Potential Natural Vegetation Group (PNVG):

R5PIBS  Pine Bluestem

General Information

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

<table>
<thead>
<tr>
<th>Modelers</th>
<th>Literature</th>
<th>Local Data</th>
<th>Expert Estimate</th>
<th>Rapid Assessment Model Zones</th>
</tr>
</thead>
<tbody>
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<td>Pacific Northwest</td>
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<td></td>
<td>Great Basin</td>
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<td>South Central</td>
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<td>Northern Plains</td>
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<td></td>
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<td></td>
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<td>N-Cent.Rockies</td>
</tr>
</tbody>
</table>

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 R5OAHldy, 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. 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**
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.

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**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 Structures**

**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.

**Indicator Species* and Canopy Position**

**PIEC2 Upper**

**ANDRO2 Upper**

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Cover</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herb Short &lt;0.5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree Regen &lt;5m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Upper Layer Lifeform**

- [ ] Herbaceous
- [ ] Shrub
- [x] Tree

**Fuel Model** 3

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**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.

**Indicator Species* and Canopy Position**

**PIEC2 Upper**

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Cover</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree Regen &lt;5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree Short 5-9m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Upper Layer Lifeform**

- [ ] Herbaceous
- [ ] Shrub
- [x] Tree

**Fuel Model** 9

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

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8/11/2008

Page 2 of 8
**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 dependent on time since burned. Cover <70%; on mountainous sites cover <60%.

**Indicator Species** and **Canopy Position**

- PIEC2 Upper
- ANDRO2 Lower

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Upper Layer Lifeform**

- ✅ Tree
- ✅ Shrub
- ✅ Herbaceous

**Fuel Model** 2

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**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 dependent on time since burned. Shrub layer may be absent on other sites, particularly on shallow soils. Cover <70%; on mountainous sites cover <60%.

**Indicator Species** and **Canopy Position**

- PIEC2 Upper
- ANDRO2 Lower

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Upper Layer Lifeform**

- ✅ Tree
- ✅ Shrub
- ✅ Herbaceous

**Fuel Model** 2

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**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.

**Indicator Species** and **Canopy Position**

- PIEC2 Upper
- ANDRO2 Lower

**Structure Data (for upper layer lifeform)**

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>60%</td>
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**Upper Layer Lifeform**

- ✅ Tree
- ✅ Shrub
- ✅ Herbaceous

**Fuel Model** 9

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# Disturbances

<table>
<thead>
<tr>
<th>Non-Fire Disturbances Modeled</th>
<th>Fire Regime Group:</th>
<th>1</th>
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<tbody>
<tr>
<td>Insects/Disease</td>
<td>I: 0-35 year frequency, low and mixed severity</td>
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</tr>
<tr>
<td>Wind/Weather/Stress</td>
<td>II: 35-200 year frequency, replacement severity</td>
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</tr>
<tr>
<td>Native Grazing</td>
<td>III: 35-200 year frequency, low and mixed severity</td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td>IV: 35-200 year frequency, replacement severity</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td>V: 200+ year frequency, replacement severity</td>
<td></td>
</tr>
</tbody>
</table>

**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 the 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.

### Historical Fire Size (acres)
- Avg: 2000
- Min: 200
- Max: 10000

### Sources of Fire Regime Data
- Literature
- Local Data
- Expert Estimate

<table>
<thead>
<tr>
<th>Sources of Fire Regime Data</th>
<th>Avg FI</th>
<th>Min FI</th>
<th>Max FI</th>
<th>Probability</th>
<th>Percent of All Fires</th>
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<tbody>
<tr>
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<td>100</td>
<td>0.01</td>
<td>4</td>
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<tr>
<td>Mixed</td>
<td>1000</td>
<td>0.001</td>
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<td>Surface</td>
<td>4</td>
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<td>4</td>
<td>0.261</td>
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# References


Cain, M. D. and M. G. Shelton. 2000. Survival and growth of Pinus and Quercus seedlings in response to simulated summer and winter prescribed burns. Canadian Journal of Forest Resources 30:


*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.*
Ecological and Cultural Perspectives. SE For. Exp. Sta.


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Palmer, E. J. 1921. The Forest Flora of the Ozark Region. J. Arnold Arbor. 2:

Palmer, E. J. 1924. The Ligneous Flora of Rich Mountain, Arkansas and Oklahoma. J. Arnold Arbor. 5:


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