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)

R8TMPP **Table Mountain/Pitch Pine**

General Information

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

Modelers

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Vegetation Type

Woodland

Dominant Species*

PIRI KALA
PIPU5 GAYL
QUCO VACCI
QUPR

General Model Sources

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

LANDFIRE Mapping Zones

57
53
59

Rapid AssessmentModel Zones

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

Geographic Range

Mountains of TN, NC, KY (Pitch Pine), VA, WV, GA (extreme NE), SC (Extreme NW).

Biophysical Site Description

Occurs on xeric to dry sites at moderate to upper elevations between 1500 and 3500 feet. Described as "ridgetop communities" occupying the driest and most fire-prone of sites.

Vegetation Description

Overstory pine species dominate with up to 70% species specific. Scarlet and chestnut oak and other pines may also be in overstories. Midstories when present may include rhododendron (rosebay and catawba), mountain laurel, blackgum, red maple, sourwood, black locust and sprouts of American chestnut. Understories can include hobblebush, blueberries, huckberries, Galax, sedges and other herbaceous species. CES202.331Southern Appalachian Montane Pine Forest and Woodland

Disturbance Description

Fire Regime Group I with relatively common surface fires (5 years) and rarer mixed (160) and replacement (100 years) fires. Non-fire disturbances that can result in stand replacement include mortality from insects (biotic) and wind-weather related events (abiotic) e.g., windstorm and ice. Effects can be more pronounced because these species are more commonly found on exposed, often droughty and usually low productivity sites. In the absence of periodic fire, dense regeneration leads to overcrowded stands more likely predisposed to insects, particularly southern pine beetle (SPB) epidemics. Larger patches or regeneration 5 to 250 acres in size can occur in association with SPB outbreaks in the Southern Appalachians. Other bark beetles also attack these species but produce smaller patches (usually less that an acre) of mortality.

Adjacency or Identification Concerns

The community is typically characterized by combining Pitch Pine and Table Mountain Pine together because they often occur on very similar sites. Although both species are strongly fire-adapted, Table-

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

Mountain pine is more "dependent" on fire and is capable of maintaining itself under the most frequent and most severe of possible fire regimes. Table mountain pine could fit into Fire Regime Group II or III just as easily as in I.

Scale Description

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

Large patch (generally), Table-Mountain pine tends to be in smaller stands than Pitch pine.

Issues/Problems

At the finest scale Pitch Pine and Table Pine may need to be separated as FRCC model types.

Model Evolution and Comments

QA/QC changes: After running the model with no changes, the Mixed Fire FRI was over 600 years, which the modeler thought was much too high. Mixed Fire was added to Classes C and D (pathways to same class) with probabilities of 0.007. Class percentages changed very little, but the Mixed Fire FRI was reduced to 160 years. Added additional disturbance info provided by modeler. Both reviewers indicated that Class C and D should have Max Cover of 60%, so that change was made, along with changes to B and E to make these classes exclusive. Also changed Cover to 35 to 100% based upon description (very dense) and reviewer recommendation. One reviewer who seems familiar with this BpS believes Mixed fires were more common than replacement fires. However, the other reviewer did not make that comment, and the original modeler disagreed in a follow-up response. Therefore, the probabilities were left as-is, but this should be explored before the LANDFIRE workshops. Species in C&D was changed from SCSC to SONU, which one reviewer seemed very confident of. QUPR2 was also added to the species list for class E as upper-canopy dominant and GAYLU was removed from the species list.

*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

Very dense regeneration 5 to 15 feet in height. Typically sparse understory. Fires occurring in this class are nearly always stand-replacing.

Dominant Species* and Canopy Position

PIRI	Upper
PIPU5	Upper
QUCO2	Mid-Upper
QUPR2	Mid-Upper

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	Max
Cover	35 %	100 %
Height	Tree Regen <5m	Tree Short 5-9m
Tree Size Class	Sapling >4.5ft; <5"DBH	

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

Class B 10 %

Mid1 Closed

Description

Mid-seral with close canopy, mostly pine in overstory. Sparse understories.

Dominant Species* and Canopy Position

PIRI	Upper
PIPU5	Upper
QUCO2	Mid-Upper
QUPR2	Mid-Upper

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	100 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Pole 5-9" DBH	

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

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Class C 35 %

Mid1 Open

Description

Mid-seral, open canopy. Woodland with herbaceous understory. In the absence of frequent fire, woody understory including mountain laurel and ericaceous species.

Dominant Species* and Canopy Position

PIRI	Upper
PIPU5	Upper
SCSC	Lower
SONU	Lower

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	60 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Pole 5-9" DBH	

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

Class D 35 %

Late1 Open

Description

Late-development, open canopy pine-oak to oak-pine

Dominant Species* and Canopy Position

PIRI	Upper
PIPU5	Upper
QUCO2	Mid-Upper
GAYLU	Lower

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	60 %
Height	Tree Medium 10-24m	Tree Tall 25-49m
Tree Size Class	Medium 9-21"DBH	

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

Class E 5 %

Late1 Closed

Description

Late-seral, closed canopy, pine-oak dominated overstory. Little herbaceous cover and dense shrub layer.

Dominant Species* and Canopy Position

PIRI	Upper
PIPU5	Upper
QUCO2	Upper
QUPR2	Upper

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☑ Tree

Fuel Model 9

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	100 %
Height	Tree Medium 10-24m	Tree Tall 25-49m
Tree Size Class	Medium 9-21"DBH	

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

Disturbances

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Disturbances Modeled

- [x] Fire
- [x] Insects/Disease
- [x] Wind/Weather/Stress
- [ ] Native Grazing
- [ ] Competition
- [ ] Other:
- [ ] Other

Historical Fire Size (acres)

Avg: 100
Min: 10
Max: 1000

Sources of Fire Regime Data

- [x] Literature
- [ ] Local Data
- [x] 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	5
Mixed	160			0.00625	3
Surface	5			0.2	92
All Fires	5			0.21625	

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