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):

R3PGRsws **Shortgrass Prairie with Shrubs**

General Information

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

Modelers		Reviewers	
Galen Green	galen_green@fws.gov	William L. Baker	bakerwl@uwyo.edu
Wayne Robbie	wrobbie@fs.fed.us		
Anne Bradley	abradley@tnc.org		

Vegetation Type

Grassland

Dominant Species*

Gusa
Chna2
Bogr2
Buda

General Model Sources

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

LANDFIRE Mapping Zones

14 24 28
15 25
23 27

Rapid Assessment Model Zones

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

Geographic Range

Occurs in the southern Great Plains from southeastern Colorado east through Kansas and south through western Oklahoma, eastern New Mexico and west Texas.

Biophysical Site Description

This type typically occurs on plains and draws, or on gently rolling uplands of the southern Great Plains. In New Mexico, Colorado, elevations range from 5,000-6,800 ft. Precipitation ranges from 12 to 14 inches, and occurs predominantly during the summer.

Vegetation Description

Vegetation is short grass dominated with mid grass inclusions. little bluestem, blue gramma, buffalo grass, needle-and-thread, and three-awns, with intermingled forbs and scattered patches of shrubs, such as four-wing saltbush, broom snakeweed rubber rabbitbrush, several prickly pear species (Opuntia), with isolated pockets of sand sage, and winterfat occurs on calcareous soil.. Western wheatgrass occurs in swales.

Disturbance Description

Fire regime dominated by frequent replacement fires associated with productive grass fuels and cycles of moisture and drought. Patchy fires (causing 25-75% top-kill) were less frequent and were modeled here as mixed severity, although there is some debate about how often this type of patchy fire might actually occur.

Drought can cause a transition from closed to open conditions (class B to class C). Return interval for fire could be extended by ungulate grazing, but is not modeled here. Concentrations of ungulates could increase the percent of the landscape dominated by shrubs and forbs compared with reference conditions. Episodic disturbance caused by insect infestation (grasshoppers, range caterpillars, mormon crickets) is also not modeled here.

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

Adjacency or Identification Concerns

Higher elevation sites of this type borders the juniper steppe type.

Scale Description

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

Issues/Problems

Model Evolution and Comments

This model is based on the original FRCC model PGRA6, but adjusted to conform to Rapid Assessment modeling rules. Results changed slightly for classes B, C, and D (class B was 20%, C was 75%, and D was 5%).

Peer review suggested that that all plains grassland types be combined (R3PGm, R3PGmst, R3PGRs, R3PGRsws, R3PGRswt), mixed fire eliminated, and replacement fire interval set at 20 years. Because the workshop participants identified these separate types, they were not lumped together and fire regimes were left as-is, although descriptions were expanded to clarify use of mixed severity fire.

Succession Classes

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

Class A 5 %

Early1 PostRep

Description

Dominated by resprouts and seedlings of grasses and post-fire associated forbs. Low to medium height with variable canopy cover. This type typically occurs where fires burn relatively hot in classes B and C, where grazing has been heavy.

Indicator Species* and Canopy Position

Bogr2
Buda

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	0 %	5 %
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 25 %

Mid1 Closed

Description

Greater than 35 percent herb cover. Generally associated with more productive soils, but can be caused by cumulative high moisture seasons increasing the cover and productivity of class C. Low to medium height.

Indicator Species* and Canopy Position

Bogr2
Buda
Chna2
Gusa

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	30 %	65 %
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 C 60 %

Mid1 Open

Description

Less than 35 percent herb cover. Generally associated with less productive cobbly and gravelly soils, but can also be caused by cumulative drought shifting class B to this class.

Indicator Species* and Canopy Position

Bogr2
Buda
Gusa

Structure Data (for upper layer lifeform)

	Min	Max
Cover	20 %	75 %
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 10 %

Late1 Closed

Description

5-15 percent shrub cover of medium height. Typically located on the ridges, rocky areas, or on more cobbly or gravelly soil where patches may be missed by fire.

Indicator Species* and Canopy Position

Bogr2
Buda

Structure Data (for upper layer lifeform)

	Min	Max
Cover	5 %	15 %
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

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

Disturbances

Non-Fire Disturbances Modeled

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

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

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

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	15	2	35	0.06667	80
Mixed	60			0.01667	20
Surface					
All Fires	12			0.08334	

References

Dick-Peddie, W.A. 1993. New Mexico vegetation, past, present and future. Albuquerque, NM: Univ. New Mexico Press. Xxxii, 244 p.

Ford, P. L. 1999. Response of buffalograss (Buchloe dactyloides) and blue grama (Bouteloua gracilis) to fire. Great Plains Research 9:261-276.

Miller,Greg et al. (1993) Terrestrial Ecosystem Survey of the Santa Fe National Forest USDA Forest Service Southwestern Region