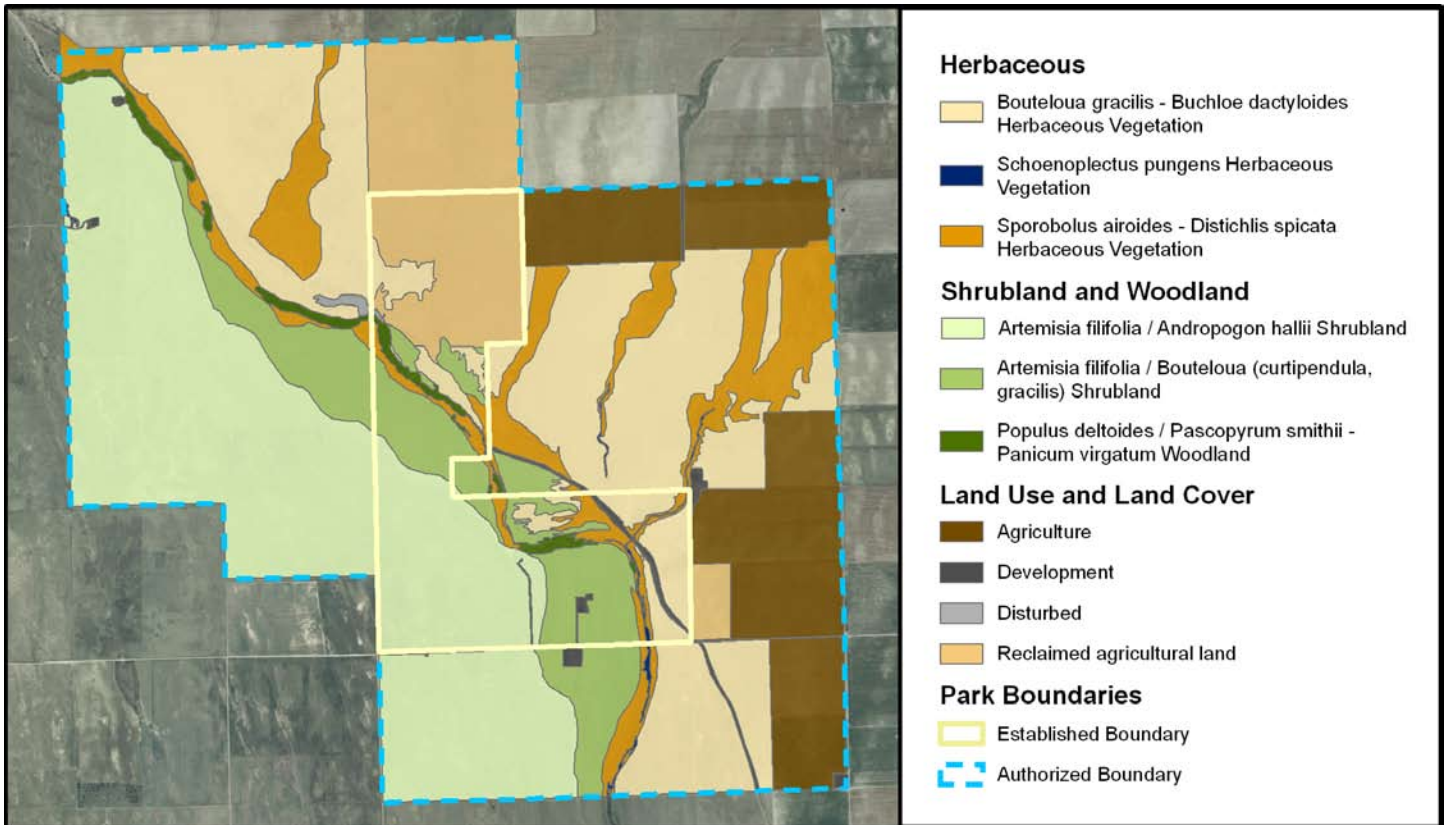


Vegetation Types

QUICK REFERENCE



Vegetation Associations and Alliances

NatureServe maintains a treatment of floristic units (alliances and associations), which are used as classification and mapping units by the vegetation mapping program whenever feasible. Vegetation sample plots and observational points were used to classify the vegetation of this park to these association/alliance levels. NatureServe Explorer®, an on-line database, can be found on the Internet at: <http://www.natureserve.org/explorer>.

Shrubland and Woodland

Artemisia filifolia / *Andropogon hallii* Shrubland (Sand Sagebrush / Sand Bluestem Shrubland)

This type occurs on the sandhills to the south and west of Big Sandy Creek and was mapped from field observations and plot data. The irregular ground surface shows hillocks and swales at a landscape scale, and greater amounts of bare ground are visible. Swales often had more annuals, but the composition differed between field seasons. *Yucca glauca* is a common

subshrub in many areas, especially knolls and bluffs. The understory is characterized by diverse graminoids and forbs. Graminoids are generally dominant and include *Andropogon hallii*, *Bouteloua curtipendula*, *Calamovilfa longifolia*, *Aristida divaricata*, and *Aristida purpurea* as well as *Bouteloua gracilis*, which is ubiquitously present. The tallgrass species are characteristic of this association. Forbs are often diverse, with *Ambrosia psilostachya*, *Psoralidium tenuiflorum*, *Psoralidium lanceolatum*, *Erigeron bellidiastrum*, *Liatris punctata*, *Dalea cylindriceps*, *Machaeranthera pinnatifida*, *Mentzelia nuda*, *Helianthus petiolaris*, *Eriogonum annuum*, and *Conyza canadensis*, and occasionally *Ratibida tagetes*, *Mirabilis glabra*, *Oxytropis sericea*, *Sphaeralcea coccinea*, and *Chamaesyce missurica*. Swales tend to have greater cover of *Eriogonum annuum*, *Aristida divaricata*, and *Conyza canadensis*, whereas knolls and bluffs have greater forb diversity and more *Yucca glauca*, *Bouteloua curtipendula*, *Calamovilfa longifolia*, and *Andropogon hallii*. Small inclusions of bare, saline soil occur in the southern portion of the property; these areas are surrounded by a narrow ring of *Sporobolus airoides* and *Distichlis spicata*.



***Artemisia filifolia* / *Bouteloua gracilis* Shrubland (Sand Sagebrush / Blue Grama Shrubland)**

This type occurs on terraces of Big Sandy Creek. The type was mapped from field observations and plot data. In places on the terraces it forms a mosaic with *Bouteloua gracilis* – *Buchloe dactyloides* Herbaceous Vegetation, but is distinguished by the presence of shrubs. The herbaceous layer is strongly dominated by *Bouteloua gracilis*, which ranges from 25-55% cover. *Sporobolus cryptandrus* is a common associate and *Hesperostipa comata* is occasionally present. Forbs are less diverse than in the sand hills but include *Machaeranthera pinnatifida*, *Evolvulus nuttallianus*, *Cirsium ochrocentrum*, *Liatris punctata*, *Conyza canadensis*, and *Sphaeralcea coccinea*. Occasionally *Sporobolus airoides* and *Distichlis spicata* occur, especially where this association grades into *Sporobolus airoides* – *Distichlis spicata* Herbaceous Vegetation in the riparian corridor.

***Populus deltoides* / *Pascopyrum smithii* - *Panicum virgatum* Woodland (Cottonwood / Western Wheatgrass - Switchgrass Woodland)**

This type is the only woodland association at SAND. It occurs along Big Sandy Creek, although small patches occur away from the channel. Certain isolated individual trees that were above the stream terraces were not always included if they did not appear to form a canopy. Canopy dieback is evident in several areas. The herbaceous layer is dominated by grasses, especially *Pascopyrum smithii* and *Panicum virgatum*. *Pascopyrum smithii* occupies areas with denser canopy, and *Panicum virgatum* is more abundant in partial shade to more open situations; *Pascopyrum smithii* is more abundant in upstream areas, and *Panicum virgatum* becomes more prevalent in downstream areas where the cottonwood canopy is more sporadic. Common associates include *Elymus canadensis*, *Buchloe dactyloides*, and *Sporobolus airoides*. *Distichlis spicata*, *Muhlenbergia asperifolia*, and *Spartina pectinata* occur infrequently. Forbs are common and can be locally abundant. Species include *Ambrosia psilostachya*, *Asclepias subverticillata*, *Ratibida columnifera*, *Rayjacksonia phyllocephala*, and *Symphotrichum falcatum* var. *falcatum*.

Herbaceous Vegetation

***Bouteloua gracilis*-*Buchloe dactyloides* Herbaceous Vegetation (Blue Grama - Buffalograss Herbaceous Vegetation)**

This type occurs on the level benches and plains and on the terraces to the north and east of Big Sandy Creek. Occasional graminoid associates include *Sporobolus cryptandrus*, *Monroa squarrosa*, *Muhlenbergia torreyi*, and/or *M. arenicola*.

Forbs are common but have sparse cover; they include *Callirhoe involucrata*, *Sphaeralcea coccinea*, *Oxytropis sericea*, *Psoraleidium tenuiflorum*, *Mirabilis glabra*, *Opuntia polyacantha*, and *Machaeranthera pinnatifida*. The expression of this association on the lower terraces within the riparian corridor is more alkaline with *Ratibida tagetes*, *Iva annua*, and variable amounts of *Sporobolus airoides* and *Distichlis spicata*. On the stream terraces, the type forms a mosaic with *Artemisia filifolia* / *Bouteloua gracilis* Shrubland and forms an ecotone with *Sporobolus airoides* – *Distichlis spicata* Herbaceous Vegetation.

***Schoenoplectus pungens* Herbaceous Vegetation (Common Threesquare Herbaceous Vegetation)**

This type occurs along mesic to wet portions of the braided riparian channel in a long, narrow strip. In the upstream portions of the channel it occurs as small, isolated, ephemeral ponds and in local areas where the channel is deeper. Downstream, near County Road W, the wetland is more extensive. Common associated species include *Muhlenbergia asperifolia*. Where the wetlands have greater surface water, *Schoenoplectus acutus* and/or *Typha angustifolia* are present. Additional species that occur incidentally and sporadically within the wetlands include *Juncus balticus*, *Iva xanthifolia*, and *Eleocharis palustris*. This type most often forms a mosaic with *Sporobolus airoides* – *Distichlis spicata* Herbaceous Vegetation.

***Sporobolus airoides* - *Distichlis spicata* Herbaceous Vegetation (Alkali Sacaton - Saltgrass Herbaceous Vegetation)**

This type occurs in the braided riparian corridor of the Big Sandy and its tributaries. It occurs on the stream terraces adjacent to and above the *Populus deltoides* woodland along the main channel, and it occupies the sloped sides of the tributaries that flow into Big Sandy Creek. These two species form a patchy mosaic of monotypic as well as mixed swards. *Panicum obtusum* and *Muhlenbergia asperifolia* are frequent. *Asclepias subverticillata* is frequent and can form dense patches within this grassland. Additional associated species include *Ratibida tagetes*, *Mirabilis glabra*, *Ambrosia psilostachya*, *Callirhoe involucrata*, *Chenopodium berlandieri*, *Chenopodium subglabrum*, *Glycyrrhiza lepidota*, and *Sporobolus cryptandrus*.

No Alliance; Park Special Map Units

AGRICULTURE

This map unit reflects plowed agricultural fields, both planted and fallow.

DEVELOPMENT

This map unit reflects anthropogenic infrastructure and includes roads (wider than 12m), homesteads and associated infrastructure, and the Chivington Ditch.

DISTURBED

This map unit reflects anthropogenic activity outside of development areas. These are areas dominated by non-native weedy species like *Bassia* (= *Kochia*) *scoparia* and *Salsola australis*, among others. These areas often occur where *Tamarix ramosissima* reduction and removal efforts occurred and where large machinery used to reduce *Salsola* tumbleweeds was used.

RECLAIMED AGRICULTURAL LAND

This type occurs primarily in the north-central portion of the authorized SAND boundary, with additional areas on the east side. It is always adjacent to plowed agricultural fields. Species composition is a patchy distribution of native grasses and weedy areas comprised of both native and non-native species. Native grasses predominantly include *Bouteloua gracilis*, *Bouteloua curtipendula*, *Sporobolus cryptandrus*, and small patches of *Panicum virgatum*. Forb species occasionally occur, including *Sphaeralcea coccinea*, *Lygodesmia juncea*, *Astragalus bisulcatus*, *Physalis heterophylla*, *Cirsium ochrocentrum*, or *Conyza canadensis*, among others. Weedy areas tend to have more bare ground and abundant *Bassia* (= *Kochia*) *scoparia* or *Salsola australis* with or without *Sporobolus cryptandrus*. Local areas with more fine-textured soils have patches of *Buchloe dactyloides*. Sporadic shrubs occur, including *Ericameria nauseosus* and *Artemisia filifolia*, especially near fencelines or on the periphery of the vegetation type.