



# Habitat of Our Heritage

Sand Creek Massacre National Historic Site (NHS) was established in 2007, primarily to preserve and protect the cultural landscape of the massacre. A cultural landscape is an area that includes both the natural and cultural resources associated with a historic event, activity, or person. The prairie is integral in shaping the cultural landscape of Sand Creek Massacre NHS and supports the interaction and survival of native plants and animals within and around the site.

Sand Creek Massacre NHS is primarily composed of shortgrass prairie and sage shrubland. Shortgrass prairies support numerous plant and animal species, including federal

and state listed endangered, threatened, and candidate species. Big Sandy Creek, an intermittent stream, crosses the site.

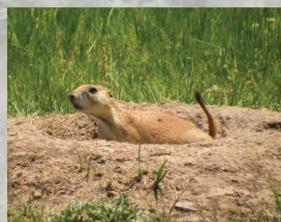
The natural environment and availability of resources has impacted the lifestyles of humans who have used the area for the past 8,000–10,000 years. The site and surrounding area have been affected by hunting, grazing, cultivation, water diversion, development, introduction of non-native species, and extirpation (local extinction) of native species such as pronghorn antelope and bison. The landscape of Sand Creek Massacre NHS is a record of human relationships with the natural environment, the contrasting values of

American Indians and Euroamericans, and their competition for limited resources.

The continued protection and preservation of these resources contributes to our knowledge of the changing diversity of the Plains ecosystem, its biological communities and its human stories.

*Treat the Earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our Ancestors, we borrow it from our Children.*

—Indian Proverb



Black-tailed prairie dog



Burrowing owls



Mountain plover

## Prairie Dogs

Prairie dogs, members of the squirrel family, are found throughout the western United States from Canada to Mexico in shortgrass and medium-grass prairies. The black-tailed prairie dog (*Cynomys ludovicianus*), listed as a species of special concern by Colorado, occurs in Sand Creek Massacre NHS and is the most abundant and widely distributed prairie dog species.

Although prairie dogs are integral to species diversity in the plains environment, their consideration as a keystone species, or a species that has a major influence on structure of communities, is controversial. Prairie dogs increase habitat diversity and contribute to grassland ecosystem processes by clipping vegetation and creating open habitats preferred by some grassland birds, such as the mountain plover, a state species of special concern.

Numerous species prey on prairie dogs and use their burrows for shelter, including badgers, coyotes, hawks, golden eagles, snakes, burrowing owls, and bobcats.

Prairie dogs historically occupied 3–7 million acres of Colorado. In 2005, they occupied approximately 630,000 acres of the state. The population decline in eastern Colorado is attributed to plague and changes in land use.

Prairie dog management is integral to sustaining the long-term viability of a self-sustaining Sand Creek complex of plants and animals, preserving the existing native plant community and allied species such as the mountain plover, and maintaining relationships with surrounding landowners.

## Monarchs and Milkweed

Monarch butterflies (*Danaus plexippus*) migrate south from Canada and the northern U.S. during the fall to reach their wintering sites in central Mexico. Monarchs that migrate south to Mexico are the great- and great-great-grandchildren of the monarchs that migrated north from Mexico. Monarch adults lay their eggs on milkweed, a flowering perennial plant named for its milky sap or latex in its leaves and stems. Monarch larvae, or caterpillars, feed exclusively on milkweed, though it is toxic to most herbivores including livestock.

The riparian area along Big Sandy Creek has a high density of several milkweed species. It attracts the monarchs to the park in August and September when the milkweed is flowering and the monarchs are migrating south to Mexico.





# Humans and the Prairie

Grasslands are some of the most biologically productive but endangered ecosystems on Earth, and are the major ecosystem in the Great Plains. The prairie is integral in shaping this cultural landscape. It supports the interaction and survival of plants and animals. The prairie of Sand Creek Massacre NHS is composed of sandhills, shortgrass and mixed grass prairie, and wetlands. The diversity of upland grassland and riparian areas provides a unique and important habitat for birds, especially migrating species, and other animals.

Cottonwood trees along Big Sandy Creek—living and dead—have cultural and spiritual significance to the Cheyenne and Arapaho beyond their association with the Indian encampments attacked by the U.S. military in 1864 during Sand Creek Massacre. During severe winters, American Indians and early settlers fed cottonwood to horses and cattle. The cottonwood stands lining Big Sandy Creek date to the mid 1900s, though it is possible a few trees were present during the massacre as seedlings or saplings. The trees provide important roosting, nesting, and feeding sites for birds, as well as nesting material.

Historic disturbances and drought affect the vegetation composition of the park. Changes in vegetation since the massacre may be related to introduced exotic species, changes in fire frequency, agricultural and development disturbances, drought, and the construction of a canal.



Ecological restoration experts and National Park Service managers work together to accomplish prairie restoration at Sand Creek Massacre NHS.

## Prairie Restoration

Few grasslands are preserved in the southern Great Plains and protected areas are disproportionately important to their size. Many protected grasslands are in degraded conditions caused by previous row cropping efforts, invasion by exotic vegetation, altered hydrology from damming and pumping for local irrigation and development, livestock and human traffic, and encroachment by woody shrubs. Despite the degraded condition of some areas in Sand Creek Massacre NHS and other parks, they are natural oases in a largely agricultural landscape and are candidates for restoration.

In 2008, the National Park Service's Southern Plains Network began to plan prairie restoration projects in several parks, including Sand Creek Massacre NHS. Restoration is an indefinite commitment and requires monitoring to determine if adjustments are needed over time.

National Park Service managers from multiple parks collaborate to conduct efficient and effective restoration techniques. In this photo, a planning group discusses seed collection techniques at nearby Bent's Old Fort NHS that may be used at Sand Creek Massacre NHS.



In 2009, three bobcats were observed in the prairie dog town—the first to be recorded in the park. To learn more about bobcats in the park, managers set up motion-triggered cameras to take photos.

## Learning More About Sand Creek

Sand Creek Massacre NHS and other National Park Service units provide unique opportunities for scientific investigations. Because these areas are preserved and protected, they can be studied as reference points for comparisons with similar, altered environments. Studies at Sand Creek Massacre NHS contribute to the understanding of the area. This information is used for planning, management, and sharing with partners and the public.

Research in the park covers a wide range of subjects including archeology, geology, soil, fish, birds, plants, and water. This information is used for decision making, working with partners and other agencies, and communicating with the public to protect the natural systems and native species of the area.

Several decades of work and cooperation between tribes, state and federal agencies, universities, and affected landowners contributed to the establishment of the Sand

Creek Massacre site as a National Park Service unit in 2007. Continued study will expand our knowledge of the resources preserved and protected by the National Park Service.

For more information about resources, science, and management in Sand Creek Massacre NHS, visit the Learning Center of the American Southwest website at [www.southwestlearning.org](http://www.southwestlearning.org).



This Cheyenne tribal member fire crew provided assistance to resource managers in 2004 before Sand Creek Massacre NHS was established. Members of associated tribes continue to provide important assistance and be involved with the park.