National Grasslands

Interpretive Master Plan

United States Department of Agriculture

Forest Service

Center for Design and Interpretation

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US FOREST SERVICE *National Grasslands*

National Grassland Interpretive Master Plan (signature page)

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This plan is dedicated to our one million annual visitors—by continuing to learn about and appreciate the grasslands and prairies of the United States you ensure the future of interpretation, education, and conservation programs, projects and products on the National Grasslands.

"Anyone can love the mountains, but it takes soul to love the prairie."

Prepared by: ROOT HOUSE studio

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Introduction

"This senery already rich pleasing and beatiful, was still farther hightened by immence herds of Buffaloe, deer Elk and Antelopes which we saw in every direction feeding on the hills and plains."

- Meriwether Lewis, September 17,1804

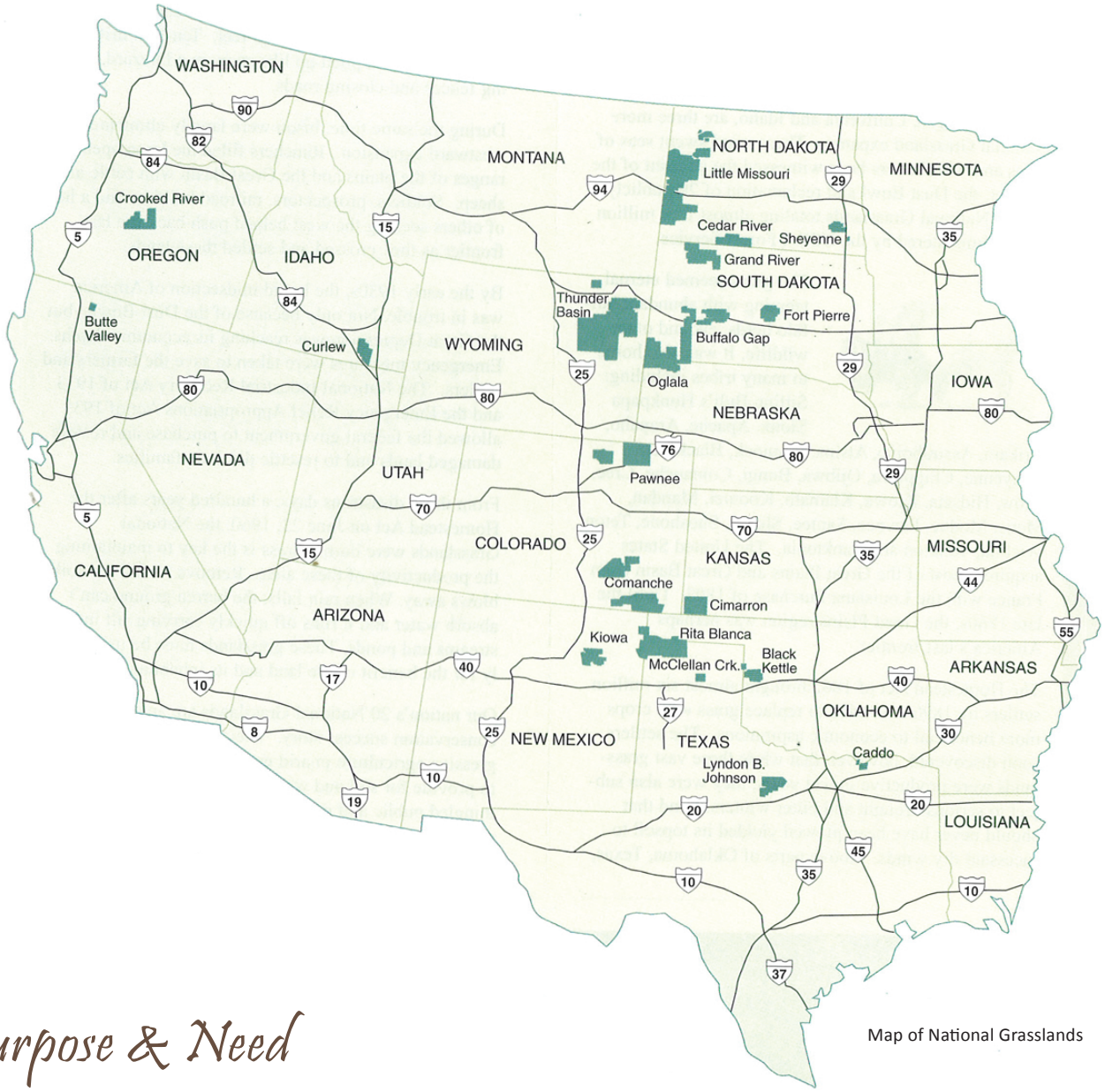
The 20 National Grasslands and Midewin National Tallgrass Prairie currently comprise nearly four million acres of diverse terrain. The National Grasslands system, managed by the USDA Forest Service, represents one of the United States' most outstanding conservation success stories. The unique geologic features, plants, and animals represent some of the best examples of grasslands and prairie ecosystems in the world. The wealth of this American heartland contributes to our Nation's sovereignty with vast resources, food production, manufacturing, innovation and biodiversity. To fully embrace the potential of these landscapes, we must tell the stories of the grasslands and foster the deep connections between people and these unique places.

This National Grasslands Interpretive Master Plan (IMP) focuses on the unique characteristics of each of the grasslands to determine essential themes and storylines, and then relate those themes and storylines back to the National Grasslands system as a whole. The plan also includes marketing strategies and original artwork (logos) for each of the 20 National Grassland units.

The Forest Service currently administers 20 National Grasslands consisting of 3,842,278 acres of federal land and the 20,000 acre Midewin National Tallgrass Prairie. National Grasslands are located in 13 states. The majority of the acreage (3,161,771 acres, 82%) of the total National Grassland area is in the Great Plains states of Colorado, North Dakota, South Dakota, Kansas, Oklahoma, Texas and Wyoming. Seventeen of the National Grasslands are located on the Great Plains.

Image of Little Missouri National Grassland

National Grasslands	Acreage	State(s)	National Grasslands	Acreage	State(s)
Black Kettle	31,286	OK, TX	Grand River	154,981	SD
Buffalo Gap	597,178	SD	Kiowa	136,417	NM
Butte Valley	18,425	CA	Little Missouri	1,028,045	ND
Caddo	17,873	TX	Lyndon B. Johnson	20,309	TX
Cedar River	6,717	ND	McClellan Creek	1,449	TX
Cimarron	108,175	KS	Oglala	94,480	NE
Comanche	435,359	CO	Pawnee	193,060	CO
Crooked River	111,348	OR	Rita Blanca	92,989	OK,TX
Curlew	47,756	ID	Sheyenne	70,268	ND
Fort Pierre	115,997	SD	Thunder Basin	560,166	WY
			Total	3,842,278	



Map of National Grasslands

Purpose & Need

The purpose of this National Grasslands Interpretive Master Plan (IMP) is to develop a prioritized implementation list of interpretive and marketing media that the National Grasslands intends to develop in the five-year period from 2012-2017. The IMP outlines the major stories to be told at the National Grassland Visitor Center (NGVC) thus unifying the 20 National Grassland units and the Midewin National Tallgrass Prairie. The purpose for the NGVC is to serve as a gateway to the grasslands within the United States and ultimately connect to grasslands around the world. The NGVC's purpose is to introduce visitors to the National Grassland stories and forge emotional connections using experiential media, interior exhibits and the exterior landscape.

The IMP is needed to organize and focus the National Grasslands interpretive messaging, to guide future management, to develop interpretive and educational programs, and to establish a solid thematic foundation to direct media development.

Due to the vast number of storylines that exist within the National Grasslands, the IMP is needed to make early and balanced assessments of where the storylines are most appropriately used for interpretation. Storylines within the National Grasslands occur along a macro-micro gradient where the themes relate the local particularities of a place to a larger ecoregional context. Determining whether a storyline is best used to connect people to a thematic idea on a micro level or a macro level helps create a more pointed interpretive message. Prioritizing the storylines, in order to determine which stories are most compelling to share with visitors at the NGVC, is crucial. By establishing scale and priority, a clearer vision for the delivery of the story can be achieved. Some storylines are best used as exhibits within the NGVC. Other storylines influence grassland unit branding, or are recommended to be communicated with technology, print materials, or as living exhibits in the visitor center landscape.

Mission Statements

USDA Forest Service Mission:
The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

Motto:
Caring for the Land and Serving People

The phrase, "CARING FOR THE LAND AND SERVING PEOPLE," captures the Forest Service mission. As set forth in law, the mission is to achieve quality land management under the sustainable multiple-use concept to meet the diverse needs of people and includes:

- Advocating a conservation ethic in promoting the health, productivity, diversity, and beauty of forests and associated lands.
- Listening to people and responding to their diverse needs in making decisions.
- Protecting and managing the National Forests and Grasslands so they best demonstrate the sustainable multiple-use management concept.
- Providing technical and financial assistance to State and private forest landowners, encouraging them to practice good stewardship and quality land management in meeting their specific objectives.
- Providing technical and financial assistance to cities and communities to improve their natural environment by planting trees and caring for their forests.
- Providing international technical assistance and scientific exchanges to sustain and enhance global resources and to encourage quality land management.
- Helping States and communities to wisely use the forests to promote rural economic development and a quality rural environment.
- Developing and providing scientific and technical knowledge aimed at improving our capability to protect, manage, and use forests, grasslands and rangelands.
- Providing work, training, and education to the unemployed, underemployed, elderly, youth, and disadvantaged in pursuit of our mission.

Mission taken from: http://www.fs.fed.us

National Grasslands Visitor Center (NGVC) Mission:
The NGVC mission is to educate and inform the public as to recreational opportunities, the National Grasslands and the Forest Service.

Image of Fort Pierre National Grassland

Objectives for Interpretive Media

The output of this IMP is a prioritized list of interpretive media that the National Grasslands Council intends to implement in the next five-year period from 2012-2017".

The objectives of the interpretive media are to:

- Welcome and orient visitors to the individual National Grassland units, Midewin National Tallgrass Prairie and the National Grasslands Visitor Center.
- Promote visitor understanding and support for the mission of the National Grasslands and the USDA Forest Service.
- Educate and inform visitors about safe, appropriate, low-impact use of public lands.
- Promote visitor understanding of and appreciation of the natural, recreational, scenic and cultural resources, and foster a conservation ethic in visitors that encourages participation in activities that preserve the heritage of the Nation's grasslands and appropriate use of the National Grasslands resources.
- Create an original logo and brand identity for each grassland unit and a cohesive system of branding for the National Grasslands as a whole that will establish a recognizable presence within the minds of the public and other federal and local agencies.
- Connect the interpretive themes within and among the National Grasslands to grassland ecosystems around the world.
- Communicate the importance of global climate change and its influence on sensitive ecosystems like grasslands and prairies.
- Foster a conservation ethic based on respect for the National Grasslands as a unique and sensitive system and the wildlife that inhabit them .
- Increase visitation to the National Grasslands Visitor Center in Wall, SD, and by doing so, stimulate the local economy.
- Communicate the importance of grasslands as "working landscapes"— grasslands all over the world are a balance of conservation and important human uses not merely preserves frozen in time.
- Encourage respect for private property, safe travel and recreation.

Methodology

The interpretive themes presented in this plan were crafted through a process that began with an Inventory of Potential Grasslands Storylines (see Appendix A). During the Inventory process, a Preliminary Thematic Framework was developed in which unique attributes of each grassland unit were used to reinforce themes shared by all grasslands units, and to identify storylines within these themes that are unique to the individual units. During the IMP process, Statements of Significance were developed to describe why the grasslands are unique, special or important. The IMP continues to employ the framework for interpretation developed during the Inventory process, but takes the next step to distill the themes and storylines in to their most essential, concise messages and recommended delivery.

The following method was used to arrive at the Interpretive Themes and Storylines:

1. An initial kick-off/visioning meeting was held in 2010 with the National Grasslands Council to outline the project, understand the intended objectives, and set a schedule for completion of the three phases: Inventory; Interpretive Master Plan, Branding and Identity Plan; Interpretive Exhibit Design and Landscape Design.
2. Representative site visits were conducted to understand the significant resources that drive the interpretive planning process and provide the direction for the branding and logo development.
3. Information was collected about each unit's unique characteristics and existing interpretation.
4. Initial comparisons of each of the National Grasslands and Midewin National Tallgrass Prairie were used to identify conceptual threads that are shared by all grassland units.
5. An Overarching Theme was identified that exists at the interface of these three conceptual threads (see graphic on page 58).
6. The Overarching Theme and Primary Themes were organized into a Thematic Framework for Interpretation that creates the output of Potential Storylines (see graphic page 103).
7. The Thematic Framework for Interpretation was then used as a tool to take the unique attributes of each grassland unit and output Potential Storylines.
8. In the Synopsis section of the Inventory a process is outlined to help weigh the Potential Storylines, determine where they are most appropriately used, and to make preliminary recommendations for storyline delivery.
9. Draft versions of the Inventory document and

the potential storylines were made available for comment by representatives from all 20 National Grassland units and the Midewin National Tallgrass Prairie.

10. Statements of Significance were written.
11. An Overarching Theme, Primary Themes and Sub-Themes were written to encapsulate the Statements of Significance and reflect the essence of the grasslands.
12. A marketing strategy was developed with recommended interpretive media to guide future development of interpretive media development at each grassland unit and to encourage visitor use and awareness of the National Grasslands.
13. The background section of the IMP was developed using existing publications about the National Grasslands, on-line sources, Forest Service publications and reports, interviews with USFS staff (see Bibliography in Appendix B).

The following method was used to create original logos (see pages 78-98 of IMP):

1. Unique icons (animals, plants, objects, activities) that illustrate storylines were selected for each grassland unit.
2. Conceptual logos were developed to illustrate different styles and "looks". Logos were made available to reviewers from each unit to comment on content and graphic style. Logos at 30%, 60%, 90% and 100% were submitted.
3. Final logos were/will be developed based on reviews and comments from USFS representatives.

The following method was/will be used to develop the Exhibit Plan and Landscape Design at the NGVC:

1. With help from plant specialists in the Forest Service, a plant list of native grassland species of South Dakota was developed.
2. Interpretive storylines were selected for the exterior spaces that will connect to the stories being told in the interior exhibits.
3. A design narrative was written that describes how the arrival sequence and experience at the NGVC will be enhanced by the landscape and new visitor kiosk.

Project Approach

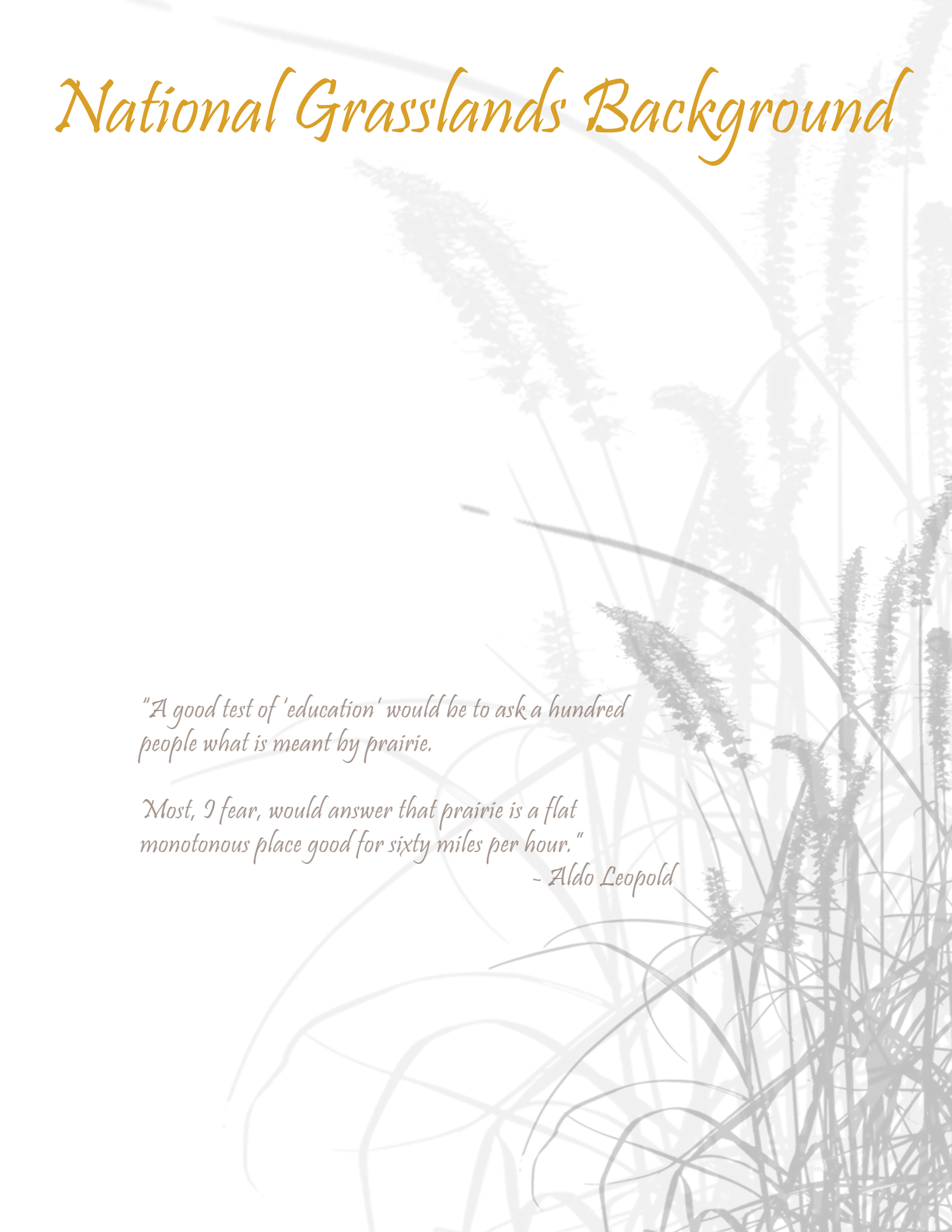
	PHASE I	ACTIVITIES	deliverables
INVENTORY	**INVENTORY**	**Inventory** • Participate in representative (17 of 21 sites) field trips to conduct the inventory of significant resources that will drive the interpretive planning process and will provide the direction for the marketing plan, branding, and logo development. • Identify each unit's unique characteristics, existing interpretation, and visitor experience as they relate to the system as a whole.	Inventory of Potential Grassland Storylines

	PHASE II	ACTIVITIES	deliverables
INTERPRETIVE MASTER PLAN	**INTERPRETIVE MASTER PLAN (IMP)/ BRANDING AND IDENTITY PLAN**	**INTERPRETIVE MASTER PLAN** • Determine the audience • Write Statements of Significance • Develop overarching themes that will connect the unique attributes of each unit on a universal level and direct the creation of a cohesive Interpretive Master Plan. • Develop a thematic framework for interpretation including primary and secondary themes and storylines that communicate the relationship between the unique attributes of each unit. • Identify existing interpretive opportunities • Identify opportunities for new media • Make recommendations for interpretive media types that provide a diversity of visitor experiences and encourage deep connections to the grassslands. • Develop unit specific interpretive strategies to guide future management and to give the National Grasslands a presence within the USFS and the US public lands. • Develop implementation priorities and cost estimates. **Branding and Marketing Plan** • Develop graphic logos for each unit that speak to their uniqueness and create a cohesive graphic language and identity that helps create a presence for the National Grasslands system. • Develop marketing strategies to guide future management of each National Grassland unit and to encourage visitor use and awareness of the National Grasslands.	National Grasslands Interpretive Master Plan including marketing recommendations Original graphic branding for each National Grassland unit and the Midewin National Tallgrass Prairie

	PHASE III	ACTIVITIES	deliverables
DESIGN	**INTERPRETIVE EXHIBIT PLAN/SITE DESIGN**	**INTERPRETIVE EXHIBIT PLAN** • Develop interpretive exhibits informed by the IMP that engage visitors, build appreciation, foster stewardship, and pique interest to explore the National Grasslands. **LANDSCAPE DESIGN** • Design a unique Visitor Center landscape and demonstration garden that reflects the experiential qualities and plant biodiversity of the South Dakota grasslands.	Interpretive Exhibit Plan for the National Grasslands Visitor Center (NGVC) Landscape plans, construction drawings, and specifications for the re-design of the National Grasslands Visitor Center exterior spaces

Cimarron National Grassland

National Grasslands Background



"A good test of 'education' would be to ask a hundred people what is meant by prairie.

Most, I fear, would answer that prairie is a flat monotonous place good for sixty miles per hour."

- Aldo Leopold

History

The purpose of this section is to concisely summarize the human and natural history, development, conservation and management history of the National Grasslands system in order to establish the context for the interpretive themes.

Today, the National Grasslands system is managed by the United States Forest Service (USFS) under the US Department of Agriculture. Seventeen National Grassland units extend east of the Rocky Mountains, from the Badlands of North Dakota to north-central Texas. Three additional units lie west of the Rockies in Oregon, California and Idaho. Another unit, the Midewin National Tallgrass Prairie in Illinois is a remnant of the 21 million-acre tallgrass prairie ecosystem that stretched east of the Mississippi through present-day Illinois.

A review of the evolution and history of these prairie landscapes reveal a constant thread of human settlement and the persistence of a vibrant grassland ecosystem that harbors unique geologic features, plants and animals.

Plains Prehistory

Throughout the earth's history, massive seas have covered the vast interior lands of North America. These floods of ocean water connecting the Arctic Ocean and the Gulf of Mexico, laid down hundreds of feet of sediment over millions of years. This sediment eventually became the shale, limestone, and sandstone beds that underlie the Great Plains.
The Rocky Mountains then slowly pushed upward an inch at a time over millennia. This enormous and steady up-thrust of granite emptied the inland seas. About 65 million years ago, the last of the great landlocked seas emptied into the Gulf of Mexico. For millions of years, the heart of North America was a subtropical environment dominated by lush forests, wetlands, and savannas. While the Rocky Mountains grew, the erosive forces of wind, rain, glaciers and rivers simultaneously wore away at the newly formed mountains until they were approximately half of their original size. The rock and soil debris shedding off the mountains joined ash from volcanic eruptions and decaying vegetation to fill the inland basin.

Following the rise of the Rocky Mountains, a general drying period caused by the Rocky Mountain's rain shadow gradually changed the environment. Forests gave way to short grass prairies and small woodlands. During the Ice Age, huge glaciers gouged craters and valleys in the landscape, dragging rock and debris to the American Great Plains all the way from present day Canada.
A diverse array of mammals grazed and hunted these changing landscapes, including miniature deer and horses, saber toothed cats, tiny two-horned rhinoceroses, and giant sloths and bison. In the middle of this ice age, around 90,000 years ago, the water receded in the oceans enough to reveal a large grassland connection between the steppes of Russia and the mountains of Alaska. Across this land bridge, people and animals such as the Mastodon migrated from Asia to North America. At around the end of the Pleistocene Epoch, about 10,000 years ago, many of these mammals died out, leaving the plains bison, a relative of the much larger ancient bison, as the predominant grazer on the plains. This slow geological and ecological process continues today, sculpting the dynamic landscapes and wildlife of America's grasslands.

Fossilized dinosaur trackways on Comanche National Grassland

Plains Indians

The grasslands and prairie extending across North America formed a large, contiguous Great Plains ecosystem stretching from northern Canada to Mexico. North America's grasslands were inhabited by nomadic hunters and semi-sedentary farmers for nearly 11,500 years before the arrival of Euro-American settlers. Home to numerous cultures of people, the seas of grasses and wildflowers once teemed with abundant large mammals, birds, and other wildlife. Six distinct American Indian language families or stocks were represented on the Plains. Those speaking the same language are generally referred to as a tribe or nation. Among the numerous Plains Indians tribes were the Cheyenne, Arapaho, Blackfoot, Cree, Mandan, Sioux, Crow, Comanche, Pawnee and Kiowa.

From at least 10,000 years ago to approximately AD 1100, the Plains were sparsely populated by humans. These first Plains residents, referred to as Paleo-Indians and then later Archaic peoples, lived in small family-based groups, usually of no more than a few dozen individuals, and they foraged widely across the prairie landscape. By approximately AD 850, some residents of the central Plains began to shift from foraging to farming lifestyles and relied on cultivation for a significant portion of their subsistence. By 1250, most of the northern plains residents are believed to have been living in substantial villages along the Missouri River and its tributaries, and in the southern plains, along the Arkansas and Canadian Rivers and their tributaries. Some villages were as big as a few thousand people. These groups eventually included the Hidatsa, Mandan, Arikara, Ponca, Omaha, Pawnee, Kansa, Osage, and Wichita. Many of the Plains Village cultures tilled the river bottoms and grew corn (maize), beans, squash, and sunflowers. Agricultural production and cultivation responsibilities fell to the women who also collected medicinal plants and wild produce such as prairie turnips and chokecherries. The men grew tobacco and hunted bison, elk, deer, fowl and other game.

Bison on the Pine Ridge Reservation near Buffalo Gap National Grassland

Horses became available to the Plains people gradually over the course of at least a century between 1650-1750 and had a profound effect on their lifestyle and, in particular, their ability to hunt bison. Mounted hunters could more effectively keep pace with the grassland's large buffalo herds. By the late 18th century Plains people were regularly encountering fur traders and explorers as these Euro-Americans and Europeans journeyed across the Great Plains.

Euro-American Exploration

The expedition of the Spanish explorer Francisco Vázquez de Coronado in 1540–42 began European exploration of the Great Plains. The United States acquired most of the Great Plains region from France through the Louisiana Purchase of 1803 (history.com). American interest in the region was sparked by the acquisition, which gave rise to the great Lewis and Clark Expedition. In 1804 Thomas Jefferson sent Meriwether Lewis and William Clark's Corps of Discovery to find a water route to the Pacific Ocean and explore the uncharted lands to the West. The expedition began on the Missouri River in St. Louis and spent two years, four months, and ten days traveling to the Pacific Ocean and back. Lewis and Clark greatly advanced Euro-American knowledge of the continent, recording some 300 unknown species, 50 Native American tribes, and the great Continental Divide (nationalgeographic.com). The subsequent expeditions of Zebulon Pike (1806-07) on the Arkansas and Red Rivers, and Stephen Long (1819-20) on the Platte and Arkansas River basins are also noteworthy for laying the foundation of knowledge about the plains. Long's expedition led him to characterize the region as the "Great American Desert." Fur trappers and then settlers traveling through the region on the Oregon, Mormon, and Santa Fe trails continued to explore, document and increase knowledge of the Great Plains (history.com).

Homesteaders

In the 1840s the opening of the Oregon Trail and other routes across the Great Plains launched the Homestead Movement in the United States along with discussions about tribal unification. Tribal leaders and the U.S. Government convened a major conference at Fort Laramie in 1851 to delineate land ownership patterns. The United States was intent on identifying which lands were to belong to tribes and which to the United States, facilitating the development of transportation systems and defensive forts in the region, and ensuring the safety of settlers and those en route to the west coast. The American Indian tribal leaders sought to establish legal title to their land and guarantees that such title would be held inviolate. Negotiations at Fort Laramie were successful for the Government and resulted in a period of relative tranquility on the Great Plains (History Channel, 2011).

With the influx of settlers under the Homestead Act of 1862 relationships between the region's nomadic Native peoples and the United States soured and resulted in frequent and, oftentimes, horrific confrontations known collectively as the "Plains Wars". Challenged by the futility and expense of military action against Native Plains tribes defending their home territories, United States government policy makers turned to the destruction of the indigenous food supply: the bison/buffalo herds. Private parties from the United States had already been hunting buffalo on a massive scale and little government encouragement was needed to take the slaughter of the bison herds to an even more ruthlessly efficient level. As the buffalo were eradicated, the Plains Indians began to starve, and by the early 1880s most bands of Native Plains peoples had acceded to confinement on reservations.

The Great Plains and the land west were America's Frontier. With gold rushes, trapping, construction of the transcontinental railroad, slaughter of the bison and expulsion of Native Americans, the grassland ecosystem was transformed and the frontier plains were gradually settled. The biggest human impact to the grassland system resulted from homesteading.

The Homestead Act of 1862 authorized the disposition of 160-acre parcels of unoccupied federal land to qualified

A homestead, parched and buried in sand during the Dust Bowl

individuals and resulted in nearly six million settlers scattered across the Great Plains by 1890. Under the Homestead Act, a homesteader was given six months to establish residence on the land after submitting an application. The homesteader was required to settle and cultivate the land for five years, after which a patent would be issued and ownership officially transferred. Due to low precipitation levels in much of the Great Plains and western United States, the 160-acre limitation imposed by the Homestead Act was often not adequate to conduct an economically viable farming operation on the Great Plains. In 1909 Congress enacted the Enlarged Homestead Act, doubling the parcel sizes to 320 acres, but even this did not suffice and farmers struggled to carve out a viable operation on the Great Plains. By 1904, nearly 100 million acres of land in the West comprised of 500,000 farms had been established, many on submarginal lands. Industriousness, perseverance, and innovation were common traits among the early settlers of the grasslands.

Homesteading resulted in the breaking of the prairie sod. Fenced farms dotted the landscape and the virgin prairie was plowed up and planted with crops. With the post-Civil War, industrial revolution, and the later invention of the internal combustion engine, crop production required less and less manpower and allowed for putting many more acres of unbroken prairie sod under cultivation. As a result, the settlers converted immense areas of native, drought-tolerant grasses and forbes to crops that were highly vulnerable to periodic droughts. Even more people moved from cities to rural lands in the West with the beginning of the Great Depression in the late 1920s. Droughts, floods, and insect infestations exacerbated hard times for farmers. The United States General Land Office reported in 1928 that all available public lands, where dry farming of 640 acres could support a family, had been settled (Moul 2006, 15).

Dust Bowl

Since the Pleistocene Age, air masses from the Pacific have caused rainfall and droughts on the Great Plains. When cold, dry air from the Arctic sinks to the ground forcing warm, moist air from the Gulf of Mexico over it, abundant rain and snow is produced on the Great Plains. However, when Pacific air descends the east-front rain shadow of the Rocky Mountains, the air is warm and dry and will not produce rain (Moul 2006, 11). Droughts are a character-defining climactic condition of the grasslands. Periods of prolonged lack of rain, known as droughts, are a naturally occurring phenomenon on the Great Plains and a common thread in the history of the grassland systems. Wildlife, plant communities and humans have all contended with the consequences of persistent dry conditions. The ten-year drought of the 1930s that resulted in the "Dust Bowl" is acknowledged as one of the most severe post-European settlement droughts and played a pivotal role in shaping development and the eventual conservation of the National Grasslands.

A homesteader and his children walk through clouds of blowing dust

During the great drought of the 1930s, many crops failed. Additionally, demand grew for grazing lands, which resulted in severe overgrazing of the prairies and grasslands. With no crops and denuded prairies, nothing held the topsoil in place and the region grew increasingly susceptible to wind and water erosion. When the incessant winds began to blow, they created enormous dust clouds, thousands of feet high, that carried Great Plains soil all the way to Europe (Moul 2006, 14). For 10 years the drought persisted, the winds blew, and the prairie and its inhabitants suffered.

In the areas in and around Cimarron, Comanche, Kiowa and Rita Blanca National Grasslands, the "Dust Bowl" combined with the Great Depression of the 1930's forced Congress to take emergency measures to aid farmers. A 1936 U.S. Department of Agriculture report noted that there "is perhaps no darker chapter nor greater tragedy in the history of land occupancy and use in the United States than the story of the western range" (Wallace 1936,3; Moul 2006, 15). Aware of the abuses of the land in the central and western portions of the country, calls for land use reform were voiced. The environmental disaster of the Dust Bowl prompted research and resulted in new scientific knowledge that

would shape the future management of America's public lands. Under the Franklin D. Roosevelt administration, the National Industrial Recovery Act of 1933 and the Emergency Relief Appropriations Act of 1935 allowed the Federal government to purchase and restore damaged grasslands and introduce alternative farming practices. These programs were administered by the former USDA Soil Conservation Service (today the USDA Natural Resources Conservation Service or NRCS).

The Government's "Land Utilization Program" (LUP) facilitated the purchase of sub-marginal land and was intended to transfer land to its most suitable use. The majority of the land was purchased on the Great Plains where the government aimed to convert the use of the semi-arid land from farming to grazing. The land was simply too nutrient poor to provide a living through crop farming and the toll on the land had devastating ramifications. The LUP culminated with the passage of the Bankhead-Jones Farm Tenant Act of 1937 (BJFTA). Title III of the Act authorized the Secretary of Agriculture "to develop a program of land conservation and land utilization, including the retirement of lands which are submarginal or not primarily suitable for cultivation in order thereby to correct maladjustments in land use."

At a cost of over $102 million, intensive improvement and development projects immediately began to transform the portions of the prairie landscape that had been farmed and decimated. Flood and erosion control measures, vegetation restoration, the cleaning and widening of stream channels, water storage facility construction, and the construction of buildings and roads helped to restore the damaged lands and create approximately 50,000 jobs for the Nation still reeling from the Great Depression of the 1920s.

Establishment of the National Grasslands

Of the total 11.3 million acres in the LUP, 5.8 million were transferred to the Department of the Interior. The Department of Agriculture retained 5.5 million acres. In 1954, the responsibility for administering the LUP was transferred from the Soil Conservation Service to the Forest Service. Nearly 100 years after the Homestead Act, on June 23, 1960, the Secretary of Agriculture designated approximately 3.8 million acres of the LUP land as National Grasslands.

Under Forest Service management, the National Grasslands were restored and improved. Surveys of land, water, forest, range, wildlife, and recreation resources were conducted. Cooperative lands management agreements were entered into with conservation districts and grazing associations. The Forest Service re-vegetated, restored, and reforested the land, improved wildlife habitat, and developed recreation amenities including campsites, picnic areas, reservoirs, and later, the National Grasslands Visitor Center.

Study of the Great Plains in the 20th century concentrated on agricultural and mineral potential, as well as on natural history. Since World War II more emphasis has been placed on ecological studies of the soils, groundwater, and effects of the use of agricultural chemicals. Research also has been undertaken on the effects of rural depopulation and on the impact the region's natural grass cover—particularly restoration—may have on global climatic conditions, including the greenhouse effect.

The size and number of National Grasslands has remained relatively constant since their establishment in 1960. Consolidation has occurred to move large areas under federal ownership to reduce isolated tracts and create contiguous habitat. Today the collection of units within the National Grassland system serves as a model of conservation success.

Ecology of the National Grasslands

Drought

Periodic droughts occur throughout North America's grasslands having significant effect on flora and fauna. Historic periods of drought combined with unsustainable land use and farming techniques throughout history caused severe soil degradation and erosion. Understanding drought cycles and sustainable land-use practices that include crop rotation, prescriptive grazing, and the use of more advanced technology,are lessening the impact of drought on the grasslands.

Dry period on Kiowa National Grassland

Fire

The grasslands of North America are a fire-dependant ecosystem. Lightning-caused fires naturally occur on the grasslands. Fires generally burn vegetation on the surface leaving behind the growth point of grasses and other indigenous plants. As a result, many indigenous plants have the ability to regenerate. Fires help control insect pests, reduce invasive plant species and instigate new vegetation growth (Gauthier, Lafon, Toombs, Hoth and Wiken, 2003).

Prescribed burn on Cedar River National Grassland

Erosion

Although erosion is sometimes a natural process, erosion on the Great Plains is often human induced and a very destructive force. The sandy soil composition also contributes to the high erodibility of the landscape. Grassland restoration efforts have reduced erosion considerably since the Dust Bowl era. In addition, shelterbelts have been planted throughout North America's grasslands to reduce the effects of wind erosion.

Badlands formations on Buffalo Gap National Grassland

Micro-environments

North America's grasslands contain many unique micro-climates created by the variety of terrain and weather patterns. Prairie, canyonlands, woody draws, oak stands, and many other micro-environments create habitats for a diversity of wildlife and plant species.

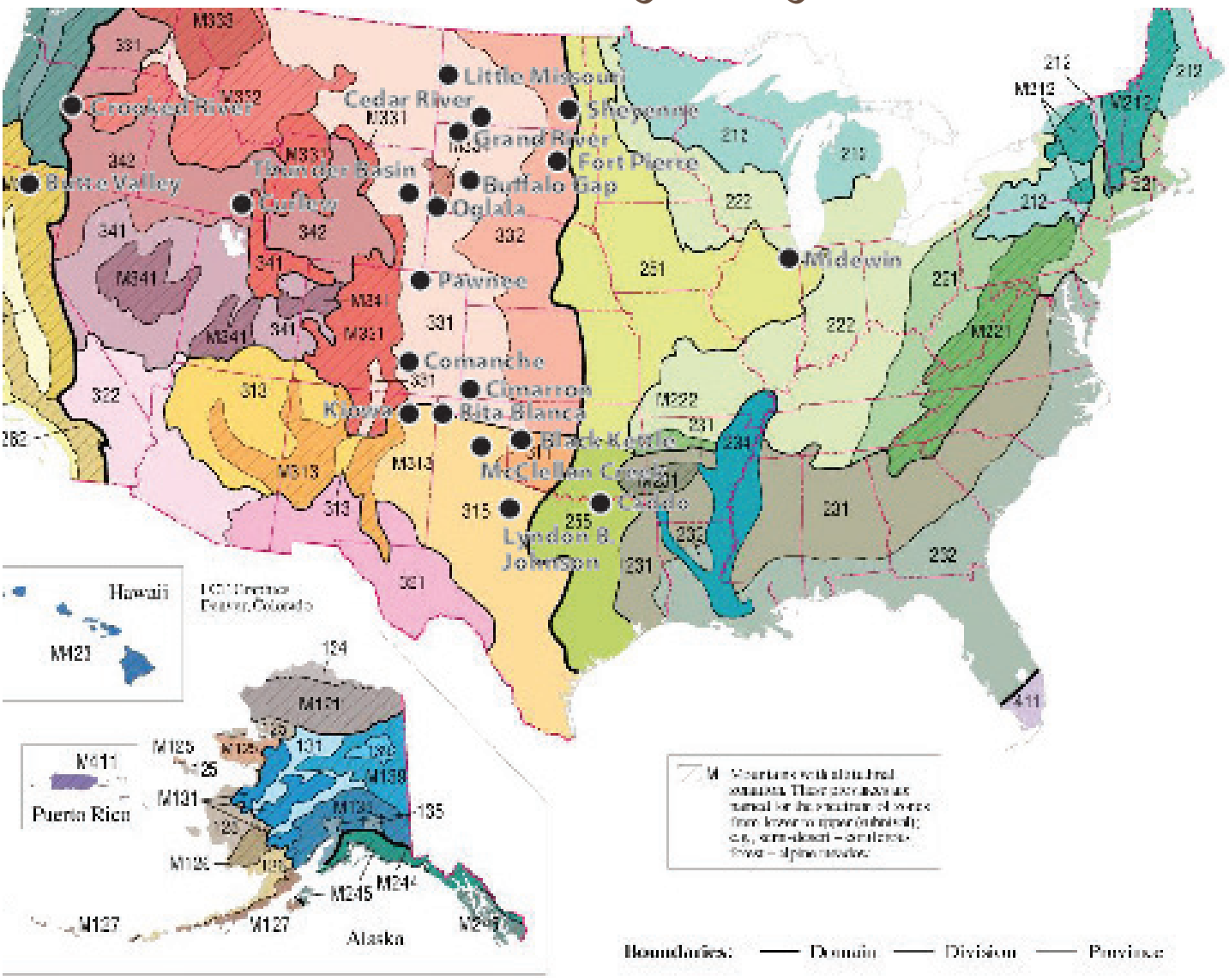
Wet drainage on Fort Pierre National Grassland

Ecological Restoration

Farming, ranching, prospecting, and the construction of railroads have significantly degraded and fragmented grassland ecosystems in North America. Westward expansion largely attributed to the loss of keystone grassland animal species, such as the prairie dog, black-footed ferret, and bison. Restoring grasslands to near-native conditions supports wildlife habitats, protects watersheds, and supports grazing and recreation opportunities. Restored native vegetation rebuilds the fertility of once degraded soil and filters water to be returned to the hydrologic cycle. Wildlife, including many declining, threatened or endangered species, will thrive in reborn habitats.

Waterfowl habitat restoration area on Sheyenne National Grassland

National Grasslands Locations by Ecoregion

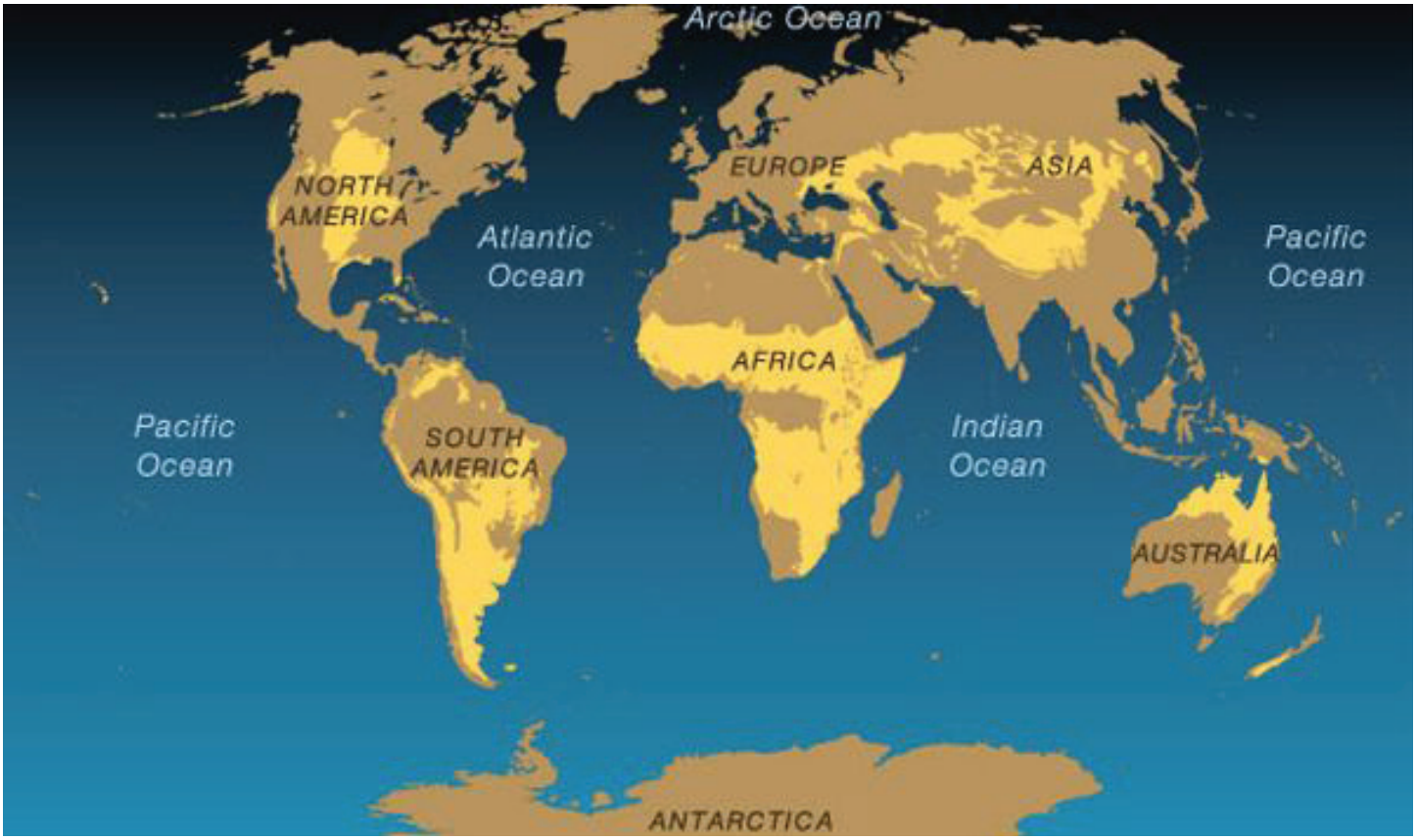


Global Significance

From the grasslands of Australia, the African savannas, the steppes of Asia, the cerrado and campo of South America, to the Great Plains of North America, grasslands are highly dynamic ecosystems that support flora, fauna, and human populations. The people whose subsistence depends on these ecosystems are critically aware of their value. Many who only enjoy the fruit of these landscapes are not as aware of the grassland ecosystems' global significance. Although often perceived as desolate, grasslands provide food, energy, biodiversity, recreation, scenic value, tourism, carbon storage, important habitat, and a home for millions of people around the world. Many developing countries with vast grasslands make substantial economic profits from grassland recreation and tourism (World Resources Institute 2000).

Domestic and wild animals forage on the grasslands and provide essential sources of meat, milk, and other products. Major world crop grains, such as wheat, rice, and rye, originated in grasslands. Grasslands remain a prime source of crop genetic resources. As a major source of energy world-wide, grasslands provide fuelwood, wind farms, coal, solar farms, and oil and natural gas wells. Grasslands also serve to offset energy use as these ecosystems store about 34% of the terrestrial global stock of carbon—most of this carbon is stored in the soil rather than in the vegetation. The National Grasslands system in the United State is an important part of this global carbon sequestration.

Globally, grasslands have declined in their extent and condition, as well as their ability to support human, plant, and animal life since industrialization. Conversion to agricultural lands, un-managed fire, desertification due to overgrazing and climate change, urban sprawl, invasive species, and fragmentation caused by road construction have all led to the degradation of grasslands worldwide. The primary strain on grassland ecosystems is conversion to other uses, such as agriculture or suburban development. The National Grasslands system of public lands represents some of the few protected areas of this important ecosystem in the world. Fostering a deeper connection between people and the World's grasslands through interpretive media and enhanced visitor experience is crucial to the environmental health and human health of the planet on local, regional, national, and global scales.



Grasslands cover vast amounts of land on all continents in the world except Antarctica.
Photo from environment.nationalgeographic.com
Data courtesy of World Wildlife Fund

Fort Pierre National Grassland

Existing Interpretation

Geological and Paleontological Resource Summary

From black shale outcrops that reflect upon the prairie as if from the ocean waves that formed them, to red rock canyons where fossil bones and teeth predate the dinosaurs; from 'toadstools' formed of hard sandstone capping soft mudrocks, to 150 million year old dinosaur trackways; and from dry gullies where a single handful of weathered rock can produce hundreds of bits of shell and shark teeth, the National Grasslands contain some of the most distinctive fossil localities in the United States. In many ways the unique geologic landforms and the fossils they contain define the nature and character of many of the National Grasslands. The fossils and landforms of these areas are as distinctive a part of the landscape today as the vanished faunas and ecosystems they represent. Fossil resources and unique geologic landforms play an integral role in attracting the public to the National Grasslands.

Distinctive Paleontological & Geological Resources on the National Grasslands include:

Paleontological

- Many important fossils on the US Forest Service National Grasslands are collected and preserved through generosity of public volunteer efforts (Passport in Time program).
- Cretaceous black shale deposits on the Buffalo Gap National Grassland contain a wealth of giant marine sea creatures, including reptiles such as mosasaurs, plesiosaurs, and turtles.
- Badlands exposures on the Little Missouri NG have produced important fossils of plants, reptiles, and mammals from an ecosystem that evolved after the dinosaurs became extinct.
- Formed 20 to 30 million years ago, the west flank of Grey Butte on the Crooked River National Grassland reveals millions of years of climate change evident in leaf fossils, stretching from an Eocene tropical rainforest to a temperate climate.
- The Oglala National Grassland contains wind-blown volcanic deposits that preserve trackways of migrating rhinos and other mammals of the Eocene-Oligocene epochs.
- Badland exposures on the Grand River NG have produced many important dinosaur fossils, including a Pachycephalosaurus skull, and record events leading up to the end-Cretaceous mass extinction which includes the demise of the dinosaurs.
- Picket Wire Canyonlands of the Comanche National Grassland contains the largest known assemblage of Jurassic dinosaur trackways in the world, and also the skeletons of many famous dinosaurs such as Apatosaurus, Allosaurus, Camarasaurus, and Diplodocus.
- Lance Formation badlands of the Thunder Basin National Grassland produce fossils of horned, duckbilled and armored dinosaurs.
- The 'Bones Galore' quarry on the Pawnee National Grassland is an ancient watering hole which has produced numerous skeletons of rhinos and giant pigs.
- A gravel quarry on the Cimarron National Grassland commonly produces 8 million year old bones of elephant, camel, horse, and large tortoises.

Toadstool Geologic Park on Oglala National Grassland

- The fossiliferous Pawnee Buttes of the Pawnee National Grassland stand 300 feet above the surrounding plains, a testament to the age of the earth by slow weathering through time.
- Mills Canyon along the Canadian River of the Kiowa National Grassland is marked by lush red-rock canyon walls 700' deep and is more than one mile wide rim to rim.
- Toadstool Geologic Park of the Oglala

National Grassland is named for the large mushroom shaped rock formations composed of hard sandstone caps over softer mudstone.

- Coal beds on the Thunder Basin National Grassland formed in a vast swamp system covering the area 56 million years ago, and mines there provide 25% of United States total coal supply.
- The Crooked River National Grassland straddles the Crooked River caldera, one of the largest volcanic vents in Oregon, where a super-volcanic eruption 29.5 million years ago blanketed the region with a huge volume of volcanic ash.

Archaeological Resources & Cultural Landscapes Summary

From ancient rock art to homesteads, the National Grasslands are extremely rich in archaeological resources and cultural landscapes. These landscapes are composed of layers of human history that span the last 10,000 years. The stories and artifacts of Native Americans, Euro-American explorers, fur trappers or traders, and homesteaders intertwine with contemporary ranching, drilling, farming, and mining activities. These archaeological resources and cultural landscapes pique the fascination that aboriginal North American cultures inspire; capture the marvel we hold for emerging modern cultures as they toiled to carve out an existence in the grasslands of the 19th and early 20th centuries; and present opportunities to foster our proper respect, protection and preservation of these resources. As a part of our Nation's cultural heritage, archaeological resources and cultural landscapes play a significant role in attracting visitors and telling the story of the National Grasslands.

Archaeological & cultural resources on the National Grasslands include:

Paleo-Indian and Native American

- The Little Missouri NG's Maah Daah Hey trail, meaning, approximately, "old trail that will always be there" in the Mandan language
- General George Custer and his soldiers traveled through the Little Missouri NG in 1876 on their way to Little Big Horn, Montana
- A buffalo/bison jump site is located on the Grand River NG
- The Hudson-Meng Bison Bone Bed is an active archaeological dig and has an information center on Oglala NG (Alberta Culture 8,000-10,000 years bp)
- Indian rock art including petroglyphs (incised carvings) and pictographs (painted art)on the Comanche NG
- Native American artifacts and archaeological sites on the Comanche NG (the Comanche tribe lived in the area from 1749 to 1805)
- Site of the Washita Massacre (George Custer in 1868)on the Black Kettle NG
- The celebration of Native First Foods on the Crooked River NG reminds us of the importance of tribal land management techniques that preserved a bountiful land.

Ruins of Mills Family Homestead on Kiowa National Grassland

Euro-American and Mexican Settlement

- A significant part of the Santa Fe Historic Trail runs through the Cimarron NG, approximately 40 miles of Santa Fe Trail and limestone trail markers on the Comanche NG, Point of Rocks landmarks and a three-mile portion of the Cimarron route of the Santa Fe Trail and visible wagon ruts on the Kiowa NG
- The site of a major campsite and stopover on the Hudspeth Cutoff trail, established during the California Gold Rush in 1849, on Curlew NG

- The Birnt Hills interpretive site, above the Little Missouri River on the Little Missouri NG commemorates a Lewis and Clark Expedition event where Lewis was shot in the buttocks by one of his own men
- The Bismarck-Deadwood stage trail (1877) is on the Grand River NG
- The 1874 Black Hills Expedition of George Custer and the 7th Cavalry on the Buffalo Gap
- The journey of Hugh Glass, the trapper who was nearly mauled to death on the Grand River NG by a grizzly bear. He crawled nearly 200 miles over six weeks to Ft. Kiowa on the Missouri River in South Dakota
- The seasonal High Plains Homestead and re-created Old West cow town on Oglala NG
- The Goodnight-Loving Cattle Trail from Camp Concho, Texas, on the Pawnee NG
- Homestead ruins and stagecoach stops, including the Metcalf Ranch (1869-1881) on the Comanche NG
- The Delores Mission and Cemetery shows pioneer Mexican settlement from 1871 to 1889 on the Comanche NG
- The Mills Family Homestead is located on the Kiowa NG

Dust Bowl and Contemporary

- The WWII era Joliet Army Ammunition Plant is now the site of the Midewin National Tallgrass Prairie
- The Denbigh Experimental Forest administered by Sheyenne NG in North Dakota
- The Standing Rock Reservation of the Lakota Sioux surrounds the Cedar River NG. Approximately 48,000 acres of Grand River NG and Cedar River NG were taken from the Standing Rock Reservation for homesteading. Only 11,000 acres were later returned to the tribe.
- Black Thunder, the largest surface coal mine in North America is on the Thunder Basin NG
- Windmills and stock tanks on most of the National Grasslands
- Numerous habitat restoration sites across all the National Grasslands
- Civilian Conservation Corps (CCC) camp is located on 100 acres on Caddo NG

Natural Resource Summary

The National Grasslands are rich in natural resources such as grass, water, and wildlife habitat. Grass is the key to maintaining the productivity of the ecosystem within the intermingled public and private lands. Without the cover of grass, wind erosion displaces soil and the barren ground cannot absorb water, which runs off quickly carrying silt into streams and ponds. The National Grasslands contain reserves of minerals, oil and natural gas, and vast grazing resources. These commodities support individual ranchers, local communities, and contribute to our Nation's sovereignty. The National Grasslands supports a large percentage of rural livestock production, contains oil and gas wells to support the US economy and is home to North America's largest surface coal mine on Thunder Basin NG.

Important natural resources on the National Grasslands include:

Ecological

- Listed and endangered species on many of the National Grasslands
- Habitat for migrating birds on many of the National Grasslands
- Midewin National Tallgrass Prairie is the largest open space within an hour of the Chicago metro area
- The island, on the Crooked River NG, is a Research Natural Area
- 636 acre Denbigh Experimental Forest on Sheyenne National Grassland

Energy and Grazing

- The largest surface coal mine in North America on Thunder Basin NG
- Clayton Livestock Research Center on the Kiowa NG
- Oil and gas facilities and thousands of miles of pipeline on many of the National Grasslands

Recreational Resource Summary

From mountain bicycling, hiking, hunting, fishing, horseback riding, camping, birding, rock hounding to sightseeing, the National Grasslands provide diverse recreational uses. The National Grasslands are being managed as a multiple-use landscape--a strategy that conserves important natural resources and grassland ecosystems, but allows recreational opportunities that help connect people with the resources they wish to conserve, provide local residents and visitors with outdoor activities, and maintain local economies and lifestyles.

Valuable recreational resources on the National Grasslands include:

- Hiking, birding, and wildlife viewing on all National Grasslands
- Swimming and water recreation on numerous National Grasslands
- Fishing, hunting and shooting on all National Grasslands
- The Little Missouri NG's 100-mile Maah Daah Hey multiple use trail
- Organized tours and special group tours and programs on Midewin National Tallgrass Prairie
- Organized biking and horseback rides on Midewin National Tallgrass Prairie
- Landscape and wildlife photography on all National Grasslands
- Camping on many National Grasslands

Trail marker on Cimarron National Grassland

Picnic area on Cimarron National Grassland

Picnic area on Grand River National Grassland

Existing Signs & Interpretive Exhibits

Each sign posted on a grassland unit presents an opportunity to reinforce the identity of the National Grasslands and the USDA Forest Service. A wide variety of signs are found on the National Grasslands today. Sign types range from entrance, roadside and boundary signs; interpretive signs and panels; directional and wayfinding signs; and information kiosks.

Sign types throughout the National Grasslands were inventoried and compared in order to identify both uniformity and inconsistencies among the sign styles.

Entrance, Roadside and Boundary Signs

These signs mark the boundary of the National Grasslands, greet visitors and inform the passerby. Roadside or boundary signs indicate to many otherwise unaware passersby that they are bisecting or paralleling a National Grassland. Since these signs are typically located on the edge of a National Grassland, they are the most visible and a uniformed style of introductory signs is essential to identifying the National Grasslands as a system of protected lands.

Entrance Signs

Many of the units' monument-scaled entrance signs share common design characteristics including the cursive National Grasslands font, USDA Forest Service standard sign face, the USFS logo and USDA label. The signs are appropriately distinguished by their bases which are often designed to blend with the natural setting or pull architectural cues from the local vernacular.

Roadside & Boundary Signs

Brown metal signs with white lettering are consistently used to identify the National Grasslands along roads. Given the scale of many of the units and their multiple entrance points, it is important to maintain this common sign style among the roadside signs. Roadside signs also require coordination with transportation agencies.

Small, but numerous, boundary signs vary considerably in style. Many show consistency in the use of the cursive National Grasslands font and the USFS logo.

Black Kettle NG boundary sign

Black Kettle NG boundary sign

Interpretive Signs and Panels

Interpretive signs and panels exhibit a wide variety of materials and design styles. There is no standard format for graphic design nor consistency in the use of materials and scale. In some cases, USFS partners also interpret or share information on a unit. Establishing graphic design standards or guidelines with partners will help ensure greater uniformity among signs and therefore clearer messaging.

Interpretive panel on Sheyenne NG

Interpretive panel on Black Kettle NG

Interpretive exhibits on Cimarron NG

Interpretive panel on Cimarron NG

Interpretive panel on Curlew NG

Interpretive panel on Buffalo Gap NG

Interpretive panel on Black Kettle NG

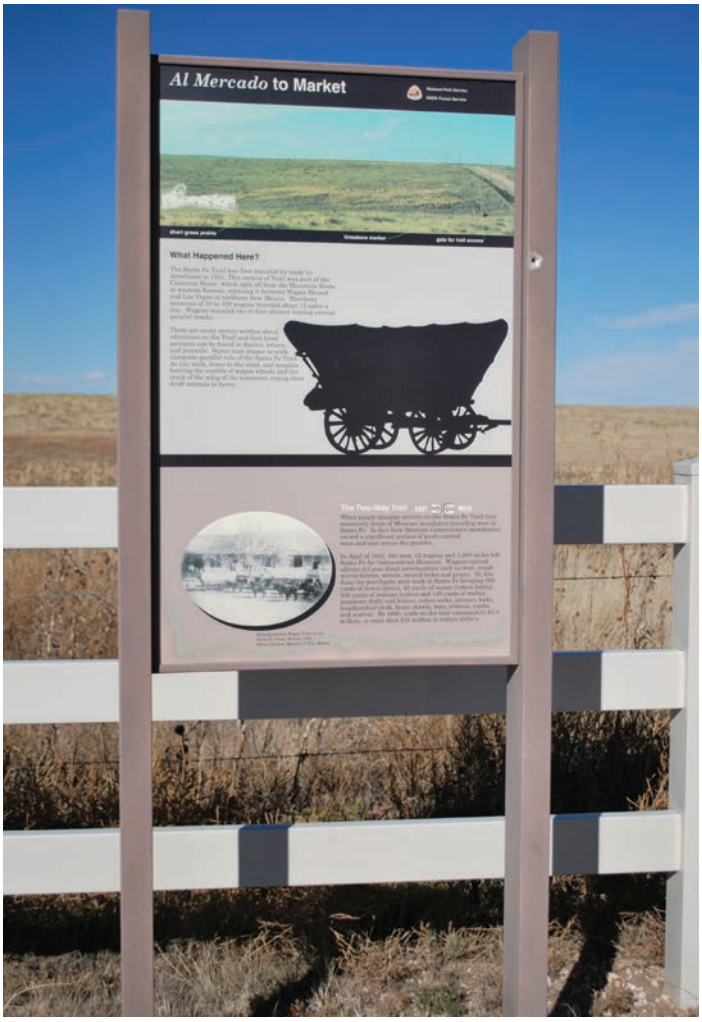
Santa Fe Trail interpretive marker on Cimarron NG

Interpretive Kiosk on Comanche NG

Interpretive panel on Crooked River NG

Interpretive panels on Comanche NG

Interpretive panel on Crooked River NG



Interpretive panel on Kiowa NG

Interpretive panel on Grand River NG

Interpretive panel/commemorative marker on Midewin NTP

Interpretive panel on the Little Missouri NG

Interpretive panel on Midewin NTP

Directional and Wayfinding Signs

These sign are used to direct visitors and identify destinations within a unit. Two styles commonly used for this sign type include the standard brown metal roadside sign and the standard USFS-shaped, two-toned sign panel that is also typically used in the larger entrance signs. When other materials and/or shapes are used, consistency of font styles helps reinforce the identity of the National Grasslands. It is important that directional and wayfinding signs are visually prominent with simple, clear messaging.

Directional panel on Sheyenne NG

Directional panel on Buffalo Gap NG

Information Kiosks

Rules and regulations and other visitor information are commonly posted on kiosks. The majority of kiosks on the grasslands are constructed of wood, but there is no standard design for these features.

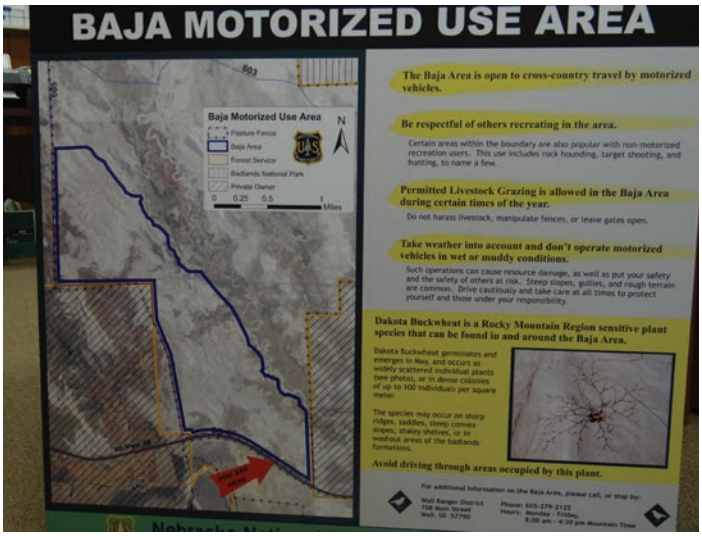
Informational kiosk on Kiowa NG

Informational panel on Fort Pierre NG

Informational kiosk on Rita Blanca NG

Informational kiosk on McClellan Creek NG

Informational kiosk on Comanche NG



Informational panel on Buffalo Gap NG

Existing Print Media & Logos

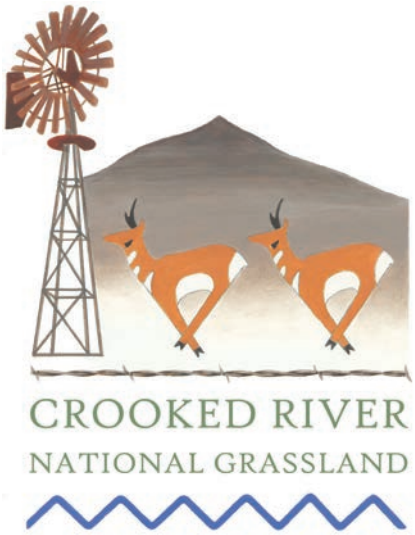
The evaluation of existing media also took into account brochures and species lists distributed at the units. Similarly, any logos developed by the individual units were collected and studied.

Brochures and Species Lists

Many of the National Grasslands have a brochure to distribute to their visitors. The brochures are unified by their narrow, folded layout and prominent cover photo. While similar in size and look, the graphic design of these brochures varies among the units. Another typical piece of printed media at the units is a bird and/or species list. There is little graphic consistency among these lists.

Logos

Only three of the units have developed a logo to build the identity of their resource. These were independent design projects and, as a result, there is no graphic similarity between the three logos.



Existing Interpretive Media at the National Grasslands Visitor Center (NGVC)

The existing National Grasslands Visitor Center is a well-organized visitor facility and exhibit space in Wall, South Dakota, that accommodates visitors on a personal and highly accessible level. The NGVC adjoins the Wall Ranger District office of Buffalo Gap NG in the Nebraska National Forest. Numerous exhibits interpret the history and the ecology of the National Grasslands. Interpretive exhibits focus on the grasslands and the Great Plains—17 of the 20 National Grasslands are on the Great Plains. As a whole, the exhibits tend to be fairly general in subject matter. The exhibits are not tied to a consistent set of interpretive themes or exhibit plan. The exhibits at the NGVC do a good job conveying general cultural and ecological concepts about grasslands and the Great Plains, but lack specific storylines highlighting the particularities and uniqueness of each of the 20 National Grasslands and the Midewin National Tallgrass Prairie. Also, many of the exhibits and the video are outdated and can benefit from current technology, more contemporary construction and print quality.

One of the main concerns of the USFS and the National Grasslands Council is that the National Grasslands system lacks a significant presence within the minds of the public and other federal agencies. Another concern of the visitor center is its lack of a "wow factor", i.e., something unique, dramatic, creative, and inspirational, that will pique the casual visitor's interest and get them excited about the National Grasslands, connect them to the stories of the place, and help them understand that "anyone can love the mountains, but it takes soul to love the prairie."

Exterior / Entry Signs

The Outdoor Living Landscape Exhibit (Miniature Grassland)

The Living Landscape Exhibit at the National Grasslands Visitor Center is a sample of plant life on the National Grasslands. Visitors enjoy the plants and walk on stepping stones through the grasses, wildflowers, and shrubs. In the Living Landscape Exhibit, visitors can read about the plants and listen to the wind through the trees. Here, they experience a small piece of prairie with these native and introduced plant species.

Interior Interpretive Exhibits

The following pages contain examples of typical interpretive exhibits found at the National Grasslands Visitor Center. These images capture the types of media, the delivery and level of information offered at the NGVC.


Exploring America's
Grasslands


Diversity of
Prairie Life


Diversity of
Prairie Life


The Prairie of Days
By


EXIT


Discover
Grasshoppers!
Like NEVER
Before!
Quick Facts


Woody Draw


Wetlands
Water is a precious resource on the Grasslands. Wetlands provide critical nesting and feeding grounds for birds, small mammals, and amphibians plus habitat for fish.
Largemouth Bass

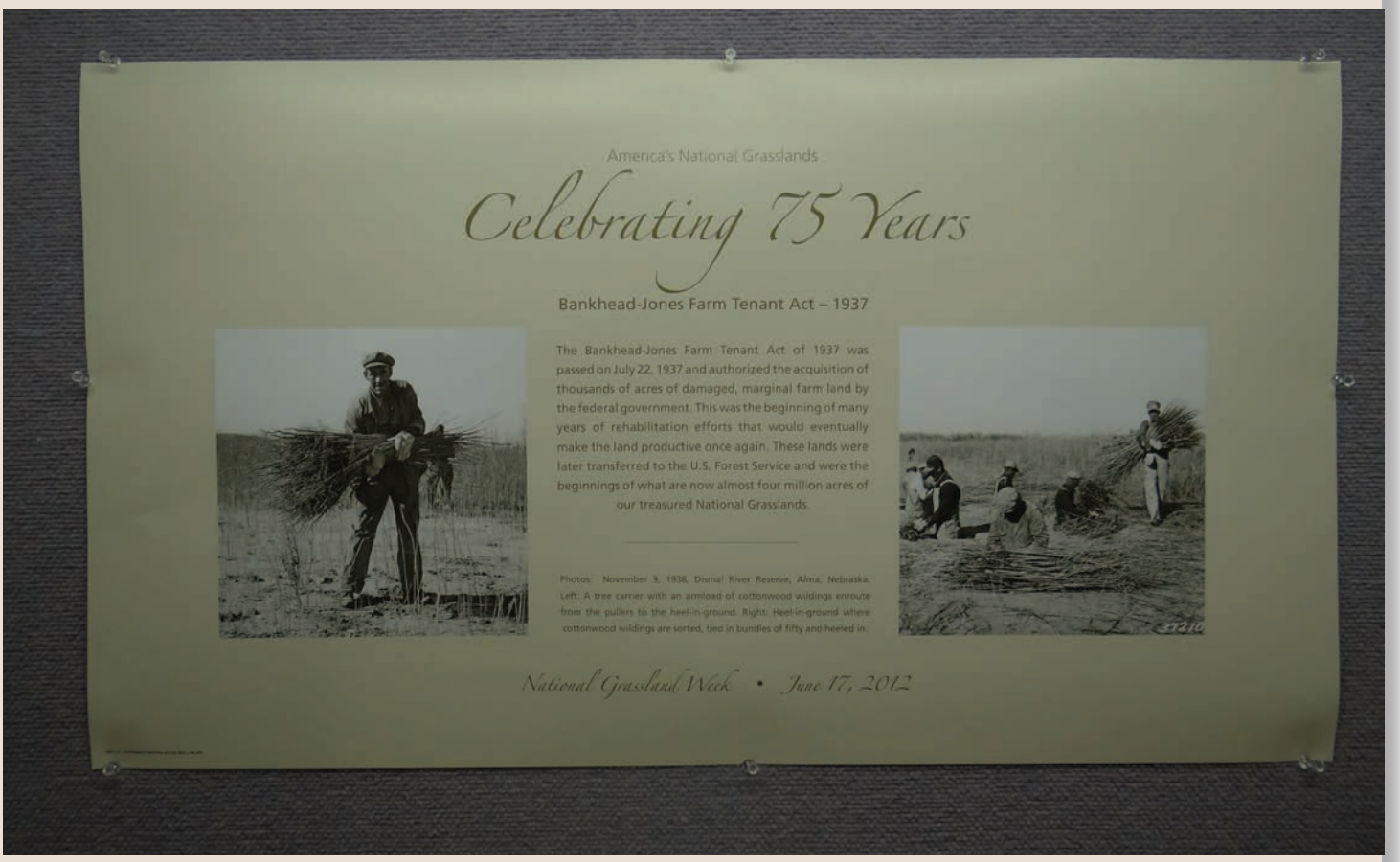

National Grasslands


Mixedgrass Prairie
Tallgrass Prairie

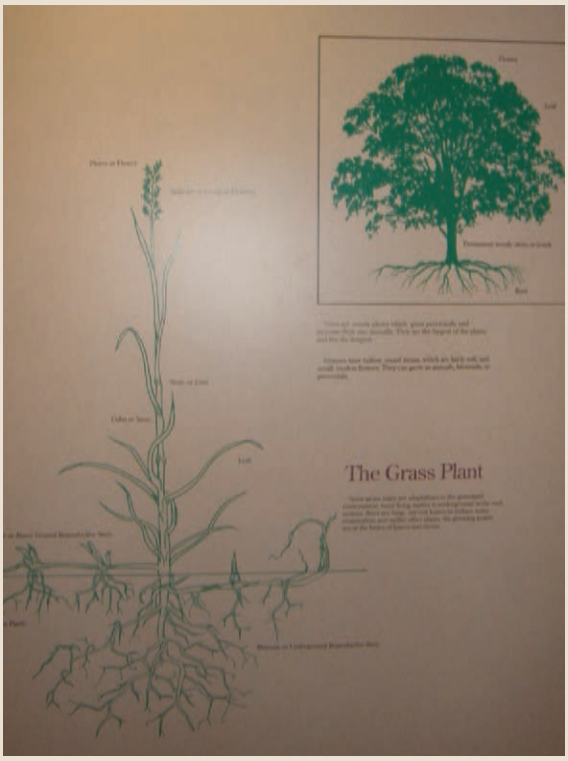

The Great
American Desert
Moving Onto The Plains
Homesteading
The Cattle Empire
Sheep Ranching


Upland Grassland
Western Meadowlark
Sharptail Grouse
Snowy Owl


Celebrating 75 Years

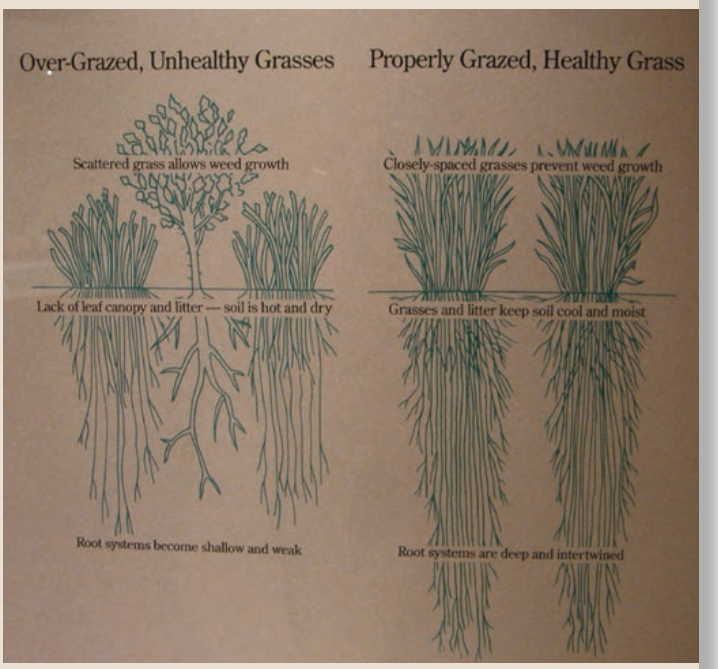

America's National Grasslands
Celebrating 75 Years
Bankhead-Jones Farm Tenant Act – 1937
The Bankhead-Jones Farm Tenant Act of 1937 was passed on July 22, 1937 and authorized the acquisition of thousands of acres of damaged, marginal farm land by the federal government. This was the beginning of many years of rehabilitation efforts that would eventually make the land productive once again. These lands were later transferred to the U.S. Forest Service and were the beginnings of what are now almost four million acres of our treasured National Grasslands.
Photos: November 9, 1938, Dismal River Reserve, Alma, Nebraska. Left: A tree carrier with an armload of cottonwood wildings enroute from the pullers to the heel-in-ground. Right: Heel-in-ground where cottonwood wildings are sorted, tied in bundles of fifty and heeled in.
National Grassland Week • June 17, 2012

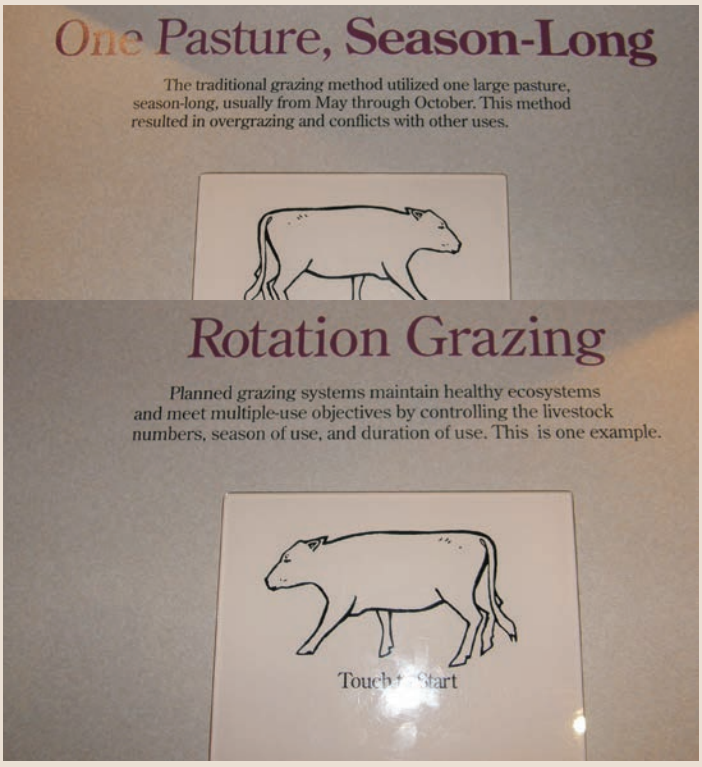

U.S. DEPARTMENT OF AGRICULTURE
Digging Out of the Dust

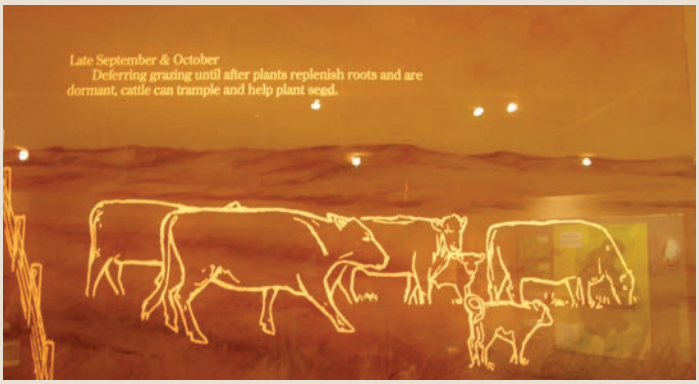

The Grass Plant


Historic Range of Prairie Dog Ecosystems
Montana
North Dakota
Wyoming
South Dakota
Nebraska
Colorado
Kansas
Oklahoma
Arizona
New Mexico
Texas
Sonora
Chihuahua
How many prairie dog towns have you seen on your travels so far?
Count the number of prairie dog towns you see as you continue your travels.
Are they on the map within the historic prairie dog range?


Woody Draw


Over-Grazed, Unhealthy Grasses
Properly Grazed, Healthy Grass
Scattered grass allows weed growth
Closely-spaced grasses prevent weed growth
Lack of leaf canopy and litter — soil is hot and dry
Grasses and litter keep soil cool and moist
Root systems become shallow and weak
Root systems are deep and intertwined


One Pasture, Season-Long
The traditional grazing method utilized one large pasture, season-long, usually from May through October. This method resulted in overgrazing and conflicts with other uses.
Rotation Grazing
Planned grazing systems maintain healthy ecosystems and meet multiple-use objectives by controlling the livestock numbers, season of use, and duration of use. This is one example.


Late September & October
Deferring grazing until after plants replenish roots and are dormant, cattle can trample and help plant seed.

Existing Programs

The following information about NGVC programs was taken from the USDA National Grasslands Visitor Center (NGVC) DRAFT Briefing Paper for FY ending 30 September 2011.

Programs the NGVC staff oversee include the Main Street Ambassadors walk, Story Walk, a Junior Ranger program, a 25-minute DVD "America's Grasslands, Passport Stamp station, Living Landscape Exhibit, Grasslands Windmill Photo Display, information on the 20 National Grasslands, and natural and historic displays in the Exhibit Room. Visitor requests for information in 2011 included Motor Vehicle Use and Forest Service Maps for Buffalo Gap National Grassland and a few other National Grasslands, birding, rock hounding, identification of various plants, agricultural crops and rocks, prairie dog shooting, fishing, and big game hunting. NGVC staff also address questions about hiking and horse trails, driving tours and guided nature hikes on Buffalo Gap NG, plus many more local, regional and tourist information questions (USDA, 2011).

Programs off-site include:

The Story Walk starts at the NGVC. Six different books were used during peak visitor times. The story boards were changed every two weeks and daily maintenance checks and repairs were conducted.

Inter-agency Service First program: Three seasonal NGVC staff members participated in the Service First program with the National Park Service at Badlands National Park (BNP) and Minuteman National Historic Site (MMNHS). NGVC staff exchanged 10 times during summer 2011. This inter-agency partnership enhances visitor services and increases awareness of the National Grasslands. Ambassador Walks: ≥20 walks, some in connection with Service First included BNP and MMNHS personnel. The majority of Ambassador Walks included handing out Story Walk brochures, and collecting basic license plate data, and talking to families about the NGVC and NPS units. The Story Walk, Service First exchanges and the Ambassador Walks provide opportunities to make the FS and NGVC more visible to visitors coming to and through South Dakota and Wall. Also, the Wall After School Program (WASP) is additional community outreach by FS and NPS personnel.

Seven programs with the WASP students presented on various topics: fish, worms, vertebrates, amphibians, and spiders. One of the WASP programs, coordinated through Service First, was a field trip held at MMNHS on rockets. Two night-time field trips for WASP (Fishing with a Ranger and the Night Sky) were with BNP personnel organized through the Service First Agreement.

During the summer of 2012, under the Inter-agency Service First Agreement, the National Grasslands Visitor Center was host to Minuteman Missile National Historic Site (MMNHS) tours. The presentations began in the theater of the Visitor Center where Forest Service staff presented a short program on the National Grasslands. Following this presentation, National Park Service personnel or a volunteer gave a presentation on a range of topics involving the Cold War and the Minuteman Missiles. Personnel from both agencies then caravanned to the Delta 9 silo site.

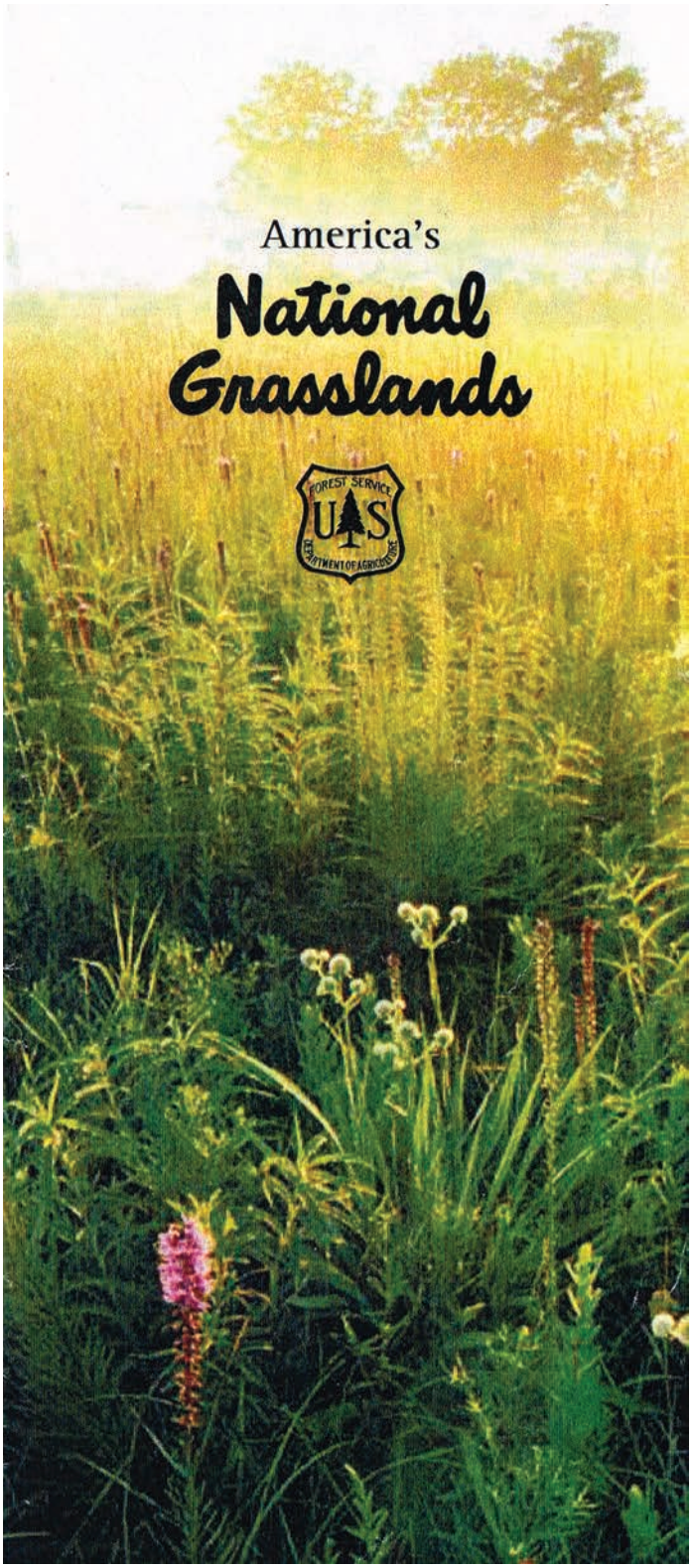
Once at the Delta 9 silo site, Visitor Center staff pointed out that Buffalo Gap National Grassland (BGNG) surrounds the Minuteman Missile National Historic Site (MMNHS) Delta 9 silo on three sides. Private land is across the gravel road to the east of this site and is interspersed in BGNG to the northwest.

This is a visual example of the checker board pattern of land use between private and public lands involving a National Grassland and the National Park Service. An invitation was then extended to any new arrivals to attend another presentation at the Visitor Center in Wall.

Local parade participation and volunteering for community events. Staff members of NGVC and Wall Ranger District participated in the parade and community events.

Driving and ranger-guided hiking/nature tours through the National Grasslands are unmet requests at NGVC. Visitors are encouraged to pay special attention to the grassland ecosystem, wildlife, vegetation, birds and landscape features as they drive along South Dakota's highways and roads and designated Forest Service roads and trails.

A new brochure (2011) “America’s National Grasslands” is distributed to all the National Grasslands, including Midewin National Tallgrass Prairie. The brochure is also distributed to South Dakota Visitor and Information Centers and local motels and businesses NGVC staff is also contacting Chambers of Commerce in South Dakota and neighboring States, specifically around the Black Hills and Badlands areas, to provide the brochure to them as well.



Existing Partnerships

Partnerships with NGOs, National Park and Forest Service units for enhanced visitor services and programs are on-going. These partnerships are an opportunity to increase visitation and awareness of the National Grasslands with additional staffing. A partnership with an interpretive association provides non-monetary returns with Junior Ranger booklets and other educational materials. Visitors purchase a wide variety of books, FS and other maps, t-shirts and printed materials that are provided by the interpretive association, as well as the Story Walk books.

The NGVC participate in the following:

- Training on and off-site for a tourism cooperative from staff in Rapid City; Exchange of interagency information off-site; Literature swap sponsored by the interpretive association in Rapid City; Annual South Dakota Tourism Conference off-site in January; Work with South Dakota State rest areas to periodically replenish brochures and provide training; Wall Chamber of Commerce customer service training, monthly and annual Chamber meetings and volunteer at Chamber events throughout the year.
- In 2012, NGVC continued the Service First personnel exchange with MMNHS and BNP.
- Proposed: personnel exchange with Black Hills National Forest Mystic Ranger District.
- Began presentation programs with MMNHS at the NGVC which served as the beginning of tours of the nearby MMNHS missile silo.
- The Wall Ranger District assists NGVC staff with visitor requests regarding information and interpretation. Cooperative ventures between NGVC and Wall Ranger District staffs provided information and photographs for the Celebrating Wildflowers website and the National Grasslands Interpretive Master Plan.
- NGVC hosts the National Park Service’s staff, presents a program off-site at BNP’s annual seasonal training in May, and for the first time in 2012 an article about the National Grasslands will be published in the Badlands Visitor Guide and in South Dakota travel and tourism publications. This article promotes the National Grasslands, their history, contains directions and contact information for the NGVC, information on the black-footed ferret recovery and other information. Also have information published in South Dakota Vacation Guides.

Black Kettle National Grassland

Interpretive Framework

Statements of Significance

Interpretive media development for the National Grasslands was begun with the writing of Statements of Significance. The essence of interpretation is discovering what makes a place unique—what is its "sense of place." In order to unveil this sense of place, Statements of Significance are used to describe why a place is unique, special or important.

Interpretation is meant to facilitate visitors' intellectual and emotional connections to a place by telling stories. The storylines being told are derived from interpretive themes that link a place's tangible elements to the ideas, meanings, beliefs and values that are intangible elements. These interpretive themes are derived from Statements of Significance.

The National Grasslands are unique among the Nation's public lands because they feature landscapes and ecosystems that are not typically represented in other forest, desert, coastal or mountainous areas.

Visitors to the National Grasslands have the opportunity to experience remnants of native tallgrass, mixed grass and shortgrass prairie representing some of the most threatened ecosystem types in the world.

The National Grasslands showcase some of the agricultural heritage of the United States and offer visitors the opportunity to see the inter-connections between private working landscapes and publicly managed lands.

Historic sites such as the Santa Fe Trail tell important pieces of the story of westward expansion homesteading and settlement.

Native American populations have lived on the Great Plains for thousands of years and continue to live adjacent to the National Grasslands offering important knowledge of how to manage these ecosystems and giving the landscape a rich cultural heritage.

Important paleontological locales within the National Grasslands, such as marine fossils on the Buffalo Gap NG and dinosaur tracks on the Comanche NG, tell the story of millions of years of geology and evolution.

The National Grasslands contribute large amounts of energy resources to the United States economy including the largest coal producing mine in North America on the Thunder Basin NG.

The National Grasslands have made important contributions to our understanding of the "Dust Bowl" and the resulting grassland restoration processes, and continue to inform our understanding of conservation.

Sheyenne NG and Midewin National Tallgrass Prairie contain some of the few remnants of tallgrass prairie remaining in federal public ownership in the United States.

The National Grasslands represent some of the United States most visually apparent examples of geological and erosional forces.

Due to their large areas of intact habitat and location along migration flyways, the National Grasslands represent some of the best landscapes in which to observe native bird species in North America.

Hunters and shooters from around the country are drawn to the National Grasslands for their diversity of large and small game and bird species.

The National Grasslands are home to many endangered, threatened, and sensitive animal and plant species.

Many of the National Grasslands lie along the Central and Pacific flyways and provide important habitat for migrating birds.

Thunder Basin National Grassland

Interpretive Themes

The overarching theme statement for the National Grasslands is the unified message that tries to pull together the statements of significance and primary themes in a single message.

Primary themes are used to direct the development of interpretive media that will connect visitors with grassland resources by helping them explore the landscape's inherent meanings from visitors' own unique perspective. Primary themes add the human element, the emotion and underlying meaning to each Statement of Significance. Interpretive themes introduce the human connection, the emotional dimension, and express "universals" that help visitors of every age, ability and learning style find meaning in the grasslands.

Overarching Theme:

ROOTED IN THE GRASSLANDS

Intersecting patterns of animal migrations, habitats, production and human uses throughout the National Grasslands reveal the deep connection between people and our country's heartland.

Primary Themes:

SYSTEMS & PATTERNS

Dynamic relationships between natural and human constructed environments connect our National Grasslands creating intersecting systems and patterns, including the Jeffersonian Grid, streams and rivers, fence lines, highways and roads, and animal migration routes.

BIG SKY, VAST LAND

A sense of wonder and a true understanding of vastness strikes those who travel out in to the open wilds of the Great Plains. This huge biome and often homogenous collection of resources plays a special role in creating large tracts of habitat and reinforces the "Big Sky Country" mystique.

LEARNING FROM THE LAYERS

Underlying the National Grasslands are stratum of geologic layers sculpted by dynamic forces over millions of years.

CONSERVING AN ETHIC

Complex ecological systems unique to the grasslands evolve to produce diverse plant and animal communities. Through conservation and restoration, the Forest Service protects and restores grassland ecosystems and wildlife habitat and improves understanding of the National Grasslands for future generations.

LIVING ON THE GRASSLANDS

Diverse cultures of people have lived on North American grasslands for at least 10,000 years, and continue to do so. Harsh and unforgiving environments speak to the resilience of the National Grasslands as an ecosystem and the people who traveled across and lived and still live on the grasslands.

PLACE OF PLENTY

A bounty of renewable and non-renewable energy resources, cattle forage, wildlife habitat and special forest products are produced on the National Grasslands. The diverse landscapes of our National Grasslands also support a variety of recreational uses.

GRASSLANDS AROUND THE WORLD

From the grasslands of Australia, the African savannas, the steppes of Asia, the cerrado and campo of South America, to the Great Plains of North America, grasslands are highly productive ecosystems that support flora, fauna and human populations, act as global carbon banks, reveal important clues to understanding climate change, and are inextricably linked in an epic tale of geological and evolutionary history.

STORYLINES

Interpretive Storylines

SYSTEMS & PATTERNS

- **Butte Valley NG** resides in the diverse Klamath Basin, which provides an opportunity to interpret the Pacific Flyway, the ecological role of waterfowl and shorebirds, and the "water dance" of courting grebes.

- The 636 acre Denbigh Experimental Forest on North Dakota's **Sheyenne NG** reveals a vision by President Franklin D. Roosevelt to plant a massive forest that would reduce wind erosion by restoring areas disturbed during the Dust Bowl. This nationally significant site provides an opportunity to interpret the idea of the "shelterbelt zone" and restoration efforts post the Great Depression.

- The **Cimarron NG** has been listed as one of the top 100 places to bird watch in the United States by the American Birding Association. Over 360 species of birds have been sighted on the Cimarron. This bird population provides a good opportunity to interpret people's travels from all over the world to view the mating ritual of the lesser prairie chicken and to hunt upland game birds.

- A network of shelterbelts crisscross the **Black Kettle NG** and provides an opportunity to interpret this cultural landscape and the ecological and aesthetic changes to this Great Plains grassland.

- The four lakes of the **Black Kettle NG** provide an opportunity to interpret bodies of water that dot the landscape of the southern Great Plains and how they relate to the hydrologic cycle.

- Considered one of the tallest prairies in the National Grasslands system, **Ft. Pierre NG** receives an abundant amount of rainfall to support highly fertile soils below mid-grass and tallgrass prairie. Ft. Pierre NG provides an opportunity to understand soil decomposition below the surface of a grassland and how early settlers exploited these fertile soils for crop production.

- The Enlarged Homestead Act of 1909 contributed to the development of agriculture and ranching in the dry upland region of Arbon, Rockland and Curlew Valleys, on present day **Curlew NG**. Post Great Depression, many homestead operations survived and are still held in private ownership. This history is reflected in the checker-board land pattern of the Curlew and Arbon valleys in southeast Idaho.

BIG SKY, VAST LAND

- The **Cimarron NG** is the largest federally owned land, and the only USDA Forest Service land, in Kansas. The size and numerous recreational activities such as hiking, fishing, hunting, and camping allow people to be immersed in the landscape and provide an opportunity to interpret the conservation and management strategies that support these outdoor recreational activities.

- **Lyndon B. Johnson NG** is within an hour drive of 6 million people located in the Dallas/ Fort Worth area. The grassland's size and proximity to the city along with the little amount of public land in Texas, provides an opportunity to contrast the experience of the grasslands with urban life and to interpret the value of this highly used natural resource.

- The Chicago, Burlington, and Quincy railroad line encouraged settlement in the vast plains along its route from Sterling, Colorado to Cheyenne, Wyoming, amid what later became the **Pawnee NG**. Eight towns were settled and the boom of the railroad money saw the towns build from 1887 to 1905. Then, as the depression hit and the dust bowl took hold, the railroad line had less and less freight to haul, until finally the railroad pulled out. The small towns along its length began to die, until now there are only three left. The grade where the railroad line ran can still be seen, but the rails were removed starting in the 1970s.

LEARNING FROM THE LAYERS

- Located on the east side of the Cascade Mountain Range, annual precipitation on the **Butte Valley NG** is approximately 12 inches creating a semi-arid climate. The sandy soils cause what little precipitation to quickly drain leaving behind a dry lake bed. The semi-arid climate at Butte Valley NG provides an opportunity to interpret the rain shadow effect—the relationship between geological features, sandy soils and the hydrologic cycle.

- The Jurassic Period dinosaur tracks on the **Comanche NG** provide an opportunity to interpret the tracks of an extinct species and to understand the geological process which enabled dinosaur tracks to be preserved for 150 million years.

- The Pawnee Buttes, on the **Pawnee NG**, rise approximately 300 feet above the surrounding grassland. These are erosional remnants left standing in isolation as the surrounding land surface has gradually eroded away. These White River Badlands formations provide the opportunity to interpret erosional forces that shaped the grasslands.

- Large prehistoric animal fossils and tracks at Toadstool Geologic Park, on **Oglala NG**, provide an opportunity to interpret Oligocene period animals frozen in unusual sandstone rock formations.

- The **Crooked River NG** straddles the Crooked River Caldera, which is one of the largest known single volcanic vents in the geologic record of Oregon. A supervolcanic eruption nearly 29.5 million years ago provides an opportunity to interpret the John Day Formation, a group of rocks that contains one of the richest fossil records in the United States.

- The rugged 900-foot-deep canyon of the Canadian River provides an opportunity to interpret micro-environments within the grassland landscape on the **Kiowa NG**. This dramatic geologic feature pierces the contiguous prairie and forms a wildlife habitat island for mule deer, black bear, Barbary sheep, ducks and geese.

CONSERVING AN ETHIC

- An Act - To create the Farmers' Home Corporation, to promote secure occupancy of farms and farm homes, to correct the economic instability resulting from some present forms of farm tenancy, and for other purposes. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as "The Bankhead-Jones Farm Tenant Act".

- A shift in conservation ethic from the 1930s, when 75% of the land was cultivated, to today where the focus is on restoring critical habitat for sage grouse and sharp tailed grouse makes the **Curlew NG** a prime opportunity to interpret successful ecosystem restoration.

- The conversion of the Joliet Arsenal ammunition plant to the **Midewin National Tallgrass Prairie (NTP)** was made possible by public support and the desire to promote open space and protect endangered populations of wildlife, such as the upland sandpiper. Midewin NTP represents an excellent chance to interpret how citizens worked together in a grassroots effort to promote the establishment of Midewin through the Illinois Land Conservation Act of 1996. The Midewin NTP is a regional conservation success story that can serve as a model for the nation.

- **Midewin NTP** represents a major effort to restore and "heal" almost 20,000 acres of farm and industrial land back to native ecosystems. This huge undertaking is made possible through the collaboration of various partnerships and dedicated volunteers, who contribute thousands of hours each year to heal the prairie. By connecting with volunteers and non-traditional partners Midewin will become a gem that represents a glimpse at the land history of what is practically an extinct ecosystem – the tallgrass prairie.

- Theodore Roosevelt 's Elkhorn Ranch is known as the "Cradle of Conservation", or " The Walden of the West." Elkhorn Ranch provides an opportunity to interpret the significant history of the Conservation Movement in America and the formation of the USFS by Roosevelt in 1905.

- The consequences of development and habitat fragmentation on black-footed ferret populations provides an opportunity to interpret the unseen world of underground life and prairie dog colonies on the **Buffalo Gap NG**.

- **Caddo NG** offers hunting of white tail deer, eastern wild turkey, wild hog, and bass fishing. The grassland's size and proximity to Dallas provides an opportunity to interpret the conservation and management strategies that support outdoor recreational activities.

- The balance between preserving ecosystems and utilizing natural resources is a difficult task for land managers. The **Thunder Basin NG**'s size and diversity provides an opportunity to understand the balance of management strategies between world class mineral extraction, vast expanses of native grassland and recreational activities.

- The abundant 298 bird species that inhabit the **Comanche NG** provide an opportunity to interpret the Central Flyway which connects the National Grasslands to other regions.

- The sagebrush steppe ecosystem has been identified as imperiled habitat within the Columbia River Basin. Multi-partner, multi-year restoration efforts on the Crooked River NG provide an opportunity to interpret this unique ecosystem. **Crooked River NG** also boasts the largest sagebrush in the nation.

- The Island, on the **Crooked River NG**, is a Research Natural Area (RNA). This RNA was selected for its pristine botanical plant community and provides an opportunity to interpret the use of special designations for conservation purposes on public lands.

- The diversity of habitat on the **Curlew NG**, between sagebrush uplands and small wet meadows and riparian bottomlands, provide an opportunity to interpret the diversity of habitats for grouse, sharp tailed grouse, migratory birds and the Pacific Flyway.

- The **Curlew NG** provides an opportunity to interpret Sagebrush Ecosystem restoration. From the 1930's when 75% of the land was cultivated to today when the focus is restoring native Sagebrush habitat and Sage grouse populations.

- **Midewin NTP** is the largest open space and wildlife habitat outside the Chicago area. This provides the potential for the USFS at Midewin to educate millions of individuals and connect them with nature through outreach and onsite educational programs. Midewin provides opportunities to teach prairie ecology in an outdoor classroom or conduct research in the nursery, laboratory or field.

- Grasslands are naturally a fire dependent ecosystem. Fire prevents the encroachment of trees, reduces invasive species of plants and supports native forbes and grass species. Both lightning-caused and management-ignited, prescribed fires provide an opportunity to understand fire as a management tool and a natural occurrence that is vital to keystone grassland species.

- More than 40 sensitive plant and animal species are found in the **Sheyenne NG** tallgrass prairie ecosystem. Some species include the western prairie fringed orchid, beach heather, and the Dakota Skipper and the Regal Fritillary butterflies. The protection of these species provides an opportunity to interpret efforts by the USFS to restore grassland habitat.

- **McClellan Creek NG** is the smallest National Grassland unit and consists of a variety of microclimates that support species, such as the white-tail deer, bobwhite quail, and the mourning dove. McClellan Creek provides an opportunity to interpret wildlife's reliance on small island habitats that dot the Great Plains landscape.

- Temporary playa lakes dot the landscape of the **Rita Blanca NG** during periods of intense precipitation. These

lakes provide an opportunity to understand how migratory birds, wildlife and humans use these intermittent lakes on the prairie landscape.

- After destructive farming methods and the Dust Bowl of the 1930s, decades of effort have begun to restore the tallgrass prairie. Now, over 1,200 plant species are found on the grassland, making **Lyndon B. Johnson NG** one of the most diverse landscapes in Texas. Lyndon B. Johnson NG provides an opportunity to interpret the cultural and ecological benefits of increased plant diversity in the landscape.

- The **Pawnee NG** is adjacent to the Central Plains Experimental Range, which houses the Short Grass Steppe Long Term Ecological Research (SGS LTER) project, and receives the benefits of a close working relationship with the USDA Agricultural Research Service Rangeland Resources Research Unit, and the Colorado Agricultural Experiment Station. These relationships allow for easy transfer of ideas, data and technology.

LIVING ON THE GRASSLANDS

- Pre-historic Indian rock art located on rock outcroppings on the **Comanche NG** provide an opportunity to experience and interpret past human cultures that resided on the southern Great Plains.

- John Wesley Iliff expanded his cattle kingdom across northeast Colorado, including the **Pawnee NG** through both legal and illegal land acquisitions. The historic land acquisitions provide an opportunity to interpret the abuse to the Homestead Act of 1862 and the transition from bison to cattle grazing throughout the Pawnee NG.

- Once a bustling trail of people, goods and services, the Santa Fe National Historic Trail on the **Cimarron and Comanche NGs** provides opportunities to explore the intriguing history of westward expansion and commercial trade on the southern Great Plains.

- Native Americans utilized grassland resources and wildlife for subsistence by migrating across the Great Plains. Encroachment by European, Mexican and EuroAmerican settlers resulted in interactions and conflicts which provide an opportunity to interpret the historic collision of cultures and the differences between how those cultures used grassland resources.

- The unique rock formations and Alberta Culture bison kill site on the **Oglala NG** provide the opportunity to interpret how nomadic hunters survived 10,000 years ago on the high plains grassland environment.

- Encouraged by the success of the Battle of the Little Bighorn, Cheyenne Native Americans were joining Sitting Bull and Crazy Horse. The Battle of Warbonnet Creek provides an opportunity to interpret the incident between “Buffalo Bill” Cody and Chief Yellow Hair on the **Oglala NG**.

- Melvin W. Mills escaped death from hanging and established a small fortune along the Canadian River Canyon His story provides an opportunity to interpret the “wild west ” lifestyle and how the Mills Family recognized the immense wealth of the Canadian River Canyon on the **Kiowa NG**.

- “ The birnt hills” site provides an opportunity to interpret the expedition of Lewis and Clark in 1805 and to tell the story of Lewis being mistakenly shot while hunting elk on the present day Little **Missouri NG**.

- The unique high desert landscape and long history of highly mobile family groups on the **Crooked River NG**, provide an opportunity to communicate the dynamic relationship between the Central Oregon American tribes and their environment.

- The unique land features and history of buffalo hunting on the **Buffalo Gap NG** provides an opportunity to communicate the dynamic relationship between the Lakota tribes and their environment.

- The juxtaposition between a natural Natural Grassland and a destructive nuclear warhead (National Park Service Minuteman Missile National Historic Site) provides an opportunity to interpret the contrast between Great Plains ecological systems and the Cold War global political affair.

- The profusion of tipi rings and remnants of campfires scattered across the **Grand River NG** provides an opportunity to interpret the current popularity of hunting and the role this area served as a hunting ground for the nomadic Plains Indian tribes.

- General Custer and his troops traveled through the area on their expeditions to the Black Hills. These expeditions provide an opportunity to interpret the "Indian Wars" and efforts by the United States military to eradicate Native American populations from their homes on the **Grand River NG**.

- Adventurer Hugh Glass survived a brutal grizzly bear attack while trapping near the forks of Grand River on **Grand River NG**. This story provides an opportunity to interpret fur trade and the human struggles to live in the wild and often inhospitable areas that now make up the National Grasslands.

- Twin Springs, on the **Curlew NG**, was a major campground during the California gold rush after Hudspeth's Cutoff brought the trail by there in 1849. Except in wet seasons, there was no water for 22 miles to the east. Parties often had to travel late into the night across that rough country to reach these two springs and avoid the hardships of a dry camp. This provides an opportunity to interpret the importance of water to inhabitants on the grasslands.

PLACE OF PLENTY

- Conventional grazing practices are widely used on public and private lands. The Clayton Livestock Research Center on the **Kiowa NG** provides an opportunity to understand integrated resource management on permitted grazing lands and how range management can benefit wildlife species, as well as livestock on the National Grasslands.

- The **Little Missouri NG** strives to strike a balance between commodities and conservation. More than 500 oil and natural gas wells on the grassland provide an opportunity to interpret a "working landscape" and the development-preservation balance.

- Significant permitted cattle grazing on the **Sheyenne NG** provides an opportunity to interpret the dynamic and sensitive relationship between managed grasslands and the protection of the few remaining tracts of native prairie.

- Abundant upland game birds, such as ring-necked pheasant, sharp-tailed grouse and the greater prairie chicken, entice out-of-state hunters to the **Fort Pierre NG**. Hunting and birdwatching of upland game birds provide an opportunity to interpret a variety of bird species and the importance of grassland management to support these birds.

- Built in the 1930s, historic Lake Fannin Camp served as a major recreational area for the Dallas/ Fort Worth area through the 1950s. The Lake Fannin Camp, on **Caddo NG**, provides an opportunity to interpret the transitions between unique cultural uses on the camp and the effects of those uses on the environment.

- **Thunder Basin NG**, comprising the largest surface coal mine in the United States, provides an opportunity to understand the impact the coal mine has on the United States economy and how resources on the National Grasslands support individual ranchers, local communities, and contribute to our Nation's sovereignty.

- The first oil well drilled on the **Cimarron NG** was in 1929 and turned out to be a dry hole. Nineteen geological formations are beneath the surface of the grassland capable of oil/gas production. The approximately 450 oil/gas facilities, with 320 leases and approximately 500 miles of pipeline, on the Cimarron provide an opportunity to interpret this industry and the millions of dollars generated each year.

- Crow Valley Grazing Association, on the **Pawnee NG**, is the oldest grazing association formed in conjunction with public land use in the United States. Founded in 1937, this association served as the model for many other grazing associations and provides an opportunity to interpret those who work with public land managers to effectively and cooperatively graze cattle on public lands.

GRASSLANDS AROUND THE WORLD

- The semi-arid climatic conditions and human uses of water for irrigation at **Butte Valley NG** depletes thousands of acres of lake bed, marshes and wetlands. As a result, excess water from an adjacent lake is used to recharge aquifers, improve water quality, and to provide flood control. This water use creates an opportunity to interpret the increasing importance of water in the western United States and other arid parts of the world, and how water recharge effects forage and habitat for animals.

- The west flank of Grey Butte on **Crooked River NG** reveals millions of years of climate change evident in leaf fossils. This terrestrial evidence provides an opportunity to interpret and explain the change in North American climate from tropical to temperate.

- Seas of swaying grass on the **Sheyenne NG** represent some of the few remnants of tallgrass prairie that exist in public ownership. These remnants provide an opportunity to interpret one of the most endangered habitat types in the world, as well as the high productivity of tallgrass prairie and how it was converted by settlers to agricultural use.

Little Missouri National Grassland

Marketing Recommendations

This section looks at trends in tourism on the national level and at the NGVC to gain an understanding of the audience for interpretive media on the National Grasslands as a whole and at the NGVC, and to identify strategies for implementation that take in to account recent trends.

Visitation Trends at the NGVC

Of the 58 visitor and interpretive centers in the Forest Service, the National Grasslands Visitor Center (NGVC) in Wall, SD is the only designated visitor center for the National Grasslands (A History of the Architecture of the USDA Forest Service, 1999; DRAFT Briefing Paper in 2011). NGVC visitation data from 2003 through 2011 indicates that the visitor center averaged 13,010 total visitors per year. Visitation was down 18% in 2011 from 2010. Local Wall businesses as well as Badlands National Park's visitation were also down approximately 7% in 2011. Most visitors to the NGVC are domestic travelers. Only ~ 6.0% (n = 488) of visitors in 2011 were international and this group represented 32 countries.

Visitor numbers for each of the National Grasslands in the USFS' system vary widely. However, the majority of visitors to the National Grasslands are drawn by opportunities for outdoor recreation. Small and big game hunting and birding are the primary visitor draws followed by other outdoor recreation opportunities including wildlife viewing, camping, hiking, fishing, and wildlife photography.

Annual visitation at the NGVC over a nine-year period is tracked below:

Fiscal Years	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Visitors	13544	14950	14210	13505	12835	9123	12241	14670	12012

National Tourism & Heritage Tourism Trends [1]

After two years of decline, tourism across the United States began to recover in 2010. Nationally, visits to friends and relatives rose by 6% and there was a 3% increase in overnight "marketable" leisure trips. These marketable trips are discretionary leisure trips most subject to influence by marketing and promotional activity. This trend is reflected in visitation to the NGVC with numbers declining substantially in 2008, but building in 2009 and 2010. Overnight leisure visitors nationwide share the following similarities:

- Average age of 46
- Two-thirds are married
- 4 in 10 have kids/teens living at home
- Two-thirds have household income of $50,000 or more.

Since 2008, the "stay-cation" tourism trend has remained strong across the country with travelers electing to stay close to home on their vacation rather than fly to a destination. While stay-cationers are a valuable traveler pool to draw from they do typically spend less than out-of-state visitors.

Many visitors to the National Grasslands could be characterized as "heritage travelers," a niche tourist interested in experiencing the natural, cultural and/or historic resources of an area or site. Travel statistics for heritage travelers reveal that they are typically better educated, more affluent and have higher expectations for travel experiences that are both enjoyable and educational. Compared to the typical tourist, heritage traveler typically spends more per trip ($623 per trip for heritage travelers vs. $457 for other tourists) and tends to take longer trips (5.2 average number of nights for heritage travelers vs. 3.4 nights for others). Given these spending patterns of heritage tourists and their interest in the purchasing of local and regional products, heritage tourism is recognized as an important tool for economic development and job creation.

The Internet continues to be the primary tool for trip planning with 50% of overnight leisure trips being planned online in 2010. Since 2009, tourism analysts have seen social media rise prominently as a tool for discovering destinations, planning vacations, and conversing about travel. In today's competitive tourism environment, a web and social media presence are certainly recommended to market a destination and recruit travelers.

[1] Travel statistics excerpted from Longwoods International Colorado Travel Year 2010 Report, http://www.colorado.com/IndustryPartners/LongwoodsInternational.aspx.

Marketing Strategy

As the USFS endeavors to increase awareness of the National Grasslands and draw additional visitors, the agency can benefit from outreach and marketing strategies that are currently being employed effectively by the tourism industry. The heritage tourism experiences offered by the National Grasslands including outdoor recreation in an open, natural landscape and educational experiences tied to cultural and natural history, are a draw for many travelers. Travelers embarking on touring trips, for example, typically want variety and seek out both urban and rural experiences. The grasslands are a popular destination for hunters and for birders, two groups who are already well-informed about the grasslands' resources and the species these ecosystems harbor. The USFS is faced with the challenge of raising the visibility of the National Grasslands among a broader audience in order to engage heritage travelers and attract them off-the-beaten path to a National Grassland, Midewin National Tallgrass Prairie and the National Grasslands Visitor Center in Wall, SD.

This Marketing Strategy section suggests four tactics for increasing awareness of the National Grasslands and enticing more visitation. **These four tactics include:**

OUTREACH: Expanding awareness and understanding of the National Grasslands

BRANDING: Enhancing and exposing the National Grassland brand

TARGETING: Focusing on visitor groups with an affinity for nature-oriented, outdoor experiences

PARTNERING: Working with partners to strengthen the allure of the National Grasslands and expand outreach

OUTREACH: Expanding awareness and understanding of the National Grasslands

By conveying more information about what the National Grasslands offer in terms of wildlife, history, geology, plants and recreation, the USFS will expand potential visitor understanding of what there is to see and do on these public lands. With expanded public outreach efforts, the National Grasslands' profile will be raised and National Grasslands will be increasingly recognized

as places to visit, experience and appreciate. The USFS can use marketing outreach materials to "package" the grassland's experience, to concisely communicate to visitors what they can expect to see and enjoy at a National Grassland and to interpret the grassland system's resources. By exposing these opportunities and interpreting the significance of the grasslands' natural, cultural and historic resource, the USFS will effectively enrich the visitor experience. For instance, the understanding and experience of the grassland is enhanced when hunting opportunities are revealed, species are listed, or a sunset viewing spot is shared.
Many visitors to public lands continue to be "stay-cationers" or even "insta-cationers". These visitor groups seek affordable bursts of fun close to home in lieu of longer excursions or vacations. The National Grasslands are well poised to capitalize on this trend and work with state tourism agencies and their neighboring communities to market themselves as an inexpensive, quick and interesting get-away. By increasing awareness of what the National Grasslands have to offer, the USFS can draw more stay-cationers to consider a National Grassland as an alternative vacation close to home.
In promoting the National Grasslands, it will be important that USFS only market opportunities that they are confident they can deliver effectively. The focus should be on promoting each grasslands' signature experiences that are sure to enrich a visitor's experience of the region and leave a positive impression.
The following tools can be employed to more widely distribute information about the heritage tourism and recreation opportunities afforded by the National Grasslands and to enrich visitor experience.

TOOLS:

Print & Web-based Media: Use print media to "package" what there is to see and do on the National Grasslands and to enrich the visitor's understanding of the system of grasslands. Given that trip planning is frequently conducted online, ensure that the National Grassland website clearly communicates the potential visitor experiences and recreation opportunities that the various grasslands afford. This communication will increase exposure of the National Grasslands and help position the grasslands as a destination worthy of a visit.

- Use the existing partnership with Recreation.gov to promote the individual grasslands. The website could feature a scrolling banner of the new National Grasslands logos, that, when clicked, would give the viewer a brief write-up for that NG unit including a map and promotion of its resources and recreation opportunities.
- Develop infographics to communicate some of the technical and statistical data related to the grasslands. These graphics allow for the conveyance of numbers and facts in a fun, easy to follow format. They can be incorporated into printed and social media, signage, posted online and used for educational purposes.
- To allow for ease of planning while on the road and with a smart phone, ensure the National Grassland website is usable on a mobile device.
- Use social media to post accounts, pictures, and fun facts related to the experiences the grasslands offer. (note: the use of social media for marketing and interpretive communications is expanded upon under #2 Branding).
- The National Grasslands website could be expanded to include the following features: online calendar of grassland events, historic photo gallery, concise interpretive narratives and graphics/images that feature the seven primary interpretive themes, a trip planning function that suggests travel itineraries with suggestions on how to link multiple grasslands, and an interpretive timeline (addressing paleontology, geology, and human use).

USFS Travel Management Map: The USFS Travel Management Map is an effective tool for revealing potential visitor experiences and should be expanded to include what one can see and do on the National Grasslands. (http://maps.fs.fed.us/TravelAccess/)

Identify & Promote a Grassland's Top 3: Consider what differentiates each grassland and why a traveler should pay it a visit. Identify the top 3 visitor experiences of each grassland and develop communication strategies for sharing information about these unique experiences.

- Promote the "best of" the grassland list on the website, through social media, on the radio and in local papers and regional/state tourism materials.
- Consider seasonal variations in unique experiences and market them at the appropriate times of year (e.g. hunting opportunities, fall colors, swimming, storm watching).
- Work with regional partners to include the grassland on regional and/or state Top 10 destination lists.

NGVC Events: Utilize events and their associated publicity to expand awareness and understanding of the National Grasslands.

- Establish an annual event to draw attention to the NGVC, the National Grasslands and its history. The event should coincide with a time of year or event unique to the history of the grasslands. The event should have a heritage and ecological focus and feature family oriented games, historic talks, local performers and storytellers. The annual event could coincide with National Park Service weekend, Public Lands Day or fee-free week.
- NGVC Open House: Host an open house at the NGVC to welcome people to the newly renovated project and new interpretive exhibits. Invite the media, the public, local, regional and/or national USFS staff to attend and participate.
- Smaller events or Grassland Outreach could also be conducted in conjunction with the Wall Celebration, Earth Day, Get Outdoors Day or Black-footed ferret weekend. Involve the Interpretive Association and invite the media, the public, local, regional and/or national USFS staff to attend and participate.
- At events, feature each grassland unit, its logo and interesting facts about them on a board or digital presentation.
- Offer marketing collateral like digital images of the grasslands landscape; or shirts, poster, and binoculars featuring the National Grasslands logo or the individual grassland logos.

Press Outreach: Harness the outreach capabilities of the media to spread the word about the National Grasslands and build understanding of their resources and visitor opportunities. In order to maintain consistent messaging, create a press kit to be posted on the National Grassland website, emailed and printed as hard copies, which includes the following:

- Cover letter tailored to each media outlet, outlining the NGVC renovation project and offering additional information, a visit/tour, expert comments.

- Fact sheet on the USFS, the National Grasslands, the National Grasslands Visitor Center, project partners, missions and goals.
- Press release announcing the new exhibits and renovation at the National Grasslands Visitor Center.
- Individual page or fact sheet for each National Grassland unit.
- Photographs
- Include links to website and any social media (e.g., Facebook, Twitter and YouTube) in all materials.

Media List: Develop a media list for local, regional and national press – online press as well as newspapers, magazines, TV and radio, travel and history blogs and freelance journalists (science and nature, travel, history, geology, special interest). Target media would include press in the National Grassland regions including local and statewide media outlets, as well as, national press related to specific topics and story angles. Target media and related story angles might include:

- Local news media: Get to know your National Grasslands better, things to do with visitors, what's new at the grasslands.
- Travel: Destination focus, sites, lodging, scenic byways, activities, special packages, holiday travel, family travel, RV and AAA driving publications.
- Outdoor, Recreation, Sports and Parks: Reporting on outdoor activities and opportunities for groups, individuals, families and outfitters: wildlife, hunting, birding, fishing, photography, paddling, running, biking, hiking, mountain biking. Sportsman and user group newsletters, magazines and digital media.
- Business: Tourism and economic development, oil and gas development, tour and guide outfitter businesses.
- Agriculture and Western Lifestyle: Agricultural traditions, destinations, ranching, Great Plains and Wild West.
- History and Culture: National Grasslands and western history, legends and lore, museum and art publications, regional magazines, local newsletters, dust bowl accounts.
- Nature and Science: Biology and geography, geology, paleontology, conservation legacy, water.
- Also pitch stories to newsletters of partnering public agencies and sites (NPS, BLM, USFWS), nonprofit and business partners, and any local or national trade organizations.

BRANDING: Enhancing and Exposing the National Grasslands' Brand

For the purpose of this marketing strategy, think of the grassland brand as the grassland experience. Branding began as a way to tell one person's cattle from another by means of a hot iron stamp, but today a brand is more broadly recognized as the features that identify one party's good or services as distinct from another's. Above and beyond a stamp or logo, a brand is a set of expectations, memories, and stories that distinguishes one product over another. An effective brand, or National Grassland experience, is recognizable, lures a visitor, and retains his loyalty.

With the design of 20 logos for each of the National Grasslands and Midewin National Tallgrass Prairie, the USFS has taken the important step in establishing a unified graphic identity for the system of grasslands. The next step in building the grassland's brand is to use marketing, social media and promotions to tie these graphics to the experiences, stories and recreation opportunities that the system of grasslands offers. By increasing the exposure of the National Grasslands brand, the USFS will heighten the visibility of the grassland and attract a broader audience.

In the case of public lands, enhancing the brand is often intertwined with interpretation. Interpretive content and media can be used in conjunction with marketing campaigns and social media platforms to increase local and national exposure of the National Grasslands and to promote the tourism opportunities and experiences that the grasslands offer. The tools recommended below

emphasize the use of social media to enhance and widely circulate the grassland's brand. The benefit of social media is that platforms like YouTube, Facebook and Twitter have a global reach, they facilitate story-telling that is a steadfast marketing mechanism, they enable referrals and word-of-mouth recommendations, and they are constantly chattering and offering endless opportunities for brand promotion.

TOOLS:

Brand Launch: Initiate a regional or state-wide branding program aimed at enticing local residents and stay-cationers to visit the grasslands. Assume that residents are unaware of the grasslands and use this as an opportunity to reintroduce them.

- To improve the National Grassland's visibility on the Internet and raise awareness of their resources via social media, establish a joint media campaign such as "Grassland Greats" or "Discover America's Grasslands" and utilize a variety of social media and traditional media outlets to spread the word about the grasslands. Using diverse media platforms broadens the range of channels through which the National Grasslands can be accessed and meets the expectation of today's online travel consumer.
- Where appropriate tie into regional brands. For instance, in South Dakota, the Buffalo Gap National Grasslands can be labeled as one of the state's "Great Faces. Great Places" . Likewise, the bison at Thunder Basin National Grasslands tie into Wyoming's "Forever West" tourism campaign.

Social Media Platform: Use the power and breadth of social media to expose the grasslands brand and reach a wider audience. Digital media and technologies now affect every single stage of the visitor's journey to a destination including trip planning, the stay and remaining connected afterwards. Therefore, digital marketing should target the decision-making process of planning a trip, provide useful visitor information to the visitor while she's visiting the grassland, and utilize social media tools for sharing memorable experiences upon a visitor's return home. Consider the growing variety of social media tools and develop a strategy to reach out to the grasslands social media network 3-4 times per week.

- Create a Facebook page and/or Twitter account to develop a friend/follower base for the National Grasslands. Divide the social media responsibility by granting posting and tweeting capabilities to several staff. Use Facebook and Twitter to get the word out about events and activities and also to share interpretive content. "Mine" other media outlets and relay grassland, conservation, or wildlife- related information to Friends/Followers.
- Use the overarching theme and the seven primary interpretive themes to structure social media content delivery. For instance, devote a week to tweeting or posting about "Living Off the Grasslands" and relay interesting facts about the people who have lived on North American grasslands for at least 10,000 years.
- Additionally, use social media to post upcoming events, happenings on the National Grasslands, news, hunting information, birding information, animal sightings, naturalist observations, fire updates and interesting historical facts. Share quirky facts about what happened at the grassland today or will happen in the next few days.
- Establish a National Grassland hashtag for Twitter (e.g. #grassland) and use it regularly to build a following.
- Provide links to the Twitter and Facebook pages on the National Grassland website.

- Create a National Grassland YouTube channel where videos can be posted. Share links to the channel and any new video content with Twitter and Facebook.
- Engage visitors and social media fans with small competitions and contests. These could include photo contests or quizzes. The USFS could sponsor a National Grasslands photography or other media contests (e.g. poetry, podcasts, video, slideshows). Consider making this an annual event with a new subject matter each year or maybe a rotating schedule in order to capture the grasslands across the seasons. In addition to building awareness of and excitement about the National Grasslands, a photo contest will result in a robust collection of images that, with the proper permissions, can be used for marketing and promotions.

Engage Visitors in Sharing the Grassland Experience: Sincerely's Postagram app and the Postcard on the Run app allow vacationers and others to turn snapshots into "snail-mailed" postcards. Encourage visitors to the National Grasslands to send postcards utilizing this technology on their smartphone. Also prominently share the National Grasslands Facebook and Twitter pages at the NGVC and ranger stations and encourage visitors to Friend/Follow and to post about their experience. (http://www.postcardontherun.com/ and http://postagramapp.com/)

Brand Integration: Repeat the grassland logos often to build the brand and incorporate the logos into items that are for sale at the NGVC, individual grassland units and online. Utilize them in print media (e.g. brochures, maps), social media and incorporate them into consumer products (e.g. posters, t-shirts, mugs, stickers).

- Ensure consistency in the use of brand (e.g. color, size, placement location) to retain the uniform identity of the family of logos.

Establishing Unique Grassland Experiences: Identify ways to create a unique experience that draws visitors to the National Grassland and immerses them in the landscape. Consider facilities (a nature trail, a viewing platform/tower), programs (a guided natural history program, night sky viewing, hands-on restoration), and activities (a youth hunt, a fishing competition, bird count). A suite of interpretive media from a website, to a brochure, to signs will serve the National Grasslands as tools for building the grassland experience and brand by conveying the significance of the conserved lands.

- For the youthful and/or adventurous "insta-cationer" or "stay-cationer" consider what kind of unusual or novel mini-vacation the grassland can offer and promote it (e.g. bird migration, meteor shower, prescribed burn, paleontological tour).
- The National Grassland's substantial geological and paleontological resources could be promoted and incorporated into interpretive and marketing media as well as programs.
- Interpretive media, programming, and tours are all tools for enriching the grasslands visitor experience and encouraging participation. Reinforce the grassland brand by increasing promotion of existing media,

activities and events and, when feasible, introduce and announce new interpretive experiences. Offering a variety of interpretive and visitor experiences will attract a broad audience, encourage repeat visits and pique the interest of tourists and naturalists from outside each grassland's region.

*A note about Social Media: Before establishing a National Grasslands social media platform and a social media campaign, it is recommended that the USFS prepare a social media strategy. Such a strategy will help structure unified and coordinated social media marketing among the grasslands. The USFS will need to select the appropriate social media channels (e.g. Facebook, Twitter, YouTube) to use based on available resources and a common set of goals and objectives. It is also important to establish content creation guidelines and procedures for monitor and dealing with comments. Establishing a system for social media tracking and analytics will help the USFS understand the level of engagement and to evaluate the return on social media investments.

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TARGETING: Focus on visitor groups with an affinity for nature-oriented, outdoor experiences.

It is important to recognize that the National Grasslands are not for everyone and to focus marketing efforts on audiences that are interested in nature-oriented, outdoor experiences and are willing to veer off the beaten path for a heritage tourism experience. Potential target groups and methods for engaging these audiences are outlined below:

TOOLS:

Hunters: Hunters are one of the National Grasslands primary visitor demographics. Continue to attract hunters by sharing information about wildlife species and hunting opportunities. Access hunters through wildlife/ hunting advocacy groups (e.g. Ducks Unlimited, Pheasants Forever), state and federal wildlife agencies, as well as hunting publications, websites, blogs and social media.

Outdoor Enthusiasts/Sportsmen: Distribute information about the National Grasslands at sporting good stores and to user groups in order to reach more outdoor enthusiasts.

Birders: Birders are another popular set of grassland visitors. Tap into birders' established and comprehensive communication networks (e.g. list serves, websites and social media) to share information (e.g. bird tours, species sightings) and birding opportunities at the grasslands. Also partner with Audubon and local and regional birding organizations.

Naturalists & Environmentalists: Encourage nature and environmental non-profits to share information about the National Grasslands with their constituents. These groups frequently use newsletters and social media to engage their members and the USFS can "feed" these organizations media content for circulation.

Heritage Travelers / Eco-Tourists: Reach out to local/regional tour groups as well as local and state tourism agencies to position the National Grasslands as a heritage tourism destination offering a range of wildlife, geological, paleontological, cultural and historic resources worth visiting. Strive to feature the grasslands in publications that promote regional/state tours. Encouraging visitors to share their positive recreational/ tourism experience at the grassland via their own social media network will also expand outreach to this demographic.

Distance Learning. Digital media facilitates distance learning. Video cameras can capture wildlife and social media and live streaming can convey this content to distant learners. Field biologists can also set up "live chat sessions" to answer questions and engage distant learners and potential visitors in digital discussions. (Example of Distance Learning: http://www.jason.org/public/whatis/start.aspx)

Schools: The grasslands are an educational resource that can be linked to science and history curriculum. Engage neighboring school districts as well as universities and community colleges in using the grasslands as an outdoor classroom or research facility. Also encourage these entities to promote the grasslands' recreation opportunities to their students.

- Consider working with school districts to develop a program that ties into the curriculum and utilizes the grassland as an outdoor classroom for history and science learning.
- Offer field trips grants and/or teacher workshops to draw more teachers and students to educational sites within the National Grasslands.
- Support and help expand local environmental education and science organization's programming by providing teacher trainings, curriculum-based interpretive content, learning tools (e.g. seed collecting kits, plant/track ID sheets), and/or facilities within the grassland (e.g. benches, work stations).

Mobile App or website: A mobile app or mobile website could extend the possibilities for delivering interpretive content to National Grassland visitors as well as to the distant learner. Smart phones today are GPS enabled, so locations within the grasslands or alongside the boundary could trigger the delivery of site-specific content as a user hikes or bikes the trail or drives by. The app or mobile website could feature all of the grasslands and include facts, species lists, photographs, historic images and accounts, and video.

Electronic newsletter: Develop a mailing list that includes visitors, tourism offices, local businesses, local media, schools, non-profits and advocacy groups plus any contacts garnered via the website and social media outreach. Design and distribute an electronic newsletter to be sent out on a regular basis (e.g. quarterly, seasonally, annually). The newsletters could have a theme and feature unique profiles of the individual grasslands. The newsletters should also be made available on the website and linked to via social media.

PARTNERING: Work with partners to strengthen the allure of the National Grasslands and expand outreach.

There is a growing desire among the American public to reconnect with their heritage. The USFS can better address this desire by working in partnership with others to promote the National Grasslands as a heritage tourism and nature-based recreation destination. State tourism offices, chambers of commerce and private tour companies surrounding the National Grasslands are likely keen on working with the USFS. These entities they can help distribute marketing materials and interpretive content about the grasslands as part of a collaborative effort to draw additional visitors to their region, encourage them to stay longer and infuse tourism dollars into local economies.
The following list builds on the potential partners suggested above and offers additional entities that could expand the USFS outreach efforts and strengthen the allure of the National Grasslands among potential visitors.

TOOLS:

Tourism Professionals: Join forces with regional, state and local tourism outlets (e.g. State tourism office, local chambers of commerce) in on tourism marketing efforts. It is important to keep these tourism outlets informed about the National Grasslands. If informed about what there is to see and do in the National Grasslands and why the lands are community assets, these organizations can help drive more tourism traffic to the NGVC and the individual grasslands.

- In 2012, the NGVC and the National Grasslands is promoting in the South Dakota Vacation Guide and other State publications and Badland National Park Visitor Guide.

Partner with Local Attractions: Identify other attractions and tourism destinations nearby the grasslands and partner with them to cross-promote resources and increase traffic to both. Share and use one another's distribution lists on limited occasions in order to reach new audiences

Internal USFS Cross-Promotions: Work together as a system of Grasslands and National Forests and cross-promote one another.

Children's Grassland: The US Forest Service (USFS) has provided a grant to the National Environmental Education Foundation to expand our Children and Nature Initiative http://www.neefusa.org/health/children_nature.htm to several Children's Forests around the country. Consider designating a Children's Grassland, too. Perhaps a grassland close to a significant population center that could fairly easily draw youth and their families. The Children and Nature Initiative addresses two important issues— preventing serious health conditions like obesity and diabetes related to indoor sedentary lifestyles and reconnecting children to nature to promote good health, enjoyment, and environmental stewardship. NEEF creates Nature Champions among pediatric health care providers to prescribe outdoor activities to children and links these prescriptions to activities at local nature sites.

Local Businesses: Keeping local business apprised of grassland news is valuable. Business adjacent to the NGVC and the individual grasslands could be persuaded to distribute information about the lands and encourage visitation. Local business could also be recruited to sponsor grassland events and activities.

Environmental and Historical Organizations: Reach out to organizations with a shared focus in seeing the history and natural resources of the National Grasslands interpreted, enjoyed and protected (e.g. Audubon, Pheasants Forever). These groups can share information about the National Grasslands with their constituents and may be interested in partnering on activities/events and/or interpretive media development.

Synopsis

Globally, grasslands have declined in their extent and condition, as well as their ability to support human, plant, and animal life. Conversion to agricultural lands, un-managed fire, desertification due to overgrazing and climate change, urban sprawl, fragmentation caused by road construction, invasive species and other causes have all lead to the degradation of grassland ecosystems.

The USFS National Grasslands and Midewin National Tallgrass Prairie represent some of the few protected areas of this important ecosystem type in the world. Awareness of the these grasslands is crucial to the environmental health and human health and livelihood of the United States and the planet.

Branding / National Grasslands Logos

The purpose of this branding effort is to represent and celebrate the uniqueness of each National Grassland unit and the Midewin National Tallgrass Prairie. Branding creates a shared look and feel that unifies the National Grasslands system. The USFS wants to create a compelling association between the name, logo, place and the intended visitor experience of each grassland. These graphics are meant to represent a clear and evocative image, an emotion, and a triggering message that will be recalled in the mind of the public when visiting or thinking about the National Grasslands.

The following pages contain original artwork for each of the 20 National Grasslands and the Midewin National Tallgrass Prairie.


BLACK KETTLE
National Grassland


BUFFALO GAP
National Grassland


BUTTE VALLEY
National Grassland


CADDO
National Grassland


CEDAR RIVER
National Grassland


CIMARRON
National Grassland


COMANCHE
National Grassland


CROOKED RIVER
National Grassland


CURLEW
National Grassland


FORT PIERRE
National Grassland


GRAND RIVER
National Grassland


KIOWA
National Grassland


LYNDON B. JOHNSON
National Grassland


LITTLE MISSOURI
National Grassland


McCLELLAN CREEK
National Grassland


MIDEWIN
National Tallgrass Prairie


OGLALA
National Grassland


PAWNEE
National Grassland


RITA BLANCA
National Grassland


SHEYENNE
National Grassland

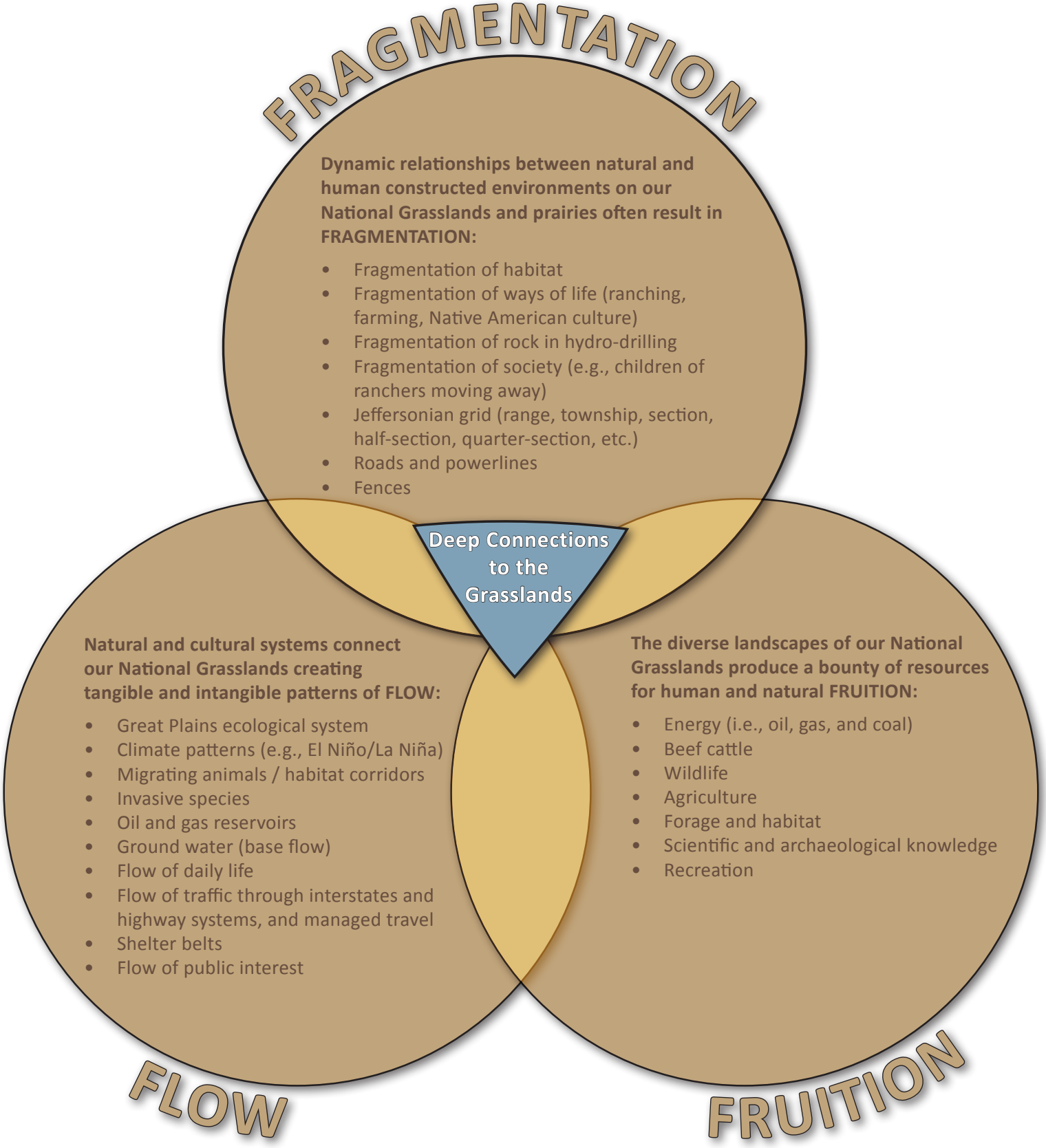

THUNDER BASIN
National Grassland

Appendix:

Inventory of Potential Grassland Storylines

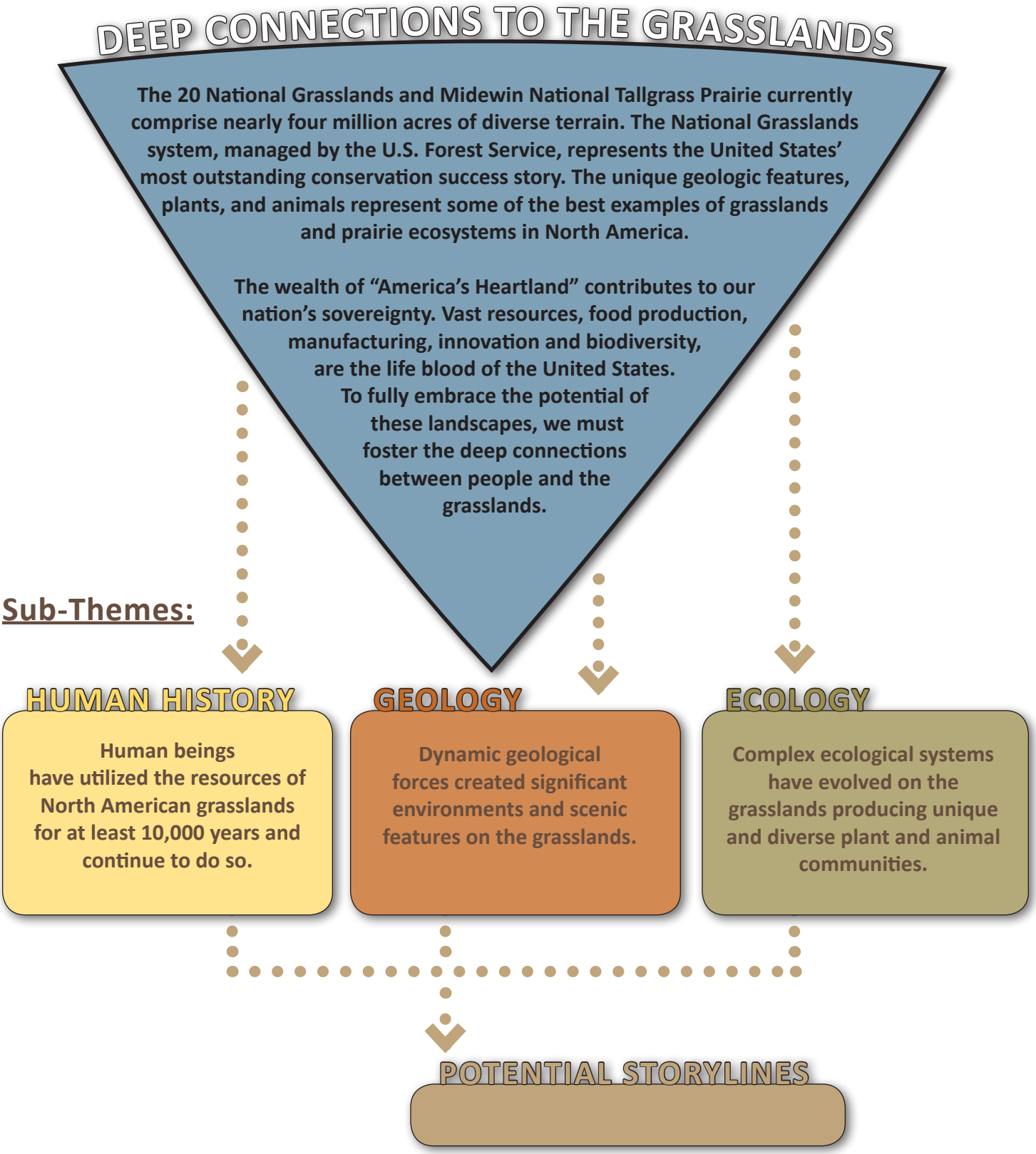
Preliminary Thematic Framework for Interpretation

In an initial comparison of the individual National Grasslands and the Midewin National Tallgrass Prairie, thematic threads were identified that run through each of the specific grassland units. The diagram below represents each of these themes. The intersecting center is the Overarching Theme which connects the unique attributes of each unit on a universal level that will help in the development of a cohesive Interpretive Master Plan.



▪ The diagram below represents a Preliminary Thematic Framework for Interpretation on the National Grasslands that will help guide recommendations for interpretive planning efforts and exhibits. The diagram illustrates the relationship between the Overarching Theme, the Sub-Themes, and Potential Storylines. The Overarching Theme encompasses the entire National Grasslands system. Within this Overarching Theme, the Sub-Themes act as three interwoven conceptual lenses through which to view the grasslands: Human History, Geology, and Ecology. From these Sub-Themes, Potential Storylines will be developed to communicate the specific stories and attributes unique to each grassland unit.

Overarching Theme:



This chapter contains a section for each of the National Grassland units and the Midewin National Tallgrass Prairie. Each grassland unit contains an introduction, location map, and potential storylines that are unique to that particular unit. The potential storylines were developed from unique characteristics that were collected during USFS staff interviews, experienced during site visits, and/or gathered from USFS printed material and other sources. The Thematic Framework for Interpretation was used as a tool to develop the potential storylines from the unique characteristics.

The following two pages illustrate the cognitive process resulting in the output of potential storylines. The grassland unit sections do not show this process for each unique characteristic but only show the final potential storylines.

Illustration of Process to Arrive at Storylines
(Black Kettle Example)

RIO GRANDE TURKEY HUNTING

Photograph by Dave Herr

- **FRAGMENTATION**

Roads and developments fragment core habitats for some wildlife species to allow hunters access to areas that were once difficult to reach.

- **FLOW**

Pre-contact, Comanche Indians' flow of daily life was directly connected to the migration patterns of wildlife and the location of resources. As hunters and gatherers, they traveled many miles over several months in search of daily living needs. Now, advancements in transportation and road systems allow local and out of state residents to travel to the Black Kettle in a matter of days in search of the highly sought after Rio Grande Turkey.

- **FRUITION**

Rio Grande Turkey hunting is a major attraction to the Black Kettle NG. Every year, visitors pay entry fees that increase revenues and help sustain the local economy.

HUMAN HISTORY

Hunting and gathering was the lifestyle for the Comanche Indian tribe and other nomadic tribes. The tribes relied on resources and wildlife that inhabited the Great Plains for survival such as the Rio Grande Turkey. Because of advancements in food production, some wildlife species are only hunted for consumptive recreational purposes rather than survival purposes.

GEOLOGY

Innovations in transportation have significantly removed travel issues associated with geologic formations creating the mobile recreational hunter, both locally and out of state.

ECOLOGY

The shinnery oak and grassland ecosystems maintain a healthy habitat for the Rio Grande Turkey.

STORYLINE

Recreational hunting of the Rio Grande Turkey on the Black Kettle NG provides an opportunity to interpret the transition from a subsistent way of life as a hunter and gather to a recreation lifestyle as a hunter for sport.

Illustration of Process to Arrive at Storylines
(Buffalo Gap NG Example)

BISON HUNTING ON THE BUFFALO GAP

Image of Bison near Buffalo Gap National Grassland.

- **FRAGMENTATION**

The badlands formations fragment the grasslands creating narrow corridors to hunt the bison.

Cultural influences, such as mass killings of bison for hides and westward expansion of settlers fragmented the migratory patterns of buffalo, ultimately ending hunting on the Buffalo Gap.

- **FLOW**

Bison herds fed heavily in one area on the grassland and migrated throughout the Great Plains in search of new forage. These herds could travel great distances for water and food. As a nomadic tribe reliant on buffalo, the Lakota Indians' flow of daily life was directly connected to the migrating patterns of the buffalo.

- **FRUITION**

Much of the Lakota Indian culture and materials used in daily life was centered around the buffalo. Bison provided the Lakota people with hides, food supply, tools from bones and spiritual fulfillment, to name a few.

Image of Bison near Buffalo Gap National Grassland.

HUMAN HISTORY

Bison were and still are an important part of the Lakota people's culture. Before the decimation of the Great Plains herds Lakota society centered around the buffalo hunt. Tribes used the White River Badlands Formations as viewing points to observe the herds of buffalo moving across the grasslands.

GEOLOGY

The White River Badlands Formations create steep topographic changes used by Native Americans to hunt bison. Hunters drove herds of buffalo off the cliffs known as "buffalo jumps", in order to kill them. Their deep understanding of the area's geology was employed as an effective hunting technique.

ECOLOGY

The bison was a keystone species which maintained the ecological health of the grasslands. For thousands of years American Indian tribes were a part of the complex ecological dynamics that existed between the buffalo and the grasslands.

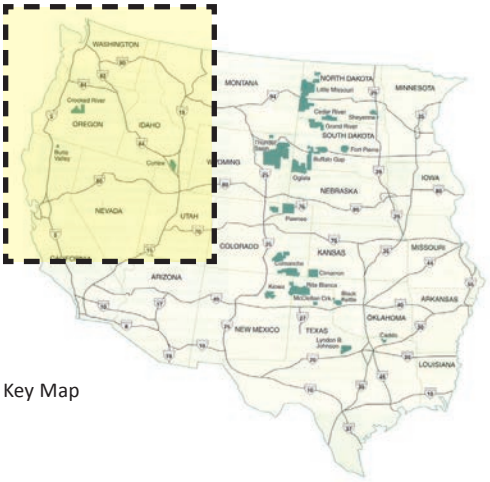
STORYLINE

The unique land features and the history of buffalo hunting in the Buffalo Gap area provides an opportunity to communicate the dynamic relationship between the Lakota tribes and their environment.

Butte Valley National Grassland

In the bed of an ancient lake, Butte Valley NG is a subtle landscape of sandy terraces and dunes set in shrub-steppe habitat and contrasted by the dramatic backdrop of the Cascade Range and Mount Shasta. Millions of migratory waterfowl using the grassland and adjacent Butte Valley Wildlife Area make this a dynamic and important ecological resource.

Image of Butte Valley National Grassland.



Key Map

Butte Valley NG Location Map

Potential Storylines of the Butte Valley National Grassland

PRAIRIE OASIS

POTENTIAL STORYLINE

Butte Valley NG resides in the diverse Klamath Basin which provides an opportunity to interpret the Pacific Flyway, the ecological role of waterfowl and shorebirds, and the "water dance" of courting grebes.

RAIN SHADOW EFFECT

POTENTIAL STORYLINE

Located on the east side of the Cascade Mountain Range, annual precipitation on the Butte Valley NG is approximately 12 inches creating a semi-arid climate. The sandy soils cause what little precipitation to quickly drain leaving behind a dry lake bed. The semi-arid climate at Butte Valley NG provides an opportunity to interpret the rain shadow effect—the relationship between geological features, sandy soils and the hydrologic cycle.

WATER RECHARGE

POTENTIAL STORYLINE

The semi-arid climatic conditions at Butte Valley NG depletes thousands of acres of lake bed, marshes and wetlands. As a result, excess water from an adjacent lake is used to recharge aquifers, improve water quality, and to provide flood control. This water use creates an opportunity to interpret how water recharge effects forage habitat for migrating Sandhill Cranes, Cackling Geese, and other waterfowl.

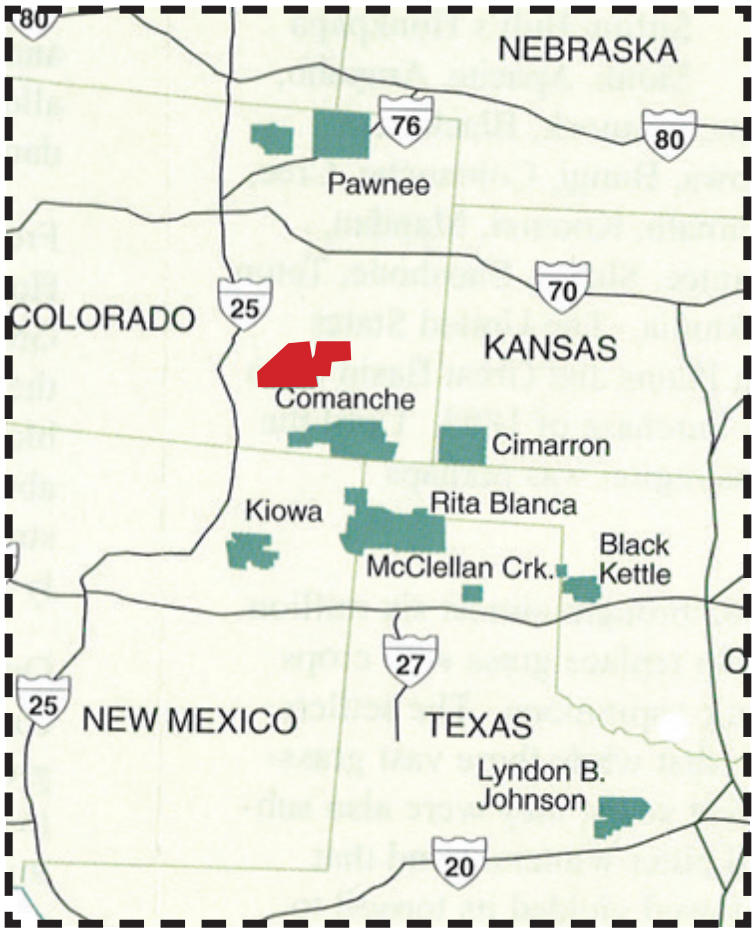
Image of a Sandhill Crane. Courtesy of Dave Herr

Comanche National Grassland

Comanche NG offers prehistoric and cultural history surrounded by wild and scenic beauty. The Picket Wire Canyon and high plains prairie exhibit prehistoric dinosaur footprints, Indian artwork and interpretation of the Sante Fe Trail (northern route).

Image of the Comanche National Grassland.

Key Map



Comanche NG Location Map

Potential Storylines of the Comanche National Grassland

JURASSIC PERIOD DINOSAUR TRACKS

POTENTIAL STORYLINE

The Jurassic Period dinosaur tracks on the Comanche NG provide an opportunity to interpret the tracks of an extinct species and to understand the geological process which enabled dinosaur tracks to be frozen in time.

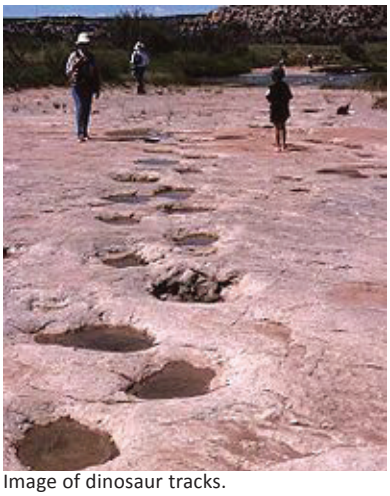


Image of dinosaur tracks.

BIRDING ON COMANCHE NG

Image of a Sharp-tail grouse (Photograph by John R. Baldwin)

POTENTIAL STORYLINE

The abundant 298 bird species that inhabit the Comanche NG provide an opportunity to interpret the Central Flyway which connects the National Grasslands to other regions of North America.

PRE-HISTORIC INDIAN ROCK ART

POTENTIAL STORYLINE

Pre-historic Indian rock art located on rock outcroppings on the Comanche NG provide an opportunity to experience and interpret past human cultures that resided on the Great Plains.

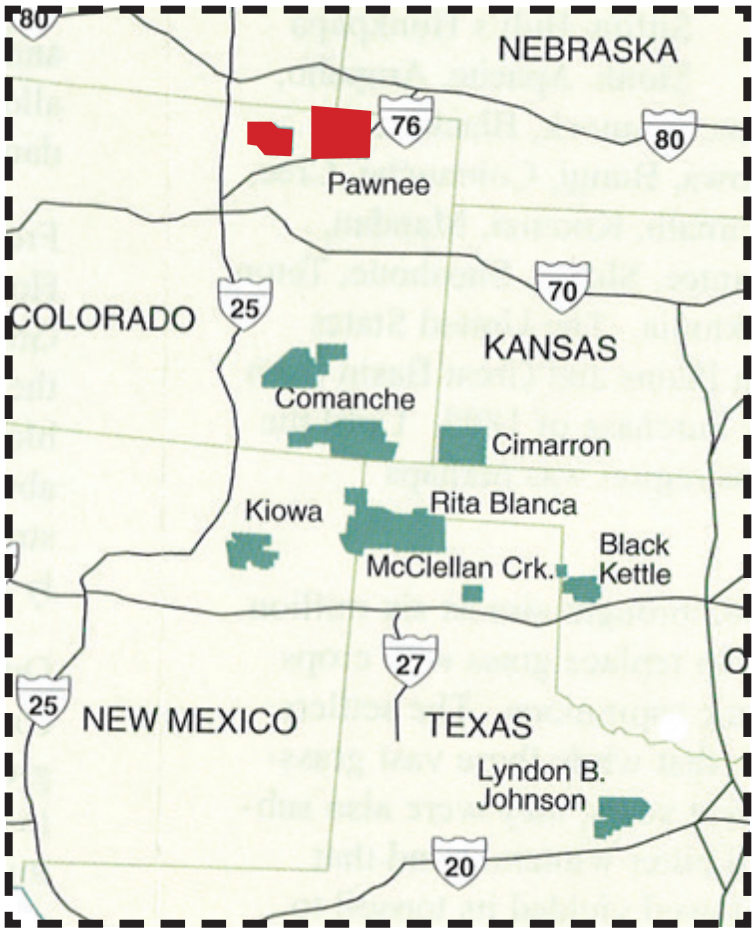
Image of Indian rock art.

Pawnee National Grassland

The erodable clay and sandstone formations of Pawnee Buttes were once used as an important landmark for Native Americans and settlers. The same geologic formations in the Pawnee NG are home to raptors and swallows that attract wildlife enthusiasts from around the world.

Image of Pawnee Buttes on Pawnee NG.

Key Map



Pawnee NG Location Map

Potential Storylines of the Pawnee National Grassland

PRAIRIE LANDMARK

POTENTIAL STORYLINE

Rising vertically 300 ft., the Pawnee Buttes were daily landmarks for Native Americans, and landmarks for settlers on their way west. The Buttes provide an opportunity to interpret the formations as a directional marker in an endless sea of prairie.

Image of Pawnee Buttes on the Pawnee NG.

ILIFF CATTLE TERRITORY

Image of cattle surrounding a functional windmill.

POTENTIAL STORYLINE

John Wesley Iliff expanded his cattle kingdom across northeast Colorado, including the Pawnee NG through both legal and illegal land acquisitions. The historic land acquisitions provide an opportunity to interpret the abuse to the Homestead Act of 1862 and the transition from bison to cattle grazing throughout the Pawnee NG.

PAWNEE BUTTES

POTENTIAL STORYLINE

The Pawnee Buttes rise approximately 300 feet above the surrounding grassland. These are erosional remnants left standing in isolation as the surrounding land surface has gradually eroded away. These White River Badlands formations provide the opportunity to interpret erosional forces that shaped the grassland we see and recognize today.

Image of the Pawnee Buttes behind a functional windmill.

Curlew National Grassland

Curlew NG, on the Caribou-Targhee National Forest and Westside Ranger District, is a high desert with an average elevation of 5,500 feet. The landscape is characterized by a mosaic of sagebrush and grass cover types of various ages, densities and compositions of both native and non-native vegetation. To date, approximately 12,000 acres still have native vegetation. Curlew NG contains the Hudspeth's Cutoff (1849-1859), which is a trail and campsite established during the California Goldrush, thus putting it on the National Register of Historic Places. Historically significant and natural experiences meld together in this wide semiarid valley.

Image of Curlew National Grassland.

Key Map

Curlew NG Location Map

Potential Storylines of the Curlew National Grassland

SAGEBRUSH ECOSYSTEMS

POTENTIAL STORYLINE

The Curlew NG provides an opportunity to interpret Sagebrush Ecosystem restoration. From the 1930s, when 75% of the land was cultivated, to today when the focus is restoring critical habitat for sage grouse and sharp tailed grouse.

HISTORIC SETTLEMENT

POTENTIAL STORYLINE

The Enlarged Homestead Act of 1909 contributed to the development of agriculture and ranching in the dry upland region of Arbon, Rockland and Curlew Valleys. Post Great Depression, many homestead operations survived and are still held in private ownership. This history is reflected in the checker-board land pattern of the Curlew and Arbon valleys.

Image of windmill on South Carter on Curlew National Grassland.

SAGEBRUSH ECOSYSTEM

Image of sage grouse on Curlew National Grassland.

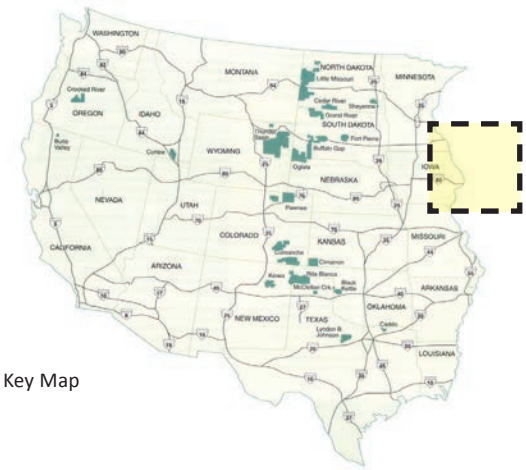
POTENTIAL STORYLINE

Twin Springs, on the Curlew NG, was a major campground during the California gold rush after Hudspeth's Cutoff brought the trail by there in 1849. Except in wet seasons, there was no water for 22 miles to the east. Parties often had to travel late into the night across that rough country to reach these two springs and avoid the hardships of a dry camp. This provides an opportunity to interpret the importance of water to inhabitants on the grasslands.

Midewin National Tallgrass Prairie

First recorded in 1840 by traveler Eliza Steele, Midewin National Tallgrass Prairie (NTP) is unlike other National Grassland units, as it was not acquired through the abandonment or selling of private land due to the effects of the economic depression and drought of the 1920s and 1930s. Rather, the area now known as Midewin was acquired by the US Army to be used as an ammunition plant for World War II around the 1940s. Previous landowners and tenant farmers began to work in the ammunition plant rather than accepting compensation to take up farming elsewhere. The site was chosen by the US army for three reasons. First, the site was close to a large population center; second, it was 200 or more miles inland from the US coasts, and finally, the area was served by four major railroads.

After WWII, the Illinois Department of Conservation was integral in designating the lands as public. The creation of Midewin NTP is the result of a consensus reached by the 23 members of the Joliet Arsenal Citizens Planning Commission in 1994. In addition, the Illinois Land Conservation Act 1995 led to the conversion of the ammunitions plant to the Midewin NTP, under management of the US Department of Agriculture (USDA). Midewin NTP is administered by the USDA Forest Service, in cooperation with the Illinois Department of Natural Resources and with the support of hundreds of volunteers and partner agencies, businesses and organizations. However, the land was ultimately designated a National Tallgrass Prairie, rather than a National Grassland, in order to be self sufficient and to be able to charge fair market prices for land.



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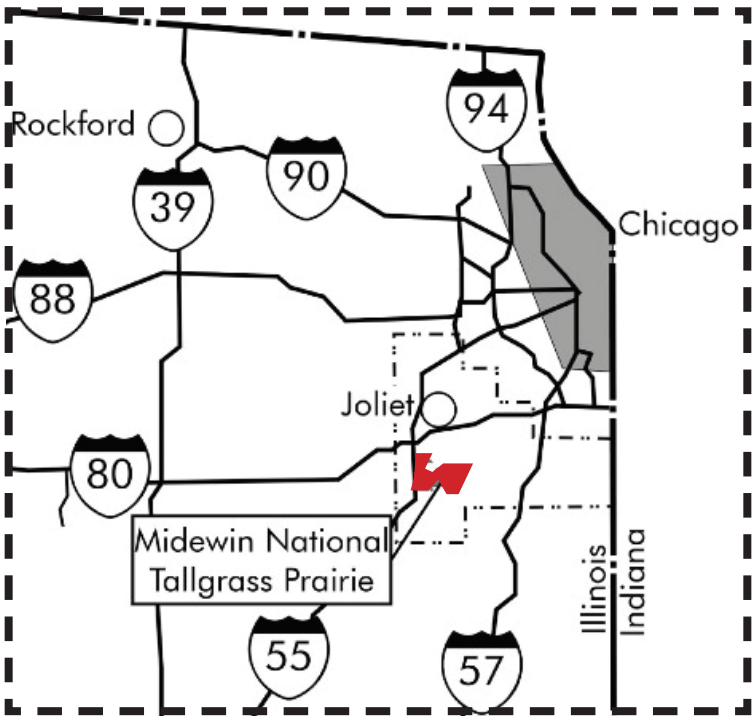


Midewin National Tallgrass Prairie Location Map

Potential Storylines of the Midewin

FROM WAR PLANTS TO PRAIRIE PLANTS

POTENTIAL STORYLINE

The conversion of the Joliet Arsenal plant to the Midewin National Tallgrass Prairie was made possible by public support and the desire to promote open space and protect endangered populations of wildlife, such as the upland sandpiper. The Midewin represents an excellent chance to interpret how citizens worked together in a grassroots effort to promote the establishment of Midewin through the Illinois Land Conservation Act of 1996. It is a regional conservation success story that can serve as a model for the nation.

Image of the WW II ammunitions plant in the 1940's.

HEALING OF THE LAND

Image of restored tallgrass prairie.

POTENTIAL STORYLINE

Midewin represents a major effort to restore and "heal" almost 20,000 acres of previous farm and industrial land to native ecosystems. This huge undertaking is made possible through the collaboration of various partnerships and dedicated volunteers, who contribute thousands of hours each year to heal the prairie. By connecting with volunteers and non-traditional partners Midewin will become a gem that represents a glimpse at the land history of what is practically an extinct ecosystem – the tallgrass prairie.

URBAN CONNECTIONS

POTENTIAL STORYLINE

Midewin is the largest open space and wildlife habitat in the Chicagoland area. This provides the potential for the USFS at Midewin to educate millions of individuals and connect them with nature through outreach and on-site educational programs. Midewin provides endless opportunities to learn about prairie ecology in an outdoor classroom or conduct research in the nursery, laboratory or field.

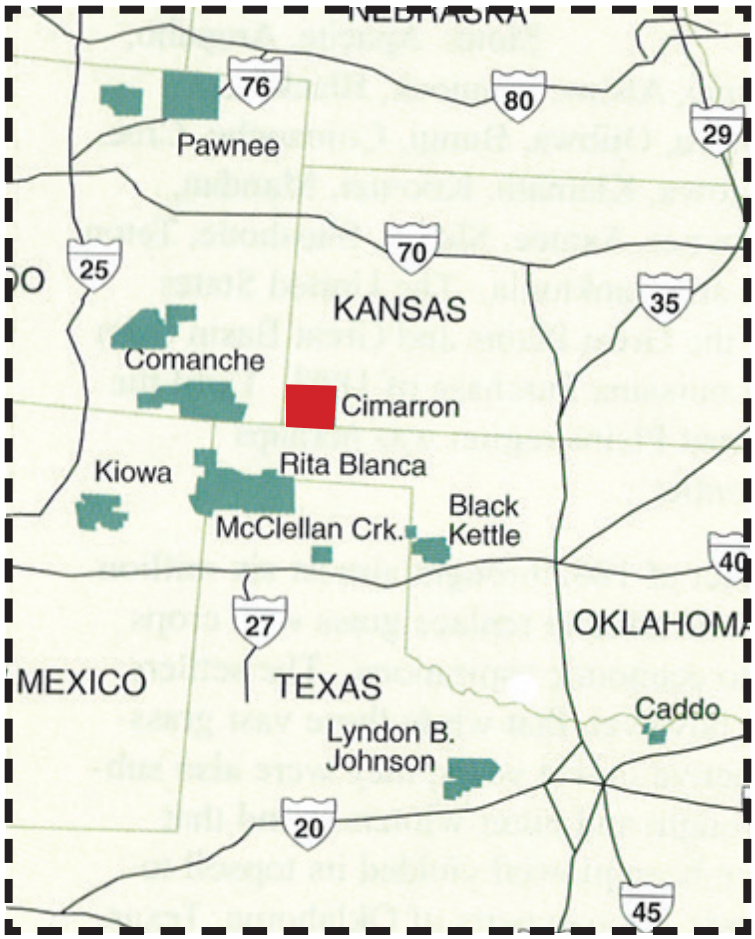
Restoration (Photo courtesy of Eric Ulasek)

Cimarron National Grassland

Historic wagon trail ruts and important landmarks allow visitors to walk in the footsteps of travelling merchants along the Sante Fe Trail that winds beside the Cimarron River and through the rolling prairie tableland of the Cimarron NG. Significant historic and cultural resources contrast prolific oil and gas production on the grassland that are important commodities to the government and to the local community.

Image of Cimarron National Grassland.

Key Map



Cimarron NG Location Map

Potential Storylines of the Cimarron National Grassland

THE SANTA FE TRAIL

STORYLINE

Once a bustling trail of people, goods and services, the Cimarron Route of the Santa Fe Trail provides an opportunity to explore the intriguing history of the westward expansion into the unknown territories of the Great Plains.

Image of a Santa Fe Trail marker.

OIL ON THE NATIONAL GRASSLANDS

STORYLINE

The first oil well drilled on the Cimarron NG was in 1929 and turned out to be a dry hole. Nineteen geological formations are beneath the surface of the grassland capable of oil/gas production. The approximately 450 oil/gas facilities, with 320 leases and approximately 500 miles of pipeline, on the Cimarron provide an opportunity to interpret this industry and the millions of dollars generated each year.

Image of Cimarron River Valley.

BIRDING

STORYLINE

The Cimarron NG has been listed as one of the top 100 places to bird watch in the United States by the American Birding Association. Over 360 species of birds have been sighted on the Cimarron. This bird population provides a good opportunity to interpret people's travels from all over the world to view the mating ritual of the lesser prairie chicken and to hunt upland game birds.

LARGEST PARCEL OF PUBLIC LAND IN KANSAS

Image of a grass path adjacent to Middle Springs.

STORYLINE

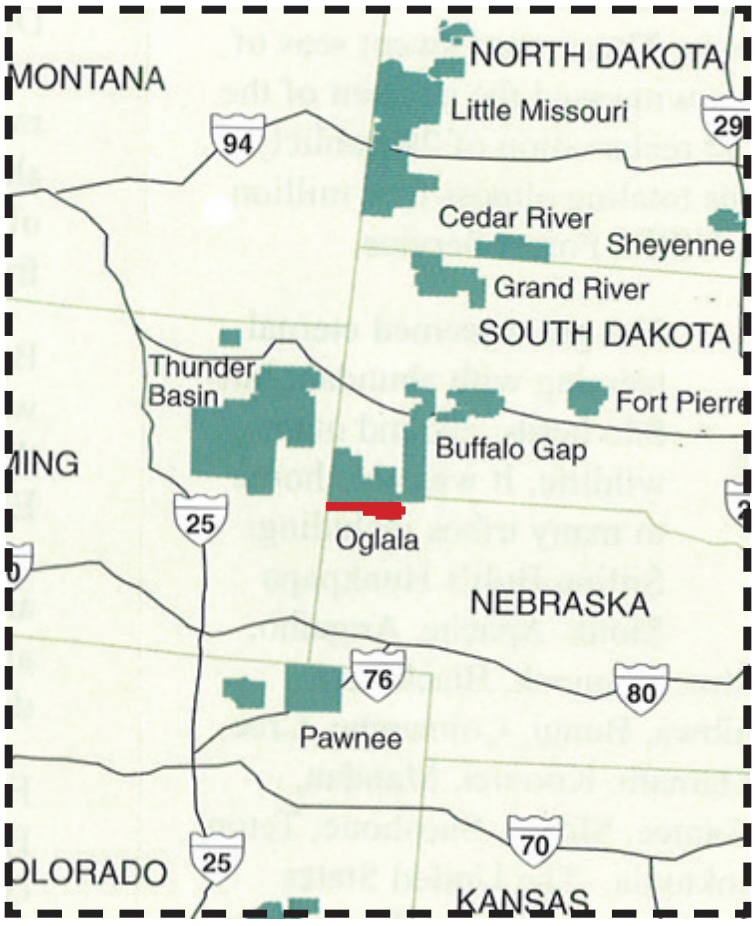
The Cimarron is largest public land and the only USDA Forest Service land in Kansas. The size and numerous recreational activities such as hiking, fishing, hunting, and camping provide an opportunity to interpret the conservation and management strategies that support these outdoor recreational activities.

Oglala National Grassland

Buttes and badland formations surrounded by a “sea of grass” draw tourists to the Oglala NG to explore Oligocene epic fossilized animal bones. Toadstool formations resembling a moon-like landscape and, atypical to a grassland, the southern portion of the unit has a small ponderosa pine environment.

Image of the Oglala National Grassland.

Key Map



Oglala NG Location Map

Potential Storylines of the Oglala National Grassland

TOADSTOOL GEOLOGIC PARK

POTENTIAL STORYLINE

Large prehistoric animal fossils and tracks at Toadstool Geologic Park provide an opportunity to interpret Oligocene period animals frozen in unusual sandstone rock formations.

Image of the toadstool formations the Oglala National Grassland.

HUDSON-MENG BISON KILL

Mural courtesy of Jerry Kathol.

POTENTIAL STORYLINE

The unique rock formations and Alberta Culture bison kill site on the Oglala provide the opportunity to interpret how nomadic hunters survived 10,000 years ago on the high plains grassland environment.

BATTLE OF WARBONNET CREEK

POTENTIAL STORYLINE

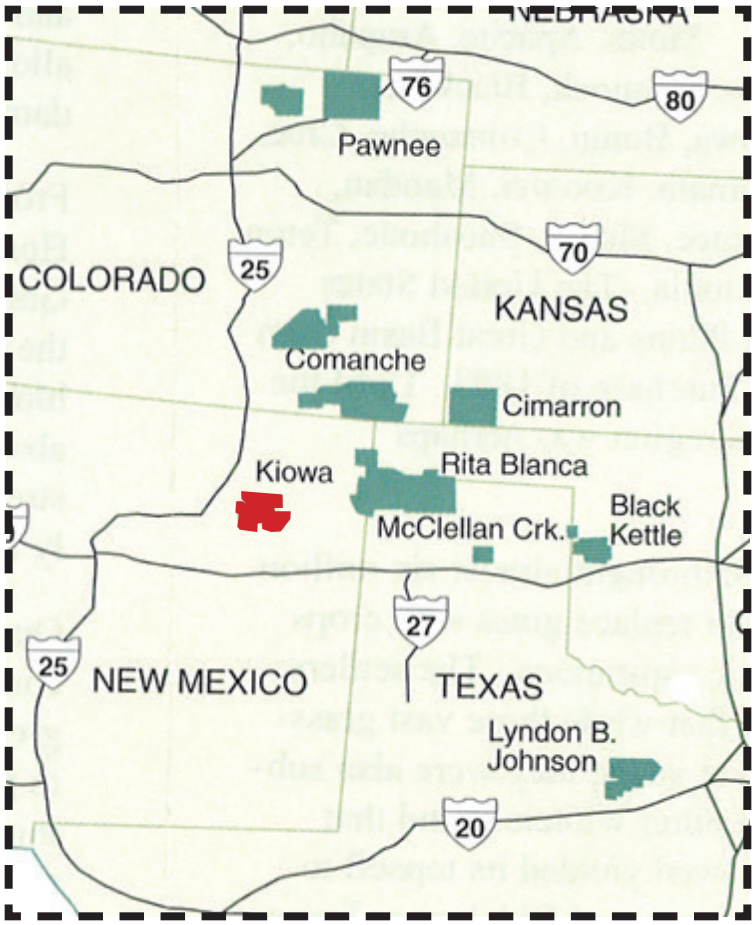
Encouraged by the success of the Battle of the Little Bighorn, Cheyenne Native Americans were joining Sitting Bull and Crazy Horse. The Battle of Warbonnet Creek provides an opportunity to interpret the incident between "Buffalo Bill" Cody and Chief Yellow Hair on the Oglala.

Kiowa National Grassland

The Kiowa NG provides exceptional wild and scenic beauty alongside the wind-swept high plains prairie. The high plains portion of the grassland reveals trail ruts from the historic Santa Fe Trail and playa lakes, both significant prairie features.

Image of Mills Canyon at Kiowa National Grassland.

Key Map



Kiowa NG Location Map

PRESCRIPTIVE OR PERMITTED GRAZING RESEARCH

POTENTIAL STORYLINE

Conventional grazing practices are widely used on public and private lands. The Clayton Livestock Research Center on the Kiowa NG provides an opportunity to understand integrated resource management on grazing lands and how range management can benefit wildlife species, as well as livestock on the National Grasslands.

Clayton Livestock Research Center.

MILLS FAMILY HOMESTEAD

Image of Mills house at Mills Canyon.

POTENTIAL STORYLINE

Melvin W. Mills escaped death from hanging and established a small fortune along the Canadian River Canyon. His story provides an opportunity to interpret the "wild west" lifestyle and how the Mills Family recognized the immense wealth of the Canadian River Canyon.

MILLS CANYON

POTENTIAL STORYLINE

The rugged 900-foot-deep canyon of the Canadian River provides an opportunity to interpret micro-environments within the grassland landscape. This dramatic geologic feature pierces the contiguous prairie and forms a wildlife habitat island for mule deer, black bear, Barbary sheep, ducks and geese.

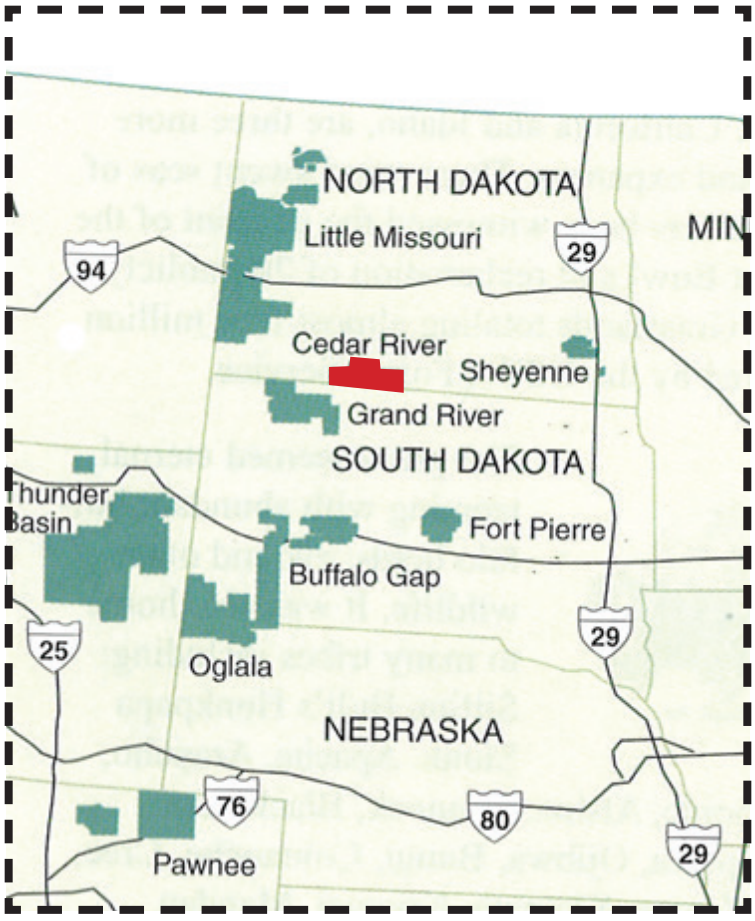
Image of Mills Canyon.

Cedar River National Grassland

Cedar River NG is the smallest of the northern grasslands. Soft rolling hills of short to mid-grass prairie support several wildlife species that attract numerous hunters every fall.

Cedar River National Grassland.

Key Map



Cedar River NG Location Map

FIRE AS AN ECOLOGICAL FORCE

POTENTIAL STORYLINE

Grasslands are naturally a fire dependent ecosystem. Fire prevents the encroachment of trees, reduces invasive species of plants and supports native forbes and grass species. Naturally occurring and prescribed fires provide an opportunity to understand fire as a management tool and a component that is vital to keystone grassland species.

Effects of fire on the grassland.

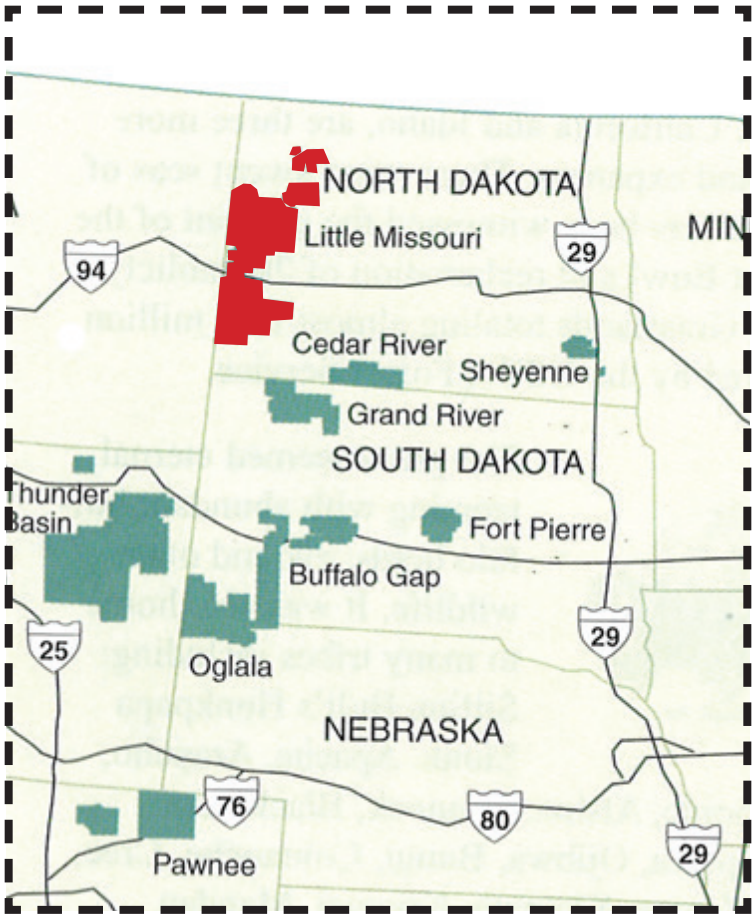
Image of Cedar River National Grassland with a prescribed burn in the background,

Little Missouri National Grassland

Little Missouri NG is the largest grassland at 1,028,051 acres, and is divided into two separate units. The north and south units are surrounded by several federal and state lands which contribute to the grassland's popularity. The unique 100-mile long Maah Daah Hey multiple-use trail winds through grasslands and scenic badlands formations highlighting the relationship between recreation in this harsh environment and the Native American peoples that inhabit(ed) it. The phrase Maah Daah Hey is translated to mean "an area that has been or will be around for a long time" in the Mandan language.

Image of the Little Missouri National Grassland.

Key Map



Little Missouri NG Location Map

Potential Storylines of the Little Missouri National Grassland

OIL AND NATURAL GAS PRODUCTION

POTENTIAL STORYLINE

The Little Missouri NG strives to strike a balance between commodities and conservation. More than 500 oil and natural gas wells on the grassland provide an opportunity to interpret the idea of the "working landscape" and the development-preservation balance.

Image of oil and natural gas wells on the Little Missouri.

DENBIGH EXPERIMENTAL FOREST

Image of a lone tree and rock formations on the Little Missouri.

POTENTIAL STORYLINE

The 636 acre Denbigh Experimental Forest reveals a vision by President Franklin Delano Roosevelt to plant a massive forest that would reduce wind erosion by restoring areas disturbed during the Dust Bowl. This nationally significant site provides an opportunity to interpret the idea of the "shelterbelt zone" and restoration efforts post Great Depression.

ROOSEVELT'S ELKHORN RANCH

POTENTIAL STORYLINE

Theodore Roosevelt's Elkhorn Ranch is known as the "Cradle of Conservation", or "The Walden of the West." Elkhorn Ranch provides an opportunity to interpret the significant history of the Conservation Movement in America and the formation of the USFS by Roosevelt in 1905.

Image of Little Missouri NG.

"THE BIRNT HILLS"

Image of isolated badland formations.

POTENTIAL STORYLINE

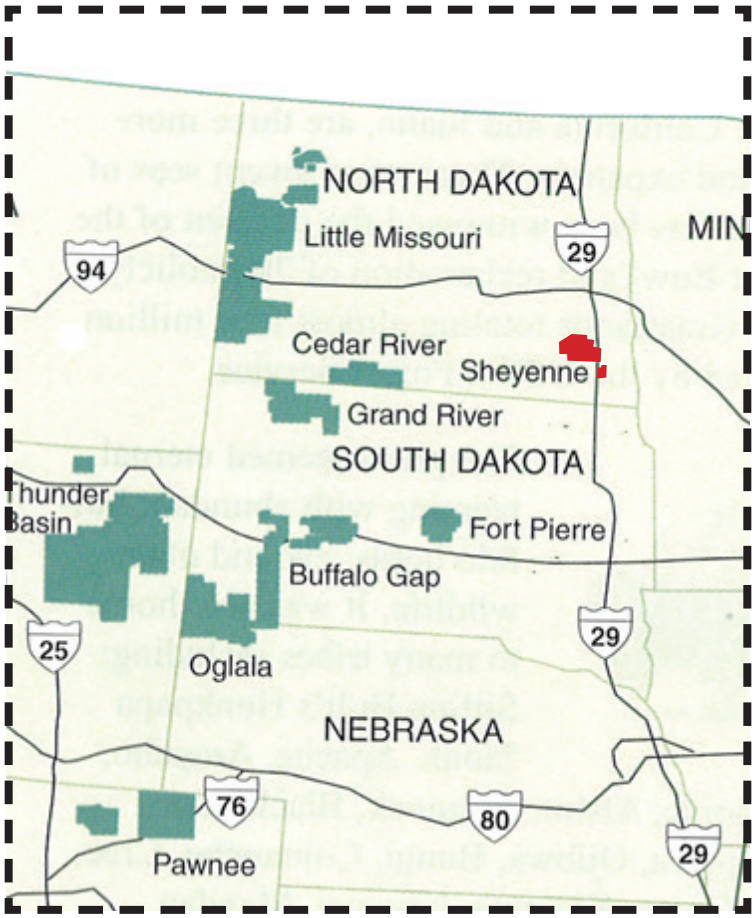
"The birnt hills" site provides an opportunity to interpret the expedition of Lewis and Clark in 1805 and to tell the story of Lewis being mistakenly shot while hunting elk on the present day Little Missouri NG.

Sheyenne National Grassland

Tallgrass, wetland, choppy sand hills, woody draws, prairie potholes and oak savanna landscapes give Sheyenne NG a unique and diverse landscape. These ecosystems support rare plant and animal species such as the western prairie fringed orchid, Dakota skipper butterfly and regal fritillary butterfly.

Image of Sheyenne National Grassland.

Key Map



Sheyenne NG Location Map

Potential Storylines of the Sheyenne National Grassland

TALL GRASS PRAIRIE REMNANT

POTENTIAL STORYLINE

Seas of swaying grass on the Sheyenne NG represent some of the few remnants of tall grass prairie that exist in public ownership. These remnants provide an opportunity to interpret one of the most endangered habitat types in the world, as well as the high productivity of tall grass prairie and how it was converted by settlers to agricultural use.

EFFECTS OF PERMITTED GRAZING

Image of Sheyenne NG.

POTENTIAL STORYLINE

Significant cattle grazing on the Sheyenne NG provides an opportunity to interpret the dynamic and sensitive relationship between managed grasslands and the protection of the few remaining tracts of native prairie.

RARE PLANT AND ANIMAL SPECIES

POTENTIAL STORYLINE

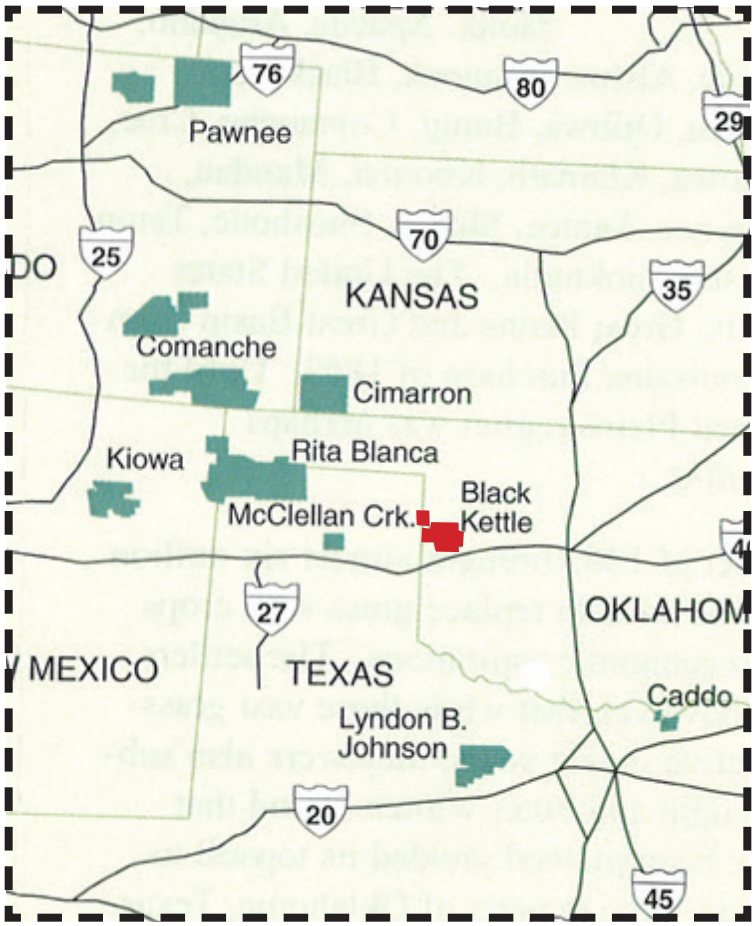
More than 40 sensitive plant and animal species are in the Sheyenne tall grass prairie ecosystem. Some include the western prairie fringed orchid, beach heather, and the Dakota Skipper and the Regal Fritillary butterflies. The protection of the these species provides an opportunity to interpret efforts by the USFS to restore grassland habitat.

Black Kettle National Grassland

Due to a high demand for recreation areas in northwest Texas and northeast New Mexico, Black Kettle NG is one of the most intensely used grassland units. The grassland's diverse ecosystems, specifically the shinnery oak community, contribute to the populous avian species that attract birding visitors from across the nation. Rolling hills, woody draws, and oak savanna contribute to the ecological diversity of this grassland.

Image of Black Kettle National Grassland

Key Map



Black Kettle NG Location Map

Potential Storylines of the Black Kettle

RIO GRANDE TURKEY HUNTING

POTENTIAL STORYLINE

Recreational hunting of the Rio Grande Turkey on the Black Kettle NG provides an opportunity to interpret the transition from a subsistent way of life as a hunter and gatherer to a recreation lifestyle as a hunter for sport.

Image of Rio Grande turkeys on the Black Kettle.

EXTENSIVE USE OF SHELTERBELTS

Image of rows of shelterbelts up close.

POTENTIAL STORYLINE

A network of shelterbelts crisscrossing the Black Kettle provides an opportunity to interpret this cultural landscape, and its ecological and aesthetic change to the Great Plains grasslands.

FOUR LAKES

POTENTIAL STORYLINE

The four lakes of the Black Kettle NG provide an opportunity to interpret waterbodies that dot the landscape of the southern Great Plains and how they related to the hydrologic cycle.

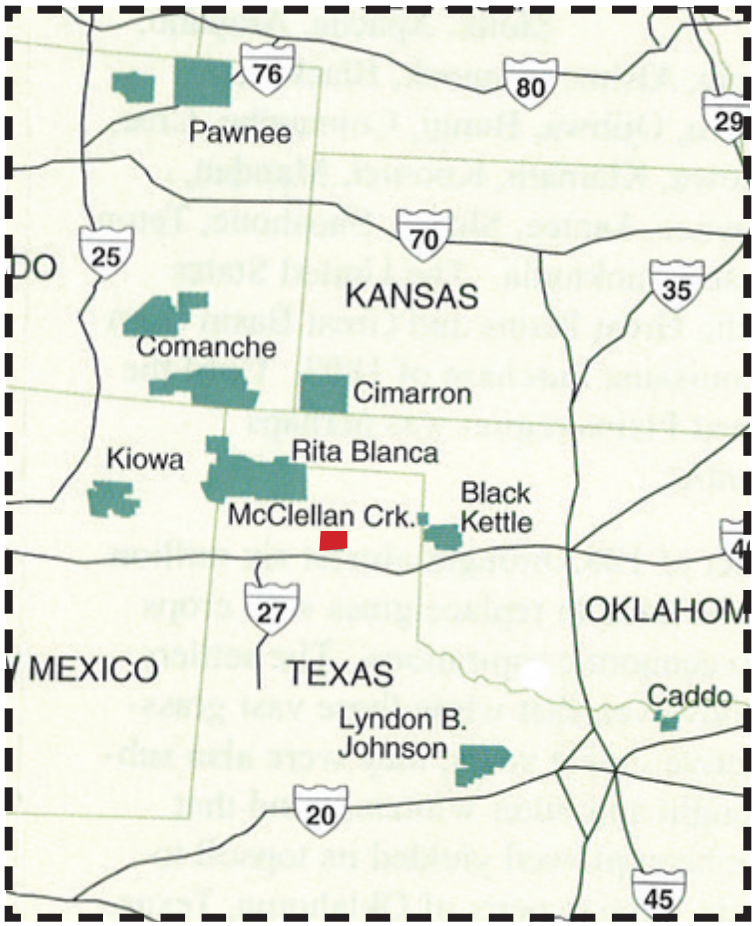
Image of a lake on the Black Kettle NG.

McClellan Creek National Grassland

McClellan Creek NG is the smallest National Grassland unit but provides a haven for a multitude of wildlife species. Convenient access and modern facilities also attract visitors to enjoy recreational opportunities that include fishing, camping, birdwatching and OHV use.

Image of Lake McClellan on McClellan Creek National Grassland.

Key Map



McClellan Creek NG Location Map

Potential Storylines of McClellan Creek National Grassland

ISLAND IN THE GREAT PLAINS

POTENTIAL STORYLINE

McClellan Creek NG is the smallest National Grassland unit and consists of a variety of microclimates that support species such as the white-tail deer, bobwhite quail, and the mourning dove. McClellan Creek provides an opportunity to interpret wildlife's reliance on small island habitats that dot the Great Plains landscape.

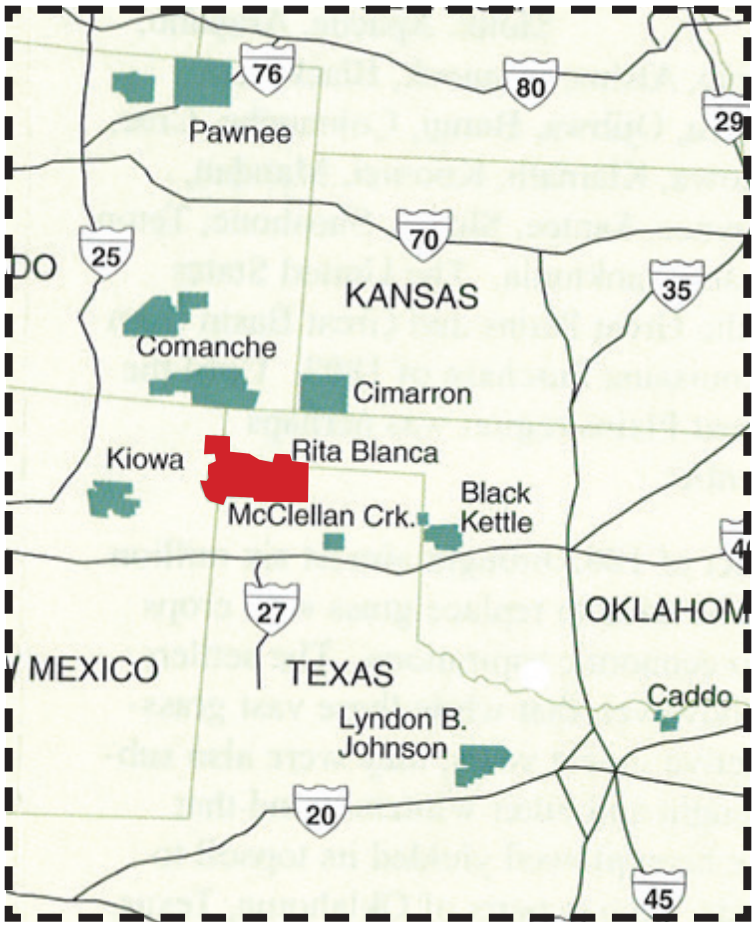
Image of the high prairie landscape at McClellan Creek NG.

Rita Blanca National Grassland

Big sky views, endless horizons and wind-swept hills dominate the Rita Blanca NG. Here, visitors can explore remote areas that are nearly void of development. Cultural resources such as cattle grazing, picnicking and camping, encourage visitor use on the grassland.

Image of Rita Blanca National Grassland.

Key Map



Rita Blanca NG Location Map

EPHEMERAL NATURAL OF PLAYA LAKES

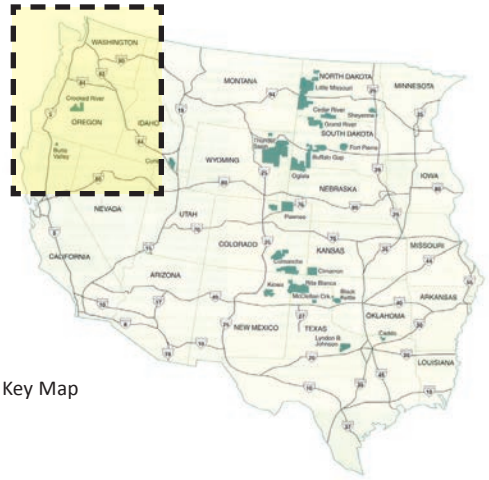
POTENTIAL STORYLINE

Temporary playa lakes dot the landscape of the Rita Blanca NG during periods of intense precipitation. These lakes provide an opportunity to understand how migratory birds, wildlife and humans use these ephemeral lakes on the prairie landscape.

Crooked River National Grassland

Large mammals including mule deer, Rocky Mountain elk, pronghorn and mountain lions roam the undulating grasslands and sagebrush-juniper habitat of Crooked River NG. The grassland, a natural respite from the rapidly growing surrounding community, is also home to numerous species of birds including mountain quail, horned lark and burrowing owl.

Image of Crooked River National Grassland.



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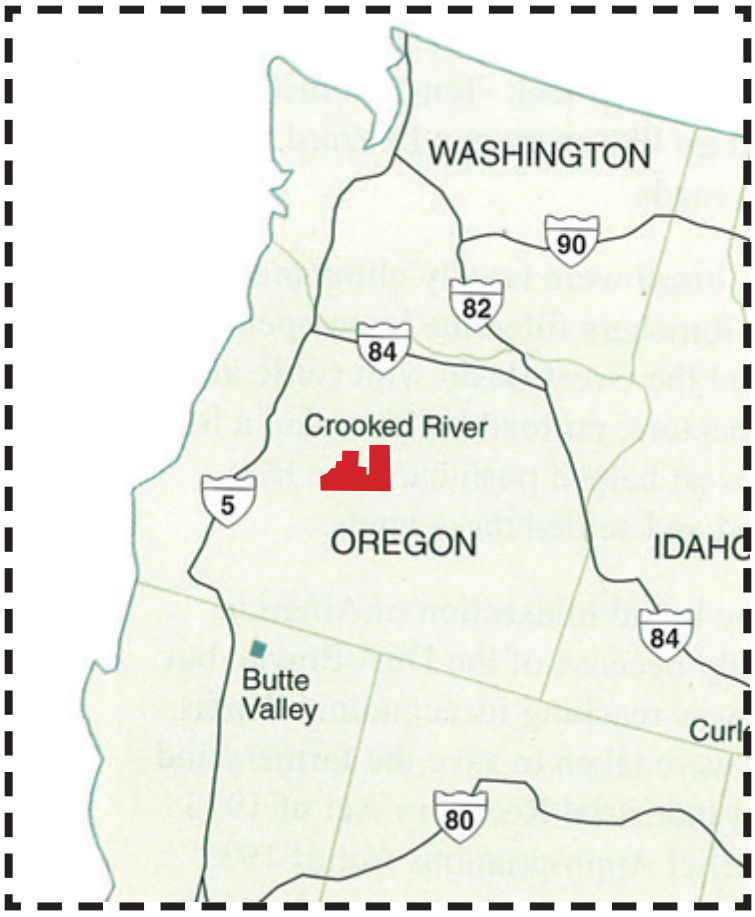


Crooked River NG Location Map

Potential Storylines of the Crooked River National Grassland

HUNTER-GATHERER SOCIETIES

POTENTIAL STORYLINE

The unique high desert landscape and long history of highly mobile family groups on the Crooked River NG, provide an opportunity to communicate the dynamic relationship between the Central Oregon American tribes and their environment.

Image of a tree on Crooked River National Grassland.

EVIDENCE OF CLIMATE CHANGE

POTENTIAL STORYLINE

The west flank of Grey Butte reveals millions of years of climate change evident in leaf fossils. This terrestrial evidence provides an opportunity to interpret and explain the change in North American climate from tropical to temperate.

CROOKED RIVER CALDERA

POTENTIAL STORYLINE

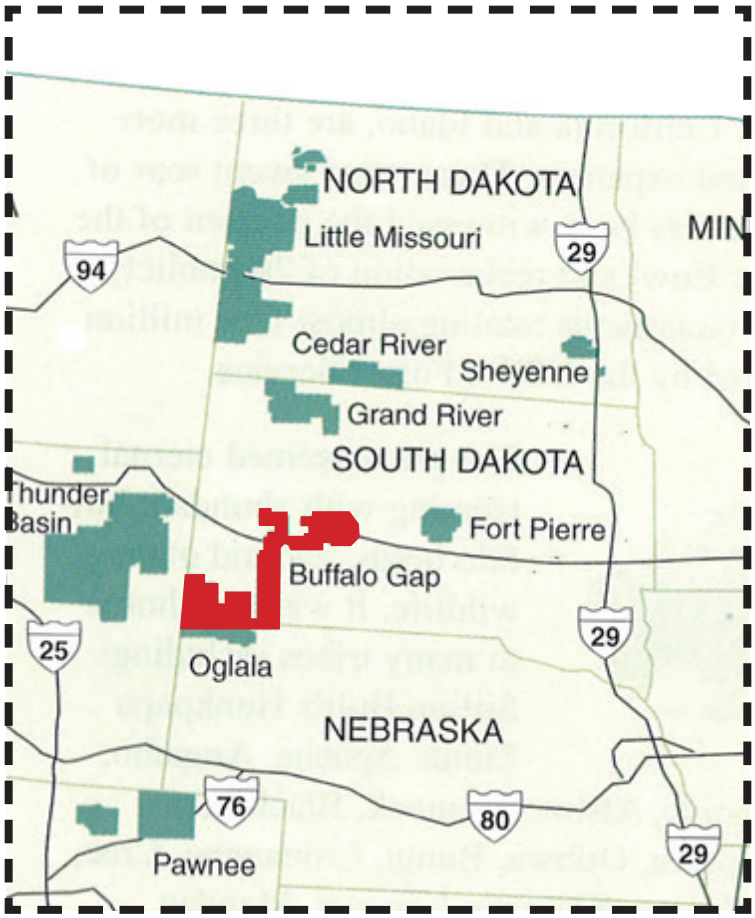
The Crooked River NG straddles the Crooked River Caldera, which is one of the largest known single volcanic vents in the geologic record of Oregon. A supervolcanic eruption nearly 29.5 million years ago provides an opportunity to interpret the John Day Formation, a group of rocks that contains one of the richest fossil records in North America.

Buffalo Gap National Grassland

The Buffalo Gap NG is a horizontal sea of prairie contrasting starkly with the vertical White River Badland formations. The grassland's abundant wildlife, diverse vegetation and diverse cultural land uses are engulfed in the vastness of wide-open spaces.

Image of Buffalo Gap National Grassland.

Key Map



Buffalo Gap NG Location Map

Potential Storylines of the Buffalo Gap

BISON HUNTING ON THE BUFFALO GAP

POTENTIAL STORYLINE

The unique land features and history of buffalo hunting on the Buffalo Gap provides an opportunity to communicate the dynamic relationship between the Lakota tribes and their environment.

BLACK-FOOTED FERRET REINTRODUCTION

Image of a reintroducted Black-footed Ferret.

POTENTIAL STORYLINE

The consequences of development and habitat fragmentation on black-footed ferret populations provides an opportunity to interpret the unseen world of underground life in prairie dog colonies and the occurance of plague on the Buffalo Gap National Grassland.

MINUTEMAN MISSILE NATIONAL HISTORIC SITE

POTENTIAL STORYLINE

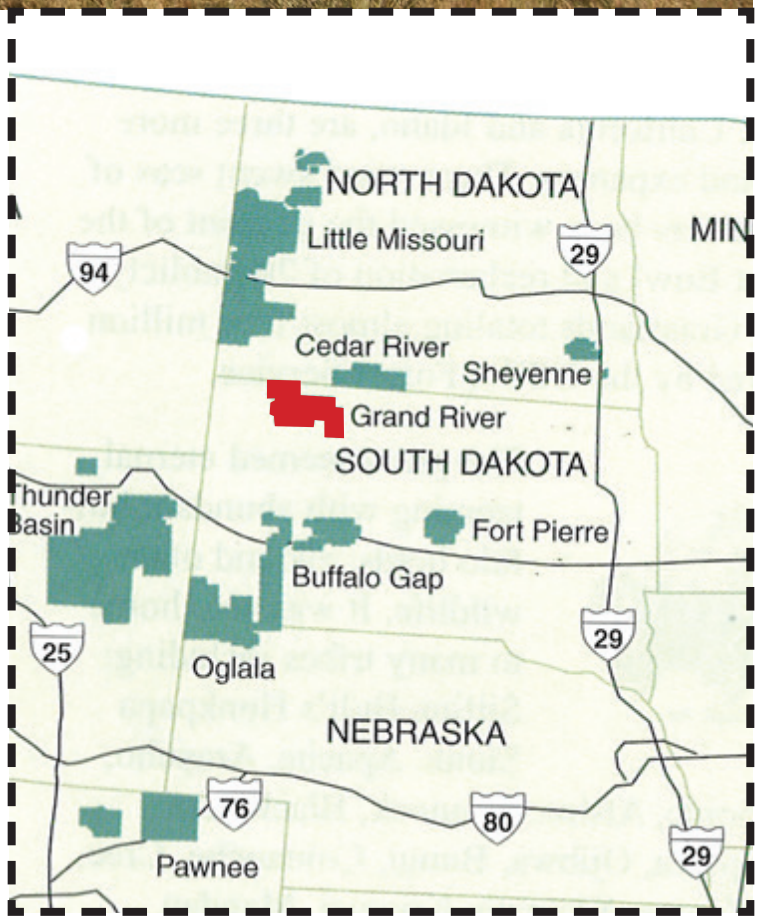
The juxtaposition between a natural National Grassland and a destructive nuclear warhead (National Park Service site) provides an opportunity to interpret the Great Plains ecological system alongside a global political affair.

Grand River National Grassland

Grand River NG provides exceptional recreation activities by providing modern visitor facilities and convenient access. The grassland has a variety of features that attract visitors to rolling prairies, wooded waterbodies, and isolated badland formations.

Image of Grand River National Grassland.

Key Map



Grand River NG Location Map

Potential Storylines of the Grand River National Grassland

HISTORIC CULTURAL REMNANTS

POTENTIAL STORYLINE

The profusion of tipi rings and remnants of campfires scattered across the Grand River NG provides an opportunity to interpret the current popularity of autumn hunting and the role this area served as a hunting ground for the nomadic Plains Indian tribes.

Image of isolated badland formations.

BLACK HILLS EXPEDITION

Image of vegetation on the Grand River.

POTENTIAL STORYLINE

General Custer and his troops traveled through the area on their expeditions to the Black Hills. These expeditions provide an opportunity to interpret the "Indian Wars" and efforts by the United States military to eradicate Native American populations from their homes on the Grand River NG.

GRAND RIVER FUR TRADE

POTENTIAL STORYLINE

Adventurer Hugh Glass survived a brutal grizzly bear attack while trapping near the Forks of Grand River. This story provides an opportunity to interpret the fur trade and the human struggles to eke out an existence in the wild and often inhospitable areas that now make up the National Grasslands.

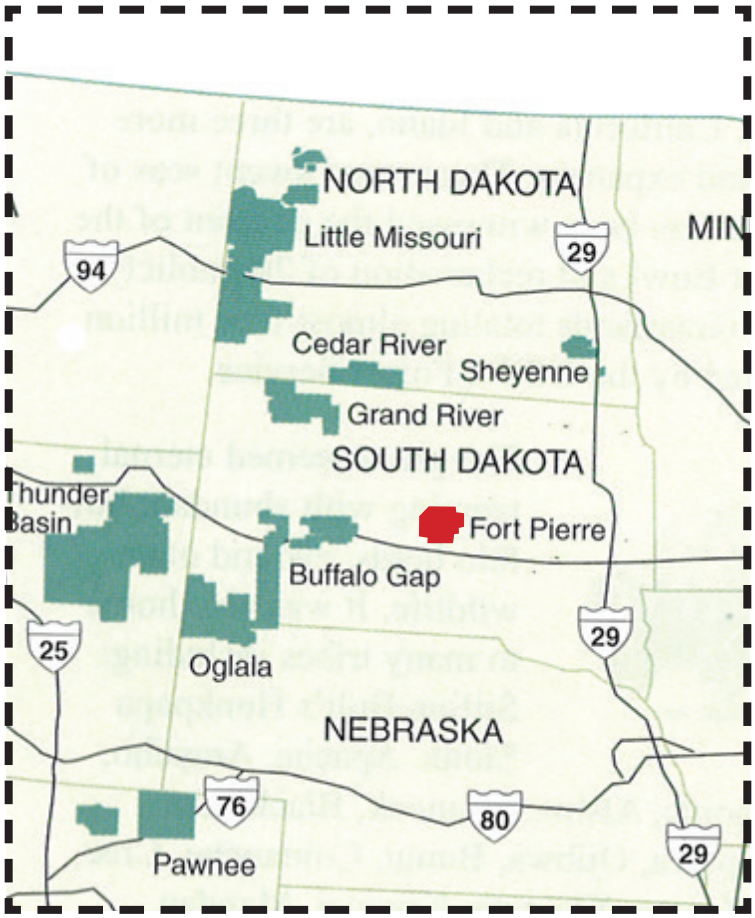
Image of vegetation on the Grand River.

Fort Pierre National Grassland

The Fort Pierre NG provides exceptional recreation activities such as birdwatching and hunting. The grassland is situated at the transition zone between the mixed-grass and tall-grass prairie which provide critical habitat for wildlife species. The soft, subtle and rolling hills and endless horizon of the grassland allow visitors to experience an iconic grassland landscape.

Image of Fort Pierre National Grassland

Key Map



Fort Pierre NG Location Map

Potential Storylines of the Fort Pierre National Grassland

UPLAND GAME BIRD HUNTING & Birdwatching

POTENTIAL STORYLINE

Abundant upland game birds such as ring-necked pheasant, sharp-tailed grouse and the greater prairie chicken entice out-of-state hunters to the Fort Pierre NG. Hunting and birdwatching of upland game birds provide an opportunity to interpret a variety of bird species and the importance of grassland management to support these birds.

Prairie Chicken

Sharp-tail grouse (Photograph by Dave Herr)

Ring-necked pheasant (Photograph by Dave Herr)

PRODUCTION OF FERTILE SOILS

POTENTIAL STORYLINE

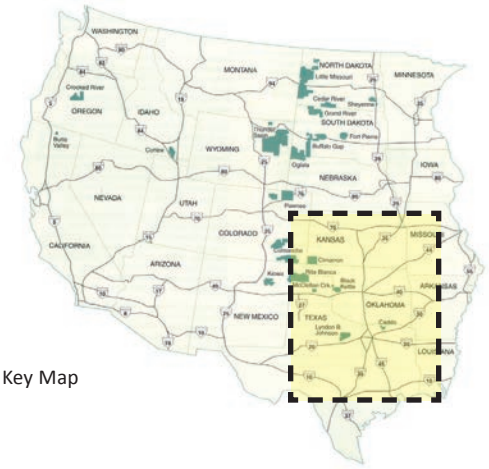
Considered one of the tallest prairies in the National Grasslands system, Ft. Pierre NG receives an abundant amount of rainfall to support highly fertile soils below a mid-grass, to tallgrass prairie. Ft. Pierre NG provides an opportunity to understand soil decomposition below the surface of a grassland and how early settlers exploited these fertile soils for crop production.

Image of a cottonwood and green ash stand along a pond.

Caddo National Grassland

Caddo NG is a combination of blackland prairie and bottomland hardwoods along the Red River in Texas. From the historic site at Lake Fannin Camp to a top-flight fisheries, the Caddo provides a wide variety of recreational uses for the public.

Lake Fannin Camp on Caddo National Grassland



Key Map

Caddo NG Location Map

LAKE FANNIN CAMP

POTENTIAL STORYLINE

Built in the 1930s, historic Lake Fannin Camp served as a major recreational area for the Dallas/ Fort Worth area through the 1950s. The Lake Fannin Camp provides an opportunity to interpret the transitions between unique cultural uses on the camp and the effects of those uses on the environment.

Caretaker's house and Cypress water tower.

OUTDOOR PARADISE

Bass fishing on the Caddo National Grassland.

POTENTIAL STORYLINE

Caddo NG offers hunting of white tail deer, eastern wild turkey and wild hog, and bass fishing. The grassland's size and proximity to the city provides an opportunity to interpret the conservation and management strategies that support outdoor recreational activities.

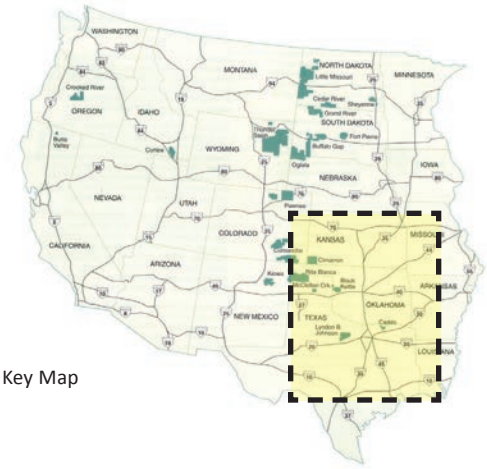
Waterfowl take flight on the Caddo National Grassland.

Lyndon B. Johnson (LBJ) National Grassland

Lyndon B. Johnson NG lies in the Fort Worth urban-rural interface. Its 20,000 plus acres provides plentiful recreational opportunities including camping, fishing, swimming, horse back riding and hunting. The LBJ NG is a hidden gem in the Dallas/Fort Worth Metroplex area.

Image of the Lyndon B. Johnson National Grassland.

Image of cattle grassing the Lyndon B. Johnson National Grassland.



Key Map

Lyndon B. Johnson NG Location Map

Potential Storylines of the Lyndon B. Johnson NG

DUST BOWL TO DIVERSITY

POTENTIAL STORYLINE

After destructive farming methods and the Dust Bowl, decades of effort have begun to restore the tallgrass prairie. Now, over 1,200 plant species are found on the grassland, making LBJ NG one of the most diverse landscapes in Texas. Lyndon B. Johnson NG provides an opportunity to interpret the cultural and ecological benefits of increased plant diversity in the landscape.

Crosstimbers prairie.

Plant diversity on the LBJ National Grassland.

AN URBAN OASIS

POTENTIAL STORYLINE

Lyndon B. Johnson NG is within an hour reach of 6 million people located in the Dallas/ Fort Worth area. The grassland's size and proximity to the city along with the little amount of public land in Texas, provides an opportunity to interpret the conservation and management strategies of a highly used natural resource.

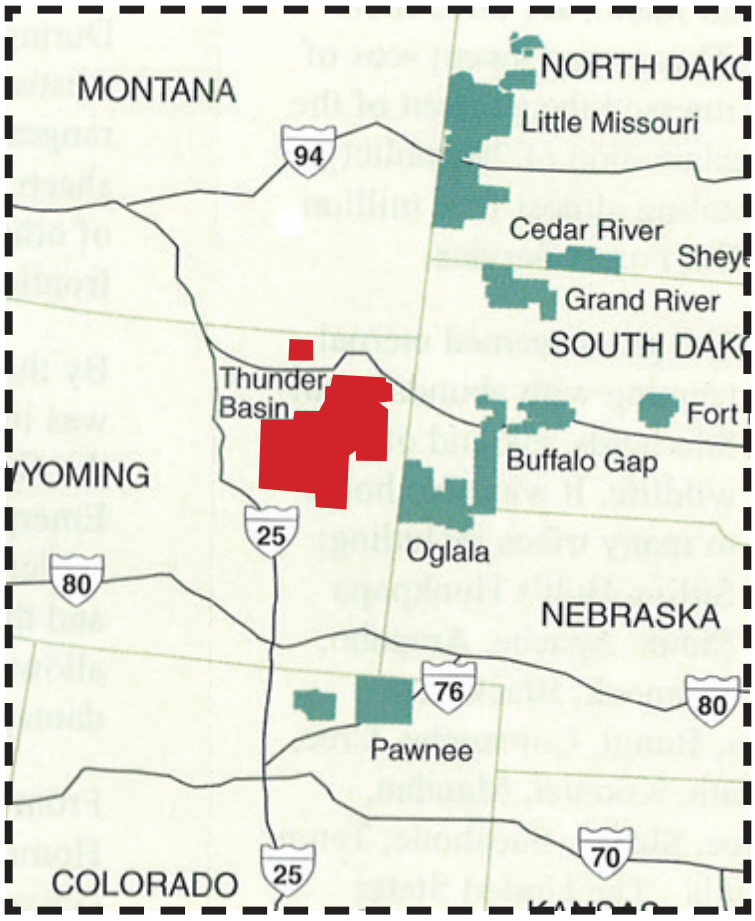
TADRA trails on the LBJ National Grassland.

Thunder Basin National Grassland

Diversity of both consumptive and non-consumptive uses thrive on the Thunder Basin NG, from open-pit coal mines to vast expanses of un-fenced native rangeland. While the Thunder Basin NG is home to world class mineral extraction, it also provides numerous recreational opportunities on thousands of acres of semi-primitive roadless areas, such as hunting, fishing, and destination birding.

Image of the Thunder Basin National Grassland

Key Map



Lyndon B. Johnson NG Location Map

Potential Storylines of the Thunder Basin

ECONOMIC INDEPENDENCE

POTENTIAL STORYLINE

Thunder Basin, North America's largest surface coal mine, provides an opportunity to understand the impact the coal mine has on the US economy and how resources on the National Grasslands support individual ranchers, local communities, and contribute to our nation's sovereignty.

Image of a coal mine on Thunder Basin NG. (Photo by Forest Service)

BALANCE OF NATURE AND TECHNOLOGY

POTENTIAL STORYLINE

The balance between preserving ecosystems and utilizing natural resources is a difficult task for land managers. The Thunder Basin NG's size and diversity provides an opportunity to understand the balance of management strategies between world class mineral extraction, vast expanses of native grassland and recreational activities.

Image of an abandoned coal mine.

Image of the coal mine restored from the effect of mining.

Process to Determine Storyline Delivery

The graphic below illustrates a process developed to weigh the Potential Storylines extracted from the Thematic Framework for Interpretation based on a preliminary determination of scale, priority, and potential delivery. Due to the vast number of Potential Storylines that exist within the National Grasslands, it is important to make early and balanced assessments of the where the storylines are most appropriately used for interpretation.

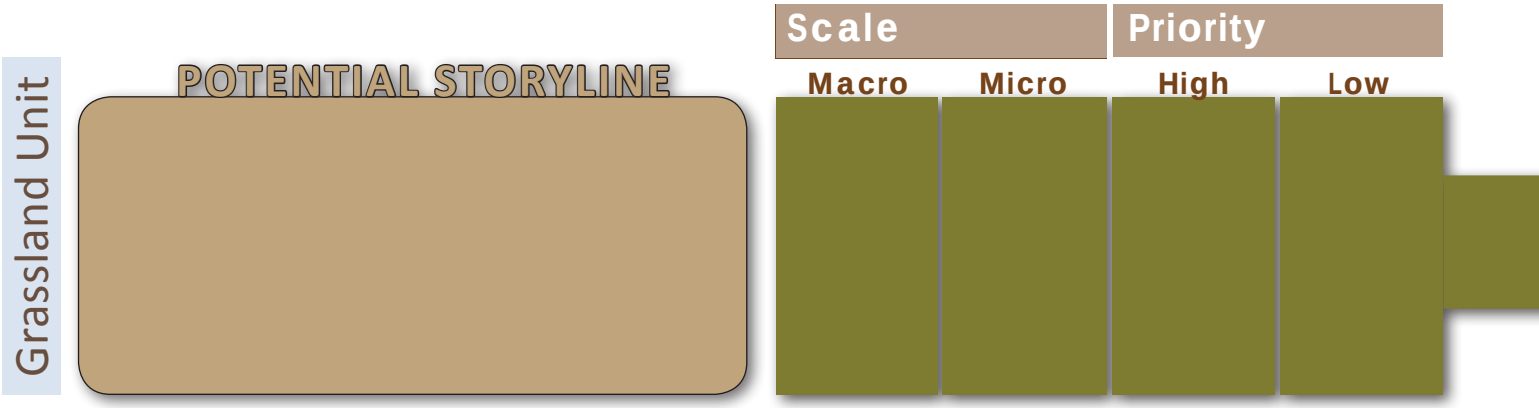


Image of a windmill built by the grazing association on the Cimarron National Grassland.

Potential Delivery

Exhibit | Print Media | Logo/Branding | Technology | Landscape

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National Grasslands

Exhibit Plan

United States Department of Agriculture

Forest Service

Center for Design and Interpretation

September 2013

US FOREST SERVICE *National Grasslands*

Prepared by: ROOT HOUSE studio

Table of Contents

Purpose of the Exhibit Plan

The purpose of this National Grasslands Visitor Center (NGVC) Exhibit Plan is to outline the most effective, engaging and appropriate delivery of the themes set forth in the National Grasslands Interpretive Master Plan (IMP). The Exhibit Plan establishes a thematic direction and develops creative design concepts to achieve the interpretive and communication goals of the IMP. The Exhibit Plan begins the process of translating the themes and storylines into physical exhibits and will guide the superseding task of developing detailed design drawings and specifications. The Exhibit Plan along with the IMP is a "road map" for the new NGVC longterm vision.

The NGVC often serves as an introduction or gateway to the National Grasslands. The NGVC's purpose is to introduce visitors to the National Grassland stories and forge emotional connections in compelling, experiential and interactive ways.

Visitor centers are constantly looking for different ways to attract and engage visitors, but what happens once they get there? Often the visitor suffers from three main problems: visitors can't find a specific piece of information; visitors leave too soon because they are not fully engaged; or visitors stay a long time but miss key take home messages from the main exhibits. An Exhibit Plan is needed to ensure these three main problems visitors encounter are addressed. The plan does this by organizing and focusing the National Grasslands interpretive messaging, guiding future management, developing interpretive and educational programs, and establishing a solid thematic foundation to direct media development and create a more enjoyable visitor experience.

Representatives from the National Grasslands were asked to answer the following questions: ***What does a successful National Grassland Visitor Center look like to you? What is the single most important take home message that you want visitors to come away from the NGVC with?*** Answers to these questions are synthesized and shown below as Goals and Take Home Message.

Goals

The Exhibit Plan will:

- Attract a broad audience with creative and interactive interpretation of the Grassland's natural systems, wildlife, and human history
- Focus and filter content so visitors are not bombarded with information overload
- Capture curiosity by using evocative storytelling techniques to engage visitors
- Use modularity to present smaller themes instead of one larger complex topic
- Present information that is easily taken in to ensure that it is accessible to people of different ages and different education levels
- Be immersive
- Be interactive to give visitors a fun experience by tapping into their emotion
- Integrate technology to enhance the visitor's experience not detract from it
- Layer content and present information in a hierarchical manner
- Increase awareness and appreciate of the Grasslands system

Ironically, perhaps the primary goal of the NGVC is to provoke visitors to leave--to open their eyes, ears, nostrils, stretch their legs, reach out their hands and critically explore the natural encounters all around them. Experiences in the NGVC should challenge visitors' existing perceptions through exploration. The exhibits are intended not to explain, but to train the senses to read the "languages" of the National Grasslands. The overall visitor experience should result in the visitor's understanding of the "universal role" of the National Grasslands and others around the globe.

Take Home Message

Visitors understand the ecological value of conserving the grasslands and appreciate how people have relied on this landscape throughout history. The visitor departing the National Grasslands Visitor Center leaves with an awareness of the USDA Forest Service and the National Grasslands system.

Overarching Theme:

ROOTED IN THE GRASSLANDS

Interwoven patterns of ecosystems, geology, production, and human history reveal the deep connection between people and our country's National Grasslands.

Primary Themes:

SYSTEMS & PATTERNS

Dynamic relationships between natural and human constructed environments connect our National Grasslands creating intersecting systems and patterns, including the Jeffersonian Grid, streams and rivers, fence lines, highways and roads, and animal migration routes.

BIG SKY, VAST LAND

A sense of wonder and a true understanding of vastness strikes those who travel out in to the open wilds of the Great Plains. This huge biome and often homogenous collection of resources plays a special role in creating large tracts of habitat and reinforces the "Big Sky Country" mystique.

LEARNING FROM THE LAYERS

Underlying the National Grasslands are stratum of geologic layers sculpted by dynamic forces over millions of years.

CONSERVING AN ETHIC

Complex ecological systems unique to the grasslands evolve to produce diverse plant and animal communities. Through conservation and restoration, the Forest Service protects and restores grassland ecosystems and wildlife habitat and improves understanding of the National Grasslands for future generations.

LIVING ON THE GRASSLANDS

Diverse cultures of people have lived on North American grasslands for at least 10,000 years, and continue to do so. Harsh and unforgiving environments speak to the dynamic nature of the National Grasslands ecosystems and the resilience of the people who traveled across ,lived, and still live on the grasslands.

PLACE OF PLENTY

A bounty of renewable and non-renewable energy resources, cattle forage, agricultural products, wildlife habitat and special forest products are produced on the National Grasslands. The diverse landscapes of our National Grasslands also support a variety of recreational uses.

GRASSLANDS AROUND THE WORLD

From the grasslands of Australia, the African savannas, the steppes of Asia, the cerrado and campo of South America, to the Great Plains of North America, grasslands are highly productive ecosystems that support flora, fauna and human populations, act as global carbon banks, reveal important clues to understanding climate change, and are inextricably linked in an epic tale of human survival, and geological and evolutionary history.

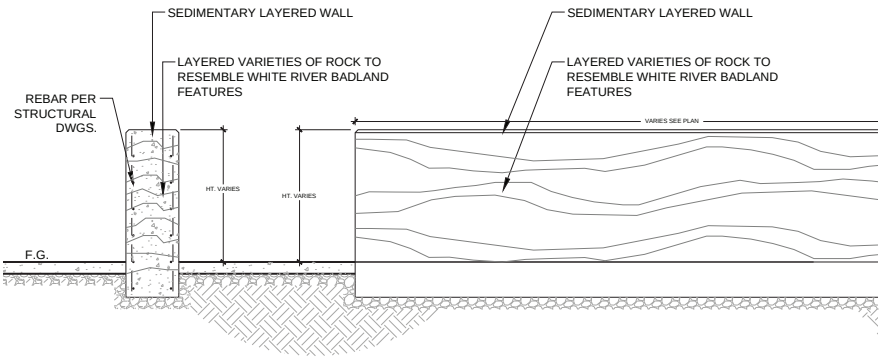
STORYLINES

Landscape Plan

The National Grasslands Visitor Center landscape will have a naturalized arrangement of plants, soft textures and lines, and a native grassland character. An improved monument sign and enhanced front plaza will provide a welcoming entry to the NGVC.

The landscape design will also include interpretive features that will introduce the visitor to the stories being told on the building's interior. The predominant themes expressed in the landscape design are Learning from the Layers and Conserving an Ethic. Exterior exhibits include a demonstration garden for native plants of the Dakota prairie. Plant identification signs in the native garden at the NGVC provide the first introduction to the complex ecological systems unique to the National Grasslands.

Bands of colored concrete in the paving and a layered earth look to the concrete site walls evoke the goeologic and erosional processes often visible on the National Grasslands.



Detail of proposed site walls.

Image of proposed concrete treatment in the landscape site walls.

A green roof kiosk is proposed to sit in the NGVC entry plaza. The kiosk will help pique the interest of passersby and display both interpretive panels and informational panels. The kiosk pulls architectural cues from the NGVC building and uses the latest green roof technology to create an attractive and unique site element.

Interpretive panels mounted on the kiosk will tell the story of green building on the National Grasslands from using sod as a readily available material during the homesteading era to the use of green roofs as a way to reduce energy costs, reduce water runoff, and increase biodiversity.

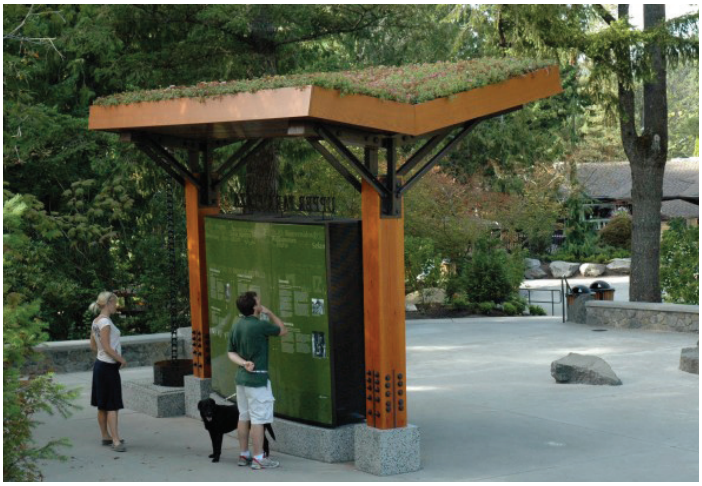


Image of similar green roof kiosk concept.

Image of similar green roof kiosk concept.

Image of elegant native prairie planting and green roof.

A Paleo Discovery Zone

The Paleo Experience Zone is for the entire family, and especially kids, to explore the mystery of pre-historic life on the National Grasslands. This outdoor exhibit space incorporates geological features and museum quality casts of dinosaur fossils to create an environment of learning, discovery, and fun. This unique, hands-on experience will give people the opportunity to actually uncover and touch the dinosaur fossils!

Location of zone A shown on page 6.

Scavenger Hunt

A National Grasslands scavenger hunt would include a set of questions/clues accessed on a mobile device. The questions/clues would present a mix of challenges and ask for multiple types of responses ranging from fill in the blank responses, to multiple choices, to snapping a photo, to describing an object in 57 characters or less. Photos can be uploaded to individual users' Facebook or Twitter feeds resulting in an instant social media campaign for the NGVC. The application would include:

- Buttons to link to USFS social media
- Timer (clock counting down in the corner from ~45 min, to build some "thrill" around the activity)
- Scoring system and/or reward for finishers

Examples of possible questions could be:
How many_____ can you count in _____exhibit?
Find a _____ and snap a photo to share.
Give _____ animal a name.

B Grassland Experience Zone

The Grasslands Experience Zone concept playfully redefines the prototypical diorama as an interactive landscape for imagination- from a bug's perspective! In this outdoor exhibit, children will follow their natural sense of curiosity as they venture through sky high blades of musical grass, scale mounds of stepped terrain, and move through an exaggerated exhibition of a grassland. Scale models of plants and animals to interact with provide an integrative context and magnified lens through which to view the natural world that thrusts the rich detail of the grasslands in to the foreground.

This exhibit aims to create inspiration for children and adults. Few visitors go to visitor centers for education--with inspiration and enjoyment information will find a place to perch.

Location of zone B shown on page 6.

C *Bison Sculpture*

Three Phases of Plains History

Bison latifrons

The bison we know are smaller than their majestic ancestors. Our three-part display will begin with the massive Bison latifrons, whose longhorn-type horns make the monument particularly striking. An adult male was one of the largest bovids that ever lived, reaching a shoulder height of eight feet and a weight of more than 4,400 pounds. Its horns spanned more than six feet. Latifrons walked through the future Wall more than 200,000 years ago, along with the saber-toothed cat, American lion, short-faced bear, and ground sloth.

Bison crassicornis

The next link in the bison chain was B. Crassicornis, whose horns were considerably shorter (30 – 52 inches), but begin to suggest the upswept form of today's familiar bison.

Bison bison bison

Throughout the history of Paleo-indians and Native Americans, this creature stood in the center of survival. Every part of the animal was consumed or utilized, whether for food, clothing, tools, or weapons. Estimates place the total number of roaming bison at some 10 million before they were hunted to near-extinction by Europeans. Today, between 500,00 and 750,000 individuals can be found on government lands and private ranches.

Phase One Concept

People are awed by the age of mammals—a time when huge versions of what exists today roamed right where we are standing. They lived harsh, dynamic lives, where the large "giant bison" had to fend off larger versions of our currant predators.

In this three-part installation depicting different eras, we picture not just three isolated, lone bison—but instead three displays of bison interacting with predators of their time.

This first installation will focus on the oldest, largest bison ancestor—face-to-face with perhaps a dire wolf, short-faced bear, or saber-toothed cat. On the other hand, it could peaceably graze with other ancient plains grassland dwellers of its time, like extinct antelope or the wooley rhino.

The idea is to bring the visitor into the past. And how to most successfully accomplish this is a project we can discuss together.

When the second and third installations are complete, viewers can truly imagine both the past environment and the experiences of our paleo ancestors—who utilized these creatures for survival.

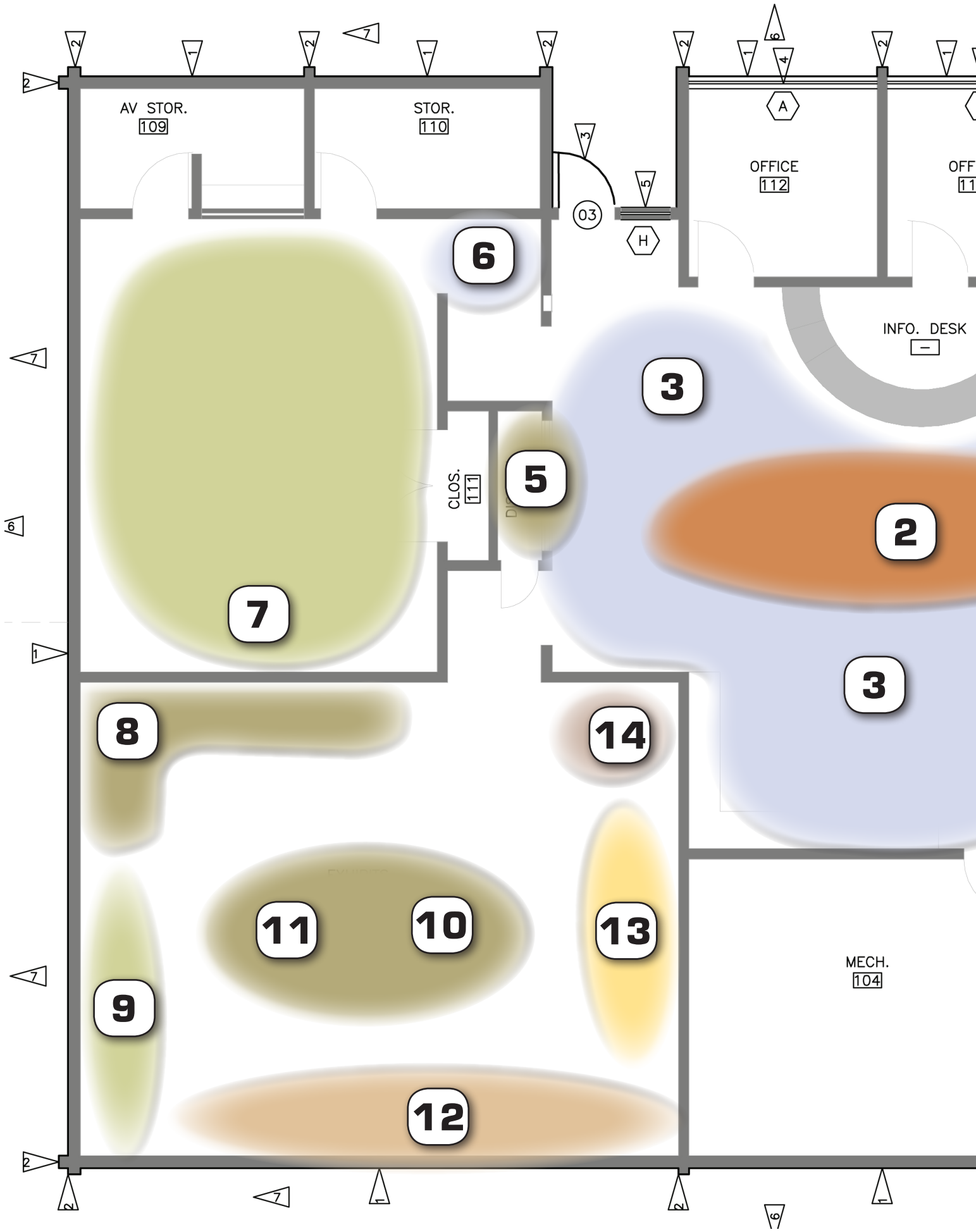

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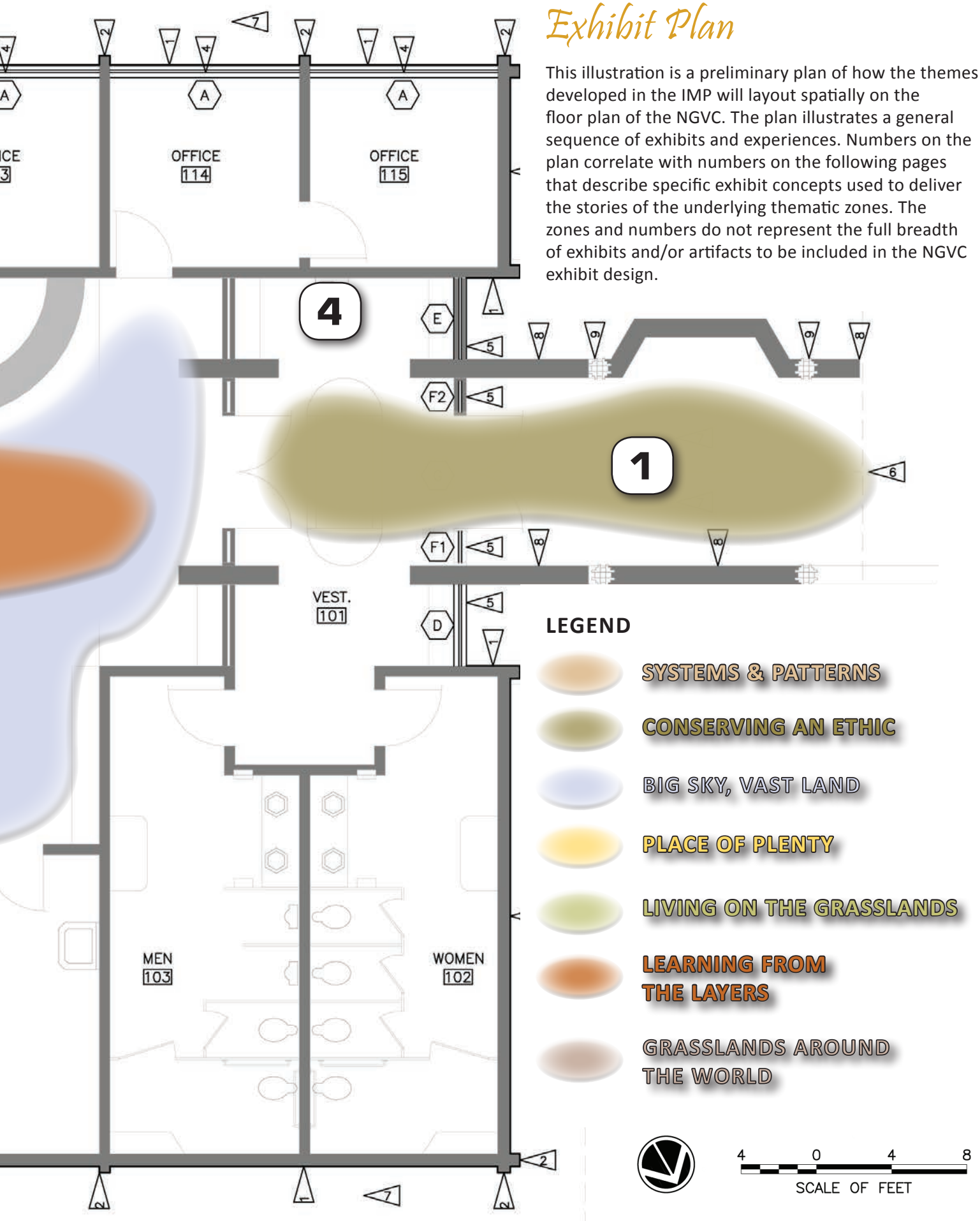
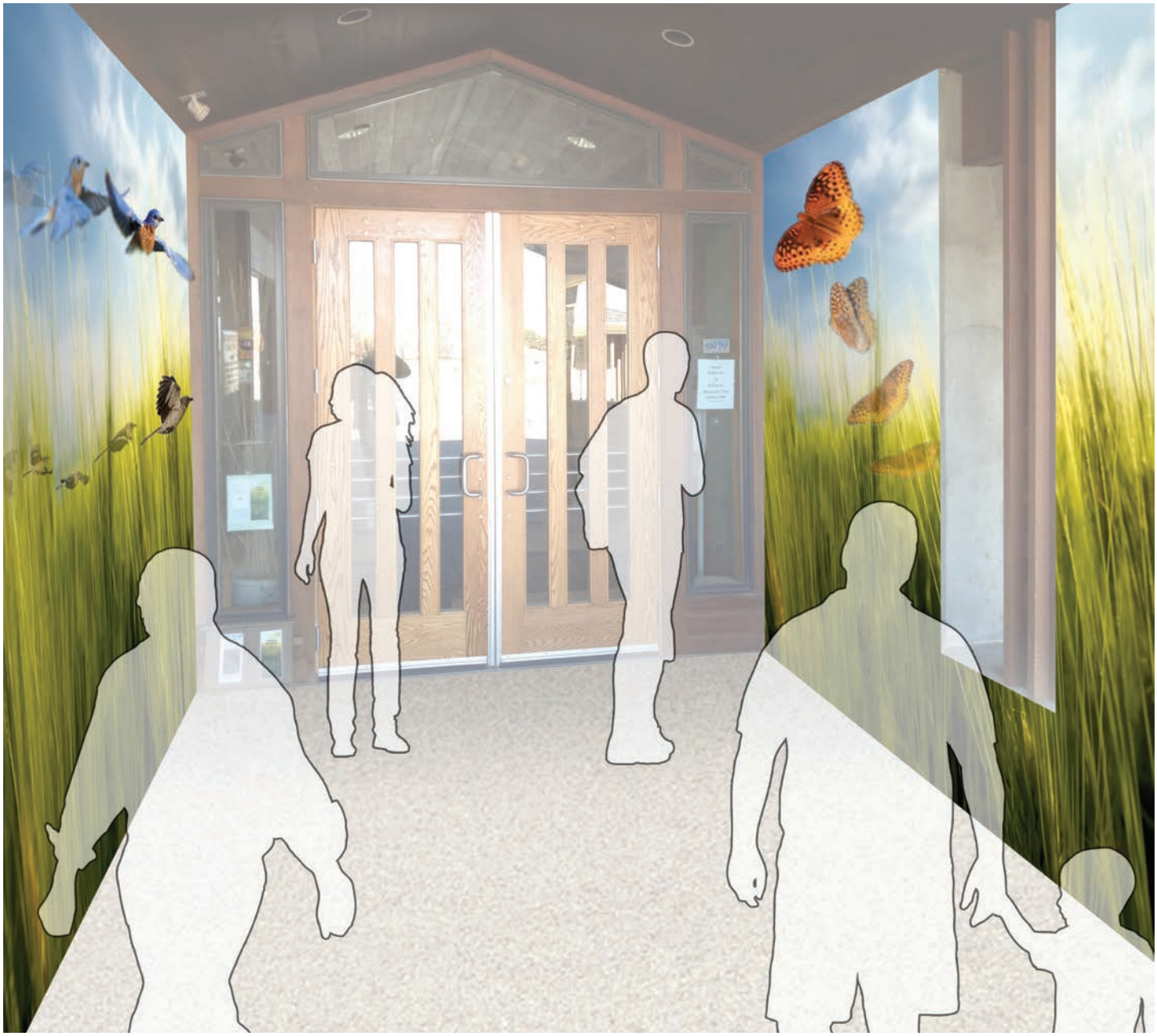
Exhibit Plan

This illustration is a preliminary plan of how the themes developed in the IMP will layout spatially on the floor plan of the NGVC. The plan illustrates a general sequence of exhibits and experiences. Numbers on the plan correlate with numbers on the following pages that describe specific exhibit concepts used to deliver the stories of the underlying thematic zones. The zones and numbers do not represent the full breadth of exhibits and/or artifacts to be included in the NGVC exhibit design.



1 Grassland Immersion Entry

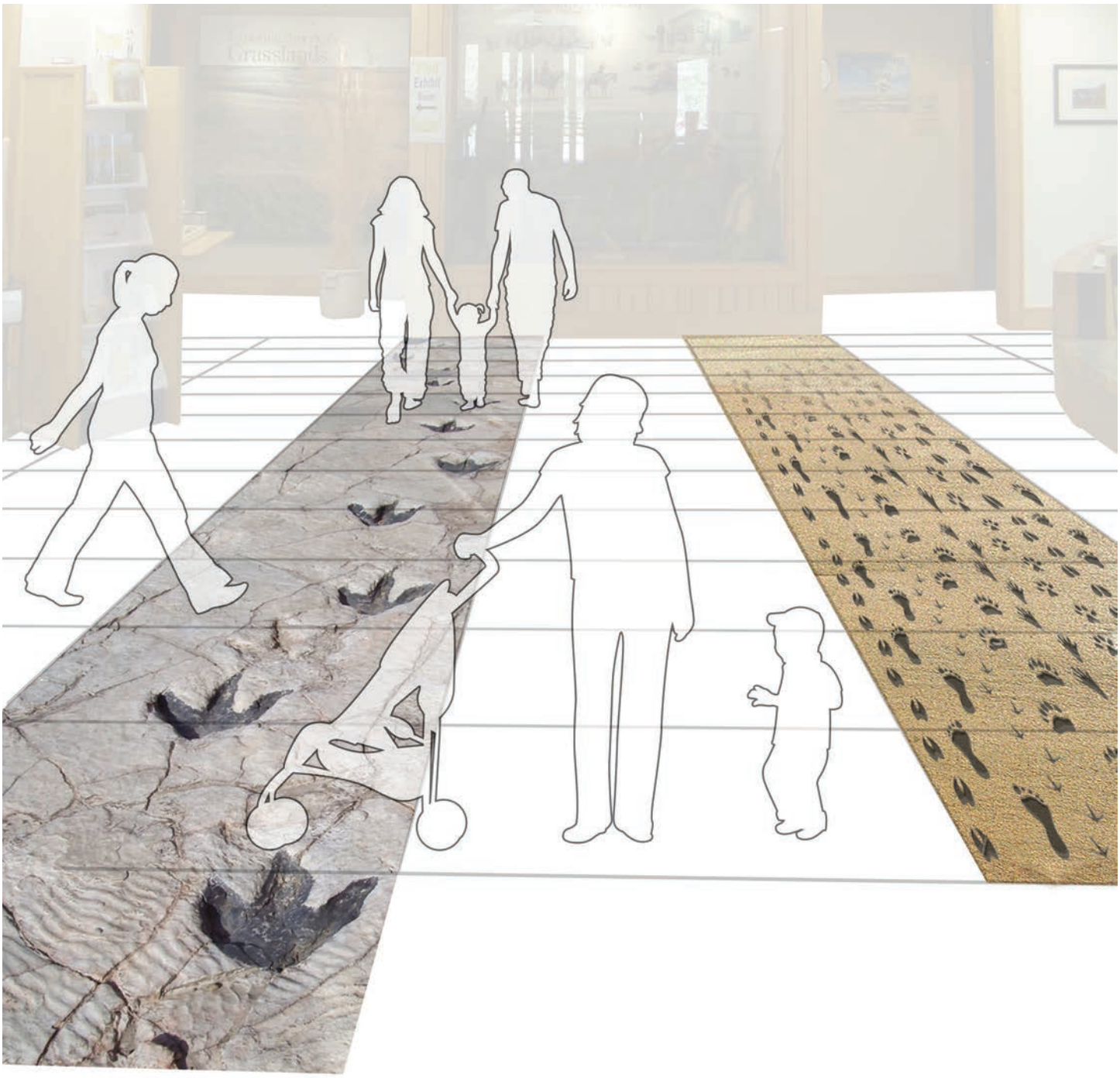


Many visitor centers or museums have big impact features, (e.g., immense dinosaur standing in the lobby) the “wow factor”, that inspire the visitor before they even look at the first exhibit. The NGVC will need to accomplish a similar level of intrigue in a smaller space and without the high cost.

The Grassland Immersion Entry concept is a subtle, low tech, low cost, but high impact feature that will “wow” the visitor from the moment they enter the NGVC. The concept would line the entryway to the visitor center with large lenticular panels. Lenticular printing is a technology in which a lenticular lens is used to produce images with an illusion of depth, or the ability to change or move as the image is viewed from different angles. The design attempts to provide an experience that mimics the feeling of walking through tall, gently swaying grasses on a National Grassland. The images would simulate soft grasses that seem to wave gently in the breeze. The visitor will catch faint glimpses of insects and birds fluttering and darting in their peripheral vision, while accompanying nature sounds enliven the scene.

Right from the start of their experience, visitors get a dynamic introduction to the Conserving an Ethic theme --the beautiful and complex ecological systems unique to the grasslands.

2 Lobby Trackway



The Lobby Trackway concept utilizes the large floor area of the NGVC lobby to introduce the Learning from the Layers theme. Large panels imbedded in the floor create a fully accessible surface revealing fossils and footprints. These images can be lenticular panels to create an abstract, motion layering of different paleontological resources or graphic images of actual trackways from Comanche NG or Toadstool Geologic Park on Oglala NG.

The exhibits will reveal realistic, to scale prints of the numerous animals from dinosaurs to modern humans that have walked the earth of the National Grasslands.

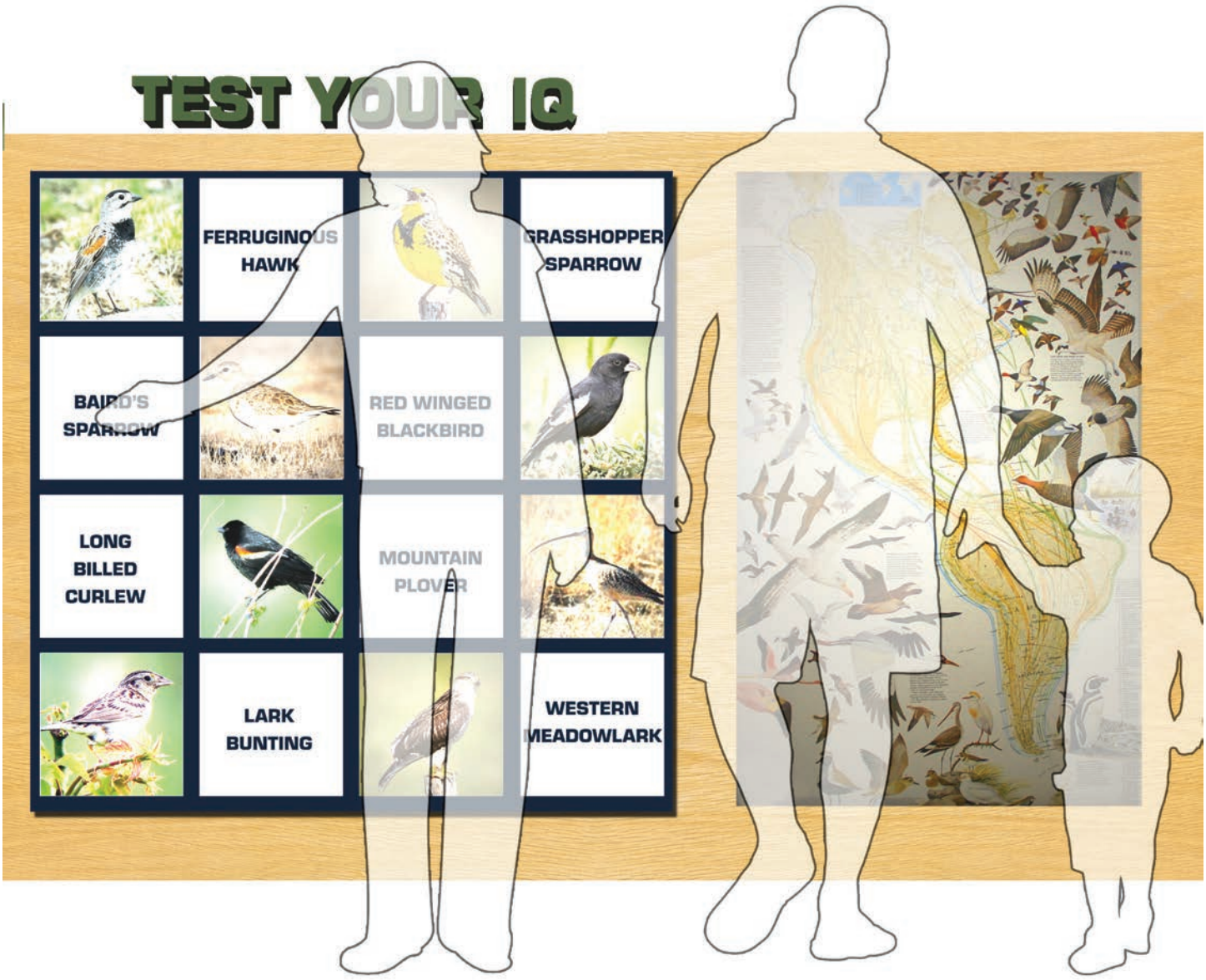
3 Rustic Lodge Lobby

Lobby with full color National Grasslands brands

Lobby with full color National Grasslands brands

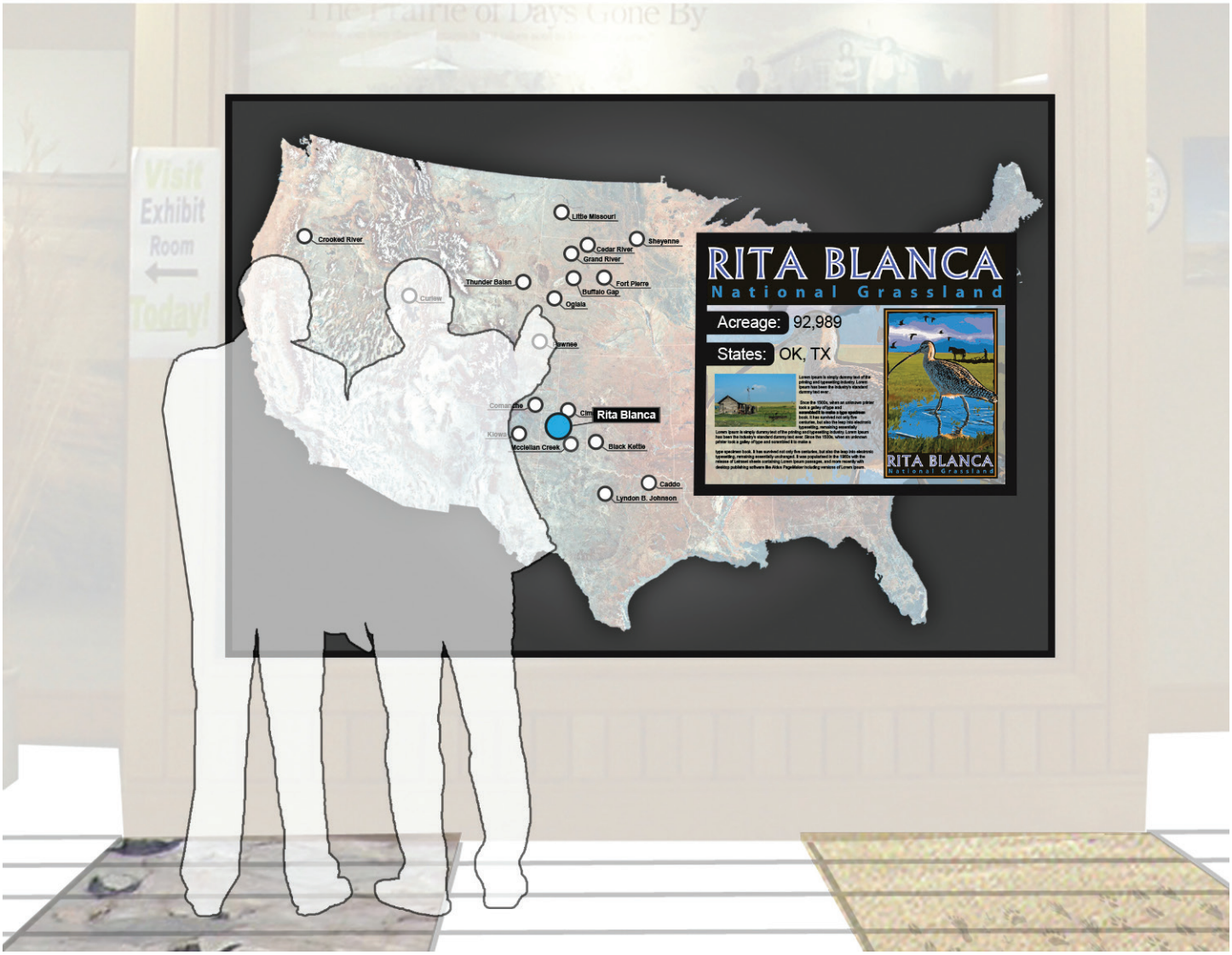
Intended to maximize the high ceilings, natural light and the potential for a rustic feel in the NGVC lobby, the Rustic Lodge Lobby concept would enhance the interior design of the space with reclaimed barn wood and rustic fixtures. Native American artifacts and wildlife mounts will add to the rustic lodge feel of the NGVC lobby. The new National Grasslands brands encircle the space (in either full color or sepia tone to complement the natural wood) to introduce each National Grassland unit.

4 Ecological IQ



The interactive Ecological IQ exhibit will contain rotating content that challenges visitors to test their knowledge of plants and wildlife on the National Grasslands. Touch screens will allow visitors to spend a few minutes matching animals with their names, or predators with their prey, or plants with their fruits or flowers. Upon finishing the exercise, visitors will receive a score that reflects their general knowledge of the specific subject on display. The digital display will allow for the subject matter (different nature IQ tests) to be easily changed monthly or for special events.

5 National Grasslands Interactive Map

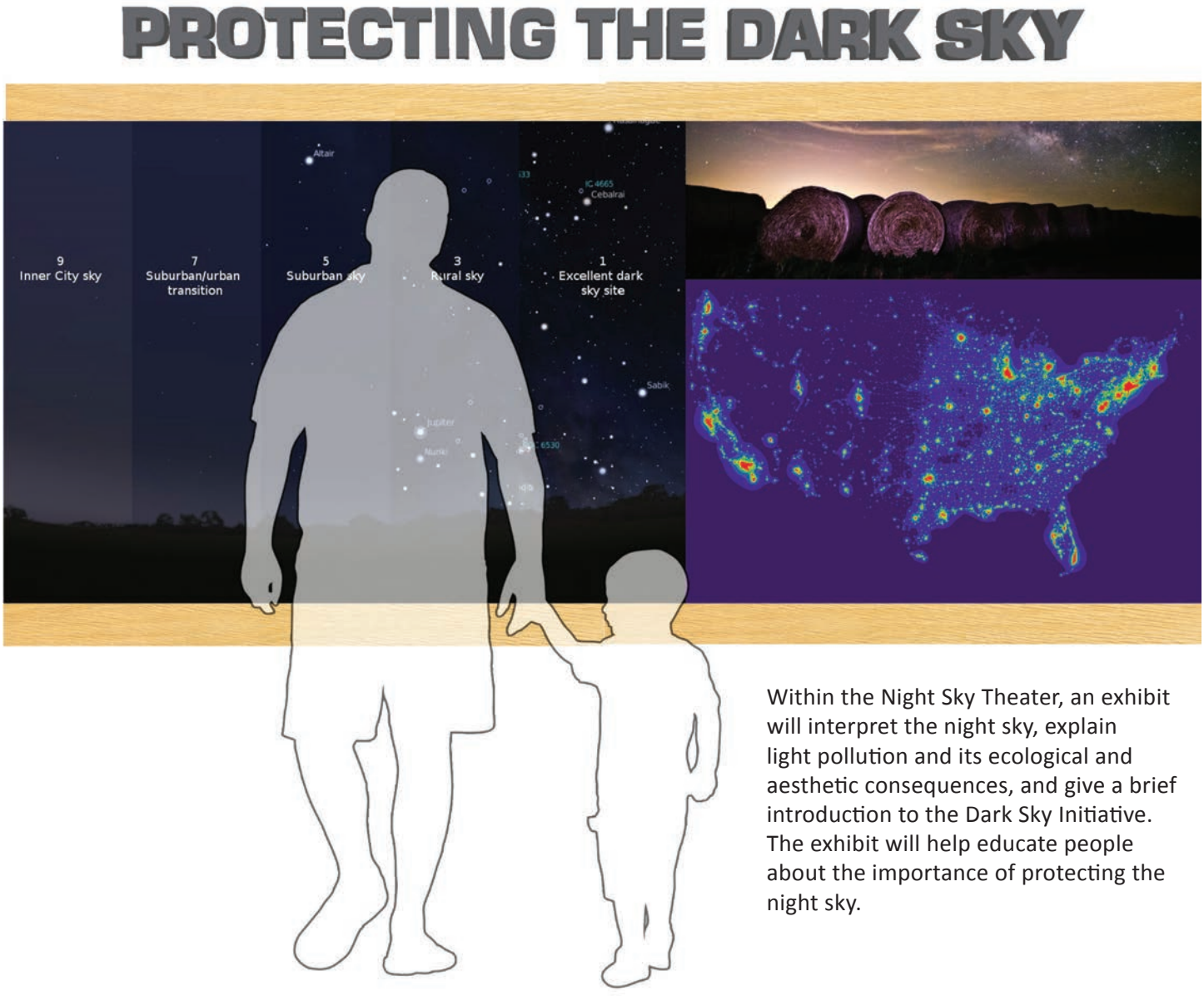


Directly in line with the front entry of the NGVC, the National Grasslands Interactive Map will orient visitors to the different locations of National Grasslands across the country. Simple, interactive touch-screen technology will allow visitors to touch the location of a particular grassland on the map and bring up an information window that outlines, specific attractions or statistics about the grassland unit and highlights its uniqueness. The map will give visitors a brief overview of all of the National Grasslands before entering the main exhibit space and/or theater.

6 Protecting the Dark Sky

The Night Sky Theater concept, illustrated on the following pages, will create a unique and intimate theater experience in which the visitor is placed in a night time scene around a campfire and imbued with the stories of 5 characters who have lived on the grasslands throughout history. These composite characters will include stories from the first people to contemporary scientists. Once visitors have taken their seats in a semi-circle around the simulated campfire, the lights dim. As the room darkens, hundreds of small LED lights appear on the black ceiling above, evoking a powerful sensation of sitting out under the night sky. The room is quiet for a moment, except for faint sounds of insects and coyotes, as visitors gaze up at the sky or into the flickering light of the camp fire.

The film begins as a figure appears out of the darkness on the screen. The character speaks directly and familiarly to the audience as if they are sitting on the other side of the fire recounting their story to a group of friends. Images appear behind the character to provide context to their story as they narrate. As one character finishes their brief story and fades out, another character fades in to tell a different story, from a different perspective and different time. One after another, native peoples, homesteaders, ranchers, and contemporary scientists share their stories with the visitors about the grasslands under the vast night sky.



Within the Night Sky Theater, an exhibit will interpret the night sky, explain light pollution and its ecological and aesthetic consequences, and give a brief introduction to the Dark Sky Initiative. The exhibit will help educate people about the importance of protecting the night sky.

7 Night Sky Theater

7 Night Sky Theater

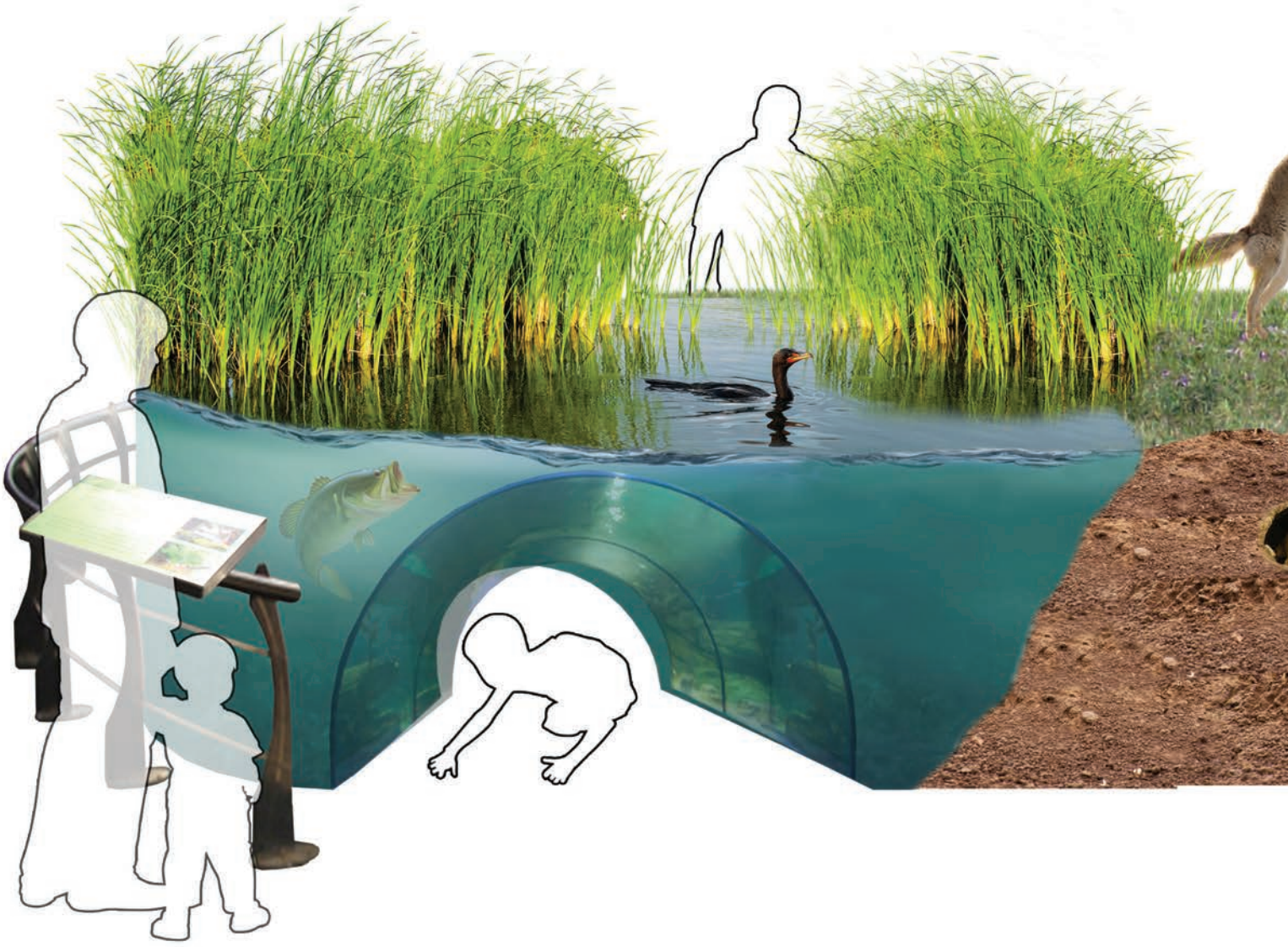
8 Woody Draw

The Woody Draw exhibit in the Interactive Zone concept incorporates interactive digital displays and static interpretive panels into the trunk of a real cottonwood tree. Visitors will be able to go inside the hollow tree, where they can access information about the wildlife and ecological functions of woody draws. This exhibit would use a wide range of technologies and techniques to develop experiences that will resonate with diverse audiences–enabling these targeted audiences to access the messages, stories and objects of the exhibit.

9 Interactive Timeline

Interactive media will help to tell the "Why" story about the National Grasslands and help put the history into perspective. The digital timeline concept will allow people to interactively uncover the history of the National Grasslands. The media will highlight the events leading to the Dust Bowl and ultimately explain why these public lands were set aside. The exhibit will include recent and on-going severe and extreme weather events (e.g., drought, fires, winter tornadoes, changing species migration, increasing temperatures). The timeline will end with current restoration projects, research, more responsible farming and ranching practices, and other things being done (or that need to be done) to prevent another Dust Bowl type catastrophe from occurring.

10 Prairie Pothole



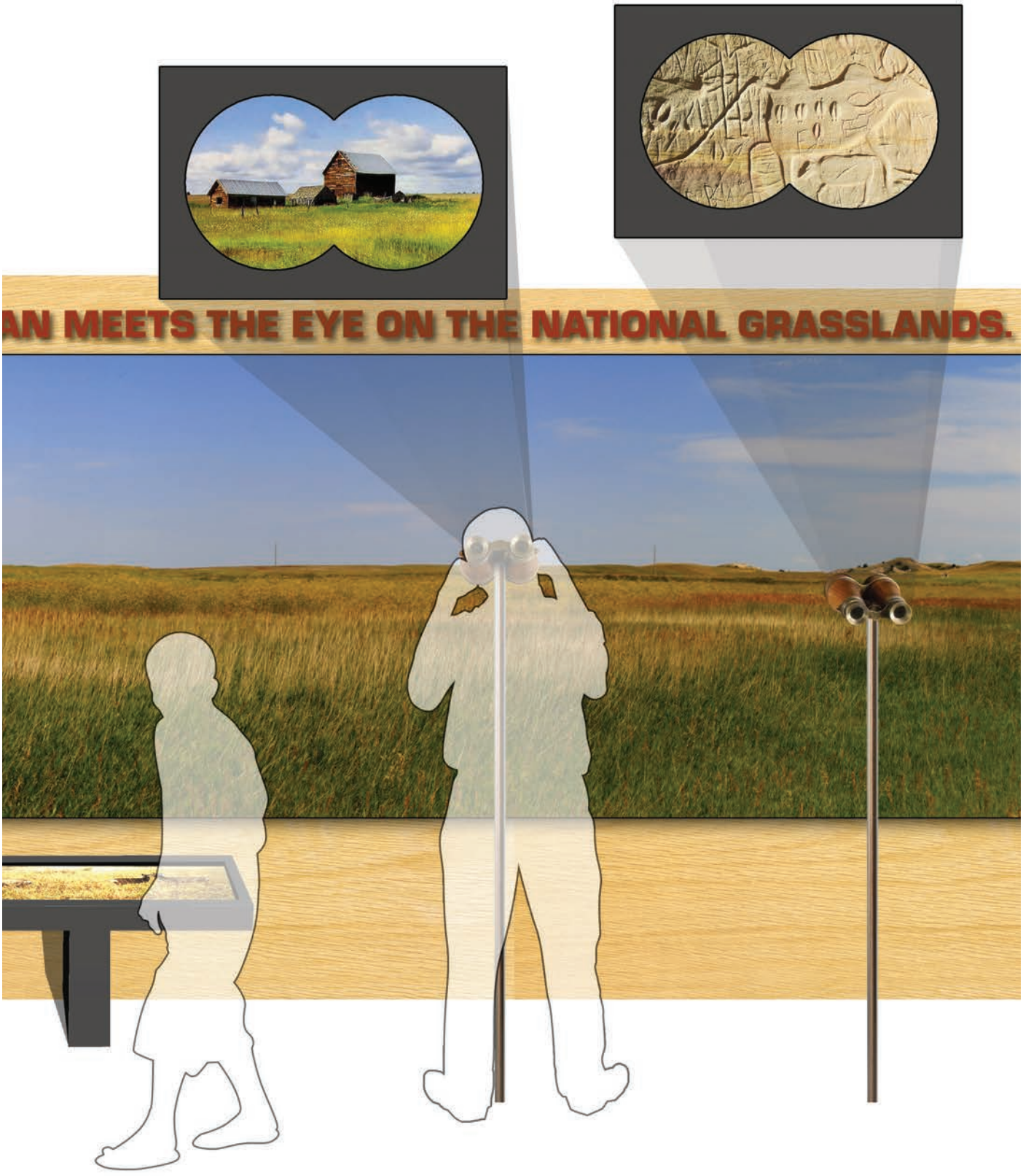
The Prairie Dog Town and Prairie Pothole exhibit will be the center island of the main exhibit room. In this immersive diorama, children and adults will be able to crawl through a scale prairie dog tunnel in a choose your own adventure type experience. Burrows in some tunnels reveal taxidermy of sleeping prairie dog pups, a burrowing owl, black-footed ferrets, or a rattle snake waiting to strike. Visitors can pop their heads up out of the tunnels where they will get close up views of other plants and animals. Visitors will also be able to crawl through the prairie pothole where they will see fish

11 Prairie Dog Town

and other aquatic plants and animals cast in the simulated water. A reader rail surrounding a portion of the exhibit island will interpret these important ecosystems. Small interpretive panels and labels throughout the exhibit provide information on the ecosystem with which they are interacting.

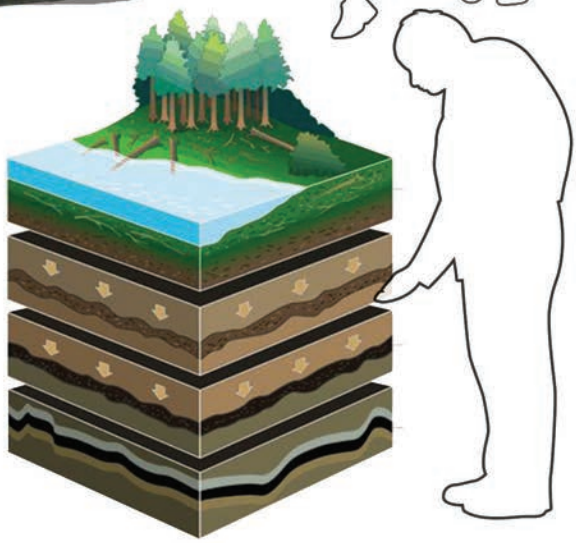
12 Seeing the Subtleties

Often times visitors to the National Grasslands only experience them from a landscape perspective. They see a beautiful and expansive natural area, but often miss many of the subtle details that help to tell the whole story of these landscapes. The Seeing the Subtleties concept asks people to take a closer look. In this concept, a large image of a grassland on the wall resembles the typical view as seen from a car window on the highway. In front of the image, binoculars are mounted on pedestals and aimed at specific areas of the image. When a visitor looks through one of the binoculars, a world unseen to the naked



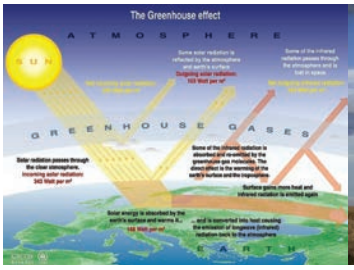
eye is encountered. Contained within the binocular mechanisms are short animated clips (seemingly an enlargement of the scene before them) that reveal amazing detail, animals, colors, insects, flowers and stories, and with them a deeper understanding of the landscape. Digital touch screens mounted nearby could accompany the binoculars to provide a more interactive experience and a greater amount of information to visitors.

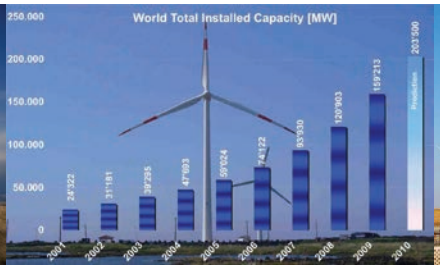
13 Ancient Energy



A 3-dimensional exhibit will explain how coal is formed. The exhibit will reveal 300 million years of geologic history and discuss the different types of coal extracted from surface mines on the National Grasslands--focusing on the Black Thunder mine on Thunder Basin NG.

Visitors will be able to touch the diagrammatic layers that show: vegetation (mostly from the Carboniferous) that decayed to form peat beds; below this, peat is sandwiched between layers of sediment and compressed to form lignite; and farther down, bituminous coal formed after further heat and compression: and finally, anthracite at the bottom of the exhibit. Visitors will also get to touch real samples of peat and coal.



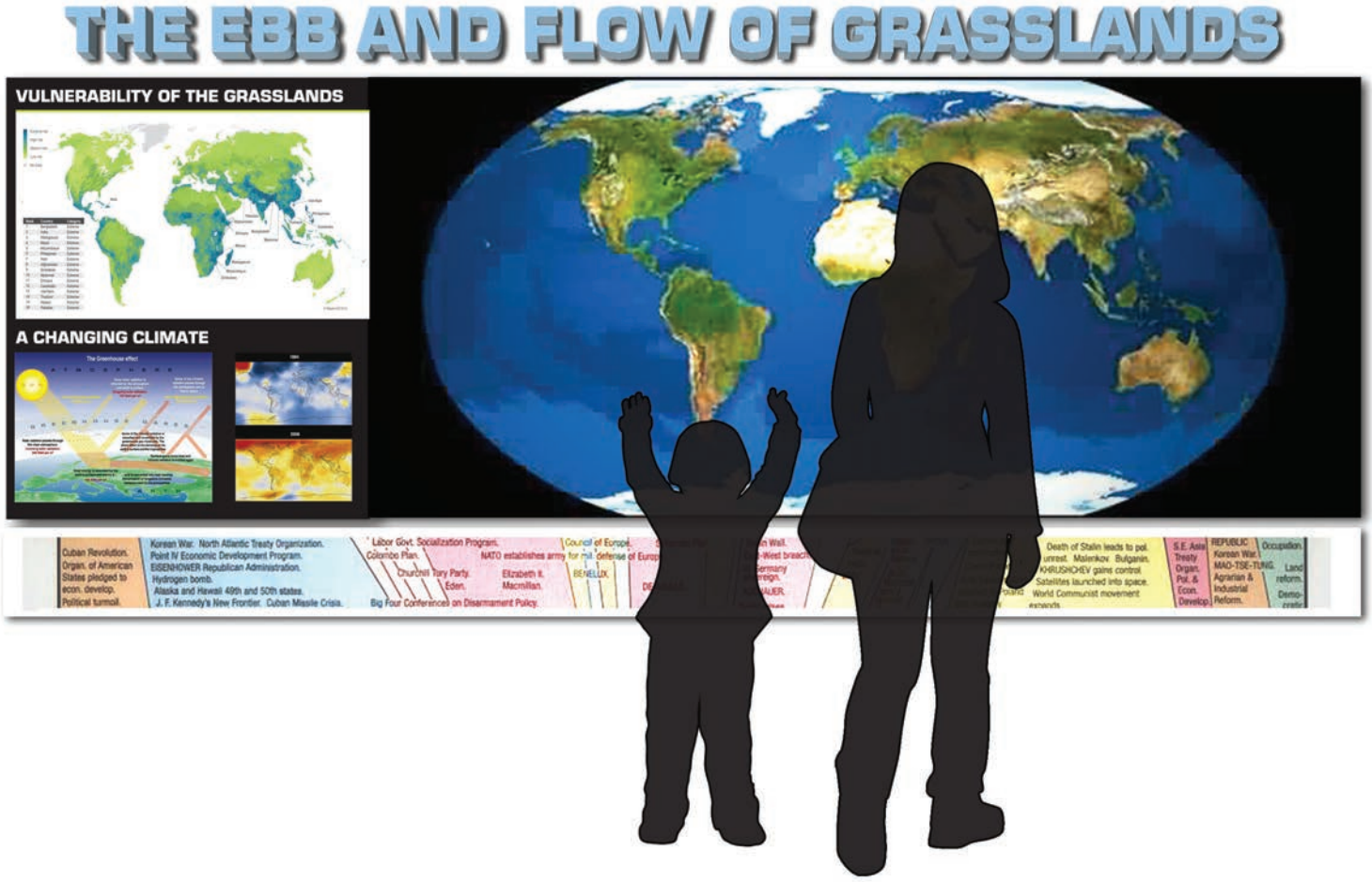


The Ancient Energy node utilizes fun and interactive ways to explain how the natural resources oil, coal and natural gas were formed, and what techniques are being used on the National Grasslands to extract them. The exhibits will explain both the impacts of resource extraction on the grasslands, and the efforts to mitigate impacts and restore mine and drill sites.

The energy resource exhibits will create a 600 million year thematic thread that ties paleontology and geology to the present day communities that use these resources. The exhibits will highlight resource extraction on the National Grasslands with a focus on natural gas extraction on most National Grasslands, and coal mining including the largest surface coal mine in the United States on Thunder Basin NG.

The Ancient Energy node will also include exhibits that bring to light what technologies are being used to increase extraction and our energy independence as a nation, and also, what new technologies and renewable sources of energy are being used to diminish our dependance on oil, coal, and gas and reduce our impact on the global climate. This zone will include information on energy conservation actions, Western Collective's Zero Energy Challenge and the NGVC green operations and how visitors can take similar actions at home.

14 Global Grasslands



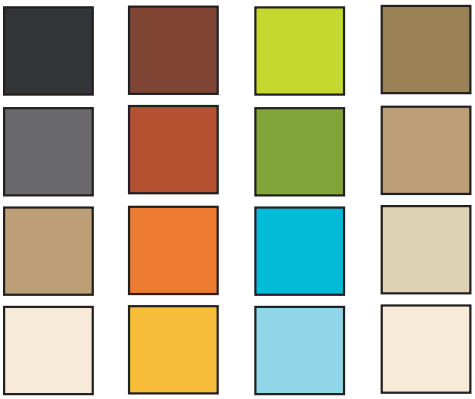
The Global Grasslands concept will share the stories of the Grasslands Around the World theme, highlighting the importance of these highly productive ecosystems that support flora, fauna and human populations, act as global carbon banks, and reveal important clues to understanding climate change.

In this exhibit concept, a large digital display would play a brief time-lapse video of the globe where the ebb and flow of grasslands is clearly visible through thousands of years and numerous ice ages, warming periods and to the present. Visitors will be able to clearly see grasslands expanding and receding over the course of thousands of years. This gentle ebb and flow will be contrasted with the ending seconds representing the time since the industrial revolution where the most rapid and drastic decrease in global grasslands has occurred.

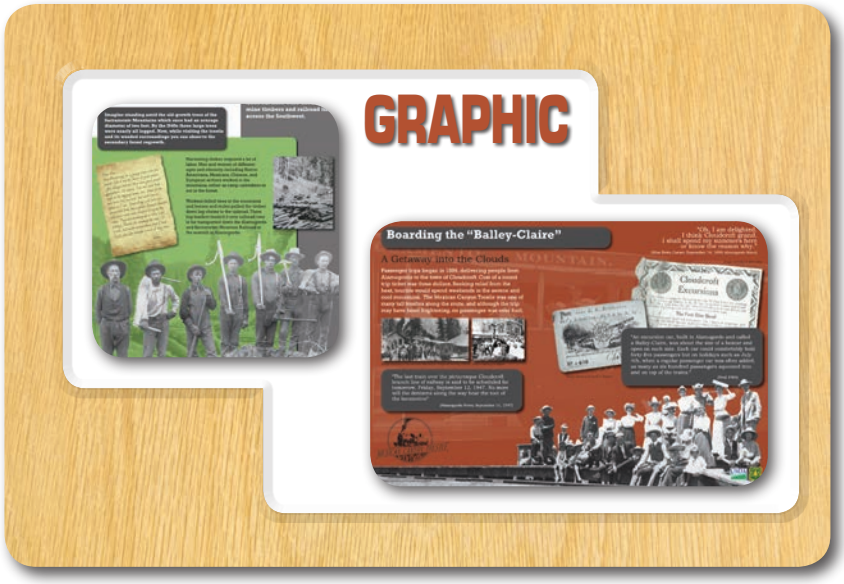
Information about global climate change and the importance of grasslands support the time-lapse video. One display will have numerous layers of function and meaning that engages different ages and educational levels.

Design Guidelines

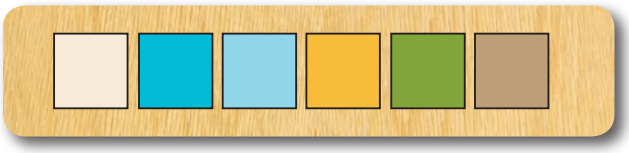
These preliminary design guidelines begin the process of identifying a consistent graphic "look" to the exhibits that will be built upon during the exhibit design process.



COLOR PALETTES - The above color palettes will be used to establish a natural character to the exhibits, while providing complimentary accent colors.



GRAPHIC DESIGN - The design of graphic panels should be simple and clean. Gently curving lines, light wood grains, and white backdrops will keep the exhibit space bright and natural feeling. Black and white, historic photos can be combined with accent colors to create dramatic imagery.



FONTS - The below fonts will be used to create a consistent hierarchy of interpretive content while providing visual interest.

3D TEXT ELEMENTS - Three dimensional text will be used as physical elements to add depth to exhibits, call attention to themes and add interest to the exhibit space. These 3D text elements will either be hung from the ceiling in front of the exhibits or mounted to the exhibit panels themselves.

Eurostile-Black-DTC (Regular)

used in ALL CAPS for MAIN HEADINGS, EXHIBIT TITLES and ACCENT TEXT

Pristina (Regular)

used in for all sub headings, to create graphic interest and highlight quotes and other special text

Myriad Pro (Semibold)

used in all exhibit body text and call-outs

Myriad Pro (Italic)

used in all captions and photo credits

FONT

Neque porro quisquam est qui dolorem

Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.

doloremque laudantium

Preliminary Cost Estimate

A rough initial estimate for the NGVC exhibit design would be $275 per square foot for standard exhibits and $500 per square foot for interactive and digital exhibits.

The usable exhibit space is approximately 1600 sf not including the exterior landscape exhibits. An average cost per square foot is $387.50 per square foot of construction and fabrication costs with 17% for research, design, and exhibit development. A preliminary rough estimate for the interior exhibit design and construction is $725,400.