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)

R3ASPN **Stable Aspen without Conifers**

General Information

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

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Vegetation Type

Forested

Dominant Species*

POTR5
SYOR

General Model Sources

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

LANDFIRE Mapping Zones

14 24 28
15 25
23 27

Rapid AssessmentModel Zones

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

Geographic Range

Western Colorado, Utah, northern New Mexico, northern Arizona, central Nevada.

Biophysical Site Description

This type occurs on flat to moderately steep terrain (<50%) on all aspects. Elevation typically ranges from 5000 to 11000 ft. Stable aspen typically occurs above P/J. Soils are generally deep, mollic, cool, and moist. As a species, aspen is adapted to a much broader range of environments than most plants found associated with it.

Vegetation Description

Aspen exists in single-storied or more commonly multi-storied stands. Conifers are not generally present in this type.

Understory consists of an abundant herbaceous component, perhaps with snowberry (Symphoricarpos sp.), meadow rue (Thalictrum fendleri) and/or yarrow (Achillea millefolium) present. Aspen suckers 5-15' tall will be present in all classes at least 500 stems/acre. Lack of suckers is representative of an uncharacteristic class. Another uncharacteristic class is indicated if sagebrush cover is over 10% (in Utah).

Disturbance Description

Fire behavior in aspen stands is often viewed as surface fire, but may in fact result in fire effects that are mixed, as defined for LANDFIRE (i.e., 25-75% top kill). Fires were modeled here as replacement and surface. Replacement fires probably occurred with an approximate rotation of 150 years (Romme et al. 2001). Surface fires (causing <25% top-kill) were relatively rare and are more likely in late-development conditions, though exact frequencies are unknown.

Insects and pathogens may cause stand-replacement disturbances, increasing in likelihood as stands age.

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

Adjacency or Identification Concerns

If conifers are present, please review R3ASMCc, R3MCONcm and R3MCONwd as options. Stable stands appear to occur more often at lower elevations compared to seral stands. Adjacent forest types such as ponderosa pine or warm/dry mixed conifer with more frequent fire may influence fire frequency in stable aspen to facilitate regeneration.

Aspen may be declining in parts of the southwest, and appears most critical in Utah, Arizona, and New Mexico, but not in Colorado (especially not in southwestern Colorado).

This PNVG is similar to the PNVG R2ASPN for the Great Basin model zone, but fire severities differ.

Scale Description

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

Patch sizes range in the 10s to 100s of acres.

Issues/Problems

Aspen stands tend to remain dense throughout most of the lifespan, hence the open stand descriptions were not used. These are typically self-perpetuating stands, they may not need regular disturbance to regenerate. As aspen is such a wide-ranging species, there are not dominant understory species which assist in identification of this type. Either there aren't conifers (this PNVG) or there are, which would indicate another PNVG. There are surface fires which burn small areas throughout these stands. They do not set succession back.

Model Evolution and Comments

Peer review resulted in eliminating mixed severity fire from this type (originally modeled at 215-year MFI). This caused no change in the percent in each class A-C, but changed the overall MFI of the model from 75 years to 122 years. Quality control also eliminated a rule violation (use of Relative Age for C to C mixed severity fire) with no change to results.

*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

Aspen suckers less than 6' tall. Grass and forbs present.

Dominant Species* and Canopy Position

POTR5

Structure Data (for upper layer lifeform)

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

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

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

Fuel Model no data

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Class B **55 %**

Mid1 Closed

Description

Aspen over 6' tall dominate. Canopy cover highly variable.

Dominant Species* and Canopy Position

POTR5

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

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

Fuel Model no data

Class C **35 %**

Late1 All Structu

Description

Aspen trees 5 - 16in DBH. Canopy cover is highly variable

Dominant Species* and Canopy Position

POTR5

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

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

Fuel Model no data

Class D **0 %**

Late1 Open

Description

Dominant Species* and Canopy Position

Structure Data (for upper layer lifeform)

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

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

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

Fuel Model no data

Class E **0 %**

Late1 Closed

Description

Dominant Species* and Canopy Position

Structure Data (for upper layer lifeform)

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

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

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

Fuel Model no data

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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: 4

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	150	50	300	0.00667	81
Mixed					
Surface	650	600	2000	0.00154	19
All Fires	122			0.00822	

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