VEGETATION DESCRIPTIONS OF AGATE FOSSIL BEDS NATIONAL MONUMENT

Populus deltoides - (Salix amygdaloides) / Salix exigua Woodland

COMMON NAME	Eastern Cottonwood - Peach-Leaf Willow / Narrow-Leaf Willow Woodland
SYNONYM	Cottonwood - Peach-Leaf Willow Floodplain Woodland
PHYSIOGNOMIC CLASS	Woodland (II)
PHYSIOGNOMIC SUBCLASS	Deciduous woodland (II.B)
PHYSIOGNOMIC GROUP	Cold-deciduous woodland (II.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/semi-natural (II.B.2.N)
FORMATION	Temporarily flooded cold-deciduous woodland (II.B.2.N.b.)
ALLIANCE	*Populus deltoides* Temporarily Flooded Woodland Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Palustrine

RANGE
Globally
This community is found in southern Manitoba, North Dakota, South Dakota, central and western Nebraska, western Kansas, eastern Colorado, and Oklahoma. It may occur in Texas and New Mexico.

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This community is found in the floodplain of the Niobrara River in the western half of the Agate Fossil Beds National Monument.

ENVIRONMENTAL DESCRIPTION
Globally
This community is found along the banks of streams and rivers. It develops on newly deposited alluvium. The soils are predominantly sand, although silt, clay, or loam may be present. Soils are poorly developed (Steinauer 1989). The water table fluctuates with the level of the river or stream and flooding is common, especially in the spring.

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The community occurs on level or sloping ground on the banks or in old channels in the primary floodplain. Soils are fine sands and sandy loams that are somewhat poorly drained.

MOST ABUNDANT SPECIES
Globally

Stratum	Species
Tree canopy	*Populus deltoides*, *Salix amygdaloides*
Shrub	*Salix exigua*, *Symphoricarpos occidentalis*
Herbaceous	*Ambrosia psilostachya*, *Carex emoryi*, *Carex pellita*, *Equisetum arvense*, *Glycyrrhiza lepidota*, *Helianthus petiolaris*, *Pascopyrum smithii*, *Poa pratensis*, *Spartina pectinata*, *Sporobolus cryptandrus*

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Stratum	Species
Tree canopy	*Populus deltoides, Salix amygdaloides, S. fragilis*
Shrub	*Ribes aureum* var. *villosum, Symphoricarpos occidentalis*

Herbaceous *Atriplex heterosperma, Bromus inermis, Carex pellita, Cirsium arvense, Iva xanthifolia, Poa pratensis*

DIAGNOSTIC SPECIES
Globally
Populus deltoides, *Salix amygdaloides, Salix exigua*

Agate Fossil Beds National Monument
Populus deltoides, Salix amygdaloides

VEGETATION DESCRIPTION
Globally
This community has an open tree canopy dominated by *Populus deltoides* and *Salix amygdaloides* which reach 6-12 m. *Salix amygdaloides* is absent to common in examples of this community. *Fraxinus pennsylvanica* may be present, especially on the upland side of this community, and *Elaeagnus angustifolia* or *Juniperus* spp. may invade some sites (Currier 1982). This woodland community typically has closely spaced shrubs and small trees. *Salix exigua* is usually more abundant along the streamside margins of this community and where the canopy of taller trees is most open. This shrub grows to 2-5 m tall. Other shorter shrubs that can be found are *Symphoricarpos occidentalis* and *Toxicodendron rydbergii*. Graminoids adapted to mesic sites dominate the understory of most sites, the most common species including *Carex emoryi, C. pellita, Elymus canadensis, Hordeum jubatum, Muhlenbergia racemosa, Pascopyrum smithii, Poa pratensis,* and *Spartina pectinata*. Forbs that are frequently abundant in relatively undisturbed sites include *Equisetum arvense* and *Glycyrrhiza lepidota*. Flooding often creates open patches in the herbaceous layer which are available for colonization by nearby species. The floristic composition of these patches is greatly affected by the species that are near and can invade the disturbed areas. Because of the high permeability of the sandy floodplain soils, species typical of upland prairie may invade in addition to annual forbs typical of disturbed sites. Widely distributed species that are adapted to these sites include *Ambrosia psilostachya, Artemisia campestris* ssp. *caudata, A. ludoviciana, Calamovilfa longifolia, Cenchrus longispinus, Euphorbia serpyllifolia, Grindelia squarrosa, Helianthus petiolaris*, *Heterotheca villosa, Lippia lanceolata, Opuntia macrorhiza*, and *Sporobolus cryptandrus*. These sites are prone to invasion by exotic grasses and forbs, the most widely established being *Agrostis stolonifera, Bromus tectorum, Cirsium arvense, Kochia scoparia, Melilotus* spp.*, Taraxacum officinale,* and *Tragopogon dubius* (Hefley 1937, Jones and Walford 1992).

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Locally, this community consists of open stands of large willows (*Salix amygdaloides* or *S. fragilis*) 10-20 m tall with occasional cottonwoods (*Populus deltoides*) interspersed. There is no regeneration of these species, nor recruitment of other arboreal species in this community on the Monument. The shrub layer is sparse and contains species typical of *Pascopyrum smithii* Herbaceous Vegetation, such as *Ribes aureum* var. *villosum* and *Symphoricarpos occidentalis*. Herbaceous understory is variable and contains species typical of Annual-dominated Floodplain Disturbance Community, *Pascopyrum smithii* Herbaceous Vegetation, and *Juncus balticus* Herbaceous Vegetation. The most common graminoids are *Carex pellita, Pascopyrum smithii,* and *Poa pratensis.* In some places these species dominate the herbaceous layer, while in others they serve as understory beneath a layer of tall annual and perennial forbs including *Atriplex micrantha, Cirsium arvense, Iva xanthifolia, Glycyrrhiza lepidota*, and *Lactuca serriola.* Species diversity is moderate to relatively high.

OTHER NOTEWORTHY SPECIES Information not available.

CONSERVATION RANK G2G3

RANK JUSTIFICATION Although the habitat for this community is relatively abundant, in the absence of regular flooding many sites undergo succession to later seral stages. Other sites are overgrazed and invaded by exotic woody and herbaceous species.

DATABASE CODE CEGL000659

COMMENTS
Globally
Restoring natural flooding regimes in areas where water levels have been lowered will help maintain this community type (Burgess *et al*. 1973, Bellah and Hulbert 1974). Occasional spring burning to control exotic species may also prove beneficial.

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Sites of this community occurring along the west boundary of the Monument are an extension of the plantings made at the Agate Springs Ranch around the turn of the century. The cottonwoods there are certainly planted, but *Salix fragilis* may be present there as an escape. The woodland on the east side of the grazed inholding is certainly naturally occurring, and is dominated almost entirely by *Salix amygdaloides*. Other naturally-occurring woodlands are present in the survey area east of the Monument boundary.

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