014. This document casts a pall over any further approval of the Keystone XL Pipeline. I reference the EPA letters dated June 6, 2011, rating the draft study as inadequate (Giles 2011); and February 2, 2015, EPA found that "Over the 50-year lifetime of this pipeline, this could translate into releasing as much as 1.37 billion more tons of greenhouse gases into the atmosphere." (Giles 2015). The *Fifth Assessment Climate Change Synthesis Report* by the United Nations Intergovernmental Council on Climate Change (2014) comprises new information on the need to mitigate greenhouse gas emissions, which was not available to the PUC in 2010, and which requires a denial of the certification of the Keystone XL Permit.

  
Errol Doug Crow Ghost Jr.

STATE OF NORTH DAKOTA     )

SIoux COUNTY                     )

SUBSCRIBED and SWORN to before me  
this \_\_\_ day of April, 2015.

**TAMERA ALKIRE**  
Notary Public  
State of North Dakota  
~~NOTARY PUBLIC~~ My Commission Expires **Feb. 4, 2021**

My Commission Expires \_\_\_\_\_

# Culturally Important Plants of the Lakota

**Based on interviews, research, and a comprehensive review of historical documents.**

**Principal Investigator**

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**Primary Cultural Consultant**

Wilbur D. Flying By, Sr.

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1	<i>Acer negundo</i>	boxelder maple	<i>čhaŋšúška</i>	Sap is collected in the early spring by "tapping" trees and is used as a sweetener or a refreshing beverage. The leaves are sucked to relieve dry mouth during Sundances. The inner bark is edible, but only used during food shortages. The seeds are also edible after the husks have been removed and the seeds boiled.
2	<i>Acer saccharinum</i>	silver maple	<i>tháhálo</i>	A decoction of the bark is used to dye hides. The sap is sometimes collected and used as a sweetener or refreshing beverage. An infusion of the bark is used to treat diarrhea, dysentery, and cramps.
3	<i>Acer saccharum</i>	sugar maple	<i>čhaŋhásaŋ</i>	Sap is collected in early spring by "tapping" trees and is used as a sweetener. A decoction made from the inner bark is used as an expectorant.
4	<i>Achillea millefolium</i>	Western yarrow, common yarrow	<i>h̄aŋté čhaŋh̄lóḡaŋ, tháópi p̄h̄ežúta</i>	Poultice of dried leaves and flowers used to heal spider and other insect bites. Wad of moistened leaves put in outer ear to cure earache. Poultice made from whole plant applied to wounds to stop bleeding. Leaves chewed for toothache. Leaves rubbed on irritated skin to relieve itching. An infusion made from leaves used to treat stomach pains, coughing, and sore throat. An infusion is also used to stimulate sweating and urination, as a mild laxative, to cleanse/detoxify the blood, to cure female organ problems and heal internal bleeding.
5	<i>Achnatherum hymenoides</i>	Indian ricegrass	<i>psíŋ</i>	The seeds are edible when cooked. They are often ground into flour and used to make bread or to thicken soups. The seeds are sometimes roasted.
6	<i>Acorus calamus</i>	sweet flag, bitterroot	<i>siŋkpé tháwóte</i>	A decoction of the roots is taken for fever, sore throats, coughs, stomach problems, heart disease, high blood pressure and diabetes. Root chewed for sore throat and toothache. Poultice of crushed root used externally for muscle cramps. Root is chewed and then put onto one's face to ward off fear in the presence of an enemy. Pulverized root mixed with gun powder and made into a decoction, which is effective against arm and leg cramps. Piece of root placed inside of cheek to ward off bad spirits.

7	<i>Agastache foeniculum</i>	lavender hyssop	<i>wañpé yathápi</i>	Leaves used to make a pleasant tea. Leaves chewed for their "licorice" flavor and to freshen breath. They may also be added to cooked meats and fruits. An infusion of the leaves is used to treat colds and fevers, and to strengthen the heart.
8	<i>Alisma plantago-aquatica</i>	water plantain	<i>wakínyangla pahí lí hú</i>	Root is edible - it is harvested in the late fall and then dried for later use. Use caution when harvesting in the fall, as one must ensure correct identification so as to not confuse the tubers of this plant with poisonous death camas.
9	<i>Allium spp.</i>	wild onion	<i>pšínj šičámna</i>	Whole plant cooked in soups and stews; it is also eaten raw. Plant rubbed on bee and wasp stings to relieve pain and swelling. Onions are excellent for heart health and blood detoxification.
10	<i>Amaranthus spp.</i>	amaranth, pigweed	<i>wañpé makhá ayúblaya, wañpé makhá yathápi iyéčheca</i>	Leaves eaten similarly to spinach. Seeds ground into flour. All members of this genus are edible.
11	<i>Ambrosia artemisifolia</i>	annual ragweed	<i>poíphiye, cañhílogañ waštémna</i>	A poultice is made by preparing a decoction of the leaves and soaking material in the liquid and applying the material to swellings. A poultice may also be made by macerating the leaves and applying them directly onto the swollen area. An infusion made from roots promotes regular bowel movements and urination. An infusion is also taken by women who are having difficulty giving birth.
12	<i>Ambrosia trifida</i>	giant ragweed	<i>uñzípakhiñte, yamnúmnuğa iyéčheca</i>	Leaves are rough like a cat's tongue and were used as toilet paper. A poultice of the whole plant is used as a treatment for infected toes. An infusion of the leaves and stems is taken for pneumonia and fever and as a treatment for diarrhea.

13	<i>Amelanchier alnifolia</i>	juneberry, serviceberry, Saskatoon serviceberry	<i>wípazutkǵiŋ</i>	Stems are formed into hoops and covered with leather to use for a game of skill. Stems sometimes used for arrow shafts. Leaves boiled to make a tasty tea. Berries eaten fresh or dried for later use. Berries have a mild laxative effect. The fruits of this species are added to dried meat and mixed together with fat to make wasna (also known as pemmican).
14	<i>Amorpha canescens</i>	leadplant	<i>ziŋtká wóte, ziŋtkála thǵačhǵŋ, thǵathǵŋka hotǵúŋ, pté hotǵúŋ, šungthǵawote</i>	Leaves used to make tea. This infusion is excellent as a simple beverage, but it is also effective in treating lung congestion caused by the flu. Leaves dried and added to smoking mixtures. An infusion of the leaves is used as a bath to treat eczema. Stems are used in ceremonies, especially before bison hunts. Stems are boiled and used to treat neuralgia and rheumatism.
15	<i>Amorpha fruticosa</i>	false indigo	<i>ziŋtkála thǵačhǵŋ</i>	Straight branches used to make arrow shafts.
16	<i>Amphicarpaea bracteata</i>	American hog peanut, mousebean, groundbean	<i>makǵáatomniča</i>	There are two types of fruit on this vine. Fruit that hangs from the upper part of the vine is not edible, but fruits that hang from the lower part of the vine actually extend underground as a sort of root pod. These fruits contain seeds that are known as groundbeans. These "beans" are collected from vole caches. Lakota women would always sing songs to ask the voles (mice) permission to take the beans and they would also leave a gift of corn meal or some other food in exchange for the <i>makatominica</i> . If a reciprocal gift is not given, it is said that the woman and her family would go hungry during the winter. The groundbeans are eaten raw or in soups and stews.
17	<i>Andropogon gerardii</i>	big bluestem, turkeyfoot	<i>pǵeží šašǵá ókhihe thǵaŋkǵŋkǵŋyaŋ</i>	Boys use the stems as arrows in mock war games. This grass is excellent forage for bison and other grazing animals.
18	<i>Anemone canadensis</i>	meadow anemone	<i>wahǵpé owǵnyang wašté</i>	The roots are quite astringent and are used to stop bleeding. A decoction of the root is used to treat lower back pain. An infusion of the root is used as an eye wash to treat sore eyes, crossed eyes, and eye twitching. The root is eaten to clear the throat to promote good singing.

19	<i>Anemone cylindrica</i>	candle anemone, thimbleweed	<i>it̃úŋkala</i> <i>th̃at̃úŋkče</i>	There are stories about this plant. A poultice of the boiled, mashed root is used to treat all types of wounds. A poultice of the leaves is used to treat burns. An infusion of the root is used to treat headaches.
20	<i>Anemone patens</i>	pasque flower, prairie crocus	<i>hokš́i čhekpá wahčá</i>	This is one of the very first flowers of spring. There are many songs about the beauty of this flower and the joy of seeing the first one in early spring. The whole plant is also used as a counter-irritant in the treatment of arthritis.
21	<i>Antennaria parvifolia</i>	small-tear pussytoes, mouse ear everlasting	<i>chaŋh̃lógan hú</i> <i>waŋžíla, it̃úŋkala</i> <i>nakpá</i>	Whole plant used as a poultice to treat swellings. The inflorescences are sometimes chewed like tobacco or even gum. Known by some medicine men as "eagle medicine."
22	<i>Apios americana</i>	Indian potato	<i>bló, bló pahú</i>	This potato is mixed into soups and stews. It can also be eaten raw, roasted or boiled. The green tops of the plant are also edible and are called "blo hu."
23	<i>Apocynum cannabinum</i>	Indian hemp, dogbane	<i>napéoilekiyapi</i>	This plant is considered toxic by the Lakota, but the milky sap is used to "burn-off" warts when applied to the wart three times a day for 5-7 days. Stem fibers are used to make nets and twine. The Lakota are aware that snakes tend to hide under this plant.
24	<i>Arabis hirsuta</i>	hairy rockcress	<i>čhaŋh̃lógan hú</i> <i>waŋžíla</i>	Green parts of plant are eaten raw or cooked similarly to spinach.
25	<i>Arctium minus</i>	burdock	<i>wahpé th̃áŋka</i>	INTRODUCED. The young, green shoots are eaten raw or cooked, as are the tender roots. It sometimes takes a lot of boiling to remove the bitter taste from the roots. A decoction of the roots is also an excellent blood tonic (detoxifier) and is also effective against throat infections, boils, rashes, eczema, acne, boils, and insect bites. It is used in the treatment of colds with sore throat and cough.

26	<i>Arctostaphylos uva-ursi</i>	bearberry	<i>čhaŋlí wápe</i>	Fruit is considered edible, but it is only used as "trail food." An infusion of the whole plant is used as a cough medicine, and as a treatment for colds and back pain.
27	<i>Argemone polyanthemos</i>	prickly poppy	<i>thókahu wahíŋkpe</i> <i>uŋ zíyapi</i>	The roots of this plant are used to make yellow dye for arrow shafts.
28	<i>Argentina anserina</i>	silverweed, shrubby cinquefoil	<i>zuyá p̄hežúta</i>	The leaves are made into a pleasant tea. The roots are also edible raw or cooked. An infusion of the leaves and stems is used to treat diarrhea. The whole plant is regarded as "medicine to use against the enemy."
29	<i>Aristida purpurea</i>	red three awn, wiregrass	<i>peží thák'háŋ kazá</i>	Lakota recognize this plant because the awns get stuck in animals mouths and cause infections. Therefore, the Lakota will not graze their horses in areas where this grass is present.
30	<i>Artemisia absinthium</i>	absinth wormwood	<i>wapezuta</i>	INTRODUCED: This plant is one ingredient in the distilled liquor called absinth. The liquor has been shown to be psychoactive and was outlawed in the United States. A decoction of the whole plant is used to treat heart disease and diabetes; however, care must be taken, as large quantities of this infusion may be toxic. It has been known to stimulate the liver, gall bladder and digestive system. The plant is also used externally to treat insect bites and stings.
31	<i>Artemisia campestris</i> & <i>dranunculoides</i>	Western sagewort, false tarragon sagewort	<i>čhaŋh'lógaŋ</i> <i>waštémna</i>	An infusion of the roots of either plant is used to treat constipation, difficulty urinating, and difficulty in childbirth. Decoction of leaves taken to abort difficult pregnancies. Pulverized roots are put on a sleeping man's face so that his horses can be stolen easily. The pulverized root is also used as a perfume
32	<i>Artemisia cana</i>	silver sagebrush, white sagebrush	<i>p̄heží h'óta thóth'ó</i>	The Lakota recognize that this is the best sage for winter browsing by game and livestock. The leaves and stems are also burned as insect repellent.



33	<i>Artemisia frigida</i>	fringed sagewort, little wild sage	<i>p̄heží h̄óta</i> <i>waštémna, wah̄čá zí</i> <i>sutá, makíá</i> <i>čheyáka</i>	This sage is known as "women's medicine." Women use it in their bath water or to make a bitter infusion. The infusion helps to regulate menstruation and to cause contractions in pregnant women who are overdue.
34	<i>Artemisia ludoviciana</i>	cudweed sagewort, cudleaf sage, ceremonial sage	<i>p̄heží h̄óta wápe</i> <i>blaskáka</i>	Leaves and stems burned as incense and used for "smudging." That is, the sage is burned and the smoke breathed in, and wafted all over the body to purify one's self. An infusion of the plant is used to treat stomach disorders, to treat intestinal worms, to calm nerves, and to treat colds, sore throats and diarrhea. This sage is used to form wreaths and bracelets for Sundancers (Wiwayang Wacipi).
35	<i>Artemisia tridentata</i>	big sagebrush	<i>p̄heží h̄óta th̄áŋka</i>	A decoction of the leaves is used to treat indigestion and sore throat. An infusion of the dried leaves is used to treat pneumonia, colds, coughs and bronchitis. It is used both internally and externally to treat rheumatism. A poultice of the crushed plant is used on open wounds, and a decoction of the leaves is used as an antiseptic wash for cuts, wounds and sores. The dried plant is burned in one's house as a disinfectant.
36	<i>Asclepias incarnata</i>	swamp milkweed	<i>wah̄ŋheya íphiye,</i> <i>wah̄čáŋča hú bloká</i>	The pulverized root is made into a salve which is used to treat swollen glands. The young seed pods are edible after cooking. An infusion of the roots is used to treat asthma, rheumatism, syphilis, and a weak heart.
37	<i>Asclepias pumila</i>	low milkweed, dwarf milkweed	<i>čhešlóšlo p̄hežíta,</i> <i>p̄heží swúla čík'ala,</i> <i>h̄anté iyéčheča</i>	Infusion of leaves used as diarrhea medication, especially for children.

38	<i>Asclepias speciosa</i>	showy milkweed	<i>waŋpé thínpsila,</i> <i>pŋanúnŋpala,</i> <i>waŋčáŋča</i>	Blossoms are boiled, mixed with flour, and eaten. Decoction of plant used to help lactating women produce milk. Young shoots are used in soups, like wild cabbage. This plant can be toxic as it matures, so use caution. Floral buds are used to thicken soups. Open flowers are chopped up to make a sort of chutney or "preserve."
39	<i>Asclepias stenophylla</i>	narrowleaf milkweed	<i>thínpsila pŋežúta</i>	Infusion of whole plant used to stimulate appetite. Roots are made into an infusion, or a small piece of the root is chewed, especially by children, to improve appetite.
40	<i>Asclepias syriaca</i>	big milkweed, common milkweed	<i>pŋanúnŋpala</i> <i>waŋčáŋča</i>	Infusion of whole plant used as diarrhea medicine. Young shoots can be eaten in soups or stews. Flower buds are also edible.
41	<i>Asclepias verticillata</i>	whorled milkweed	<i>waŋpé thínpsila</i> <i>iyécheča</i>	An infusion is used to treat diarrhea. An infusion is also made from this plant to help lactating women produce milk.
42	<i>Asclepias viridiflora</i>	green milkweed (both slim leaf and wide-leaf varieties)	<i>húčhiŋška</i>	Pulverized roots made into an infusion, which is used to treat diarrhea, especially for children. An infusion is also given to lactating women to aid them in producing more milk.
43	<i>Aster ericoides &amp; falcatus</i>	heath aster	<i>čhaŋŋlógan</i> <i>pŋépheła</i>	These aster species are grazed readily by deer and pronghorn antelope.
44	<i>Astragalus canadensis</i>	Canadian milkvetch	<i>pŋežúta ská hú,</i> <i>šunŋkówašakala</i>	Seeds are eaten by horses. Decoction of root used to treat fevers in children. The root is chewed to relieve chest pain and coughing. The roots of <i>A. canadensis</i> are mixed with the roots of <i>Glycyrrhiza lepidota</i> (American licorice), the macerated mixture is made into an infusion, which is used to treat the spitting up of blood.
45	<i>Astragalus crassicaarpus</i>	groundplum milkvetch	<i>pté thawóte,</i> <i>thiatiŋŋka omníča</i>	The fruits of the groundplum resemble small plums, but are very firm and no larger than a ping-pong ball. They are an excellent snack food and the taste resembles raw green beans, but slightly sweeter. The Lakota consider this plant to be good medicine for their horses.

46	<i>Astragalus gilviflorus</i>	plains orophaca	<i>núŋŋoka yazáŋ p̄hežúta</i>	The small, silvery-gray leaves are moistened, rolled into a ball, and put in the outer ear to relieve earache.
47	<i>Astragalus gracilis</i>	slender milkvetch	<i>p̄hežúta skúya</i>	The roots are chewed by lactating women to increase milk production.
48	<i>Astragalus racemosus</i>	locoweed, alkali milkvetch	<i>p̄hežúta ská hú, šunŋkléža hú</i>	One must be careful to not confuse this plant with other milkvetch species. This plant is poisonous to both humans and livestock.
49	<i>Balsamorhiza sagittata</i>	arrowleaf balsamroot	<i>hutkáŋ tháŋka</i>	Decoction of the whole plant (including roots) is used to treat stomach pains and headache. Sticky resin is used as an antiseptic for wounds. The root may be eaten raw, boiled, or roasted.
50	<i>Beckmannia syzigache</i>	sloughgrass	<i>mní p̄heží</i>	Excellent forage for wildlife.
51	<i>Betula papyrifera</i>	birch, paper birch, white birch	<i>čhaŋhásaŋ</i>	The shredded bark is bound together to make torches. The bark is formed into a container, which is used to collect and hold the sweet sap from <i>Acer</i> spp. (maple trees).
52	<i>Bidens spp.</i>	beggartick, stickseed sunflower	<i>mníóhuta aglágla, waŋčá zí</i>	Infusion of whole plant is used to alleviate pain and it is also used as an anti-diarrheal.
53	<i>Bouteloua gracilis</i>	blue grama	<i>p̄heží okhížata</i>	This is an excellent forage for wildlife. Lakota children would play a game using this grass: Most of the stems have two inflorescences on them, so children would compete to see who could find the stems with three inflorescences. (Akin to finding a four leaf clover.)
54	<i>Bouteloua hirsuta</i>	hairy grama	<i>p̄heží okhížata</i>	Excellent forage for wildlife.
55	<i>Bovista plumbia</i>	tumbling puffball	<i>hokší čhekpá</i>	When brown and dried, the powdery spores of this mushroom are used as an antibacterial styptic for wounds, especially on a newborn's unhealed navel. The mushroom is also a choice edible when young and marshmallow-white in the center.
56	<i>Brickellia eupatorioides</i>	false boneset	<i>waŋpé p̄há</i>	The entire plant is used to make a poultice for swellings.

57	<i>Bromus inermis</i> spp. <i>pumpellianus</i>	Pumpellii bromegrass	<i>p̄heží hájškaska</i> <i>psín̄ iyéčheča</i>	This is a native subspecies of bromegrass. It is excellent forage for wildlife.
58	<i>Buchloe dactyloides</i>	buffalo grass	<i>p̄heží</i> <i>iwičhak̄oyaka,</i> <i>p̄heží hiŋkp̄ila</i>	This grass is excellent forage for bison. It is now being propagated as lawn sod, due to the fact that it does not grow taller than a few inches (no mowing required) and does not require irrigation.
59	<i>Calamovilfa longifolia</i>	sandreed	<i>saŋtúhu h̄čáka</i>	The inflorescence (spike) is used as ceremonial decoration, similar to a feather in one's hair. Crazy Horse was said to have worn a sandreed spike in his hair. It was also considered a war charm. Long sandreeds were used as pipe cleaners.
60	<i>Calvatia cyathiformis</i>	purple spored puffball	<i>hokší čhekpá</i>	As with all puffball mushrooms when brown and dried, the powdery spores are used as an antibacterial styptic for wounds, especially on a newborn's unhealed navel. The mushroom is also a choice edible when young and marshmallow-white in the center.
61	<i>Callirhoe involucrata</i>	purple poppy mallow	<i>p̄hežíta naŋtíažila</i>	A decoction of the root is taken for internal pains. The smoke of the dried root is used to "bathe" or waft over aching body parts, and is inhaled for head colds.
62	<i>Calochortus gunnisonii</i>	sego lily	<i>p̄sín̄ th̄áŋka</i>	The bulbs are eaten raw, boiled or roasted. The bulbs are also macerated and combined with other plants to create a poultice that is used to treat breast cancer.
63	<i>Calochortus nuttallii</i>	mariposa lily	<i>p̄sín̄ th̄áŋka</i>	The bulbs are eaten raw, boiled or roasted. The bulbs are also macerated and combined with other plants to create a poultice that is used to treat breast cancer.
64	<i>Calylophus serrulatus</i>	yellow evening primrose, yellow prairie mallow, yellow sundrops	<i>wañčá zí čík'ala</i>	This primrose is good forage for wildlife.

65	<i>Campanula rotundifolia</i>	harebell	<i>waǰpé thó</i>	The leaves are edible raw or cooked. An infusion of the root is used to treat earaches.
66	<i>Capsella bursa-pastoris</i>	shepherd's purse	<i>napčhóka gmiyán</i>	INTRODUCED: The leaves, young stems, and seed pods are edible raw or cooked. An infusion of the dried plant is used to treat internal bleeding of the stomach, uterus, or kidneys.
67	<i>Cardamine bulbosa</i>	spring cress	<i>huŋtkaq kháta</i>	The roots of this plant are poisonous, but the leaves are edible raw or cooked.
68	<i>Carex spp.</i>	sedge	<i>pheží psuŋpsúŋla</i>	Sedges provide good forage and cover for wildlife and the leaves of some species are used to make baskets and mats.
69	<i>Carex douglasii</i>	Douglas' sedge	<i>pheží psuŋpsúŋla</i>	The young shoots and soft stems are eaten raw.
70	<i>Carya ovata</i>	hickory	<i>čhaŋsúhu</i>	Hickory nuts are a tasty and nutritious food source. The nuts were eaten whole or ground into flour. The sap of the hickory is sometimes used as a sweetener.
71	<i>Castilleja sessiliflora</i>	downy paintbrush, painted cup	<i>waǰpé yazókapi</i>	The fresh flowers are edible, offering the reward of sweet nectar in the bottom of the corolla tube.
72	<i>Ceanothus herbaceous</i>	small red stem, new jersey tea, inland ceanothus	<i>uŋpíáŋ tháwóte</i>	Leaves are used to make a fragrant tea. An infusion is used to treat asthma, chronic bronchitis, whooping cough, consumption, and dysentery, fevers and sore throat.
73	<i>Celastrus scandens</i>	bittersweet	<i>zuzéča tháwóte, waǰlókapi šni phežíta</i>	Roots chewed and then smeared on the body to make one impervious to wounding. All parts of the plant are believed to be toxic, but the bark is used to make an ointment or poultice, which is used to treat burns, scrapes, and rashes. The root is also made into a diuretic decoction.
74	<i>Celeriac macrantha</i>	junegrass	<i>pheží šičámna</i>	This grass is excellent forage for deer and other wildlife.
75	<i>Cenchrus longispinus</i>	sand bur	<i>pheží uŋkčéla</i>	The burrs ( <i>unkcecela</i> ) stick to clothing and fur and may irritate the skin. One must be careful not to set one's food/meat on the burrs.

76	<i>Chenopodium berlandieri</i>	lamb's quarters	<i>wahpé thoθhó,</i> <i>čhaŋhí lógaŋ íŋkpa</i> <i>gmigméla</i>	The leaves and young stems are an excellent green vegetable, and are eaten raw or cooked.
77	<i>Chrysothamnus nauseosus</i>	rubber rabbit brush, rabbitbrush	<i>pheží h́óta šičámna</i>	In large quantities, this plant can be toxic. Jackrabbits and squirrels use this plant for food and cover. Leaves and stems are sometimes chewed to extract a type of "chewing gum." A decoction of the twigs has been used in the treatment of toothaches, coughs and chest pains. An infusion of the flowering stems has been used in the treatment of colds and TB. An infusion of the leaves and stems has been used to treat colds, diarrhea, and stomach cramps. It has also been used externally as a wash for sores and skin eruptions, especially smallpox.
78	<i>Cicuta maculata</i>	water hemlock	<i>yažópi hú</i>	POISONOUS - all parts of this plant are deadly and should be avoided.
79	<i>Cirsium spp.</i>	thistle	<i>tš́ókahu</i>	The root and stems may be peeled and eaten raw or in soups and stews. It can also be dried and stored for winter use. The stems may be tough or stringy, much like celery, so one may need to cook them before eating.
80	<i>Cirsium undulatum</i>	wavy leaf thistle	<i>tš́ókahu</i>	The root and stems may be peeled and eaten raw or in soups and stews. It can also be dried and stored for winter use. The stems may be tough or stringy, much like celery, so one may need to cook them before eating. A decoction of the root has been used in the treatment of gonorrhoea. A cool infusion of the root has been used as a wash for eye diseases.

81	<i>Clematis ligusticifolia</i>	Western virgin's bower	<i>čhaŋíyuwe skaská nañčá, čhaŋíyuwi owíčak'o, owíčak'ola hú</i>	Leaves are chewed as a cold and sore throat remedy. Infusion of roots taken for headache. The root is macerated and used as a poultice to treat open sores, chest pains and rheumatic joints. An infusion of the plant has been used as a wash for skin eruptions, sores, wounds, backaches, swollen limbs, tired feet, syphilitic sores, and eczema. The stalks and roots have been used to make a woman's contraceptive. A poultice made from the cut stems has been applied to the teeth for treating toothache. A poultice of the mashed, moistened seeds is applied to severe burns.
82	<i>Cleome serrulata</i>	Rocky Mountain bee plant	<i>wañpé h'eh'é</i>	This plant is used in combination with <i>Amorpha canescens</i> to ensnare bison into a trap. Young shoots, leaves and flowers may be eaten as a potherb. An infusion of the plant is drunk to treat fevers to relieve stomach disorders. A poultice made from the macerated, moistened leaves is used to relieve sore eyes.
83	<i>Conium maculatum</i>	poison hemlock	<i>yažópi hú čík'ala</i>	POISONOUS - all parts of this plant are deadly and should be avoided.
84	<i>Convolvulus arvensis</i>	creeping Jenny, bindweed	<i>kimímila tñawánañča čík'ala psith'óla hú iyéčheča</i>	INTRODUCED: This vine is considered a noxious weed. However, it is used by some Lakotas in the treatment of fevers. An infusion of the flowers is laxative and is also used in the treatment of fevers and wounds. A cold tea made from the leaves is laxative and is also used as a wash for spider bites or taken internally to reduce excessive menstrual flow.

85	<i>Conyza canadensis</i>	horseweed	<i>čhaŋhí lógaŋ</i> <i>waštémna iyéčheča</i>	An infusion is made from the roots and lower stalks to treat diarrhea and pain in the bowels, especially in children. Horseweed is boiled to make steam for sweat lodges, taken as a snuff to stimulate sneezing during the course of a cold and burned to create a smoke that wards off insects. It is quite astringent and is also used to treat diarrhea and dysentery. It is also said to be an effective treatment for bleeding hemorrhoids.
86	<i>Coreopsis tinctoria</i>	golden tickseed	<i>čhaŋhí lógaŋ</i> <i>wakíályapi</i>	This plant is known as "life-medicine" and the dried plant is used to make a coffee substitute. Lakota women made an infusion of the shoots (above ground parts of plant) when they desired a female child.
87	<i>Cornus sericea</i>	red osier dogwood, red willow	<i>čhaŋšáša</i>	During very cold months, the Lakota collect the stems of this shrub and then peel off the bright red, outer bark. Some boil the stems to make this task easier. What is desired is the cambium layer just below the red, outer bark. This material will be a light green to white color when freshly peeled, later turning a reddish brown. <i>Can sasa</i> is used in ceremonial pipe smoking, and is considered a very sacred plant.
88	<i>Corylus americana</i>	hazelnut	<i>úmahu</i>	The nuts are very tasty and delicious, although somewhat smaller than their domesticated relatives.
89	<i>Crataegus succulenta</i> & <i>chrysoarpa</i>	hawthorn	<i>matíó tháspáŋ,</i> <i>tháspáŋ hú</i>	birds and other wildlife. The berries are sometimes mixed with other medicines to make them more palatable. A tasty tea can be made by boiling the twigs. The flowers and berries are excellent for treating heart related illnesses, muscular issues, and multiple sclerosis. A decoction or even a tincture of the fruits and flowers is excellent for strengthening the heart and for treating high blood pressure. The long, sharp thorns are used for sewing.
90	<i>Croton texensis</i>	skunkweed, Texas croton	<i>waŋpé hčáŋčá</i>	An infusion of the leaves is used for rheumatism, stomach ache, and paralysis. The seeds are placed in the outer ear to treat earache. Smoke from the burning plant is inhaled to treat headache.



91	<i>Cucurbita foetidissima</i>	buffalo gourd	<i>wagmú pñežúta</i>	The root is used to treat ailments in all parts of the body. A poultice of the fruit is used to treat skin conditions. The seeds are made into an infusion that is used to kill intestinal worms. The fruit is also used as a soap substitute.
92	<i>Cucurbita lagenaria</i>	dipper gourd, bottle gourd	<i>wagmú há</i>	This gourd is used to make rattles which are used to make ceremonial music.
93	<i>Cucurbita maxima</i>	Lakota squash	<i>wagmú</i>	This delicious squash was harvested in late fall. It was dried for use during winter months, and is still used in soups and stews.
94	<i>Cycloloma atriplicifolium</i>	winged pigweed	<i>čhaŋh' lógaŋ owíčak'o</i>	The seeds were ground into flour and made into mush or cakes. The inflorescences, stems and leaves are made into an infusion, which is used to treat rheumatism, fevers and headaches.
95	<i>Cyperus esculentus</i>	flat sedge, yellow nutsedge	<i>mní saŋtúhu</i>	Roots are eaten raw, boiled, or roasted.
96	<i>Cypripedium acaule</i>	lady's slipper	<i>makhá čhaŋnákpa</i>	The root is known for treating anxiety and sleeplessness. The roots have also been used in the treatment of menstrual disorders, stomach aches, kidney and urinary tract disorders and venereal disease.
97	<i>Dalea aurea</i>	silk top dalea, golden prairie clover	<i>th'okh'ála th'aph'éžuta</i>	An infusion of the leaves is taken for dysentery and stomachache. A decoction of the leaves is used for colic.
98	<i>Dalea candida</i>	white prairie clover	<i>th'okh'ála th'aph'éžuta hú bloká</i>	The roots are peeled and chewed for their sweetness. An infusion is made from the dried roots, which is used to prevent disease.
99	<i>Dalea enneandra</i>	nineanther prairie clover, slender dalea	<i>heh'áka th'aph'éžuta</i>	An infusion of the leaves is used to relieve stomachache and dysentery.

100	<i>Dalea purpurea</i>	purple prairie clover	<i>thokháda thaphežuta</i> <i>hú wíngyela</i>	Roots are peeled and chewed for their sweetness. An infusion of the leaves is used to treat diarrhea. The pulverized roots are mixed with water and this "gruel" is drunk to prevent disease. A poultice of the crushed leaves is applied to wounds. An infusion of the leaves and flowers is used treat heart problems. A decoction of the roots is used to treat measles.
101	<i>Dalea villosa</i>	hairy prairie clover, silky prairie clover	<i>biaye zihka</i> <i>tháčháj hustóla,</i> <i>čhasmú huňóhíota,</i> <i>waptáya huňóhíota</i>	A decoction of the roots is used as a laxative. The leaves and blossoms were eaten to reduce swelling of the throat. Roots are used to make a purgative.
102	<i>Dasiphora fruticosa</i>	shrubby cinquefoil	<i>čhaŋkhályapi zí</i>	A pleasant tea is made from the leaves.
103	<i>Daucus carota</i>	Queen Anne's Lace, wild carrot	<i>pňangí zí</i>	INTRODUCED: The root is edible in the same manner as cultivated carrots. One must be very careful not to confuse this plant with poisonous hemlock ( <i>Conium maculata</i> or <i>Cucuta maculata</i> ). The root is very tonic, and is excellent to stimulate the kidneys and the liver. It is especially good for treating digestive disorders. An infusion of the leaves is taken to prevent and even eliminate kidney stones. The root is used to stimulate the uterus, so it shouldn't be used by pregnant women.
104	<i>Delphinium viruses</i>	prairie larkspur	<i>wanági thínpsila</i>	This plant is poisonous to livestock A tincture of the flowers or seeds may be mixed with shampoo to eliminate lice.
105	<i>Desmanthus illinoensis</i>	mimosa	<i>ňanté pňepňé</i> <i>iyéčheča</i>	Bean pods are used as play rattles by young boys. The seeds were sometimes used as food after roasting. An infusion of the leaves is used to treat eczema and psoriasis.
106	<i>Desmodium canadense</i>	Canada tickclover	<i>wókaň taŋ</i> <i>blaskáska</i>	This plant provides good forage for wildlife.
107	<i>Dichanthelium</i> <i>oiligosanthes</i>	panic grass	<i>pňeží wakíán</i>	This grass is believed to be poisonous to horses.

108	<i>Distichlis spicata</i> <i>var. stricta</i>	saltgrass, inland saltgrass	<i>p̄eží suksúta</i>	Grows in high alkalinity/high salinity environments.
109	<i>Dyssodia papposa</i>	fetid marigold, dogweed	<i>pispíza th̄awóte</i>	The dried, powdered leaves were inhaled to relieve breathing difficulties and headaches. A decoction made from fetid marigold and <i>Gutierrezia sarothrae</i> (broomweed) is used to treat cough due to colds. A decoction of fetid marigold and <i>Grindelia squarrosa</i> (curlycup gumweed) flowers is used to treat tuberculosis and hemorrhaging.
110	<i>Echinacea</i> <i>angustifolia</i>	echinacea, purple coneflower, blackroot	<i>ičh̄áipe hú,</i> <i>unglákčapi</i>	A poultice of the root is applied to wounds, swellings, and sores. The roots and seed heads are chewed to relieve toothache, sore throat, tonsillitis, stomach-ache, over-perspiration, and to quench thirst. The chewed root and its juices are applied to venomous bites (including snakes, spiders, and bees), and are also applied to burns. The smoke from the burning root is inhaled to treat headaches in people and distemper in horses. The dried, prickly head is used to brush hair. A tincture, or decoctions made from the root is used to boost the immune system and relieve flu and cold symptoms. Echinacea is also being investigated as a treatment for cancer.
111	<i>Echinochloa crus-galli</i>	barnyard grass, cockspur grass	<i>p̄eží skúya</i>	The seeds have a sweet flavor and are used to season food or are ground into flour. Recently, some Lakotas have used a decoction of this grass or a meal made from the seeds to treat cancers.
112	<i>Echinocystis lobata</i>	wild cucumber, mock apple	<i>wañnáh̄naheča</i>	The fruits of the wild cucumber are used medicinally in combination with other plants. The pulverized root was used as a poultice for headaches. An infusion of the roots is used to chills and fever.
113	<i>Elymus canadensis</i>	Canada wildrye	<i>p̄teyá̄iota</i>	Excellent forage for bison. The seeds are edible when cooked.
114	<i>Equisetum arvense</i>	field horsetail	<i>wan̄yéča swúla,</i> <i>p̄eží swúla</i>	If this plant gets mixed into hay, it may cause poisoning to livestock. It contains certain harmful alkaloids, so it is not advisable to eat it - although the Lakota sometimes did when it was very young. It is quite astringent and a decoction is excellent to stop bleeding.

115	<i>Equisetum hymenale</i>	scouring rush	<i>wanyéča hú tháŋka</i>	This plant is very high is silica, and is therefore used as a scrubbing tool. It is excellent for polishing or to clean utensils.
116	<i>Erigeron annuus</i>	fleabane	<i>inážig pñežúta, uŋwáhinižanǰthi uŋpi</i>	The blossoms of fleabane are mixed with brains, gall bladders, or spleens of animals and the mixture is used to bleach or tan hides. The flowers are dried and powdered and the resulting powder is inhaled to cause uncontrollable sneezing, which relieves head congestion. An infusion of the plant is used to treat mouth sores and to encourage urination in adults.
117	<i>Eriogonum flavum</i>	yellow wild buckwheat	<i>čhaŋh lógaŋ hutkáŋ sapsápa šunǰtháwote</i>	The seeds may be ground into flour.
118	<i>Eryngium yuccifolium</i>	rattlesnake master, button snakeroot	<i>wazímniŋkpa iyéčheča</i>	Root used as medicine for bladder trouble. The root is also used antidote to rattlesnake and scorpion venom. A decoction of the root is used to make men more virile.
119	<i>Erysimum asperum</i>	Western wallflower	<i>wañčá zí šičámna</i>	The Lakota dried and then chewed the bitter foliage or made an infusion of the entire plant to treat stomach and bowel troubles, such as dysentery. The crushed seeds are put into warm water and drunk for the same purpose.
120	<i>Eupatorium maculatum</i>	Joe pyeweed, purple boneset	<i>wañčá pñepñéla</i>	Excellent forage for grouse. Grows along streams and riverbanks. An infusion of the whole plant is diuretic and is used to treat kidney ailments, painful urination, and rheumatism. A decoction of the roots lowers fevers, treats colds, and kidney infections.
121	<i>Euphorbia esula</i>	leafy spurge	<i>šišská</i>	INTRODUCED: This is a noxious weed which has taken over many acres of pasture and rangeland throughout the Great Plains. The milky sap may be irritating to the skin.
122	<i>Euphorbia geyerii</i>	Geyer's spurge	<i>čhaŋh lógaŋ wapñóštaŋ, pñayá pñežúta</i>	The stems were woven together to make a sort of hat that was used to protect one's head from the sun.

123	<i>Euphorbia marginata</i>	snow on the mountain	<i>itópta sápa tháphíéžuta, asáŋpi pñežúta</i>	An infusion of the crushed leaves is used as a liniment for swelling. An infusion of the whole plant is used to help lactating women produce breast milk. Use caution because the plant may be toxic.
124	<i>Euphorbia petaloides-eaplon</i>	prairie spurge	<i>apéla tháphišlečala iyéčheča</i>	The milky sap of this plant is poisonous.
125	<i>Fragaria vesca</i>	wild strawberry	<i>wažúšteča</i>	The fruits are never very plentiful, but when available, were eaten fresh or dried for later.
126	<i>Fraxinus pennsylvanica</i>	green ash	<i>pseñtíŋ čháj</i>	The wood of the ash tree is used to make bows, tipi pins and pegs, drums, drying racks, and pipestems. It is makes an excellent firewood.
127	<i>Fritillaria atropurpurea</i>	purple spotted fritillaria, spotted missionbells, leopard lily, checker lily	<i>čhaŋhílóŋaŋ makhíátíola pñežúta, wahíŋheya iphíye</i>	The scaly bulbs are tasty when eaten raw or cooked, but they are small and relatively scarce, so one must take steps to prevent over harvesting.
128	<i>Galega officinalis</i>	goat's rue	<i>čhošáša</i>	INTRODUCED: This plant is considered a noxious weed in most states. The leaves contains galegine, an alkaloid that strongly reduces blood sugar levels; therefore, an infusion of the plant is used to treat diabetes. An infusion is also used to increase milk production in lactating mothers.
129	<i>Galium aparine</i>	cleavers, bedstraw	<i>wañpé wáŋčağa hú bloká</i>	This plant often clings to clothing with the aid of tiny hairs along the stems, leaves and fruits. The roasted seeds may contain caffeine and was used as a coffee substitute. A salve made from cleavers is excellent in treating skin irritations.
130	<i>Galium boreale</i>	Northern bedstraw	<i>čhaŋhílóŋaŋ ská waštémna</i>	The leaves are edible after cooking. A decoction of the whole plant is used to prevent pregnancy. Women wear dried stems under their belts as a sort of perfume. Red dye is made from the roots.

131	<i>Galium triflorum</i>	sweet scented bedstraw	<i>wañpé wáñčáğa hú wínyela</i>	Women sometimes use the dried plant as a sort of perfume by slipping a stem under their belt.
132	<i>Gaura coccinea</i>	scarlet gaura	<i>thátháwabluška tháčháhñ loğar, ośúñk'oyuspapi</i>	The Lakota chew the plant and rub it on their hands to attract and catch horses.
133	<i>Gaura mollis</i>	velvety gaura	<i>heñáka hé</i>	This plant is used as a sort of love medicine.
134	<i>Gentiana andrewsii</i>	closed gentian, bottle gentian	<i>kaphópa, wañčá wašté</i>	Roots are used to flavor beverages. The root is also rubbed on the skin to prevent snakebite.
135	<i>Gentiana puberulenta</i>	downy gentian	<i>pñežúta zí</i>	A decoction of the root is taken as a bitter tonic.
136	<i>Geum triflorum</i>	prairie smoke, torch flower, old man's whiskers, lion's beard, maiden hair	<i>piñkpá hiñšmá</i>	A decoction of the whole plant is used to treat sore eyes. A decoction of the root is used as a mouthwash for canker sores and sore throat and is also used to bathe wounds. The dried foliage is used to make a tonic infusion. The achenes were used as perfume. The dried root is used to make a healing salve for wounds. The root is also scraped and added to smoking mixtures.
137	<i>Grindelia squarrosa</i>	curlycup gumweed	<i>pté íčhiyuha</i>	An infusion of the tops of the plants is used to treat asthma and/or to relieve bronchial symptoms. However, the plant should not be used by those with heart or kidney disorders. The decoction, taken three times a day, will relieve constricted airways and even help to dry phlegm.
138	<i>Glycyrrhiza lepidota</i>	American licorice, wild licorice	<i>wináwizi čík'ala</i>	The root is chewed for its pleasant flavor and to treat toothache and the flu. A decoction of the dried root or leaves is used to treat diarrhea, upset stomach, fever, coughs, chest pain, and sore throat. Leaves are steeped to produce a topical treatment for earache. The leaves are chewed and applied as a poultice to the sore backs of horses. The root is also used to protect pregnant women from spiritual harm.

139	<i>Gypsophila muralis</i>	baby's breath	<i>wañčá ská čík'ala</i>	INTRODUCED: This plant is used in a creemony to treat Bell's Palsey and other symptoms of stroke. The ceremony must be repeated four times.
140	<i>Hedeoma hispida</i>	rough pennyroyal	<i>makiá čheyáka</i>	Infusion of leaves used to treat colds and loss of appetite in those who are sickly.
141	<i>Helianthus annuus</i>	annual sunflower, common sunflower	<i>wañčá zizí, wañčá zí tšáŋka</i>	The inflorescences are collected after the seeds have matured and are then boiled. The sunflower oil rises to the top of the water, is collected, and used to moisturize hair and skin. The boiled flowers (the entire inflorescence) with the bracts removed are boiled and the resulting liquid drank to treat pulmonary problems. The seeds are also eaten.
142	<i>Helianthus maximiliani</i>	Maximilian's sunflower	<i>wañčá zii</i>	The small roots were sometimes eaten and the seeds are also edible.
143	<i>Helianthus tuberosus</i>	Jerusalem artichoke	<i>pšangí zí</i>	Tubers are boiled or roasted and sometimes fried after boiling and then eaten. Overuse of these tubers is said to cause flatulence.
144	<i>Hesperostipa spartea</i>	porcupine grass	<i>mačápheča</i>	The culms are used by young boys as play arrows. The seeds have long sheaths that are collected and bound together to make hairbrushes.
145	<i>Heuchera richardsonii</i>	alum root	<i>wañpéga, wañpé t'ága, čhaŋhí lóh'snasnala</i>	An infusion of the root of this plant is used as a treatment for diarrhea - it is very high in tannins. A poultice of the powdered root is applied to wounds and sores. Deer and elk occasionally eat this plant.
146	<i>Hierochloe odorata</i>	sweetgrass	<i>pheží wačhángga</i>	Strands of this grass are braided together and the braid is burned to call upon guardian spirits, and to create good feelings. The wonderful smell of sweetgrass is often used for this purpose in Lakota ceremonies.

147	<i>Hordeum jubatum</i>	squirrel tail, foxtail barley	<i>yus'íngs'íng ité,</i> <i>ité ašníyaŋpi</i>	This grass is sometimes foraged by geese. It is also an indicator of high-alkaline soil. The seeds are edible and may be ground into flour, although it is difficult to separate from the husk. The dried root may be used as a poultice for sties on eyes.
148	<i>Humulus lupulus</i>	hops, common hops	<i>čhaŋíyuwe waí pé</i> <i>onáphí óí ye, waí pé</i> <i>akíkašpapi</i>	The papery fruits of the hops vine are steeped and the resulting infusion drunk to treat fever and intestinal pains. Hops are also boiled and the resulting liquid mixed with various flour sources (ground nuts, ground roots, pollens) to make bread. Hops encourages CO2 production and therefore makes bread rise. The resulting dough is used to make bread. Hops contain a natural sedative and an infusion, although bitter, is excellent for treating sleeplessness.
149	<i>Hydrastis canadensis</i>	goldenseal	<i>pńóge očáŋčáŋ</i> <i>pńežúta</i>	An infusion of the root treats digestive disorders and soothes mucous membranes. It is also extremely useful in treating of constipation. An infusion also treats earache, sore throat, and runny nose. Goldenseal is antibacterial and long-term use may destroy beneficial intestinal organisms, so use for limited periods of time. An infusion of the root is used externally as a wash for skin diseases, vaginal infections, and gum disease.
150	<i>Hymenopappus tenuifolius</i>	wooly hymenopappus	<i>šunghuštíphiye</i>	This plant is made into a salve or wash that is used to treat sores on horse's hooves.
151	<i>Hypsizygus tessulatus</i> (formerly <i>Pleurotus tessulatus</i> )	elm cap mushroom	<i>čhaŋnáka</i>	This delicious mushroom grows on boxelder trees in the autumn, often from the tiny holes made when boxelder is tapped for its sap in the spring. The mushrooms are dried or used fresh in soups and stews.
152	<i>Ipomoea leptophylla</i>	bush morning glory	<i>pńežúta niǵé tháŋka</i> <i>pńetága</i>	The Lakota eat the peelings of the root to treat stomach disorders. Before the days of matches and lighters, the Lakota would "store" a fire within the root and hang it in a tree. The fire would keep burning for months within the root.
153	<i>Ipomopsis congesta</i>	ballhead gilia	<i>yažókapi hú</i>	An infusion of the whole plant is used as a blood tonic.



154	<i>Iva xanthifolia</i>	marsh elder	<i>waǰpé šíc̣a</i>	The seeds may cause irritation to skin. A decoction of the whole plant is taken internally or made into a salve and applied externally and used to treat cough and congestion.
155	<i>Juglans nigra</i>	black walnut	<i>gmá, čhaŋsápa</i>	The deliciously rich nuts are used for food. The bark of the root is used to make black dye. The bark and leaves are made into a poultice that is excellent for treating skin ailments such as poison ivy, eczema and even herpes. A weak decoction of the bark is useful in treating diarrhea, even in children. The juice of the husk is applied externally to kill ringworm.
156	<i>Juniperus virginiana, communis</i>	Eastern red cedar	<i>ǰaŋté šá</i>	Juniper leaves are burned ceremonially, especially to cure the fear of thunder. A decoction is made from the cones and leaves is used to treat coughs. The cones have an incredibly strong "pine" flavor, but are effective in relieving thirst. Smoke from burning twigs is inhaled to relieve head congestion. Red Cloud had a vision that he should drink a decoction of the leaves or bathe in the decoction to treat cholera. It was said that this cure was infallible.
157	<i>Lactuca oblongifolia, pulchella</i>	blue lettuce	<i>ažúŋtka yazáŋpi, wablúška hiŋšmá iyéčheča</i>	The roots yield a milky resin that was sometimes used as a type of "chewing gum." An infusion of the leaves and stems is taken for stomachaches. The young leaves are eaten as a green vegetable, but are quite bitter, so are best mixed with other lettuces and greens and collected early in the spring.
158	<i>Lactuca serriola</i>	wild lettuce	<i>waǰpé iŋkpa žiží</i>	The young leaves are eaten by lactating women to aid in milk production.
159	<i>Lappula occidentalis</i>	desert stickseed, hairy stickweed	<i>hú pǰepǰé</i>	This plant is known to spread quickly.
160	<i>Lepidium densiflorum</i>	peppergrass	<i>ziŋtkála tiawóte</i>	An infusion of the whole plant is excellent for the kidneys. The young greens make a nice addition to any salad and the seeds may be used as a substitute for pepper in any dish. The mature seeds are quite spicy.

161	<i>Lepidium densiflorum</i>	clasping peppergrass	<i>apé yuwí</i>	INTRODUCED: The young leaves are edible raw or cooked. They have a spicy, peppery flavor.
162	<i>Leucocrinum montanum</i>	Star of Bethlehem, common starlily, sand lily, mountain lily	<i>yapízapi iyéčheča</i>	The roots are eaten roasted or cooked in soups and stews. A poultice of the roots is used to treat sores and swellings.
163	<i>Levisticum officinale</i>	lovage	<i>čhaŋlí ičáhiye</i>	INTRODUCED. The root is chewed for toothaches. It is also used in pipe-smoking mixtures. The leaves and stems are edible raw or cooked and taste very much like celery. The whole plant is effective in treating digestive and respiratory complaints, especially indigestion, colic, fever, and bronchitis.
164	<i>Liatris punctata</i>	blazing star, dotted gayfeather, liatris	<i>thátéte čhaŋnúŋga</i>	The pulverized roots are eaten to improve appetite and they are also eaten during times of famine. The roots are best collected in the early spring when they are still tender, as they get very woody later in the year.
165	<i>Ligusticum porteri</i>	osha root, bear root	<i>mathó thaphéžuta</i>	The fragrant leaves may be used as a celery substitute. A decoction of the roots or seeds is used to treat poor circulation, fevers, bronchitis, and cramps. The root is used in ceremonial pipe-smoking. The root is burned and the smoke inhaled through the nose to relieve headache and to eliminate sinus infections.
166	<i>Lilium philadelphicum</i>	wood lily, wild lily	<i>mná hčahčá</i>	Pulverized or chewed flowers are applied to spider bites to reduce pain and swelling. The root bulb is edible when cooked and provides a nice carbohydrate source. A decoction of the bulbs is used to treat stomach complaints, coughs, and fevers.

167	<i>Linum perenne</i>	wild blue flax	<i>čhaŋǰí lógaŋ nablága</i>	Stem fibers are used as cordage. Flax seeds are added to all sorts of foods for their delicious flavor and also for added nutrition. Flax seeds are boiled and used as a thickener for soups and stews. They should not be eaten raw, as they do contain cyanide, but it is eliminated through cooking.
168	<i>Linum rigidum</i>	stiffstem flax, large-flowered yellow flax	<i>áta sosapina, nablága čhaŋǰí lógaŋ nablága</i>	The seeds are eaten after being roasted.
169	<i>Lithospermum caroliniense</i>	hairy puccoon, Carolina puccoon	<i>pěžežúta wahesa, pěžežúta hášapa</i>	The powdered root is packed into chest wounds to stop bleeding and prevent infection. A beautiful red dye is obtained from the dried and powdered roots.
170	<i>Lithospermum incisum</i>	cleft gromwell, narrowleaf puccoon	<i>pěžežúta šapsápa</i>	The root is chewed to treat colds, lung hemorrhaging, and coughs. It is also eaten as an oral contraceptive. An infusion of the root is used to treat of stomach aches and kidney pain.
171	<i>Lobelia siphilitica</i>	lobelia, blue cardinal flower	<i>zuzéča tháwóte, úma/uŋmá wápe thóthíó hé</i>	The root is used to treat fluid retention, diarrhea, and dysentery. The fresh root is used in conjunction with <i>Podophyllum peltatum</i> (mayapple) and <i>Prunus virginiana</i> (chokecherry), and then dusted the ulcers with the bark of <i>Ceanothus americanus</i> . The Lakota also used the root as a love charm by adding powdered root to the food of a person whom one was trying to woo.
172	<i>Lomatium cous</i>	cous biscuitroot	<i>wahíčá zí iyawicaskapa</i>	The root is peeled and eaten raw or cooked. The root is also ground into flour to be used as a thickener and to make bread.
173	<i>Lomatium dissectum</i>	bear root, fernleaf biscuitroot	<i>mathíó tháphéžuta</i>	The fragrant and resinous root of this plant was used very much like <i>Ligusticum porteri</i> . Some Lakotas believe that the plants were used interchangeably depending upon availability. The root is sometimes ground into flour to make breads, or may also be added to other foods such as wasna (dried meat) and soups to give flavor.

174	<i>Lomatium foeniculaceum</i>	desert biscuitroot, wild parsley, carrotleaf parsley	<i>šahiyela</i> <i>th'athíngpsila huzízi,</i> <i>wañčá zí</i> <i>iyawicaskapa</i>	The dried plant is used in a love charm. The root is edible, but has a strong flavor that is diminished through roasting. After roasting, it is sometimes ground into flour to make breads or to thicken soups and stews.
175	<i>Lomatium macrocarpum</i>	bigseed biscuitroot	<i>šahiyela</i> <i>th'athíngpsila hú</i>	A tasty tea may be made from the stems and leaves. The root is a nice edible, particularly when it is dried and ground into flour. It may also be added to soups and stews, and is very nutritious.
176	<i>Lomatium orientale</i>	white flowered parsley	<i>th'athíngpsila hú</i>	The root is used for food. Roots are rubbed into hot ash to remove the strong flavor and then eaten. The roots of most <i>Lomatium</i> species should be gathered in early spring.
177	<i>Lonicera spp.</i>	honesysuckle	<i>čhaŋwískuye,</i> <i>čhuŋwískuye</i>	The flowers are used as a sort of candy. The nectar is sucked out of the flowers because it is deliciously sweet.
178	<i>Lotus purshianus</i>	American deervetch, Spanish clover	<i>ziŋtkála th'awóte</i>	The seeds of deervetch make good forage for birds and rodents. The whole plant provides nutritious feed for larger animals.
179	<i>Lupinus sericeus</i>	low lupine, silky lupine	<i>čhaŋlógan nabláya</i>	This plant is recognized as forage for deer and elk.
180	<i>Lygodesmia juncea</i>	skeleton plant, prairie pink	<i>čhaŋlógan hú čhán,</i> <i>swúla un hé</i> <i>tuktéktel yuŋké,</i> <i>makhá čhaŋš'inghu</i>	An infusion made from the whole plant is used for children with diarrhea. The milky sap is sometimes chewed like gum and it is also rubbed on mosquito bites to relieve itching.
181	<i>Lysimachia thyrsoflora</i>	tufted loosestrife	<i>čhaŋlógan wañčá zí</i> <i>špaŋšpáŋžela</i>	An infusion of the leaves and stems is used to treat dysentery and diarrhea.

182	<i>Mahonia aquifolium</i>	Oregon grape root	<i>húte zí</i>	Oregon grape is used to treat stomach disorders and weak digestive systems. It will also stimulate kidney and gallbladder function and to reduce phlegm in the nose and lungs. An infusion of the whole plant is used to treat psoriasis and respiratory infections. The fruit is edible, but is quite laxative. The compound Berberine, which is present in the roots of Oregon grape, is very antibacterial and is used to treat all kinds of infections, especially of the lungs.
183	<i>Maianthemum racemosum</i>	star-flowered false Solomon's seal	<i>yapízapi hú</i>	The berries are eaten raw or cooked, but they have a very mild laxative effect. The rhizome is dried, ground into powder, and used as a styptic for wounds.
184	<i>Malva pusilla</i>	mallow	<i>ápe kalúlu</i>	INTRODUCED: The leaves of this plant make a very tasty green vegetable. They are edible raw or cooked. A poultice of the leaves is used to treat bruises and inflammation.
185	<i>Matricaria discoidea</i>	pineapple weed	<i>skuyómna</i>	INTRODUCED: The flowers made a nice, pineapple-scented tea. An infusion of the flowers is drunk as a sedative and to relieve post-partum exhaustion.
186	<i>Medicago lupulina</i>	black medic	<i>ápe yámni</i>	INTRODUCED: The leaves are edible raw or cooked. An infusion of the plant is used to soothe nerves.
187	<i>Medicago sativa</i>	alfalfa	<i>wañpókhizate, tháčhágičahu tháŋka</i>	INTRODUCED: The sprouts are edible as are the mature leaves. Alfalfa leaves are eaten to improve appetite, and to promote the healing of internal wounds.
188	<i>Melilotus officinalis</i>	yellow sweet clover	<i>wañpé swúla</i>	INTRODUCED: This plant is very attractive to insects and during years when sweetclover is prolific, it covers the Great Plains in a beautiful blanket of bright yellow.

189	<i>Mentha arvensis</i>	field mint	<i>čheyáka, čháj pñěžúta čík'ala</i>	The leaves and stems are boiled to make tea, which is commonly served at ceremonies, feeds, and various meetings. The leaves may also be eaten fresh or dried to treat indigestion. A strong decoction made from the roots is used to treat headaches and fever. Women use sprigs of mint as a sort of perfume by placing some of the leaves in pockets or under belts.
190	<i>Mentzelia decapetala</i>	ten petal blazing star, ten petal mentzelia, prairie lily	<i>čhañh'ológan mañ'áwanglakela</i>	This plant is well known for its beautiful white flowers. A decoction of the roots is used to treat rheumatism and arthritis. The seeds are edible, and were usually ground into mush.
191	<i>Mentzelia nuda</i>	bractless blazing star, sand lily	<i>tñókahu pñepñé</i>	The boiled and strained sap is applied externally to treat fever. One may use the crushed leaves in the same way.
192	<i>Mimulus glabratus</i>	roundleaf monkeyflower yellow monkeyflower	<i>čheškíkñan iyéčheča</i>	The leaves are eaten raw or cooked. They have a bitter flavor, but the bitterness diminishes after cooking.
193	<i>Mirabilis hirsuta</i>	hairy four o'clock, hairy umbrellawort	<i>čhañh'ológan ókhihetñuñ</i>	The dried leaves are sometimes mixed with various tobaccos for pipesmoking.
194	<i>Mirabilis linearis</i>	narrowleaf four o'clock, narrowleaf umbrellawort	<i>huókhihe habskáska</i>	An infusion of the dried leaves used to treat difficulty urinating.
195	<i>Mirabilis nyctaginea</i>	wild four o'clock, prairie four o'clock	<i>poíphiye, cañh'ológan waštémna</i>	A decoction of the roots of <i>poíphiye</i> and the roots of <i>Echinacea angustifolia</i> is used to kill intestinal worms. A decoction of the root is used to treat fever. A poultice of the whole plant, including the root, is used to treat swellings and broken bones. A poultice, mixed with other plants, is used to treat breast cancer.

196	<i>Monarda fistulosa</i>	wild bergamot, beebalm, horsemint, purple bergamot	<i>heháká tháph'éžuta,</i> <i>heháká tháwóte,</i> <i>waipé waštémna</i>	The leaves are used to make a refreshing tea. The leaves are also edible raw or cooked, although they have a very strong scent and flavor. An infusion of the flowers or leaves is used to treat abdominal pains, indigestion, fevers, sore throats, colds, whooping cough, and fainting. A poultice of the leaves is used to treat snakebites, to stop bleeding, to relieve sore eyes, and to prevent wounds from getting infected. The leaves are chewed while singing, dancing or hunting to prevent sore throat. A decoction of the whole plant is used to bathe diabetic ulcers - this will kill the infection and promote healing. The name "hehaka tapejuta" or "elk medicine" refers to this plant's use as a love charm.
197	<i>Morchella esculenta</i>	morel mushroom	<i>nasúla iyéčheča</i>	Delicious mushroom is collected in early spring and them eaten fresh or dried for later.
198	<i>Morus alba</i>	white mulberry	<i>čhaṅská</i>	The berries are eaten fresh or dried for later. The inner bark is also edible and was readily used during times of famine. A decoction of the leaves is used to treat colds and influenza. The root bark is made into a decoction to treat asthma and bronchitis.
199	<i>Musineon divaricatum</i>	wild parsley	<i>tháthíṅpsila</i>	The roots are eaten raw.
200	<i>Nelumbo lutea</i>	yellow lotus, American lotus	<i>thewápa, khewápa</i>	The seeds are shelled and then boiled with meat to make soup. The peeled tubers are cooked with meat and hominy. The leaves are also edible. This plant is characterized as having mystical powers.
201	<i>Nepeta cataria</i>	catnip, catmint	<i>igmú tháčhéyaka</i>	The young leaves are edible or can be made into a refreshing, although slightly bitter, tea. An infusion is used to treat indigestion, cold, flues, and fevers, even for children.
202	<i>Nuphar lutea</i>	yellow water lily	<i>thewápa, khewápa</i>	The roots and leaf stalks are edible after boiling. The root is dried and powdered to use as a styptic for wounds.

203	<i>Oenothera biennis</i>	evening primrose	<i>čhaŋh'łógaŋ húh'la</i>	A poultice of the whole plant is applied to bruises. The seeds are sometimes used as perfume. The leaves are used to treat asthma and cough. Evening primrose oil is used today to treat acne, fibrocystic breast tissue, rheumatoid arthritis, cirrhosis, and high cholesterol.
204	<i>Oenothera caespitosa</i>	alkali lily, gumbo lily, tufted evening primrose	<i>čhaŋh'łógaŋ hú saŋsáŋ</i>	A poultice of the crushed roots is applied to sores and swellings.
205	<i>Oligoneuron rigidum</i>	stiff goldenrod	<i>t'hal'ágnake, čhaŋh'łógaŋ makh'á ayúblaya, miméla waŋč'ázi</i>	The leaves are laid on the ground to create a type of "plate" on which meat is placed to prevent dirt or other foreign objects from getting on the meat.
206	<i>Onosmodium bejariense</i>	false gromwell, Western marbleseed	<i>šúŋkačhaŋkh'ahúiphi ye</i>	The seeds are put into gourds or turtle shells to make ceremonial rattles. A decoction of the roots and seeds is used to treat swelling (this remedy is said to only be used by men); it is also used as a rubbing solution for the sore muscles of horses, and it is sometimes given to them as a tea.
207	<i>Opuntia polyacantha</i>	plains pricklypear	<i>uŋkč'éla blaská, fruit- uŋkč'éla th'ášpú</i>	The roots of pricklypear are mixed with the roots of <i>Yucca glauca</i> - this mixture is made into a decoction that is used to strengthen contractions and progress childbirth. A decoction of the roots is taken for urinary tract infections. The "pears" or fruits are eaten raw or dried for later use. The thick, juicy, green stem segments or "pads" are edible when the thorns have been safely removed. An infusion of the pads is used to treat diarrhea.
208	<i>Orobanche fasciculata</i>	clustered broomrape	<i>wápe šaš'á</i>	This plant is edible raw or cooked. A poultice of the root is used to treat wounds and open cuts and sores.
209	<i>Ostrya virginiana</i>	American hop hornbeam, ironwood	<i>išpáŋšpaŋheč'a</i>	This tree has very hard wood that is used to make bows and utensil handles. A decoction of the bark is used to massage sore muscles.



210	<i>Oxytropis lambertii</i>	purple locoweed, Lambert crazyweed	<i>sunkthíáphěžuta</i>	In large quantities, this plant is considered toxic. Horses will eat the entire plant if it is available, but if eaten in large quantities, they often suffer from trembling, paralysis, and even death.
211	<i>Packera cana</i>	silvery ragwort, wooly groundsel	<i>šúŋkawakhíáŋ thíaphěžuta</i>	The whole plant is used as an unspecified "horse medicine." It contains toxic alkaloids, so the author does not believe it was used internally.
212	<i>Packera plattensis</i>	prairie ragwort	<i>čhaŋhílógaŋ sutá</i>	This plant is known as being poisonous to horses and livestock.
213	<i>Panicum capillare</i>	witch grass	<i>ité awíčhašniyaŋ húj</i>	The seeds of this grass are readily used by birds, but were also cooked whole or ground into flour by the Lakota.
214	<i>Panicum virgatum</i>	switch grass	<i>phěži blaskaska</i>	This grass is grazed by bison.
215	<i>Parmelia spp.</i>	lichen	<i>phěži blaskáska</i>	Lichens are boiled to make a yellow dye, which is used to dye porcupine quills. Lichens are also burned as ceremonial incense and used for smudging.
216	<i>Parthenocissus vitacea</i>	woodbine	<i>čhaŋiyuwi iyéčheča</i>	The Lakota believe this plant to be poisonous to humans.
217	<i>Pascopyrum smithii</i>	Western wheatgrass	<i>phěži hčáka</i>	This grass is excellent forage for bison and horses.
218	<i>Penstemon albidus</i>	white beardtongue, white penstemon	<i>čhaŋhílógaŋ húj sluslúta</i>	Butterflies love the beautiful flowers of this plant.
219	<i>Penstemon angustifolius</i>	narrowleaf beardtongue, broadbeard beardtongue	<i>čhaŋhílógaŋ híláíla, háŋpi natíópi</i>	The blossoms of this plant are used to make blue paint for moccasins.
220	<i>Penstemon gracilis</i>	slender beardtongue, lilac beardtongue	<i>zuzéča thíaphěžuta, uŋ huŋkálowaŋpi iyéčheča</i>	The roots are rubbed on the skin to repel snakes.

221	<i>Penstemon grandiflorus</i>	large beardtongue, shell leaf penstemon	<i>kimímila</i> <i>tǰawánaǰča</i>	A decoction of the leaves is taken for chills and fever. A decoction of the roots is taken for chest pain.
222	<i>Phaseolous vulgaris</i>	common bean	<i>omníča</i>	This bean is very similar to the Navy bean. It is eaten raw, cooked alone or in soups and stews.
223	<i>Phlox andicola</i>	plains phlox	<i>wahpé pǰephé</i>	This low-growing plant has very sharp, pointed leaves that will get stuck in meat if meat is accidentally lain on this plant.
224	<i>Physalis heterophylla</i>	clammy groundcherry	<i>tǰamníohpi hú</i>	DANGER - All parts of this plant are poisonous except for the ripe fruit. The fruits, which turn orange when ripe, are eaten raw or cooked.
225	<i>Physalis longifolia</i>	long-leaved groundcherry	<i>tǰamníohpi hú</i>	DANGER - All parts of this plant are poisonous except for the ripe fruit. The fruits, which turn orange when ripe, are eaten raw or cooked.
226	<i>Picea glauca</i>	Black Hill's spruce	<i>wazǰǰčaka</i>	The young shoots are gathered in spring and boiled for long periods to eat as emergency food. The hardened sap is chewed as a sort of gum. The inner bark is quite nutritious and is dried, powdered and blended with flour to make bread. An infusion of the leaves is drunk to treat TB, influenza, coughs and colds.
227	<i>Pinus contorta</i>	lodgepole pine	<i>wazǰ čháj</i>	The cones of this pine tree are called "wazi pinkpa." A decoction of the roots is used to tan deerhides. The tall, this tress are used for tipi poles. The sap or pitch from all species of pine is antibacterial and is wonderful for making salves.
228	<i>Pleurotus ostreatus</i>	oyster mushroom	<i>čhaǰnákpá ská</i>	These mushrooms grow on dead deciduous trees and are harvested throughout spring and summer. They are eaten fresh or dried for later.

229	<i>Plantago major</i>	common plantain, broadleaf plantain	<i>wihúta hú iyéčheča</i>	The leaves are made into a poultice that is extremely effective in the treatment of burns and scalds. It is also applied to bruises, sprains, sores, insect bites, bee stings, snakebites, and splinters. The poultice will quickly stop bleeding on open wounds. The young, green leaves are eaten raw or cooked, and the seeds are added to soups and stews.
230	<i>Plantago patagonica</i>	Pursh's plantain, wooly plantain	<i>čhanǎ lógan</i> <i>waphóštan kágapi</i>	Chewing the leaves is used to treat toothache.
231	<i>Polanisia dodecandra</i>	clammyweed	<i>wahpé h'lá</i>	The leaves are cooked and eaten.
232	<i>Polygala alba</i>	white milkwort	<i>wahpé ská čík'ala</i>	A decoction of the roots is used to treat earaches. An infusion of the root is also used as an expectorant.
233	<i>Polygonatum biflorum</i>	Soloman's seal	<i>zuzéča thawóte hú,</i> <i>thánkíngyan héčha</i>	The rhizomes are eaten in soups and stews, they are also dried for later use. The young shoots can be eaten raw or cooked. The seeds and fruits are considered toxic.
234	<i>Polygonum amphibium</i>	swamp smartweed, marsh smartweed	<i>táku šašála, pšitíóla</i> <i>hú iyéčheča</i>	The young shoots are eaten raw or cooked. The root is also eaten and is said to have a pleasant, nutty flavor.
235	<i>Polygonum lapathifolium</i>	curlytop knotweed, pale knotweed	<i>táku šašála hú</i> <i>wíngyela</i>	The young shoots are eaten raw or cooked.
236	<i>Polygonum pennsylvanicum</i>	jointweed, pink knotweed	<i>táku šašála swúla</i>	The seeds are eaten in soups and stews or roasted and ground into flour.
237	<i>Polygonum persicaria</i>	lady's thumb, heartweed	<i>táku šašála swúla</i>	The young shoots are eaten raw or cooked.

238	<i>Populus balsamifera</i>	balsam poplar	<i>šáka čháj</i>	The buds are covered in sticky resin, which is a prized Lakota medicine. The buds are made into a salve to treat sores and wounds. An infusion of the buds is used as a wash for sprains, inflammation, muscle pains and wounds. The infusion is also taken internally to treat lung ailments and coughs. The buds can also be put in hot water and used as an inhalant to relieve congested nasal passages.
239	<i>Populus deltoides</i>	cottonwood	<i>čhanyáí'u, šaká čháj, wańčhígča wahcinca,</i>	The inner bark is eaten in small pieces or ground into flour and added to soups and stews. The young shoots are also eaten in early spring. The bark is excellent forage for horses during harsh winter months - the term for this is canha yuslotan. Cottonwood tree trunks are used to build the framework for Sundance lodges. The bark contain salicin, a noted painkiller and the bark is therefore chewed to treat toothache, or made into a decoction that is drunk to treat headaches, menstrual cramps, and fevers. The sticky buds are used to make yellow dye.
240	<i>Portulaca oleracea</i>	purslane	<i>wápe šóka</i>	INTRODUCED: The leaves are a delicious edible vegetable - raw or cooked. They are very succulent and are a good source of moisture.
241	<i>Prunus americana</i>	wild plum	<i>kńáŋta</i>	The fruits are eaten raw or dried for later. A strong decoction of the twigs is used to treat asthma. A poultice of the inner bark will prevent infection and is used to treat open wounds. The fruits of all Prunus species are added to dried meat and mixed together with fat to make wasna (also known as pemmican).
242	<i>Prunus pumila</i>	sandcherry	<i>aúŋyeyapi, tháńpíyoǵiŋ</i>	The fruits are eaten raw or dried for later use. The pigments from the fruits are used as face paint. The fruits of all Prunus species are added to dried meat and mixed together with fat to make wasna (also known as pemmican).

243	<i>Prunus virginiana</i>	chokecherry	<i>čhaŋphá:</i> dried cherry patties: <i>čhaŋphákaški</i>	Bundles of branches are tied to Sundance poles as a sacred offering. The leaves are made into tea for Sundancers. Sundancers suck on small bits of the stem to relieve thirst. Small pieces of the wood are sharpened and used to pierce Sundancer's skin. The fruits are eaten raw or dried for later. The dried berries are reconstituted with water to make <i>wojapi</i> , which is a kind of pudding. <i>Wojapi</i> is still made using chokecherries, but these days corn starch and sugar are sometimes added. The stems are sometimes used to make arrows. The fruits of all <i>Prunus</i> species are added to dried meat and mixed together with fat to make <i>wasna</i> (also known as pemmican).
244	<i>Pediomelum argophyllum</i>	silverleaf scurfpea	<i>mat'ó tháthíŋpsila,</i> <i>thíčaničahu</i>	The roots are fed to horses as an energy stimulant. The tough green stems are woven into baskets to carry meat home. The roots are edible, and are usually eaten in soups and stews.
245	<i>Pediomelum esculentum</i>	breadroot scurfpea, prairie turnip, Indian turnip	<i>thíŋpsila, sahiyela</i> <i>thíŋpsila</i> , top of plant: <i>thíŋpsila</i> <i>pháhú</i> , hole from which turnip is taken: <i>owá wópte</i>	The roots are eaten fresh or dried for later. They are still a staple of the Lakota diet and are an excellent source of complex carbohydrates, so they do not raise blood sugar levels like potatoes tend to. The dried root is ground up and made into porridge which is used to treat stomach ulcers and irritated bowels, including for gastroenteritis.
246	<i>Psoralidium tenuiflorum</i>	slimflower scurfpea	<i>thíčaničahu tháŋka,</i> <i>waŋpé pheží,</i> <i>waŋpókíŋžate</i>	An infusion of the dried roots if used to treat headaches. The whole plant may be burned to repel insects. Stems were woven together to make a sort of hat to protect the head from the sun.
247	<i>Psoralidium lanceolatum</i>	lemon scurfpea, lance-leaved scurfpea	<i>čhaŋh'logaŋ hutkí'áŋ</i> <i>háŋska</i>	Chewing the roots or leaves of this plant will relieve hoarseness.
248	<i>Pycnanthemum virginianum</i>	Virginia mountain mint	<i>waŋpé</i> <i>ič'ik'ioyagyaka,</i> <i>waŋpé čheyáka</i>	The leaves make a very pleasant tea. An infusion of the plant is taken for coughs.
249	<i>Pyrus ioensis</i>	crabapple	<i>tháspáŋ h'ú</i> <i>iyéčheča</i>	The berries are eaten raw, usually as a "trail food."

250	<i>Quercus macrocarpa</i>	burr oak	<i>uskúyeča hú, útahu</i> <i>čháh</i>	The acorns of the burr oak are an excellent food source. The Lakota boiled the acorns repeatedly to remove bitter tannins and ate them whole or ground them into flour to make bread. They were sometimes roasted after boiling, giving them a flavor similar to chestnuts. The bark, including root bark is made into a weak infusion to treat diarrhea. A decoction of the bark is used to treat poison ivy or any other seeping, wet rash.
251	<i>Quercus velutina</i>	black oak	<i>ithúhu</i>	The Lakota boiled the acorns repeatedly to remove bitter tannins and ate them whole or ground them into flour to make bread. They were sometimes roasted after boiling, giving them a flavor similar to chestnuts.
252	<i>Ranunculus cardiophyllus</i>	crowfoot, heartleaf buttercup	<i>čhaŋhí lógaŋ</i> <i>wičháhnaška</i>	This plant is considered to be poisonous and should be avoided.
253	<i>Ratibida columnifera</i>	yellow coneflower	<i>asáhpi iyátke,</i> <i>wapñóšta hú, wañčá</i> <i>zí čík'ala</i>	An infusion of the flowers is used to treat chest pain and kidney ailments. A poultice of the flowers is used to treat all types of wounds. An infusion of the entire inflorescence is used to treat headaches and stomachaches. A decoction of the whole plant is used as a wash for snakebites. The whole plant is fed to horses to treat urinary tract infections. The cone was sometimes used as a pacifier for babies. A pleasant tea is made from the flowers and leaves.
254	<i>Rhus glabra</i>	smooth sumac	<i>čhaŋzí</i>	The red, autumn leaves are used in pipesmoking. The roots are used to make a yellow dye.
255	<i>Rhus trilobata</i>	skunkbrush sumac	<i>čháhŋ uŋkčémna</i>	The leaves are mixed with various tobaccos for pipesmoking. The berries, while unpleasant to smell, are edible and were eaten during times of famine. An infusion of the leaves or berries makes a refreshing tea, reminiscent of lemonade. Do not boil the tea, simply steep the plant parts in warm or cold water. A decoction is used to treat excessive vaginal discharge and thrush.

256	<i>Ribes americanum</i>	black currant	<i>čhapčhéyazala</i>	The fruits are eaten raw or dried for later. A poultice of the root bark is used to treat swellings.
257	<i>Ribes aureum</i>	golden currant, buffalo currant	<i>wičháгнаška hú</i>	The fruits are eaten raw or dried for later. A poultice of the root bark or the inner bark is used to treat swellings.
258	<i>Ribes missouriense</i>	Missouri gooseberry	<i>wičháгнаška</i> <i>thíą́nka</i>	The fruits are eaten raw or dried for later.
259	<i>Rosa arkansana</i>	wild rose, prairie rose	<i>uńžíńžigtka hú</i>	The petals, hips and roots all make a nice tea. The hips are dried for later use as food, especially during times of famine. They are very satisfying when added to soups or stews. An infusion of the flowers or hips is used to treat bladder infections and kidney stones. The petals and hips are extremely high in Vitamin C, and they also contain essential fatty acids, which is unusual for a fruit.
260	<i>Rosa woodsii</i>	wild rose	<i>uńžíńžigtka hú</i>	*see above entry
261	<i>Rubus occidentalis</i>	wild raspberry	<i>thákíą́nhečala hú</i>	The fruits are eaten raw or dried for later. An infusion of the leaves is used to treat diarrhea in children. An infusion of the roots is used to treat sore eyes. A decoction of the leaves is used to treat infected sores.
262	<i>Rumex altissimus</i>	water dock	<i>táku šašála hú</i> <i>iyéčheča</i>	A poultice of the green leaves is applied to boils. An infusion of the whole plants is used to treat diarrhea, hemorrhaging, and stomach cramps.
263	<i>Rumex aquaticus</i>	Western dock	<i>oskúya</i>	A decoction of the plant is used to treat indigestion, cramps, piles, constipation, cirrhosis, congestion, jaundice, and hepatitis. A poultice of the green leaves is used to draw pus out of infected wounds. An infusion of the plant is an excellent blood detoxifier. The leaves are placed on the rocks in the sweatlodge to relieve rheumatic pains.
264	<i>Rumex crispus</i>	curly dock	<i>wańpé skúya</i>	The green leaves have a citrusy flavor and are eaten both raw and cooked.

265	<i>Rumex venosus</i>	winged dock, wild begonia	<i>waḥpé skúya</i>	An infusion of the roots is used to help women expel the placenta after giving birth. The roots and dried leaves are used to make red dye.
266	<i>Sagittaria latifolia</i>	arrowleaf, arrowhead	<i>hiḡháḡ tḡaháḡpi, pṣitóla hú</i>	The bulbous roots are boiled or roasted and then eaten. They are best when harvested in late summer or early fall. One must use caution when collecting and ensure proper identification so as not to confuse it with poisonous plant species.
267	<i>Salix amygdaloides</i>	peachleaf willow	<i>čhoḡháḡ waḡžíčá tḡáhka, waḡpé pḡópa čháh</i>	This is the largest, native willow on the Great Plains. The inner bark is eaten during times of extreme famine. The Lakota also make a decoction of the bark which is used to treat headaches and fever. The peeled bark is also used as a poultice for wounds and cuts. The bark of all willows contain salicin, from which aspirin is derived. The bark is used to make brown dye.
268	<i>Salix candida</i>	hairy willow	<i>čhoḡháḡ waḡžíčá šašá</i>	This willow is burned to repel insects.
269	<i>Salix eriocephala</i>	diamond willow, Missouri River willow	<i>čḡoḡháḡ waḡžíčá waḡháha</i>	The branches of this willow and many other species of willow are sometimes attacked by a fungus (probably <i>Valsa sordida</i> ) and his fungus creates a distinctive "diamond" shape at each node. They are prized for making sacred staffs and walking sticks. The Lakota also make a decoction of the bark which is used to treat headaches and fever. The peeled bark is also used as a poultice for wounds and cuts. The bark of all willows contain salicin, from which aspirin is derived.
270	<i>Salix exigua</i>	sandbar willow	<i>čḡoḡháḡ waḡžíčá, waḡpé wazílya</i>	The branches of this willow species are used in making sweatlodge frames. The peeled outer bark is used for tying sweatlodge frames together. The whole tree is used during an unspecified mourning ceremony. The Lakota also make a decoction of the bark which is used to treat headaches and fever. The peeled bark is also used as a poultice for wounds and cuts. The bark of all willows contain salicin, from which aspirin is derived.



271	<i>Sambucus nigra</i>	elderberry	čaphute hů	The fruits are eaten after being dried or cooked. An infusion of the flowers makes a pleasant tea. The flowers were sometimes dipped in maple sap and then dried and eaten like candy. The ripe berries are boiled with honey or maple sap and the resulting syrup is used to treat cough and cold or any other viral illness. However, caution must be used, as the leaves and stems are poisonous.
272	<i>Sanicula marilandica</i>	snakeroot, black snakeroot, Maryland sanicle	waptá yahúžiži, waptá yahílá, waptá yahóta	A decoction of the roots is used to treat fever, eczema, psoriasis, sore throat, coughs, excessive perspiration, morning sickness (during pregnancy), toothaches, and menstrual irregularities. A poultice of the root is applied to snakebites.
273	<i>Sanguinaria canadensis</i>	bloodroot	ok šaša	Bloodroot must be used with extreme caution. It is incredibly potent and toxic in large doses. The juice can even "burn" one's skin. Blood root is made into a very weak decoction and is then used to treat fevers and rheumatism, and to induce vomiting. It is also used as an expectorant for lung congestion. A poultice of the root is also used in the treatment of skin cancers and other skin conditions.
274	<i>Schedonnardus paniculatus</i>	tumblegrass, crabgrass	wablúška hůha óta pěží	Birds are known to eat the seeds of this grass.
275	<i>Schoenoplectus tabernaemontani</i>	giant bulrush	pšá čhičá	The tender, white base of the stem and the roots are eaten raw or cooked. The pollen is mixed with flour to add nutrients and flavor. The tough stems are woven together to make mats. These mats are called "pšá owígža" or "pšá oyúňke." A poultice of the pith is used to stop bleeding.
276	<i>Schizachyrium scoparium</i>	little bluestem	pěží šašá swúla	The dried leaves and culms are rubbed into soft fibers, which are used as an insulating, waterproof lining for shoes.

277	<i>Scirpus pallidus</i>	pale bulrush	<i>pñeží iwíčhakñoyaka</i>	The tender, white base of the stem and the roots are eaten raw or cooked. The pollen is mixed with flour to add nutrients and flavor. The tough stems are woven together to make mats. A poultice of the pith is used to stop bleeding.
278	<i>Scirpus validus</i>	bulrush	<i>psá, wihúta hú swúla</i>	A decoction of the whole plant is used as a ceremonial emetic. The stems are woven together to make mats. These mats are called "psa owinja" or "psa oyunke."
279	<i>Senecio riddellii</i>	Riddell's groundsel, Riddell's ragwort	<i>čhaŋñlógan sutá</i>	This plant is known as being poisonous to horses and livestock.
280	<i>Shepherdia argentea</i>	buffaloberry, silver buffaloberry	<i>maštínčaphuté</i>	The berries are eaten fresh or dried for later. They are usually collected after the first frost, otherwise they are quite sour. The berries are also mildly laxative.
281	<i>Silphium laciniatum</i>	compass plant, pilot plant	<i>čhaŋšínšinja</i>	Children sometimes use the resin as chewing gum. An infusion of the whole plant is used to rid horses and humans of intestinal worms. An infusion of the leaves is used to loosen phlegm in the lungs.
282	<i>Silphium perfoliatum</i>	cup plant	<i>čhaŋšínšinja tháŋka</i>	The roots are burned and the smoke is inhaled to treat headaches, colds, neuralgia, and rheumatism.
283	<i>Sisymbrium altissimum</i>	tumble mustard	<i>čhaŋñlógan wablúška hú</i>	INTRODUCED: The leaves and young shoots are edible raw or cooked and make a nice addition to salads. The ground seeds may be used as a substitute for mustard.
284	<i>Sium suave</i>	water parsnip	<i>wañpé ská</i>	The Lakota ate the roots of this plant, but the author does not advise this. It is edible, but this plant so closely resembles POISONOUS water hemlock, that it is not worth the risk. If one does decide to collect roots, they are best collected in the spring or fall and only with positive identification.

285	<i>Smilax herbacea</i>	Jacob's ladder, carrion flower	<i>zuzéča thawóte,</i> <i>ptápta ikhíoyaka</i>	The fruits are eaten to relieve hoarseness. They are also eaten as trail food when they are fully ripe. The leaves and young shoots are edible raw or cooked. A decoction of the root is used to treat back pain, stomachaches, and kidney pain.
286	<i>Solanum rostratum</i>	buffalo burr, prickly nightshade	<i>špájšni yútapi</i> <i>iyéčheča</i>	The entire plant is covered in thorns and prickly burrs, so handle carefully. Most members of this genus are poisonous, so use extreme caution. However, the Lakota did make an infusion of buffalo burr to treat nausea.
287	<i>Solanum triflorum</i>	cut-leaved nightshade	<i>čhaŋhílogaŋ škiškíta</i>	POISONOUS: One or two berries are eaten to treat stomachache and diarrhea, but one must use extreme caution, as they can be quite poisonous if they are not fully ripe.
288	<i>Solidago canadensis</i>	Canada goldenrod	<i>wañčáziblu</i>	The young leaves and shoots are edible after blanching in a few changes of water. An infusion of the dried leaves, flowers, or roots is used to treat stomachaches. A poultice of the root is applied to burns. A decoction of the entire plant is used to expel kidney stones.
289	<i>Solidago missouriensis</i>	prairie goldenrod, Missouri goldenrod	<i>čhaŋnúŋša húj</i> <i>pteptéčela</i>	An infusion of the dried leaves, flowers, and stems treats stomachaches, gastroenteritis, and influenza. It is also used to treat urinary tract infections, yeast infections, and sore throats. A nice tea is made from the dried flowers. A decoction of the entire plant is used to expel kidney stones.
290	<i>Sonchus arvensis &amp; olearceus</i>	sow thistle, milk thistle	<i>wañpé zí čík'ala</i> <i>iyéčheča</i>	INTRODUCED: The young leaves and stems are edible raw or cooked. The roasted root was used by early settlers as a coffee substitute. A poultice of the leaves relieves swelling. An infusion of the leaves is also said to calm nerves.
291	<i>Sophora nuttalliana</i>	mescal bean, silky sophora	<i>makhátomniča húj</i> <i>hólhíóta</i>	The sweet roots are chewed as a sort of snack. The seeds are poisonous and should be avoided. The leaves and stems contain cytosine, a compound similar to nicotine and so these parts of the plant should be avoided.

292	<i>Sorghastrum nutans</i>	Indian grass	<i>p̄heží šašá</i> <i>íjka žíží</i>	This grass provides excellent forage for bison and other grazing animals.
293	<i>Spartina pectinata</i>	prairie cordgrass, sandgrass	<i>saŋtúhu iyéčheča</i>	The long tillers of this grass are used as pipecleaners. When the Lakota began building cabins, this grass was used to thatch roofs.
294	<i>Sphaeralcea coccinea</i>	scarlet globemallow	<i>heyók̄h̄ia th̄aphéžuta</i>	The heyoka is one of several types of medicine men in the Lakota culture. They are sometimes described as "backwards" or "contrary" or even as "clowns" because of their distinctive behavior of doing the opposite of what a "normal" person does. For example, heyokas have been known to ride horses backwards, or to wash off in the sand and dry off in the water. Scarlet globemallow is used by heyokas in the following way: they boil the root until the liquid turns into a type of gel. Then they rub the gel all over their hand and arm until completely covered. This "glove" makes their skin impervious to burning when they reach into boiling water. They often did this at certain ceremonies to prove the power of their "medicine."
295	<i>Sporobolus cryptandrus</i>	sand dropseed	<i>p̄heží th̄iak̄h̄án̄</i>	The tillers of sand dropseed are known for being incredibly tough, but the seeds may be ground into flour and used to make bread.
296	<i>Strophostyles helvola</i>	fuzzy bean	<i>omníča hú</i>	The beans are eaten after cooking.
297	<i>Strophostyles leiosperma</i>	slickseed fuzzy bean	<i>omníča hú</i>	The beans are eaten after cooking.
298	<i>Symphoricarpos occidentalis</i>	buckbrush, wolfberry	<i>uŋšúŋnasapi hú,</i> <i>zuzéča th̄awóte</i>	The long, straight tillers are used as play arrows by young boys. All parts of the plant are used as a poultice for wounds. An infusion of the leaves is used as an eyewash. An infusion of the roots is drunk as a tonic. An infusion of the inner bark is used to treat constipation.

299	<i>Taraxacum officinale</i>	dandelion	<i>wañčá zí</i>	All parts of the plant are edible, from root to flower. A decoction of the root is drunk as a tonic, liver stimulant, or as a mild laxative. The flowers are dried and used to make a delicious tea. All parts of the plant are diuretic, and it is actually sold as a prescription drug in Canada for this purpose. The roasted roots make a nice coffee substitute. The leaves may be added to salad, and they are often used to help regulate blood sugar. Dandelions are also high in the antioxidant luteolin, which is said to be effective in preventing certain types of cancer. The plant has antibacterial properties, inhibiting the growth of <i>Staphylococcus aureus</i> , <i>Pneumococci</i> , <i>Meningococci</i> , <i>Bacillus dysenteriae</i> , and others.
300	<i>Thalictrum dasycarpum</i>	meadow rue, purple meadow rue	<i>wazímna, wazímnĩkpa</i>	The seeds of this plant are fed to horses as an energy stimulant. The seeds are also chewed and then rubbed on the skin to repel insects.
301	<i>Thermopsis rhombifolia</i>	prairie goldenpea, false lupine	<i>wañpé sóta</i>	The flowers are dried and then burned - the smoke is used to treat rheumatism.
302	<i>Thlaspi arvense</i>	pennycress, fanweed	<i>apé mázaská</i>	The young leaves are eaten raw. The seeds are ground up and used to add a mustard-like flavor to foods. A decoction of the whole plant is used to treat strep throat.
303	<i>Thuja plicata</i>	Western red cedar, flat cedar	<i>hąnté</i>	The pitch or sap from this tree is antibacterial and is used in making salves. The leaves are dried and then burned during sweatlodge ceremonies. A small pinch is placed on each rock that is brought into the sweatlodge. A decoction of the leaves is used to treat colds and flu symptoms. A decoction of the leaves and stems is used to treat coughs, colds, and tuberculosis and is also effective in treating dandruff.
304	<i>Tilia americana</i>	basswood	<i>hįnta</i>	The inner bark is used to make rope and cordage. The leaves and flowers are edible raw or cooked. A decoction of the inner bark is applied to burns, and is very soothing to the skin. A poultice of the leaves is used to treat burns, scalds, broken bones, and swellings.

305	<i>Townsendia exscapa</i>	large-flowered townsendina, Easter daisy	<i>ih'eh'e čhaŋh'logaŋ</i>	This is known by the Lakota as one of the first flowers of spring.
306	<i>Toxicodendron rydbergii</i>	poison ivy	<i>wikh'oska phežuta</i>	Contact with this plant causes a very irritating, long-lasting rash. It is avoided. The Lakota use a poultice of an oak bark decoction to treat poison ivy rash.
307	<i>Tradescantia bracteata</i>	bracted spiderwort	<i>čhaŋh'logaŋ phaŋphaŋla</i>	The flowers are used to make blue paint for shoes. Lakota men wrote and sang songs about this beautiful flower, often relating and comparing it to the women they loved. The leaves and flowers are edible raw or cooked.
308	<i>Tradescantia ohiensis</i>	bluejacket, softweed spiderwort	<i>čhaŋh'logaŋ phaŋphaŋla</i>	The flowers are used to make blue paint for shoes. Lakota men wrote and sang songs about this beautiful flower, often relating and comparing it to the women they loved. The leaves and flowers are edible raw or cooked.
309	<i>Tragopogon dubius</i>	Western salsify	<i>wah'ca zi iyech'heca</i>	The root is edible after cooking; it is excellent in soups, stews and casseroles. The soft stems and leaf bases are also edible.
310	<i>Trametes versicolor</i>	turkeytail mushroom	<i>čhag'šinté</i>	The entire mushroom is used to strengthen the immune system. A decoction of the mushroom and it's mycelium is used to treat hepatitis and liver infections. The polysaccharides found in the mycelium of the mushroom and from the fermented decoction, have significant anti-carcinogenic activity. In Japan, turkeytail mushroom is prescribed as a drug for the treatment of malignant tumors, and it is used as a preventive and curative for liver cancer.

311	<i>Trifolium pratense</i>	red clover	<i>blayé zigtká</i> <i>třáčháj</i>	INTRODUCED: The leaves and flowers are edible raw or cooked, and are best collected before flowering. The leaves are best cooked. The seed can be sprouted and used in salads. The root is edible after cooking. A deliciously sweet tea is made from the fresh or dried flowers. Red clover is into a salve or poultice to treat skin conditions, normally in combination with <i>Arctium minus</i> and <i>Rumex crispus</i> . A very strong decoction of the flowers, or a crushed poultice, is applied to cancer of the breast, which encourages the tumor to come to a head and eventually burst. An infusion of the whole plant is drunk to treat and psoriasis, whooping cough and dry coughs.
312	<i>Trifolium repens</i>	white clover	<i>blayé zigtká</i> <i>třáčháj ská</i>	INTRODUCED: The leaves are edible raw or cooked, and should be harvested before flowering. The leaves are best cooked. The root is edible after cooking. An infusion of the flowers is used to treat coughs, colds, fevers, and vaginal discharge. A decoction or poultice of the flowers is also used to treat sore eyes.
313	<i>Triodanis leptocarpa</i>	Western Venus' looking glass	<i>čhaŋh lógaŋ</i> <i>kčaŋkčájla</i>	There are songs about this beautiful flower.
314	<i>Typha latifolia</i>	cattail	<i>wihúta hú, hiŋtkáj,</i> <i>stem = hiŋtkáj hú</i>	The soft down obtained from the carpel spike is used for lining baby's diapers and cradleboards. It is also applied as a poultice to burns. The down is mixed with fat and applied to smallpox sores. The pollen from the male spike is added to flour - it makes pancakes or bread incredibly delicious and much more nutritious. The young cattail shoots are edible raw or cooked, as are the fleshy rhizomes. Today, the rhizomes are cut into chunks and sauteed in butter to make a fantastic side-dish that is delicate and reminiscent of water chestnuts. The root is also dried and ground into powder to make flour.
315	<i>Ulmus americana</i>	American elm	<i>p'eíkčeka, p'éčhaŋ</i>	An infusion of the outer and inner bark is used to treat TB and lung hemorrhaging, coughs, colds, influenza, dysentery, eye infections, cramps and diarrhea. A decoction of the bark is used to wash wounds. The wood is used for fuel, to make pots, and as building material.

316	<i>Ulmus rubra</i>	black elm, slippery elm	<i>p'etúntuŋpa</i>  boiled and then the resulting mucilaginous liquid may be added to oatmeal to make it more nutritious. Decoction of the inner bark also makes a very nutritious drink; it is a gentle and effective remedy for chest congestion, stomach irritation, and intestinal irritation. This decoction is also very soothing and healing when used to treat sore throats, indigestion, digestive irritation, stomach ulcers. It was also applied externally to fresh cuts, abrasions, swellings, burns and wounds. A decoction of the outer bark is used to induce abortions, because it is very irritating to the uterus.
317	<i>Urtica dioica</i>	stinging nettles	<i>čhaŋičaŋpehu</i>  As its name implies, you will want to take care when handling or walking near stinging nettles. Tiny hairs cover the entire plant and, when touched, release a trio of chemicals that causes a burning rash, similar to poison ivy but much shorter in duration and very easy to relieve. If you do come into contact with raw nettles, simply wash the affected area with warm, soapy water or rub wet mud on the area and allow it to dry before rubbing it off. In spite of its faults, nettles are incredibly useful. The young leaves make a delicious and nutritious potherb, and all of the stinging effect is removed through cooking, crushing, drying, or chopping. Nettles are high in nutrients and protein. They also make a nice tea that can be used to treat stomach aches. Stem fibers of mature plants were used to make rope and cordage. The young leaves are edible when they are cooked and are very high in vitamins and minerals. An infusion of the young leaves is consumed for general health and is especially good for children. An infusion is also used to treat arthritis, rheumatism, and eczema. The whole plant is used to make a salve that is excellent in treating sciatica, eczema, and dandruff. The young leaves are made into a decoction that is taken internally to treat hives. The whole plant is used to "whip" arthritic joints as a counter-irritant. An infusion of the whole plant is used as a hair wash to increase hair growth.



318	<i>Usnea spp.</i>	old man's beard	<i>čhaŋ wíziye</i>	Usnea is a powerful antibiotic and antifungal. It makes an excellent poultice for open wounds and sores. An infusion is used in the treatment of respiratory infections and urinary tract infections.
319	<i>Vaccinium scoparium</i>	grouseberry, huckleberry, whortleberry	<i>háza</i>	This fruit is delicious eaten fresh or dried.
320	<i>Verbascum thapsus</i>	common mullein	<i>apé hiŋšmá</i>	An infusion of the leaves reduces the formation of mucus and acts as an expectorant. It is therefore used to treat any type of chest congestion associated with bronchitis or influenza. A decoction of the leaves is made into a poultice, which is used to heal diabetic ulcers on the legs or feet.
321	<i>Verbena bracteata</i>	bigbract verbena	<i>apé sloháŋ</i>	INTRODUCED: An infusion of the root is used to treat tuberculosis, particularly when it has spread to the lymph nodes.
322	<i>Verbena hastata</i>	blue vervain, blue verbena	<i>čhaŋhí lógan pñežúta, pñéstola</i>	An infusion of the roots and leaves is used to treat stomachache, fevers, and kidney stones. The seeds may be ground to make flour. This is a warming herb that promotes good circulation.
323	<i>Verbena stricta</i>	wooly vervain, hairy verbena	<i>tñopñéstola, tñó pñestóla</i>	An infusion of the leaves and roots is used to treat fever and stomachaches.
324	<i>Vernonia fasciculata</i>	ironweed, prairie ironweed	<i>wahpé apé blaskáska, tñal'ágnake iyéčheča</i>	The leaves are formed into a sort of "plate" that keeps foreign matter from getting on meat. An infusion of the root is used to regulate menstrual periods.
325	<i>Veronicastrum virginicum</i>	culver's root	<i>wahpé pñáŋpñanla</i>	An infusion of the root stimulates the liver and increases the flow of bile. However, one must be very careful, as it can cause violent vomiting. The Lakota would only use roots that were well dried; some herbalists say the root needs to dry for at least a year before being used. Smoke from the burning root is used to smudge and purify those who have come into contact with a person who mourning the death of a family member.

326	<i>Viburnum lentago</i>	black haw, nannyberry	<i>mnaḥú</i>	The fruits are edible raw or dried for later. They are not a favorite for eating purposes, as they have a thick skin and can be very dry. A decoction of the roots is used to treat irregular periods. An infusion of the leaves is used to treat measles.
327	<i>Vicia americana</i>	American vetch	<i>thásúsu</i>	This plant provides excellent forage for grazing animals. A poultice of the leaves is applied to spider bites. An infusion of the leaves is used by women as love medicine.
328	<i>Viola spp.</i>	violet	<i>waḥpé thó čík'ala</i>	The young leaves and flower buds are edible raw or cooked. The leaves are added to thicken soups and stews. An infusion of the leaves and roots is used to treat asthma in children. A decoction of the roots and leaves is used as a wash or poultice to relieve sore and swollen joints. A poultice of the chewed leaves is applied to sore eyes.
329	<i>Vitis riparia</i>	wild grape	<i>čhaḡwíyapeha iyúwi,</i> <i>čhaḡwíyape</i>	The fruits are edible raw or cooked. They are also collected and dried for later use.
330	<i>Wyethia</i> <i>amplexicaulis</i>	mule's ear	<i>tháñča nakpá</i>	The roots are edible after cooking. They were usually pit roasted for two days.
331	<i>Xanthium strumarium</i>	cocklebur	<i>wináwizi hú tháḡka</i> <i>hčá</i>	This plant is poisonous if eaten by livestock. The Lakota burned the leaves and the roots as ceremonial incense. A decoction of the root is used to treat high fevers and to help a woman expel afterbirth. A salve is made with the powdered seed and is used on open sores.
332	<i>Yucca glauca</i>	yucca, soapweed	<i>hupḥéstola</i>	The root is dried and powdered - the powder is then boiled for long periods to make an excellent shampoo. A decoction of the root is used to treat stomachaches. The fumes given off by the burning root is said to allow horses to be easily caught. The roots of this plant and the roots of <i>Opuntia polyacantha</i> are made into an infusion that is used to help women progress childbirth. The flowers, buds, and seed pods are all edible.

333	<i>Zigadenus elegans</i> , <i>Zigadenus venenosus</i>	death camas	<i>pšínj hublóka</i>	All parts of this plant are highly POISONOUS. It is avoided.
334	<i>Ziziana aquatica</i>	wild rice	<i>psínj</i>	Wild rice was collected along the Missouri River (at Big Lake) by the Lakota of Standing Rock. In the 1950's the river was flooded, killing all the rice plants on the river. Since then, it has been left out of the Lakota diet. Formerly, the Lakota ate the rice in soups and stews. Other bands of Lakota also used wild rice.

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## Interviews

Numerous interviews were conducted throughout the Great Lakota, Dakota, and Nakota Nations. Many Elders did not want credit for their contributions, and therefore they will remain nameless. However, I am endlessly thankful to them for agreeing to pass on this sacred knowledge to the people. I vow to never misuse this knowledge and to keep passing it on to the Next Generation. I hope that whoever reads this will respectfully do the same. I extend many thanks to the following people, many of whom have already begun the journey on the Red Road – *wopila tanka*.

Zona Loans Arrow

Gladys Hawk

Mary Louise Defender-Wilson

Everette Jamerson

Bea Medicine

Lavorra Jones

George Iron Shield

Helmina Makes Him First

Keva Sitting Dog

Earl Bullhead

Wilbur Flying By

Alberta Crowe

Delores Taken Alive

Imogene Taken Alive

Vernon Iron Cloud

Vivian High Elk

Theo Iron Cloud

. . . and almost 65 others who wish to remain anonymous.

## Certificate of Service

The undersigned hereby certifies that, on this day, I served the Prefiled testimony of Doug Crow Ghost, Waste Win Young, Phyllis Young and Linda Black Elk via electronic mail to

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Dated this 2nd day of April, 2015

By: *Peter Capossela*  
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