

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)

R3BCLPsw Bristlecone/Limber Pines Southwest

General Information

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

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Vegetation Type

Woodland

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*

PIAR
PIFL2
FEAR2
FETH

LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

Geographic Range

Colorado south of I-70, into NM. Bristlecone component drops out north of I-70. In Colorado above South Park, San Luis Valley floors. Extends onto southerly slopes of Mt. Evans and Pikes Peak and along spine of Sangre de Cristos and east mid-slopes of San Juans into NM.

Biophysical Site Description

Elevation ranges from 8,200 to treeline at 12,000 feet. Found at mid- to upper slopes. The areas are typically in rain shadows, and can often be considered dry, cold extents of tree cover.

Vegetation Description

Usually a mixed PIAR and PIFL type, with PIEN and PSME and occasionally PIPO as sites moderate. Sparse understories, with grass (FEAR and FETH) or short shrubs (*Ribes* sp., *Juniperus* sp.).

This group contains some of the oldest trees in the Region, with PIAR 1000 years old or more and PIFL ages of 500 years +. Understories are often sparse, with little to carry fires across the surface.

Disturbance Description

Fire occurrence is low frequency and replacement severity with rare surface fires (Baker 1992, Donnegan et al. 2001). In the absence of wind, fires are likely limited in extent (2 acres or less). Stand replacement fires are usually wind-driven, especially in classes B and C. Susceptible to bark beetles (esp. PIFL), but generally drought-tolerant.

Adjacency or Identification Concerns

Probably synonymous with PIAR/FETH and PIAR/FEAR HT's described by DeVelice, et al (1986). Also similar to Great Basin Pine group present in UT, NV and ID.

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

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Stand replacement fires of 100's of acres have been experienced. Continuous bands of the group of 1000's of acres are present around large intermountain valleys (e.g., South Park in Colorado).

Issues/Problems

Model Evolution and Comments

Peer review disagreed with the fire frequency of the original model (83 year MFI) and thought a longer MFI should be used, putting the PNVG into Fire Regime Group IV or V. Surface fires were also reduced from a 200 year MFI to a 1000 year MFI. The suggested changes were incorporated and the resulting change in each class is as follows: A was unchanged; B changed from 45 to 30%; C changed from 40 to 55%.

Quality control found one rule violation of a disturbance advancing the age of a class (surface fire caused a transition from class A to class B, advancing age by disturbance).

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

Bare ground and talus with sparse ground cover of forbs, grasses and low shrubs. Occasional old survivors may be present.

Dominant Species* and Canopy Position

PIAR

PIFL2

FEAR2

RIMO

Upper Layer Lifeform

Herbaceous

Shrub

Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	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 B 30%

Mid1 Open

Description

Open woodland < 40% crown closure of seedlings, saplings, and survivors.

Dominant Species* and Canopy Position

PIAR

PIFL2

RIMO

FEAR2

Upper Layer Lifeform

Herbaceous

Shrub

Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	20 %	60 %
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 C 55%

Late I Open
Description

Open woodland < 40% crown cover of mixed diameters- 20" dbh to seedling. Sparse ground cover of grasses and low shrubs.

Dominant Species* and Canopy Position

PIAR
PIFL2
FEAR2
RIMO

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	20 %	60 %
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 D 0%

Late I Open
Description

Dominant Species* and Canopy Position

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	60 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

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

Class E 0%

Late I 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

Fuel Model 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: 5

- 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>	500			0.002	66
<i>Mixed</i>					
<i>Surface</i>	1000			0.001	33
<i>All Fires</i>	333			0.00301	

References

Baker, W. L. 1992. Structure, disturbance, and change in the bristlecone pine forests of Colorado, U.S.A. Arctic and Alpine Research 24:17-26.

DeVelice, Robert L., Ludwig, John A., Moir, William H., Ronco, Frank. 1986. A Classification of Forest Habitat Types of Northern New Mexico and Southern Colorado. USDA-FS General Technical Report RM-131. Rocky Mountain Forest and Range Experiment Station, Ft Collins, CO. 59 pages.

Donnegan, J. A., T. T. Veblen, and J. S. Sibold. 2001. Climatic and human influences on fire history in Pike National Forest, central Colorado. Canadian Journal of Forest Research 31:1526-1539.