

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)

R3SHSTwt Southwest Shrub Steppe with Trees

General Information

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

Modelers

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Reviewers

Vegetation Type

Shrubland

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*

PRJU3
YUCC
JUNIP
BOER

LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

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 shrubland is a poor growing site relying on yearly rainfall for primary growth which correlates with the ten

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

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**														
<i>Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).</i>														
<p>Class A 30 %</p> <p>Early1 PostRep</p> <p>Description</p> <p>Mostly result of fire replacement characterized by sprouting and surviving shrubs</p>	<p>Dominant Species* and Canopy Position</p> <p>BOER4</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous</p> <p><input type="checkbox"/> Shrub</p> <p><input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">0 %</td> <td style="text-align: center;">39 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	0 %	39 %	Height	no data	no data	Tree Size Class	no data	
	Min	Max												
Cover	0 %	39 %												
Height	no data	no data												
Tree Size Class	no data													
<p>Class B 10 %</p> <p>Mid1 Closed</p> <p>Description</p> <p>Dense shrubland out competing grassland. A few trees present.</p>	<p>Dominant Species* and Canopy Position</p> <p>PRJU3</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous</p> <p><input type="checkbox"/> Shrub</p> <p><input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">40 %</td> <td style="text-align: center;">100 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	40 %	100 %	Height	no data	no data	Tree Size Class	no data	
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Tree Size Class	no data													
<p>Class C 40 %</p> <p>Mid1 Open</p> <p>Description</p> <p>Dominant shrubs with light grasses in the interspace</p>	<p>Dominant Species* and Canopy Position</p> <p>YUCCA</p> <p>PRJU3</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">0 %</td> <td style="text-align: center;">40 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table>		Min	Max	Cover	0 %	40 %	Height	no data	no data	Tree Size Class	no data	
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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 15 %

Late I Open

Description

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

Dominant Species* and Canopy Position

JUNIP
PRJU3

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	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 E 5 %

Late I Closed

Description

Dense shrubland with competing overstory of trees.

Dominant Species* and Canopy Position

JUNIP

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	60 %	100 %
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: 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>	17	10	25	0.05882	52
<i>Mixed</i>	40	25	50	0.025	22
<i>Surface</i>	35	25	100	0.02857	25
<i>All Fires</i>	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)