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):

R2CRBU **Creosotebush Shrublands with Grasses**

General Information

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

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Vegetation Type

Shrubland

Dominant Species*

AMDU2
LATR2
EPNE
ATRIP

General Model Sources

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

LANDFIRE Mapping Zones

12 17
13 18
16

Rapid Assessment Model Zones

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

Geographic Range

This area extends from southern California, western Arizona, southern Nevada, and southwestern Utah.

Biophysical Site Description

Creosotebush Scrub is wide ranging across the warm deserts and is most common in the Mojave Desert. Creosotebush scrub is typically found below the blackbrush zone on well-drained alluvial flats and slopes and above the saltbush zone. Elevation zones 600 to 4200 ft. Creosote shrublands occur on several soil types from shallow to deep.

Desert pavement is common. Soils are well drained, available water capacity is very low and runoff is moderate to rapid.

Vegetation Description

Creosotebush (Larrea tridentata) dominates shrublands. Plant community associates change from east to west Mojave Desert. Creosotebush codominates in desert shrub communities with saltbush (Atriplex spp.), Ambrosia dumosa, white bursage, and bladder sage (Salazaria mexican). Joshua tree forests are included in this community type. Grass species include galleta grasses (Hilaria spp.). Creosotebush scrub is characterized by low cover (5-30%) of woody shrubs of various heights. With the exception of Joshua tree, creosotebush has the highest cover and is the most wide-ranging plant species in the Mojave Desert.

Disturbance Description

Not fire tolerant, because of their drought-tolerant features (thin bark, slow growth, shallow root system, small leaves). Some species resprout after fire depending on fire severity, but native plants are slow to recover or re-establish after fire.

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

We do not know the pre-settlement fire conditions in warm desert plant communities. However, it is thought that fires in creosotebush scrub were an infrequent events in pre-settlement desert habitats, because fine fuels from winter annual plants were probably sparse, only occurring in large amounts during the spring following exceptionally wet winters.

It appears that wildfire was not historically a landscape dominating influence in creosotebush scrub habitat.

Adjacency or Identification Concerns

The issue is not as much of a concern as in other systems.

Fine fuels adjacency from alien annual grasses currently represent the most important fuelbed component in creosotebush scrub. Alien annual grasses can comprise 66-97% of the total annual biomass in this system.

Livestock grazing has contributed to the deterioration of this system.

Scale Description

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

Patch sizes vary to slope and aspect and precipitation.

Issues/Problems

There little information regarding fire frequency, fire severity in pre-settlement fire conditions in warm desert plan communities is not well documented. It is thought that fire was infrequent and not landscape dominating.

Model Evolution and Comments

For the Rapid Assessment, this model was also used only in the western portion of the Southwest model zone where creosote bush occurs.

As ecological condition deteriorates, creosotebush, blackbrush, black gramma, Indian ricegrass, desert needlegrass decrease. Species likely to invade this site such as Bromus rubens and Schismus barbatus.

Succession Classes

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

Class A 10 %

Early1 Open

Description

Creosotebush scrub is characterized by low cover 5 to 10%. Little disturbance was considered in Class A, except for replacement fire every 300 yrs on average. Historical condition where invasive annual grasses are absent, the fire return interval is virtually non-existent except for areas near the base of mountains experiencing locally higher rainfall and fine fuel buildup from native annual. After 100 yrs, class A transitions to B.

Indicator Species* and Canopy Position

PPGG
AMUD2
LATR2
ARIST

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	5 %	10 %
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 and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Class B **90%**

Late1 Closed

Description

Greater than 15% shrub cover and 20-40 percent grass and forb cover; associated with more productive soils. Less fine fuels are associated with this community, therefore the FRIs for replacement fire and mixed severity fire is 650 years (min-max: 300-1000 yrs). Wind/weather stress also affected this community on average every 80 yrs, but did not cause a transition to class A.

Indicator Species* and Canopy Position

LATR2
AMUD2

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	15 %	20 %
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 **0%**

Late1 Open

Description

Indicator 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

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

Fuel Model no data

Class D **0%**

Late1 Open

Description

Indicator 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

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

Fuel Model no data

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

Class E **0 %**

Late1 Closed

Description

Indicator 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

Non-Fire Disturbances Modeled

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

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

Historical Fire Size (acres)

Avg:
Min:
Max:

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.

Sources of Fire Regime Data

- ☐ Literature
- ☐ Local Data
- ☐ Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	588	300	1000	0.00170	56
Mixed	769	300	1000	0.00130	43
Surface					
All Fires	333			0.00301	

References

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