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)

R3SHST Southwest Shrub Steppe

General Information

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

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Vegetation Type

Shrubland

Dominant Species*

PRJU3
ACGR
LATR2
BOER

General Model Sources

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

LANDFIRE Mapping Zones

14 24 28
15 25
23 27

Rapid AssessmentModel Zones

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

Geographic Range

Southwest and southern Great Plains, primarily southeast Arizona, southern New Mexico, west Texas.

Biophysical Site Description

This type typically occurs on upland flats, benches, gentle slopes, and in the foothills of the desert mountain ranges.

Vegetation Description

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

Disturbance Description

Fire and Grazing primary disturbance affecting fire size, severity, and frequency. Most disturbances are naturally occurring and drought dependant. During drought conditions, replacement fires are more likely. Entire PNVG revolves around water as limiting factor.

Adjacency or Identification Concerns

The habitat should be dominant grassland, however landscape is broken up by diverse shrubland. The shrubs will be the dominant vegetation, but grass will be interspersed throughout. Distinguished from R3SHSTwt by lack of trees. BLM Range Allotment Data

This PNVG may be similar to the PNVG RR5SHST from the South Central model zone.

Scale Description

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

Since grazing has a major impact on fire frequency and size, the average patch size is also affected. Most pastures are around 1000 acres in size. The PNVG is more likely to consist in the 100,000 acres across the

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

landscape.

Issues/Problems

This PNVG is largely dependant upon rainfall to dictate vegetation levels. Because large rains seem to come every decade, a fire interval of 10 years seems to follow this trend. The shrubs will survive the gaps between the rains better than the grass therefore a shrub component will be seen as the dominate vegetation through succession.

"Fire effects can be highly variable and models of post-fire succession must account for variation" (Brooks 2001). Peak fire temperature will affect seed mortality for shrubs such as creosote however interspaces will be relatively unaffected. Shrubs will exclude grasses in Class B (McAuliffe 1995).

Model Evolution and Comments

Quality control revealed several Rapid Assessment technical modeling rule violations, which were fixed with no changes to model results.

*Succession Classes***

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

Class A 25 %

Early1 PostRep

Description

Dominated by grasses and sprouting shrubs.

Dominant Species* and Canopy Position

BOER4

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	32 %
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 30 %

Mid1 Closed

Description

Shrub dominated with light grasses in interspace.

Dominant Species* and Canopy Position

PRJU3
ACGR

Structure Data (for upper layer lifeform)

	Min	Max
Cover	66 %	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 45 %

Mid1 Open

Description

Open shrubland with higher grass component than B

Dominant Species* and Canopy Position

PRJU3
ACGR

Structure Data (for upper layer lifeform)

	Min	Max
Cover	33 %	65 %
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 **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 %	%
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

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Disturbances Modeled

- [x] Fire
- [ ] Insects/Disease
- [x] 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

- [x] 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.

	Avg FI	*Min FI*	*Max FI*	*Probability*	*Percent of All Fires*
Replacement	14	8	15	0.07143	72
Mixed	75	70	80	0.01333	13
Surface	69	60	100	0.01449	15
All Fires	10			0.09925	

References

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

McAuliffe J.R. (1995) Landscape evolution, soil formation, and ecolgical patterns and process in Sonoran Desert bajadas. Ecological Monographs 64, 111-148

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