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 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R3SHSTwt   **Southwest Shrub Steppe with Trees**

General Information

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

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Vegetation Type

Shrubland

Dominant Species*

PRJU3
YUCCA
JUNIP
BOER4

General Model Sources

☐ Literature
☑ Local Data
☑ Expert Estimate

LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

Rapid Assessment Model Zones

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

Geographic Range

Southeast Arizona and Southern NM

Biophysical Site Description

Geographic distribution stratified in lower elevations (1000-3500'). Found on all aspects and slopes. Generally poor soil conditions. Found in foothills of desert mountain ranges.

Vegetation Description

Vegetation is dominated by flourensia, creosote bush, tarbush, mesquite, catclaw, opuntia, yucca, black gramma, tobosa grass, blue gramma, sideoats gramma, and threeawns, with intermingled forbs. Scattered trees include pinyon, juniper, and oaks. This type correlates with Kuchler's types 58 and 59.

Disturbance Description

Fire and grazing is the primary disturbances that impact this PNVG. Fire severity will rely on climatic conditions and seasonality. Ongoing grazing will affect fire frequency and burned area.

Adjacency or Identification Concerns

PNVG found on the fringe of desert grassland where vegetation is changing to woodland. Sustained PNVG through frequent fire frequency. Without disturbance, shrubs and trees take over (BLM Range allotment data, FS Veg database).

Scale Description

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

Due to fragmentation, grazing, and the transitional nature of this PNVG, the patch size is around 1000 acres identifying more the transition from Desert Steeper to Pinyon Juniper woodlands.

Issues/Problems

Because grazing has such a large impact on fuel loads, the fire regime is constantly being affected. This

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shrubland is a poor growing site relying on yearly rainfall for primary growth which correlates with the ten year fire frequency. Large rainfall years superseeds large fire years. As a transition zone, patch size will depend largely on fire frequency. During fire suppression, much of this PNVG was been driven into dominated Pinyon-Juniper woodland with little hope of returning to a shrub or grassland. Model does not succeed Class B to C during severe drought (FRCC description). New Ecological assessment to be completed for these areas.

The shrubs will survive the gaps between wet years and would dominate overtime, except juniper especially will outcompete everything to eventually take over a lot of the PNVG. Fire temperature will have a large effect on post-fire succession.

Model Evolution and Comments

Quality control revealed several Rapid Assessment technical modeling rule violations, which were fixed with only minor changes to model results (<5%).

Succession Classes

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

Class A   30 %

Early1 PostRep

Description

Mostly result of fire replacement characterized by sprouting and surviving shrubs

Indicator Species* and Canopy Position

BOER4

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	39 %
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 B   10 %

Mid1 Closed

Description

Dense shrubland out competing grassland. A few trees present.

Indicator Species* and Canopy Position

PRJU3

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   40 %

Mid1 Open

Description

Dominant shrubs with light grasses in the interspace

Indicator Species* and Canopy Position

YUCCA
PRJU3

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	40 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Class D   15 %

Late1 Open
Description
Trees old enough to survive
frequent fire start to dominate
overstory. Shrubs across landscape
with grasses in between.

Indicator Species* and Canopy Position
JUNIP
PRJU3

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

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

Fuel Model   no data

Class E   5 %

Late1 Closed
Description
Dense shrubland with competing
overstory of trees.

Indicator Species* and Canopy Position
JUNIP

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	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

Disturbances

Non-Fire Disturbances Modeled

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

Historical Fire Size (acres)

Avg:
Min:
Max:

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 the 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
Sources of Fire Regime Data					
Replacement	17	10	25	0.05882	52
☐ Literature					
Mixed	40	25	50	0.025	22
☐ Local Data					
Surface	35	25	100	0.02857	25
☑ Expert Estimate					
All Fires	9			0.11239	

References

Brooks M.L. (2001) Peak fire temperature and short-term ecological effects in the Mojave Desert. Ecological Society of America Annual Meeting Abstracts 86, 62 (Abstract)