

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)

R2MGWAw Great Basin Grassland

General Information

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

Modelers

Cheri Howell chowell02@fs.fed.us
Louis Provencher lprovencher@tnc.org
(edit)

Reviewers

Vegetation Type

Grassland

General Model Sources

- Literature
- Local Data
- Expert Estimate

Rapid Assessment Model Zones

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

Dominant Species*

LECI4
DIST3
CADO
POSE

LANDFIRE Mapping Zones

12	17
13	18
16	

Geographic Range

Northern and Central Great Basin.

Biophysical Site Description

Elevation: 5000-7000 feet
Landform: moist to dry floodplain, saline bottom
Soils: Deep, somewhat poorly drained, mollic, loamy (most silt loams to some clay loams), may be saline, very little rock or gravel present
Slopes: 0 to 4%
Precipitation: 6 to 14 inches

Vegetation Description

80-100% graminoids with dominant species being Basin wildrye (*Leymus cinereus*), Sandberg's or Nevada bluegrass (*Poa secunda*), Western wheatgrass (*Pascopyron smithii*), cordgrass (*Spartina* spp.), alkali saltgrass (*Distichlis stricta*), Douglas sedge (*Carex douglasii*), Shorthair sedge (*Carex exserta*), Mat muhly (*Muhlenbergia richardsonis*), dropseed (*Sporobolus* spp.), Baltic rush (*Juncus balticus*).

About 5% forbs (High cover of forbs indicates altered conditions).

Shrubs found at 5 to 10%. Common shrubs are Basin big sagebrush (*Artemisia tridentata tridentata*), at the higher elevations (*Artemisia tridentata vaseyana*), rubber rabbitbrush (*Ericameria nauseosa*), rabbitbrush (*Chrysothamnus* spp.) At high cover, shrubs indicate an altered state.

Disturbance Description

Fire most often occurred in these sites, when adjacent shrublands burned. Fires were typically mixed (average FRI of 37 years) and stand replacement (average FRI of 75 years). Most species respond favorably

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

to fire. Rabbitbrush tends to increase with spring and summer fires.

These sites were prone to flooding during high precipitation, resulting in erosion of topsoil and some short term loss of vegetative cover. In cases of +500 yr flooding event, the site could downcut, thus lowering the water table, and favored woody species in an altered state.

Infrequent native grazing has occurred, which may have resulted in heavy defoliation, but was confined to small acreage and generally temporary in nature. Drought cycles likely resulted in a reduction in vegetative cover, production and acreage of these sites. Drought negatively affected woody species. Native American's likely used these sites for camping and some vegetation collection, while hunting and gathering in adjacent wetlands. Human's likely caused heavy impacts to soils and vegetation in small campsites, but overall impact was light and transitory in nature.

Adjacency or Identification Concerns

Found adjacent to wet meadows, wetlands, sagebrush uplands and salt desert shrublands. Sites adjacent to sagebrush uplands tended to burn more frequently than sites adjacent to wet or salt desert shrub. This system is similar to the Mountain Mesic to Dry Meadow (R2MGCOWs), but with longer FRI for replacement fire and less native grazing.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

These sites are generally small and often moist. Fire in these systems is usually introduced from adjacent shrublands or native burning to improve herbaceous understory.

Issues/Problems

Many of these sites were impacted by introduced grazing animals post-European settlement and have been converted to shrub dominated systems with soil compaction problems that tend toward an increase in tap-rooted forb species. Class D is found more frequently now, due to altered disturbance regimes with livestock grazing, changes in fire frequency, altered water flow and climate change.

Model Evolution and Comments

This PNVG was submitted to 4 experts for review, but none return reviews.

Succession Classes**			
<i>Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).</i>			
Class A 5%	Dominant Species* and Canopy Position	Structure Data (for upper layer lifeform)	
Early1 Open	LECI4	<i>Min</i>	<i>Max</i>
Description	POSE	Cover	0 % 25 %
Post fire, flood or drought early seral community. Bare ground is 10 to 30%. Total vegetative canopy cover is 0-25%. Relative forb cover is 10-40%. Relative graminoid cover is 60-90%. Shrub cover is minimal or non-existent.	CADO2	Height	no data no data
Replacement fire (FRI of 75 yrs) maintains the vegetation in A, whereas mixed severity fire (FRI of 37 yrs), while occurring, does not change the successional age. Rare flood events (average return interval of 500-yr) moves the	DIST3	Tree Size Class	no data
	Upper Layer Lifeform	<input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:	
	<input type="checkbox"/> Herbaceous		
	<input type="checkbox"/> Shrub		
	<input type="checkbox"/> Tree		
	Fuel Model no data		

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vegetation to a more shrubby condition, D, after downcutting. Succession is from A to B.

Class B 73 %

Mid1 Open

Description

Mostly stable and resilient system. Bare ground is less than 10%. Total canopy cover is 25-80%. Relative cover of grasses is >85%. Relative cover of forbs is 0-5%. Relative cover of shrubs is 0-10%. Replacement fire (FRI 75 years) causes a transition to A, whereas mixed severity (FRI of 37 yrs), while active, does not affect the successional age of B. Weather and flooding affects this system in three different ways: 1) Recurring drought with a 100-yr return interval will thin vegetation and keep this state open; 2) The site will be scoured, but not downcut, by 100-yr flood events causing a transition to A; and 3) Rare 1000-yr flooding event will cause a downcut and alteration of the site towards a more permanent woody condition (D). Succession is from B to C.

Dominant Species* and Canopy Position

LECI4
POSE
DIST3
CADO2

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	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:

Class C 20 %

Late1 Open

Description

This system differs from mid-open by an increase in the shrub cover component. Bare ground is <10%. Total canopy cover is 50-80%. Relative cover of grasses is 25-50%. Relative cover of forbs is 0-5% Relative cover of shrubs (most frequently rubber rabbitbrush and Basin big sagebrush) is 10-75%. The dynamics of C are similar to those of B, except that drought causes a transition to B (not A) through the thinning of shrubs.

Dominant Species* and Canopy Position

LECI4
DIST3
ERNA1
ARTRT

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	75 %
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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State C, unlike B, experiences infrequent native grazing (browsing) that will reduce woody vegetation and cause a transition to B. Succession remains in C.

Class D 2%

Mid1 Closed

Description

This system differs from mid-open by a significant increase in the shrub cover component. Bare ground is <20%. Total canopy cover can exceed 100% due to shrub dominance. Relative cover of grasses is <25%. Relative cover of forbs is 0-5% Relative cover of shrubs (most frequently rubber rabbitbrush and Basin big sagebrush) is >75%. Replacement fire (FRI of 75 yrs) and 100-yr flood event are the only disturbances causing a transition to A. Mixed severity fire (average FRI of 37 yrs) opens the stand, but maintain in a woody state (transition to C).

Dominant Species* and Canopy Position

LECI4
DIST3
ERNA1
ARTRT

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	75 %	100 %
<i>Height</i>	no data	no data
<i>Tree Size Class</i>	no data	

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

Class E 0%

Late1 Closed

Description

Dominant Species* and Canopy Position

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	0 %	%
<i>Height</i>	no data	no data
<i>Tree Size Class</i>	no data	

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 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>	75	40	110	0.01333	33
<i>Mixed</i>	37	20	54	0.02703	67
<i>Surface</i>					
<i>All Fires</i>	25			0.04037	

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