

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)

R5DGRA Desert Grassland

General Information

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

Modelers

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Vegetation Type

Grassland

General Model Sources

- Literature
 Local Data
 Expert Estimate

Rapid Assessment Model Zones

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

Dominant Species*

PLEU BOER
SPCR PROS
SPAI EPTO
ACHY YUCC

LANDFIRE Mapping Zones

25
26

Geographic Range

Southwest (AZ, NM) and Southern Great Plains (W. TX)

Biophysical Site Description

This ecological system occurs across the Chihuahuan Desert and extends into the southern Great Plains where soils tend to have a high sand content. This type typically occurs in the plains or on valley benches below the foothills in mountainous areas.

Vegetation Description

The vegetation in this ecological system is grassland dominated by blue grama, tobosa grass, and galleta grass with intermingled forbs and half-shrubs. Shrubs (oak, mahogany, mesquite) are a minor component (less than 5%) of this type, typically occurring on rock outcrops or edges of steep draws and ravines. However, if fire is substantially reduced or excluded shrubs will encroach and substantially increase.

Disturbance Description

The mean fire interval is about 7 years with high variation due to drought, which reduces fire frequency and moist periods that increase fire frequency. The majority of fire in this system is stand-replacement fire; however, mixed fires may occur with reduced fuel loads. This ecological system typically burns during the late spring (May, June, early July) and into the fall (late September, October, November) in association with the hot, dry periods that follow the winter and late spring (December through April) rainy season and summer (late July, August, early September) monsoon season.

Adjacency or Identification Concerns

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

This ecological system is adequate in size to contain natural variation in vegetation, soils, and disturbance regimes.

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

Issues/Problems

Fire and climate are the primary factors influencing this ecological system. Drought and lack of fire tend to increase invasive woody species and reduce the herbaceous component. Impacts of historic grazing by buffalo may not have had a significant impact in this system in Arizona and New Mexico. Invasive species such as burrow weed (*Isocoma tenuisecta*) and broom snakeweed (*Gutierrezia sarothrae*) can take advantage of cool-season precipitation and dominate on disturbed sites; pricklypear and cholla (*Opuntia* spp.) can also dominate on disturbed sites and out compete herbaceous species thereby reducing fuel continuity and reduce the controlling effects of fire.

Model Evolution and Comments

Compare information with NRCS ecological site descriptions; ask for review by TX NRCS Plant Materials Specialist as well as the TX NRCS Rangeland Specialist. Contact range professors at Texas A&M and New Mexico State for review also.

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

This Class is dominated by resprouts of desert grassland species and post-fire associated forbs and half-shrubs. This Class typically exists where fires have burned relatively hot (replacement fire severity) in Classes B and C. Succession in this Class can quickly progress to either Class B or Class C, depending on soil types.

Dominant Species* and Canopy Position

PLEUR Upper
 SPAI Upper
 ACHY Upper
 SPFL Upper

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 1

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	30 %
Height	Herb Short <0.5m	Herb Medium 0.5-0.9m
Tree Size Class	no data	

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

Class B 20 %

Mid1 Closed

Description

Greater than 40 percent grass and forb cover; generally associated with productive soils on concave gentle slopes and undulating plains. Stand replacing wildfire would revert this type back to Class A. Drought effects may reduce the grass and forb cover in this system and allow shrubs to dominate. Successional progression from Class A to this Class occurs on deep, productive soil types.

Dominant Species* and Canopy Position

ACHY Lower
 PLEUR Lower
 SPAI Lower
 PROSO Upper

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 1

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	60 %
Height	Herb Medium 0.5-0.9m	Herb Tall > 1m
Tree Size Class	no data	

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

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Class C 65%

Mid1 Open
Description

Less than 40 percent grass and forb cover generally associated with gentle convex slopes or gravelly and cobbly soils on the plains. Stand replacing wildfire would revert this type back to Class A. Successional progression from Class A to this Class occurs on dry, less productive soil types.

Dominant Species* and Canopy Position

ACHY Lower
PLEUR Lower
PROSO Upper
YUCCA Upper

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 1

Structure Data (for upper layer lifeform)

	Min	Max
Cover	20 %	40 %
Height	Herb Medium 0.5-0.9m	Herb Tall > 1m
Tree Size Class	no data	

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

Class D 0%

Late1 All Structu
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:

Class E 0%

Late1 All Structu
Description

Dominant Species* and Canopy Position

Structure Data (for upper layer lifeform)

	Min	Max
Cover	%	%
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: 1000
 Min: 25
 Max: 5000

Sources of Fire Regime Data

- Literature
- Local Data
- Expert Estimate

Fire Regime Group: 2

- 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>	8			0.125	82
<i>Mixed</i>	37			0.02703	18
<i>Surface</i>					
<i>All Fires</i>	7			0.15204	

References

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