

Vegetation

Importance

Sand Creek Massacre National Historic Site is a combination of sandhills, mixed grass prairie, a highly productive short-grass prairie, and wetlands. The diversity of upland grassland and riparian areas provide a unique and important habitat for birds, especially migrating and sensitive species. Wetlands are vital to the shortgrass prairie ecosystem and also contribute significant ecological functions and wildlife habitat. Vegetation is an integral part of the cultural landscape. The vegetation community history was studied to support management of the site at its environmental conditions the time of the massacre in 1864.

Status and Trends in Sand Creek

In 1864, the site was dominated by the goosefoot family, especially lambsquarters (*Chenopodium* spp.) and amaranth (*Amaranthus* spp.). Grasses were fairly abundant in the mid-1800s. Sagebrush (*Artemisia* spp.) has increased from 2-4% of vegetation around 1900 to approximately 10% at the present. Cottonwood stands lining Big Sandy Creek date to approximately



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1865-1885, though it is possible some trees were present during the massacre as seedlings or saplings. Cattail, a wetland species, appeared after 1950, though the sedges, water-loving plants, have been present since the mid-1800s suggesting the continuous presence of at least moist soil. A 2007 inventory documented an overabundance of early forbs and annual plants when compared with the site's historic plant community. Key species, such as big bluestem (*Andropogon gerardii*), green needlegrass (*Nessella viridula*), and fourwing saltbush (*Atriplex canescens*), were not observed during a 2005 inventory and most areas were dominated by blue grama (*Bouteloua gracilis*), sand dropseed (*Sporobolus cryptandrus*), and sagebrush.

Discussion

The majority of sites inventoried in 2005 showed major effects of disturbance. Vegetation composition shifts since 1864 may be related to introduced species, changes in fire frequency, agricultural and development disturbances, and drought. The establishment of cottonwoods after 1864 may be associated with flooding events. Some areas of the site have been successfully replanted with native species. It is likely that annual plants will quickly diminish as a more normal rainfall pattern returns. However, areas of intense disturbance, such as former agricultural fields, that have not been replanted with perennial native grasses will likely continue to be dominated by annual species indefinitely. Areas that have been replanted, but with nonnative species, may persist indefinitely.



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Wetland in Sand Creek Massacre NHS.