

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)

R3MCONwd Southwest Mixed Conifer--Warm, Dry with Aspen

General Information

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

Modelers

Ros Wu rwu@fs.fed.us

Reviewers

William L. Baker bakerwl@uwo.edu

Vegetation Type

Forested

General Model Sources

- Literature
- Local Data
- Expert Estimate

Rapid Assessment Model Zones

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

Dominant Species*

PIPO
ABCO
PSME
POTR5

LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

Geographic Range

Generally found in AZ, NM, and southwest CO. This is a transition forest that occurs between the ponderosa pine zone cool/moist mixed conifer.

Biophysical Site Description

The warm dry is found generally found between 7000' to 9000'. It has a higher elevation cap on south facing slopes than north facing slopes. Its distribution is variable on east and west aspects. Soils are usually well drained sandstone or limestone based.

Vegetation Description

Ponderosa pine, Douglas-fir, white fir, and aspen make up the warm/dry mixed conifer. Gambel oak is the dominant shrub. Southwestern white pine and Rocky Mountain juniper can be present. Ponderosa pine regeneration typically occurs after fire. White fir regeneration happens continuously between fires. Douglas-fir regeneration can happen in between and after fires. It gains more fire resistance more quickly than white fir and can be a canopy dominant with ponderosa pine.

Disturbance Description

The warm/dry mixed conifer has a fire regime very similar to ponderosa pine. Frequent low intensity surface fire is the dominant mode of disturbance. Fire intervals range from 2 - 71 years with a mean of 15. Lethal fires can occur on a limited scale but is not the norm unless aspen is involved These will be characterized as mixed fires because they most likely occur as a part of a more widespread surface fire.

Adjacency or Identification Concerns

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Issues/Problems

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

Model Evolution and Comments

Peer review resulted in an overall reduction by half or more of replacement and mixed severity fire frequencies (originally 100 and 40 years, respectively) and a slight lengthening of surface fire frequency (originally 20 years). The original model had an MFI of 12 years. These changes in fire frequencies had minimal (<5%) effect on the resulting percent in each class A-E.

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 PostRep

Description

Succession after a lethal fire will depend on what vegetation was on site before. In a general conifer dominated scenario, some ponderosa are likely to survive. Fire will be an opportunity for new ponderosa establishment. On site Gambel oak will resprout. White fir will also be regenerating. If aspen were onsite the stand would regenerate back to aspen. If aspen cover is 50 - 100%.

Dominant Species* and Canopy Position

PIPO
ABCO
QUGA
POTR5

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	25 %
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 15%

Mid1 Closed

Description

If aspen is dominant the stand will achieve a mid-closed stage. Conifers such as white fir and Douglas-fir could be regenerating with it. Any surviving conifers such as ponderosa pine would be canopy dominants. If aspen canopy cover is 50 - 100%.

Dominant Species* and Canopy Position

POTR5
ABCO
PIPO
PSME

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25 %	80 %
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 10%

Mid1 Open

Description

Ponderosa is the canopy dominant with an understory dominated by white fir. Douglas-fir present and some of its regeneration is entering the canopy. If aspen were present, the stand would have undergone a some self thinning that would have opened up the canopy. The

Dominant Species* and Canopy Position

PIPO
ABCO
PSME
POTR5

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25 %	50 %
Height	no data	no data
Tree Size Class	no data	

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

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conifers in the stand create a more flammable litter bed with their needles so that patchy surface fire could carry. Any fir would further open the stand by thinning aspen and fir. Eventually the aspen stand would become very open sharing the canopy with ponderosa pine and Douglas-fir.

Class D 50%

Late I Open

Description

Ponderosa pine is the canopy dominant. Douglas-fir can also be a canopy dominant. Recurrent fire maintains white fir as an understory tree, but a rare white fir will join the other two species in the canopy. If aspen is present, its numbers are few. Low levels of suckering may keep it in the stand. Open aspen stands are not common in the warm/dry mixed conifer.

Dominant Species* and Canopy Position

PIPO
PSME
ABCO
POTR

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25 %	50 %
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 10%

Late I Closed

Description

Aspen stand is mature to over mature with a heavy understory of conifers. Mainly white fir and some Douglas-fir.

Dominant Species* and Canopy Position

POTR5
ABCO
PSME
PIPO

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	50 %	80 %
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

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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.

	<i>Avg FI</i>	<i>Min FI</i>	<i>Max FI</i>	<i>Probability</i>	<i>Percent of All Fires</i>
<i>Replacement</i>	300			0.00333	7
<i>Mixed</i>	150	80	200	0.00667	13
<i>Surface</i>	25	2	70	0.04	80
<i>All Fires</i>	20			0.05	

References

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