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Western Great Plains Sandhill Steppe

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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Vegetation Type

Shrubland

Map Zone

25

Geographic Range

This system is found mostly in southcentral areas of the Western Great Plains Division ranging from the Nebraska Sandhills region south to central Texas, although some examples may reach as far north as the Badlands of South Dakota.

Biophysical Site Description

The climate is semi-arid to arid for much of the region in which this system occurs. This system is found on somewhat excessively to excessively well-drained, deep sandy soils that are often associated with dune systems and ancient floodplains.

Vegetation Description

This system is characterized by a sparse to moderately dense woody layer dominated by *Artemisia filifolia*. Associated species can vary with geography, amount and season of precipitation, disturbance, and soil texture. Several graminoid species such as *Andropogon hallii*, *Panicum virgatum*, *Schizachyrium scoparium*, *Sporobolus cryptandrus*, *Calamovilfa gigantea*, *Calamovilfa longifolia*, *Hesperostipa comata*, and *Bouteloua* spp. can be connected with this system. Other shrub species may also be present, including *Yucca glauca*, *Amorpha canescens*, *Prosopis glandulosa*, *Rhus trilobata*, and *Prunus pumila*. In the southern range of this system, *Quercus havardii* may also be present and represents one succession pathway that develops over time following a disturbance. *Quercus havardii* is able to resprout following a fire and thus may persist for long periods of time once established.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
ARFI2	<i>Artemisia filifolia</i>	Sand sagebrush
YUGL	<i>Yucca glauca</i>	Soapweed yucca
BOUTE	<i>Bouteloua</i>	Gramma
ANHA	<i>Andropogon hallii</i>	Sand bluestem
SCSC	<i>Schizachyrium scoparium</i>	Little bluestem
CAGI3	<i>Calamovilfa gigantea</i>	Giant sandreed
PAVI2	<i>Panicum virgatum</i>	Switchgrass

CALO	<i>Calamovilfa longifolia</i>	Prairie sandreed
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Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

Fire is the dominant disturbance. Drought stress can impact this system significantly in some areas. The potential exists for this Biophysical Setting (BpS) to be converted to sand blowout if fire occurs at the wrong growth stage, followed by strong wind and drought.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	16	100		
Moderate (Mixed)				
Low (Surface)				
All Fires	16	100		

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

NatureServe classifies this type as "Large Patch." 100s-10,000s of acres.

Adjacency or Identification Concerns

Issues or Problems

Continuous grazing or uncontrolled grazing can lead to the decrease of the herbaceous component, creating an overabundance of sandsage. Decreasing dominance of some of the grass species such as *Andropogon hallii*, *Sorghastrum nutans*, *Calamovilfa longifolia*, *Calamovilfa gigantea*, *Sporobolus cryptandrus*, and *Schizachyrium scoparium* can lead to erosion and blowouts of exposed soils and sometimes irreversible changes to this site.

Native Uncharacteristic Conditions

Comments

May not occur in map zone 25.

Succession Classes

Mapping Rules

Upper Layer Lifeform	Height (m)	Canopy Cover (%)									
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Herb	0-0.5	A	A	A	A	A	A	A	A	A	A
Herb	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Herb	>1.0	A	A	A	A	A	A	A	A	A	A
Shrub	0-0.5	B	B	B	B	B	B	B	B	B	B
Shrub	0.5-1.0	B	B	B	B	B	B	B	B	B	B
Shrub	1.0-3.0	B	B	B	B	B	B	B	B	B	B
Shrub	>3.0	B	B	B	B	B	B	B	B	B	B
Tree	0-5	B	B	B	B	B	UN	UN	UN	UN	UN

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	1
Mid1:CLS	2	Mid1:CLS	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
Wind or Weather or Stress	Early1:ALL	Early1:ALL	0.01	100	No	0
Native Grazing	Mid1:CLS	Early1:ALL	0.02	50	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.067	15	Yes	0

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