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An Ethnobotany of Mount Rushmore National Memorial

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ABSTRACT

The historical and continuing cultural significance of the Black Hills to Native Peoples is well documented, as is the relatively recent mineralogical significance of the area to non-indigenous Americans. Human habitation of the area may go back thirteen thousand years and many tribal groups are known to have occupied, used, or otherwise laid claim to portions of this region. Full recognition by non-native Americans of the long-standing and very different cultural significance the Black Hills held historically and continues to hold for Native Peoples is still a work in progress. It is the author's hope that this ethnobotany of Mount Rushmore will further that recognition by providing a discussion of the floral resources of the Memorial specific to their historic use by Native Americans for food, medicine, manufacture (life needs), and ceremonial purpose. It is intended as an informational tool for park personnel and docents who have not been raised with a traditional knowledge of plants. The National Park Service has recorded 459 species of plants within the Memorial; of those species, 288 have been recorded as having some use by any native tribe and 153 of those species have records of use by tribes known to have occupied or used the Black Hills region. The 96 species highlighted in this paper includes many of the species recorded in vegetation monitoring conducted in Mount Rushmore, species that had uses recorded for all four categories (food, medicinal, manufacture, and ceremonial/sacred), and species with distinctive characteristics that might make them more easily recognizable to park visitors. Information for the 288 plant species is presented in a table using the four categories of use and a fifth category that provides general information regarding the habitat and elevation where each species might be found within the Black Hills.

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1.0 INTRODUCTION

Satellite imagery of the central to mid-western United States presents a relatively homogenous palette of flat greens and browns from the northern extent of North Dakota to the southern extent of Texas with one exception—the Black Hills of South Dakota. Even at the satellite's vantage of over one thousand miles above the earth's surface, the dark green semi-colon shaped image pulls the eye away from the vast swath of dull greens and gives it pause, much like the punctuation mark image it seems to evoke. Indeed, its abrupt change of elevation and vegetation must have pulled travelers from all directions over the millennia, drawing them out of the surrounding grass and shrub-filled arid plains, beckoning them to its dark green forested slopes.

The historical and continuing cultural significance of the Black Hills to Native Peoples is well documented, as is the relatively recent mineralogical significance of the area to non-indigenous Americans. Human habitation of the area may go back thirteen thousand years and many tribal groups are known to have occupied, used, or otherwise laid claim to portions of this region, including Arapaho, Arikara, Blackfeet, Cheyenne, Comanche, Crow, Hidatsa, Kiowa, Mandan, Pawnee, Ponca, and Dakota and Lakota Sioux (Kindscher 1987, 1992, Sundstrom 1997, Albers 2003, Moerman 2009, 2010). For the more recent Americans, the Black Hills first gained significance in the late 1800s primarily due to its mineralogical resources and later gained widespread cultural significance with its designation as Mount Rushmore National Memorial in 1925 and the completion of the rock sculptures of four United States presidents in 1941.

Full recognition by non-native Americans of the long-standing and very different cultural significance the Black Hills held historically and continues to hold for Native Peoples is still a work in progress. It is the author's hope that this ethnobotany of Mount Rushmore will further that recognition by providing a discussion of the floral resources of the Memorial specific to their historic use by Native Americans for food, medicine, manufacture (life needs), and ceremonial purpose. It is intended as an informational tool for park personnel and docents who have not been raised with a traditional knowledge of plants. For context, the narrative provides an overview of the physiography of the region and of the vegetation within the park boundary and then moves to a discussion of some of the more common plants that might be encountered by current day-visitors to the park. Attachment A provides a full list of plants catalogued within Mount Rushmore that are known to have had some use by indigenous people.

In the essay *Ethnobotany from a Native American Perspective: Restoring Our Relationship with the Earth* (1999), Thomas Alcoze makes the distinction between the more westernized approach to ethnobotany as an analysis and the holistic understanding of plants by Native Americans as inextricably linked to their culture. This paper was written with the understanding that presenting the information as a catalogue of uses is far different from living it.

2.0 SITE DESCRIPTION

The Black Hills formation is aligned along a northwest-southeast axis stretching from the northeastern corner of Wyoming into the southwestern corner of South Dakota, with the majority of its approximate 8,125 square miles located along the western border of South Dakota. Mount Rushmore covers an area of 1,278 acres (1.99 square miles) (National Park Service, n.d.a) of rugged terrain within the central eastern section of the Black Hills. It is located on the north side of Highway 244 in Pennington County, South Dakota, approximately 3.2 miles southwest of the town of Keystone, 12.2 miles south east of Hill City, and 1.2 miles north of the Custer County line. Elevations range from a high of 5,725 feet in the vicinity of the carved monument to a low of 4,400 feet in the northeast corner.

2.1 ECOREGION

The ecology of any given region can be defined by shared characteristics of geology, topography, aquatic resources, wildlife, vegetation, and other factors collectively referred to as ecoregions. *Ecoregions of North America* (U.S. EPA 2016a) provides a four-tiered system for describing ecological areas within the North American continent (Canada, United States, and Mexico), with Level I covering the broadest geographical area and each subsequent level defining successively greater detail for the ecoregion. North America is divided into 15 Level I ecoregions, 50 Level II regions, and 182 Level III regions. The entire Black Hills formation is contained within the Middle Rockies (Level III), Western Cordillera (Level II), and Northwestern Forested Mountains (Level I) ecoregion. Major mountain ranges contained within the Level II Western Mountain ecoregion include the Rocky Mountains, Bitterroot, Sierra Nevada, Gila, Cascade, and Pacific Coast ranges, and encompass arid to extremely wet climates (U.S. EPA 2016a). A defining characteristic of the Level III Middle Rockies division is its mixed geology mountain ranges combined with high elevation grasslands (Bryce, et al. 2000).

At the Level IV category the Black Hills is composed of three ecoregions that display roughly as elongated concentric rings. At the center with the highest elevations is the Black Hills Core Highlands, which is encircled by the Black Hills Plateau, which in turn is surrounded by the Black Hills Foothills forming the outermost ring. Mount Rushmore straddles the Plateau and Core Highlands ecoregion divisions and contains a range of habitats including high-elevation bare rock cliff face, sparsely to densely forested steep slopes and canyons, open to densely vegetated moderate slopes, steeply incised and terraced stream drainages, and lower to mid elevation wet meadows found along

drainages. Surrounding the Black Hills on all sides for hundreds of miles are vast expanses of semi-arid to arid rolling grass prairies, rugged badlands, and shrub steppes contained within the Northwestern Great Plains ecoregion (Bryce et al., 1998, Chapman et al., 2004).

With the range of habitats and water resources characteristic of its ecoregions, it is not difficult to imagine that the Black Hills would have served as a beacon to humans and animals alike seeking respite from the arid conditions, extreme temperatures, and relentless winds of the prairies. Although there is little archaeological evidence of long-term encampments within the boundaries of Mount Rushmore, nearby sites that have been found are typically near springs. Given that there are water resources within Mount Rushmore, it is not improbable that the area could have supported short-term stays. The following sections on geology and soils, topography and water resources, and vegetation classification are intended to provide an overview of what basic resources were likely available and accessible to tribes using the area.

2.2 BASE GEOLOGY AND SOILS

There are five primary geologic units within Mount Rushmore that align in north-south bands and include metamorphosed black shale, Harney Peak granite, metagraywacke units 1 and 2, and metamorphosed quartzite (National Park Service 2008a). The primary rock types for these units are granite, quartzite, schist, and chert (USGS 2015). Overlying the bedrock are five soil types that fall within three soil series: Buska, Cordeston, and Mocmont. According to the soil survey created for Mount Rushmore using the Natural Resources Conservation Service online Web Soil Survey tool (2016), approximately four percent of the Mount Rushmore area contains soil within the Cordeston series, 43 percent is within the Mocmont series, 18 percent within the Buska series, and 35 percent is a combination of Buska and Mocmont soil types. All three series are described as deep, well-drained loamy soils, differing primarily in parent material. The Cordeston soils are from weathered sedimentary and metamorphic alluvium (stream deposits) and are found in Mount Rushmore flat areas of 2-10 percent slope; Buska soils are formed from weathered micaceous schists and can be found within the park in areas of moderate to very steep slopes, 10-80 percent; the Mocmont soils formed primarily from colluvium (deposited by slides or overland wash) and weathered granite and can be found in areas with slopes of 40-75 percent (Soil Conservation Service 1990). The Buska, Mocmont, and Buska-Mocmont soil types are associated with 20 to 25 percent of bare rock outcrop (Soil Conservation Service 1990) and Google (2017) satellite imagery confirms that this holds for the land within Mount Rushmore. These outcrops along with

material associated with the steep drainages would have provided accessible sources of rock (loose or otherwise) for tools and other uses.

2.3 TOPOGRAPHY AND WATER RESOURCES

Elevations at Mount Rushmore range from a low of 4,400 feet near the outlet of a drainage at the northeast corner of the park to a high of 5,725 feet at the Mount Rushmore sculptures in the central western portion of the park. Old Baldy Mountain along the northern boundary of Mount Rushmore has the second highest elevation at 5,605 feet. Aligned along roughly northeast-southwest diagonals are several sharp-spined ridges with corresponding deep valleys. Bare rock outcrops are scattered throughout most of the park except for a section in the northeast. Flat areas that would be most amenable to campsites can found on the saddles between ridges and on either side of the northernmost section of Starling Creek on drainage terraces and its outlet to Grizzly Bear Creek.

Three main drainage basins encompass approximately 1,033 acres within the park (about 80 percent of the total area)—Lafferty Gulch Basin, Starling Creek Basin, and East Boundary Basin (Powell 1973). Lafferty Gulch is centrally located and drains northerly into Battle Creek; the two other basins drain to Grizzly Bear Creek: East Basin in the northeast section and Starling Basin to the west and south. Streams and their tributaries within park boundaries are either intermittent or seasonally flowing, but there are scattered perennial springs at various locations and elevations, primarily in the Sterling Creek and Lafferty Gulch basins (Powell 1973). Seasonal wetlands and a beaver pond are located along Starling Creek in the western section of the park (Powell 1973, National Park Service 2008b). Two perennial streams are located just outside park boundaries: to the north Battle Creek flows in an easterly direction and to the south Grizzly Bear Creek flows easterly and then northerly to its confluence with Battle Creek near the northeast corner of Mount Rushmore. Outside the park Battle Creek continues its flow east until it empties into the Cheyenne River near where Pennington, Custer, and Shannon counties converge. (Elevations and topographical features as viewed using Google (2017) topographic imagery.)

2.4 VEGETATION CLASSIFICATION

Topographically, Mount Rushmore can be divided into three broad habitat areas: ridgetops and bare rock outcrop, slopes and steep drainages, and streams and associated terraces. Each of these areas can be further defined by the types of

vegetation communities most commonly associated with it. Hoffman and Alexander (1987) provided one of the first comprehensive vegetation classification systems for the Black Hills area. In 1997, The Nature Conservancy (TNC) conducted a vegetation mapping for Mount Rushmore using the National Vegetation Classification System (developed through public-private partnership). Both classification systems utilize species associations and dominance (prevalence) and although there is some overlap between the two, the Hoffman-Alexander classification encompasses the entire Black Hills complex, while the mapping conducted by TNC was specific to Mount Rushmore.

There is a difference of 1,125 feet between the highest and lowest elevations within Mount Rushmore and slopes face all compass directions. However, with the north-south alignment of the main ridges there is a predominance of westerly-northwesterly and easterly-southeasterly facing slopes. Elevation, steepness of slope, slope aspect (direction faced by the slope), temperature, and water resources all influence the types of vegetation communities found within the park. For example, white spruce (*Picea glauca*) tends to be most often found at higher elevations on cooler, moister, north facing slopes, ponderosa pine (*Pinus ponderosa*) on drier, warmer slopes at all elevations, quaking aspen (*Populus tremuloides*) on moister slopes at mid to low elevations, and bur oak (*Quercus macrocarpa*) in dry to moist lower elevations (Hoffman and Alexander 1987, The Nature Conservancy 1996). Each of these tree species has specific shrub (woody plants) and herbaceous species (grasses, forbs) associated with it, dependent on elevation, aspect, and moisture level.

The TNC mapping identified nine vegetation community types for Mount Rushmore that can be roughly grouped according to steepness of slope and elevation. Three community types most commonly found along lower elevation drainages and low to moderate slopes include the bur oak/hophornbeam (*Ostrya virginiana*) association, the paper birch/beaked hazelnut (*Betula papyrifera*/*Corylus cornuta*) association, and the woolly sedge/slimstem reedgrass (*Carex pellita/Calamagrostis stricta*) associations. On moderate to steep slopes and higher elevation drainages are four associations dominated by ponderosa pine with co-dominance, respectively, of bur oak, kinnikinnick (*Arctostaphylos uva-ursi*), roughleaf ricegrass (*Oryzopsis asperifolia*), and little bluestem grass (*Schizachyrium scoparium*). Of the two remaining vegetation community types, the ponderosa pine/common juniper (*Juniperus communis*) association is found most commonly on steep slopes. Ponderosa pine is the dominant species associated with rock outcrop, where it is limited to pockets of soil collected in hollows and crevices.

Ponderosa pine is currently and has been historically the dominant tree species in the Black Hills, but the density of the stands and the composition of the understory has likely changed significantly since the late nineteenth century onslaught of mining, timbering, and intensive forest management activities (Hoffman and Alexander 1987, Parrish, Herman, and Reyher 1996). It is speculated that prior to the mid-1800s reoccurring fires kept the forest canopy more open, allowing for a mosaic of open forest and meadows (Hoffman and Alexander 1987, Parrish, Herman, and Reyher 1996, Ashton, et al. 2012) which would have supported a richer community of shrub and herbaceous species (Hoffman and Alexander 1987, Albers 2003). This is significant in that it would have provided a greater level of forage available to wildlife and food plants for the tribes. For example, many of the berry producing plants are shrub species that would not have been found in the prairie and steppe ecosystems surrounding the Black Hills, and berries provided an important source of food dried by the tribes for winter-use. In Mount Rushmore, perhaps some glimpse of what pre-European contact forests might have looked like can best be observed within the Starling Basin drainage on the west side of the park, which holds the largest remaining old-growth stand of ponderosa pine within the Black Hills (National Park Service 2008, Ashton et al. 2012).

3.0 ETHNOBOTANY

As a western concept, ethnobotany is the study of a region or culture's relationship to and use of plants. But from a Native American perspective it is far more than that: it is not just identifying plants, it is the knowledge of them in the full breadth of meaning—where they live, how they live, how long they last, and what they need to thrive (Alcoze 1999, Pember and Black Elk 2017). Alcoze discusses the sacred connection to plants, specifically, that from a Native perspective knowing the plants means knowing the earth and that taking care of the plants is by extension, taking care of oneself (1999).

Much of the accumulated knowledge of plants has been lost over the last few centuries, both among indigenous tribes and the descendants of early European settlers (Foster and Hobbs 2002, Moerman 2010). In their documentation of the use of plants by the Oglala Sioux, Morgan and Weedon (1990) note that there is a continuing loss of knowledge with each subsequent generation for multiple reasons, including reduced need to gather plants for food and a general disruption of the passing on of information by social factors such as reservation boarding schools and high rates of poverty, alcoholism, and unemployment. The ethnohistorical research of Morgan and Weedon, Moerman (2009, 2010), Kindscher (1987, 1992), Albers (2003), Sundstrom (1997), and other such authors is dedicated to ensuring that what knowledge still remains is preserved in published form. Native ethnobotanists such as Thomas Alcoze, Linda Black Elk, and Richard Sherman have been equally dedicated to ensuring that teaching the traditional knowledge remains alive. Black Elk believes there is a paradigm shift occurring within current day Native culture, where the people are "reconnecting with the earth's processes and relearning the interconnected nature of life" (Pember and Black Elk 2017).

Albers, Kindscher, and Moerman, were the primary references used to compile a list of uses for the vegetative species found at Mount Rushmore. The list of thirteen tribes with connections to the Black Hills (referred to collectively as Black Hills tribes for purposes of this paper) was compiled primarily from information provided by Sundstrom and cross-referenced with information from Kindscher, Albers, Moerman, and Morgan and Weedon. A common theme voiced by each of these authors is that a lack of historic record for a specific plant is not a definitive statement as to whether or not it was used for food, medicine, or any other purpose. Likewise, a record of use for one tribe is not indicative of lack of use (similar or different) by another tribe or tribes. For example, beaked hazelnut, prickly lettuce (*Lactuca serriola*), and wild sarsaparilla (*Aralia nudicaulis*) are species found within Mount Rushmore that have records as food

plants for indigenous groups, but not for any of the tribes listed as frequenting the Black Hills. As another example, Rocky Mountain juniper (*Juniperus scopulorum*) has records of being used for medicinal purposes by seven of the Black Hills tribes, but only two of those tribes are recorded as using common juniper (*J. communis*) for medicinal purposes; however, both species are similar and both are common in the Black Hills.

There are currently 459 species of plants that have been recorded for Mount Rushmore (National Park Service n.d.b), 288 of which have been recorded as having some use by any native tribes. Of those species, 153 have some recorded use by tribes known to have occupied or used the Black Hills. Table 1 below gives a summary of use categories by Black Hills tribes and other tribes. Table 2 (Attachment A) provides ethnobotanical uses for these 288 plants. In Table 2, use by Black Hills tribes is indicated by a two-letter abbreviation for the specific tribe and recorded use by tribes other than Black Hills tribes is designated by an "x". The table is divided into four categories of use—food, medicine, manufacture, and ceremonial or sacred uses. A fifth category provides general information regarding the habitat and elevation where each species might be found within the Black Hills.

Total plant species recorded within Mount Rushmore	459
Total species providing any use for any tribe	**288**
Any use- Black Hills tribes	153
Any use- other tribes	135
Total species providing food use for any tribe	**167**
Food use- Black Hills tribes	82
Food use- other tribes	85
Total species providing medicinal use for any tribe	**260**
Medicinal use- Black Hills tribes	112
Medicinal use- other tribes	148
Total species providing manufacture use for any tribe	**74**
Tool use- Black Hills tribes	62
Tool use- other tribes	12
Total species providing ceremonial or sacred use for any tribe	**57**
Ceremonial or sacred use- Black Hills tribes	52
Ceremonial or sacred use- other tribes	5

Table 1. Summary of ethnobotanical categories.

Of the 153 plant species within Mount Rushmore boundaries that have records of uses for food, medicine, manufacture, or ceremony by Black Hills tribes, 96 are discussed in this paper. These include most of the species with recorded tribal uses that also occurred in multiple years' vegetation monitoring (as reported in Ashton and Prowatzke 2014, Prowatzke and Wilson 2015, Davis 2017), all of 23 species that had uses recorded for each of the four categories, and species with distinctive characteristics that might make them more easily recognizable to park visitors even if they are not as commonly seen.

3.1 FOOD

In her ethnographic study of Wind Cave National Park located just under 17 miles south of Mount Rushmore, Albers (2003) emphasizes the multiple layers of significance the Black Hills held for the various area tribes, all of which are inextricably intertwined with the sacredness of the area (also Sundstrom 1997). Albers notes that many tribes referred to the Black Hills as a food reserve, a place where plants, wildlife, and water were abundant. Because of its geology, topography, and water resources the plants found within the Black Hills differ significantly from that of the surrounding grass-dominated Northwestern Great Plains ecoregion, perhaps mostly in the availability and diversity of woody plants (trees and shrubs). This is significant in that of the 288 species with recorded uses, a proportionately higher percentage of woody species (47 out of 56 species, or 84%) were used as a food resources than were herbaceous species (120 out of 232 species, or 52%).

Leaves, stems, roots and tubers, flowers, seeds, pollen, bark, and sap are all plant parts that could be utilized for food, depending on the species, the season, and the purpose. For some species choices would have had to been made regarding harvest amounts, especially where collection of one part of the plant precluded collection of another part. For example, the flower buds, seeds, stalks, and tubers of the common sunflower (*Helianthus annuus*) were consumed by tribes including Arikara, Cheyenne, Hidatsa, Kiowa, Mandan, Ponca, and Lakota Sioux tribes. The stalks are most palatable when collected from young plants, but harvesting for that purpose effectively terminates any further use of the plant and collection of the flower buds decrease the number of flower heads that could later produce seeds for harvest. Similarly, the young fruits (pods) of the showy milkweed (*Asclepias speciosa*) could be collected for food or left to mature so that the hardened pods and downy seeds could be used for a variety of purposes. More often though, decisions would likely have had to been made about how much of the plant or what parts would be collected for medicinal purposes and how much for food

as over half of plants used for food by Black Hills tribes (58 of 82 species) also had medicinal uses.

Leaves -- Leaves and flowers were most often used for making teas, although other parts such as stems, roots, and sap might also be used. Leaves of the blue giant hyssop (*Agastache foeniculum*) were used for teas and also to sweeten other foods. These tall plants with distinctive blue-purple flower spikes can be found along streambanks, in moist to dry meadows, or open forests at any elevation within Black Hills. Leaves, flowers, and stems of the shorter wild mint (*Mentha arvensis*) were used for tea and the leaves were also used as a spice in pemmican mixtures. Wild mint is typically found in moist areas at all elevations. Teas were the only food use for upright prairie coneflower (*Ratibida columnifera*) and swamp verbena (*Verbena hastata*), two species that are more likely to be found in the lower to mid-elevation areas within the park. With its tall, darkly colored central cone subtended by slightly drooping bright yellow or yellow and rust-colored petals, the coneflower may be one of the more easily identifiable herbaceous plants for park visitors. The leaves of almost all the berry producing plants were used for teas, including strawberries (*Fragaria spp.*), kinnikinnick (*Arctostaphylos uva-ursi*), currants and gooseberries (*Ribes spp.*), American red raspberry (*Rubus idaeus*), and chokecherry (*Prunus virginiana*). Scouringrush horsetail (*Equisetum hyemale*) might seem an unlikely food source, but the Sioux and Blackfeet tribes would boil the plant for tea or use it as fodder for their horses. This plant is found at lower elevations in moist areas and is very distinctive with its spindly, upright, vertically-ribbed deep-green stems.

Leaves and stems -- Leaves and stems were also eaten raw, cooked as greens, or added to soups and stews. The leaves of littleleaf pussytoes (*Antennaria microphylla*) were chewed by children and all parts of the violet woodsorrel (*Oxalis violacea*) were eaten raw, but the leaves especially were chewed as a thirst quencher. Young plants of lambsquarters (*Chenopodium album*) and pitseed goosefoot (*C. berlandieri*) were boiled for greens and added to soups and stews and it is possible that the latter species was cultivated by Kiowa, Pawnee, and Dakota Sioux. Young stems of the common cowparsnip (*Heracleum maximum*) were variously prepared- peeled and eaten raw, roasted, boiled in soups and stews, or dipped in blood, dried, and stored for later use. This latter plant is also a common and easily identifiable plant of wetter areas, growing to heights of 10 feet with hollow stems and small white flowers densely clustered in large, flattened heads.

Flowers -- Flowers were sometimes used in teas as described earlier, but were more often eaten raw, added to soups and stews or to other foods as a garnish. Flowers of the showy milkweed and common gaillardia (*Gaillardia aristata*) were added to soups and stews, and those of violet woodsorrel and wild bergamot (*Monarda fistulosa*) were often used as garnishes. Violet woodsorrel is a delicate understory plant found in open forests and meadows at lower elevations and can be identified by its pale violet-colored flower and quintessentially shamrock-shaped leaflets.

Seeds -- Seed collection from grasses and other plants for grinding into flours may have had greater prevalence within some of the more agriculturally inclined southwestern tribes than within the more nomadic tribes that frequented the Black Hills (Dunmire and Tierney 1997, Moerman 2010). Only five plant species within Mount Rushmore are referenced for seed collection. There are records of Kiowa, Pawnee, and Dakota Sioux tribes collecting seeds from the pitseed goosefoot to be dried and either eaten directly or ground into meal. American hogpeanut (*Amphicarpaea bracteata*) has seeds produced from flowers near the top of the plant and other seeds that are produced near the base of the plant or underground. The higher seeds were boiled before being eaten, while the lower or underground seeds were either boiled or eaten raw (Kindscher 1987). Seeds from the common sunflower were gathered for oil and also eaten raw, roasted, or as ground pastes. Arikara, Hidatsa, and Mandan tribes were known to have cultivated sunflowers and there are references to the seeds being used as a trade item. Seeds from Lewis flax (*Linum lewisii*) were used as flavoring for other foods and seeds from the ponderosa pine were eaten raw. Acorns from the bur oak were a staple food eaten boiled, roasted, or mashed as a stand-alone item or mixed in with other foods; pre-soaking in ashes was necessary to reduce the very bitter taste of these nuts. Bur oaks can present as a tree or shrubby tree and will typically be found on moderate slopes along drainages at low to mid-elevations.

Berries -- Berry producing plants as a whole were important sources of food, especially as foods that could be readily dried and stored for winter use. Of the 24 berry-producing species within Mount Rushmore, 20 are from woody shrubs or shrubby trees. As shown in Table 2, there are often only a few tribes recorded as having made specific reference to these foods, but it is most likely that berries were consumed by all tribes frequenting the Black Hills. For example, Hidatsa, Kiowa, and Lakota Sioux are recorded as using longleaf and Virginia groundcherry (*Physalis longifolia, P. virginiana*) as food plants, but Albers (2003) notes that they were very likely eaten by all tribes in the area. Groundcherries are relatively low lying plants and can be readily identified by their fruits which are encased in fragile, papery, light brown husks. Saskatoon serviceberry and low

serviceberry (*Amelanchier alnifolia, A. humilis*) were such an important food plant that Blackfeet would move camps to be nearer to the sources at harvest time (Kindscher 1987). Both plants are found on drier slopes at multiple elevations. In addition to the berry plants mentioned in the discussion of plants used for teas, berries from red osier dogwood (*Cornus sericea*), red elderberry (*Sambucus racemosa*), russet buffaloberry (*Shepherdia canadensis*), and nannyberry (*Viburnum lentago*) were eaten raw, made into jellies and puddings, and variously mixed with other foods. All four species can be found near streams and other moist to wet habitats. Berries from the common and western snowberry (*Symphoricarpos albus, S. occidentalis*) were more often dried for winter use in times of scarcity. Both plants are easily recognized by their distinctive white berries which persist well into winter long after the leaves have dropped and both can be found in the same habitats as the serviceberries. Ten of the 13 Black Hills tribes have references to chokecherry as an important food. The cherries were eaten raw or cooked, dried or mashed into a paste (often with the pits included), and added to other foods. It was a main ingredient in pemmican, a staple food of many tribes that consisted of meat and fat mixed with berries and other foods. Chokecherry can be found at all elevations along dry drainages, streambanks, and open forest areas, and on rocky slopes. Berries of the American black currant, golden currant, and red current (*Ribes americanum, R. aureum, R. cereum*) were used by many tribes for juice drinks, additions to soups and other foods, and dried for winter use.

Roots -- Although all food plants were important, those with edible roots, bulbs, and tubers could often be readily dried for storage and therefore, like berries, had similar importance as winter foods. An exception to that might be the nodding onion (*Allium cernuum*) which has records from multiple tribes as being eaten raw and cooked, but had no reference as to being dried for winter use. Other plants collected for roots or tubers include Gunnison's mariposa lily (*Calochortus gunnisonii*), found in meadows and open forests, yellowspine thistle (*Cirsium ochrocentrum*), found in dry habitats at lower elevations, and American licorice (*Glycyrrhiza lepidota*), found along streambanks and meadows. Large Indian breadroot (*Pediomelum esculentum*) was harvested primarily for its roots, but the plant was also dried and ground up to be used for thickening stews. This plant was referenced by many tribes as an important food, although one that was often difficult to find and dig up; it can be found in mixed-grass prairie habitat and open pine forest. Two species of sunflower, Maximilian sunflower and Jerusalem artichoke (*Helianthus maximiliani, H. tuberosus*), were harvested primarily for the roots rather than the seeds. Cheyenne, Ponca, Pawnee, and Lakota and Dakota Sioux all make reference to the Jerusalem artichoke as a food that was stored for use during times of starvation. Narrowleaf willow (*Salix exigua*) is the only woody species that had roots

harvested specifically for food. Hidatsa and Lakota Sioux were known to chew the roots as a confection. Broadleaf cattail (*Typha latifolia*) is one of the few wetland plants used for food that is found in Mount Rushmore; Blackfeet and Lakota Sioux reference eating cattail roots and pollen. The wetland habitat and the long and ribbon-like leaf blades of this plant coupled with its characteristic tall, center-stalk topped by a dark brown cigar-shaped flower head make this one of the more widely identifiable plants.

Bark and sap -- The inner bark of ponderosa pine and young balsam poplar and eastern cottonwood (*Populus balsamifera, P. deltoides*) was eaten or steeped or boiled for tea. White spruce (*Picea glauca*) bark was eaten fresh or ground into a flour, the needles used to make tea, and cones and young shoots boiled and eaten during times food was scarce. Resin from pines and spruce was used for chewing gum and balsam poplar, cottonwood, and paper birch (*Betula papyrifera*) were tapped for sap. Two other plants that produced sap used for chewing gum were spreading dogbane (*Apocynum androsaemifolium*) and showy milkweed.

3.2 MEDICINE

The quest to cure bodily ills and relieve discomfort is a commonality shared by humans across time and the tribes inhabiting the Black Hills would have been no different in that regard. Of the 288 plant species with recorded uses, 90 percent (260 spp.) had some medicinal properties afforded them, a number that composes over half (56%) of the total species listed for Mount Rushmore. The effectiveness of any particular remedy would certainly have been connected to the actual physical and chemical properties of the species used, but there was a third, more fluid property that influenced effectiveness—the plant's connection to the sacred. Cheyenne and Lakota Sioux viewed plants as having physical and spiritual properties and were well aware of the link between the health of the plant communities and health of animal populations, and by extension, their own health as well (Albers 2003), a view likely held by other tribes as well. Albers suggests that because of the sacredness accorded to the Black Hills, plants collected there for medicinal purposes may have been regarded as having greater power.

Moerman (2009) also tackles the question of effectiveness and notes that medicine and culture have long been interconnected for the tribes as well as what defines health and well-being; what may be considered an effective treatment by a tribe may not be considered effective by a Euro-American culture. Many plant species had a wide range of medicinal uses and sometimes seemingly contradictory uses. For instance, infusions

from the bark of peachleaf willow (*Salix amygdaloides*) and other willow species were used to provide relief from diarrhea, but were also used to induce vomiting. Along with many other medicinal applications, the roots of soapweed yucca (*Yucca glauca*) were used to help speed childbirth and also to prevent birth. Contact with the sap of common cowparsnip can cause blistering in some individuals, but Arapaho, Blackfeet, Ponca, Pawnee, and Lakota Sioux tribes have been recorded as using a poultice of the roots to relieve boils. Similarly, another plant known to cause severe rash and itching upon contact, western poison ivy (*Toxicodendron rydbergii*), was used by Kiowa and Lakota Sioux to treat irritations of the skin. The disparity of uses for any particular species is not necessarily contradictory—as with western medicines, what may work for one person may not be effective for another and some plants may have been used allopathically while others were used homeopathically (Moerman 2009).

The connection of plants to the spiritual is significant because it means a species of plant or even an individual plant can be imbued with special properties (Morgan and Weedon 1990, Moerman 2009). In their exploration of the current day uses by the Oglala Sioux of plants for medicinal purposes, Morgan and Weedon note that a plant's use for medicinal purposes is not necessarily static and may vary depending on the practice of the medicine man (also Moerman 2009); specifically, that while some plants may have commonly known medicinal uses, others may have uses that are known only to the medicine man—uses that may have come through dreams or visions, or may have been shared or passed down from other medicine men.

Out of the 260 plant species within Mount Rushmore that have some record of medicinal use, 112 of those species have records of use by one or more of the thirteen Black Hills tribes. While the ailments named are various, there are some common themes, such as cures for boils, rashes, and other skin irritations, staunching bleeding and reducing swellings, relieving pain from arthritis and rheumatism, aids for women during menses or childbirth, help for diarrhea and other intestinal ailments, relief from colds and fevers, mixtures for eyewashes, and remedies to counteract the effects from snakebites and stinging insects. These themes may provide some idea of common medicinal needs of the time; for instance, Moerman (2009) notes the prevalence of eye treatments and the wide range of plants employed for that purpose, and speculates that this may be due to living in smoky conditions.

There are certain plants that appear to be commonly accepted by multiple tribes as all-purpose medicinal plants while others seem to have more targeted uses by specific tribes. Of the Black Hills tribes, Arapaho, Blackfeet, Cheyenne, Crow, Pawnee, and

Lakota Sioux have records of using common yarrow (*Achillea millefolium*) for a variety of uses and common yarrow is listed by Moerman (2009) as one of the top ten plants commonly used for medicinal purposes by tribes throughout North America. Infusions and teas made from the entire plant were used to treat colds, coughs, general illnesses, and eye irritations; poultices were made to help with toothaches, stopping bleeding, and for healing boils, other sores, and burns. Common yarrow is easily identified by its delicate, feathery leaves and flat-topped clusters of small white flowers and can be found in dry open areas throughout the park. Rubbing either leaves or flowers between the fingers produces a pleasant aroma. Kindscher (1992) describes blacksamson echinacea and pale purple cone flower (*Echinacea angustifolia, E. pallida*) as two of the most widely used medicinal plants by Plains tribes. Uses included all those described for common yarrow as well as rheumatism and arthritis, burns, infections, swellings, snakebites and stings, and headaches from smoke. Teas and salves were made to treat introduced diseases such as mumps, measles, and smallpox. The roots were chewed to relieve toothaches and were given to horses as a treatment for distemper. Both species of echinacea have distinctive flowers composed of drooping pale purple to pink petals ringing a dome-shaped dark cone. Several species of sage also had widely used medicinal applications. Field sagewort, prairie sagewort, and white sagebrush (*Artemesia campestris, A. frigida, and A. ludoviciana*) were used to treat colds, digestion issues, skin problems, and discomfort of women during menses and childbirth. Typically the medicine produced from these plants was made from infusions or teas of leaves and roots, but leaves could also be chewed to relieve heartburn (prairie sagewort), or burned to drive away bad dreams (white sagebrush), or roots pounded and administered to help promote sleep (field sagewort). Sagebrush species within the park will be found in dry habitats at lower to mid elevations, but would be more commonly found within the surrounding plains.

Colds, fevers, general respiratory -- Arapaho, Blackfeet, Cheyenne, Pawnee, Dakota Sioux, and Lakota Sioux have records of using American licorice to treat a number of ailments related to being sick. Infusions or decoctions of roots were used to treat coughs, chest pains, sore throats, fever, stomachaches, and diarrhea; teas from leaves treated earaches, fever, and diarrhea; and poultices from roots and leaves were used to treat sores and joint swellings for horses. Infusions and decoctions of berries from common juniper, creeping juniper, and Rocky Mountain juniper (*Juniperus communis, J. horizontalis, and J. scopulorum*) were used to treat colds, coughs, and fevers, and could be provided for a sedative. Blackfeet, Cheyenne, Crow, and Hidatsa tribes used an infusion of roots to promote shiny coats in horses. All three evergreen species have distinctive blue, berry-like fruits covered with a waxy, whitish bloom and can be found in

dry habitats within the park at a variety of elevations. Infusions of the silverleaf Indian breadroot (*Pediomelum argophyllum*) were used by the Cheyenne and Lakota Sioux to treat high fevers and Blackfeet, Cheyenne, Crow, Kiowa, Pawnee, and Dakota and Lakota Sioux used infusions and teas made from wild bergamot to treat colds, coughs, fevers, and other respiratory problems.

Gastrointestinal ailments -- Decoctions of showy milkweed were used to treat intestinal discomfort and the entire plant of lambsquarters was used in preparations for treating diarrhea, as was Canadian horseweed (*Conyza canadensis*), Virginia strawberry, Baltic rush (*Juncus balticus*) and cowparsnip. Decoctions of the roots of cowparsnip were also used to treat stomach pains and intestinal discomfort and poultices from the roots were used to treat colds, flu, and boils. Dotted blazing star (*Liatris punctata*) and disc mayweed (*Matricaria discoidea*) were also used to treat diarrhea and stomachaches; both plants are found in open dry areas at low to mid elevations. Wild mint was used to provide relief from gas, vomiting, and stomachaches as well as other uses such as providing for heart health, stimulation of vital organs, easing chest pains, and relief from headaches. Teas from the roots and bark of prickly rose (*Rosa acicularis*) was given to children to stop diarrhea, and was used to treat intestinal disorders, and sore throats.

Bleeding, cuts, sores, burns, and swellings -- External and internal hemorrhaging was treated using various parts of the upright prairie coneflower and rectal hemorrhaging was treated using teas made from fireweed (*Chamerion angustifolium*). Teas from the roots of fireweed were used to help reduce swelling and root poultices were used to treat boils. Found in disturbed or open areas at mid-high elevations, fireweed is easily identified by its summertime spikes of bright pink-purple flowers atop tall, densely leafed stems, or late in fall by its long slender seed pods that split open into dense clumps of silky white fluff. Canadian horseweed was used to stop hemorrhaging during childbirth. Poultices of the wild bergamot's flowers were used to treat boils and cuts, the roots were chewed to relieve swollen glands, and the leaves of the bergamot were variously prepared to provide relief from eye problems, stop wounds from bleeding, and relieve insect bites and stings. The Ponca have records of using leadplant (*Amorpha canescens*) to stop bleeding by making a powder of the leaves and blowing it onto cuts and other wounds. Twigs of the leadplant would be lighted and used as a moxa stick applied to the skin to relieve nerve pain and pain from rheumatism. The leadplant can be identified by long fern-like leaves of small, paired leaflets and multiple spikes (racemes) of deep purple to purple-blue flowers that have bursts of bright yellow anthers protruding from the flowers at maturity. Leadplant is typically found at low to mid elevations in grassy areas. Prairie Junegrass (*Koeleria macrantha*) was applied to

cuts and abrasions. Poultices made from the willow species (*Salix spp*.) were used to stop bleeding and strips of barks were used for tourniquets. Small-leaf pussytoes (*Antennaria parvifolia*), blacksamson echinacea, and willow dock (*Rumex salicifolius*) were used to reduce swelling from rheumatism. Kiowa used decoctions made from the flowers of the yellowspine thistle to treat burns and sores, and Cheyenne, Hidatsa, Ponca, Pawnee, and Sioux have records of using the down from broadleaf cattails as dressing for burns and scalds.

Eyes -- Infusions of berries and teas from leaves of common snowberry and western snowberry were used as eye washes and to treat sore eyes. Eye ailments were also treated with solutions from the rose hips of prickly rose, eye drops made from the berries of Saskatoon serviceberry and low serviceberry, decoctions from the plant tops of showy milkweed, and eyewashes made from infusions of common selfheal (*Prunella vulgaris*). Blackfeet tribes also used common selfheal eyewashes for their horses and to treat sores on horses and humans.

Snakebites, insect stings and bites -- Dakota and Lakota Sioux have records of using pulverized flowers from the wood lily (*Lilium philadelphicum*) as spider bite antidote. Ponca and Lakota Sioux used the fruit of groundcherries to treat snakebites, Cheyenne and Sioux used infusions and poultices of upright prairie coneflower to draw out the poison from rattlesnake bites as well as to treat skin rashes from poison ivy, and Lakota Sioux also used the lilac penstemon (*Penstemon gracilis*) to treat snakebites. Decoctions and poultices made from the roots of the American black currant and golden currant were also used as antidotes for snakebites by Blackfeet, Kiowa, and Ponca. Poultices from the bulbs and stems of nodding onion, poultices from plant juice of pale purple coneflower and blacksamson echinacea, and crushed leaves from wild bergamot were all used in treatment of bee stings and other insect bites and stings.

Childbirth, related issues -- Blackfeet used leaves and flowers of the water birch (*Betula occidentalis*) to help with conception. Common yarrow and field sagewort provided relief from labor pains; Kiowa used a decoction from the leaves of the common dandelion to relieve menstrual cramping. Several plant species were used to bring about or speed up childbirth, including leaf tea of the pasqueflower (*Anemone patens*), infusion of roots from field sagewort, smoke from the burning leaves of common juniper, tea from berries of the Rocky Mountain juniper, infusions from the bark of quaking aspen (*Populus tremuloides*), and teas from pulverized roots of soapweed yucca. Kiowa, Mandan, Pawnee, and Sioux used powdered seeds of the common sunflower as a protection against illness in nursing babies and several other tribes used

bark infusions of the chokecherry for similar purposes. Red baneberry (*Actaea rubra*) was used by Blackfeet and Cheyenne to stimulate milk flow in nursing mothers. Cheyenne used bark infusions from the American elm to ensure health stability in children.

Horses -- Many of the medicines used by the tribes on themselves were also used to treat similar ailment in their horses. Scouringrush horsetail was used as a medicine (purpose unspecified) to treat horses by the Blackfeet, Cheyenne, and Crow. The berries of common and western snowberry were made into a decoction to help horses with voiding and to treat water retention. Sores and other skin conditions on horses were variously treated with decoctions from roots of red baneberry, infusions from leaves and stems of annual ragweed (*Ambrosia artemisiifolia*), poultices or infusions from leaves and roots of American licorice, decoctions from curlycup gumweed (*Grindelia squarrosa*), and decoctions from roots of soapweed yucca. Smoke from burning soapweed yucca was also used to help in catching horses. Endurance in horses was encouraged by rubbing horses' hooves with western pearly everlasting (*Anaphalis margaritacea*) or adding the powdered plant of purple meadow-rue (*Thalictrum dasycarpum*) to horse feed. Ponca and Pawnee added pulverized bulbs of violet woodsorrel to horse feed for increased speed and Cheyenne and Lakota Sioux gave pulverized root of silverleaf Indian breadroot to horses to relieve tiredness.

3.3 MANUFACTURE

Of the 74 plant species with some record of use for tools or other manufactured items, 62 of those species have records of being used by Black Hills tribes. The Black Hills would have been an important source of woody species less commonly found or not found at all in the surrounding plains and steppe ecoregions. Over half the species listed under the manufacture category are trees and shrubs and overall, these species provided a greater range of uses than did herbaceous species. Although Table 2 lists many items manufactured by various tribes it is doubtful that it is close to being a complete list of the species used and the items made. While some species would certainly have had preferred uses, it is likely that just as often necessity of the moment would dictate using what species were available. Albers (2003) was the resource used for specific information on manufactured items unless otherwise referenced.

Structures -- Ponderosa pine, balsam poplar, eastern cottonwood, and Rocky Mountain juniper were used as lodge poles and travois runners, and tipi pegs were crafted from green ash (*Fraxinus pennsylvanica*), red osier dogwood, chokecherry, and willows.

Drying racks were crafted from willows, cottonwood, bur oak, balsam poplar, and cottonwood; fish traps were constructed from Saskatoon serviceberry, low serviceberry, cottonwood, and balsam poplar; and willows and western snowberry were used for other traps and snares. Ponca boiled chokecherry bark to make a solution for cleaning traps and removing any residual scents. Red osier dogwood and peachleaf willow were used to construct sweat lodges.

Weapons -- Lakota Sioux used stems from serviceberry, leadplant, golden currant, and chokecherry to make arrow shafts and used chokecherry to craft bows. Red osier dogwood has records of being used to fashion arrows by Cheyenne, Commanche, and Kiowa, and Cheyenne used Rocky Mountain juniper to make lances and bows. Fibers from the American elm and showy milkweed were used for bow strings.

Ropes, twines, basket -- Spreading dogbane and stinging nettle (*Urtica dioica*) were two herbaceous species used to make twines and ropes, and showy milkweed fibers were used for thread. There are few references to grass or other plants used for weaving although Albers does mention that the Cheyenne used broadleaf cattail leaves to weave baskets, and willows were used to weave mats. Southwestern tribes such as the Hopi and Ute are more widely known for basketry (Dunmire and Tierney 1997) than the more nomadic tribes of the plains, with the exception of gaming baskets. Jolie (2006) describes in detail small coiled baskets woven by women of various tribes for purposes of a gambling game primarily played by older women. The game involved counting sticks made of willows and throwing dice made from bone, stone, or pits from cherries. According to Jolie, the Arikara, Arapaho, Cheyenne, Commanche, Hidatsa, Kiowa, Mandan, Pawnee, and Sioux all wove gambling baskets, each tribe with its own style. Young shoots of willow, cottonwood, balsam poplar, or other pliant woody plants formed the foundation ribs of the baskets and the weave was made from yucca leaves or any other plant material available that leant itself to being woven.

Dyes, paints, fragrances -- Twenty-six species have records of being used to make dye and another nine for use as fragrances. Yellow dyes were produced by petals of common sunflower, blacksamson echinacea, and upright prairie coneflower, and also the roots of broadleaf cattail, prickly rose, and Woods' rose. Green dyes were produced from leaves of common yarrow, pitseed goosefoot (Kindscher 1992), and prairie sagewort. Red dyes were likely made from any red berry producing plant, but serviceberry, silver and russet buffaloberry, and western snowberry are specifically mentioned for this color; also northern bedstraw (*Galium boreale*). Plant species within the park that could be used to make blue dye or paint include broadbeard beardtongue

(*Penstemon angustifolius*) and prairie spiderwort (*Tradescantia occidentalis*). Charcoaled wood from the green ash was used in making black paint. Ponca used wild bergamot for making a fragrant hair pomade and Cheyenne, Hidatsa, and Lakota Sioux used it as a perfume for both humans and horses. Other species used as personal fragrances or for freshening the air within lodges include blue giant hyssop, disc mayweed, white and yellow sweet clover (*Melilotus alba, M. officinalis*), and wild mint; Cheyenne also used mint mixed with fat for hair pomade.

Personal and other use -- Hair brushes were made from the hardened central cone of blacksamson echinacea and from bunched up porcupinegrass (*Hesperostipa spartea*), and shampoos were made from purple meadow-rue. Soapweed yucca was used for making soap and a decoction of roots used for tanning hides (Kindscher 1992). Fibers of the little bluestem (*Schizachyrium scoparium*) were used in moccasins as wintertime insulation and thorns of the silver and russet buffaloberry plants were used as awls. Lakota Sioux made saddles from balsam polar and American elm, and the Cheyenne used common juniper and Rocky Mountain juniper to fashion flutes.

3.4 CEREMONIAL AND SACRED

There are fewer records of plant uses for sacred ritual or ceremonial purpose than for the other categories of uses. At least 23 species found within Mount Rushmore have specific references to being used in the Sun Dance ceremony and many other species are referenced for other ceremonies, but often the specific use is not defined. Species with known uses during the Sun Dance include blacksamson echinacea where roots were chewed to help increase the flow of saliva during dancing and the roots of American licorice were used to help cool down; prairie Junegrass was used as a stimulant for dancers; green ash was used to build the Sun Dance lodge and silver buffaloberry was used to construct the altar.

Two highly sacred species were white sagebrush and Western juniper; both were used for purification, protection against evil, and general ceremonial uses. Willow was used by Arikara and Ponca for purification, healing, and in rites for the dead. Balsam poplar was a tree used by Lakota Sioux for burials and for construction of sweat lodges. Ceremonial whistles and flutes were made from green ash, ponderosa pine, common juniper, and Rocky Mountain juniper. Tobacco mixtures were made from the leaves of littleleaf pussytoes, common cowparsnip, leadplant, and kinnikinnick, as well as the bark of red osier dogwood, prickly rose, and Woods' rose.

Various species were also featured in storytelling: there were stories of the large Indian breadroot that could lead girls astray in their search for the plant; learning about the importance of gift giving and not being greedy through a story about collection of the American hogpeanut; and finding balsam poplar as an important part of origin stories. The seasonality of some plants were used as signs—the appearance of the flowers of Canada goldenrod (*Solidago canadensis*) was used by the Ponca to signal that it was time to return to their cornfields and the appearance of the dotted blazing star was used by other tribes to signal that the corn of the Arikara would soon be ready for trading.

The connection of plants to the sacred is not solely defined through use in rituals; the sacredness is also understood as the connection to day-to-day life. Albers (2003), Black Elk and Flying By (1998), and Pember and Black Elk (2017) mention a teaching story connected to the collection of the American hogpeanut, or the mouse bean, as referred to by the Lakota and other tribes. The hogpeanut is one of many foods collected by the Black Hills tribes. It is a spindly three-leafed, vine-like plant that is unique in that it produces two sets of seeds- an above ground lentil-like seed that develops from flowers that grow on the upper portion of the plant stalk, and an underground, larger kidney-shaped seed that develops from a flower that grows from the bottom of the stalk and then makes its way under the soil surface where the seed develops. While both seed types provided food sources, the larger underground seed was preferred. But collecting it entailed the labor intensive process of digging in oftentimes hard dirt- digging that was done with a pointed stick. At some point in time, people discovered that the meadow vole (known by tribes as the bean mouse) was a great collector of these seeds and would store caches that could amount to quarts-worth of beans (Kindscher 1992); naturally, raiding these caches was a far easier way to collect the beans than digging around individual plants to find its underground seeds.

A story is a fine way to end and the story of the mouse bean in particular highlights the deep interconnection between a people and the many aspects of the natural world around them; especially, that individual actions have effects on other life forms and if care is not taken, those actions may have undesirable consequences on the community as a whole. There are many variations to this teaching story and here is one constructed from Albers (2003), Black Elk and Flying By (1998), Pember and Black Elk (2017), and anonymous authors:

> *The women of the village set out to collect the mouse bean. The women sang out to the bean mice, letting them know they were coming for the beans, letting them know how much they were respected, and asking the mice for permission to take some of*

their stored beans. The women took the beans, but were careful to leave enough for the mice not to starve over the winter and they always left a gift of cornmeal or dried meat or fruit. However, one woman was lazy and greedy. She took all the beans she could find in order to fill her basket quickly and she left no gifts for the mice. Later on when winter set in, it was very harsh and long and the village ran out of food.

4.0 CONCLUSION

To say that Native Americans depended on plants for their survival is stating the obvious and this is certainly a fact that holds for all cultures across time, including present day. However, the difference between the present day and these earlier times lies in the fact that the tribes had to know where to find the various plants, had to know when, how, and how much to harvest without destroying the source, and had to have the means to prepare and store them. Perhaps even more importantly, this body of knowledge had to be maintained and passed on to each successive generation without the aid of the written word. The locations, timing for harvest, toxicity, medicinal properties, and appropriateness for use in manufacturing items for life needs are just a fraction of the kinds of information that would have been necessary to maintain quality of life, and to survive. The Black Hills of South Dakota, including the area currently occupied by the Mount Rushmore National Memorial, provided a significant and rich source of plants that were used by Native Peoples of the area for food, medicine, manufacture, ceremonial, and spiritual uses. While the compilation of information in this paper and summary table is a small part of keeping this knowledge alive, it can serve to enhance the experience of current day visitors to the Mount Rushmore National Memorial and help to provide a deeper awareness of the importance and cultural significance this area has for present day Tribal Nations.

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ATTACHMENT A

Table 2. Ethnobotanical Uses
Mount Rushmore National Memorial

TABLE 2. Ethnobotanical Uses - Mount Rushmore National Memorial

KEY:
A. - Reference solely from Patricia Albers, (2003)
FH. - Reference solely from Stephen Foster and Christopher Hobbs, (2002)
M. - Reference is solely from Daniel Moerman (2009, 2010)
K. - Reference is solely from Kelly Kindscher (1987, 1992)
-Otherwise, two or more authors referenced the species, although sometimes the tribes mentioned were different (i.e., one would mention Blackfoot and another might only mention Cheyenne).
-Any Use "1" - used by any of 13 tribes known to frequent the Black Hills: AK-Arikara, AP-Arapaho, BF-Blackfoot, CH-Cheyenne, CM-Commanche, CR-Crow, HD-Hidatsa, KW-Kiowa, MD-Mandan, PC-Ponca, PW-Pawnee, SXD-Dakota Sioux, SXL- Lakota Sioux
-Any Use "2" - an "x" indicates that species was used as food or for medicinal purposes by a tribe other than one of the 13 listed above.

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Achillea millefolium	Common Yarrow	1	AP, BF, CH, CR, PW, SXL	Whole plant, various parts, wide variety of uses. Infusions, teas- coughs, colds, general illnesses, eye drops, laxative; poultices- toothache relief, stopping bleeding, boils, sores, burns; rubs- general, salve- burns. M.-BF used to aid labor pains, CH for nausea relief.	BF	M. Leaves, flowers. Tea.	A. AP-leaves used to create a green dye.	K. CH used after sweatbath to induce additional sweating.	A. All elevations, dry areas, meadows, grasslands.
Achillea millefolium var. occidentalis	Western Yarrow	2	x	Similar uses as common yarrow.					
Actaea rubra	Red Baneberry	1	BF, CH	Primarily roots, sometimes stems. Decoction of roots- coughs, colds, appetite enhancer; roots- treat sores. BF also used decoction of roots to treat horses; CH used infusion of roots and stems to increase milkflow after childbirth; sweetner for other medicines.				CH, HD- root considered sacred, used in multiple ceremonies.	A. All elevations, moist forested habitats.
Agastache foeniculum	Blue Giant Hyssop	1	CH	Leaves. Infusions, teas, soaks, rubs- used to treat colds, chest pains from coughs, low spirits, abatement of fevers, induce sweating; used with other ingredients in perfumes.	CH, HD, PC, PW, SXD, SXL	Leaves. Teas, often with meals. Food sweetener.	A. HD- used for fragrance.		A. Low to high elevations, moist areas, meadows, streambanks, open forests.
Agoseris glauca	Pale Agoseris	2	x		x				A. Low to mid elevations, meadows, grasslands.
Agrimonia gryposepala	Tall Hairy Agrimony	2	x						
Allium cernuum	Nodding Onion	1	CH, HD, SXD	Bulbs, stems. Poultices- bee stings, carbuncles, bone ailments.	AP, BF, CH, CM, SXL	Leaves, bulbs. Eaten raw, fried, roasted; mixed with other foods as a flavor enhancer.			A. Low to high elevations, mixed grass prairie, open pine forests.
Ambrosia artemisiifolia	Annual Ragweed	1	CH, KW, SXD, SXL	Primarily leaves, tops, stems. Infusions- anti-diarrheal, relief from vomiting, decrease swellings; teas- bowel cramps, colds, swellings. K.-used by KW for slow healing sores, also for treating a skin desease in horses.				A. Ambrosia spp. used by KW in combination with sage for purposes of smudging.	A. Low to mid elevations, open, disturbed areas.
Ambrosia psilostachya	Cuman Ragweed	1	CH	Leaves and stems. Many of the same uses as for A. artemisiifolia.					A. Low to mid elevations, open, disturbed areas.
Ambrosia trifida	Great Ragweed	2	x		x				A. Low to mid elevations, open, disturbed areas.
Amelanchier alnifolia	Saskatoon Serviceberry	1	BF, CH	Primarily fruits, also leaves. Infusions, tea of leaves- purgatives, healing; decoctions of berries- eye drops; juice-laxative, upset stomach, appetite enhancement.	AK, AR, BF, CH, HD, PC, SXD, SXL	Berries, leaves. Berries widely used, often mixed with other foods. Used for snacks, dessert, soups, sausage, stews, preserves, and dried for winter storage; leaves used for teas, broth ingredient. K.-BF would move camps in midsummer to be closer to harvest areas; used in pemmican-a mix of meat, lard, and the berries.	A. AK- traded corn for serviceberries; SXL- stems used for making arrows, hoops; berries used to make red dye; HD- Stems used for making fishtraps.	K. BF used forked stick from a serviceberry in rituals.	A. Multiple habitats, dry areas.
Amelanchier humilis	Low Serviceberry	1	BF, CH	Similar uses as for *A. alnifolia*.	AK, AR, BF, CH, HD, PC, SXD, SXL	Berries, leaves. Similar uses as for *A. alnifolia*.	Similar uses as for *A. alnifolia*.		A. Wooded habitats.
Amorpha canescens	Leadplant	1	PC	A. Leaves and woody parts. Leaves, dried- blown onto cuts, wounds; twigs, burned- used as moxa stick applied to skin for nerve pain, rheumatism.	SXD, SXL	Leaves used for teas.	A. SXL- used for making arrows.	A. SXL- leaves mixed with buffalo fat for smoking; SXD- used to attract buffalo.	A. Low to mid elevations, associated with bluestem grasses.
Amorpha nana	Dwarf False Indigo	1	x				A. KW- used for bedding.		A. Streambanks and open forest, moist areas.
Amphicarpaea bracteata	American Hogpeanut	1	SXL	M. Leaves. Poultice- reduce swellings.	AK, PC, PW, SXD, SXL	Above ground and underground seeds (beans). Aboveground seeds boiled, underground boiled or eaten raw after removing fuzzy outercoat, used in stews. K. -Beans would be harvested, but also collected from the stores of field mice.		A. Story told about importance of gift giving- woman raided the cache of a mouse/vole without giving a gift in return and as a result her tribe fell upon hard times.	A. Low to mid elevations, drainages.
Anaphalis margaritacea	Western Pearly Everlasting	1	CH	A. Used to increase endurance in horses by applying plant to hooves.	x			M. Flowers. Rub- protection and strength for warriors. A. CH-plant offered as gift to spirits; powdered plant rubbed on body of men prior to entering battle- women were not allowed to touch men after this so effects would not be destroyed.	
Andropogon gerardii	Big Bluestem	1	PC				K. Stems- construction of earth lodges, child/toy arrow shafts.		
Androsace septentrionalis	Pygmyflower Rockjasmine	2	x						
Anemone cylindrica	Candle Anemone	1	x				A. PC- used a charms, good luck in gambling.		A. All elevations, meadows, open forest, woodlands.

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Anemone patens	Pasqueflower	1	BF, PC, SXD, SXL	Various parts used. Leaves- crushed to alleviate rheumatism, reduce irritaions from injuries; tea- bring on childbirth; pulverized roots- unspecified medicinal uses.			A. Blooming flowers indication of springtime, renewal, rebirth.	A. AK, PW- hung flowers on sacred cedar trees to symbolize springtime, renewal of life; SXD subject of stories and song celebrating spring.	A. Low to mid elevations.
Antennaria howellii	Howell's Pussytoes	2	x						
Antennaria microphylla	Littleleaf Pussytoes	1	x		BF	K. Leaves. Chewed by children.		A. Antennaria spp.-AP used in tobacco mixture for smoking.	A. Mid to high elevations, multiple habitats.
Antennaria neglecta	Field Pussytoes	2	x		x				A. Low to mid elevations.
Antennaria parvifolia	Small-leaf Pussytoes	1	SXL	M. Used externally to help reduce rheumatic swelling.	x				A. Low to mid elevations.
Antennaria plantaginifolia	Woman's Tobacco	2	x						
Apocynum androsaemifolium	Spreading Dogbane	1	x		KW	A. Chewing gum from hardened sap.	A. SXL- twine made from stems.		A. Low to mid elevations, dry areas.
Arabis glabra	Tower Rockcress	1	CH	Whole plant. Infusions- colds, general preventative for sickness.	CH	M. Plant. Infusions as a beverage.			A. low elevations, grassland, open forest, disturbed areas.
Aralia nudicaulis	Wild Sarsaparilla	2	x		x				A. Low to mid elevations, understory plant.
Arctium minus	Lesser Burrdock	2	x						
Arctostaphylos uva-ursi	Bearberry, Kinnikinnick	1	BF, CH, CR	Plant, stem leaves, berries. Infusion, salve (often mixed with grease, other substances)- itching scalp, rashes, skin sores, mouthwash for cankers; infusion, poultice- back pain; berries- coughs; burned leaves- aid for mental distress, driving away bad spirits; teas from berries, stems, leaves- treat back pain, used as a compress.	BF	M. Leaves, berries. Teas from crushed leaves; berries eaten raw, soaked in sugar, mashed with fat and fried, or dried for winter use.		A. AK, CH, SXL- added to tobacco mixtures; SXL- used to create a line around Sun Dance altar.	A. All elevations, understory pland of pine forests.
Artemisia biennis	Biennial Wormwood	2	x		x				
Artemisia campestris	Field Sagewort	1	BF, SXD, SXL	Leaves, roots. Decoction of leaves- terminate difficult pregnancies; infusion of leaves- coughs, rheumatic relief, eczema; infusion of roots- hair tonic, scalp infections, diuretic, bowel movements, difficult births; pounded roots- sound sleep; teas- constipation relief, problems with urination, childbirth difficulties; leaves chewed- sore eyes, stomach troubles. BF used infusion of roots for sores on horses.			A. SXL-perfume from pounded roots.		A. All elevations, dry, rocky, sandy habitat.
Artemisia frigida	Prairie Sagewort	1	AP, AK, BF, CH, PC, PW, SXD	Whole plant, various parts. Infusion of leaves- cold remedy, coughs, various help with menses;smudge of roots- headaches treatment; poultice- reduce swelling; leaves, other parts chewed- heartburn relief. Also infusions given to horses for coughing, sneezing.	BF	M. Leaves. Crushed and used as a spice to maintain good odor in stored meat.	M. BF used leaves as pads for womens menses. A. SXL-bath solutions; CM-childbirth mattresses; cushions; AP-leaves used to make green dye; CH-tinder;.	M. CH used plant for Sun Dance ceremony. A. AP used in ceremonies; SXL-used for young women in White Buffalo Calf ceremony.	A. Low to mid elevations, dry, open areas.
Artemisia ludoviciana	White Sagebrush	1	AK, BF, CH, CR, KW, PC, PW, SXD, SXL	Whole plant. K.-This and other sagebrush species considered widely used medicinally by many tribes. M&K.-Infusions- stomach issues, phlegm reduction, aid to women during menses; teas- eczema, deodorant; smoke, vapor- respiratory relief, relief from bad dreams; leaves- stopping nosebleeds, relief from boils and blisters.	BF	M. Leaves. Chewed for candy.	K. CH made bracelets for use during the Sun Dance. A. CR-teas used for deodorants and antiperspirants; KW-used as towels for bathing.	Bath, smoke, loose or bundled leaves- purification; burning or tea- protection against evil, driving away evil spirits, protection from bad dreams about sick people; multiple uses for Sun Dance and other ceremonies; K.-BF used in sweat lodge rituals. A. CH-purification of horses and lances; AK-offering to ward off diseases in children.	A. Low to mid elevations, open, dry areas.
Asclepias speciosa	Showy Milkweed	1	CH, PC, SXL	Plant top. Decoction- eye medicine, eye wash, snowblindness; pulmonary, intestinal discomfort.	CH, CR, KW, SXD, SXL	Plant, various parts, sap. Flowers, buds- boiled in soups, stews; immature fruits- inner layer eaten raw; young shoots- eaten raw, cooked with or without other foods; sap- allowed to harden for chewing gum, candy.	KW -used the dried pods for spoons; CH-fibers used to make thread, bowstrings.		A. Low elevation, meadows, prairies.
Athyrium filix-femina	Common Ladyfern	2	x		x				
Betula occidentalis	Water Birch	1	BF	M. Leaves, flowers. Used separately to aid in conception.	SXL	A. Likely tapped for sap.	A. AP- bark used to make dye.		A. Mid elevations, streamsides, hillsides, moist and boggy habitat.
Betula papyrifera	Paper Birch	1	x		SXL	A. Likely tapped for sap.	A. AP- bark used to make dye.		A. Lower elevations, canyons, drainages, edge habitat between meadow and forests.
Bouteloua curtipendula	Sideoats Grama	1			KW	M. Plant. Fodder for livestock.			
Bouteloua gracilis	Blue Grama	2	x		x				
Bromus tectorum	Cheatgrass	2	x		x				
Calochortus gunnisonii	Gunnison's mariposa lily	1	CH	Bulbs, roots. Used in medicinal mixtures. Given to horses before a race.	CH	Bulbs, buds. Bulbs dried and stored for winter, pulverized and made into a mush or porridge, young bulbs or young buds cooked and eaten.			A. Low to mid elevations, mixed grass prairies, upland meadows, open forests.
Camelina microcarpa	littlepod false flax	2			x				
Campanula rotundifolia	bluebell bellflower	2	x						
Capsella bursa-pastoris	shepherd's purse	1	CH	Leaves, stems. Infusions- head pains.	x				
Carduus nutans	nodding plumeless thistle	1					A. SXL-used to make a yellow dye		A. Low to mid elevations, pastures, meadows, roadsides.
Carex nebrascensis	Nebraska sedge	1	CH		BF	M. Forage, buffalo.		A. CH- placed into buffalo skull during Sun Dance ceremony and into a wolf skull during Massaum ceremony as prayer for abundant water and vegetation growth.	A. Low elevation, wet habitats.
Carex rostrata	beaked sedge	2			x	M. Fodder.			

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Chamerion angustifolium ssp. angustifolium	fireweed	1	CH	Roots, leaves. FH. Poultice of roots- boils; root tea- reducing swellings; leaf tea- reduce bruising, removal of slivers. A. Leaf tea- used for rectal hemorrhaging.					A. Mid to high elevations, forests, thickets, disturbed areas.
Chamerion angustifolium ssp. circumvagum	fireweed	1	CH	Roots, leaves. FH. Poultice of roots- boils; root tea- reducing swellings; leaf tea- reduce bruising, removal of slivers. A. Leaf tea- used for rectal hemorrhaging.					A. Mid to high elevations, forests, thickets, disturbed areas.
Chenopodium album	lambsquarters	1	SXL	A. Entire plant- relief from bloody diarrhea in children.	KW, SXD, SXL	Plant. Young plant boiled as part of a soup or stew, cooked greens.	A. KW- believed presence was a sign to leave a dangerous places.		K. Disturbed areas, roadsides, pastures.
Chenopodium berlandieri	pitseed goosefoot	1			KW, PW, SXD	K. Leaves, seeds. Possibly cultivated. Greens cooked for food; dried seeds eaten or ground into meal.	K. Plant used to make green dye which was applied to bows and arrows.		
Chenopodium botrys	Jerusalem oak goosefoot	2	x						
Chenopodium fremontii	Fremont's goosefoot	2			x				
Chenopodium leptophyllum	narrowleaf goosefoot	2			x				
Cicuta douglasii	western water hemlock	1	SXL	A. Used for treating stomach problems.					A. Low to mid elevations, moist areas.
Cicuta maculata	spotted water hemlock	2	x						
Cirsium arvense	Canada thistle	2	x						
Cirsium drummondii	dwarf thistle	2			x				
Cirsium ochrocentrum	yellowspine thistle	1	KW	Flowers. Decoctions-wash for burns and sores.	BF, KW	Roots used for food, possibly stems as well.			A. Low to mid elevations, dry, open areas.
Cirsium vulgare	bull thistle	2	x		x				
Cleome serrulata	Rocky Mountain beeplant	2	x		x				A. Low elevations, dry grassland.
Collinsia parviflora	maiden blue eyed Mary	2	x						
Collomia linearis	tiny trumpet	2	x						
Convolvulus arvensis	field bindweed	2	x						
Conyza canadensis	Canadian horseweed	1	BF, SXL	Plant, roots. Teas, roots- bowel pain, diarrhea; plant used (unspecified) to stop hemorrhaging from childbirth.					
Corallorrhiza maculata	summer coralroot	2	x						
Cornus sericea	redosier dogwood	1	CH	A. Berries added to berries of chokecherry and bearberry to make a multipurpose medicine.	HD	A. Berries eaten.	A. CH- rootstems woven into baskets used for game playing; CR- drumsticks, lodge stakes and pins, sweatlodge racks; CH, CM, KW- arrows.	A. AK, CH, PC, SXL- shavings from inner bark used in tobacco mixtures for ceremony, fasting, visions; CH- fashioned a rainbow from the stems, used in Sun Dance ceremony.	A. All elevations, streambanks, moist habitats.
Cornus sericea ssp. sericea	redosier dogwood	1	BF	M. Bark, berries. Infusions- chest colds, liver troubles; berries-used to poison arrowheads, also musket balls.	BF	M. Berries eaten raw as snacks or combined with other food.	Likely similar uses.	Likely similar uses.	A. All elevations, streambanks, moist habitats.
Coronilla varia	purple crownvetch	2	x						
Corydalis aurea	scrambled eggs	2	x		x	M. Fodder			
Corylus cornuta	beaked hazelnut	2	x		x				
Cryptantha fendleri	sanddune cryptantha	2	x		x	M. Fodder			
Cynoglossum officinale	gypsyflower	2	x						A. Low to mid elevations, meadows, open forests
Cynoglossum virginianum var. boreale	wild comfrey	2	x						A. Low to mid elevations, meadows, open forests
Cypripedium parviflorum	lesser yellow lady's slipper	1	x		SXL	M. May have been used for food, although species and plant part unspecified.			
Cystopteris fragilis	brittle bladderfern	2	x						
Daucus carota	Queen Anne's lace	2	x		x				
Descurainia sophia	herb sophia	2	x		x				
Dichanthelium oligosanthes	Heller's rosette grass	1	SXL	M. Plant known as poisonous to horses.					
Dodecatheon pulchellum	darkthroat shootingstar	1	BF	M. Leaves. Infusions- eye drops, gargle for cankers.					
Dracocephalum parviflorum	American dragonhead	2	x		x				
Dryopteris filix-mas	male fern	2	x		x				
Dyssodia papposa	fetid marigold	1	PC, SXD, SXL	Plant, various parts. Decoction with flowers of Grindelia squarrosa, gumweed- for spitting up of blood, also for horses' coughs; leaves, powdered, inhaled- difficulty breathing, headaches.	x				A. Low elevations, grasslands, dry areas; often near prairie dog towns.
Echinacea angustifolia	blacksamson echinacea	1	BF, CH, CM, KW, PC, PW, SXD, SXL	Whole plant, various parts. K.-considered the most widely used medicinal plant by Plains tribes. Infusions of leaves, roots- pain reliever, sore throat, swellings, coughs; teas- rheumatism and arthritis pains pains; poultices, juice- toothaches, burns, infections; smoke- headaches; remedy for snakebites, stings. Teas and salves were used to treat mumps, measels, and smallpox. A. Roots chewed to relieve tooth pain, sore thraots, colds; treating distemper in horses.			KW, PC, SXL- used dried flower head for combs, brushes. A. SXL-petals used to make yellow dyes.	CH used during Sun Dance, roots chewed to stimulate saliva. A. SXL-roots chewed to increase endurance in sweatlodge.	A. Grass prarie, sagebrush steppe, open pine forests.
Echinacea pallida	pale purple coneflower	1	CH, CR, KW, SXD, SXL	Similar uses.					
Echinacea purpurea	eastern purple coneflower	2	x						

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Echinocystis lobata	wild cucumber	1	x				A. SXL- seads used as beads.		A. Low elevations, streams, moist locations.
Elymus canadensis	Canada wildrye	1	x		KW	M. Fodder for livestock.			
Elymus glaucus	blue wildrye	2	x		x				
Elymus trachycaulus ssp. trachycaulus	slender wheatgrass	2	x		x	M. Fodder			
Epilobium brachycarpum	tall annual willowherb	2	x						
Epilobium ciliatum ssp. ciliatum	fringed willowherb	2	x						
Equisetum arvense	field horsetail	1	BF, CH	Stems, leaves, roots. Infusions- diuretic for humans and horses, coughs of horses; teas, roots of fertile stems- diuretic; poultices- rashes. CH also applied powdered stems into footwear to reduce foot cramps.	KW	A. Roots, plant base.	A. CH- used to make a dye for quills, clothing, robes, and hides.		A. Low to mid elevations, moist habitats.
Equisetum hyemale	scouringrush horsetail	1	BF, CH, CR	M. Primarily used by BF and CH as a medicine for horses. CR used infusion as diuretic and poultices for pains of the bladder and prostate.	BF, SXL	M. Plant blades boiled for beverage; plant used as fodder for horses.	Scouring, polishing.		A. Low to mid elevations, moist habitats.
Equisetum laevigatum	smooth horsetail	2	x		x				A. Low to mid elevations, moist habitats.
Equisetum pratense	meadow horsetail	2			x				
Erigeron divergens	spreading fleabane	1	KW					K. KW used inside the home for good fortune.	
Erigeron formosissimus	beautiful fleabane	2	x						
Eriogonum annuum	annual buckwheat	1	SXL	M. Plant. Infusions- urinary problems, sore mouths in children.			A. SXL-flowers combined in a mixture of organ parts for purposes of bleaching and treating hides.		A. Low to mid elevations.
Eupatorium maculatum	spotted joepyeweed	2	x						A. Low to mid elevations, wet habitats.
Euthamia graminifolia	flat-top goldentop	2	x						A. Low elevations, wet meadows, streambanks, moist areas.
Fragaria vesca	woodland strawberry	1	x		SXL	Fruit eaten fresh or combined with other foods. A. All tribes used berries for food.			A. All elevations, moist meadows, open woodlands.
Fragaria virginiana	Virginia strawberry	1	BF	Roots. Teas, decoctions- used to treat diarrhea.	BF, CH, HD, MD, PC, PW, SXD, SXL	Fruits, leaves. Leaves- boiled for teas; fruits- eaten fresh or dried, combined with other foods, or dried for storage. A. All tribes used berries for food.			A. All elevations, moist meadows, open woodlands.
Fraxinus pennsylvanica	green ash	1	x		x		A. AP, HD, SXL, other tribes- used in making utensils, mortars, pipe stems, bows, arrows, pegs and pins for tipis, wedges, drums, drying racks, travois hoops; burnt wood used to make black paints; fuel source.	A. CH- whistles for dances; Sun Dance lodge construction; SXL- ceremmonial uses as wands, plates, whistles.	A. Low elevations, streamside, moist habitat.
Gaillardia aristata	common gaillardia	1	BF, CH	Plant, various parts. Infusions- relief for nursing mother's sore nipples, eyewash, nose drops; infusions, roots- gastroenteritis, saddle sore treatment and eyewash for horses; infusions, flowers- foot wash; teas, roots- gastroenteritis; poultice, roots- skin disorders; flowers- treating sunstroke;	BF	M. Flower heads- soups, broths.			A. Low to high elevations, multiple habitats.
Galeopsis tetrahit	brittlestem hempnettle	2	x						
Galium aparine	stickywilly	2	x						
Galium boreale	northern bedstraw	1	x				AP- used to make red dye.		A. Moist areas, mixed grass prairies, forests.
Galium triflorum	fragrant bedstraw	1					A. PC, SXL- women's perfume.		A. Moist forested areas.
Geranium richardsonii	Richardson's geranium	1	CH	Roots, leaves. Dried roots as infusion or powdered- used as snuff for nosebleeds					A. Mid to high elevations, stream banks, moist areas.
Geum aleppicum	yellow avens	2	x						
Geum macrophyllum	largeleaf avens	2	x						
Glycyrrhiza lepidota	American licorice	1	AP, BF, CH, PW, SXD, SXL	Roots, leaves, burs. Infusions, roots- chest pains, coughs, swellings, diarrhea, flu, sore throats, stomach aches; teas and infusions leaves- earaches, fever, diarrhea; decoction, roots- fevers in children; root chewed for toothaches; burs- held in mouth by runners to deflect thirst; poultices and infusions of roots or leaves- sores on horses, windgalls (swellings of horses feltlock joint)	CH, PW, SXL	Roots, young shoots. Used as a sweet food; young shoots eaten raw; roots peeled, dried, and stored for winter food.	A. SXL-burrs used by men to tie hair back.	CH chewed roots during Sun Dance and sweat lodge ceremonies to help cool down;	A. Low to mid elevations, streambanks, floodplains, meadows.
Goodyera repens	lesser rattlesnake plantain	2	x						
Grindelia squarrosa	curlycup gumweed	1	BF, CH, CR, PC, PW, SXD, SXL	Plant, various parts, including sap (gum). Infusions- liver aid, cold remedy, stomach aches, colic, kidney aid; teas- coughs, pneumonia, kidney aid, spitting of blood, asthma; poultices, flowers- skin diseases, sores, scabs, swellings; decoctions- consumption, colic, sores on horses; flowers sniffed in to reduce mucus; sap- eye medicine, rubbed around eyes and on eyelids to help with snowblindness.					A. Low to mid elevations, grasslands, pastures, dry areas.
Hackelia floribunda	manyflower stickseed	2	x						A. Multiple habitats.

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Hedeoma hispida	rough false pennyroyal	1	SXD	M. Leaves. Infusions- colds, flavor to enhance appetites in the sick.					
Helianthemum bicknellii	hoary frostweed	1					MD used oil for lubrications, paint	MD use oil for paint.	
Helianthus annuus	common sunflower	1	KW, MD, PW, SXD, SXL	Flowers, seeds, sap, seed oil. Infusions, flowers- chest pains, pulmonary discomfort, fevers; sap, chewed- thirst reduction; seeds, powdered- stimulent, protection from sickness for nursing child.	HD, KW, MD, SXL	Seeds, hulls, oil, flower buds. Seeds- eaten raw, ground into a paste and eaten, cooked, roasted, or gathered for oil. K.-AK, HD, MD known to cultivate sunflowers. A. SXL-ate the stalk; CH, PC, SXL- ate the tubers	A. SXL-petals uses in making yellow dye.	A. CH-Massaum ceremony; SXL-Sun Dance ceremony.	A. Low to mid elevations, grasslands, various other habitats.
Helianthus maximiliani	Maximilian sunflower	1			SX	M. Tubers eaten.			A. Low to mid elevations, moist habitat.
Helianthus tuberosus	Jerusalem artichoke	1			CH, PC, PW, SXD, SXL	Roots, tubers- eaten raw, boiled, fried, roasted; dried and stored for times of starvation.			
Heliomeris multiflora	showy goldeneye	2			x				
Heracleum maximum	common cowparsnip	1	AP, BF, PC, PW, SXL	Stems, roots. Infusions, young stems- diarrhea; decoctions, root boiled- intestinal discomfort, stomach pains; roots, pounded- massage therapy; poultice, roots- applied to boils; treatment for colds and flu.	AP, BF	M. Stems. Young stems peeled and eaten raw, stems roasted, stems dipped in blood and stored, used for soups and broths. A. Reports used as food.	A. CH-courtship whistles from hollow stems; SXL-whistles for children	A. PC-placed in hole before placing ceremonial pole; AP-mixed with tobacco for smoking.	A. Low to mid elevations, moist areas, streamside.
Heracleum sphondylium	eltrot	1	BF, PW	K. Roots, stems. Teas, young stems- diarrhea, wart removal; poultice, roots- application for boils.				BF used stems in Sun Dance ceremony.	
Hesperostipa spartea	porcupinegrass	1					A. PC-hair brushes; brushes for general use.	A. Brushes for ceremonial use.	A. Grassland, open forests, moist habitats.
Heterotheca villosa var. villosa	hairy false goldenaster	1	CH	M. Plant, various parts. Infusions, tops and stems- sleep aid, general poor feeling; burned, incense- drive out evil spirits from the home.	x				A. All elevations, meadows, grasslands, open forest, dry areas.
Heuchera richardsonii	Richardson's alumroot	1	AP, BF, CH,SXL	Roots. Infusions, teas- diarrhea; chewed- diarrhea; ground, powdered, chewed, or poultice- sores, swellings, canker sores, rheumatism, sore muscles.					
Hieracium canadense	Canadian hawkweed	2	x						
Hordeum jubatum	foxtail barley	2	x		x				
Hypericum perforatum	common St. Johnswort	2	x						A. Low to mid elevations, disturbed meadows, open forests.
Juncus balticus	Baltic rush	1	SXL	A. Cure for diarrhea.	x		A. Basket weaving; rootstocks used as ornamentation on robes, other leather products.		Wet areas.
Juncus ensifolius	swordleaf rush	2	x		x	M. Also fodder.			
Juncus tenuis	poverty rush	2	x						
Juniperus communis	common juniper	1	BF, CH	M. Leaves, berries, cones. Infusions, cones (also chewed), boughs- colds, coughs, fevers, also used as steam bath, sedative; decoctions, berries- lung diseases, venereal diseases; leaves burned- promoting childbirth.	x		CH used wood for flutes.	Used to make wooden flutes for love medicine; CH burned leaves for incense, reduce fear of thunder.	A. All elevations, forest understory plant.
Juniperus horizontalis	creeping juniper	1	BF, CH, CR, HD	Plant, various parts. Similar uses as for J. communis. Also, infusions of roots used on horses to induce glossy hair.	x			CH, CR- Incense.	A. Low elevations, hillsides and open woods.
Juniperus scopulorum	Rocky Mountain juniper	1	AK, BF, CH, CR, KW, SXD, SXL	Similar uses to J. communis and J. horizontalis. Also, infusions, berries- vomiting; infusions- diarrhea, hemorrhages of lungs or nose; teas- coughs, fevers, congestions, sedative, speeding birth, healing and cleansing after giving birth; cones, chewed- appetite stimulant; poultice (mixed with turpentine)- rheumatism, arthritis; liniment, mixed with Populus sp. leaves- backaches.	CM	A. Berries eaten.	CH used wood for flutes, lances, bows; KW- lodgepoles.	Considered highly sacred, used to purify, to ward off evil spirits; AK- ward off evil, protector in origin stories; CH, CR- incense; CH- seen as sacred, general ceremonial uses; CH, KW, SXL- constructed wooden flutes for love medicine; SXL- boughs placed in lodgepoles to keep away lightning.	A. Low elevations primarily, edge habitat between pine and prairie or sage steppe habitat.
Kochia scoparia	Mexican-fireweed	2	x						
Koeleria macrantha	prairie Junegrass	1	CH	Plant. Used in a mixture for cuts and abrasions.	x		A. Koeleria spp., used as paintbrush.	Used as a stimulant for Sun Dancers.	A. Meadows, mixed and shortgrass prairie, scrublands, open forests.
Lactuca canadensis	Canada lettuce	2	x		x	A. notes that all species found in Black Hills are edible.			
Lactuca serriola	prickly lettuce	2	x		x	A. notes that all species found in Black Hills are edible.			
Lappula squarrosa	European stickseed	2	x						
Lathyrus ochroleucus	cream pea	2	x		x				
Lathyrus palustris	marsh pea	2	x		x				
Leucanthemum vulgare	oxeye daisy	2	x						
Leymus cinereus	basin wildrye	1	x		BF	M. Forage, grazing			
Liatris ligulistylis	Rocky Mountain blazing star	2	x	A. Likely used by tribes in Black Hills, similar to L. punctata.					A. Mid to high elevations, open forests, moist meadows.
Liatris punctata	dotted blazing star	1	BF, CM KW, PC, PW, SXL	Roots, leaves. Infusions, roots- stomachaches, swollen testes; teas, roots and leaves or entire plant- stomaches, diarrhea, heart pains; poultice- swelling; ground root- appetite stimulant; roots- scabies, gonorrhea. A. SXL- used as medicine for horses.	BF, KW, SXL	Roots. Baked, or pulvarized and eaten; also stored, sweetened with storage.		A. Timing of blooms used to signal tribes that AK corn would be ready for trade.	A. Low to mid elevations, grass prairie, sage steppe, open pine forest.

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Lilium philadelphicum	wood lily	1	SXD, SXL	Flowers, pulverized or chewed- spider bite antidote, relief from inflammation and swelling from bite	BF	M. Bulbs. Eaten fresh or with soup.			A. Low to high elevations, riparian meadows, woodlands.
Linaria vulgaris	butter and eggs	2	x						
Linnaea borealis	twinflower	2	x		x				
Linum lewisii	Lewis flax	1	x		PC, PW, SXD	M. Seeds. Used for flavor in cooking and for nutritional value.			A. Low to mid elevations, mixed grass prairies, open forests.
Lonicera dioica	limber honeysuckle	2	x						
Luzula multiflora	common woodrush	2	x						
Lycopus asper	rough bugleweed	2	x		x				
Maianthemum canadense	Canada mayflower	2	x		x				
Maianthemum stellatum	starry false lily of the vally	2	x		x				
Matricaria discoidea	disc mayweed	1	BF, CH	M. Whole plant, flowers. Decoctions- diarrhea; general medicine; plant dried, pulverized, combined with other plants- perfume.	x		A. CH-perfume created out of leaves, flowers; CR-used dried plants in baby cradles.	CH used plant in Sun Dance ceremony.	A. Low to mid elevations, open, dry areas
Melilotus alba	white sweetclover	1					A. PC, SXD- used as air fresheners in homes.		A. Low to mid elevations, disturbed areas, multiple habitats.
Melilotus officinalis	yellow sweetclover	1	x		x		A. PC, SXD- used as air fresheners in homes.		A. Low to mid elevations, disturbed areas, multiple habitats.
Mentha arvensis	wild mint	1	AP, BF, CH, HD, KW, PW, SXL	Leaves, stems, roots. Infusions- relief from gas, vomiting, strengthen heart muscles; teas, leaves- vomiting, heart health, vital organ stimulant; teas, roots- headaches; leaves, chewed- stomachaches, heart problems, chest pains, love medicine; decoctions, leaves- hair tonic or oil, deodorant for home or body.	BF, CH, PC, SXL	M. Plant, leaves, stem. Primarily used for beverages; also as a spice for pemmican.	A. Deodorant, air freshener; CH- mixed with fats to make hair pomade.	CH- Sun Dance cermony. A. SXL- ceremonial tea.	A. All elevations, moist areas, streambanks, lakeshore.
Monarda fistulosa	wild bergamot	1	BF, CH, CR, KW, PW, SXD, SXL	Plant, various parts. Infusions and teas- coughs, sore throats, colds, fevers, kidney pain, respiratory problems, abdominal pains, fainting, after childbirth, emetic, eye wash; poultices, flowers- boils, cuts; roots, chewed- swollen glands; leaves, boiled, wrapped- eye medicine, eye pain; leaves, chewed- staunching blood flow from wounds; leaves, crushed, mixed with spit- insect bites, stings.	SXD, SXL	K. Leaves, flowers. Leaves- teas, chewed raw, dried for seasoning; flowers- garnish.	CH, HD, SXL- perfume for humans and horses. A. PC- hair pomade fragrence.		A. All elevations, meadows, open forests.
Nepeta cataria	catnip	2	x		x				
Oenothera biennis	common evening-primrose	1	x		x		A. SXL- seeds used as freshener.		A. Low to mid elevations, sandy, gravelly streambanks, disturbed habitats, moist areas.
Oenothera villosa ssp. strigosa	hairy evening-primrose	2	x						
Onoclea sensibilis	sensitive fern	2	x		x				
Onopordum acanthium	Scotch cottonthistle	2	x						
Onosmodium molle	softhair marbleseed	1	SXL	Leaves, roots, seeds. Infusions, teas- swellings, also given to horses for swellings; salve- external treatment of swelling; poultice, leaves, stems mixed with grease- relief from numbness, lumbago (back pain).				A. Seeds- used in making rattles.	A. Low to mid elevations, meadows, mixed grass prairies, open forest.
Oryzopsis asperifolia	roughleaf ricegrass	2			x				
Osmorhiza longistylis	longstyle sweetroot	1	CH, PW	M. Plant, various parts. Infusions- stomach problems, bloat, kidney problems; decoction, roots- weakness, general discomfort.	PC	M. Fodder			A. Low to mid elevations, moist areas.
Oxalis stricta	common yellow oxalis	1	KW	M. Leaves, chewed- thirst relief.	x				A. All elevations, moist areas.
Oxalis violacea	violet woodsorrel	1	PC, PW	A. PC-poultices for swellings. M. PW-bulbs, pulverized- increase speed in horses.	KW,PC, PW	Leaves, flowers, bulbs. All parts eaten raw, leaves chewed to relieve thirst, flowers used as garnish.			A. Low to mid elevations, meadows, open forests.
Oxytropis campestris	field locoweed	2	x		x				A. Mid to high elevations, multiple habitats.
Panicum capillare	witchgrass	2	x		x				
Parthenocissus vitacea	woodbine	1	SXL	A. Root tea for headaches, medicinal wash; leaves given to horses.	x		A. KW- berries used to make dye; dye used by women to paint their skin.	A. KW- dye from berries used to paint feathers used in war dances; CH- plant uses as symbol for warbonnets in the Sun Dance; HD- sacred plant.	A. Low elevations, ravine, woodland, and streambank habitats.
Pascopyrum smithii	western wheatgrass	1			SXL	M. Forage			
Pediomelum argophyllum	silverleaf Indian breadroot	1	CH, SXL	M. Plant, various parts. Infusions, decoctions, salves- high fevers; roots- given to horses for tiredness.			A. CH, SXL- stems used to weave baskets for transporting meat.	A. CH- a story tells of how girls looking for this plant could be led astray.	A. Low to mid elevations, mixed grass prairies, sage steppes, meadows, open pine forest.
Pediomelum cuspidatum	largebract Indian breadroot	1	SXL	M. Used as medicine- unspecified.					
Pediomelum esculentum	large Indian breadroot	1	BF, CH	Roots. Infusions- gatroenteritis, chest problems, sore throats, diarrhea; roots, chewed- earaches, eye cleanser, colic, bowel complaints, sore throats, teething; poultice- fractures, burns; dried roots attached to clothing- decorations, medicine.	AK, BF, CH, HD, PC, PW, SXD, SXL	Plant, primarily roots. Peeled, eaten raw, boiled, roasted, or dried for winter storage; added to other foods; plant dried, pulverized, used as a thickener for soups, stew.		A. CH- ceremonial food. Subject of stories.	A. Low to mid elevations, mixed grass prairie, open pine forests.
Penstemon angustifolius	broadbeard beardtongue	1					A. SXL- used to make blue dye.		A. Low elevations, mixed grass prairies, sage steppes.
Penstemon gracilis	lilac penstemon	1	SXL	A. Snakebite remedy.					A. All elevations, multiple habitats.
Penstemon grandiflorus	large beardtongue	1	BF, KW, PW, SXD, SXL	Leaves, roots. Decoctions, roots- chest pains, stomachaches, cramps; teas, decoctions, leaves- chills, fever, vomiting.					A. Low to mid elevations.

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Phleum pratense	timothy	2			x	M. Fodder			
Physalis longifolia	longleaf groundcherry	1	PC, SXL	A. Berries- appetite enhancer, snakebite treatment; root tea- headaches, stomach problems; root- wound healing	HD, KW, SXL	A. Berries eaten fresh; sauce- dried for winter use; likely eaten by all tribes in the area.		A. SXL- unspecified ceremonial use.	A. Multiple habitats.
Physalis virginiana	Virginia groundcherry	1	PC, SXL	A. Berries- appetite enhancer, snakebite treatment; root tea- headaches, stomach problems; root- wound healing	HD, KW, SXL	A. Berries eaten fresh; sauce- dried for winter use; likely eaten by all tribes in the area.		A. SXL- unspecified ceremonial use.	A. Multiple habitats.
Physocarpus opulifolius	common ninebark	2	x						
Picea glauca	white spruce	1	x		SXL	A. Resin- chewing gum; tribe not specified: bark eaten fresh, pulverized into flour; shoots, cones boiled- emergency food; needles- brewed for tea.	A. Roots used to make yellow dye.		A. Mid to high elevations, often on north-facing slopes, moist areas.
Pinus ponderosa	ponderosa pine	1	CH	Pitch, gum. Pitch- to keep hair in place; gum salve- sores, scabby skin.	BF, CH, SXL	Bark- inner bark; resin- chewing gum; seeds; cones- chewed for juice.	A. CH- used to fashion hair; SXL- lodge poles; resin used to make yellow dye, also as fire starter; CH- roots used to make blue dye.	A. CH, SXL- resin used to make whistles for war dances, Sun Dance; featured in storytelling.	A. All elevations, multiple habitats.
Plantago major	common plantain	1	PC	Leaves, heated- removal of thorns, splinters.	x				A. Wet areas.
Poa secunda	Sandberg bluegrass	2			x				
Polygonatum biflorum	smooth Solomon's seal	2	x		x				
Polygonum aviculare	prostrate knotweed	2	x						
Polygonum douglasii	Douglas' knotweed	2			x				
Populus balsamifera	balsam poplar	1	x		BF, CH, HD, SXL	Inner bark of sprouts eaten; sap eaten; tea made from bark; various parts used as forage for horses.	A. CH, SXL- buds boiled to create dyes; KW- tipi poles, fuel wood; HD- corrals, poles for lodges, drying racks, travois runners, tool handles; AK- fish traps; SXL- saddles made from the wood, then lined with hide; cottonwood seed down used as pillow fill; general purpose fuel wood..	A. KW- smoke-sticks used in peyote ceremonies; featured in origin stories; PC- roasting clays for ceremonial painting; CH- center pole for Sun Dance and other ceremonies; SXL- multiple ceremonial uses; symbol of fidelity; favored for tree burials; construction of sweatlodges.	A. Multiple habitats.
Populus deltoides	eastern cottonwood	1	BF, SXL	K. Bark. Teas- pre-birth aid, heartburn	BF, CH, HD, SXL	Similar uses as for *P. balsamifera* .	Similar uses as for *P. balsamifera* .	Similar uses as for *P. balsamifera* .	A. Low elevations, floodplains and drainages.
Populus tremuloides	quaking aspen	1	BF	M. Bark. Infusions- heartburn, pre-birth aid, general discomfort.	BF, CH, HD, SXL	Similar uses as for *P. balsamifera* .			A. Mid to high elevations.
Populus X acuminata	lanceleaf cottonwood	1			BF, CH, HD, SXL	Similar uses as for *P. balsamifera* .	Similar uses as for *P. balsamifera* .	Similar uses as for *P. balsamifera* .	A. Canyons.
Potentilla arguta	tall cinquefoil	2	x						
Prunella vulgaris	common selfheal	1	BF	M. Plant. Infusions- wash for boils, neck sores, eye wash, also as an eyewash for horses and for sores on horses.	x				A. All elevations, moist to wet areas.
Prunus pensylvanica	pin cherry	2	x		x				
Prunus virginiana	chokecherry	1	AK, BF, CH, CR, HD, PC, PW, SXD, SXL	Primarily bark and berries. Infusions, bark (sometimes mixed with *Amelanchier alnifolia* -serviceberry)- purge, used by nursing mothers to pass medicinal properties to their baby, enema, used to cleanse wounds, sores, and burns; teas, bark- stomach problems, diarrhea, dysentery; berries, juice- diarrhea, appetite enhancer, sore throat, post-partum hemorrhaging; roots, chewed- staunch bleeding from wounds.	AK, BF, CH, CR, HD, KW, PC, PW, SXD, SXL	Leaves, berries, pits, bark. Leaves, bark- tea; fruit eaten raw, cooked, dried, mashed (often with pits) into cakes and dried for storage, puddings, added to soups, stews, other food items, mixed with meat and fat to create pemmican (major food staple), mixed with cornmeal, juiced for drinks.	A. CH, SXL-wood used to make arrows, bows; CR- tipi stakes and pins; glue made from sap mixed with animal parts; mixed with clay to make paints; used as war party campfire fuel because of low smoke; PC- boiled bark solution used to clean traps and erase scent.	M. PC, PW, SXD used in "old-time" ceremonies; twigs chewed on for thirst during Sun Dance. A- subject of stories; SXL- berries mixed with corn and fat for use during naming ceremonies; CH- used in multiple ceremonies.	A. All elevations, streambanks, open woodland, rocky slopes.
Pteridium aquilinum	western brackenfern	2	x		x				
Pterospora andromedea	woodland pinedrops	1	CH	Plant, stems, berries. Infusions and decoctions- lung hemorrhaging, nosebleeds (as a snuff), astringent.	x				A. Mid to high elevations, forest habitats.
Pyrola asarifolia	liverleaf wintergreen	2	x						
Pyrola chlorantha	greenflowered wintergreen	2	x						
Pyrola elliptica	waxflower shinleaf	2	x						
Quercus macrocarpa	bur oak	1	SXL	A. Bark. Decoction- lower intestinal ailments, especially for children.	CH, CM, PC, PW, SXD, SXL	Acorns- important food staple. Bitter taste often removed by soaking in ashes; boiled, roasted, mashed, used in soups, added to other foods, mush.	A. SXL- decaying bark used to make yellow dye; fuel wood; other tribes used wood for drying racks, cooking tripods.		A. Low to mid elevations, streamsides and meadow edges.
Quincula lobata	Chinese lantern	1	KW	M. Roots. Decoction or poultice- grippe (flu-like disease).	KW	M. Berries. Jelly.			
Ranunculus abortivus	littleleaf buttercup	2	x		x				
Ranunculus pensylvanicus	Pennsylvania buttercup	2	x						
Ratibida columnifera	upright prairie coneflower	1	CH, SXD, SXL	Leaves, stem, flowers. Teas, leaves and stems- stomaches, side pains; teas, flowers- headaches; plant parts used to stop internal or external hemorrhaging, chest pains, other ailments; infusion or poultice, leaves and stems- pain relief and drawing out poison from rattlesnake bites, relief from poison ivy; plant- treating urinary problems in horses.	SXD	M. Leaves. Tea.	A. SXL-top of plant used as aid for feeding babies; petals used for creating yellow dye.		A. Low to mid elevations, prairies, steppes, meadows, open forests.
Ribes americanum	American black currant	1	BF, KW, PC	Various parts. Decoctions, roots- uterine problems; plant- snakebite antidote; berries- mild laxative.	BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.	HD- berry juice to color clay for personal adornment.		A. Low elevations, streambanks, ravines, moist areas.
Ribes aureum var. villosum	golden currant	1	KW	M. Plant. Poultice- snakebites.	BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.	A. CH, SXL- stems used for making arrows.		A. Low elevations, foothills, edges, open areas.

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Ribes cereum	wax, red currant	1	AP	A. Various parts- used induce vomiting.	BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.			A. All elevations, open forest.
Ribes hirtellum	hairystem gooseberry	1			BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.			A. Mid to high elevations, steambanks, forests, moist habitats.
Ribes missouriense	Missouri gooseberry	1			BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.			
Ribes oxyacanthoides	Canadian, northern gooseberry	1	x		BF, CH, CM, HD, KW, PC, SXD, SXL	Leaves, berries. Leaves- teas; berries- eaten raw, juiced for drinks, used in soups, dried for winter use.			A. All elevations, meadows, canyons, rocky areas, dry to moist areas.
Rosa acicularis ssp. sayi	prickly rose	1	AP, BF, CH, CR, PC	Various plant parts. Teas from roots, bark- treat diarrhea in children, intestinal disorders, sore throats, mouth bleeding, swelling reduction; solution of rose hips- eye ailments; tea from flowers- relief from muscle pain.	BF	Bark, rose hips- winter food.	A. AP- roots used to produce yellow dye.	A. Bark used in tobacco mixtures; subject of songs; AK- placenta bundles hung from rose bushes.	A. Low to mid elevations, prairie foothills, edge habitats.
Rosa woodsii	Woods' rose	1	AP	M. Seeds. Applied to draw out muscular pain.	AK, AR, SXL	Bark, rose hips- winter food.	A. AP- roots used to produce yellow dye.	A. Bark used in tobacco mixtures; subject of songs; AK- placenta bundles hung from rose bushes.	A. Low to mid elevations, prairie foothills, edge habitats, stream valleys.
Rubus idaeus	American red raspberry	1	PC	A. Roots used for bowel ailments.	CH, SXD, SXL	A. Eaten raw, dried for winter use; tea from leaves.			A. Mid to high elevations, multiple habitats.
Rubus parviflorus	thimbleberry	1	BF	M. Berries. Given by a medicine person for chest pains.	BF	Eaten raw.			A. Moist, shady areas.
Rubus pubescens	dwarf red blackberry	2	x		x				
Rudbeckia hirta	blackeyed Susan	2	x						A. Low to High elevations, meadows, open forests, roadsides, drainages.
Rumex aquaticus var. fenestratus	western dock	2	x						
Rumex patientia	patience dock	2	x						
Rumex salicifolius	willow dock	1	BF	M. Roots. Boiled- multiple uses, rheumatic swellings.	x				
Rumex salicifolius var. mexicanus	Mexican dock	1	BF	M. Roots. Decoctions- multiple uses, rheumatic swellings.	x				
Salix amygdaloides	peachleaf willow	1	CH, CR, KW	Primarily bark. Infusions- diarrhea, stomach ailments, other ailments; poultices- bleeding, applied to cuts; bark strips used as tourniquets; bark chewed to relieve toothaches and headaches, induce vomiting; bark used to clean teeth.			A. Willows used for many purposes- tipi pegs and pins, fish and animal traps, mat weaving, scrapers, drying racks; CH, PC, SXL- poles for sweat lodges; KW- arbors, sunshades; SXL- whistles; CH- preferred fuel for pottery firing.	A. CH- wood used to make ceremonial drums; charcoal used for war paint; multiple other ceremonial purposes; AK, PC- twigs had purifying, healing properties and were used in rites for the dead.	A. Low elevations, stream banks.
Salix bebbiana	Bebb willow	1	x	Similar uses as *S. amygdaloides.*			Similar uses as *S. amygdaloides.*	Similar uses as *S. amygdaloides.*	A. Mid to high elevations, wet and boggy habitats.
Salix exigua	narrowleaf, sandbar willow	1	x	Similar uses as *S. amygdaloides.*	HD, SXL	A. Roots chewed as confection; buds cooked with fat.	Similar uses as *S. amygdaloides.*	Similar uses as *S. amygdaloides.*	A. Low to mid elevations, streams and wet habitats.
Salix planifolia	diamondleaf, planeleaf willow	1	x	Similar uses as *S. amygdaloides.*			Similar uses as *S. amygdaloides.*	Similar uses as *S. amygdaloides.*	A. Mid to high elevations.
Sambucus racemosa	red elderberry	1	x		KW, PC, SXD	A. Berries eaten raw; teas made from flowers.			A. Mid to high elevations, ravines, moist habitats.
Sanicula marilandica	Maryland sanicle	2	x						A. Low to mid elevations, forested, moist areas.
Saponaria officinalis	bouncingbet	2	x						
Schizachyrium scoparium var. scoparium	little bluestem	1	CM, PC	Leaves and stems. Decoction, leaves- lethargy, fever; ashes, burned plant- sores from syphilis.			A. SXL- plant fibers used to line mocassins in winter; tinder.	A. CM created switches to drive away evil spirits in sweat lodges, cure bodily aches.	A. Mixed grass prairies, open forests, dry habitats.
Scirpus microcarpus	panicled bulrush	2	x						
Scirpus pallidus	cloaked bulrush	2	x						
Scrophularia lanceolata	lanceleaf figwort	2	x						
Scutellaria galericulata	marsh skullcap	2	x						
Sedum lanceolatum	spearleaf stonecrop	2	x						
Shepherdia argentea	silver buffaloberry	1	BF, CH, SXD	Berries. Eaten- stomach problems, mild laxative; dried, ground- mixed with other ingredients for use as medicine.	AK, AP, BF, CH, CR, HD, MD, PC, PW, SXD, SXL	Berries. Eaten raw, cooked, added to other food, puddings, juiced, dried and stored.	A. SXL- berries used to make red dye; awls made from thorns.	SXD- ceremony food, CH- branches used to make Sun Dance altar. A. AK- subject of story; bundles with placentas hung from branches.	A. Low elevations, foothills, streambanks, dry drainages, grasslands.
Shepherdia canadensis	russet buffaloberry	1	x		AP, BF, CH, HD, PC, SXD, SXL	Berries. Made into preserves, puddings, dried for winter use.	A. SXL- berries used to make red dye; awls made from thorns.	A. AK- subject of story; bundles with placentas hung from branches.	A. Mid elevations, open and forest habitats, moist areas.
Silene latifolia ssp. alba	bladder campion	2	x						
Sisymbrium altissimum	tall tumblemustard	2			x				
Sisyrinchium montanum	strict blue-eyed grass	2	x						
Smilax herbacea	smooth carrionflower	2	x		x				
Solanum rostratum	buffalobur nightshade	2	x						
Solidago canadensis	Canada goldenrod	1	x		x		A. SXL-leaves used as a mat during butchering process.	A. PC-used appearance of blooms to signal time to return from hunting to tend to corn fields.	A. Low to mid elevations, moist locations, flood plains, open forest.
Solidago gigantea	giant goldenrod	2	x						
Solidago nemoralis	gray goldenrod	2	x		x				
Solidago speciosa	showy goldenrod	2	x						
Sorbus scopulina	Greene's mountain ash	2	x						

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Spiraea betulifolia	white spirea	2	x		x				
Sporobolus cryptandrus	sand dropseed	1	x		KW	Fodder for horses. Other tribes used as food.			A. Low to mid elevations.
Sporobolus heterolepis	prairie dropseed	2	x						A. High elevations, meadows, open pine forests.
Stachys palustris	marsh hedgenettle	2	x		x				
Stellaria media	common chickweed	2	x		x				
Symphoricarpos albus	common snowberry	1	CR, HD, PC, SXL	M. Roots, berries. Infusion, berries- sore eyes; decoction, berries- diuretic; decoction, roots- aid horses in voiding.	HD	A. Berries eaten raw; collected and dried for winter use.			A. Low to high elevations, understory growth.
Symphoricarpos occidentalis	western snowberry	1	BF, HD, PC, SXD, SXL	M. Leaves, berries. Infusions, teas, leaves- eye wash; decoction, berries- given to horses for water retention.	BF	M. Berries. Eaten when food was scarce.	A. SXL- arrows for boys; HD- brooms, mattresses, snares; SXL- berries used to make red dye.	A. CH- used in Sun Dance ceremony, branches placed at altar in the four directions.	A. Low to mid elevations, meadows, foothill grasslands.
Symphyotrichum ciliolatum	Lindley's aster	1	CH	A. Infusion, stems- earache relief.					
Tanacetum vulgare	common tansy	1	CH	M. Leaves, flowers. Infusions, leaves and flowers- weakness, dizziness.					A. Low to mid elevations, moist areas.
Taraxacum officinale	common dandelion	1	KW	M. Leaves. Decoction- menstrual cramps.	KW	M. Leaves. Greens.			
Thalictrum dasycarpum	purple meadow-rue	1	CH, HD, PC, PW, SXL	Plant, seeds. Rub, plant mixed with clay- applied to horse muzzle as stimulant; plant powdered, or as seed given to horses for endurance.			Seeds chewed, rubbed on hands for lotion. A. AP, CH, HD, SXL- seeds and flowers used as freshener for clothes, other items, perfumes; powdered roots for shampoo.	A. PC-flower top used as love charm.	A. Low to mid elevations, moist meadows, open forest, woodland.
Thalictrum dioicum	early meadow-rue	2	x						
Thermopsis rhombifolia	prairie thermopsis	1	CH	M. Leaves. Burned, smoke- inhaled for colds, headaches.					A. All elevations, multiple habitats.
Thlaspi arvense	field pennycress	2			x				
Toxicodendron rydbergii	western poison ivy	1	KW, SXL	A. Plant- rubbed over skin eruptions, non-healing sores; possibly for treating venereal diseases in women.					A. Low to mid elevations, rocky areas, woodland edges, drainages, pine forests.
Tradescantia occidentalis	prairie spiderwort	1	x		x		K. SXD- plant used as a love charm. A. SXL- used to make blue paint for painting moccasins.		
Trifolium hybridum	alsike clover	2	x						
Trifolium pratense	red clover	2	x		x	M. Fodder.			
Trifolium repens	white clover	2	x						
Typha latifolia	broadleaf cattail	1	CH, HD, PC, PW, SX, SXD	Leaves, roots, down (seed spike). Infusions, roots, leaf base- abdominal cramping; poultice of fruit spike, down, coyote fat- applied to smallpox pustules; poultice, down- applied to burns; down- burn dressing, scalds, prevent chafing in infants.	BF, SXL	M. Roots, pollen. Roots eaten, pollen used as flour.	A. AK, HD, SXL- down used to make diapers, menstrual pads, pillow filling; CH- leaves for weaving baskets; SXL- roots used to make yellow dye.	M. CH used leaves in Sun Dance ceremony. A. PC used pieces of plant for women's ceremonial objects.	A. All elevations, wet areas.
Ulmus americana	American elm	1	CH	Bark. Infusions- taken during pregnancy to insure child's stability.	CH	Bark tea used like coffee.	A. SXL-mortars, pestles; saddles, stirrups, drum bands; bark used for bowstrings; AK, HD, MD- bark fibers used to bind lodgepoles; HD- fibers used to bind willow fences; PC, SXL- fuel wood.	A. CH- tree has sacred connections to Bear Butte in the Black Hills.	A. Low elevations, foothills and valleys, streambanks, mixed wood stands.
Urtica dioica	stinging nettle	1	SXL	Roots. Infusions- stomach pains.	x		A. PC- stems dried and used to make twines.		A. All elevations, moist areas near streams.
Verbascum thapsus	common mullein	2	x						
Verbena hastata	swamp verbena	1	SXD	Leaves. Decoctions- stomachaches; teas- stomachaches.	PC	A. Leaf tea beverage.			A. Low to mid elevations, moist areas.
Verbena stricta	hoary verbena	1	SXD	M. Leaves. Infusions- stomachaches.	x				A. Low to mid elevations, moist areas.
Veronica americana	American speedwell	2	x						
Viburnum lentago	nannyberry	1	x		HD, PC, PW, SXD	Fruit eaten raw.			A. Low to mid elevations, moist habitats.
Vicia americana	American vetch	2	x		x				
Viola adunca	hookedspur violet	1	BF	M. Leaves, roots. Infusions- child athsma, externally applied to sore, swollen joints.					
Viola canadensis	Canadian white violet	2	x						
Viola pedatifida	prairie violet	2			x	K. No records, but was likely used as a food.			
Viola pubescens	downy yellow violet	2	x		x				
Xanthium strumarium	rough cockleburr	1	SXL					Medicinal plant for ceremonies.	A. Low elevations, disturbed habitat.
Yucca glauca	soapweed yucca	1	BF, CH, KW, PC, PW, SXD, SXL	Plant, roots primarily. Teas, pulverized root- stomachaches; roots mixed with roots of prickly pear- to help mothers give birth, or to prevent birth; decoction, roots- treat head lice, dandruff, stimulate hair growth, hair loss prevention, reducing inflammation, applied to breaks and sprains, also on horses for saddle sores; poultice, roots- applied to cuts to stop bleeding, reduce inflammation; roots burned, smoke- aid in catching and haltering horses; roots, smashed- powder or wash for sores, scabs, skin problems.	KW, SXL	Flower stalk, fruits, flowers. Young stalks, immature fruits, and flower buds eaten raw or cooked.	K. Sharp-tipped leaves bundled together and used to as fire-starter drill; roots used for soap; roots decocted for use in tanning process; fibers used for sewing.		A. Grassland foothills, sandy areas.
Zigadenus elegans	mountain deathcamas	2	x						
Zizia aptera	meadow zizia	2	x						A. Moist areas.

Scientific Name	Common Name	Any Use	Tribe	Medicinal Use	Tribe	Food Use	Tools, Other	Sacred, Ceremonial	Location
Total MORU species	**459**			Total plant species on the MORU checklist					
Total use	**288**			Total MORU species used by any tribe					
Total use MORU tribes only	153			Total MORU species used by any of the 13 tribes known to use MORU					
Total use - non-MORU tribe	135			Total MORU species used by tribes other than those using MORU					
Total medicinal use	**260**			Total MORU species, medicinal use, any tribe					
Medicinal - MORU tribes	112			Medicinal use, MORU tribes					
Medicinal - non-MORU tribes	148			Medicinal use, other tribes					
Total food use	**167**			Total species, food use, any tribe					
Food - MORU tribes	82			Food use, MORU tribes					
Food - non-MORU tribes	85			Food use, other tribes					
Total tool use	**74**			Total tool use, any tribe					
Tool - MORU tribes	62			Tool use, MORU tribes					
Total sacred or ceremonial use	**57**			Sacred or ceremonial use, any tribe					
Sacred, ceremonial - MORU tribes	52			Sacred or ceremonial use, MORU tribes					