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)

R3CHAPsw Interior Arizona Chaparral

General Information

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

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Vegetation Type

Shrubland

Dominant Species*

QUTU
CEGR
APPR
QUPU

General Model Sources

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

LANDFIRE Mapping Zones

14 24 28
15 25 13
23 27

Rapid AssessmentModel Zones

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

Geographic Range

Central and Northern Arizona, Central New Mexico. Some patches associated with Sky Islands of Southern Arizona and New Mexico. Also extends into the Mojave Desert and southern Great Basin.

Biophysical Site Description

Occurs across central Arizona (Mogollon Rim), and western New Mexico. It dominates along the mid-elevation transition from the Mojave, Sonoran, and Northern Chihuahuan deserts into mountains (1000-2200 m). It occurs along foothills, mountain slopes and canyons in drier habitats below the encinal and Pinus Ponderosa woodlands. Stands are often associated with xeric coarse-textured substrates such as limestone, basalt or alluvium, especially in transition areas with more mesic woodlands (NatureServe 2004).

Vegetation Description

Vegetation is less dense than California chaparral, with aerial coverage of 35-80% ground surface in Arizona (Cable 1957, Carmichael et al. 1978). Moderate to dense canopy. Quercus turbinella is the dominant species. Ceanothus greggii , Cercocarpus montanus, and Arctostaphylos pungens are also present. Obligate seeding species, such as ceanothus greggii and arctostaphylos pringlei establish after fire (Barbour and Billings 1988). Scrub oak dominates at lower elevations, manzanita at higher elevations.

Disturbance Description

Fire Regime IV (35-100 year intervals), stand replacement fires. Wildfires are less common than in California chaparral, occurring between 50-100 year intervals (Barbour and Billings 1988). Species are fire adapted and resprout vigorously after fire. Competition for resources may factor in at mature growth stages. Monsoonal moisture gives herbaceous perennials an advantage over annuals. Drought affects this PNVG, it also increases the likelihood of a fire disturbance event.

Adjacency or Identification Concerns

Stands occurring in montane woodlands are seral and the result of recent fire. May appear similar to

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

California chaparral, however is geographically separate. California species such as Adenostoma fasciculatum are absent. In very old stands Emory, Arizona, and White Oak may overtop the manzanita and gain ascendancy in the climax. Invasion of oak into mature chaparral stands has been observed (Brown 1994).

Scale Description

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

Replacement fires are the dominant disturbance. Disturbance extent is dependent upon patch size, fuel continuity, and weather. Stand size can vary from 10's of acres to 1,000's. Size of the mosaic composition is unknown.

Issues/Problems

Literature on stand mosaic composition was unavailable, the coarse scale landscape percentage was retained.

Model Evolution and Comments

When conditions are favorable to burning, this fuel type can carry fire from low elevation grass and shrubland up into higher woodlands and montane forests. It has been noted that the increase of 'brush' and woody species is due to the suppression of fire. "Arizona" chaparral is described, the less known "Coahuilan" chaparral of Mexico, southern New Mexico, and Texas similar to Arizona chaparral is not fully described in this PNVG.

This PNVG replaces the model R2CHAPin from the Great Basin, except for mapping zone 16.

*Succession Classes***

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

Class A 20 %

Early1 PostRep

Description

Post-fire community of grasses, forbs, and sprouting shrubs. Regrowth of basal sprouters may also be present. Several species establish from soil-stored seeds after fire.

Dominant Species* and Canopy Position

ARPU5
CEGR
BOCU
QUTU2

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	15 %
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 B 50 %

Mid1 Closed

Description

mid-seral, dense (>15%) canopy cover mixed shrub stands with depauperate understory.

Dominant Species* and Canopy Position

QUTU2
CEGR
QUPU
ARPU5

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	15 %	80 %
Height	no data	no data
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 5 %

Mid1 Open

Description

mid-seral, open (<15%) mixed shrub community with perennial grasses and forbs in interspaces

Dominant Species* and Canopy Position

QUTU2
CEGR
ARPU5
QUPU

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	15 %
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 D 5 %

Late1 Open

Description

late-seral, open (<15%) mixed shrub community with mixed shrub/herbaceous community

Dominant Species* and Canopy Position

QUTU2
CEGR
ARPU5
QUPU

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	15 %
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 20 %

Late1 Closed

Description

late-seral, closed (>15%) mixed shrub community with significant vegetative buildup.

Dominant Species* and Canopy Position

QUTU2
CEGR
ARPU5
QUPU

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	15 %	80 %
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

- [x] Fire
- [ ] Insects/Disease
- [x] Wind/Weather/Stress
- [ ] Native Grazing
- [x] Competition
- [ ] Other:
- [ ] Other

Historical Fire Size (acres)

Avg: no data
Min: no data
Max: no data

Sources of Fire Regime Data

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

Fire Regime Group: **4**

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	46	25	100	0.02174	88
Mixed	350			0.00286	12
Surface					
All Fires	41			0.02461	

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