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)

R3PPGRsw Ponderosa Pine Grassland Southwest

General Information

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

Modelers

Jeff Redders	jredders@fs.fed.us
William L. Baker	bakerwl@uwyo.edu
Patrick Medina	pmedina@fs.fed.us

Reviewers

William L. Baker	bakerwl@uwyo.edu
Brenda Wilmore	bwilmore@fs.fed.us

Vegetation Type

Woodland

Dominant Species*

PIPO
FEAR
MUM

General Model Sources

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

LANDFIRE Mapping Zones

14 24 28
15 25
23 27

Rapid AssessmentModel Zones

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

Geographic Range

Central and northern New Mexico and Arizona, Southern Colorado, possibly Southern Utah.

Biophysical Site Description

6,500-8,500 feet in elevation on a variety of topographic features, including mountains, mesas, and canyons. Mean annual precipitation ranges from about 16-25".

Vegetation Description

Overstory canopy of ponderosa pine with a grassy understory, predominantly the bunchgrasses Arizona fescue and mountain muhly. May include sites with minor cover of Gambel oak (less than 15% cover).

Disturbance Description

Mean composite surface fire intervals have been found to be 5-15 years (Swetnam and Baisan 1996). Infrequent stand-replacement fire on the order of a few hundred years possible (300-500?). Drought and other weather events (e.g., blowdown), parasites, and disease may play a minor role, have very long rotations. Insects may be a significant, but infrequent occurrence.

Adjacency or Identification Concerns

Scale Description

Sources of Scale Data [x] Literature [ ] Local Data [x] Expert Estimate

Landscape scale (thousands to tens of thousands of acres) (Swetnam and Baisan 1996).

Issues/Problems

Replacement fire rotation uncertain, and this affects the amount of forest in each class.

Model Evolution and Comments

Peer review was mixed. One reviewer suggested cutting the surface fire frequency in half from 10 years to 20 years, but reviews generally agreed with model parameters.

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

*Succession Classes***

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

Class A 10 %

Early1 PostRep

Description

Bunchgrass dominated (0-49 years). Some ponderosa pine individuals also becoming established. Min and Max cover values pertain to combined grass cover.

Dominant Species* and Canopy Position

FEAR2
MUMO
PIPO

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	0 %	90 %
Height	no data	no data
Tree Size Class	no data	

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

Class B 5 %

Mid1 Closed

Description

Small and medium sized ponderosa pine (50-149 years), still with high bunchgrass cover. Closed canopy defined as greater than 50%.

Dominant Species* and Canopy Position

PIPO
FEAR
MUMO

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	50 %	100 %
Height	no data	no data
Tree Size Class	no data	

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

Class C 25 %

Mid2 Open

Description

Small and medium sized ponderosa pine (50-149 years), with moderate bunchgrass cover. Open canopy defined as 10-49%.

Dominant Species* and Canopy Position

PIPO
FEAR
MUMO

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	10 %	49 %
Height	no data	no data
Tree Size Class	no data	

☐ 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 D 55 %

Late1 Open

Description

Large and very large old growth ponderosa pine, with medium to high cover of bunchgrasses. Old growth attributes prominent, including down wood, snags, diseased trees.

Dominant Species* and Canopy Position

PIPO
FEAR
MUMO

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25 %	49 %
Height	no data	no data
Tree Size Class	no data	

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

Class E 5 %

Late2 Closed

Description

Large and very large old growth ponderosa pine, with medium cover of bunchgrasses. Old growth attributes prominent, including down wood, snags, diseased trees.

Dominant Species* and Canopy Position

PIPO
FEAR
MUMO

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	50 %	100 %
Height	no data	no data
Tree Size Class	no data	

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

Disturbances

Disturbances Modeled

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

Historical Fire Size (acres)

Avg: no data
Min: no data
Max: no data

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	300			0.00333	3
Mixed					
Surface	10			0.1	97
All Fires	10			0.10334	

References

Swetnam, T. W. and C. H. Baisan. 1996. Historical fire regime patterns in the southwestern United States since AD 1700. Pages 11-32 In: Fire effects in southwestern forests: proceedings of the second La Mesa fire symposium, Edited by C.D. Allen. USDA Forest Service General Technical Report RM-GTR-286, Rocky Mountain Forest and Range Experiment Station, Fort Collins.

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