

15070

Ozark-Ouachita Shortleaf Pine-Bluestem Woodland

BpS Model/Description Version: Aug. 2020

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Modelers		Reviewers	
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Vegetation Type

Forest and Woodland

Map Zones

44

Geographic Range

This biophysical setting (BpS) lies in the interior highlands and uplands of Arkansas, eastern Oklahoma, and southern Missouri. This BpS occurs in ECOMAP (Cleland et al. 2007) subsections M231A, 231G and M223A.

Biophysical Site Description

This BpS is common to the interior highlands and xeric upland sites to the south and west of the Mississippi River. In the highlands it occupies all but steep north slopes at all elevations. This vegetation type is found along sandstone ridges. Moisture regime is xeric to dry-mesic. This group also occurs on gently dissected upland cherty plains in MO (in addition to sandstone ridges). In the Missouri Ozarks, this type is primarily confined to gently to moderately sloping, upland plains and is distinguished from BpS 1367 in map zone (MZ)44, which occurs on more steeply dissected ridges and steep southwest facing slopes. In Missouri and Oklahoma this system occurs on gently dissected upland cherty plains and sandstone ridges. The center of distribution would be the northern and western Ouachita Mountains. In the Ouachitas, the system occurs on the northern Hogback Ridges excluding the Novaculite areas to the south.

Vegetation Description

This BpS represents woodlands of the Ouachita and Ozark Mountains region of Arkansas, adjacent Oklahoma and southern Missouri in which shortleaf pine (*Pinus echinata*) is the canopy dominant, and the understory is characterized by big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and other prairie elements. In the northern part of this geographic area shortleaf pine, xeric oaks and some hickory dominate the overstory with a high percentage of oak on steep north slopes and on post oak (*Quercus stellata*) flats. Associated species include post oak, blackjack oak (*Q. marilandica*), mockernut hickory (*Carya alba*) on drier sites, and to the west black hickory (*C. texana*). Pine is often emergent on upper slopes. Stand density increases with available moisture. Various bluestems (*Andropogon* spp.) often dominate the understory.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PIEC2	<i>Pinus echinata</i>	Shortleaf pine

Shrub	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Shrub	1.0-3.0	A	A	A	A	A	A	A	A	A	A
Shrub	>3.0	A	A	A	A	A	A	A	A	A	A
Tree	0-5	A	A	A	A	A	A	A	A	A	A
Tree	5-10	C	C	C	C	C	C	C	B	B	B
Tree	10-25	D	D	D	D	D	D	D	E	E	E
Tree	25-50	D	D	D	D	D	D	D	E	E	E
Tree	>50	D	D	D	D	D	D	D	E	E	E

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A 15 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIEC2	<i>Pinus echinata</i>	Shortleaf pine	Upper
ANDRO2	<i>Andropogon</i>	Bluestem	Upper
SCSC	<i>Schizachyrium scoparium</i>	Little bluestem	Lower

Description

Pine and oak reproduction. Herbaceous community dominated by bluestems and forbs. More persistent on shallow soils. Openings may be small to extensive and have scattered live trees.

Maximum Tree Size Class

Sapling >4.5ft; <5"

Class B 3 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIEC2	<i>Pinus echinata</i>	Shortleaf pine	Upper

Description

Mid-seral with closed canopy shortleaf and loblolly pine (*P. taeda*) and pole-sized oak with little or no herbaceous understory.

Maximum Tree Size Class

Pole 5-9" DBH

Class C 37 Mid Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIEC2	Pinus echinata	Shortleaf pine	Upper
ANDRO2	Andropogon	Bluestem	Lower
SCSC	Schizachyrium scoparium	Little bluestem	Lower

Description

Mid-seral open woodland/savanna pine and oak overstory with bluestem grasses and forbs. Shrub layer may be prevalent on some sites and dominated by various oak sprouts and a few shrub species. Prevalence highly dependent on time since burned.

Maximum Tree Size Class

Medium 9-21"DBH

Class D	43	Late Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIEC2	Pinus echinata	Shortleaf pine	Upper
ANDRO2	Andropogon	Bluestem	Lower

Description

Late-seral woodland/savanna pine and oak overstory with bluestem grasses and forbs. Shrub layer may be prevalent on some sites and dominated by various oak sprouts and a few shrub species. Prevalence highly dependent on time since burned. Shrub layer may be absent on other sites, particularly on shallow soils.

Maximum Tree Size Class

Large 21-33" DBH

Class E	2	Late Development 1 - Closed
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIEC2	Pinus echinata	Shortleaf pine	Upper
ANDRO2	Andropogon	Bluestem	Lower

Description

Late-seral, closed canopy pine-oak dominated overstory community. No herbaceous cover and few shrubs.

Maximum Tree Size Class

Large 21-33" DBH

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	14
Mid1:OPN	15	Late1:OPN	59
Mid1:CLS	15	Late1:CLS	59
Late1:OPN	60	Late1:OPN	999
Late1:CLS	60	Late1: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
Alternative Succession	Early1:ALL	Mid1:CLS	1	1	Yes	6
Replacement Fire	Early1:ALL	Early1:ALL	0.01	100	Yes	0
Surface Fire	Early1:ALL	Early1:ALL	0.5	2	No	0
Alternative Succession	Mid1:OPN	Mid1:CLS	1	1	Yes	15
Replacement Fire	Mid1:OPN	Early1:ALL	0.01	100	Yes	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.5	2	No	0
Wind or Weather or Stress	Mid1:CLS	Early1:ALL	0.005	200	Yes	0
Competition or Maintenance	Mid1:CLS	Mid1:CLS	0.01	100	No	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.01	100	Yes	0
Insects or Disease	Mid1:CLS	Early1:ALL	0.01	100	Yes	0
Mixed Fire	Mid1:CLS	Mid1:OPN	0.02	50	Yes	0
Surface Fire	Mid1:CLS	Mid1:CLS	0.1	10	No	0
Alternative Succession	Late1:OPN	Late1:CLS	1	1	Yes	10
Wind or Weather or Stress	Late1:OPN	Early1:ALL	0.005	200	Yes	0
Competition or Maintenance	Late1:OPN	Late1:OPN	0.01	100	No	0
Replacement Fire	Late1:OPN	Early1:ALL	0.01	100	Yes	0
Surface Fire	Late1:OPN	Late1:OPN	0.5	2	No	0
Wind or Weather or Stress	Late1:CLS	Late1:OPN	0.01	100	Yes	0
Mixed Fire	Late1:CLS	Late1:OPN	0.01	100	Yes	0
Insects or Disease	Late1:CLS	Late1:OPN	0.01	100	Yes	0

Competition or Maintenance	Late1:CLS	Late1:CLS	0.01	100	No	0
Replacement Fire	Late1:CLS	Early1:ALL	0.01	100	Yes	0
Surface Fire	Late1:CLS	Late1:CLS	0.1	10	No	0

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