Sand Creek Massacre Site: An Environmental History

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January, 2007

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ACKNOWLEDGEMENTS

The authors thank the following for their help in preparing this report: Alexa Roberts, Christine Whitacre, Jerome Greene, Craig Moore, Fran Pannebaker, and Karl Zimmerman, of the National Park Service; Jeff Campbell of Lone Wolf Consulting; Roy Roath at the Warner College of Natural Resources, Colorado State University; William Dawson; and special thanks to the Cheyenne and Arapaho Tribes of Oklahoma, the Northern Cheyenne Tribe, and the Northern Arapaho Tribe.

INTRODUCTION

In the early, frigid hours of November 29, 1864, Colonel John Milton Chivington, the "Fighting Parson," led a surprise attack upon a peaceful Cheyenne and Arapaho encampment located along the banks of Big Sandy Creek (Sand Creek), approximately 40 miles northeast of the original Fort Lyon in Colorado Territory. Decades later, George Bent remembered the attack in vivid detail:

> We ran about two miles up the creek . . . . to a place where the banks were very high and steep . . . . the older men and women had dug holes or pits under the banks, in which the people were now hiding. Here the troops kept us besieged until darkness came on.[1]

When the massacre was over, over 150 Cheyennes and Arapahos lay dead, while Chivington reported an official count of just nine dead and thirty-eight wounded for the day.[2]

In the years following the massacre, descendents of Sand Creek Massacre survivors conducted pilgrimages to the site and today they consider it sacred grounds.[3] Cheyenne and Arapaho tribal members have been very vocal in their efforts to preserve and commemorate the site; in November 2000, they finally succeeded in their mission when the United States Congress authorized the establishment of a National Historic Site where the massacre had taken place. Once the Sand Creek Massacre National Historic Site is fully established, the National Park Service (NPS) will manage it. The authorizing legislation (Public Law 106-465) outlines the NPS mission: to preserve, protect, interpret, and memorialize the massacre site, and manage it as closely as possible to its 1864 appearance.

This environmental history does not refight the massacre. It does, however, proceed on the premise that history is not made by people acting on an inert stage. As such, the narrative defines the site and its physical and spiritual significance within a wider history

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[1] George E. Hyde, *Life of George Bent: Written from His Letters*, ed. Savoie Lottinville (Norman: University of Oklahoma Press, 1968), 152.

[2] Estimates of Indian dead vary. John Smith saw at least 70 dead bodies, while N.D. Snyder estimated 200 killed, and counted 98 bodies still on the field in January, 1865. Lucien Palmer counted 130 bodies after the attack. Major Scott Anthony thought "not more than" 125 Indian died, while Lieutenant Joseph A. Cramer estimated between 125 to 175 dead. In 1908, Morse Coffin and P.M. "Lant" Williams recalled counting 150 dead after the massacre. George Bent estimated Indian dead at between one-half to one-third of the lodges (100 Cheyenne lodges, 10 Arapaho lodges), and later gave a figure of 137 killed. As for army dead and wounded *on that day*, John Smith noted 10 killed and 38 wounded; Major Anthony testified to a total of 49 dead *and* wounded. The army figures are all taken from individual testimonies in the Congressional report, as reprinted in *The Sand Creek Massacre: A Documentary History, with an Introduction by John M. Carroll* (New York: Sol Lewis, 1973), hereafter *Sand Creek Massacre*. For Coffin's and Williams' count, see C. E. Van Loan, "Reunion of Indian Fighters," *Colorado Spring Gazette*, 25 July 1908. For George Bent's figures, see Hyde, *Life of George Bent*, 149 and footnote on 159.

[3] Statements made by Joe Big Medicine at official fire management planning meeting for the Sand Creek Massacre National Historic Site, Eads, Colorado, 22 September 2004.

of conflict between two cultures that had very different philosophies and practices over what land meant and how it should be used. As noted in George Bent's reminiscence, humans were not the only players on the field that day. The landscape was clearly important in the unfolding of the massacre, but on an even broader scale, the interplay of Plains inhabitants and the environment in the preceding decades, even centuries, is crucial to understanding the history of the region and the escalating tension between Indians and Anglo-Americans that ultimately led to the tragedy at Sand Creek. The preconditions for the massacre to occur depended on the actions of people, and throughout history humans have perpetually been in competition with not just each other, but also with other life forms, for the *always* limited resources of their habitat. The Sand Creek massacre was one such consequence of the intertwining conflict amongst different peoples and between them and their environment.

CHAPTER 1: SAND CREEK MASSACRE SITE BEFORE 1864

The Massacre: A Brief History

Tempers as well as temperatures were on the rise during the summer of 1864. Governor John Evans (who was also Superintendent of Indian Affairs in Colorado) was frustrated by increasing Indian raids on outlying settlements and along roads leading to Denver, and appealed for federal aid. In the meantime, in an attempt to control the perceived Indian menace, he issued two proclamations. The first, in June, called on "friendly Indians of the plains" to separate themselves from hostile factions, and to camp near designated military posts for provisions and "protection." The second, on 11 August 1864, asked his fellow Coloradoans to fill territorial militia ranks:

> Now, therefore, I, John Evans, governor of Colorado Territory, do issue this my proclamation, authorizing all citizens of Colorado . . . . to go in pursuit of all hostile Indians on the plains . . . . to kill and destroy as enemies of the country wherever they may be found . . . . and hold to their own private use and benefit, all the property of said hostile Indians that they may capture.[4]

Coincidentally, on the same day that Evans' militia call went out, the United States government authorized the governor to raise a regiment of "One Hundred Day" U.S. Volunteers. Some of those who responded to the Governor's call thus enlisted for a period of one hundred days as the 3rd Colorado Cavalry, and they enlisted with the intent of killing Indians.

In October 1864, Arapaho leaders Little Raven and Left Hand led a band of followers to camp near Fort Lyon. They assumed that they had already made peace at the Camp Weld conference on 28 September and were now fulfilling the terms of the agreement by reporting to Fort Lyon for "protection" and provisions. For a brief time Major Edward Wynkoop provided them with rations, but when Major Scott Anthony took command of the fort, he initially told the Indians that he would not give them food. However, after they gave up their arms, he treated them as prisoners of war and fed them for about ten days. Afterwards, Anthony told them that he would not continue to feed them, and that they should move to "buffalo country" where they could hunt for subsistence through the winter. At the time the Arapahos left the post, Cheyenne chief Black Kettle, who had been camping with his followers at Big Sandy Creek since mid-October, led a small contingent down to the fort to petition for peace. Major Anthony told this group of Cheyennes that he did not have the authority to make peace with them, and that he could not permit them to camp near the fort. He did, however, approve of their main campsite at Sand Creek since it was far enough away from Fort Lyon.[5] In November, Little

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[4] *Rocky Mountain News*, 11 August, 1864, reprinted in Dr. R. G. Carey, ed. *A Collection of Documents Concerning The Battle of Sand Creek, November 29, 1864* (Denver: University of Denver [Colorado Seminary], 1958), 8; hereafter *A Collection of Documents.*

[5] Testimony of Major Anthony as reprinted in *Sand Creek Massacre,* 24.

Raven led most of the Arapahos farther down the Arkansas River, but Left Hand took his few lodges to join the Cheyennes at Sand Creek. The Indian camp was on land just outside the north and eastern boundary (formed by Big Sandy Creek) of the reserve established for the Cheyenne and Arapaho tribes by the Treaty of Fort Wise in 1861; it was there that Chivington led the pre-dawn assault on the unsuspecting Indians.

Chivington's troops reached the village before daybreak after marching all night from Fort Lyon. Before the army launched its attack, the soldiers began driving away the herds located on the perimeter of the camp, eventually capturing 600 to 700 head of the perhaps 1,400 to 2000 horses and mules.[6] Then the troops opened fire, shooting indiscriminately at the men, women, and children who had already began to retreat up the creek. Indians who had weapons took cover in sand pits located along the banks of the river, while the rest fled up the creek bed and northeast across the prairie. The soldiers gunned down at least 150 people that day, and of those killed approximately two-thirds were women and children.[7] Chivington's men then committed atrocities, mutilating corpses and intentionally targeting children:

> There was one little child, probably three years old . . . . [T]he Indians had gone ahead, and this little child was following after them . . . . I saw one man get off his horse, at a distance of about seventy-five yards, and draw up his rifle and fire – he missed the child. Another man came up and said, "Let me try the son of a bitch; I can hit him." He got down off his horse, kneeled down and fired at the little child, but he missed him. A third man came up and made a similar remark, and fired, and the little fellow dropped.[8]

Remarkably, of the estimated five hundred Cheyennes and Arapahos in camp, nearly three-fourths managed to escape. The carnage from which they fled, however, imprinted itself not only on those who survived and their descendents, but on those who took part in the killing as well. Some of the soldiers involved later expressed regret, stating the entire thing had been "very badly managed, and very murderous . . . . they were heartily ashamed of it."[9] The federal government reacted swiftly to the atrocity, and early in 1865, Congress convened the Joint Committee on the Conduct of War to investigate the brutal attack. In Denver, cheering citizens lauded Chivington's "victory"[10]; in Washington, Congress condemned him. The Joint Committee issued a scathing report,

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[6] Testimony of John J. Smith before Congress as reprinted in *Sand Creek Massacre*, 17; Testimony of Major Scott Anthony before Congress as reprinted in ibid., 29.
[7] Testimony of Major Scott J. Anthony before Congress as reprinted in *Sand Creek Massacre*, 28.
[8] Ibid., 33.
[9] Testimony of A. C. Hunt before Congress as reprinted in Carey, ed., *A Collection of Documents*, 49.
[10] For example, see "The Battle of Sand Creek," *Rocky Mountain News*, 17 December 1864, reprinted in Scott C. Williams, ed., *The Indian Wars of 1864 through the Sand Creek Massacre: A Collection of Articles from the Rocky Mountain News and the Commonwealth published in Denver, Colorado Territory, 1864* (Aurora, CO: Pick of Ware Publishing, 1997), 291-296.

described the acts of the soldiers as murder and barbarity, and accused the soldiers of "disgracing the uniform of the United States."[11]

Environmental conditions were important in shaping the events of the day. For example, the dry creek bed and the high riverbanks allowed the natives to dig protective sand pits that sheltered some of them from the soldiers, and the open prairie allowed many to scatter and escape from their attackers. But if the environment could help, it could also hinder. The tribes had to pasture the majority of their horses at a distance from the village because of inadequate forage around the main camp; this then enabled soldiers to isolate the Indians from many of their horses and thus prevented even greater numbers of people from escape. The natives usually hunted for winter provisions throughout the spring and summer months, but because the land could not provide adequate sustenance, they asked for food rations at Fort Lyon only to be told to stay at Sand Creek where game was inadequate. The lack of forage and game were symptomatic of a plains ecosystem under stress.

Ecology

The high plains ecosystem has been in constant flux since before the first humans called it home approximately 10,000 BCE.[12] Over thousands of years different life forms -- ancient megafauna, modern mammals, native populations, and European settlers – have placed different demands on its resources. These demands had increased so much that by 1864, the high plains of Colorado, relative to the native inhabitants, were an ecological system in crisis. What happened to the grasslands in the approximately three hundred years following European contact that diminished its ability to sustain life? What environmental features comprised the high plains ecosystem, and how did human use of the land alter that ecosystem? What types of grasses and trees and other flora existed there in 1864, and did they represent a static system or one moment in a broader sweep of ecological change? These questions form part of historian Dan Flores' proposal that we consider "how a society or group of peoples with a shared culture makes adjustments to live within the carrying capacity of its habitat,"[13] and the answers require an understanding of the evolving conception of ecology in human-environment interaction.

In 1866, German scientist Ernst Haeckel coined the term "ecology" using the Greek root *oikos,* which originally referred to the basic family unit and its daily operations. He defined *ecology* as the study of the relationship between living organisms and the biotic and abiotic environment; in his conception, all of the living organisms on earth formed a single economic unit resembling a family that lived together in cooperation – but also in conflict.[14] Though the word was new, the idea of ecology was not. Decades before Haekel's formal definition of the science of ecology, the German naturalist and explorer

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[11] Report of the Joint Committee on the Conduct of War as reprinted in Carey, ed., *A Collection of Documents*, 25.

[12] "BCE" stands for "Before the Common Era."

[13] Dan Flores, "Bison Ecology and Bison Diplomacy: The Southern Plains from 1800 to 1850," *Journal of American History* 78, no. 2 (Sept 91): 465-485.

[14] Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed. (Cambridge: Cambridge University Press, 1994), 192.

Alexander von Humboldt performed pioneering work on the relationship between a region's geography and climate and its plant communities. His work taught those who followed to examine each region as unique assemblages of integrated life forms that were in turn dependent on local and regional conditions.[15]

Early in the twentieth century, an influential American school of ecological thought, centered on the idea of "dynamic" ecology, emerged under the leadership of Henry Chandler Cowles and Frederic Clements. These scientists refined the concept of "ecological succession," the idea that landscapes under the influence of climate changed over time, but not in a meaningless way. In Clements' work, the vegetation cover of a particular habitat developed in a fairly predictable sequence from a simple to a more complex organization, and advanced towards a stable "climax state" comprised of the vegetation best suited to local conditions.[16] Clements grew up in Nebraska, and in his work on ecological succession, the vast grasslands constituted his working model of a successful climax community. In his original formulation, however, humans were mostly absent. In fact, even animals, grudgingly accepted into his scheme, were given secondary status in the sense that plants determined what animals were part of the community, not the other way around.

Other scientists challenged Clement's doctrine during his lifetime, in particular the idea that modern man and his civilization were interlopers on the prairie. British ecologist A.G. Tansley argued that while humans have had a profound impact on natural succession, it did not follow that the impact was negative; in addition, there were no true "natural" climax communities even in the supposedly virgin soil of the American grasslands.[17] American agricultural historian James C. Malin furthered Tansley's argument; in his view ecological and human histories were not separate entities, and needed to be studied as an integrated whole. In his writings on the grasslands, people took center stage. For Malin, the idea that a climax community was achievable only through natural processes was a myth – the grasslands have always been in flux and therefore have never formed a stable ecosystem. In this scheme, modern agriculture was actually a stabilizing force.[18] Thus, sodbusting was essentially a civilized version of "natural tillage" as practiced by bison with their wallowing, or prairie dogs with their ubiquitous colonies. The Dust Bowl to the contrary, Malin insisted that agricultural enterprise was something that contributed -- was indeed vital -- to plains viability. In his essay "Ecology and History," Malin wrote:

> The earth possessed all known, and yet to be known, resources, but they were available as natural resources only to a culture that was technically capable of utilizing them. There can be no such thing as the exhaustion of the natural resources of any area of the

[15] Ibid., 134-135; Humboldt's work on geobotany was published in 1807 as *Essai sur la geographie des plantes.*

[16] Ibid., 209-210; Clements' theory of vegetation succession is summarized in his work *Plant Succession: An Analysis of the Development of Vegetation* (Washington, D.C.: Carnegie Institution of Washington, 1916).

[17] Ibid., 240-241.

[18] For a discussion of Malin's objections to Clement's doctrine, see ibid., 242-249.

> earth unless positive proof can be adduced that no possible technological "discovery" can ever bring to the horizon of utilization any remaining property of the area.[19]

Despite these challenges, the concept of a natural climax community is not obsolete, although it has undergone modifications. Instead of viewing a given ecosystem as one marked by equilibrium and stability, ecologists now see change, fluctuation, and unpredictability.[20] Succession is an indeterminate process, marked by a series of "dynamic" equilibrium stages. Climax communities may exist, but they are continually reset; on the nineteenth-century plains, for example, a given ecosystem may be continually reset by bison and fire. Alternatively, ecosystems may never actually reach the "climax" stage because of changes in climate, species introduction or reduction, or human disturbances. Finally, climax communities may not be the "best" or most "natural" states, but rather represent the "best-fit" compromises of cultural *and* biological climax stages.[21]

Ecosystems respond to change and those species that survive and thrive are the most resilient. Over the last 10,000 years, however, human actions have affected the ability of ecosystems to respond to disturbances. To understand how Anglo-Americans and the Indians consciously – and unconsciously -- altered their environment, we must explore the pre-1500 CE conditions of the high plains area and how they changed over time.

High Plains Grassland of Eastern Colorado Before 1500 CE

In the United States, the Great Plains is the unglaciated region that extends from the Gulf Coastal Plain in Texas to Canada in the north, and is bounded by the Rocky Mountains on the west and the Central Lowland on the east. The high plains grassland of this report is located in eastern Colorado and extends from the Rocky Mountains eastward to the Kansas state border, and from the South Platte River in the north to just below the Arkansas River in southern Colorado; it is part of the section of the Great Plains known as the Colorado Piedmont. In these two river valleys, water and wind are the most prominent natural forces that have shaped the landscape. The Arkansas River has carved deeply into the Tertiary (65 million BCE to 2 million BCE) sedimentary rock layers and into the older marine Cretaceous layer, and in the process removed tremendous volumes of sediment. In addition, frequent, ferocious northwesterly winds have deposited sand and silt from the floodplains and dispersed them east and south over much of the Colorado Piedmont.[22]

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[19] James C. Malin, "Ecology and History," in *The Grassland of North America: Prolegomena to its History, wth Addenda and Postscript* (Gloucester, MA: Peter Smith, 1967), 410-411.

[20] Nancy E. Langston, "People and Nature: Understanding the Changing Interactions Between People and Ecological Systems," in *Ecology*, ed. Stanley I. Dodson (Oxford and New York: Oxford University Press, 1998), 25-76.

[21] Worster, *Nature's Economy*, 252.

[22] For the basics of Great Plains geology, see Donald E. Trimble, *The Geological Story of the Great Plains: a nontechnical description of the origin and evolution of the landscape of the Great Plains,* Geological Survey Bulletin 1493 (Washington: Government Printing Office, 1980).

Another prominent feature of the Arkansas River Valley is the considerable artesian flow beneath the surface:

> The principal water-bearing bed is the "Dakota" formation, which consists of two sheets of porous sandstone separated by a small body of clay and overlain in the greater portion of the area by a mass of impervious shales.[23]

In the Big Sandy Creek Valley, the Cretaceous layer consists mainly of impermeable shale with a few thin limestone beds; the overlying Quaternary layer is unconsolidated deposits of clay, silt, sand, and gravel covered with dune sand.[24] Despite the aridity of the environment, numerous underground aquifers (contained mainly in the Quaternary rocks) rise to the surface as fresh water springs and ponds, and these have supported various species of flora and fauna over the centuries.

In addition to geological forces, climate has also shaped the high plains grassland. Today, the Great Plains in general receives less than 24 inches of rain a year, and most of it receives less than 16 inches; the Sand Creek Massacre site itself receives about 13 inches a year.[25] In combination with the higher elevation of the land (between 2000 and 6000 feet above sea level), the region is characteristically semiarid. It was not always so. Various climatic changes during the Pleistocene era (approximately 1.6 million BCE to 10,000 BCE) helped make the high plains a habitable – even bountiful – land for man and beast. From 20,000 to 14,000 years ago, spruce forests covered the region, extending as far south as Kansas; when the ice sheet retreated, so did the forests, leaving the land as prairie for the past 8000 to 10,000 years.[26] The high plains grassland has been home for people and animals since the end of that era, and during the last 10,000 years, the climate has vacillated between dry and wet periods. Day-to-day as well as season-to-season temperature variations have also greatly influenced the region.

The first people to inhabit the high plains were a Paleo-Indian people who used fluted spear points called Clovis points[27] (and thus are commonly referred to as "Clovis people"). They arrived here around 9500 BCE to 10,000 BCE, and preferentially hunted big game: the mammoth in the west, the mastodon in the east. The Clovis culture corresponds to the massive Pleistocene extinction of the megafauna, but scientists are unsure if the big-game hunting caused the extinction of approximately 73 percent of all North American mammals weighing over 100 pounds, or if the animals were adversely

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[23] N. H. Darton, *Geology and Underground Waters of the Arkansas Valley in Eastern Colorado* (Washington D. C.: Government Printing Office, 1906), 6-7.
[24] Donald L. Coffin, *Geology and Ground-Water Resources of the Big Sandy Creek Valley: Lincoln, Cheyenne, and Kiowa Counties, Colorado*, Geological Survey Water-Supply Paper 1843 (Washington D.C.: Government Printing Office, 1967), 7.
[25] Trimble, *Geological Story of the Great Plains*.
[26] H. E. Wright, Jr., "Vegetational History of the Central Plains," in *Pleistocene and Recent Environments of the Central Great Plains*, eds. Wakefield Dort, Jr., and J. Knox Jones, Jr. (Lawrence: The University Press of Kansas, 1970), 157-172.
[27] Named after Clovis, New Mexico, where archeologists discovered the first accepted evidence of this tool technology in 1932.

affected by new diseases transported by humans and dogs, or if the rapidly changing climate was at fault.[28] What is clear, however, is that in approximately 9000 BCE the climate began to warm and the plains were transformed as vast sweeps of grasslands spread west, bordered by stands of timbers. It was at this time that taller grasses gave way to shorter grasses such as blue grama and buffalo grass. A short time later, around 8500 BCE, another group of Paleo-Indians -- this time distinguished by their use of the Folsom point,[29] replaced the people of the Clovis tradition, who presumably died off as their favored megafauna became extinct. The plains was a lush, mixed savanna, with many ponds, marshes, and connecting streams. Like the Clovis, the people of the Folsom culture were nomadic hunters who moved seasonally through the landscape and subsisted primarily on the ancestor of the modern day bison, a huge species known as *Bison antiquus*.[30] Following the Folsom period, the Plano people (6000 – 4000 BCE) continued the Paleo-Indian hunting lifestyle, except that by now the *Bison antiquus* was also becoming extinct.

For a period of approximately 2,500 years (5000 BCE – 2500 BCE), the high plains experienced a drastic climatic change. This period was the Altithermal, a time of extremely dry, warm conditions. Scientists debate exactly what happened during this time, but what they know is that as temperatures across the plains rose, the amount of surface water on the Great Plains sharply declined with a resultant reduction of vegetation cover. With less water and less forage material, the number of bison declined, which then adversely affected the nomadic hunters who depended on them for the bulk of their diet. During this period, the bison evolved from *Bison antiquus* to the modern American bison, *Bison bison* – a smaller animal which undoubtedly required less food and water.[31] Scientists have speculated on how the plains people adapted to the drought conditions of the Altithermal period. Reduced bison numbers may have led the foragers to expand their food range by including new animals as well as more plants in their diet. As natural springs dried up, they dug wells to reach the declining water table, or they travelled farther afield -- perhaps to higher elevations -- to find more available water sources. Despite these adaptations, human population may have decreased during the Althithermal in response to the environmental changes; the primary evidence for this is the paucity of archeological sites and radiocarbon dates for this time period. However, the lack of hard data does not necessarily mean that there was a decline in population, but

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[28] Rickard S. Toomey, III, *The Midwestern U.S. 16,000 Years Ago: Late Pleistocene Extinctions*; available from http://www.museum.state.il.us/exhibits/larson/env_change_extinction.html; accessed 10 January 2005. The climate change explanation postulates that mammoths may have been able to use spruce trees as food source; with retreat of spruce forests, the mammoths lost their forage and thus died out.

[29] Named after Folsom, New Mexico, where archeologists excavated the artifacts in 1926.

[30] Elliott West, *The Contested Plains: Indians, Goldseekers and the Rush to Colorado* (Lawrence: University Press of Kansas, 1998), 19.

[31] David J. Meltzer, "Human Responses to Middle Holocene (Altithermal) Climates on the North American Great Plains," *Quaternary Research* 52 (1999): 404-416; available from http://www.smu.edu/ANTHRO/faculty/dMeltzer/pdf%20files/QR_1999_Altithermal.pdf#search='altithermal%20period; accessed 10 January 2005.

rather may reflect the inability of the plains to provide steady, reliable support for humans as it had in the past.[32]

After the Altithermal period, from approximately 2000 BCE to the modern era, the plains continued to be quite dry, but archeologists have found evidence of increased human use. The Kansas City Hopewell, which corresponds to the Middle Woodland period (1100 BCE – 700 CE) of the Central Plains Woodland, was the westernmost expression of the Hopewell tradition. The people of the Hopewell culture used distinctive projectile points and ceramic forms, practiced a mixed economy that included hunting and gathering as well as limited farming (squash, marshelder, and perhaps maize), lived part-time in small village settlements, and built stone-lined, earth-covered burial mounds. Such mounds were cultural features previously associated with the people living in the Mississippi and Ohio valleys. Given that vast trade networks existed throughout the continent, it is probable that the plains people were in contact with, if not part of, the eastern mound-building Woodland tradition.[33]

Yet another shift in the central plains climate occurred from 700 CE to 800 CE, when the region entered a wet period. With the increase in moisture, the grassland spread about 200 to 300 miles into west central Kansas and Nebraska. As the grassland moved, so too did agriculture and by 1000 CE, families were subsistence farming along the Republican, Solomon, and Smoky Hill rivers. For the first time in Plains history, a sedentary population that cultivated maize, beans, squash, marshelder (sumpweed), and sunflowers occupied the high grass plains as far west as eastern Colorado and the Nebraska panhandle.[34] These people of the Plains Village period also harvested wild plants and herbs, and continued hunting games ranging from bison to jackrabbits. By the thirteenth century, the plains was in a dry phase that lasted into the sixteenth century; this period overlaps the "Medieval Warm Period" (approximately eleventh to fourteenth century), during which time scientists estimate the Northern Hemisphere mean temperature to have been about 0.2^{o} C warmer than from the fifteenth to nineteenth century.[35] The grasslands receded back to the east, taking the agricultural families with them. The people who had farmed on the upper Republican moved to the Loup River in southeastern Nebraska; their descendents became the Skidi Pawnees. Those from the Smoky Hill and Solomon rivers basin settled on the Loup and lower Platte rivers, and became the South Band Pawnees. Distant relatives of these two groups settled on the Missouri River near the Nebraska-

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[32] Ibid. Meltzer argues that it is improper to infer that human populations declined in number during the Altithermal period; lack of sites could be due to any number of circumstances, including erosion, decrease in settlement mobility, or migrations to other regions.

[33] Short overview of the Kansas City Hopewell from University of Kansas Museum of Anthropology, *Kansas City Hopewell*; available from www.anthro.ku.edu/hopewell/kchopewell.php; accessed 3 July 2006.

[34] West, *The Contested Plains*, 27-28.

[35] Intergovernmental Panel on Climate Change (IPCC), "Observed Climate Change and Variability," chap. 2 in *Climate Change 2001: The Scientific Basis* (Cambridge: Cambridge University Press for the Intergovernmental Panel on Climate Change, 2001); available from http://www.grida.no/climate/ipcc_tar/wg1/070.htm; accessed 7 July 2006.

South Dakota border, and became the Arikara.[36] When the agricultural tribes left, nomadic people dominated the high plains, living off the seemingly endless bison herds.

In the fifteenth century, the postulated "Little Ice Age" began and lasted into the nineteenth century. However, as with the Medieval Warm Period, the Little Ice Age was much more fully documented in Europe and the eastern coast of the United States through temperature records, writings, and art work. Many scientists believe that both the Medieval Warm Period and the Little Ice Age were not globally synchronous events, and hence using these terms to describe regional climate changes should be done so with caution.[37] However, recent studies indicate that in the western United States (including Colorado), a series of dry periods centered on the years 936, 1034, 1150, and 1253, were followed by a series of wetter periods around 1321, 1613, and later in 1829.[38] Thus, on the Great Plains the Little Ice Age may have been expressed as greater moisture retention promoted in part by cooler temperatures.

The High Plains Grasslands of Eastern Colorado Since 1500 CE

As the winds of change continued to blow through the plains, they brought not only climatic challenges, but challenges with much wider-reaching implications: in 1541, Francisco Vasquez de Coronado and his company of explorers from Spain marched into the plains. The conquistadors went as far as south central Kansas in present-day Rice and McPherson counties, and found "Quivira," a few villages of grass huts.[39] They were not impressed. The soldiers found no gold, only a vast emptiness of no redeeming value, populated – in their view -- by the occasional bands of nearly naked barbarians. These dismal impressions may have been influenced by the climate, for the Spaniards explored the region in the midst of a drought that lasted from approximately 1572 to 1593.[40] Thus, while Spain continued to send small contingents into the plains periodically throughout the sixteenth and seventeenth centuries, it did not exhibit much interest in the area until other European powers – the British and the French – penetrated the region in the eighteenth century.

The initial European expedition seemed almost a non-event, for when Coronado found no treasures, Spain did not bother to send another foray for forty years. Coronado may have seen "nothing," but the Plains Indians saw power: they saw the horse. The smaller ancestor of the modern horse had ranged over the plains from 15 million years ago until 10,000 years ago when, like most other Pleistocene mammals weighing over 100 pounds, it vanished from the record. Before the horse disappeared from North America, however, it made its way to Asia and Europe, where over a few thousand years it became domesticated. The horse that the Spaniards re-introduced was a larger and more powerful

[36] West, *The Contested Plains*, 31.
[37] IPCC, "Climate Change and Variability."
[38] Edward R. Cook, et. al., "Long-Term Aridity Changes in the Western United States," *Science* 306 (5 Nov 2004): 1015-1018.
[39] West, *The Contested Plains*, 34.
[40] Peter B. deMenocal, "Cultural Responses to Climate Change During the Late Holocene," *Science* 292 (27 April 2001): 667-673; available from http://research.yale.edu/leilan/demenocal2001.pdf; accessed 10 January 2005.

animal with a historical and genetic link to the land, and thus "pre-adapted" to the conditions of the plains.[41] These horses were originally confined to Spanish settlements on the Rio Grande, but especially after the great Pueblo revolt of 1680, many more horses escaped to the southwestern plains. From there, the feral horse herds thrived and gradually spread north in the eighteenth century.[42] By 1850, there were perhaps two million wild mustangs ranging between Texas and the Arkansas River Valley, and this did not even account for the number of horses owned by plains tribes.[43] The problem, of course, was that the grassland was *not* endless, and the horse became a prime player in the ecological disaster brewing on the horizon.

The general environmental conditions on the high plains during the eighteenth century were much like they are today – the area received 12 inches to 20 inches of rain per year (more toward the eastern edges, less toward the western edges), and the daily temperatures could be erratic, vacillating anywhere from a 50° change to a 100° change in one day.[44] The major difference between then and now, however, was that the period between 1700 and 1850 witnessed an explosive expansion of different cultures into the central plains. The Spanish emerged from the southwest; the French -- and later the British -- entered from the east and northeast; and, more famously, American pioneers pushed directly west from the east. In addition to the European population expansion, many native tribes -- including the Cheyenne and Arapaho -- also expanded onto the plains during this period. All these movements resulted in the doubling of high plains population between 1820 and the mid-1850s.[45]

What the earliest available records show, then, is that the high plains region was prone to changing conditions and those conditions dictated what type and how much vegetation could grow, as well as how many people and animals the land could support. During wetter years the plains provided enough sustenance for sedentary agricultural populations. During drier years, however, native peoples moved seasonally through the landscape, hunting the animals that grazed on the nutritious short grasses. Many factors came together to entice the Cheyenne and Arapaho onto the high plains early in the nineteenth century, and in a matter of a few decades, many factors beyond their control led to the failure of the plains to provide the resources necessary to support them.

Cheyenne Migration Into The Arkansas River Valley

Throughout history and across cultures, a rich oral tradition has enabled the past to come alive in the present. These stories and history provide new generations with a sense of where they came from as a people, and give traditions and ceremonies meaning in

[41] Dan Flores, *Horizontal Yellow: Nature and History in the Near Southwest* (Albuquerque: The University of New Mexico Press, 1999), 98.
[42] West, *The Contested Plains*, 49-50.
[43] Dan Flores, *The Natural West: Environmental History in the Great Plains and Rocky Mountains* (Norman: University of Oklahoma Press, 2001), 65.
[44] West, *The Contested Plains*, 36-7.
[45] West, *The Contested Plains*, 67.

everyday life. While many stories reference creation and origin, they may also refer to the creation of a new way of life in an ever-changing world.[46]

The Cheyenne people share in this oral tradition and have a rich history that has been handed down from generation to generation through the telling of stories. In the late seventeenth century, the Cheyennes began migrating west in response to hostilities amongst other tribes and pressure from the European fur trade. They left their farms on the upper Mississippi River (in present day Minnesota) and by the 1760s were settled in the upper Missouri valley in central South Dakota, near the Black Hills. Around 1780, the Cheyennes moved again because of increasing inter-tribal tension as well as debilitating epidemics. This time, they began to drift south into the high plains. The story of the prophet Sweet Medicine and his encounter with the All Being (Maheo) explains why the Cheyenne turned to the central plains. In this tradition, Maheo gave possession of the land surrounding Noaha-vose (the Cheyenne spiritual center) to his special people, and he gave them a new name – the Called Out People – and four sacred arrows to symbolize their power over their enemies and the bison in their new land. This new land was roughly bounded by the Rocky Mountains and the Missouri River, and the Yellowstone and Arkansas Rivers. A later story foretold the coming of the horse and how it could help -- and hinder -- the Cheyenne. The All Being told his people they may have horses, but also warned them of hardships associated with the horse: constant moving in search of pasture, abandonment of farming for a nomadic lifestyle, and conflict with other tribes competing for pasture.[47] In another Cheyenne tale, "The Old Woman of the Spring," the tribe is living in the north and facing starvation because of the scarcity of buffalo; the Old Woman of the Spring gives the buffalo back to the people, and also gives them corn. Over the years, the Cheyennes have successful hunts, but they also give up planting corn. This story thus gives another reason why the tribe left the north (and their agricultural life) behind in order to pursue a life connected to, and dependent on, buffalo.[48]

The Northern band of the Cheyenne remained centered near the Black Hills, while the Southern band proceeded south into the Arkansas River Valley around 1830. Various conditions existed on the plains that lured the Cheyennes into the region, conditions that, in one way or another, were all tied to the environment. West of the 100th meridian, the nutritious short grasses – the buffalo (*Buchloe dactyloides*) and blue grama (*Bouteloua gracilis*) – covered the prairies.[49] These grasslands, enriched by above-average rainfall from roughly 1815 to 1845, nourished a variety of wild game, including bison, deer, antelope, and bears, not to mention abundant wild horse herds. Horses were sources of wealth, power, and locomotion, and they transformed the Cheyenne from a sedentary people into nomadic hunters. But reliance on the horse also meant that the Indians were tied to a rigid annual cycle geared towards the needs of the animal. In the spring, the

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[46] Colin G. Calloway, *One Vast Winter Count: The Native American West Before Lewis and Clark* (Lincoln and London: University of Nebraska Press, 2003), 1-9.
[47] Ibid., 307.
[48] "The Old Woman of the Spring," in *American Indian Myths and Legends*, ed. Richard Erdoes and Alfonso Ortiz (New York: Pantheon Books, 1984), 26-28.
[49] James C. Malin, *History and Ecology: Studies of the Grassland*, ed. Robert P. Swierenga (Lincoln and London: University of Nebraska Press, 1984), 6.

natives had to find the first green grasses (mixed midgrasses and tallgrasses) near streams to feed the horses, weak from the harsh winter. By summer, the bands herded the horses to higher pastures to graze on the most favored shortgrasses, for only then could the fattened horses carry them on their extended bison hunts. In the autumn, the bands drifted back down into the valleys, seeking meager forage and shelter for the winter along protected river bottoms. Horses permitted the Cheyenne people to travel farther and faster in pursuit of buffalo, but because the plains could only support small groups of people who moved seasonally through the landscape, their new lifestyle also fragmented the tribe, eroding their common identity as the Called Out People. Thus, while environmental conditions created new opportunities for wealth, they also helped alter Cheyenne society forever.

An additional incentive drew the Cheyennes to the plains – the arrival of European trade goods. After Mexican independence in 1821, traders – with the help of native guides -- established the Santa Fe Trail as a commercial route between the United States (Old Franklin, Missouri) and Mexico (Santa Fe, New Mexico). In 1833, William and Charles Bent, together with their partner Ceran St. Vrain, opened Bent's Fort on the Arkansas River, along the Santa Fe Trail. Bent's Fort became the major trading post on the central plains. Here the Cheyenne traded horses and buffalo robes, and accessed other trade goods such as firearms and tools; they became the middlemen between European traders and tribes that lived farther north and west. Trade relations were particularly promising for the Cheyenne after William Bent married Owl Woman, the daughter of White Thunder, the "Keeper of the Arrows."[50]

The Cheyenne did not move into a void, for other tribes also followed the bison and horses. During their migration southward the Cheyennes formed a close and long-lasting alliance with the Arapahos. The Arapahos had been an agricultural people in northwest Minnesota before they moved to the Black Hills region. Like the Cheyennes, they too began drifting south under increasing pressure from the Lakotas (a Sioux people), who came to dominate the northern plains. By the 1820s, the Arapahos were living mainly in the watersheds of the Platte and North Platte rivers while wintering on the South Platte. As the Cheyennes and Arapahos ranged south, they competed -- and had bloody encounters -- with other native peoples, in particular the Comanches and the Kiowas from the south, as well as the Pawnees from the east. The Comanches came originally from southwest Wyoming and northwest Colorado, and by the late seventeenth century were on the southern plains. They probably acquired their first horses from the Utes shortly after the Pueblo revolt of 1680. By the beginning of the nineteenth century, the Comanches formed the dominant power between the Arkansas River and the Edwards Plateau of Texas. The Kiowas were linguistically related to the Tannoan Pueblo groups of New Mexico, but according to oral traditions their homeland was farther north in Montana.[51] By the eighteenth century, the Kiowas too were one of the tribes being driven south from the Black Hills region by the Sioux; sometime in the late eighteenth to early nineteenth century, they formed a durable alliance with the Comanches. The Pawnees had been in northeast Kansas and southeast Nebraska for centuries, and lived in

[50] West, *The Contested Plains*, 81-83.
[51] Flores, "Bison Ecology."

villages on the lower Republican, lower Platte, and Loup rivers. They were an agricultural people, but were also hunters who ranged west on their game hunts. By early eighteenth century, they were dominant as far west as the South Platte.

As all of the forces involved in the decline came together – Anglo settlers, native populations, horses, bison, and climate -- the plains ecology began to unravel. The Cheyennes abandoned their historic horticultural lifestyle when they moved onto the plains and, along with thousands of other natives from various tribes, adopted the horse and bison culture. For the environment, this meant that along with more and more people relying on its water and food sources, more animals were also doing the same - hundreds of thousands more animals. Not only did these populations place unprecedented pressure on the land, they also placed increasing pressure on each other.

The bison was one such casualty of the competition for resources. The buffalo and the horse have an 80 percent overlap in diet and require similar amounts of water daily. Natives owned more and more horses so that, among other things, they could hunt more buffalo; but the very animals they rode competed fiercely for resources with the animals they relied on for food and trade. But the horse was not the only pressure on buffalo herds. In order to obtain European trade goods, the Cheyenne needed something other than wild horses to trade, and that something was bison robes. Native populations thus hunted more animals than they required for subsistence, resulting in higher numbers of buffalo being killed each year. The Cheyennes, Arapahos, Lakotas, Comanches, Kiowas, and Pawnees were all competing for bison, but there were neutral zones on the plains over which none had complete control, and the bison took refuge in these buffers. During the 1820s and 1830s, the central plains had two neutral zones. The western zone was bounded by the foothills and the forks of the Platte and the Arkansas, and was created by the stand-off amongst the Arapahos and Cheyennes, the Lakotas from the north, and the Comanches and Kiowas from the south. The adjoining eastern zone was between the Platte and Arkansas, and was fought over by the same tribes of the western zone and the Pawnees, Otoes, and Osages from the east. After much bloodshed, the Comanches, Kiowas, Cheyennes, Arapahos, and Lakotas reached a détente in 1840. With the Great Peace, the western buffer zone disappeared, and the bison quickly felt the effect as the tribes hunted them freely. The herds retreated eastward into the remaining neutral zone, with the western edge of the range now in eastern Kansas.[52]

In addition to the hunting pressure on the bison, overland migrants were beginning to move into the country, and they brought livestock with them. While initial numbers of cattle were insufficient to affect the availability of forage, they were devastating in other ways. As the livestock came through the plains, they introduced exotic diseases such as bovine tuberculosis and brucellosis. Scientists believe that these diseases could have had a negative impact on bison population. This speculation is based on data from saved bison in the late nineteenth century, which showed that the animals had high rates of infection with these pathogens. *Brucella abortus* is an important cause of abortion and sterility in cattle, and *Mycobacterium bovis* can directly cause fetal loss. Modern

[52] Elliott West, *The Way to the West: Essays on the Central Plains*, (Albuquerque: University of New Mexico Press, 1995), 61-65.

scientific studies support the connection between these diseases and reduced bison survival; for example, researchers studying the wood bison (*Bison bison athabascae*) have found evidence that bison infected with *M. bovis* have lower pregnancy rates, and those infected with both *M. bovis* and *B. abortus* were less likely to survive winter or become pregnant.[53] In addition to introducing new diseases, the tens of thousands of cattle and oxen ate all the grass along the trails even as their human minders felled trees along the routes for fuel. When the tribes returned to some of their favored wintering sites, they found devastated land.

Perhaps the buffalo population could have recovered from these varying pressures, but they occurred at an unfortunate time for animals and humans as the climate shifted from rain into a prolonged drought. In 1845-1846, the plains region experienced a decrease in rainfall of as high as 30 percent, and continued to receive below average rainfall over the next nine years.[54] When faced with ecological pressure during the Altithermal, the bison evolved into the more efficient modern animal: it became smaller, with a higher reproductive capacity.[55] These changes allowed the bison to flourish on the grasslands for thousands of years despite increased human predation. More recently, when the range became too dry or too hot, they adapted by retreating to refuge areas to the east and the west until the ecosystem righted itself. Unfortunately, when the bison most needed a respite during the drought of the mid-nineteenth century, they had nowhere to turn, for they were hemmed in by increasing Anglo and native settlements.[56]

Buffalo were not the only animals subject to the erratic nature of the plains environment. The horse, which had become indispensable to the Cheyenne economy, also suffered as the ecology of the high plains ebbed and flowed. On average, a horse required one pound of salt per week, ten to twelve gallon of water daily, and the grass equivalent of ten to twenty-five pounds of hay per day.[57] Winter conditions posed special problems for horses and their Indian owners because the most nutritious short grasses of the plains lost over half of their summer protein in winter. To correct this problem, Plains tribes sought out wooded areas along rivers and springs, as the tall grasses that grew there yielded a greater *volume* per acre than short grasses, though they retained even less protein in winter than the short grasses. The river areas also had cottonwoods and willows; in an emergency – and harsh winters were natural emergencies – the Indians stripped the young limbs to supplement the horses' diets.[58] Neither the horses nor their owners could stay in one place for long, for as the horses grazed off the grasses surrounding the camp, they had to be either herded farther and farther from the main body of the camp, or the tribe had to move. Despite the efforts of the herders, and even under the best of

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[53] West, *The Contested Plains*, 72; Damien O. Joly and Francois Messier, "The Effect of Bovine Tuberculosis and Brucellosis on Reproduction and Survival of Wood Bison in Wood Buffalo National Park," *Journal of Animal Ecology* 74 (2005): 543-551.

[54] Flores, *The Natural West*, 66.

[55] Flores, "Bison Ecology," 469. The much larger *bison antiquus* evolved into the modern *bison bison*; this smaller bison reached sexual maturation earlier and also had a shorter gestation.

[56] For an extensive, excellent discussion on bison ecology, see Flores, *The Natural West*, 50-70.

[57] James E. Sherow, "Workings of the Geodialectic: High Plains Indians and Their Horses in the Region of the Arkansas River Valley, 1800-1870," *Environmental History Review* (Summer 1992): 62-84.

[58] Ibid., 71.

conditions, horses were prime targets for theft – either by the army or by other tribes. Horses that grazed at a distance were thus even more exposed, though they may be the scrawniest winter horses.

All these usual cyclic difficulties associated with a horse culture were ever more magnified during years of drought. Thus, the drought from 1845 to 1856 had much deeper implications than previous episodes, for it occurred during a time of increased demand on plains resources. Not only was drought a factor in the changing landscape, but as noted above, the plains was playing host to expanding native populations, greater numbers of horse herds, and rapidly increasing overland migrants. The overland migrants may have been the final assault on the plains ecosystem.

Overland Migration through the Arkansas River Valley

In 1821, Mexico won its independence from Spain and opened trade with the United States, something Spain had been loath to do during its tenure. The Santa Fe Trail became the major commercial route between Santa Fe, New Mexico and various western posts. Hungry for expansion, the United States went to war with Mexico from 1846 to 1848 and after the Treaty of Guadalupe-Hidalgo, increased its land holdings substantially – land that included nearly all of the modern-day American West. Owning the land on paper, however, was quite different from exercising control over the region through a local populace. The California gold rush marked the beginning of mass migrations west, when in April 1849, approximately 30,000 eager souls set out across the plains in search of fortune.[59]

The land these men trudged through on their way to the gold fields may have been new to them, but it was not unknown, for traders and explorers had traversed and mapped this territory years before. In 1806, Lieutenant Zebulon Pike, under orders from General James Wilkinson, set out on an expedition with three official goals: escort Osage captives to their home village, facilitate a peace settlement between the Kansas and Osage nations, and make contact with the Comanches. In the process of making contact with the Comanches, Wilkinson expected the lieutenant to explore the headwaters of the Arkansas and Red rivers, and find the "approximate" extent of Spain's settlements in New Mexico.[60] Pike's "Arkansaw Journal" provides a glimpse of the Arkansas River Valley decades before the tremendous human onslaught on the high plains began. In July 1806,

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[59] Geoffrey C. Ward, *The West: An Illustrated History* (Boston: Little, Brown and Company, 1996), 123.

[60] General James Wilkinson, letter to Lieutenant Zebulon Pike, 24 June 1806, reprinted in Zebulon Montgomery Pike, *Exploratory Travels Through The Western Territories of North America: Comprising a Voyage from St. Louis, on the Mississippi, to the Source of That River, and a Journey through the Interior of Louisiana, and the North-Eastern Provinces of New Spain. Performed in the years 1805, 1806, 1807, by Order of the Government of the United States* (1811; reprint, Denver: W. H. Lawrence & Co., 1889), 17-19. President Thomas Jefferson had appointed General Wilkinson governor of the Louisiana Territory in 1805, and Pike's orders came originally from the general rather than the president (although the government did retroactively endorse the expedition). Wilkinson's orders to Pike on his expected reconnaisance of Spanish territory was oblique: "As your interview with the Camanches [sic] will probably lead you to the head branches of the Arkansaw and Red rivers, you may find yourself approximated to the settlements of New Mexico, and therefore it will be necessary you should move with great circumspection . . . ."

he set out from Belle Fontaine (near St. Louis) on the Missouri River. By early November, he was camped on the Arkansas River near present-day Garden City, Kansas. He wrote in his journal that the north side of the river was "covered with animals [buffalo], three thousand in one view" and, "the face of the prairie was covered with them, on each side of the river; their numbers exceeded imagination."[61] It was early winter, and he noted that the company needed to rest their horses, "the herbage being very poor."[62] As he journeyed farther west near the Kansas-Colorado border, he wrote about the changing landscape: "The hills increased, the banks of the river, covered with groves of young cotton wood; the river itself much narrower and crooked." The forage for the horses continued to be poor, so later that night Pike's men cut down trees for the horses to graze on the bark and young limbs.[63] Near Holly, Colorado, Pike noticed decreasing number of buffalo, and attributed that to the fact that they were entering Tetau (Comanche) country. As the party neared Big Sandy Creek, they saw large stands of trees – the Big Timbers: "[the] river banks begin to be entirely covered with woods on both sides, but no other specie than cotton wood."[64] This "Big Timbers" on the Arkansas was one of three extensive cottonwood groves, each on a different river, but each known by the same name; the other two were the Big Timbers of Smoky Hill River (which the Cheyenne also referred to as "Bunch of Timber") near the Kansas-Colorado border, and the Big Timbers of the Republican, located near McCook, Nebraska. Pike had actually noted cottonwoods growing as far east as the Kansas-Colorado border, but as we shall see from later accounts, the Big Timbers of the Arkansas receded farther and farther west as the nineteenth century progressed.

In February, 1807, Zebulon Pike ruminated on the land he had crossed and speculated on its future:

> These vast plains of the western hemisphere may become in time equally celebrated with the sandy deserts of Africa . . . . from these immense prairies may arise one great advantage to the United States . . . . Our citizens being so prone to rambling, and extending themselves on the frontiers, will, through necessity, be constrained to limit their extent on the west to the borders of the Missouri and Mississippi, while they leave the prairies, incapable of cultivation, to the wandering and uncivilized Aborigines of the country.[65]

Zebulon Pike's journey was not the only government-sponsored expedition. Between 1843 and 1844, Brevet Captain John C. Fremont ("The Pathfinder") led an exploration party to Oregon and northern California. His route in the central plains took him

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[61] Zebulon Pike, *Zebulon Pike's Arkansaw Journal: In Search of the Southern Louisiana Purchase Boundary Line (Interpreted by His Newly Recovered Maps)*, vol. 1 of Overland to the Pacific, ed. Stephen Harding Hart and Archer Butler Hulbert (Denver: The Stewart Commission of Colorado College and the Denver Public Library, 1932), 114-115.
[62] Ibid., 115.
[63] Ibid., 116.
[64] Ibid., 117.
[65] Pike, *Exploratory Travels*, 230-231.

westward up the Kansas River to the northwest corner of Kansas, then across the Republican to the South Platte; the return trip was down the Arkansas River to Bent's Fort, then northeast to the Smoky Hill River west of the 102nd meridian, down that river, and eventually to the Santa Fe Trail. In mid-June, the country around the Republican and Solomon fork was well-watered and had plenty of timber (ash, elm, cottonwood), and also had a wide variety of grasses including bunch grass (*festuca)* and buffalo grass (*Sesleria dactyloides*). Animal species included antelope, prairie dogs, and the beginnings of the immense buffalo herds that they would encounter a few days later. Near the northwest corner of Kansas, still following the Republican, the landscape suddenly changed to one of desert character, with sandy hills and shallow or dry streambeds with treeless banks. On the return from the Pacific in 1844, Fremont traversed the land between the Arkansas River and Smoky Hill River, and eastward to between 100th and 99th meridian. He described three zones of short grass, mixed grass, and tall grass:

> . . . . succession of far-stretching green prairies covered with the unbroken verdure of the buffalo grass, and sparingly wooded along the streams with straggling trees and occasional groves of cottonwood; but here the country began perceptibly to change its character, becoming a more fertile, wooded, and beautiful region, covered with a profusion of grasses . . . . as we advanced, the country steadily improved . . . . the beautiful sward of buffalo grass, which is regarded as the best and most nutritious found on the prairies [is] replaced by a longer and coarser grass.[66]

A year after Fremont's journey, Lieutenant James William Abert, as a member of the United States Corps of Topographical Engineers, set out from Bent's (Old) Fort in August 1845 on a reconnaissance trip that went southwest over Raton Pass into New Mexico, then looped east following the Canadian River through the Texas Panhandle and Oklahoma, finally ending at Fort Gibson in eastern Oklahoma. At the beginning of the expedition, Abert stated that their route down the Arkansas River was "one continued series of hills and sand plains," and noted a profusion of prairie sage (*Artemisia tridentata),* cacti, and cucurbitaceae (a gourd), plants that he stated were "characteristic of the dry sandy plains."[67] While Abert was not surprised to see deer spring from dead tangled driftwood which had collected at the Arkansas bottom, he was surprised to see antelope, remarking that he believed they were extinct in the area of the fort.[68] Abert went on to describe a large grove of cottonwoods at the junction of the Arkansas and Purgatory rivers, noting that the area served as a fine winter camp for the natives given the abundance of deer that watered at the riverbanks.

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[66] John C. Fremont, *A Report of the Exploring Expedition to the Rocky Mountains in the Year 1842 and to Oregon and North California in the Years 1843-44* (1845; reprint, Washington D.C.: Smithsonian Institution, 1988), 107-110, 289.

[67] Lieutenant James William Abert, *Expedition to the Southwest: An 1845 Reconnaissance of Colorado, New Mexico, Texas and Oklahoma* (Lincoln and London: University of Nebraska Press, 1999), 20.

[68] Ibid., 21.

Abert made a number of very telling comments that provide insight into the condition of plains ecology in 1845. First, he told his men to be careful with their provisions and cautioned them of "the consequences of waste in a land where one cannot even rely upon finding buffaloes."[69] The expedition also encountered a party of Apaches; one of the warriors told the soldiers that they had not been able to find game for the last few days and that the women and children were starving. This, taken together with Abert's belief about the antelope, suggests that the herds of the plains were under stress produced by over-hunting and habitat diminishment. On arrival at the junction of the Purgatory and Arkansas rivers on 16 August , 1845, Abert made another comment regarding the use of trees by the natives:

> We were astonished at seeing great numbers of fallen trees, but afterwards learned that the Indians are in the habit of foraging their horses in winter on the tender bark and young twigs of the cottonwood. [70]

We can infer from this comment that the grasses in the region were not supplying enough energy to sustain the increasing horse herds through the winter, as their keepers had to down trees in order to sustain their herds. But Zebulon Pike's party had also fed their horses on tree cuttings when they travelled through the plains in the winter of 1806, and they were at least 60 miles east of the Arkansas-Purgatory junction. Either Abert was not familiar with the practice of using trees as supplementary diet, or he was surprised by the *amount* of felled trees used on a *sustained* basis as forage. Were the grasses failing even 40 years earlier, or was this typical of winter conditions on the plain in any given year? Winters were certainly harsh on the plains, but when combined with drought, the effects on available forage could be devastating. This may explain what Abert observed on his expedition. Historians using older dendroclimatological studies have speculated that drought during the mid-nineteenth century contributed to decreased forage as well as bison population on the plains,[71] and according to more recent tree rings studies, a relatively small but persistent drought occurred on the western plains and was particularly severe during the years 1845-1848, 1851, and 1855-1856.[72]

Brigadier General William H. Emory, an officer with the Army of the West, made the trip to Santa Fe in the summer of 1846. He described the country between Pawnee Fork (near Larned, Kansas) and Bent's Fort thus:

> [The Arkansas bottom was] generally covered with good nutritious grass. Beyond this the ground rises by gentle slopes into a wilderness of sand hills on the south and into the prairie on the north . . . . as you approach Bent's Fort . . . . the grass [becomes] more precious.

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[69] Ibid.
[70] Ibid.
[71] See Flores, "Bison Ecology"; West, *The Way to the West.*
[72] Connie A. Woodhouse, Jeffrey J. Lukas, and Peter M. Brown, "Drought in the Western Great Plains, 1845-56: Impacts and Implications," *Journal of the American Meteorological Society* 83, no. 10 (October 2002): 1485-1493.

> The eye wanders in vain over these immense wastes in search of trees. Not one is to be seen. The principal growth is the buffalo grass, [and] cacti in endless variety.[73]

Not all early travellers were government explorers and surveyors. Much of the surviving accounts of the overland trails were written by migrants headed for the gold fields, or travellers on some other business. Susan Shelby Magoffin made the trip to New Mexico on the Santa Fe Trail in June 1846, and she kept a detailed diary of all that she encountered. She recorded the various wildlife she encountered, including wolves, antelope, and buffalo – as well as the constant swarms of mosquitoes that had a knack for finding any exposed skin. She spotted the first herds of buffalo close to Walnut Creek (near present-day Great Bend, Kansas), and noted that there the grass also changed from tall grasses to a shorter and finer grass.[74] Just prior to her arrival at the Arkansas River in July, near Cow Creek (near Lyons, Kansas), Magoffin stated they were "out on the prairie with no wood and little water,"[75] and farther along, between Walnut Creek and Pawnee Fork, she commented that there was no water in Ash Creek.[76] Finally, she noted that the road was very sandy and poorly timbered until they were 120 miles from the river crossing at Bent's (Old) Fort, then for 10 to 12 miles near the Fort the trees became thicker and taller.[77]

By the end of the 1840s, the United States had annexed much of the American West and established numerous army posts throughout the region. These posts, and the men they supported, placed ever more demands on the dwindling resources of the plains. In addition, during the four decades between 1819 and 1859, approximately 200,000 white travellers ventured west using the trails located along the Platte and Arkansas rivers.[78] The Mormons, under the leadership of Brigham Young, were one group that moved *en masse* from Nauvoo, Missouri to their Zion in the Valley of the Great Salt Lake. They began their journey in 1846 with a wagon procession nearly three hundred miles long, and blazed a trail (the Mormon Trail) along the north bank of the Platte River before finally arriving in their new homeland, which they called "Deseret," in 1847.[79] The Mormons moved west in search of sanctuary from religious persecution, but other groups went in search of riches. After reports of gold strikes in Colorado, 100,000 migrants set out on these trails in one month alone in 1859.[80] Charles C. Post, a lawyer from Decatur, and Dr. George M. Willing, a St. Louis physician and amateur geologist, were two such "fifty-niners."

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[73] Brigadier General William H. Emory, as quoted in Malin, *The Grassland of North America*, 115.
[74] Susan Shelby Magoffin, *Down the Santa Fe Trail and into Mexico: The Diary of Susan Shelby Magoffin, 1846-47*, ed. Stella M. Drumm (Lincoln and London: University of Nebraska Press, 1982), 13, 37, 29, 43.
[75] Ibid., 29.
[76] Ibid., 41.
[77] Ibid., 57.
[78] West, *The Contested Plains*, 153.
[79] Ward, *The West*, 103-107.
[80] West, *The Contested Plains*, 145.

Charles Post travelled along the Santa Fe Trail beginning in May 1859, and stopped at many of the same places as did Susan Shelby Magoffin.[81] Thus, we can make a comparison of the conditions along the trail between 1846 and 1859. Post saw the first buffalo herds farther east than did Magoffin, and gave a thrilling description:

> We were aroused at day break by the cry "Buffalo! Buffalo!!" from our guard and got up to keep them from stampeding our oxen. The whole of the vast plains seemed alive southward.[82]

At Cow Creek, he commented on the short grass (as Mrs. Magoffin had also noted), speculating that the "grass is very short, kept so by the great number of buffalo which were in sight in innumerable herds at sunset."[83] Cow Creek itself had plenty of water, with "some two hundred teams encamped along [it], some going to and some turning back from the Peak."[84] Walnut Creek, however, had no water "except slew water, which [was] so thick we could almost pick it up . . . ."[85] This had not been the case in 1846 when Mrs. Magoffin's party forded the "deep water" of the creek at a point 8 miles from the Arkansas River.[86] Between Walnut Creek and Fort Atkinson, Post's party travelled on sandy soil, and generally had good water and good (short)grass. Taking the fork that kept along the Arkansas River, Post commented on the presence of sage weed, flowers, prairie dogs, pig weeds, red root, and parsley, but noted there was no timber; in fact, Post's party did not encounter trees until the Big Timbers, now located upstream from the mouth of Sand Creek and east of present-day Lamar. There they luxuriated in the shade after "not having enjoyed shade for one hundred and seventy-five miles."[87] Continuing on to Bent's (New) Fort, Post wrote about the plentiful timber, flinty and hilly roads, and the poor grass until they reached the fort and camped by the river.

Dr. George Willing also set out for the gold fields of Colorado in the spring of 1859.[88] In late May, he was on the Arkansas with twenty other people. He wrote to his wife about the wide range of temperature and weather: "Yesterday the heat was blistering, today we have rain, hail and snow."[89] He called the country a desert, and as the wagon train came within 100 miles of Bent's (New) Fort, he described the plains thus:

> [G]rass, but no wood, of course, nor even buffalo chips . . . . the buffalo appear to have deserted this range for several years past, and but scanty traces of them can now be found.[90]

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[81] Charles C. Post, "The Arkansas Route: Diary of Charles C. Post," in *To the Pike's Peak Gold Fields, 1859*, ed. LeRoy R. Hafen (1922; reprint, Lincoln and London: University of Nebraska Press, 2004), 19-55.
[82] Ibid., 36.
[83] Ibid., 38.
[84] Ibid., 38-39.
[85] Ibid., 40.
[86] Magoffin, *Down the Santa Fe Trail*, 39.
[87] Ibid., 44-45.
[88] George M. Willing, "Diary of a Journey to the Pike's Peak Gold Mines in 1859," ed. Ralph P. Bieber, *The Mississippi Valley Historical Review* 14, no. 3 (Dec. 1927): 360-378.
[89] Ibid., 362.
[90] Ibid., 363.

Farther on, Dr. Willing commented on a large grove of cottonwood along the river, but noted that most of the trees were dead. Of animals, he listed owls, rattlesnakes, prairie dogs, and occasional birds such as prairie sparrows and cat-birds, and wrote that antelopes disappeared the farther west he went, and that he had yet to see any of the herds of wild horses that were said to roam the plains. He also mentioned some plants, such as the "Star of Bethlehem," and told his wife that these plants would be considered ornamentals back east. One night he feasted on lambsquarters, an edible plant that he reported was found only near old Indian camping grounds. When the party reached Bent's New Fort, he was relieved to note that there were trees – cottonwoods – as far as the eye could see, as well as a few grape vines! Later, Dr. Willing summed up his feelings about the plains: "The whole country on either side of the river is one great, barren, black, boundless, desolate waste."[91]

It is clear from all these accounts that the plains was an uncertain environment during the best of times. As Zebulon Pike's 1806 report shows, winter on the plains was harsh even in the years before the land experienced full human use (and abuse) in the mid-nineteenth century. Pike's party had encountered poor forage, but this would not be unexpected for winter. However, mid-century travellers commented on the poor grass during the peak spring and summer seasons: while sojourning at Bent's (Old) Fort in 1859, Dr. Willing noted that "[g]rass has been failing along the road for one hundred miles or more, and it grows scarcer we are told as we advance."[92] During the summer, water availability could be erratic despite the many streams and creeks. For example, Ash Creek was completely dry in 1846, while Cow Creek had good water in 1846 and in 1859, and Walnut Creek, though a deep crossing in 1846, was mostly mud in 1859.

Overland accounts also contain conflicting information about bison populations. Contrary to Lieutenant Abert, Mrs. Magoffin noted that once in "buffalo country" her party constantly encountered buffalo, sometimes only three or four, sometimes herds of more than fifty, and near Coon Creek (about 30 miles west of Pawnee Fork), she saw "great many buffalo, (some thousands)."[93] According to Charles Post, he encountered buffalo herds farther east in Kansas than did Mrs. Magoffin. How, then, do we reconcile these conflicting accounts? Bison do tend to roam and their roaming pattern was not always predictable, but human traffic probably also frightened them away from well-travelled areas. Further, encountering pockets of buffalo of even several thousand would have been common in the 1840s, considering that the peak buffalo population in this region would have been between three and five million animals.[94] However, the buffalo herds were already under stress due to exotic diseases, increased competition for forage, and human predation. In addition, drought conditions in the western Great Plains may also have contributed to the decrease in bison number. All these factors could explain the inability of the Apache party to find game, the dry creeks, the poor forage, and the eastward retreat of the herds.

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[91] Ibid., 368.
[92] Ibid., 367.
[93] Ibid., 49.
[94] West, *The Way to the West*, 53.

Conclusion

A handful of wagons rolling gently through a sea of swaying grass . . . . if the overland journey was ever this idyllic, it certainly was not the case by 1859. Hundreds, if not thousands, of wagons and animals jammed the trails, kicking up choking dust clouds onto all who followed. With the travellers came human and animal litter and detritus; emigrants simply discarded items – and animals – that they no longer needed or that weighed them down. They used up every imaginable resource along the well-worn routes: they cut down trees for fuel, and when the timber ran out they used buffalo chips; their horses, oxen and mules grazed voraciously on whatever forage they could find in the immediate vicinity of the trail, and they did so along every inch of the trail. Imagine, then, the additional pressure exerted by this mass migration on the already fragile ecosystem, especially in riparian areas, for it was along the river courses that overland migrants travelled. It is this ecosystem that the Cheyennes and Arapahos depended upon for survival in the winter of 1864.

The high plains of Colorado developed over thousands of years and were shaped by climate, rainfall, and the animal and human populations that lived there. For thousands of years, the plains ecosystem was able to respond to changes in climate and population demands to provide a relatively stable habitat. And then, resources that had been available for thousands of years, and that the human inhabitants had thought were limitless, began to dwindle. The key concept at the heart of ecology is that all living organisms are connected, that nothing exists independently. When any one resource is overused or experiences stress, the result is much like knocking over a row of dominoes. During a drought, forage is in short supply; without enough forage, bison, antelope and horse populations are under pressure and dwindle; without enough bison and antelope, the native populations that rely upon them do not have enough food.

Essentially, this is what occurred on the Colorado plains in the early 1800s, and what most likely also shaped the Sand Creek environment in 1864. Those who depended on the land and its resources the most – native peoples, horses, and bison – were caught up by two forces far more complicated, and unrelenting, than they ever imagined: mass overland migration and a market economy. These factors, combined with natural fluctuations in climate and careless land use by overland emigrants, contributed to the inability of the plains ecosystem to maintain its balance. Unfortunately, because none of the players in the field recognized the damage done by other groups, no steps were taken to prevent the decline; by 1864, the grasses were failing, the timber was scarce, animal populations were dwindling, and the plains' ability to support these life systems had devolved into an environmental crisis.

With the increasing crisis on the land, the Cheyenne tried "to live its way into another."[95] In response to the exigencies of winter camping and the desire to demonstrate peacefulness while remaining near Fort Lyon for "protection," Black Kettle led his people to the familiar sanctuary at Big Sandy Creek – except that here too, as on other parts of the plains, food and fuel had become scarce. Yet what happened to the landscape

[95] West, *The Contested Plains*, 302.

and the people at Sand Creek cannot be examined merely on a local level. Because historical problems can rarely be contained or understood within a single, bounded space, one approach is to imagine environmental history "on a series of scales."[96] The environmental history of the Sand Creek Massacre site is not limited by time, and neither is it limited by "designated" boundaries. For many years the Cheyennes occupied the prime position on the central plains trade network that stretched some 800 miles from the middle Missouri valley in North Dakota to northern New Mexico.[97] Because of their important role as middleman in the economic network of the plains, their cultural ecology came to encompass a range of sites that were important to them not just for trade, but also for religious, social, political, and military reasons. Yet the boundaries expanded far beyond this axis, for with the increasing white market for bison products on the east coast, this vast web of routes and sites -- of which Sand Creek was one point -- extended to a national scale. In the competition for resources, and hence the control of the land, the Cheyennes, Arapahos, and other native people were locked in a struggle with new settlers from an expanding nation who vowed complete sovereignty. The Sand Creek Massacre became the symbol of that deadly drive for political, economic, cultural, and environmental dominance.

[96] Richard White, "The Nationalization of Nature," *Journal of American History* 86, no. 3 (Dec. 1999): 976-986.
[97] West, *The Contested Plains*, 70-71.

CHAPTER 2: SAND CREEK MASSACRE SITE IN 1864

Since 1864, many eyewitnesses have offered personal accounts of the Sand Creek Massacre. These authors – army commanders, soldiers, Indian agents – wrote from the white viewpoint, and much of their narratives concerned the military action immediately before and during the massacre. Nevertheless, their works offered glimpses of the condition of the land, the native people, and the livestock. One work that gave a rare Cheyenne perspective came from the pen of George Bent, son of William Bent and Owl Woman. Bent, who had been staying with his mother's people at the time of the attack, was formally educated and could read and write. While he too focused on the events of the massacre, he did include some descriptions of the landscape:

> Sand Creek heads in the ridge country to the southeast of Denver . . . . [It] was usually dry, except after heavy rains, but in a few places there was running water in the creek all the year round. Our camp was near one of these places where there was running water.[98]

Bent recalled that in the dry part of the creek, the high banks provided shelter during the height of the attack. Once night had fallen, those who had survived the initial onslaught crept out of their hiding places and began a perilous journey north across the plains, hoping to reach a larger band of Cheyennes camped along the Smoky Hill River: "There we were on that bleak, frozen plain, without any shelter whatever and not a stick of wood to build a fire with."[99]

Official reports and testimony before and after the massacre provide further insight into the ecosystem and its declining ability to meet all the demands placed upon it. In 1861, A.G. Boone, the Indian Agent assigned to the agency that oversaw the Cheyenne, told Governor William Gilpin that the Indians were in desperate straits. In June, Boone reported that the Cheyenne were "destitute" and "near starvation,"[100] and in August, he noted that the "game is fast disappearing from their Country."[101] Just a few years later, Major Scott J. Anthony testified that the arms he confiscated from the natives at Fort Lyon in early November, 1864, were "in very poor condition, and but few, with little ammunition," that their horses were "below the average grade of Indian horses," and that in fact the Indians he saw "could make but a feeble fight if they desired war."[102] Alexander Cameron Hunt, who was then the United States Marshal for the Territory of Colorado, saw the captured pony herd the soldiers drove into Denver after the massacre, and testified that the horses were "poor [and] thin."[103]

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[98] Hyde, *Life of George Bent*, 151.

[99] Ibid., 157.

[100] A.G. Boone to Governor William Gilpin, 1 June 1861, *Letters Received by the Office of Indian Affairs (Washington) from the Colorado Superintendency, 1824-1881*, microfilm 234, roll 197, Record Group 75, National Archives and Records Administration, Denver Federal Center, Denver, Colorado.

[101] A.G. Boone letter to Governor William Gilpin, 1 August 1861, in ibid.

[102] Testimony of Major Scott J. Anthony before the Joint Committee on the Conduct of the War, reprinted in Carey, ed., *A Collection of Document*s, 61.

[103] Testimony of A. C. Hunt, reprinted in ibid., 49. A. C. Hunt later became governor of Colorado.

It is fair to conclude, then, that by 1864, the plains surrounding Sand Creek were nearly devoid of the bison, deer and antelope herds that had enjoyed its bounty for thousands of years. The increased demands on the land, both by native populations and white settlers, coupled with the unpredictable nature of the climate, had taken the plains ecosystem to the very brink of collapse.

Winter Camps

Prior to 1864, the land along the Arkansas River had long been traditional Cheyenne wintering sites. Lieutenant James W. Abert noted this fact in his field journal of the 1846-1847 expedition with the Army of the West that took him from Fort Leavenworth to Bent's (Old) Fort and south to Santa Fe. The soldiers made the return journey in winter, and by January of 1847, they were travelling along the Arkansas River. Abert located the Big Timbers approximately 27 miles east of Bent's Fort, and noted that the army continued to pass by the grove over a two-day march. He thought that the Big Timbers would be a "fine place to locate a fort. The Indians winter here yearly, [it has] such advantages for wood, grass, water."[104] Indeed, Abert commented on the many Cheyenne villages and lodges along the river, including those at the junction of Big Sandy Creek. Farther east, however, conditions were less sanguine. Although Abert's party managed to find enough water and grass for their animals, they also found deep snow that hid winter grasses, and in other places they had difficulty breaking through ice to obtain fresh water. As the company marched towards Pawnee Fork, they found burnt prairie caused by careless white campers, as a result of which the army mules had to forage five to six miles away from the camp. Between 15 to 20 miles east of Big Sandy Creek, the soldiers spotted some bison but were unsuccessful in their hunt. Bison was apparently scarce, for after another 25 miles, Abert encountered an Arapaho chief who told him that he was searching for grass and food for his people, and that to the east there were no buffalo and few Indians on the river. The next day the army camped near some Cheyenne lodges; there too food was scarce, and Abert refused to give rations to a family that came begging.[105]

Water, grass, and wood – these were the three things observers looked for and reported on when they travelled through the plains. These were also the elements they took note of when they wrote about native camps. Plains Indians established winter camps along rivers and creeks for very good reasons: over time, the streams had carved out protective bluffs along their courses, and the riverine environment provided fairly reliable water and grass. In addition, trees – so rare on the open plains – grew along the banks, and supplied fuel as well as emergency forage for horses, and in the form of driftwood, could be easily salvaged for camp fires. George Armstrong Custer described a Cheyenne-Sioux village on the Pawnee Fork in 1867:

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[104] James W. Abert, *Western America in 1846-1847: The Original Travel Diary of Lieutenant J. W. Abert, who mapped New Mexico for the United States Army,* ed. John Galvin (San Francisco: John Howell Books, 1966), 85.
[105] Ibid., 85-87.

> [It] was situated in a beautiful grove on the banks of the stream . . . . Like all Indian encampments, the ground chosen was a most romantic spot, and at the same time fulfilled in every respect the requirements of a good camping-ground; wood, water, and grass were abundant. The village was placed on a wide, level plateau, while on the north and west, at a short distance off, rose high bluffs, which admirably served as a shelter against the cold winds.[106]

As well-placed as these camps were, winters were hard on man and beast. Governor John Evans understood the realities of plains life -- and in particular its cyclic nature – when he wrote that since during the winter "the Indians are unable to subsist except in the buffalo range, it is the most favorable time for their chastisement."[107] Custer echoed the same sentiments when he discussed the timing of what became the Battle of the Washita (27 November 1868). Despite Indian complaints that bison were becoming scarce,[108] Custer nevertheless insisted on the bounty of the plains during the summer months:

> [T]he rich verdure of the valleys served as bountiful and inexhaustible granaries in supplying forage to [the Indians'] ponies, and the immense herds of buffalo and other varieties of game roaming undisturbed over the Plains supplied all the food that was necessary to subsist the war ponies, and at the same time allow their villages to move freely from point to point.[109]

Winter was thus the best time for the army to wage decisive war on the Indians, for then "it is barely possible for the Indians to obtain sufficient food for their ponies to keep the latter in anything above a starving condition."[110]

Custer's comments highlight the importance of the pony herds – and hence the importance of good grass – to the nomadic tribes. Any camp site, whether in summer or winter, would need adequate pasturage. And, camps could never be permanent; even during the natural abundance of the summer months, villages had to move a few miles every few weeks as horses grazed off favored grasses. Cheyenne and Arapaho family histories confirm the migratory nature of winter camps. Tribes moved often for hygiene purposes and to find grass for the horses, but William Red Hat of the Southern Cheyenne offered other reasons for the impermanent nature of Cheyenne villages: "You never stay in one place too long because if you do you become a civilization and destroy things. You have to move on and let the land replenish."[111]

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[106] George Armstrong Custer, *My Life on the Plains, or Personal Experiences with Indians* (Norman, OK, and London: University of Oklahoma Press, 1962), 35.
[107] Governor John Evans, Report to Commissioner of Indian Affairs, 15 October 1864, reprinted in Carey, ed., *A Collection of Documents*, 4.
[108] Custer, *My Life on the Plains*, 31. In the spring of 1867, at a meeting between a Cheyenne-Sioux contingent and the U.S. Army, Tall Bull made a speech in which he complained about the increasing scarcity of buffalo.
[109] Ibid., 204.
[110] Ibid., 204.

Sand Creek Massacre Site

The Sand Creek Massacre site was not along the Arkansas River, but the Cheyennes and the Arapahos knew it well. According to George Bent, an old lodge pole trail (made by ends of lodge poles trailed behind Indian ponies) ran from (old) Fort Lyon to the headwaters of the Smoky Hill River. The Cheyenne and Arapaho camp site was located near where the trail crossed Big Sandy Creek, approximately 14 miles northeast of present-day Eads, Colorado.[112] Some of Chivington's soldiers reported that they followed an old Indian trail during their overnight march to the village; this lodge pole trail may have formed part of their route.[113] Segments of this trail were still visible in Soil Conservation Service aerial photographs taken in 1936-1937.[114]

In October of 1864, a group of Cheyennes stopped at this camp site on their way down from the Smoky Hill River to the Arkansas River; these were Black Kettle's followers, and they were joined later in November by Left Hand's smaller Arapaho band. The Cheyennes returned to the site when Major Anthony told a delegation that they would not be allowed to camp near Fort Lyon for fear of escalating conflict, and that moreover, game was scarce near the fort. The tribes had hoped to obtain rations from the army, but they had other reasons for wanting to camp near the fort: according to General Custer, the natives chose to stay near military posts only when they felt at peace – and wanted to remain at peace -- with the whites; otherwise they spent the winter in more remote (and secret) areas.[115]

Beyond noting that the Sand Creek site was well-known to the Cheyennes and Arapahos and had been used for many years, George Bent did not accord it any special significance. The existence of the lodge pole trail would indicate that the tribes used this route to move between camps on the Arkansas and Smoky Hill rivers. Thus, the site may have functioned as a "way station" for smaller bands moving between the favored Big Timbers of the two major rivers, but it is unclear how often they actually camped there or how long they stayed each time. Cheyenne descendent Colleen Cometsevah believes her ancestors camped there "sometimes," and perhaps not many times, but other groups also used the lodge pole trail and presumably also used the camp site.[116] In any event, at the time of the massacre Black Kettle's followers had been at Sand Creek for perhaps six weeks, while the larger Cheyenne camp remained at the Big Timbers of the Smoky Hill

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[111] Interview with Emma Red Hat and William Red Hat, Jr., recorded in Dr. Alexa Roberts, "The Sand Creek Massacre Site Location Study Oral History Project," in United States Department of the Interior, *Sand Creek Massacre Project, Volume 1: Site Location Study* (Denver: National Park Service, Intermountain Region, 2000), 211.
[112] Hyde, *Life of George Bent*, 151.
[113] John Lewis Daily diary, 28 November 1864, microfilm copy, Western History Department, Denver Public Library, Denver, Colorado.
[114] Soil Conservation Service aerial photograph, 17 October 1936, roll AG 298, frame 46, as reproduced in Jerome A. Greene, "Report on the Historical Documentation of the Location and Extent of the Sand Creek Massacre Site," in U.S. Dept. of the Interior, *Sand Creek Massacre Project, Vol. 1*, 51-52.
[115] Custer, *My Life on the Plains*, 204.
[116] Colleen Cometsevah, recorded in Roberts, "Oral History Project," 202.

River.[117] Black Kettle may have decided to stay at Sand Creek for the winter if he *believed* that Major Anthony had ordered him to do so; in addition, he may have wanted to maintain physical distance from the more militant Smoky Hill bands. Sand Creek was obviously not the most ideal setting for extended stays, but it did fulfill the basic requirements for a winter campground: this spot provided water, it had adequate grass for the herds, and it had surrounding bluffs that helped shelter the lodges from the harsh winter winds of the plains.

These very general descriptions give us an idea of what the landscape might have looked like, but specific details are scarce. Letters, journals, and reports of civilians and army personnel form one source of information. The most popular trails for gold-seekers and emigrants were the Arkansas River trail and the Platte River trail, although some also used the Smoky Hill River trail. Along the Arkansas River, travellers crossed Big Sandy Creek where it flowed into the Arkansas, but they did not typically ascend the tributary. The Butterfield Overland Despatch did have stations on Big Sandy Creek, but they were all to the north of the massacre site, with the first station located 15 miles north of it.[118] The post-massacre testimonies for the congressional investigation form another source, but as with the emigrant narratives, these statements are from white observers, and are concerned with the actions of the day rather than with the environment. Native American oral histories passed down from Sand Creek Massacre survivors form a final, important resource. However, the landscape also tends to be peripheral in these stories; as Elsie Standing Elk Wick noted, environmental features "weren't important enough to mention because of the event. That became more important than stating there was water here or that kind of thing. The murder of the people was too prominent."[119]

Despite these limitations, we can piece together a plausible picture of the Sand Creek Massacre site in 1864 by using these sources along with modern-day reconstructions of environmental conditions obtained from statistical studies and scientific samplings.

Surrounding Environment

Historically, the plains west of the 100th meridian were covered with nutritious short grasses – the buffalo (*Buchloe dactyloides*) and blue grama (*Bouteloua gracilis*).[120] Although the Sand Creek Massacre site is situated within the greater area that is considered short grass prairie, most of the site today consists of sandy bottomland with the potential (climax community) to be a tall grass area, while short grass prairie covers only about twenty percent of the land.[121] At the time of the massacre, then, the site may not have been a short grass prairie. For contemporary information on its appearance in

[117] Hyde, *Life of George Bent*, 164. Survivors fled to this main Cheyenne camp after the massacre.
[118] Wayne C. Lee and Howard C. Raynesford, *Trails of the Smoky Hill* (Caldwell, ID: The Caxton Printers, Ltd., 1980), 69-70.
[119] Elsie Standing Elk Wick, recorded in Roberts, "Oral History Project," 261.
[120] Malin, *History and Ecology*, 6.
[121] Data interpretation by Dr. L. Roy Roath, professor and extension specialist in the Warner College of Natural Resources at Colorado State University, from "Inventory of Plants at Sand Creek Massacre NHS," a vegetation survey conducted for the Sand Creek Massacre Site Project, final report due in 2007.

1864, travellers who passed close to the area left some details in their journals and writings.

In 1865, David A. Butterfield organized the Butterfield Overland Despatch (BOD), a new stage and freight line that ran from the Missouri River, across Kansas, and thence on to Denver. As part of the opening of the line, Lieutenant Julian R. Fitch of the U.S. Signal Corps accompanied the Butterfield Surveying Expedition on its trip from Fort Leavenworth to Denver over the Smoky Hill trail. In general, his report was quite glowing. For example, in July 1865, he reported seeing perhaps a million bison on the prairies around Fort Ellsworth (central Kansas), and wrote that the Smoky Hill was the "garden-spot and hunting-ground of America . . . . bountifully supplied with wood, water and grass."[122] Farther west, Fitch passed Big Cottonwood Grove, 16.5 miles east of Cheyenne Wells, and noted that it "used to be a celebrated camping-ground for Indians."[123] Twenty-one miles southwest of Cheyenne Wells, as he crossed the land between the Smoky Hill and Big Sandy Creek, he stopped at Eureka Creek and wrote of its large stream and good grass. At this point, the survey party started to head northwest up Big Sandy Creek and rode approximately 70 miles to its northern bend, "finding an abundance of water, grass, and some timber, though the latter is scarce."[124]

Bayard Taylor, a correspondent for the *New York Tribune* and a prolific traveller, was on the BOD in June, 1865. Between Cheyenne Wells and Big Sandy Creek, his party crossed over a broad plateau for about 20 miles before descending to the creek. From there, the landscape was brown and treeless, the creek dry. Dubois Station was the first station on Big Sandy, and was located approximately 24 miles southwest of Cheyenne Wells.[125] At the station, Taylor found the caretakers, "two men living in a hole in the ground, with nothing but alkaline water to offer us." He reported that "even the buffalo-grass died out," and all the land was covered with weeds and cacti. Eighteen miles farther north, the party stopped at Grady's Station, where "there was but one man, a lonely troglodyte, burrowing in the bank like a cliff swallow."[126] The descriptions of "holes in the ground" and in the banks indicate that at these locations 15 to 35 miles *north* of the massacre site, the land along the creek appeared to have been loamy or alkaline plains.[127] At Sand Creek, however, eyewitnesses consistently described the

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[122] Julian R. Fitch, Report on the Smoky Hill Route, to Major Geo. T. Robinson, as reprinted in Appendix B of *Indian War of 1864: Being a Fragment of the Early History of Kansas, Nebraska, Colorado, and Wyoming*, by Eugene F. Ware (Topeka, KS: Crane & Company, 1911), 586-87.
[123] Ibid., 588.
[124] Ibid., 589.
[125] Glenn R. Scott, *Historic Trail Map of the Lamar 1^o x 2^o Quadrangle, Colorado and Kansas* (Washington, D.C.: U.S. Department of the Interior, USGS, 1995).
[126] Bayard Taylor, *Colorado: A Summer Trip*, ed. William W. Savage, Jr. and James H. Lazalier (1867; reprint, Niwot, CO: University Press of Colorado, 1989), 32.
[127] In a conversation on 9 June 2006, Dr. Roath commented that these descriptions of "homes" in the ground and in creek banks indicated an area of loamy plains with shortgrass, or alkaline plains with more clay in the soil. One would not be able to dig holes large enough to live in if the soil were sandy, for the excavated areas would collapse. Dr. Roath also noted that since most travellers were not trained observers, they tended to call all short grasses "buffalo grass," though the grasses were most likely blue grama.

prevalence of sandy soil. The creek bed and banks were sandy, the hills west of the creek were sand hills, and at half a mile from the village, the soil was also sandy.[128]

As for the land farther south, Major Samuel G. Colley, an agent for the Cheyennes and Arapahos, left a description of the reservation that the United States government had established with the Treaty of Fort Wise in 1861. The reservation was a triangular tract of land bounded roughly on the south by the Arkansas River, and north and east by Big Sandy Creek; the original Fort Lyon was located within its boundaries. According to Major Colley, the country was short on game, noting that "no buffalo [had] been seen there for three or four years."[129] It was also timber-poor; the trees that were there were mostly cottonwoods, just enough to provide for firewood but not for buildings or fences. However, he believed the land was good for agriculture, but only along the Arkansas River because the river provided the only reliable water source for irrigation and there was a dearth of permanent streams on the rest of the reservation. Although the land *seemed* barren, Colley thought the reservation good stock country with plentiful buffalo and grama grasses: he claimed that the "stock [kept] fat all winter without feeding."[130]

The differences between the BOD stations and the Sand Creek Massacre site highlight the heterogeneous nature of the Central Plains landscape, and thus the difficulties involved when extrapolating conditions from one microenvironment to another. Nevertheless, a description such as Major Colley's general overview of the Cheyenne-Arapaho reservation provides useful leads in reconstructing the Sand Creek environment in 1864.

Food

The Cheyennes had abandoned farming when they moved south into the Central Plains, but they still relied on wild plants and herbs for medicine and for carbohydrate in the diet. Among the plants the women and children gathered were lambsquarters (*Chenopodium berlandieri*), American licorice (*Glycyrrhiza lepidota)*, groundplum milkvetch (*Astragalus crassicarpus*), chokecherries (*Prunus virginiana*), and the most favored of all, prairie turnip (*Psoralea esculenta*), a protein-rich root that was a diet staple, a medicine, and a commodity the Cheyenne traded for maize. There is evidence that even though they no longer practiced horticulture, the Cheyenne nevertheless performed a certain amount of rough plant management: they transplanted groundnut (*Apios americana*) west onto the high plains, and also planted prairie turnips in strategic locations to help feed war and hunting parties traversing the plains.[131] The bison, however, provided the main food source for Plains tribes. After Major Anthony took command of Fort Lyon, he told the Arapahos camped near the fort that they needed to

[128] George Bent recalled trying to run for the sand hills at the beginning of the attack, see Hyde, *Life of George Bent*, 152-53; Morse H. Coffin, *The Battle of Sand Creek*, ed. Alan W. Farley (Waco, TX: W. M. Morrison, 1965), 18-19. Coffin recalled the troops unloading extra gear at a spot of "deep sand," about half a mile from the village but in sight of it. He wrote his account of the battle in a series of letters to *The Colorado Sun* (Greeley, CO) from December 1878 - February 1879.
[129] Testimony of Major S. G. Colley, reprinted in *Sand Creek Massacre*, 120.
[130] Ibid., 121-22.
[131] West, *The Contested Plains*, 73-74.

move to "buffalo country" – meaning farther *down* the Arkansas River – to hunt for their winter subsistence. This was a proposition that ignored the reality that bison were becoming scarce. As early as 1853, Thomas Fitzpatrick (the first agent for the Cheyennes and the Arapahos) had reported that the tribes in his district were starving for half the year.[132] Certainly in the 1830s, bison range extended from the Front Range of the Rockies to central Kansas. But by the 1860s, the herds were in decline for a number of reasons, including an extended drought from the mid-1840s to mid-1850s, increased Indian hunting for the buffalo robe trade, selective killing of buffalo cows, new enzootic diseases, habitat disturbance by emigrants and settlers, and increased grazing competition from stock and horses. Thus, by mid-century the bison herds had retreated to the eastern half of Kansas between the Platte and the Arkansas rivers.[133] If the Cheyennes at Sand Creek went on winter hunts, they probably had to travel a fair distance to the Smoky Hills region. William Red Hat related that the Cheyennes stocked up for the winter during autumn hunts from September to November, when the weather was just cool enough to dry buffalo meat without it spoiling in the heat. The coldest months of December through February were for staying indoors and telling stories.[134] In another native account, however, the warriors may have gone on just such a winter hunt, thus leaving mostly women, children, and older men in the village when the attack occurred.[135]

After the massacre, the army burned the lodges and most of their contents. The congressional testimonies reflected only the questioners' interest in Indian property that was potentially useful for white trade – thus, the government wanted to know the number of buffalo robes and ponies taken, but not how much food the people had. John Smith did mention that he saw "some" sugar, coffee, and tea in the lodges, but thought they may have been Major Colley's trade goods.[136] Veterans Morse Coffin and Irving Howbert, in their respective post-massacre apologias, both claimed that the village had a tremendous stockpile of food. Coffin wrote that "tons of dried buffalo meat and large and numerous packages of coffee, sugar, dried cherries, etc. were on every hand."[137] In a similar vein, Howbert found "an abundance of flour, bacon, coffee and other articles of food from which the regiment could have maintained itself for an indefinite length of time."[138] The available native narratives, however, are mostly silent on the subject of how much food the Indians had. Based on family histories, however, the tribes were not unfamiliar with living near starvation. During the post-massacre flight, Singing Under Water Moss recalled digging up roots and gathering berries, as well as sitting by prairie dog holes waiting for prairie dogs to pop out of their holes, then hitting them on the head and roasting them for food. Marybelle Lonebear Curtis remembered her grandfather telling the grandchildren how lucky they were to have enough to eat and not to have to go to bed

[132] Flores, "Bison Ecology and Bison Diplomacy," 465-485.
[133] Ibid., 483; maps of bison range from West, *The Way to the West*, 64-65.
[134] William Red Hat, Jr., recorded in Roberts, "Oral History Project," 211.
[135] Hubert Warren, recorded in ibid., 162.
[136] Testimony of John S. Smith, reprinted in *Sand Creek Massacre*, 17.
[137] Coffin, *The Battle of Sand Creek*, 31.
[138] Irving Howbert, *Memories of a Lifetime in the Pike's Peak Region* (1925; reprint, Glorieta, NM: The Rio Grande Press, Inc., 1970), 130

with worries.[139] Finally, the uncertainties of nomadic life are poignantly revealed in the following story: a little girl who survived Washita had a backpack (apparently pre-packed for just such an emergency) she refused to part with, and when the women finally examined it, they found that it contained dried berries and meat, and an extra pair of moccasins.[140] Given the general agreement on deteriorating Plains conditions and reports of tribes living on the edge, it is unlikely that Black Kettle's people lived in abundance.

Timber

Today, cottonwoods thrive along the banks of Sand Creek; in fact, the course of the creek bed would be hard to discern without the line of trees. In 1864, however, there were far fewer trees than at the present, and eyewitness descriptions emphasized the barrenness of the landscape. The condition of the cottonwoods on Sand Creek may have echoed what was happening to the Big Timbers on the Arkansas River. In 1806, Zebulon Pike noted young cottonwoods sprouting along the Arkansas *east* of the Kansas-Colorado border, with major growths extending from near Holly, Colorado to the junction of the Purgatoire. Thus, the Big Timbers lined the river for almost 60 miles. By the 1850s, most accounts of the grove placed its eastern limits *above* Big Sandy Creek, near present-day Lamar. In the span of fifty years, then, the Big Timbers of the Arkansas River had receded approximately 30 miles west. The stand of cottonwoods itself was also thinning – in 1853, Lieutenant E. G. Beckwith found the trees "not thick enough to obstruct the view."[141] Along with the decrease in living trees, travellers also no longer had access to driftwood as a fuel. Two Butte Creek, near Holly, was called "Piles of Driftwood" by the Cheyenne; by the 1850s, driftwood was a rare find.

Eyewitnesses do not mention the presence of trees at Sand Creek. Major Scott Anthony testified that the area where the massacre occurred was comprised of "prairie country, slightly rolling" with very short grass.[142] At a veterans' reunion at the site forty-four years after the attack, P.M. "Lant" Williams remembered coming over the ridge on that morning and seeing the villages on the flat ground on the north side of the creek. He saw a group of Indians in the "weeds" beyond the village, and later chased them out of the grass and into the open country. Although the veterans could not agree on the location of the site of the massacre, they all agreed that there were no trees, though there might have been a dead one in the creek bottom.[143] Irving Howbert, over 50 years after the massacre, also made no mention of trees, though he remembered some of the natives hiding in large tangles of driftwood piled along the banks as well as in the middle of the creek.[144]

The soldiers' testimonies also supply indirect evidence for the paucity of trees. When Custer wrote about the Battle of the Washita, he noted that as his men approached the

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[139] Singing Under Water Moss was Hubert Warren's grandmother; Mr. Warren recounted her story in Roberts, "Oral History Project," 163. Interview with Marybelle Lonebear Curtis as recorded in ibid., 198.
[140] Colleen Cometsevah, recorded in ibid., 203.
[141] Lieutenant E.G. Beckwith, as quoted in West, *The Way to the West*, 27-28.
[142] Testimony of Major Scott Anthony, reprinted in *Sand Creek Massacre*, 28.
[143] Van Loan, "Reunion of Indian Fighters".
[144] Howbert, *Memories of a Lifetime*, 123, 126.

village, they caught "a view here and there of the tall white lodges as they stood in irregular order among the trees," and that during the battle, the Cheyennes fought from behind trees and banks.[145] For the Sand Creek Massacre, there are no such descriptions of tipis or warriors sheltered amongst or behind trees. Many of the soldiers' reminiscences consistently mentioned the clear view they had of the village when they first approached it in the early morning hours: ". . . . we reached the sand, in full view of the Indian camp . . . ."[146]; ". . . . we reached the top of a ridge, and away off down in the valley to the northwest, we saw a great number of Indian tents, forming a village of unusual size . . . ."[147]; and, "upon the banks the white tepas [sic] of an Indian village appeared as little dots upon the great mass of brown before us."[148]

In Cheyenne stories, however, cottonwood trees at the site saved the lives of some Indians who were able to crawl into hollowed-out logs and take refuge from the hail of bullets.[149] Emma Red Hat referred to "a lot" of cottonwood trees as well as driftwood, while Laird Cometsevah included willows and sage along with the cottonwoods.[150] Joe Big Medicine remembered the elders talking about a small forest near the site where young boys hunted for rabbits, and Elsie Standing Elk Wick's mother told her the ancestors camped in a grove of trees, but also told her there were no places to hide because the land was so flat.[151] According to John Sipes, Jr., many Southern Cheyenne elders insist there had been no trees at Sand Creek.[152] Finally, perhaps the strongest eyewitness source for a timberless landscape is a letter George Bent wrote to Joseph Thoburn in 1914. In response to a question regarding trees at Sand Creek, Bent replied, "[N]o timber on Sand Creek of any kind so I did not change the map because it is correct."[153]

Yet there may have been some trees, if not in the immediate area of the village then in the vicinity, for the simple reason that the Indians needed a certain amount of firewood for cooking and heat.[154] Major Colley had reported that the reservation in general had enough timber to provide firewood and not much else; this may have also been the case at Sand Creek. In *The Cheyenne Nation*, John Moore addressed the issue of firewood requirement for nomadic tribes. Timber, never plentiful on the plains, had become even scarcer by mid-19th century: in 1864, for example, soldiers had to travel 30 miles from

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[145] Custer, *My Life on the Plains*, 240-41.
[146] Coffin, *Battle of Sand Creek*, 19.
[147] Howbert, *Memories of a Lifetime*, 123.
[148] George A. Wells, letter to *Miners' Register* (Central City, CO), dated 28 November 1864, published 4 January 1865, copy, Box 6, Folder 281, Sand Creek Archival Collection, Western Archeological and Conservation Center, National Park Service, Tucson, Arizona.
[149] Colleen Cometsevah, recorded in Roberts, "Oral History Project," 201.
[150] Emma Red Hat and William Red Hat, Jr., recorded in ibid., 209, 211; Laird Cometsevah, recorded in ibid., 230.
[151] Joe Big Medicine, Jr., recorded in ibid., 222; Elsie Standing Elk Wick, recorded in ibid., 261.
[152] Interview with John Sipes, Jr., conducted for "Tears in the Sand," a documentary film of the Sand Creek Massacre produced by Rocky Mountain PBS [transcript on-line]; available from http://www.krma.org/tears/interv2.html; accessed 5 April 2006.
[153] George Bent to Joseph B. Thoburn, 3 March 1914, Thoburn Collection Ms 86.1, Box 1, Oklahoma Historical Society, Oklahoma City, Oklahoma.
[154] Although dried bison dung may have provided an alternative fuel source.

Julesburg to obtain firewood. Using various sources and figures (including modern-day studies) for wood consumption, Moore estimated firewood requirements of from 6.7 acres/100 persons/year in central Mexico, to 30 acres/100 persons/year for an army fort in Kansas.[155] In these figures, Moore assumed that the people practiced clear-cutting. On the plains, however, the natives gathered wood they found easiest to obtain, especially driftwood and dead branches. If they needed to harvest wood farther away, they would take packhorses with them.[156] As some of the participants noted, there was driftwood in Big Sandy Creek. Lieutenant Samuel Bonsall's journal of a march from Old Fort Lyon to Cheyenne Wells, written just four years after the massacre, provides evidence that there were trees at the site. Approximately 12 miles south of the massacre site, Bonsall reported "plenty of driftwood" and "a few small cottonwood trees." At the massacre site (which Bonsall marked as approximately 2 miles long) and to the north of it, he again commented on the "stunted" cottonwoods growing along the banks of the creek[157] Additional support for the presence of at least *some* trees at Sand Creek comes from modern scientific studies. In a 2005 tree ring study for the National Park Service, Dr. Connie Woodhouse and her team took samples from Sand Creek Massacre site cottonwoods -- known to be at least 75 years old by aerial photographs -- for age analysis. Their preliminary findings indicate that there are indeed trees at the site that were also alive in 1864.[158]

The Creek

Today, the creek bed of Sand Creek is flat, dry, and overgrown with grasses and brush. Sand Creek in 1864, however, was different. The banks of the river were noticeably steeper, in some instances as steep as 15 to 20 feet, and little if any grass grew in the creek bed. Running water showed above the sand in the creek in only a few places throughout the year, and there were no groves of cottonwood trees towering along its banks.

Major Anthony testified that during the attack, a group of Indians hid in the creek bed, which he described as perfectly level and sandy, and about 200 to 500 yards wide. The natives dug pits in the sandy banks, which ranged from 2 to 3 feet to 10 feet high.[159] Irving Howbert also estimated the creek to be approximately 200 yards wide near the camp site, with "perpendicular" banks 6 to 12 feet high.[160] John S. Smith, who was staying with the Cheyennes at the time of the massacre, recalled that at the beginning of the attack, the people ran to the upper end of the village; at that place, "the bed of Sand

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[155] John H. Moore, *The Cheyenne Nation: A Social and Demographic History* (Lincoln, NE, and London: University of Nebraska Press, 1996), 143-44.
[156] Ibid., 152.
[157] 1868 Samuel Bonsall Map, as reproduced in U.S. Dept. of the Interior, *Sand Creek Massacre Project, Vol. 1*, 41. Lieutenant Bonsall produced this strip map and journal while his men escorted Lt. General William T. Sherman east following his tour of the western frontier.
[158] Connie Woodhouse and Jeff Lukas, "Riparian Forest Age Structure and Past Hydroclimatic Variability: Sand Creek Massacre NHS and Bent's Old Fort NHS," Progress Report for the NPS, March 2006, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado.
[159] Testimony of Major Anthony, reprinted in *Sand Creek Massacre*, 28.
[160] Howbert, *Memories of a Lifetime*, 124.

creek ran right up; there was little or no water in it."[161] Colonel Chivington, although perhaps not the most reliable of witnesses, reported that the Indians had dug defensive trenches (pits) 2 to 3 feet deep in the banks – which he described as "high" to "precipitous" near the camp – and that extended "several miles" up the creek. There was still snow in some of the trenches, which to him meant the trenches had been prepared some time prior to the attack, since there was no longer any snow in the surrounding countryside.[162] Captain Silas S. Soule testified that the creek banks could indeed be quite high with a range of 2 to 15 or 20 feet (although at the camp the banks were closer to 2 to 5 feet high); however, he did not see any rifle pits or earthworks that looked like they had been constructed prior to the attack, although there were sand pits the Indians dug *on* the day of the massacre.[163]

Native accounts deny that the Cheyennes and Arapahos had dug defensive pits in anticipation of an attack. The people at the camp site believed they were under military protection, and moreover, they possessed both the American flag and a white flag of truce that officials had told them would indicate their peaceful status should a misunderstanding arise. Their oral histories indicate that older adults, women, and children scooped out the sand pits during the chaotic flight up the creek. In some stories, adults hastily dug holes to hide small children who could not run fast or far enough.[164] George Bent recalled that he ran about 2 miles up the creek bed to a place where the banks were very high and steep, and there a group of older Cheyennes had dug some pits. Bent, wounded in the hip, hid with the others in these pits for the duration of the attack.[165]

Given that the Cheyennes and Arapahos were running up the creek, and were also trying to excavate and take shelter in the high banks, we can reasonably conclude that the creek was mostly dry. This supposition is corroborated by several sources. C. B. Horton stated that the soldiers "rode down the creek, dismounted in the bed of it, which at that season of the year was dry."[166] In a letter to the *Miners' Register* (Central City, CO) in 1865, George Wells described the creek as a "large stream, with a channel a fourth of a mile wide, but filled with naught but sand and driftwood, in clumps."[167] Others witnesses noted that some sections of the creek had a little water. Morse Coffin wrote: "The creek was a bed of dry sand, except here and there pools of water."[168] Private David Louderback reported that "the Creek was very nearly dry, but a very little water running in it," and John Smith, when he testified about trying to identify the principal chiefs after the attack, recalled that "[t]hey were terribly mutilated, lying there in the water and

[161] Testimony of John S. Smith, reprinted in *Sand Creek Massacre*, 130.
[162] Testimony of Colonel J. M. Chivington, reprinted in ibid., 108.
[163] Testimony of Captain Silas S. Soule, reprinted in ibid., 205.
[164] Roberts, "Oral History Project," 201, 208, 233.
[165] Hyde, *Life of George Bent*, 152.
[166] C. B. Horton, "Survivor Tells of the 'Chivington Massacre,'" *The Denver Times*, 24 July 1903, copy, Box 1, Folder 26, Sand Creek Archival Collection, Western Archeological and Conservation Center, National Park Service, Tucson, Arizona.
[167] Wells, letter to *The Miners' Register*, 4 January 1865.
[168] Coffin, *Battle of Sand Creek*, 19.

sand."[169] Finally, Lieutenant Samuel Bonsall's 1868 journal noted water pools in Sand Creek approximately 12 miles south. Farther north and closer to the site, his party found "plenty of good water by sinking a box in the sand in the bed of the creek." At the site, the creek bed was dry but again, Bonsall found water by digging.[170]

Cheyenne and Arapaho narratives vary as to whether there was water in the creek or not. In Ben Friday's story, his then-thirteen year old great-grandmother lost a moccasin in the water while fleeing up the creek. Annie Brady related the story of her grandfather Black Horse going back to Sand Creek after the attack and surprising his wife, who had hidden "in the water."[171] Other narratives, however, point out that the Cheyenne name for Sand Creek means "dry creek," and contend that Sand Creek had no running water.[172] Little Bear, who survived the massacre, recalled: "I started running up the creek . . . . but I had not gone far when a party of about twenty cavalry men got into the dry bed of the stream." Finally, George Bent gave a chilling description of the creek: "the dry bed of the stream was now a terrible sight: men, women, and children lying thickly scattered on the sand."[173]

In Cheyenne tradition, however, the people always followed water. Thus, even if Big Sandy Creek had only scattered pools of water, the people would have made camp only if there were reliable springs near the village. Some oral histories support the presence of these other sources of water. Laird Cometsevah stated that people and horses had separate drinking water sources; at Sand Creek, the pools in the creek itself were for the horses since the water was bitter and barely palatable. Mr. Cometsevah's father told him there was a spring to the northeast that fed into Big Sandy Creek, and this was the spring that the people used.[174] Colleen Cometsevah remembered her grandmother and the grandmother's great-aunt telling her that Cheyennes did not drink from water that stood overnight because certain spirits also drank from those containers, so they had to draw fresh water in the morning. Her relatives told her that the Cheyennes knew there was a spring near the camp that provided drinking water; the spring would have been close by because the women did not have water buckets, and it would have been too dangerous for them to stray far from camp.[175] The separate spring theory is supported by the fact that there is a perennial spring to the east of the massacre site; when Laird Cometsevah flew over the area, he identified that spring as the water source his father had told him about.

Taking all the historical descriptions together, Big Sandy Creek in the vicinity of the massacre site may have looked like this in 1864: the banks were approximately two to five feet high at the location of the camp itself, and gradually rose to a height of between fifteen to twenty feet over the next one-quarter to half a mile upstream. The Indians dug

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[169] Testimony of David H. Louderback, as reprinted in *Sand Creek Massacre*, 139; Testimony of John S. Smith, reprinted in ibid., 14.
[170] 1868 Samuel Bonsall Map, reproduced in NPS, *Sand Creek Massacre Project, Vol. 1*, 41.
[171] Ben Friday, Jr., recorded in Roberts, "Oral History Project," 177; Annie Brady, in ibid., 252.
[172] See for example the interviews with John Sipes, Jr., "Tears in the Sand,"; Colleen Cometsevah, Emma and William Red Hat in Roberts, "Oral History Project."
[173] Little Bear quoted in Hyde, *Life of George Bent*, 153-4; George Bent, in ibid., 152.
[174] Laird Cometsevah, recorded in Roberts, "Oral History Project," 230.
[175] Colleen Cometsevah, recorded in ibid., 200.

sand pits along the banks of the creek bed at the places where the banks were the steepest – in particular, the west banks. The creek bed was for the most part sandy and dry, with driftwood, clumps of sage, and scattered pools of water; according to George Bent and his maps of the site, one of the rare places with running water probably was the South Bend of the creek.[176]

Grass

The village was on the north (east) bank of Big Sandy Creek and was comprised of approximately one hundred Cheyenne lodges, with a small contingent of perhaps eight to ten Arapaho lodges.[177] Each lodge housed from five to twelve people within an extended family; at Sand Creek, the general estimate was five people per lodge, or approximately 500 Cheyennes and 40 Arapahos. The typical tipis were about 20 feet in diameter and regardless of any particular camp layout, the tribes placed the tipis 15 to 20 feet apart.[178] In a linear layout, a camp of 100 tipis would occupy approximately 4,000 feet, or about three-quarters of a mile. According to George Bent, each band at Sand Creek ". . . . camped by itself with its lodges grouped together and separated by a little open space from the camps of the other bands."[179] In Cheyenne tradition, the tipis faced east or west, never north or south, and formed a "loose circle" with the opening to the east.[180] If the bands were arranged in loose circular or horseshoe clusters of ten tipis each, with some clusters closer to the stream and others farther afield (as represented in George Bent's drawings), the village would take up an area of about 1,000 feet by 500 feet (11.5 acres). If the clusters were linearly disposed, the area would be about 2,000 feet by 160 feet with an increase in the length of the camp but overall decrease in the total area (7.35 acres).[181] The village thus extended along the creek for perhaps a quarter to a half mile; Private Alexander Safely judged the camp to be about a quarter of a mile long, while Sergeant Lucien Palmer testified that the camp was "half a mile long, extending up and down the creek, situated between two very high ridges in the valley."[182] Modern informants give different estimates of the village area. William Red Hat believes the camp housed approximately 500 people and took up about 50 acres, while Laird Cometsevah

[176] The "South Bend" of Sand Creek is where the commemorative marker is currently located.
[177] Hyde, *Life of George Bent,* 149. There is debate over whether the Arapahos were camped *with* the Cheyennes, or in a location either north of the main village, or one-half to three-quarters mile downstream; some oral histories deny that the Arapahos were even there. For a discussion of where the Arapahos may have camped, see Greene, "Historical Documentation of Location and Extent," 68-69. For oral histories discussing Arapaho presence, see for example interview with Hubert Warren, in Roberts, "Oral History Project," 162-163; Colleen Cometsevah, ibid., 201-202; William Red Hat, ibid., 211; Joe Big Medicine, ibid., 213; Laird Cometsevah, ibid., 228; Ray Brady, ibid., 246.
[178] Jerome A. Greene and Douglas D. Scott, *Finding Sand Creek: History, Archeology, and the 1864 Massacre Site* (Norman, OK: University of Oklahoma Press, 2004), 109.
[179] Hyde, *Life of George Bent,* 151.
[180] Colleen Cometsevah, recorded in Roberts, "Oral History Project," 201-202; Elsie Standing Elk Wick, recorded in ibid., 262.
[181] Greene and Scott, *Finding Sand Creek*, 113.
[182] Testimony of Private Alexander Safely, reprinted in *Sand Creek Massacre*, 222; testimony of Sergeant Lucien Palmer, reprinted in ibid., 143.

designates the entire area encompassed by the South Bend – around 130 acres -- as the camp ground.[183]

Such a large encampment would have had numerous pony herds associated with it. John Smith reported that each lodge owned approximately ten horses and mules, and the soldiers drove off about 600 of them.[184] Anthropologist John Ewers, in his 1955 work on the role of the horse in Blackfoot culture, gave the figure of 13.7 horses per Cheyenne family in 1868.[185] Thus, there were probably anywhere from 1,000 to 1,400 (and perhaps as many as 2,000) ponies dispersed around the village. The area surrounding the camp, then, had to provide sufficient forage for the horses and mules. On average, a horse required one pound of salt per week, the grass equivalent of ten to twenty-five pounds of hay per day, and between ten to twelve gallons of water daily.[186] In 1868, Samuel Bonsall commented on "good grass" between Old Fort Lyon and the Sand Creek Massacre site; he did not classify the type of grass he encountered, except a remark of "grass short – buffalo" when the party left Fort Lyon.[187] Bonsall may have found good grass, but his was a small party, and they were also travelling in early summer. During winter, the short grasses of the plains lost over half of their summer protein. The search for suitable forage led plains tribes to congregate in wooded areas along rivers and springs, for the tall grasses that grew there yielded a greater *volume* than short grasses, though they retained even less protein than the short grasses.[188] The riverine environment also provided trees; the bark of cottonwoods and willows were an important emergency supplemental feed for the horses. However, as the horses grazed off the grasses surrounding the camp, the tribes had to herd them farther and farther from the main body of the camp, thus exposing the ponies to theft or attack, either by the military or other tribes.

How much grazing land did the Sand Creek village require? In *The Cheyenne Nation,* John Moore presented a resource-consumption model for Cheyenne bands in winter; based on this model, he calculated that a small winter band of 25 people with 38 horses, camped on the Arkansas River for three months, required .600 acres grazing land/month/horse, with a distance of .260 miles to edge of pasture.[189] Using these figures, a herd of 2,000 horses would require 1.8 acres/winter/horse (3,600 total acres, or approximately 6 square miles, for 3 months for the entire herd), with a minimum radius of about 1.5 miles to the edge of the pasture. At Sand Creek, the Cheyennes and Arapahos had been camping for perhaps six weeks, and were grazing their horses from

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[183] William Red Hat, Jr., recorded in Roberts, "Oral History Project," 211; Laird Cometsevah, ibid., 223.
[184] Testimony of John S. Smith, reprinted in *Sand Creek Massacre,* 17. George Bent thought the army drove off 600 to 700 ponies, in Hyde, *Life of George Bent,* 162.
[185] John C. Ewers, *The Horse in Blackfoot Indian Culture, With Comparative Material From Other Western Tribes,* Smithsonian Institution Bureau of American Ethnology Bulletin 159 (1955; reprint, Washington, D.C.: Smithsonian Institution Press, 1969), 24. Ewers based his figure on the 700 horses captured from 51 Cheyenne lodges after the Battle of the Washita.
[186] Sherow, "Workings of the Geodialectic," 62-84.
[187] 1868 Samuel Bonsall Map, reproduced in U.S. Dept. of the Interior, *Sand Creek Massacre Project, Vol. 1*, 41.
[188] Sherow, "Workings of the Geodialectic," 71.
[189] Moore, *The Cheyenne Nation*, 162-165, 166 (table).

one to three miles away. Perhaps the natives had to herd the horses farther away because of over-grazing near the center, but another reason for the distance may be due to where the high volume grasses were. On a map he prepared sometime between 1905 and 1914, George Bent showed horse herds across the creek to the south and west of the main village (which he placed at the South Bend). Moore juxtaposed this map with a modern soil survey map of the Sand Creek site, and confirmed that the Indians had pastured their horses in the areas with the most desirable grass. As previously mentioned, much of the land along the creek is sandy bottomlands, and the yield for this soil is 0.75 tons/acre of tall grasses (in a good year). The soil in the area where George Bent depicted the pony herds is loamy sand, with a yield of 1 ton/acre of tall grasses; the native vegetation in this area consisted of prairie sandreed, sand bluestem, sand sagebrush, and sand dropseed, with lesser amounts of blue grama, little bluestem, sideoats grama, sandhill muhly, needlegrass, Indian ricegrass, switchgrass, and thickspike wheatgrass.[190]

Contemporary accounts by soldiers who participated in the attack support the conclusion that a large number of the ponies were at least one mile from camp. Major Scott Anthony testified:

> We came upon a herd of Indian horses, and I was sent forward with my battalion to capture stock. After proceeding about one mile we came in sight of an Indian camp, some two miles further.[191]

Lieutenant Joseph A. Cramer stated the horses were one-half to one mile east of the village,[192] while Captain T. G. Cree reported sending men "to capture some twenty ponies, which I could see some four miles to the right of the village."[193] Charles E. Clarke wrote that after "marching 36 miles, we could see the village four miles distant; their main herd of ponies was grazing a mile off from us," thus placing the herd approximately three miles from the main camp.[194]

Pasturing the horses some distance away from the village would be consistent with the Cheyenne practice of allowing the ponies to graze at large overnight. At daybreak, young men or older boys assigned to herding duties brought the ponies back closer to camp. George Bent described Chivington's soldiers "making for the Indian pony herds to the south of the camp" at the beginning of the attack. Bent did not record how far away the horses were, but Little Bear, who had left at dawn to see to the horses, was warned by

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[190] Ibid., 159; David L. Anderson, John G. Lesh, and Donald W. Wickman, *Soil Survey of Kiowa County, Colorado* (United States Department of Agriculture: Soil Conservation Service, in cooperation with Colorado Agricultural Experiment Station, 1981), 12, 17, 36, map sheet no. 7.

[191] Testimony of Major Scott Anthony, in U.S. Senate, Report of the Joint Committee on the Conduct of the War, *Massacre of the Cheyenne Indians*, 38th Cong., 2nd Session, S. Doc. 142, p. 53-54.

[192] Testimony of Joseph A. Cramer, as reprinted in *Sand Creek Massacre*, 48.

[193] Captain T. G. Cree to Colonel George L. Shoup, 6 December 1864, as reprinted in *Massacre of the Cheyenne Indians*, 53.

[194] Charles E. Clarke, letter to *St. Louis Globe Democrat*, 15 September 1876, copy, Box 6, Folder 267, Sand Creek Archival Collection, Western Archeological and Conservation Center, National Park Service, Tucson, Arizona.

another sentry that army troops were driving off the herds. He then looked south and saw the soldiers like a line of "little black objects" moving towards the camp.[195]

Cheyenne oral histories also indicate that the horses were not confined to the south and west, but were on both sides of the creek as well as in the village itself. According to Laird Cometsevah, the Cheyenne did not herd the horses together, but split them up by clan groups. At Sand Creek, there were ten clans, and from twelve to fourteen pony herds. The Indians also trained the horses to return to the clan groups, so that if they were attacked, the horses would run back to their proper owners.[196] Many family histories take special note of the horses coming through the village and helping the natives escape. Nellie Bear Tusk recounts her grandmother's story:

> And when they were running they heard a whole bunch of horses coming . . . . it was a stallion leading a whole bunch of horses. And it stopped for those people . . . . And after they got on them horses that stallion took off again and led the horses and went like he went to hide them somewhere where they couldn't find them.[197]

In addition to the pony herds at the perimeter of the site, some of the horses may have already been within the village. Colleen Cometsevah mentioned the Cheyenne practice of hobbling favorite horses near the owners' lodges;[198] these may have been the horses that allowed some Cheyennes to escape early in the attack.

Conclusion

On a clear, early winter morning, the soldiers from Fort Lyon marched on a still-slumbering village of one hundred-odd lodges. The soldiers noticed the prairie stretching endlessly in every direction, rolling hills that sometimes obscured the ability to see what lay over the horizon. Approximately three miles before reaching the camp, they saw large herds of ponies grazing on either side of a mostly dry creek bed. The creek bed, approximately one-quarter of a mile wide, consisted of sand, a few sagebrush here and there, and some piles of driftwood. On the horizon to the northeast, the main village came into view – the tanned bison hides of the tipis reflecting the early morning sunlight. The banks of the creek at the site of the village were only two to five feet high, but gradually increased northward in its course, cresting at between fifteen to twenty feet high, perpendicular to the bank in some places. Some of the Cheyennes and Arapahos were up, beginning the business of the day: drawing water, starting fires, seeing to the horse herds that had spent the night grazing outside the perimeter of the village. And for a brief moment, perhaps some of them believed that the sound of hooves belonged to bison herds that had finally decided to return to the land.

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[195] George Bent's map reproduced in Greene and Scott, *Finding Sand Creek*, 36. The description of Cheyenne herding practice is from Hyde, *Life of George Bent*, 125; Bent's quote is from ibid., 151; Little Bear's quote is from ibid., 153.
[196] Laird Cometsevah, recorded in Roberts, "Oral History Project," 223-225.
[197] Nellie Bear Tusk, ibid., 235.
[198] Colleen Cometsevah, ibid., 200.

The Cheyenne moved into the central plains in search of opportunities, and for a few years, they found all that the land promised. The seemingly inexhaustible herds of bison provided food and shelter, and later, the basic commodity of white trade, the buffalo robe. The Cheyenne became important middlemen in a continental network of trade that involved other tribes as well as whites. The horse that made the move possible was the symbol of power and wealth, but exacted a huge price: the commitment to a life cycle geared towards the needs of the animal. The chase after grass was especially intense during winter, when the pressures – and the toll -- on the land was magnified a thousandfold. The same riverine shelters that were critical for Indian survival during these unforgiving months were also places overland emigrants used extensively during the summer. And as the years wore on, the land could no longer recover from the unceasing physical and biological onslaught.

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Colonel Richard I. Dodge, an experienced observer of Plains Indians during the second half of the nineteenth century, recounted a bison origin myth:

> Every Plains Indian family believed that the buffalo were produced in countless numbers in a country under the ground, that every spring the surplus swarmed like bees from a hive, out of great cave-like openings to this country, which were situated somewhere in the great "Llano Estacado" or Staked Plains of Texas.[199]

Life on the plains had indeed changed, but for the Cheyennes and Arapahos, the life *of* the plains was expected to continue as it always had. When the changes became visible, the Indians understood the role the white settlers and overlanders had in playing havoc with Nature's bounty, but they did not – or could not—relate those changes to the life they had chosen. And on that morning, the village, its environment, and the army marching towards it, all coalesced into a moment that was symbolic of everything that had somehow, inexplicably, gone wrong on the plains.

[199] Richard I. Dodge, quoted in Flores, "Bison Ecology," 485.

CHAPTER 3: SAND CREEK MASSACRE SITE AFTER 1864

In May 1865, a special congressional committee headed by Senator James R. Doolittle of Wisconsin, Senator Lafayette S. Foster of Connecticut (also referred to throughout the trip as Vice President Foster, for his eminent position as President *pro tempore* of the Senate), and Representative Lewis W. Ross of Illinois, journeyed west to look into the state of Indian affairs in Kansas, Colorado, Indian Territory, New Mexico, and Utah. The Doolittle Committee did not in fact go to either the Indian Territory (now Oklahoma) or Utah, but it did spend three days at Fort Lyon investigating the Sand Creek Massacre. "Burwell," a pseudonym adopted by one of the party, recorded the Committee's movements in a series of letters to the *Leavenworth Daily Times*. On 9 June, the distinguished gentlemen visited the massacre site:

> [T]hey found no evidences or traces of defensive works at Sand Creek, but they did find skeletons of women and children, and took back with them to Fort Lyon two skulls of the latter, which had been perforated by pistol balls.

Despite Burwell's report that there were a number of skulls still scattered around, he nevertheless concluded that "there were few traces of the dreadful carnage." He also noted that members of the party picked up some "trinkets" such as tobacco pouches, pipes, and arms from the site.[200] Although Burwell was repelled by the atrocities Chivington's army had committed, his outrage was not so much because the soldiers had murdered a "little band of miserable starving Cheyennes," but because they had sullied the American flag and uniform. "Miserable starving Cheyennes," "trinkets," skulls carried off – these were casual phrases and actions that dismissed an entire people and hinted at their displacement in the face of the inexorable Anglo-American advancement across the west. In fact, Burwell's opinion was that aside from any recommendations the Committee might make on how the government should treat the Indians, its work was perhaps more important for a different reason:

> [T]he report of the Committee will be looked for with great interest; for its effect in directing attention to the vast mineral, agricultural and pastoral regions of New Mexico, Colorado and West Kansas, stimulating immigration and aiding the development of their great resources.[201]

Burwell, and many others like him, looked to the west with a utilitarian eye; it was a land that could be dominated, its "emptiness" civilized and filled and made to conform to human will. One story of Sand Creek after 1865, then, is the white chronicle of frontier

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[200] Lonnie J. White, ed. *Chronicle of a Congressional Journey: The Doolittle Committee in the Southwest, 1865* (Boulder, CO: Pruett Publishing Company, 1975), 26-27. *Chronicle* consists of a series of articles submitted to the *Leavenworth Daily Times* by the anonymous "Burwell." White speculates that "Burwell" was actually Dr. Samuel B. Davis, the medical director of the Department of the Missouri stationed at Fort Leavenworth.

[201] Ibid., 12.

progress, and of the transformation of a land that *needed* to be transformed. Not suprisingly, Plains Indians have a different story, and the Cheyenne legend of Sweet Medicine is one such tale. Sweet Medicine was the prophet who obtained the Sacred Arrows from the Elders of the Sacred Mountain (Bear Butte) for his people. When he knew he was at the end of his four lives, he foretold the tribe's future:

> The buffalo will disappear. When the buffalo are gone, the next animal you eat will be spotted. When you get toward the end, you will begin to become gray very young. You will marry even your relatives. You may reach a point where you will be ashamed of nothing, and you will act as if you were crazy. Soon you will find among you a people with hair all over their faces. Their skin will be white. When that time comes, they will control you. The white people will be all over the land; and at last you will disappear.[202]

For some native people, the white advancement – or rather, destruction -- seemed just as inevitable as Anglo-Americans believed. In such a prophesized world, there was no room for Indian beliefs in the sacredness of the land where ancestors spilled their blood; indeed, there was barely room for the native people themselves.

Cheyennes, Arapahos, and Treaties

Between 1861 and 1868, the Cheyenne chief Black Kettle signed three treaties with the United States (Treaty of Fort Wise, Treaty of Little Arkansas, Treaty of Medicine Lodge Creek); he also lived long enough to understand their futility. The treaties failed for many reasons; an important factor was the fragmentation of the Cheyenne people that began in the 1820s. The tribe as a whole was organized into ten bands that lived independently for most of the year, but they had in common the six military societies (one was the famous Dog Soldiers) as well as the Council of Forty-four Chiefs, all of which had members drawn from all the bands. In the 1820s, Yellow Wolf struck a trading deal with the Bent brothers, and after the brothers and Ceran St. Vrain built Bent's Fort in 1833, various Cheyenne bands moved south from the Black Hills to take advantage of the new economic opportunities.[203] With this move, the tribe and its ally the Arapaho divided into the Northern Cheyennes and Arapahos, and the Southern Cheyennes and Arapahos. This major fissure, along with the traditional structure of independent bands, meant that the tribe gathered only once a year to nurture its common identity during the Sun Dance. It also meant that the Cheyennes were susceptible to further fragmentation by pressures from warfare, epidemics, Anglo settlements, and diminishing environmental resources.[204] Concerted actions, then, were rare. For

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[202] Peter J. Powell, *Sweet Medicine: The Continuing Role of the Sacred Arrows, the Sun Dance, and the Sacred Buffalo Hat in Northern Cheyenne History* (Norman, OK: University of Oklahoma Press, 1969), 460.

[203] West, *The Contested Plains*, 83.

[204] Ibid., 82-86. Also, anthropologist Margot Liberty discusses Cheyenne organization and ethnogenesis, fragmentation, and the problems of tribal representation at treaties, in a paper for the organization Friends of the Little Bighorn Battlefield entitled "Cheyenne Primacy: The Tribes' Perspective as Opposed to that of

example, full tribal campaigns against an enemy required the "moving of the arrows," and this occurred just six times between 1817 and 1853 -- the last a disastrous attack on the Cheyenne's traditional enemy, the Pawnees.[205] Thus, when the United States government made treaties with the "Cheyennes" or the "Arapahos," it in fact dealt with representatives of various bands but not with the tribe as a whole.[206]

The Treaty of Fort Laramie (1851) had recognized Cheyenne and Arapaho claims to much of the high plains between the Front Range of Colorado and western Kansas, and the North Platte and Arkansas rivers, but increasing Anglo-American emigrant traffic through native lands as well as the Pikes Peak gold rush in 1859 made it necessary for the government to "renegotiate" the treaty. The Treaty of Fort Wise (1861) established a Cheyenne-Arapaho reservation in southeast Colorado (officially known as the "Reservation of the Arapahoes and Cheyennes of the Upper Arkansas"). It guaranteed peace and security, housing, agricultural equipment, and stock to help the natives set up farming communities, and annual monetary payments to the tribes for 15 years. In return, the Indians agreed to relinquish all previously "owned, possessed, or claimed" lands. The treaty faced problems from the beginning, since only the "peace factions" of the Southern Cheyennes and Arapahos signed. No Northern Cheyennes and Arapahos participated in the ratification, and these bands continued to claim hunting lands in the South Platte valley. In addition, militants such as the Cheyenne Dog Soldiers, established on the Smoky Hill and Republican rivers, also resisted the new demands. Finally, once the treaty went into effect, the government was slow in sending promised annuities, food, and farm support.[207] With the Sand Creek Massacre, the provisions of the Treaty of Fort Wise of course became moot points.

Their days as nomadic people were numbered, but the Cheyennes and Arapahos struggled against Anglo-American encroachment for a few more painful years. Eleven months after the Sand Creek Massacre, the U.S. government, in addition to repudiating the actions of Chivington's army, promised reparations and land grants for survivors in the Treaty of Little Arkansas (1865). In reality, the small bands of Southern Cheyennes and Arapahos who signed the treaty agreed to the provision that "all former treaties are hereby abrogated," and they gave up (again) their lands in Colorado, Nebraska, Wyoming, and Kansas (in fact, they were banned from Kansas), all in return for a reservation of undetermined size and location somewhere *not* in Kansas.[208] There

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the United States Army; A Possible Alternative to 'The Great Sioux War of 1876,'" (November 2006), available from www.friendslittlebighorn.com/cheyenneprimacy.htm; accessed 1 January 2007.

[205] Liberty, "Cheyenne Primacy"; John H. Moore, *The Cheyenne* (Cambridge and Oxford: Blackwell Publishers, Inc., 1996), 133-134.

[206] Liberty, "Cheyenne Primacy": for example, both the Treaty of Fort Wise (1861) and the Treaty of Little Arkansas (1865) were signed by Southern tribes only, while the Treaty of Medicine Lodge Creek (1867) had separate versions for Northerners and Southerners, but only the Southerners signed.

[207] West, *The Contested Plains*, 281-282.

[208] The Treaties of Fort Wise, Little Arkansas, and Medicine Lodge Creek are reprinted in Charles J. Kappler, ed., *Indian Affairs: Laws and Treaties* (Washington, D.C.: GPO, 1904); available from http://digital.library.okstate.edu/kappler/Vol2/treaties/Toc.htm; accessed 25 April 2006.

was no mention of the reservation previously established by the Treat of Fort Wise, and the reparations stipulated in Article 6 have never been made.[209]

The Treaty of Little Arkansas did nothing for perpetual peace, for the Dog Soldiers, incensed over continued white incursions, refused to acknowledge it. The Butterfield Overland Despatch began business in 1865, and its route traversed the last of the prime central plains bison country. In addition, the army built two new forts – Fort Hays and Fort Wallace -- on the Smoky Hill River. Fort Hays was located in central Kansas near the junction of Big Creek and Smoky Hill River, and Fort Wallace was farther west near the Kansas-Colorado border, about twenty miles from the Cheyennes' favored camping sites at the Big Timbers of the Smoky Hill River.[210] Lieutenant Julian Fitch, in his survey of the Butterfield Overland Despatch route, had reported "no sign of Indians, " and explained that the native people, "with their natural shrewdness, will not wedge themselves into a strip of country entirely surrounded by Government troops."[211] But the Cheyennes and Arapahos had not abandoned the country, for they still hunted bison there in the summer and camped amongst the Big Timbers in the winter. The Dog Soldiers, through all the various treaties, continued to harass way stations, travellers, and army troops, to the extent that the escalating conflict demanded a new peace initiative.[212]

The new peace settlement took the form of the Treaty of Medicine Lodge Creek (1867). Northern Cheyennes, involved in Red Cloud's War, did not sign the treaty. However, the militant Dog Soldiers participated, and the Southern Cheyennes and Arapahos, along with the Comanches, Kiowas, and Kiowa-Apaches, signed separate treaties with the United States government agreeing essentially to confine themselves to reservations and become "civilized." "In consideration of the advantages and benefits conferred" by the treaty – the advantages and benefits being submission to U.S. laws, farm allotments and farming support (seeds, equipment, instruction), various social and educational services, western-style clothing and clothing allowances – the tribes agreed to relinquish all claims to annuities granted by previous treaties as well as rights to lands outside their designated reservations, although the Cheyennes and Arapahos were allowed to hunt on lands south of the Arkansas *as long as* the bison lasted.[213]

As with previous treaties, the Treaty of Medicine Lodge Creek failed to keep the peace. Black Kettle and Arapaho Chief Big Mouth took their lodges to the Indian Territory, though in summer they still went north for hunting. Meanwhile, militants and young warriors continued to raid white settlements, and in response the army retaliated.[214] On November 27, 1868, George Armstrong Custer led an early dawn assault on the remnants of Black Kettle's peace faction camped for the winter on the Washita River, killing the chief and many of his followers. For the Southern Cheyennes and Southern Arapahos,

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[209] Public Law 105-203: Sand Creek Massacre National Historic Site Study Act of 1998 (112 Stat. 1579; 6 Oct. 1998); available from http://www.nps.gov/sand/historyculture/upload/us0610199801pl105-243%5B1%5D.pdf; accessed 1 Jan. 2007.
[210] West, *The Contested Plains*, 308-309.
[211] Fitch, "Lieut. Fitch's Report on the Smoky Hill Route," 590-591.
[212] West, *The Contested Plains*, 283-287.
[213] Treaty terms as reprinted in Kappler, *Indian Affairs.*
[214] West, *The Contested Plains*, 310-311.

Washita, followed by the Battle of Summit Springs in 1869, proved the final events that resigned them to their shared reservation life in Oklahoma. The Northern Cheyennes and Northern Arapahos lived in freedom for a little longer. In 1868, they signed a new Treaty of Fort Laramie which gave them and their Lakota allies the land bounded by the Missouri River and the Rockies (including the Black Hills) in present day South Dakota. The government broke this treaty in a series of events (including exploring for Black Hills gold) that eventually led to the Battle of Little Bighorn in 1876. Although the Indians won that battle, they lost the war. Between 1877 and 1878, the Northern Cheyennes and Arapahos surrendered in scattered groups. Northern Arapahos moved to reservation land in Wyoming, while the army sent many Northern Cheyennes to Oklahoma to join the Southern Cheyennes and Arapahos. After a dramatic breakout from the Oklahoma reservation and massacre of Dull Knife's followers at Fort Robinson in 1879, remnants of various Cheyenne bands eventually reunited in Montana on land designated as their reservation in 1884.[215]

Bison

It took thousands of years for ancestors of the modern bison to disappear at the end of the Pleistocene epoch; in contrast, it took less than a century for *Bison bison* to reach near-extinction towards the end of the nineteenth century. As we have seen, bison decimation had many causes,[216] but hunting – for sustenance, market economy, and sport – was certainly a major reason why by 1885 there were less than 1,000 bison left in the wild. By 1864, the bison population had been in visible decline in Colorado for at least a decade or more, and the herds had retreated eastward well into Kansas. In the 1850s, emigrants wrote about seeing natives on the lower Arkansas, but not when they travelled farther west. In 1858, Indian agent Robert Miller distributed annuities to the upper Arkansas tribes at Pawnee Fork rather than Bent's Fort because by early summer, all the tribes (including the Cheyenne and the Arapaho) gathered there for the hunts.[217] In addition, the post-Civil War era saw an acceleration in bison hunting by Anglo-American "buffalo runners" that took the bison to the brink of biological extinction. Billy Dixon was one such buffalo runner, and his stint as a hunter from 1870 to 1874 is part of the story of the final, unrelenting assault on the plains bison.

Billy Dixon was just 15 years old in 1865 when he first crossed the plains from Fort Leavenworth to Fort Collins and back -- and he was keenly disappointed that he did not encounter any Indians or bison coming or going.[218] However, when Dixon travelled from Fort Harker (on the Smoky Hill River in central Kansas) to Medicine Lodge Creek (in south central Kansas) in 1867, he noted "countless" numbers of buffalo, and regretted the wanton destruction of the animals shot for sport, their carcasses left to rot on the

[215] Moore, *The Cheyenne*, 101-102. For further information on reservation life, see ibid., 266-306, and Liberty, *A Northern Cheyenne Album;* also, Peter Iverson, ed., *The Plains Indians of the Twentieth Century* (Norman, OK and London: University of Oklahoma Press, 1985).
[216] For comprehensive discussion of the many causes of bison decimation, see the excellent passages and essays by Elliott West in *The Contested Plains* and *The Way to the West.*
[217] West, *The Way to the West*, 69-70.
[218] Olive King Dixon, *Life of "Billy" Dixon: Plainsman, Scout and Pioneer* (1927; reprint, Austin, TX: State House Press, 1987), 18-21.

plains.[219] Billy Dixon started hunting bison seriously in 1870, and recalled dealers from the east offering one dollar for cow hides and two dollars for bull hides. By 1872, as the bison became more scarce, the price of bull hides rose to four dollars. From 1870 to 1872, Dixon hunted bison in the same areas that the Cheyennes claimed as their land, primarily western Kansas around the Saline and Solomon rivers. As the bison became scarcer in the north, he began to look for them farther south, sometimes even daring to venture south of the Arkansas River despite the provisions of the Treaty of Medicine Lodge Creek. In the fall of 1872, Dixon wrote about what he termed "the high tide of buffalo-hunting" near Dodge City:

> The noise of the guns of the hunters could be heard on all sides, rumbling and booming hour after hour, as if a heavy battle were being fought. There was a line of camps all the way from Dodge City to Granada.[220]

Dixon thought that during the fall and winter of 1872-1873, hunters may have killed 75,000 bison within 60-75 miles of Dodge City. At a gathering of buffalo runners in 1874 – again in Dodge City -- the hunters agreed that they would probably never see such a "big run of buffalo that far north, because of the enormous slaughter on that part of their range in 1872 and 1873."[221] Colonel Richard Irving Dodge wrote about that same slaughter in the fall of 1873: "[W]here there were myriads of buffalo the year before, there were now myriads of carcasses . . . . the vast plain which only a short twelve months before teemed with animal life, was a dead, solitary putrid desert."[222] In the early months of 1873 Dixon decided to look for fresh hunting grounds north of the Arkansas River, but ended up on what he called a "wild goose chase" as he followed White Woman's Creek (between the Arkansas and Smoky Hill rivers in western Kansas) into eastern Colorado and over to Big Sandy Creek. The party camped at the massacre site one night, and Dixon recalled that they could still see bones scattered over the land.[223]

Although Billy Dixon did not find bison on his wild goose chase, the Grand Duke Alexis of Russia -- accompanied by such Wild West celebrities as "Buffalo Bill" Cody, George Armstrong Custer, General Philip Sheridan, and "Wild Bill" Hickok -- had a marvelous hunt in the valley between Rush and Big Sandy creeks in January 1872. At a Denver ball in honor of the Grand Duke, Custer had heard a Kit Carson settler boast of large bison herds near his town. The settler, Chalkley Beeson, guided the royal party to a herd of "thousands" of buffalo just 5 miles south of the Kansas Pacific Railroad (later the Union Pacific Railway):

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[219] Ibid., 37.
[220] Ibid., 81. Granada is near the Colorado-Kansas border, west of Holly, Colorado; in 1873, the Atchison-Topeka & Santa Fe Railroad extended the main line west to Granada, which then remained the terminus until 1875.
[221] Ibid., 111.
[222] Colonel Richard Irving Dodge, as quoted in Andrew C. Isenberg, *The Destruction of the Bison: An Environmental History, 1750-1920* (Cambridge: Cambridge University Press, 2000), 134.
[223] Dixon, *Life of Billy Dixon*, 92-93. It is unclear whether Billy Dixon camped at Sand Creek once or twice; earlier in the book (page 40) he mentioned having camped at the site in 1870 and seeing the afore-mentioned bones as well as bullet-scarred trees.

> Finally [the Grand Duke Alexis], his small army of followers, some regular soldiers from the fort, and the American officers of various grades, got in motion toward the scene of the hunt southeast of Carson and south of the Union Pacific and Sand Creek. The royal result of the day's succession of chases and charges into the herds of the shaggy monsters was that the Grand Duke shot some thirty buffalo and killed about a dozen.[224]

The extermination of the bison had important political, cultural, and ecological ramifications. Article 11 of the Treaty of Medicine Lodge Creek states in part: "[The Cheyennes and Arapahos] yet reserve the right to hunt on any lands south of the Arkansas so long as the buffalo may range thereon in such numbers as to justify the chase." The tribes had insisted on this hunting provision, and it attests to the importance of bison in their lives. But regardless of who requested the inclusion of this clause, the reality was that if the bison were gone, the tribes would lose whatever economic autonomy they had left and be confined permanently to their reservations. Along this line of reasoning, some scholars have argued that the United States government allowed or encouraged the slaughter of bison to accelerate the process of Indian removal and confinement.[225] Both General Philip Sheridan and General William T. Sherman believed the "Indian problem" could be resolved by applying the same strategies they had used in the Shenandoah Valley and Georgia during the Civil War: destroy the enemy's ability to support itself and the war would be won. In 1868, Sheridan – then in command of the Department of the Missouri – wrote to his friend Sherman: "The best way for the government is to now make them poor by the destruction of their stock [buffalo], and then settle them on the lands allotted to them."[226] Sherman, in his turn, made his position public when he told the *Army Navy Journal* that the "quickest way to compel the Indians

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[224]Biography of Chalkley Beeson is from William E. Connelley, ed., *A Standard History of Kansas and Kansans* (Chicago: Lewis Publishing Company, 1918); available from http://skyways.lib.ks.us/genweb/archives/1918ks/biob/beesoncm.html; accessed 1 August 2006.

[225] For example, see Richard White, *It's Your Misfortune and None of My Own* (Norman, OK: University of Oklahoma Press, 1991), in which White wrote that military commanders encouraged the bison slaughter. See also Isenberg, *Destruction of the Bison*; while Isenberg does not believe there was any *official* policy, the army was perfectly happy to let the slaughter go unchecked. This viewpoint is also endorsed by zoologist Valerius Geist; in his work, *Buffalo Nation: History and Legend of the North American Bison* (Stillwater, MN: Voyageur Press, Inc., 1996), Geist wrote, "The U.S. government and its army waged a covert war on Native Americans and the bison by employing a secret army of buffalo hunters. The government simply had to protect the hunters and insure that their lines of supply were secure." (p. 84) David D. Smits, in "The Frontier Army and the Destruction of the Buffalo: 1865-1883," *Western Historical Quarterly* 25 (Autumn 1994): 312-338, contends that there was indeed a *direct* connection between the army and the destruction of the bison. For the exchange following the publication of Smits' article, see William A Dobak, "The Army and the Buffalo: A Demur. A Response to David D. Smits's 'The Frontier Army and the Destruction of the Buffalo: 1865-1883'," *Western Historical Quarterly* 26 (Summer 1995): 197-202, and David D. Smits, "More on the Army and the Buffalo: The Author's Reply," *Western Historical Quarterly* 26 (Summer 1995): 203-208.

[226] Letter from Sheridan to Sherman dated 15 October, 1868, as quoted in Smits, "Frontier Army and Destruction of the Buffalo."

to settle down to civilized life was to send ten regiments of soldiers to the plains, with orders to shoot buffaloes until they became too scarce to support the redskins."[227]

The bison was important to Plains people not just as food or as a trade commodity. In Cheyenne mythology, Maheo (the All Being) created the land, the waters, the people, and all the animals to feed the people. In particular, Maheo created the buffalo as the one creature that could take the place of all the other animals in meeting human needs.[228] The bison thus held a special place in Cheyenne culture, and this is evident in rites and ceremonies such as the Sun Dance. Like most Plains tribes, the Cheyenne and Arapaho held an annual Sun Dance – a ceremony of spiritual renewal and confirmation of the bond between the social and natural realms -- in which the bison was of central importance. In Cheyenne tradition, the Creator taught the Sun Dance to a medicine man, later called Erect Horns for the buffalo horn cap he wore. When the medicine man and his female companion returned from their mountain sojourn, the earth was renewed and the buffalo came forth and followed them. The Sun Dance was in part a ceremonial reconciliation between the bison and the people it sustained, and the bison an important symbol of the kinship between all life forms and the land.[229]

This "kinship" between life and the land was disrupted by the extermination of the bison. The present-day bison may have been rescued from the brink of biological extinction, but it is ecologically extinct within its natural range. Many scientists consider the bison a *keystone species*, a term popular amongst ecologists since Robert T. Paine introduced it in 1969 to explain the critical importance of some species to their ecosystems. Keystone species are "crucial in maintaining the organization and diversity of their ecological communities . . . . [and] are exceptional, relative to the rest of the community, in their importance."[230] The bison certainly occupied an important niche in the Great Plains, and when they disappeared, grasslands ecology changed. Scientists speculate that some populations of grassland birds have declined partly because of changes in habitat that were dependent on bison grazing patterns. For example, the mountain plover's natural habitat is in the shortgrass prairies of the western Great Plains (including Colorado). These areas historically had large populations of black-tailed prairie dogs and bison that kept the grass heavily grazed, sometimes down to the bare ground. This very low vegetation cover was critically important for the plovers to forage and detect predators.

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[227] From the *Army Navy Journal* of 26 June, 1869, as quoted in ibid.

[228] Harold P. Danz, *Of Bison and Man: From the Annals of a Bison Yesterday to a Refreshing Outcome From Human Involvement with America's Most Valiant of Beasts* (Niwot, CO: University Press of Colorado, 1997), 9.

[229] Elizabeth Atwood Lawrence, "The Symbolic Role of Animals in the Plains Indian Sun Dance," *Society & Animal Journal of Human-Animal Studies* 1, no. 1 (1993); available from www.psyeta.org/sa/sa1.1/lawrence.html; accessed 21 July 2006.

[230] L Scott Mills, Michael E. Soule, and Daniel F. Doak, "The Keystone-Species Concept in Ecology and Conservation," *BioScience* 43, issue 4 (April 1993): 219-224. The authors suggest that the term "keystone species" is not rigorously defined and thus subject to wide-ranging differences in interpretation and application. They advocate an approach that emphasizes "strengths of interactions" between species and environments as a more fruitful way to study the complexities of ecosystems. Robert T. Paine, "A Note on Trophic Complexity and Community Stability," *The American Naturalist* 103 (1969): 91-93.

Declining plover population has thus been attributed to loss of bison herds as well as loss of prairie dog colonies to agricultural and livestock uses.[231]

Bison grazing also affected plant species distribution and productivity. In the grasslands, nitrogen content of plants varies spatially and temporally, and bison contributed to this distribution through their nitrogen-rich urine. Grasses enriched by urine have higher nitrogen content and are thus more nutritious, and bison will return preferentially to these patches. This selective grazing then promotes the growth of non-forage plant species (forbs and woody plants), thus increasing patch biodiversity. As bison move through the grasslands, they also encourage movement of these patches, thus also increasing biodiversity at the landscape level. Research at Konza Prairie (a tallgrass prairie) has shown a net increase in both nitrogen mineralization (the part of the nitrogen cycle which converts fixed nitrogen to ammonium) and nitrification (in which ammonium is converted to nitrite) as compared to ungrazed prairie. Both of these processes are critically important for plant nitrogen assimilation and hence productivity. In addition, the intensive grazing keeps vegetation cover low, and thus reduces loss of nitrogen through combustion (fire) as well as keeping prairie fires in patches. Even in death, the bison continued to affect the environment as decomposition altered the soil chemistry around the decaying carcasses. While decomposition fluids are initially toxic to vegetation, these patches eventually become very fertile with high nitrogen concentrations.[232]

The bison itself changed as a result of its near-extinction; for example, scientists believe that the Southern Great Plains phenotype may be completely gone.[233] In genetics, *phenotype* refers to a category or group an individual belongs to based on one or more characteristics observable clinically (visually) or by laboratory testing; these characteristics reflect the interactions between genotype (genetic constitution of an individual), genetic variations, and the environment. Genotypic and phenotypic variations together form the basis for species evolution. For *Bison bison*, there is a general north-to-south gradient in size; for example, skull studies showed that *Bison bison* from Canadian Prairie had a horn core spread (tip to tip) of 636.6 mm, while *Bison bison* from Southern Great Plains had a measurement of 586.4 mm. The most prominent

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[231] See for example Peter D. Vickery, et al., "Grassland Birds: An Overview of Threats and Recommended Management," available from www.birds.cornell.edu/pifcapemay/vickery.htm; accessed 21 July 2006; Carl E. Bock, "Birds and Bovines: Effects of Livestock Grazing on Birds in the West," in *Welfare Ranching: The Subsidized Destruction of the American West*, George Wuerthner and Mollie Yoneko Matteson, eds. (Washington, D.C.: Island Press, 2002); available from http://www.publiclandsranching.org/htmlres/PDF/wr_BIRDS_BOVINES.pdf; accessed 2 January, 2007. For discussion of mountain plover habitat, see United States Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17, RIN 1018-AF35, "Endangered and Threatened Wildlife and Plants: Proposed Threatened Status for Mountain Plover," *Federal Register* 64, no. 30 (Feb. 16, 1999): 7587-7601; available from http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1999_register&docid=fr16fe99-26.pdf; accessed 2 January, 2007.

[232] Alan K. Knapp, et al., "Keystone Role of Bison in North American Tallgrass Prairie," *BioScience* 49, no. 1 (Jan 1999): 39-50.

[233] Jerry N. McDonald, *North American Bison: Their Classification and Evolution* (Berkeley and Los Angeles: University of California Press, 1981), 263; for discussion of Southern Great Plains phenotype based on skull character clines, 104-106, 164.

morphological differences are between the two subspecies *Bison bison athabascae* (wood bison) and *Bison bison bison* (plains bison) and correlate with the change in ecological habitat from woody plant dominance in the north to herb dominance in the south. In general, the wood bison is darker, larger, and non-migratory, while the plains bison is lighter-colored, smaller, and migratory. In historic times, however, wood and plains bison mixed as plains bison ventured into boreal parks from the northern grasslands; thus, plains bison today are northern and southern plains hybrids, and wood bison are hybrids of wood and hybrid plains bison.[234] In fact, there is controversy as to whether the wood bison constitutes a distinct subspecies, or whether wood bison are actually an *ecotype*, a phenotypic variation of *Bison bison bison* due to environmental conditions of confinement and poorer nutrition.[235] In addition to the historic mixing, today's bison – in the wild as well as in private herds – are descended from the approximately 1,000 animals left at the end of the nineteenth century. That, along with range fragmentation and cattle gene introgression, has resulted in a seriously depleted bison gene pool. Moreover, the gene flow continues to be artificially regulated, particularly in the ranching industry, and is subject to essentially idiosyncratic human preferences in areas such as meat production or game farming. These genetic issues are of more than academic interest, for they are extremely important in the fields of conservation and management. Zoologist Valerius Geist pointed out, "What is or is not a species, by what criteria to distinguish subspecies from ecotypes . . . . : answers to these questions are vital to the interpretation of laws, treaties and programs governing conservation. The naming of taxa in legislation makes them legal entities, actionable in courts of law."[236] In addition, while bison-cattle hybrids can *look* like bison, their genetic differences may be enough to make the animals more difficult to manage in terms of their immune response to parasites and diseases. Equally important, the role of the bison in their former ecosystems continues to have implications for modern-day range management, in particular the issue of whether cattle can be considered ecologically and functionally equivalent to bison, a question addressed in the next section.

The last buffalo sighted near the Sand Creek Massacre site may have been killed in 1885 by one Mr. Youngblood, a hunter stationed at Coolidge, a town just across the border in Kansas. According to Charles Frost Liggett (a Kiowa County pioneer and the founder of the *Kiowa County Press*), the animal was shot near the Rush Creek-Big Sandy Creek junction, some twelve miles south of the site.[237] By the time this last bison died, the area around the massacre site had been cattle range for many years, and shortly after, was also to become farms for hardy homesteaders.

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[234] Ibid.; Valerius Geist, "Phantom Subspecies: The Wood Bison *Bison bison "athabascae"* Rhoads 1897 Is Not a Valid Taxon, but an Ecotype," *Arctic* 44, no. 4 (Dec 1991): 283-300.

[235] Geist, "Phantom Subspecies." Subsequent DNA analyses by University of Alberta zoologist Curtis Strobeck showed that wood bison and plains bison did not differ genetically.

[236] Ibid. A Canadian government committee had recommended slaughtering "hybrid" Wood Buffalo National Park bison (deemed worthless) and replacing them with "pure" Elk Island stock; classified as "hybrids," the wood bison were not protected under the Alberta Wildlife Act. The government eventually reversed its recommendation under public pressure.

[237] C. Frost Liggett, "Early Days in Kiowa County," *Kiowa County Press*, 9 April, 1937; available from www.eadseagles.com/cfrostliggetttext.htm; accessed 22 July 2006. Liggett wrote a series of articles for the *Kiowa County Press* entitled "Pioneers and Idiosyncrasies of People I Have Known in Kiowa County."

Agriculture: Cattle

During the first decades of the twentieth century, many old-time cattlemen looked back on the 1870s as the golden era of the open range cattle industry in old Bent County. Although homesteaders came into the Arkansas River Valley throughout the 1870s and filed claims on waterfront lands, the cattle industry grew much more rapidly. The federal census of 1870 showed just 985 acres of improved farm land and 7,070 of unimproved farm land in Bent County, whereas the much smaller Pueblo County had 17,087 acres of improved farm land and 40,853 acres of unimproved farm land. By 1880, the total farm acreage in Bent County had increased to 30,921 acres, but still not enough to affect the range business. Moreover, most of the farmers were also cattlemen.[238]

In 1871, Hiram S. Holly drove 1,300 head of cattle from Texas and settled in eastern Colorado with dreams of a ranching empire on the open plains. He established Holly's Ranch (later the SS Ranch) in what is now the town of Holly. By 1881, Holly had a herd of 15,000 cattle. In 1883, Holly and his partners sold out to an English corporation that operated under the name of the Arkansas Valley Land and Cattle Company.[239] The deed included approximately "seven hundred thousand acres of public land belonging to the government of the United States, lying on the north and south sides of the Arkansas River and being a portion of the land enclosed by said first parties by a wire fence and used by them as a cattle range."[240] Under the new management the ranch had at its peak about 35,000 cattle,[241] and it extended the 20,000 acres Holly had fenced to more than 600,000 acres on the north side of the Arkansas (the company also had extensive acreage on the south side of the Arkansas); eventually the Arkansas Valley Land and Cattle Company's fenced range covered over one million acres.[242] C. Frost Liggett described the SS Ranch fence line in 1885:

> SS Ranch fence started at Trail City [north of the Arkansas at the Colorado-Kansas border], running in a northerly direction on the east side of Horse Creek, and bearing a little westward, striking and crossing Big Sandy Creek a few miles south of Chivington battlegrounds, where it turned westward several miles thence running south striking the Arkansas river just east of where Lamar is now located and thence east down the river to place of beginning.

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[238] Joseph Orlando Van Hook, "Settlement and Economic Development of the Arkansas Valley from Pueblo to the Colorado-Kansas Line, 1860-1900" (Ph.D. diss., University of Colorado, 1933), 158-161.
[239] Kathy Leigh, "A Brief History of Holly" (Holly, CO: Holly Historical Society); available from http://www.geocities.com/Heartland/Ranch/7375/history.html; accessed 22 July 2006.
[240] Quoted in William F. Dawson, "The 'Double S' Ranch," in *Kiowa County Colorado Centennial History 1989*, compiled by Ruthanna Jacob and Kiowa County Historical Society (Dallas: Curtis Media Corporation, 1989), 20-21.
[241] Ibid.
[242] Van Hook, "Settlement and Economic Development," 208-209; the figures were taken from an investigation in 1884 by Edwin S. Bruce, Special Agent of the General Land Office, inquiring into illegal fencing by large cattle concerns.

Liggett reported that it took a horseman two days to ride around the perimeter of the ranch.[243] The company built a two room house for cowboys in the extreme northwest corner of the SS Ranch property (Section 30, Township 17, Range 45 West); the house later became a line camp for the Porter A. Thompson Ranch after the SS Ranch broke up in the wake of the Homestead Act. Bill Dawson's grandfather worked on the ranch when it belonged to the English syndicate, and lived in the two room house when it became a line camp for the Thompson Ranch. Its foundations are still visible and are within the Sand Creek Massacre site boundaries.[244]

With the advent of the large cattle syndicates, the number of cattle in Bent County continued to increase into the 1880s. By 1885, Bent County assessed stock growers on a total of 199,462 cattle.[245] The type of land grab as perpetrated by the Arkansas Valley Land and Cattle Company could not last. In 1885, amidst increasing complaints from settlers and small stock growers over the illegal fencing of large tracts of public lands (Bent County had almost 1.5 million fenced acres, with the Arkansas Valley Land and Cattle Company one of the biggest of the fourteen offenders), President Grover Cleveland ordered all private fences removed from the public domain. This order, the overstocking of land (including cattle imported from the Cheyenne-Arapaho Reservation in 1885), the ensuing harsh winters of 1885 to 1887 and 1892 to 1893, and decreased beef prices from 1889 to1894, all led to the decline of the open range cattle industry in old Bent County. By 1900, herds numbering more than 1,000 head were rare.[246] Large cattle herds, however, continued to be trailed through southeastern Colorado through the 1890s and beyond; these herds were typically from Texas and New Mexico on their way to Wyoming, Montana, and the Dakotas.[247] For example, 126,951 head of cattle came through the Trail City checkpoint during a twelve day period in June, 1886. The last trail herd may have been in 1907, when G. F. Creghe of Lamar brought in a herd of 21,000 from New Mexico to Big Sandy Creek near Chivington.[248]

The heyday of the major cattle syndicates was over, but the cattle industry evolved from an open range industry to stock farming, where smaller stock growers either managed to produce a certain amount of feed crop, or bought and stored enough feed to see their cattle through the winter. When the fences on public lands came down in the mid-1880s, more settlers came into southeastern Colorado and filed so may claims under homestead and pre-emption laws that good rangelands became scarce. Towards the end of the nineteenth century, as fee simple land ownership increased, farmers and stock growers began to fence in water sources, meadows, and dry farms; they also enclosed their herds for protection, winter feeding, breeding, and branding. The potential problem then became one of overgrazing, for though the cattle herds were considerably smaller, they

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[243] Liggett, "Early Days in Kiowa County," *Kiowa County Press*, 9 April, 1937..
[244] Dawson, "Double S Ranch"; Bill Dawson, interview by Jacqui Ainlay-Conley and Alexa Roberts, photocopy of summary, former Dawson Ranch, 18 April 2005, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado.
[245] Van Hook, "Settlement and Economic Development," 200.
[246] Ibid., 210; Jacobs, "The Weather," in *Kiowa County Centennial*, 36-38. After the blizzards of January and February of 1886, ranchers in southeastern Colorado lost an estimated 25 to 50 percent of their cattle.
[247] Ruthanna Jacobs, "Cattle Country," in *Kiowa County Centennial*, 22-23.
[248] Ibid.

were now confined to smaller pastures. In addition, the many fence lines also meant less access to public grazing lands.

In the land surrounding the Sand Creek Massacre site, stock growing continued into the twentieth century, although many homesteaders farmed as well as raised cattle. A. J. Ingram, who held a claim next to Big Sandy Creek (the headgates of the Brandon Canal were partially on his property), grew melons as well as cattle on his property.[249] He did not have as many cattle as Charles William Sweitzer, who had a 10,000 acre ranch on Rush Creek. The T Ranch was located approximately 15 miles northeast of Eads, and according to Sweitzer's daughter, their cattle also roamed on open grazing land 10 miles farther east, at the massacre site.[250]

Cattle-raising obviously has a profound impact on grasslands, but historians and ecologists differ over whether or not that impact is negative. Some believe that although cattle and bison are both large herbivores that share genetic material and grazing niches, they are not necessarily ecologically equivalent. When the plains transformed into grasslands during the early Holocene, the modern *Bison bison* – adapted to a completely grass-grazing life -- proliferated in the niches vacated by the *Bison antiquus* and other mammals. The millions of bison helped maintain grassland *as* grassland that would otherwise become shrubland or woodland. Bison are adapted for year-round survival on the plains, while domesticated cattle need human management and winter feed. While the diet overlap between bison and cattle is higher than between bison and smaller herbivores such as antelope, bison and cattle do have important differences in their diets. Scientists have found that diet overlap is lowest during periods of high food quantity, and that bison tend to eat a higher proportion of graminoids than cattle, preferring the grasses to forbs or woody species. Bison have larger grazing areas and will return to the same patches and "lawns" to feed on nutritious new growths, while cattle tend to feed on smaller patches evenly distributed throughout a pasture.[251]

Some researchers believe these differences may be of minor impact. Cattle grazing studies have shown that cattle, like bison, increase spacial heterogeneity and plant species diversity as long as grazing density (dependent on the number of cattle introduced into a particular region) is not high. At Konza Prairie, bison grazing sites did indeed have increased abundance of annual forbs as well as greater spatial heterogeneity of biomass and plant cover when compared to cattle-grazed sites; however, there was no significant difference between cattle- and bison-grazed sites for overall plant species richness.[252] Using the above argument, environmental historian Geoff Cunfer concludes that in terms

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[249] Roleta D. Teal, "Brandon and Surrounding Communities," in *Kiowa County*, compiled by Roleta D. Teal and Betty Lee Jacobs (Boulder, CO: Johnson Publishing Co. for Kiowa County Bicentennial Committee, 1976), 68-71.
[250] Lois Applegate, "Charles William Sweitzer Family," in Teal, *Kiowa County*, 100-101.
[251] Knapp, "Keystone Role of Bison"; Charles C. Schwartz and James E. Ellis, "Feeding Ecology and the Niche Separation in Some Native and Domestic Ungulates on the Shortgrass Prairie," *Journal of Applied Ecology* 18, no. 2 (August 1981): 343-353; Konza Environmental Education Program, "Bison on Konza," available from http://climate.konza.ksu.edu/KEEP/sci_adventures/bison/2_konza_bison.htm; accessed 28 July 2006.
[252] Knapp, "Keystone Role of Bison."

of grassland ecology, there is no difference between the replacement of millions of bison with millions of cattle. Cunfer cites the decoupling of cattle from grass in mid-twentieth century as an important factor in pushing cattle numbers up to the estimated Plains carrying capacity of 17 million livestock. Yet he believes ranchers and farmers continue to *conform* to the ecological limits of their environment because the limiting factor has always been water, which formerly determined the amount of grass available and now determined the amount of feed that can be grown. If Cunfer is right, cattle are not "ecological anomalies," but are a natural successor species to bison as *the* large herbivore in modern rangeland management.[253] Thus, in a given community, strategies such as stocking intensity and duration may have greater influence in determining ecological equivalency than biological or behavioral differences between bison and cattle.

Agriculture: Farming and Irrigation

In 1864, in compliance with the Treaty of Fort Wise, the Bureau of Indian Affairs hired engineer Henry Fosdick to build a simple irrigation ditch off the Arkansas River into the Cheyenne-Arapaho reservation. The government also hired a farmer to help the Indians start an experimental farm, and according to Major Samuel G. Colley, they had 250 acres broken in for corn. He thought that with continued irrigation and hard work, the Indians could have raised other crops such as wheat, oats, potatoes, barley, and "all kinds of vegetables." While acknowledging that agriculture on the reservation would be nearly impossible without irrigation, Colley also said, "They say that when the white man settles up a country it rains more."[254]

The idea of "rain follows the plow"[255] was a popular climate change theory in the latter part of the nineteenth century, and was obviously a very appealing notion for land speculators and railway boosters who promoted the settling of the "Great American Desert" as part of the nation's destiny. The basic idea was that broken sod prevented rain run off, the retained water in the soil then evaporated into the atmosphere where the increased moisture then promoted more rain. But just in case it did not rain more, the earliest land claims were along the upper Arkansas River and its more permanent tributaries (Fountain Creek and the Huerfano). If the claims were not directly on the water, then they were close enough for irrigation ditches to run to the water along right-of-ways granted by the Territorial legislature.

Farther north of the Arkansas, the land around the Sand Creek Massacre site had much less reliable water sources. After the Treaty of Medicine Lodge Creek in 1867, the government opened the old Cheyenne-Arapaho reservation to Anglo-American settlement. The General Land Office surveyed the area surrounding the site in 1879-1880 ("land rolling," "soil sandy," "buffalo grass," "bunch grass"), but homesteaders did not

[253] Geoff Cunfer, *On the Great Plains: Agriculture and Environment* (College Station, TX: Texas A & M University Press, 2005), 38-68.
[254] Testimony of Major Samuel G. Colley, as reprinted in *The Sand Creek Massacre*, 121.
[255] Gary D. Libecap and Zeynep Kocabiyik Hansen, " 'Rain Follows the Plow' and Dryfarming Doctrine: The Climate Information Problem and Homestead Failure in the Upper Great Plains, 1890-1925," *Journal of Economic History* 62 (1 Mar, 2002): 86-120.

file the first claims until the late 1880s.[256] In 1887, the *La Junta Tribune* reported on farmers' cautious optimism following three seasons of successful wheat crops, and there was talk that perhaps the rain had indeed followed the plow during the year of good rain (1887).[257] According to the 1890 federal census, of the 1,152,000 acres in Kiowa County,[258] 28,612 acres were farm land (none irrigated), of which approximately 23 percent was improved. There were no rain gauging stations in Kiowa County, but the available data for Kit Carson showed an annual average of 6.82 inches, while the station at Fort Lyon reported 11.07 inches.[259] Frederick Newell's comments on Kiowa County tell the story of the difficult conditions that faced dryfarmers:

> [Kiowa county] is crossed by Adobe and Big Sandy creeks, both of these, however, being dry during the summer . . . . [T]he annual precipitation [is not] sufficient to erode well defined drainage systems. The county was settled about 1887, and fair crops were raised for 1 or 2 years. There were, however, so many losses from drought in 1889 and 1890 that many of the farmers moved to other parts of the state.[260]

C. Frost Ligget's reminiscences of Kiowa County pioneers also shed light on homesteading near the massacre site. William H. Ridgeley's claim was on "good sandy land, and water was obtained at about 10 to 12 feet deep . . . . He dug a well, planted a little garden as the seasons came around." Apparently an indifferent farmer, Ridgeley nevertheless managed to prove his claim in 1893. Charles S. Wilmeth settled in what became Water Valley, located in the southeast corner of Section 14, Township 17 S, Range 46 W. He "envisioned a city built up upon his claim . . . . on the line of the contemplated railroad line on the Missouri-Pacific. And he had already named the new town New Chicago." New Chicago was not to be, but Wilmeth continued to live on his homestead. Water Valley was the only town ever established within the Sand Creek Massacre site boundaries,[261] and though short-lived, it lasted long enough for John Fluke to build a mercantile store in town. Other settlers did not stay long at all. Liggett recounted the tragicomedy of "Doolittle and Passive," pseudonyms for two lackadaisical characters who settled with their families in Water Valley and lasted for just one season. Even less ambitious than William Ridgeley, the two were able to grow only "a few sickly

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[256] U.S. Department of the Interior, General Land Office, "Field Notes for Surveys in Township 17 South, Ranges 45, 46, and 47 West, 1879-1880," manuscript, photocopy, Bureau of Land Management, Colorado State Office, Denver, Colorado.

[257] From *La Junta Tribune* of 24 March 1887, and 25 August 1887, quoted in Van Hook, "Settlement and Economic Development," 317.

[258] Kiowa County was created in 1889 out of old Bent County. Bent County lost much of its territory with its partition into Kiowa, Cheyenne, Lincoln, Otero, and Prowers, and (new) Bent counties.

[259] F. H. Newell, *Report on Agriculture by Irrigation in the Western Part of the United States at the Eleventh Census: 1890* (United States Department of the Interior, Census Office, Washington D.C.: Government Printing Office, 1894), 100.

[260] Ibid., 115.

[261] United States Department of the Interior, *Sand Creek Massacre Project, Vol. 2: Special Resource Study(SRS) and Environmental Assessment (EA)* (Denver: National Park Service, Intermountain Region, 2000), 53.

radishes and onions" in their garden patches before giving up and "disappearing into the night."[262]

To make agriculture a viable concern on the plains, then, the farmers needed irrigation -- and Kiowa County as yet did not have any. A 1906 map of Colorado shows a thick band of irrigated agricultural lands along the length of the Arkansas River, with a small extension up Big Sandy Creek to approximately 10 miles south of Chivington; much of this irrigation represented the development of large, mutual stockholding irrigation companies that grew between 1870 and 1900.[263] Prior to about 1880, farming was secondary to stock raising, but farmers did grow some wheat, oats, and various garden vegetables on acres watered by fairly primitive, privately owned ditches. By the end of the 1880s, these ditches were overtaken by a vast network of corporate canals that ran from a few miles to over a hundred miles.

The Fort Lyon Canal Company was one such company that grew to cover 90,000 acres between La Junta and Big Sandy Creek. The precursor of the company was the La Junta and Lamar Canal Company, which in turn had taken over the Arkansas River Land Town and Canal Company. The Arkansas River Land Town and Canal Company had begun an ambitious enlargement of the old Cheyenne-Arapaho reservation ditch in 1884, and extended the ditch approximately 17 miles. Under the leadership of T. C. Henry, the La Junta and Lamar Canal Company constructed another 73 miles of canal down the Arkansas River to its junction with Big Sandy Creek. Henry believed that with proper irrigation, farmers could make a living on just 25-acre plots (which he later amended to 80 acres). In 1888, farmers had a successful alfalfa crop, and hopes were high for irrigation projects in general.[264] In addition to alfalfa, the irrigated lands supported the increasingly important crops of melons, onions, fruits, and later, sugar beets.[265] The problem with these large canals was that the developers did not have adequate water rights to supply the projected demand. With water allocation based on the rule of prior appropriation, water became – and remains today -- a commodity, its value and use disengaged from its role in the environment of the plains.

Despite ecological problems introduced by irrigation – increased salinity, increased sedimentation, decreased river flow variability and volume, and decreased water flow downstream – the business of water could be lucrative, and investors began irrigation projects in areas with much less stable water sources. Sometime between 1908 and 1910, the Chivington Irrigation Company constructed the Brandon Canal, which transported water from the Big Sandy Creek for 20 miles southeast to Brandon Lake (Chivington Reservoir No. 4), just south of Brandon. The headgates of the canal are located within the Sand Creek Massacre site boundaries in Section 24, Township 17 S, Range 46 W.

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[262] These accounts are all from Liggett's "Pioneers and Idiosyncrasies of People I Have Known in Kiowa County," *Kiowa County Press*: "William H. Ridgeley," 10 April, 1942; "Charles S. Wilmeth," 14 February, 1947; "John Fluke," 20 June, 1941; "Doolittle and Passive," 31 July, 1942.

[263] Louis Nell, *Nell's Topographical Map of the State of Colorado, 1906* (Denver, Kendrick Book & Stationary Company, 1906).

[264] James E. Sherow, *Watering the Valley: Development Along the High Plains Arkansas River, 1870-1950* (Lawrence, KS: University Press of Kansas, 1990), 5, 17-20.

[265] Van Hook, "Settlement and Economic Development," 322-324.

The company had intended the Brandon Canal system to irrigate 20,000 acres, but the project appears to have been poorly planned and executed. The canal surveyors and engineers did not account for sudden deluges, which if not common, were not unknown in Big Sandy Creek. C. Frost Liggett remembered a flash flood that roared down the creek one sunny day sometime before the construction of the Brandon Canal:

> We heard a strange rumbling noise, and looking up the stream we saw a wall of water rolling along, and had hardly time to get the team and wagon out of the creek bed before they would have been engulfed in the raging stream, which soon spread over the banks.[266]

After a series of dam breaches over the years, floodwaters finally destroyed the canal system, and the community abandoned it in 1918.[267] According to a 1945 report on ground water irrigation in the Big Sandy Creek Valley, Brandon Canal failed because of unsuitable soil and topography, improper land preparation, inadequate water supply, poor equipment, and the collapse of farm prices.[268] Today, the remnants of the headgates and earthworks remain visible from land and air.

The Brandon Canal was not entirely unsuccessful during its lifetime, and was important in providing water for producing small-scale commercial melon crops. A. J. Ingram recalled his farming days on the creek:

> I had an abundance of good water on my place, so never thought about irrigating anything, except my 20 acre melon patch . . . . I raised lots of good melons, as did many people in that area. Some of my neighbors boxed and shipped them to Pueblo and other places.[269]

Even though the Brandon Canal failed, some farmers were able to sustain their lands by digging irrigation wells that pumped water out with wind power. The D. V. Burrell Seed Growers Company of Rocky Ford (still in business after 105 years) started a seed farm 2 miles northwest of Brandon in 1915. By 1918, the 480 acre farm had several wells and four irrigation pumps powered by ten windmills, and grew Irish potatoes (supposedly the best in Colorado), corn, onions, pinto beans, melons, cucumbers, and zinnias.[270]

Throughout the twentieth century, the general area of the massacre site has been in continuous use for farming and ranching. L.C. (Claude) Bowen settled north of the site in 1948, and together with his son Charles B. (Buster) Bowen -- who bought the adjacent ranch to the south -- raised Hereford bulls on his property. The Bowens dug stock wells and ponds, planted a variety of trees in a blowout section (wind-blown depressions in

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[266] Liggett, "Anton Walthers," *Kiowa County Press*, 10 October, 1941.
[267] Teal, "Brandon's $200,000 Irrigation Canal," in Teal, *Kiowa County*, 81-83.
[268] W. E. Code, "Report on Ground Water for Irrigation of Big Sandy Valley, Colorado," as summarized in Coffin, *Geology and Ground-Water Resources of the Big Sandy Creek Valley*, 33.
[269] Teal, "Brandon and Surrounding Communities," in Teal, *Kiowa County*, 68-71.
[270] Ibid., 71; Jacobs, "The Lakes," in Jacobs, *Kiowa County Centennial*, 30-31. The seed farm ceased operations sometime in the 1930s.

loose soil or sand) and reseeded the land with sandlove, blue grama, big and little bluestem, buffalo grass, and sideoats grama. In addition, they also had a dryfarm along Big Sandy Creek that produced 1,500 bales of hay a year.[271] Part of the Bowen property now occupies the northwest corner of the Sand Creek Massacre site boundary. Bill Dawson bought what became the Dawson Ranch (Section 24) in 1964; he did not farm, but kept up to 150 cows and calves. At the time Dawson bought the land, cultivated fields surrounded his property, and there was alfalfa where he later built a landing strip. Elsewhere on the property, he reseeded bare patches with native grass.[272] Today, most of the private lands within the authorized boundary are pastures except for two sections in the southeast that have dryfarms. Reminders of the area's agricultural heritage dot the general landscape: the foundation of the line shack from the SS Ranch days (30-17S-45W), fence lines, wells, windmills, dirt access roads, and ranch buildings.

Droughts and Floods

Between 1880 and 1925, 1,078,123 original homestead claims were filed on 202,298,425 acres in the Dakotas, eastern Colorado, western Kansas, Montana, and Nebraska. Unfortunately, neither settlers nor scientists had a clear understanding of climate conditions in the plains region. Rain clearly did not follow the plow, but when settlers first started farming the land west of the 100th meridian in the 1880s, they had enough years of good rainfall that there were no compelling reasons to suppose the theory was wrong. However, in 1890, and again in 1893 and 1894, southeastern Colorado (and western Kansas) suffered through severe droughts.[273] Decades later, C. Frost Liggett recounted a sandstorm in the 1890s – he called it the "Big Blow" -- that he believed was worse than any during the Dust Bowl years:

> Baldwin [a neighbor] told about having been over on Sand Creek, where a new house had been erected on the Widow Gish place, located on the Big Sandy bottom, where the sand had a clear sweep, and that the windows were frosted and had holes through which one could stick a pin, by reason of the constant beating of the sand which had battered them through the storm.[274]

After these drought years, various government officials began to reject the "rain follows the plow" idea. Frederick H. Newell, then the Assistant Hydraulic Engineer with the United States Geological Survey (USGS) wrote that "farmers have deluded themselves with the belief that with the breaking the soil . . . . and bringing civilization, the climate was becoming more favorable to their operations."[275]

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[271] Marki Laughlin, "L.C. Bowen Family History," in Teal, *Kiowa County*, 111-112.
[272] Dawson, interview.
[273] Thomas B. McKee, et al., "A History of Drought in Colorado: Lessons Learned and What Lies Ahead," *Water in the Balance Report* No. 9, 2nd ed. (Feb, 2000); available from http://cwrii.colostate.edu/pubs/balance/no.%209/wibno9rev2.pdf; accessed 28 July 2006.
[274] Liggett, "Sandstorms," *Kiowa County Press*, 6 December, 1940.
[275] Quoted in Libecap and Hansen, " 'Rain Follows the Plow' and Dryfarming Doctrine." Newell later became the first Director of the Bureau of Reclamation.

The Great Plains is a climatic transition zone where extremes of weather conditions can cycle rapidly and where most North American droughts occur. Southeastern Colorado receives a mean average of 10 to 14 inches of rain a year, but in any given year and location, precipitation fluctuates widely. Since 1890, Colorado has had six dry periods of varying duration interspersed with wet periods. The longest dry periods were in 1893-1905 and 1931-1941, and there was also an extremely dry period in 1951-1956 during which some areas suffered worse conditions than in the 1930s, due in part to larger tracts of cultivated land broken with mechanized farm equipment during the intervening wet years.[276] Wind was – and is – a constant on the plains of southeast Colorado, but was especially problematic during the drought years. Settlers called the 1930s the "dirty thirties," and the 1950s the "sifty fifties" – and those two terms conjure up images of the immense dust storms that swept over the plains, killing vegetation, blowing away topsoil, creating sand dunes. In the Sand Creek area, residents remembered even the native grassland – or what was left of it that was not broken sod -- drying up and blowing away during the dust storms of the 1930s. Young Velda Downs tied her name and address to a tumbleweed and later received a reply from Guymon, Oklahoma.[277] During the "sifty fifties," Buster Bowen recalled fences in the north fields buried under blown dirt; he later built the new fences on top of the old.[278]

During the summer, sudden and ferocious thunderstorms can occur. In a storm that may have originated near Hugo, Rush Creek west of Chivington swelled to a half mile wide, and in some places the water rose to eight feet high and nearly a mile across.[279] This storm occurred in August 1921, and may be considered part of the historic summer floods that involved the North Platte, Yampa, White, Roaring Fork, East, Uncompahgre, and Arkansas rivers basins. The floods caused extensive damage in Prowers County, where approximately 31,500 acres along the Arkansas River -- including Lamar, Granada, and Holly -- was under water, with property damage estimated at over 18 million dollars.[280] Even during the severe drought years of the 1930s, there were periods of heavy rain in 1935 and 1938.[281] Closer to the present day, Chuck Bowen remembers the North Bend of Big Sandy Creek running a mile wide after the floods of June, 1965.[282] These floods affected the South Platte and Arkansas rivers basins and caused 24 deaths and an estimated 570 million dollars in damages, most of which occurred in the Denver metropolitan area.[283]

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[276] McKee, "A History of Drought," 15.
[277] A straight line distance of approximately 145 miles. Jacobs, "Weather," in *Kiowa County Centennial*, 36.
[278] Chuck and Sheri Bowen, "The Search for the Sand Creek Massacre" (1999), unpublished report, photocopy, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado. The Bowens wrote this report to support their contention that the massacre site is on their property. The "north pastures" of the Bowen property are in Cheyenne County, Colorado.
[279] Jacobs, "The Weather," in *Kiowa County Centennial*, 36-38.
[280] Melvyn V. Johnson, "Floods of June in the Arkansas River Basin, Colorado, Kansas, and New Mexico," in J. O. Rostvedt et al., *Summary of Floods in the United States During 1965*, Geological Survey Water-Supply Paper 1850-E (Washington D.C.: Government Printing Office, 1970), 63; R. W. Paulson et al., *National Water Summary 1988-89: Hydrologic Events and Floods and Droughts*, Geological Survey Water-Supply Paper 2375, available from http://geochange.er.usgs.gov/sw/impacts/hydrology/state_fd/cowater1.html; accessed 15 September 2006.
[281] McKee, "A History of Drought," 15.
[282] Bowen, "Search for Sand Creek." The North Bend of Sand Creek is in Cheyenne County, approximately 8 miles north of the South Bend, where the current commemorative marker is located.
[283] Paulson, *National Water Summary 1988-89*.

Since 1965, Colorado has continued to have wet and dry cycles. After a particularly dry year in 1981, the government drew up the "Colorado Drought Mitigation and Response Plan" -- after which the state entered its second longest recorded wet period (1982-1999). In southeastern Colorado, the 1990s was the wettest decade on record; unfortunately it was followed by another drought during the first half of the 2000s.

Fire

On 27 January 1865, General Robert B. Mitchell ordered an immense firing of the plains in an effort to drive militant Cheyennes and Arapahos out of the Platte River Valley. "I will give them ten thousand square miles of prairie-fire," he reportedly said. At sunset, his men watched the simultaneous firing from Fort Kearney to Denver; three days later, the land was ablaze along the Arkansas River and fire had spread as far south as sections of the Texas Panhandle.[284]

Fires are not unusual on the plains, and during late summer and early fall, lightning strikes start many fires. Historically, however, humans have been responsible – both accidentally and deliberately – for many grassland fires. To Anglo-American settlers, native people did not appear to have altered the landscape at all; indeed, it is part of the persistent mythology of the West that white pioneers entered and tamed virgin wilderness. It is clear now that fire was a technology Indians used frequently and to great effect to manage their environment. In general, native people burned parts of their ecosystem to create greater biodiversity and to increase the "edge effect," for many of the foods important in gathering and domestication – berries, seeds, and grains, as well as game birds – appeared at the burned edges between forest and grassland.[285] These burns followed a seasonal cycle: in the late spring before new growth appeared, or in late summer and early fall (in drier areas) to promote main growth during the winter. According to historian Stephen Pyne, grasslands could be thought of as fire regimes: "So extensive were the cumulative effects of these modifications that it may be said that the general consequence of the Indian occupation of the New World was to replace forested land with grassland or savannah."[286]

Just as General Mitchell used fire as a military tactic, so too did native tribes: in the 1880s, for example, Indians in the Dakotas practiced a scorched-earth policy in an effort to drive off cattle ranchers. Plains people used fire for many other reasons; among the most prominent were fires set for hunting. Indians started fires to encourage new growth and thus entice bison to a different grazing area, or to force bison to a particular location. They also used fire to communicate with each other (signal fires), to deprive enemies of hiding places, to clear travel corridors, and to fireproof village perimeters.[287]

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[284] General Robert B. Mitchell, quoted in Ware, *The Indian War of 1864*, 488-489. General Mitchell commanded the Department of the Platte.
[285] Stephen J. Pyne, *Fire in America: A Cultural History of Wildland and Rural Fire* (Princeton, NJ: Princeton University Press, 1982), 67.
[286] Ibid., 79.
[287] Gerald W. Williams, "References on the American Indian Use of Fire in Ecosystems," available from http://www.wildlandfire.com/docs/biblio_indianfire.htm; accessed 30 July 2006.

In contrast to the Indians, Anglo-American pioneers used fire to create a uniform environment compatible with permanent settlements, and these settlements in effect returned grasslands to forests. On the plains, grassland conversion mainly took the form of domestic grains and livestock replacing wild grasses and animals; but especially on the prairie margins, as ancient fire regimes were suppressed, reforestation became more apparent when trees grew where they had not grown before. Even in places where natural reforestation did not occur, native grasses disappeared as a result of tree planting, heavy grazing, and invasion (or deliberate transplantation) of exotic plant species.[288]

Fire effects depend on the grassland involved, the season and the weather, and the frequency, intensity, and duration of the fire. Grasses withstand fire and grazing in part because much of their biomass is actually underground, and they grow from the base rather than from the tip. In general, fire changes the chemistry and mineral content of the soil by recycling nutrients from dead plant litter back into the soil. In addition, fire changes the yield, distribution, and diversity of native grasses by creating a vegetative mosaic. Fire, like bison grazing, alters the environment on the landscape scale – and one of the problems with modern range management is that historically, fire occurred on a scale no longer present. For example (and as General Mitchell's fire showed), pre-1900 grassland fires covered thousands of hectares with effects that could potentially extend hundreds of miles.[289] Today, the fragmentation of grasslands in a fire-suppressed landscape has reduces the frequency of fire and led to loss of biodiversity; in one study, scientists found that of the 266 plant species originally found in 54 sites in the 1940s and 1950s, 228 were still present in the late 1980s.[290] In small prairie reserves, fire is employed to suppress exotic and woody plant invasion; however, these frequent fires reduce biodiversity even more in comparison to infrequently fired grasslands. Thus, one of the most important problems in ecosystem management remains how to reproduce characteristics of historic or natural fires in fragmented landscapes.

Fire effects also depend on how humans deal with and think about their environments:

> [F]ire and hoof, fire and ax, fire and plow, fire and sword – all magnify the effects by altering the timing of fire, its intensity, the fuels on which it feeds, or the biological potential for exploiting the aftermath of a burn . . . . Larger effects of fire [depend] on the potential within the culture – on its domesticated flora and fauna, on its hunting and gathering preferences, on its perceived meaning of fire, on its understanding of fire behavior and its comprehension of fire's effects, on its ability both to apply and to withhold the fire of its own or of nature's making."[291]

As Pyne shows, fire can be thought of as a scientific process, or less tidily, as part of a complex mixture of cause and effects involved in the creation of cultural landscapes. Smokey Bear reminds us that only we humans can *prevent* wildfires; he should also have noted that of all life forms, only we can *start* fires. In the wake of the settling of the West, fire suppression and fire management schemes have permanently changed the vegetation

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[288] Pyne, *Fire in America,* 96-99.
[289] Knapp, "Keystone Role of Bison." 1 hectare = 2.47 acres.
[290] Mark K. Leach and Thomas J. Givnish, "Ecological Determinants of Species Loss in Remnant Prairies," *Science* 273, no. 5281 (13 September 1996): 1555-1558.
[291] Pyne, *Fire in America,* 34-44.

composition and ecology in grassland communities. No doubt they have also done so at Sand Creek over the years. Most recently in June 2006, lightning ignited a 150 acre fire on the Bowen property near the western boundary of the historic site; the fire was of course quickly suppressed.

Sand Creek Massacre Site Today

Soil and Vegetation

Today, at least seventy-five percent of the Sand Creek Massacre area is made up of ecological sites ranging from sands to deep sands. The soils -- sandy loams and loamy sands -- are especially susceptible to wind and water erosion when vegetative cover is inadequate. In the historic climax plant community, the dominant grasses were tallgrasses such as sand bluestem, prairie sandreed, switchgrass, and yellow Indiangrass. However, there have been many disturbances from continuous grazing, changes in water availability, fires, cultivation, and disuse. Thus while these areas are potentially tallgrass communities, they currently do not have tallgrasses to the extent predicted if they were high-seral rangelands.[292] The creek bed also has the potential to be tallgrasses; again, it has been disturbed over time and is mainly a mid-seral community. In general, pollen analyses of cores taken from Big Sandy Creek show little change between the pre-historic and historic period, although there is evidence of a decrease of saltbush (*Chenopodium amaranthus*) and an increase of sagebrush (*Artemisia*). One possible explanation for the saltbush decrease could be the introduction of non-native species or the expansion of *Artemesia* species, but these hypotheses needs further study. The presence of both saltbush and sagebrush are evidence of the dry environment at the Sand Creek site.[293]

The other twenty percent or so of Sand Creek is made up of shortgrass, loamy plains ecological sites. The historic climax plant community was the result of grazing by large herbivores, and the dominant shortgrasses were western wheatgrass, blue grama, galleta, and fourwing saltbush. This area has also had extensive disturbances from grazing, seeding, and cultivation.[294]

Trees

The most prominent difference between the Sand Creek site in 1864 and today is the presence of numerous groves of cottonwoods along the creek banks. The dearth of trees in the nineteenth century may have been due to prairie fires, grazing and trampling by bison and horses, and floods. In addition, native people also used the trees for firewood

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[292] Seral stages refer to recognizable types of communities during succession; for example, a particular forest type will have distinct features based on species composition, canopy, percent cover, tree size, density, and mortality.

[293] Scott Mensing, "Pollen Analysis of Two Cores Recovered from the Sand Creek National Historic Park," preliminary report for National Park Service, 2006, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado.

[294] Descriptions of Historic Climax Plant Communities for sandy bottomland and loamy soils are from United States Department of Agriculture, Natural Resources Conservation Services, "Ecological Site Description: MLRA 69: Upper Arkansas Valley Rolling Plains" [electronic Field Office Technical Guide]; available from http://efotg.nrcs.usda.gov/treemenuFS.aspx; accessed 13 June 2006. Discussion of current vegetation and soil conditions is from Dr. Roy Roath, in an email to author dated 13 June 2006, regarding the current types and distribution of grasses in the Sand Creek Massacre site.

and emergency forage for their horses. Since homesteading began, however, wildfires have been routinely suppressed, the bison and horse herds are gone (although cattle remain), and water availability has been altered by agriculture use, ponds, and wells.

Willows and cottonwoods are common tree species in riparian areas. At the massacre site, pollen records show a prominent absence of *Salix* (willows) in the past, and they continue to be absent today. One reason may be that willows prefer continuously wet and cool environments, and the Sand Creek site was too dry to support this species.[295] Cottonwoods, however, occur naturally in riparian zones in semi-arid regions; their entire life cycle is tied to water originating from stream flow. Cottonwood seedlings need moist, bare patches that are protected from strong disturbances. While floods can destroy saplings and trees, they also produce flood depositions that form appropriate sites for cottonwood seed deposition. This type of fluvial process produces small, linear, same-aged groves. The mature trees grow close to surface ground above the creek bed, and take their water from groundwater replenished from stream sources.[296]

At the Sand Creek Massacre site, flood depositions may have been responsible for many of the cottonwoods now standing. In a tree-dating study for the National Park Service, researchers identified same-aged tree stands for the years 1865-1885, 1908-1920, and 1948-1959 (with sub-peaks in 1949 and 1954). The investigators' analyses of available climate and precipitation data from 1893-2005 indicate major floods in 1908, 1949, 1954, and 1965. The 1908, 1949, and 1954 floods correspond well to their respective cottonwood stands, and though there is no corresponding 1965 grove, comparisons with other riparian areas suggest that this is not an unusual occurrence.[297]

Hydrology

The section of Sand Creek that runs through the massacre site is still mostly an intermittent stream. Aside from the infrequent high flows or floods following hard rain, the creek is usually dry, with pockets of water in seeps and depressions that connect to groundwater. There are more sand sagebrush and other dry prairie vegetation in the stream bed now, and as discussed previously, many more cottonwoods along the creek. Geomorphology studies indicate that the landforms and topography of the general area – including Big Sandy Creek – have remained essentially the same.[298] However, whereas the banks are now fairly flat or gently sloping, eyewitness accounts from 1864 describe steep embankments farther north of the village that were as tall as 15 to 20 feet. According to Chuck and Sheri Bowen, long-time residents remember that before the dust storms of the 1930s, the banks were steeper, especially in Section 10 (Bowen land), and

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[295] Mensing, "Pollen Analysis."

[296] Michael L. Scott, Gregor T. Auble, Jonathan M. Friedman, "Flood Dependency of Cottonwood Establishment Along the Missouri River, Montana, USA," *Ecological Applications* 7, no. 2 (1997): 677-690; available from http://www.mesc.usgs.gov/products/Publications/2851/2851.pdf; accessed 3 August 2006.

[297] Woodhouse and Lukas, "Riparian Forest Age Structure."

[298] Amy M. Holmes and Michael McFaul, "Geomorphological and Geoarchaeological Assessment: Possible Sand Creek Massacre Site, Dawson Property, Kiowa County, Colorado," report for National Park Service, April 1999, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado.

that the storms swept off the tops of the banks while adding dirt to the creek bottom. After the dust storms of the 1950s, Buster Bowen believes the creek bed may have accumulated another foot of sand.[299] In addition to aeolian erosion and deposition, water diversion earlier in the century from the Brandon Canal as well as the Ray Irrigation Ditch (which ran from Section 10 to Section 14) may have contributed to changes in the embankment. Finally, stock grazing and crop tilling are also possible factors in the altered appearance of the banks.

Although there is no longer any irrigation within the authorized Sand Creek NHS boundaries, property owners still use shallow wells for domestic purposes and for watering stock. The water source for these wells is the surficial aquifer in the alluvium, a thin layer (on the order of tens of feet) of Quaternary deposits that overlies much of the Sand Creek valley. The aquifer is recharged only by rainwater and floodwater infiltration. According to a USGS ground water study conducted in 1967, the various irrigation wells then present in the valley had not permanently lowered the water table, although the increasing numbers of phreatophytes such as cottonwoods and saltcedars may potentially increase water use.[300] With a water movement of approximately 2 feet/day, the mineral content of the groundwater increases the farther downstream it flows. This water does not meet current drinking water standards: chemical analysis of a shallow well sample ½ mile southeast of the Dawson ranch house showed a specific conductance of 4370 micromhos/cm.[301] As for Sand Creek water itself, gauging station samples from 30 miles downstream showed a specific conductance of 2620 to 4420 micromhos/cm at respective flows of 126 to 50 cubic feet per second.[302] Water quality obviously can vary throughout the year depending on rainfall and flow, and on a long-term basis the water quality may also have changed in the last one hundred years or so. However, the modern-day data does correlate well with native oral accounts that creek water was suitable only for animals, and the people had a separate fresh water source.

Many Cheyenne and Arapaho descendants believe the fresh water their ancestors used came from the large perennial spring that flows from Section 20 (August "Pete" Kern property, outside the massacre site boundary) southeast into Big Sandy Creek in Section 30. The water source for the "Kern" spring is local groundwater as well as surface and groundwater flow from as far as 5 miles northeast. This historic spring has been in use continually for 150 years and more, and not just within the massacre site boundaries. Farther upstream, property owners have tapped into the groundwater as well as other

[299] Bowen, "Search for Sand Creek Massacre," 8.
[300] Coffin, *Geology and Ground-Water Resources of the Big Sandy Creek Valley*, 34, 48.
[301] Larry Martin, "Potential Groundwater Sources for a Potable Water Supply: Sand Creek Massacre Site, Kiowa County, Colorado," report for National Park Service, Water Resources Division, June 2006, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado. The specific conductance value cited is from a 1960 sampling. Specific conductance measures the ability of water to conduct a current, and is therefore a measure of the amount of ions in the water. For comparison, distilled water has a specific conductance of 0.5 – 3 micromhos/cm.
[302] Data from U.S. Geological Survey, Water Resources Data for Colorado Water Year 1998, as cited in National Park Service, *Sand Creek Massacre Project, Vol. 2: Special Resource Study (SRS) and Environmental Assessment (EA)* (Denver: National Park Service, Intermountain Region, 2000), 58.

smaller traces that drain into the spring.[303] Within the site boundaries, the spring and its drainage area between its confluence with Sand Creek south to County Road W is now a wetland habitat. This area, like other areas around the massacre site, has been much influenced by grazing, farming, erosion, and water diversion.

CONCLUSION

Landscapes reflect past and present social, political, economic, and cultural values; they are thus records of human activities, "good" and "bad." The Sand Creek Massacre site is a contested space where the stories of natives, ranchers, farmers, and now, the National Park Service, run in series and in parallel. The challenge for the National Park Service is "finding practical ways to influence human relationships with the land that are environmentally sustainable, culturally aware, and historically responsible."[304] Some basic (and thorny) management issues, then, are defining exactly what is being preserved or conserved, what is being removed, and what will be added.

Ethnographic landscapes in particular are challenging because they involve culture-specific ways of looking at and using the environment. A prominent example is the clash between Native Americans and whites over sacred environments. A site such as Devil's Tower (in northeastern Wyoming) is a sacred place of worship for many tribes, but it is also a tourist and recreational area for non-Indians. It is clearly visible as a unique, natural resource, yet the cultural meanings and practices associated with it by a minority people are not tangible or readily understood. How should cultural landscapes such as this be identified, interpreted and understood, accessed, and preserved?[305] What is clear is that whatever the National Park Service chooses to preserve or return to the historic range of conditions, the Sand Creek Massacre site was, and is, a manipulated environment. In this landscape, the emphasis on particular features of the land, associated with particular parts of the cultural heritage, during a specific period of time, means the loss of some other pieces of the shared history.

In 1989, Kiowa County historian Ruthanna Jacobs summed up some changes in the country since Zebulon Pike passed through in 1806:

> [T]he buffalo are gone; the wild horse bands have disappeared.

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[303] Kevin Noon, et al., "A Preliminary Assessment of Wetland, Riparian, Geomorphology, and Floodplain Conditions at Sand Creek Massacre National Historic Site, Colorado," report for National Park Service, Water Resources Division, June 2005, Sand Creek Massacre National Historic Site Project Office, National Park Service, Eads, Colorado; NPS, *Sand Creek Massacre Project, Vol. 2*, 55-60.

[304] Charles E. Roe, "The Natural Environment," in *A Richer Heritage: Historic Preservation in the Twenty-first Century*, ed. Robert E. Stipe (Chapel Hill and London: University of North Carolina Press for Historic Preservation Foundation of North Carolina, Inc., 2003), 250; for a history of the National Park Service, evolution of its culture and management policies, see Richard West Sellars, *Preserving Nature in the National Parks: A History* (New Haven and London: Yale University Press, 1997).

[305] Donald L. Hardesty, "Ethnographic Landscapes: Transforming Nature into Culture," in *Preserving Cultural Lanedscapes in America*, eds. Arnold R. Alanen and Robert Z. Melnick (Baltimore and London: Johns Hopkins University Press, 2000), 169-185.

> The deer and the antelope have returned; the rattlesnakes and prairie dogs resisted all efforts to eradicate them . . . . The last gray wolf bounties were paid in the early 1900s . . . . when the wolves were gone, coyotes were hunted extensively . . . . [then] the country was overrun with rabbits.[306]

To the above list we can also add: Indians went, Anglo-Americans and their agricultural endeavors came and stayed, and through it all, there were fires, floods, droughts, and even locusts. As Jacobs' litany of species shows, a single change is never a singular event, and Sand Creek Massacre site today is an ongoing process formed by complex interactions between humans and their environment. Yet all the landscape features and changes are imbued with values and meanings far beyond their physical manifestations. Humans have a need to have tangible evidence of memories, for memories are intrinsic to identity. In the holistic view of nature, man is indeed part of the environment, but he is also set apart by his ability to shape his world, both physically and mentally. And thus we have memorials – and histories.

There are multiple stories of Sand Creek, depending on who is doing the telling. There is the familiar narrative of a fairly linear march of progress, its emphasis on settlers who transformed their environment (presumably for the better) and crafted a landscape laden with all the symbols of civilization: rectangular property lines, fences, houses and buildings, farms, pastures, gardens, trees. Look closer, however, and there are alternative stories, ones based on that same linear progression but imposed on a cyclic environment. The Dust Bowl, for example, could be interpreted as a story of too little rain, the settlers' heroic struggles to keep their farms going, and the ultimate triumph of man and technology over what was essentially a *natural* disaster. Alternatively, the Dust Bowl is a cautionary tale of the failure of man to adapt to his environment, its aftermath a continuation of that failure. Or, the Dust Bowl is a story of man *in* his environment, neither a conqueror nor an interloper, but part of the ongoing process of "adjustment and readjustment from one stage of temporary equilibrium to another."[307] This is a view that implies a certain environmental determinism, yet may provide a useful model for understanding why the Sand Creek massacre happened.

In *One Vast Winter Count,* historian Colin Calloway pointed out that who the native people think they are and what they most care about have everything to do with the country and what happened there.[308] In the "big picture" American historical narrative, the Sand Creek Massacre site became just another piece of land, a part of the story of Anglo-American settlers and their dreams of owning their own pieces of the empire. It is not surprising, then, that over the years, Anglo-Americans somehow "lost" the massacre site. The Cheyenne and Arapaho, however, believe they have always known where it was. For them, Sand Creek represents not just a loss of physical control of resources and land – but also, in a sense, loss of control of their destiny. The people still talk about the massacre as though it had just occurred – not only to the ancestors, but also to

[306] Jacobs, "The Deer and Antelope Play," in *Kiowa County Centennial,* 34-36.
[307] Cunfer, *On the Great Plains,* 236.
[308] Calloway, *One Vast Winter Count,* 4 -13.

themselves. Dr. Richard Little Bear (Northern Cheyenne) spoke of the impact of the massacre as well as other incidents on the daily lives of his people:

> We still live with it . . . . these are things I see in our history that are still having a [sic] effect on us and sometimes a negative effect . . . . I think that when people see Native Americans, Northern Cheyennes, drinking, abusing, it's not because they're Native Americans or Northern Cheyennes. Part of that is because of policies that have impacted their lives in a highly negative way.[309]

Since the day it happened, the Sand Creek Massacre has been permanently embedded in Cheyenne and Arapaho culture; whatever changes may have occurred at its physical location, its spirit has become an irrefutable part of the tribes' identities. The land is sacred not just because ancestors died there; for some descendents, it *is* the ancestors – hence Jesse Howling Water beginning his oral history with, "Sand Creek was my great-great-grandpa."[310] For the descendents, Sand Creek is a place of grief and tragedy – yet it can also be a place of healing, a chance to commune with the ancestors in happier times. Robert Toahty recounted his experiences at Sand Creek in the 1990s:

> [Y]ou can go there at any time of day or night and if you close your mind to everything else you can feel the children, where they're congregating and laughing and having fun. The old ladies mostly congregate in the shade. The young warriors congregate in the rocks . . . . Hopefully if they want to go on I can give them some prayers.[311]

"Nothing lives long except the earth and the mountains," Chief White Antelope sang out as bullets tore through his body. White Antelope was wrong about nothing lives long, though; his descendents have proven that history does not end, and a place can hold memories and spirits that do not die.

[309] Interview with Dr. Richard Little Bear, recorded in Roberts, "Oral History Project," 274-275.
[310] Interview with Jesse Howling Water, recorded in ibid., 206.
[311] Interview with Robert Toahty, recorded in ibid., 218.

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