



Restoring Lakǰóta thínmakǰoče (Lakota Prairie): Traditional Management and Climate Change

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Introduction

Great grasslands once covered 162 million ha. of Turtle Island (North America).¹⁸ The grasslands are comprised of short, mixed, and tall grass prairie ecosystems. The prairies coevolved with many species to produce great biodiversity. The Prairies would flourish, undisturbed until European colonization and Western development would drastically alter the landscape and attempt to remove Indigenous Peoples from the prairies. For the Lakota people, “It is important for the Tribes to preserve our prairie lands for they are all we have left. We need pristine grasslands for our culture to endure. Prairies were converted for agricultural and human development.”¹³ The western management and land use of prairies has resulted in catastrophic ecological consequences. Prairies contribute to the health of the climate, but the vulnerability of prairies to climate change impacts are exacerbated by land use.

Research Question:

How Land Use change on the Standing Rock and Cheyenne River Reservations impacts traditional plant resources for the Lakota People?

Cultural Relevance

The Lakota people are referred to as the Thítunwan (Prairie Dwellers) within the Očhéthi Šakówiŋ (Seven Council Fires). Lakota Oral Tradition teaches the people of their place within and relation to the natural world. “These lands are central to the lives of Indigenous peoples, and they have been so for millennia. Over these generations, we have developed a timely and reliable knowledge of the land, its processes, and its management needs. These ideas developed through observation, experimentation, and participation with the natural world.”⁴ The plant knowledge of the Lakota people is diverse and ancient dating back to their creation story, which indicates the choice of the plant nation to help sustain humans. There are more than 182 prairie plant species utilized by the Lakota for food, medicine and ceremonial uses. The Lakota’s cultural identity has evolved alongside the prairies telling the story of a relationship of reciprocity between the people and the plants.



Picture: Kelly Kindscher

***Echinacea angustifolia*, purple coneflower:**

Lakota name: Úŋŋlakápi

- Asteraceae (sunflower family)
- Most widely used medicinal plant on the Great Plains.
- Roots, tops, or whole plant used.
- Lakota uses: painkiller for toothaches, stomachache, and bowels, also for thirst or perspiring snakebites.
- “Purple coneflower was used for more ailments than any other plant” (Gilmore 1913).

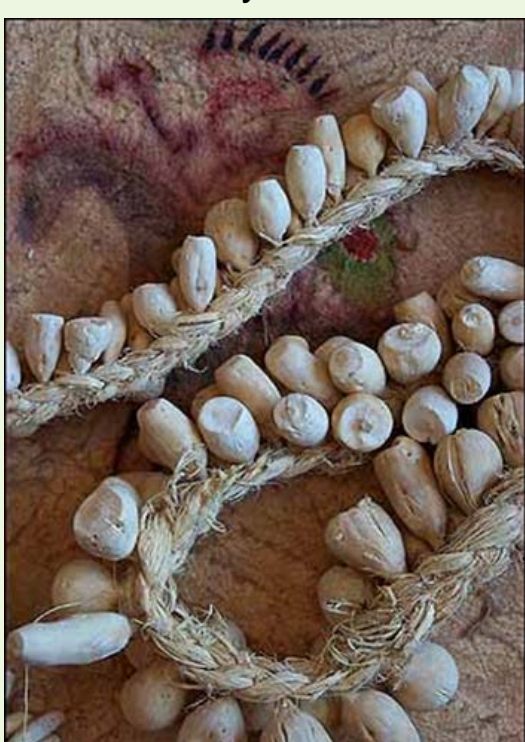


Picture: Kelly Kindscher

***Artemisia ludoviciana*, white sagebrush:**

Lakota name: Phezíhota

- Asteraceae (sunflower family)
- Medicinal and ceremonial
- Leaves and stems used.
- Lakota uses: tea to treat stomach troubles, sore throats, and colds. Steam for bronchitis and winter lung congestion.
- Ceremonial uses: burning or bathing in white sagebrush to purify the mind, body and spirit as well as to ward of negative spirits (energy).



Picture: WoLakota Project

***Psoralea esculenta*, prairie wild turnip, Indian breadroot**

Lakota Name: thípšingla

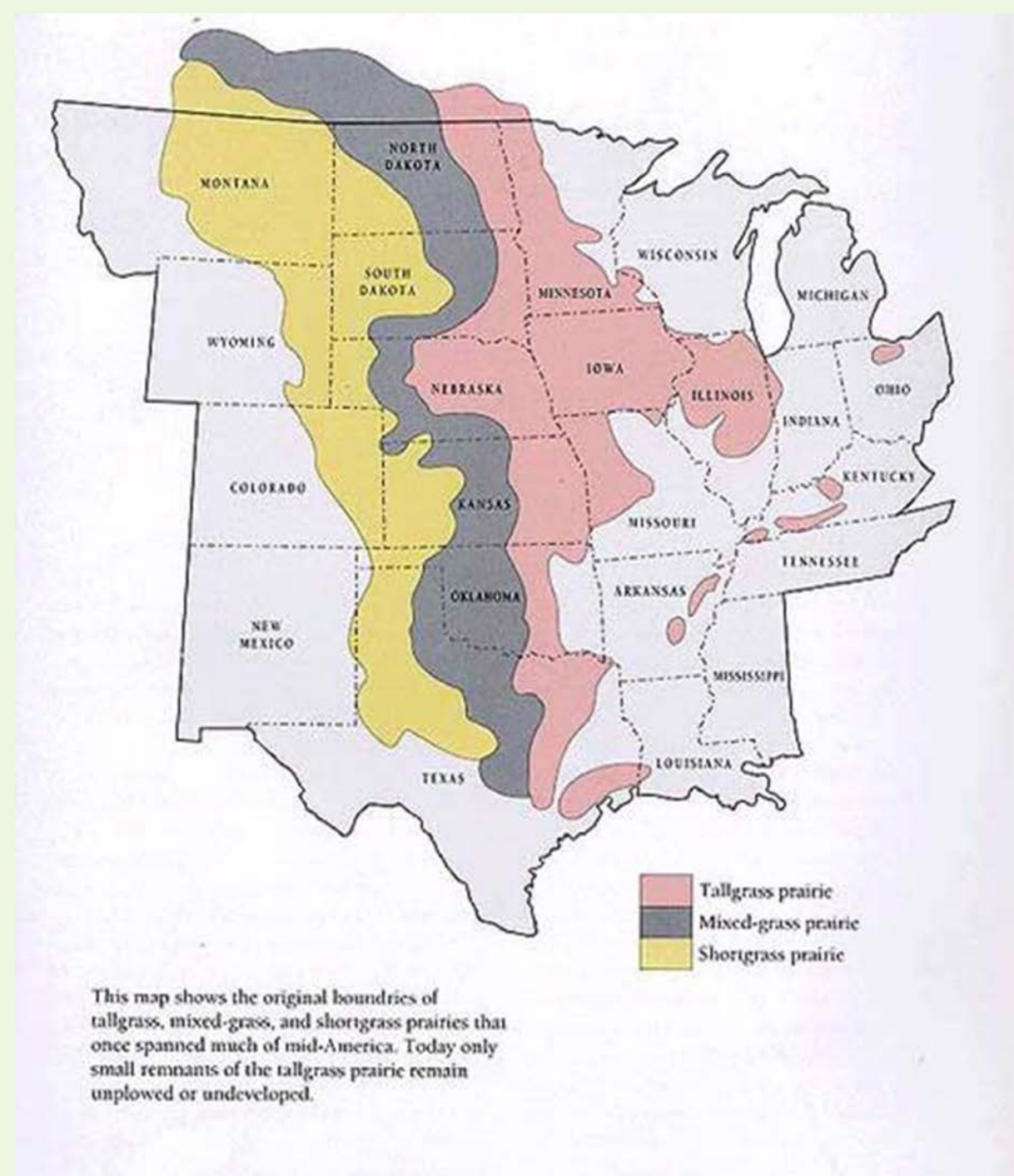
- The roots are eaten fresh or dried for later.
- Most important wild food gathered by the Lakota
- Edible Uses: The tuber can be eaten raw, cut into chunks and boiled in stews, or ground into a fine flour. The flour can then be used to thicken soups, or made into a porridge flavored with wild berries.
- They are still a staple of the Lakota diet and are an excellent source of complex carbohydrates, so they do not raise blood sugar levels like potatoes tend to. (Black Elk, 1998)

Historic and Current Extent of Prairies

Tall grass	Historic	Current	Decline %	Protected %
Manitoba	600,000	300	99.9	N/A
Illinois	8,900,000	930	99.9	<.01
Indiana	2,800,000	404	99.9	<.01
Iowa	12,500,000	12,140	99.9	<.01
Kansas	6,900,000	1,200,000	82.6	N/A
Minnesota	7,300,000	30,350	99.6	<1.0
Missouri	5,700,000	30,350	99.5	<1.0
Nebraska	6,100,000	123,000	98	<1.0
North Dakota	1,200,000	1200	99.9	N/A
Oklahoma	5,200,000	N/A	N/A	N/A
South Dakota	3,000,000	449,000	85	N/A
Texas	7,200,000	720,000	90	N/A
Wisconsin	971,000	4000	99.9	N/A
Mixed grass	Historic	Current	Decline %	Protected %
Alberta	8,700,000	3,400,000	61	<.01
Manitoba	600,000	300	99.9	<.01
Saskatchewan	13,400,000	2,500,000	81.3	<.01
Nebraska	7,700,000	3,900,000	77.1	N/A
North Dakota	13,500,000	3,900,000	71.9	N/A
Oklahoma	2,500,000	N/A	N/A	N/A
South Dakota	1,799,000	N/A	N/A	N/A
Texas	7,800,000	1,600,000	80	N/A
Wyoming	3,000,000	2,400,000	20	N/A
Shortgrass	Historic	Current	Decline %	Protected %
Saskatchewan	5,900,000	840,000	85.8	N/A
Oklahoma	1,300,000	N/A	N/A	N/A
South Dakota	1,799,000	N/A	N/A	N/A
Texas	7,800,000	1,600,000	80	N/A
Wyoming	3,000,000	2,400,000	20	N/A

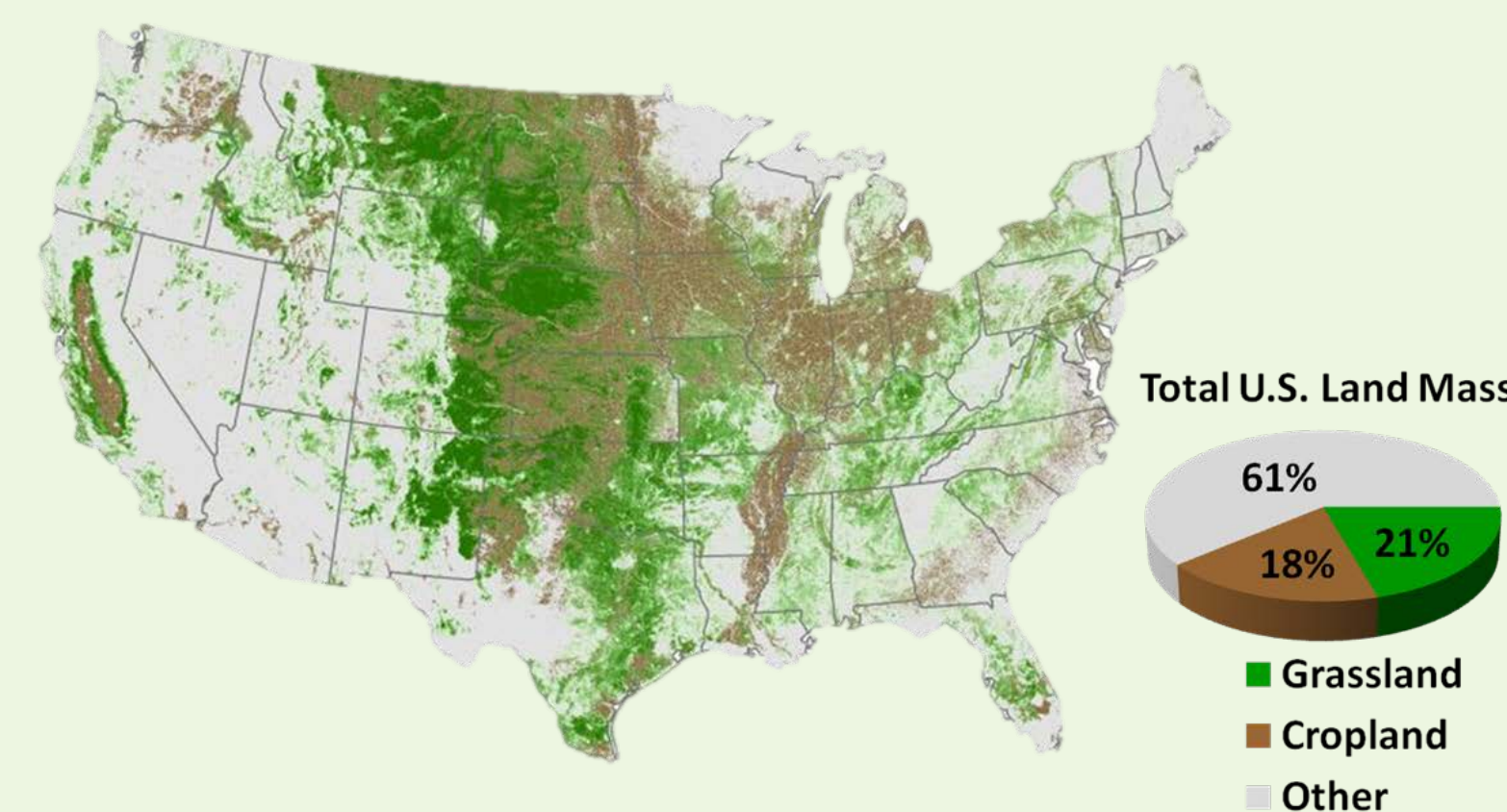
Table 1: Summary of the estimated current area, historic area, and percent decline of the tallgrass, mixed grass, and shortgrass prairies. The estimates of current and historic prairie area are based on information from The Nature Conservancy’s Heritage Program; USDA Fish and Wildlife Service; USDA Forest Service; Canadian Wildlife Service; Provinces of Alberta, Manitoba, and Saskatchewan; and state conservation agencies.

* N/A indicates data not available. No area estimates of historic and current mixed-grass prairie are available for Colorado, Kansas, Montana, Oklahoma, Wyoming, and of shortgrass prairie for Colorado, Kansas, Montana, Nebraska, Oklahoma, and New Mexico.



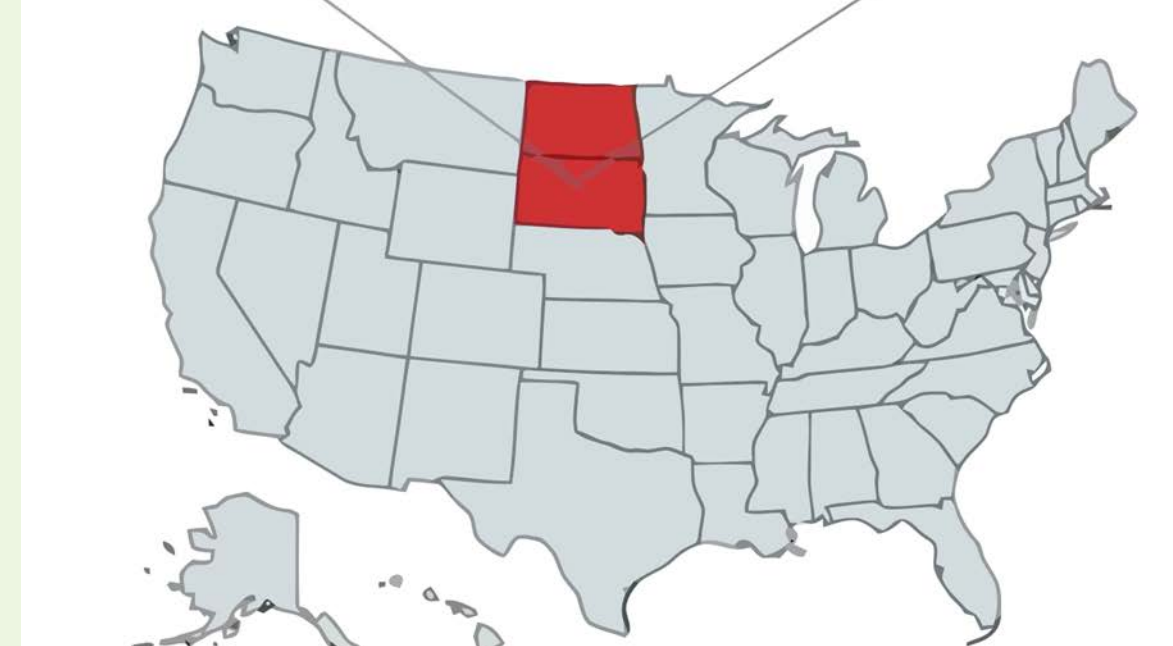
Picture: World Rangeland Learning Experience

U.S. Grassland Extent

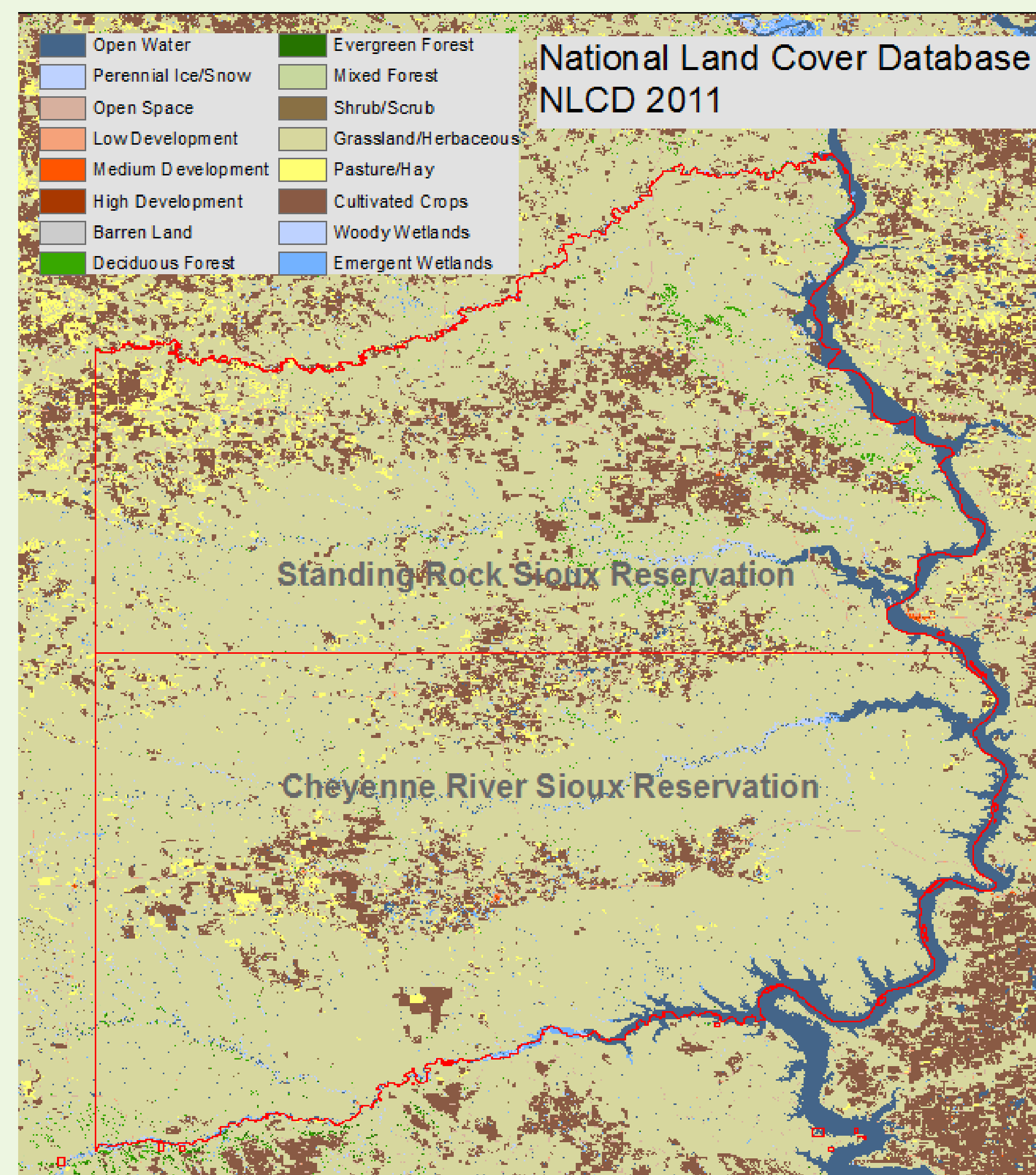


Picture: Tyler J. Lark, Current U.S. grassland and cropland extent, circa 2014.

Tribal Lands: Standing Rock and Cheyenne River Nations



Location of Standing Rock and Cheyenne River Reservations in North and South Dakota. Created by J. Garrett. Map created by J. Carter.



Land Cover Map created by Josh Meisel, Haskell Indian Nations University

Land Use and Climate Change

Unsustainable Land Use of prairies is a contributing factor to climate change:

- **Agricultural management affects the prairie soils from storing carbon:**
“Today agricultural erosion in North America exceeds the prairie soil’s capacity to tolerate loss, threatening an essential resource to sustain future generations.¹⁵ According to Seastedt and Knapp 1993, The health of planet Earth, in the face of global warming, may depend on prairie grasslands because they are superior carbon sinks in comparison to forests with similar environmental characteristics.¹⁶
- **Woody encroachment threatens grasslands:**
At an ecological level, such conversion exacerbates landscape fragmentation⁶, eliminates habitat for grassland species,^{7,14,10,9} reduces plant species richness,¹² and changes carbon cycling and storage.^{22,2}
- **Degradation of remaining prairies endangers species habitat and biodiversity:**
“Unmanaged patches of prairie today often become overgrown by woody species (“succession”) and accumulate plant litter. As a result, periodic processes are widely considered necessary for prairies to persist today.^{8,21,1} Because of habitat destruction, these processes are disrupted and difficult to reconstruct.¹⁹

Conclusions

Large remnants of the great grasslands are located on Lakota lands. The Standing Rock and Cheyenne River Nation’s prairies are threatened by current land use trends and climate change factors. Conservation and management of prairies on Tribal lands will be developed on the foundation of Lakota Philosophy:

- Vine Deloria Jr., renowned Lakota scholar, explains the Lakota’s connection to the prairies “Don’t romanticize us. Indians have an extensive and specific technical knowledge of Plains survival, as well as an extensive and specific spiritual tradition. If you have the nerve, I suggest you take both into account. After all, you people have been on the Great Plains for two hundred years. We’ve been here for forty thousand.”¹¹
- Lakota Nations could assert sovereign control over their prairies through implementation of traditional conservation methods
- Prairies have sustained Lakota people and their knowledge of plants is crucial to the sustainable use of lands
- Community involvement is an essential element to reconnecting the people with their traditional homelands.
- Educating the community of the traditional importance of the prairie ecosystems instills cultural significance, which contributes to the conservation of the endangered prairie ecosystem.

The Lakota’s cultural connection to the land stands as a testament to conserving the land for the survival of their culture and future generations.



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