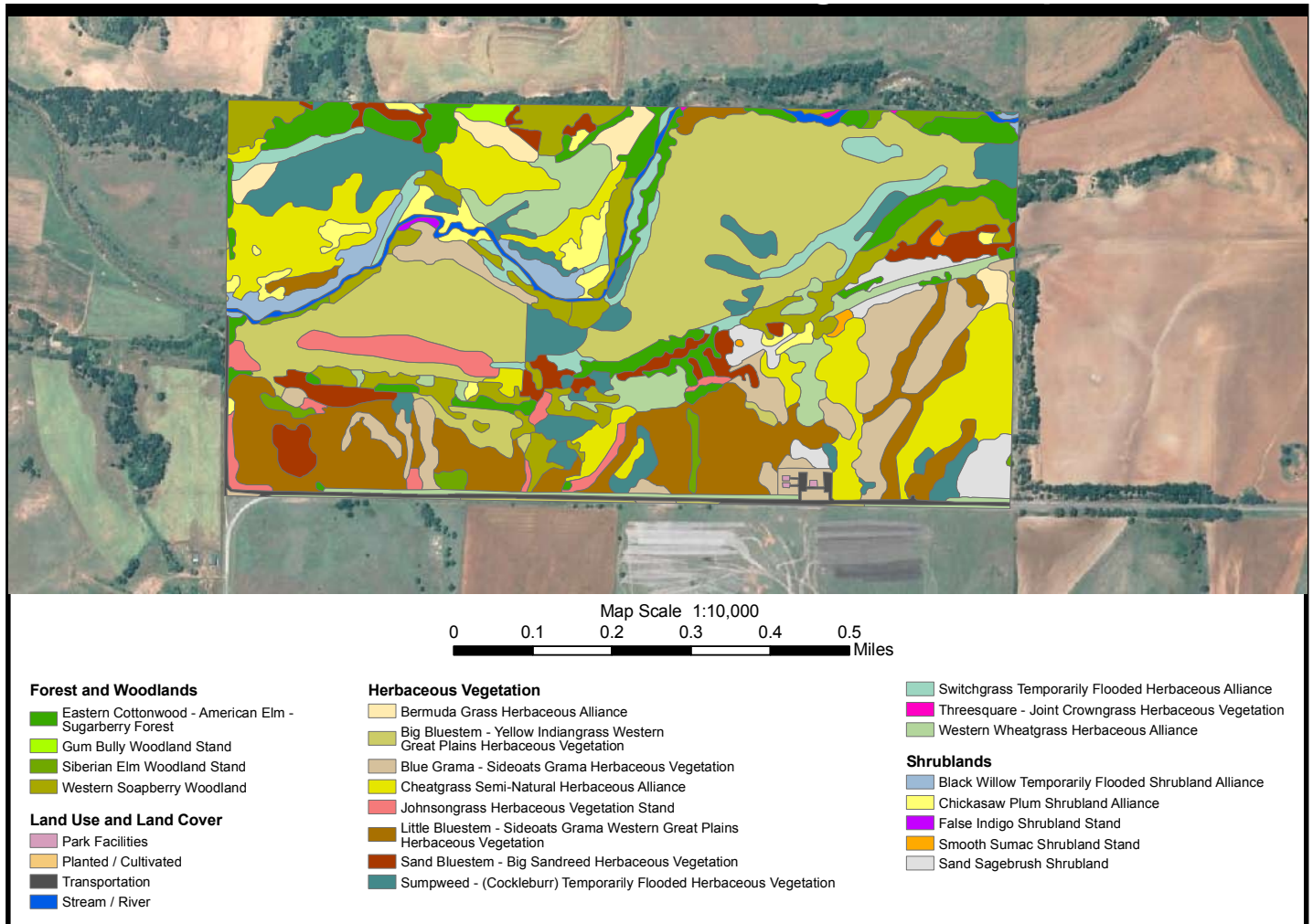


Vegetation Types

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>.

Forests and Woodlands

Eastern Cottonwood - American Elm - Sugarberry Forest (*Populus deltoides* - *Ulmus americana* - *Celtis*

laevigata Forest)

This was the most common forest/woodland type at WABA, occurring on the banks of Washita River as scattered patches and in old river channels. This type was usually dominated by one or more of the nominal species for this association (*P. deltoides*, *C. laevigata*, and *U. americana*). The understory was usually varied, ranging from lush, multi-strata diverse stands to stands with a sparse herbaceous layer. The ground layer is composed of shade tolerant forbs (*Ambrosia trifida*, *Teucrium canadense*), graminoids (*Elymus* spp., *Muhlenbergia* spp., and *Carex grvida*), trailing or sprouting vines (*Toxicodendron radicans*, *Cocculus carolina*, *Cissus trifolia*, and *Parthenocissus quinquefolia*), and tree seedlings. This type intermixed with both *Salix nigra* and *Sapindus saponaria* in some areas,



and this may have led to some confusion in mapping them separately.

Gum Bully Woodland Stand (*Sideroxylon lanuginosum* Woodland Stand)

This type only occurred in one area along the northern boundary of WABA. This type was characterized by having high cover of gum bully, but other deciduous trees were also present in lesser amounts. This type contained a thick understory consisting mostly of the grasses *Elymus virginicus* and/or *Bromus tectorum*, along with scattered plants of *Chenopodium simplex* in openings in the canopy. This type appeared similar to the other deciduous tree types, which may have led to some confusion in the mapping.

Siberian Elm Woodland Stand (*Ulmus pumila* Woodland Stand)

This type only occurred in isolated areas in WABA due to control efforts (i.e., cutting and removal) but was fairly prevalent in the environs. Siberian elm occurred as trees, saplings, and seedlings, depending on the age of the stand. Trees of this type mimicked the cottonwood type on the imagery, and the seedlings appeared similar to forbs and grassland types.

Western Soapberry Woodland (*Sapindus saponaria* var. *drummondii* Woodland)

This alliance is a common woodland at WABA, occurring on the upper levels and slopes of old terraces and in drainage ways and gullies. This type is characterized by the dominance of soapberry, but it may also contain high cover from other deciduous trees such as *Ulmus americana*. This intermixing of deciduous tree species is common in all of the woodland/forest types at WABA and may have led to some confusion during the mapping.

Shrublands

Black Willow Temporarily Flooded Shrubland Alliance (*Salix nigra* Temporarily Flooded Shrubland Alliance)

Black willow was a common riparian species at WABA, often occurring in and around cottonwoods and soapberry stands. This type also intermixed with the Chickasaw plum type, which may have caused some confusion in the mapping. Often, small individual cottonwood and elm trees were also present in polygons of this type.

Chickasaw Plum Shrubland Alliance (*Prunus americana* Shrubland Alliance)

Chickasaw plum stands were fairly common at WABA, occurring along the Washita River especially on the north side

of the river. Smaller patches also occur throughout the central portion of the park. This type mixed with willow and other deciduous shrubs in the riparian areas and often contained very low diversity of associated species.

False Indigo Shrubland Stand (*Amorpha fruticosa* Shrubland Stand)

False indigo shrub stands only occurred in three mapped areas along the Washita River. This type was fairly conspicuous in the field but appeared very similar to black willow and Chickasaw plum stands on the imagery. For that reason, this type was mapped based on its known locations. All stands were small and some were mapped below the minimum mapping unit.

Smooth Sumac Shrubland Stand (*Rhus glabra* Shrubland Stand)

This type represented only a few scattered stands of sumac present at WABA. Due to its small size, this type was mapped below the minimum mapping unit and was not sampled. Sumac stands were fairly homogenous and contained little, if any, associated species.

Sand Sagebrush / Sand Bluestem Shrubland (*Artemisia filifolia* Shrubland Alliance)

Sand sagebrush was common to the uplands at WABA, occurring primarily in the southeast corner of the park. This type often intermixed with the sand bluestem and little bluestem map units.

Herbaceous Vegetation

Bermuda Grass Herbaceous Alliance (*Cynodon dactylon* Herbaceous Alliance)

This type was restricted to four areas in the park where Bermuda grass was the clear dominant. Bermuda grass also occurred as an associate with other weedy types throughout WABA, especially in disturbed and weedy sites. This type had many species in common with the other weedy and disturbed types, and some confusion may have occurred in the mapping.

Big Bluestem - Yellow Indiangrass W. Great Plains Herbaceous Vegetation (*Andropogon gerardii* - *Sorghastrum nutans* W. Great Plains Herbaceous Vegetation)

This was the most common grassland type at WABA, where it represented both remnant native stands and restoration areas. Some areas of WABA only contain Indiangrass, with no big bluestem. This type often occurred on many of the flat bottomlands and floodplains associated with the Washita River. *Panicum virgatum* and *Schizachyrium scoparium* are subdom-

inants in this community.

Blue Grama - Sideoats Grama Herbaceous Vegetation
(*Bouteloua gracilis* - *Bouteloua curtipendula*
Herbaceous Vegetation)

This vegetation class was limited to dry ridge crests and shale outcrop mounds, including those near the developed overlook area. This type was also used to map the maintained lawn around the overlook, which contained a high amount of buffalograss (*Buchloe dactyloides*). On the rounded crests, the remaining associates are mixed prairie species, such as *Aristida purpurea*, *Schizachyrium scoparium*, and *Sporobolus* spp. On the shale mounds the associates were more typical of rocky prairies, such as *Mimosa borealis*, *Yucca glauca*, *Paronychia jamesii*, and *Scutellaria resinosa*.

Cheatgrass Semi-Natural Herbaceous Alliance
(*Bromus tectorum* Semi-Natural Herbaceous Alliance)

This community occurs across the eastern end and central portion of the upland in the south part of WABA, where it intermixes with the *Schizachyrium scoparium* - *Bouteloua curtipendula* Western Great Plains Herbaceous Vegetation and *Andropogon hallii* - *Calamovilfa gigantea* Herbaceous Vegetation. Small patches occur in isolated openings on the upper terraces along the western end of the north boundary of the park. In the floodplain it occurs on raised natural levees or old sand dunes on the north side of the Washita River, in the center and western end of the park, and on the south side of the river in the center of the park. This type is similar to the sumpweed type, but it is clearly dominated by cheatgrass and lacks the high cover of forbs. Generally, the most common species that form patch dominants or subdominants are *Ambrosia psilostachya*, *Bromus tectorum*, *Bromus japonicus*, *Grindelia papposa*, and *Helianthus annuus*.

Johnsongrass Herbaceous Alliance (*Sorghum halepense* Herbaceous Alliance)

This type represents areas dominated by Johnsongrass and primarily other non-native species. On moist sites this type formed dense, lush stands that were over 1 m tall.

Little Bluestem - Sideoats Grama W. Great Plains Herbaceous Vegetation (*Schizachyrium scoparium* - *Bouteloua curtipendula* W. Great Plains Herbaceous Vegetation)

This type was common in WABA as both large fields and scattered small stands. It occurred in about half of the southeast corner of WABA, much of the slope north and west of the overlook, and in much of the western end of WABA south of

the railroad grade. This type was possibly restored in some areas and often contained a high amount of weedy forbs and annuals. On sites adjacent to sandier soils, *Andropogon hallii* is a conspicuous associate, whereas on lower elevation sites with more water availability, *Sorghastrum nutans* is a conspicuous associate.

Sand Bluestem - Big Sandreed Herbaceous Vegetation
(*Andropogon hallii* - *Calamovilfa gigantea* Herbaceous Vegetation)

This type was fairly widespread at WABA, occurring on sandy sites near the east gate and above the railroad grade. It also occurred in the central western part of the park on old sand dunes or levee crests paralleling the large northward loop of the Washita River. In the southwestern corner of the park, it occurs on the contours of the low ridges that contain coarse sandy soil outcrops. This vegetation is dominated by *Andropogon hallii*. *Schizachyrium scoparium* occurred as a subdominant, except at the driest sites. *Artemisia filifolia*, which was also found in adjoining communities, is usually present at low densities. The remaining associates were sand-loving forbs (*Astragalus lotiflorus*, *Croptilon hookerianum*, *Dalea enneandra*, *Heterotheca villosa*, *Liatris pycnostachya*, and *Melilotus officinalis*) and graminoids (*Bouteloua gracilis* and *Sporobolus cryptandrus*) that occurred at low densities.

Sumpweed - (Cocklebur) Temporarily Flooded Herbaceous Vegetation (*Iva annua* - (*Xanthium strumarium*) Temporarily Flooded Herbaceous Vegetation)

This type represents the very weedy, annual vegetation that occurs as scattered patches throughout WABA. This type is likely in an early successional state that is similar to the cheatgrass type. However, this type is not dominated by cheatgrass, but rather a mix of annual forbs that varies in composition due to soil type, moisture levels, and the seedbank. The most common species that form patch dominants or subdominants are *Ambrosia psilostachya*, *Ambrosia trifida*, *Bromus japonicus*, *Bromus tectorum*, *Conyza canadensis*, and *Iva annua*.

Switchgrass Temporarily Flooded Herbaceous Alliance (*Panicum virgatum* Temporarily Flooded Herbaceous Alliance)

This type was common on swales, drainages, and other low places in the park. Switchgrass was also prevalent in the riparian corridor of the Washita River and its old channels.

Threesquare - Joint Crowngrass Herbaceous Vegetation (*Schoenoplectus pungens* - *Paspalum distichum* Herbaceous Vegetation)

This type was restricted to a few locations along the Washita River and was mapped primarily from observations made on the ground. Polygons of this type were small and mapped below the minimum mapping unit. The tops of bars and lower banks are dominated by dense canopies of *Panicum virgatum* and *Echinochloa crusgalli*. The next wetter zone below this is dominated by more open covers of *Paspalum distichum* and *Schoenoplectus pungens*. Below this, the open wet silt, sand, and gravel was generally bare except for small patches of *Cyperus odoratus*, *Eleocharis montevidens*, and *Fimbristylis vahlii*.

Western Wheatgrass Herbaceous Alliance (*Pascopyrum smithii* Herbaceous Alliance)

This type had a fairly restricted distribution at WABA, and due to its small extent was only sampled with one plot. In moist areas where it did occur, this type tended to merge with more disturbance-oriented communities allowing alien species, such as Johnson grass, to be common.