Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004 and 2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG)

R5PIBS **Pine Bluestem**

General Information

Contributors *(additional contributors may be listed under "Model Evolution and Comments")*

Modelers		Reviewers	
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Vegetation Type

Woodland

Dominant Species*

PIEC2
ANDR

General Model Sources

- [x] Literature
- [x] Local Data
- [x] Expert Estimate

LANDFIRE Mapping Zones

44
37

Rapid AssessmentModel Zones

- [ ] California
- [ ] Great Basin
- [ ] Great Lakes
- [ ] Northeast
- [ ] Northern Plains
- [ ] N-Cent.Rockies
- [ ] Pacific Northwest
- [x] South Central
- [ ] Southeast
- [ ] S. Appalachians
- [ ] Southwest

Geographic Range

This PNVG lies in the Interior highlands and uplands of Arkansas, eastern Oklahoma, southern Missouri.

Biophysical Site Description

This potential natural vegetation group is common to the Interior Highlands and xeric upland sites to the south and west of the Mississippi River. In 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 Missouri (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 R5OAHIdy, which occurs on more steeply dissected ridges and steep southwest facing slopes.

Vegetation Description

In the northern part of this geographic area shortleaf pine (Pinus echinata), 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 (Quercus marylandica), mockernut hickory (Carya alba) on drier sites and to the west black hickory (Carya texana). Pine is often emergent on upper slopes. Stand density increases with available moisture. Various bluestems often dominate the understory.

Disturbance Description

This PNVG is fire regime group I, with frequent surface fires. Area fire frequency is 3-4 year mean fire interval (range=1-12 years) (Masters et al. 1995). Replacement and mixed severity fires are infrequent, every 100 to 1000 years. Stand replacement fires occurred mostly under extreme drought conditions during the growing season. Other disturbance factors that played a smaller role included ice storms, wind events, insect infestations, and species competition for resources. Native ungulate grazing may have played a small role in replacement where buffalo and elk concentrated, but fire generally maintained systems.

*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Drought and moist cycles play a strong role interacting with both fire and native grazing.

Adjacency or Identification Concerns

This group was listed as Xeric Pine-Oak Woodland, Western under the FRCC PNVG group. The name has been modified to better describe this PNVG group to include those sites in Missouri which do not fit within the xeric condition. In the Ouachita Mountains the adjacent community would be oak dominated north slope forests. Outside the Ouachita Mountains the adjacent community would be oak-hickory-pine forest.

Scale Description

Sources of Scale Data ☐ Literature ☐ Local Data ☑ Expert Estimate

Landscape adequate in size to contain natural variation in vegetation and disturbance regime. Topographically uniform areas can be relatively large (> 1000 acres).

Issues/Problems

Model Evolution and Comments

Paul Nelson: pwnelson@fs.fed.us. Site description was expanded upon review.

*Succession Classes***

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 15 %

Early1 All Struct

Description

post replacement: Pine and oak reproduction to 15' tall. Herbaceous community dominated by bluestems and forbs. More persistent on shallow soils. Openings may be small to extensive and have scattered live trees.

Dominant Species* and Canopy Position

PIEC2 Upper
ANDR Upper

Upper Layer Lifeform

☐ Herbaceous
☑ Shrub
☐ Tree

Fuel Model 3

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	0 %	70 %
Height	Herb Short <0.5m	Tree Regen <5m
Tree Size Class	Seedling <4.5ft	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class B 5 %

Mid1 Closed

Description

mid-seral closed :Mid-seral with closed canopy (>70%; on mountainous sites >60%) shortleaf and loblolly pine and pole-sized oak with little or no herbaceous understory.

Dominant Species* and Canopy Position

PIEC2 Upper

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	60 %	100 %
Height	Tree Regen <5m	Tree Short 5-9m
Tree Size Class	Pole 5-9" DBH	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Class C 40 %

Mid1 Open

Description

mid- seral open: 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 dependant on time since burned. Cover <70%; on mountainous sites cover <60%.

Dominant Species* and Canopy Position

PIEC2 Upper
ANDR Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	60 %
Height	Tree Regen <5m	Tree Medium 10-24m
Tree Size Class	Medium 9-21"DBH	

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 2

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class D 39 %

Late1 Open

Description

late- seral open: 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 dependant on time since burned. Shrub layer may be absent on other sites, particularly on shallow soils. Cover <70%; on mountainous sites cover <60%.

Dominant Species* and Canopy Position

PIEC2 Upper
ANDR Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	60 %
Height	Tree Short 5-9m	Tree Tall 25-49m
Tree Size Class	Large 21-33"DBH	

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 2

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class E 1 %

Late1 Closed

Description

Late-seral, closed canopy (>70%; on mountainous sites >60%) pine-oak dominated overstory community. No herbaceous cover and few shrubs.

Dominant Species* and Canopy Position

PIEC2 Upper
ANDR Lower

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	100 %
Height	Tree Tall 25-49m	Tree Tall 25-49m
Tree Size Class	Large 21-33"DBH	

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 9

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Disturbances

*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Disturbances Modeled

- ☑ Fire
- ☑ Insects/Disease
- ☑ Wind/Weather/Stress
- ☐ Native Grazing
- ☑ Competition
- ☐ Other:
- ☐ Other

Historical Fire Size (acres)

Avg: 2000
Min: 200
Max: 10000

Sources of Fire Regime Data

- ☑ Literature
- ☑ Local Data
- ☑ Expert Estimate

Fire Regime Group: **1**

I: 0-35 year frequency, low and mixed severity
II: 0-35 year frequency, replacement severity
III: 35-200 year frequency, low and mixed severity
IV: 35-200 year frequency, replacement severity
V: 200+ year frequency, replacement severity

Fire Intervals (FI)

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

	Avg FI	*Min FI*	*Max FI*	*Probability*	*Percent of All Fires*
Replacement	100			0.01	4
Mixed	1000			0.001	0
Surface	4			0.25	96
All Fires	4			0.261	

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