

LANDFIRE Biophysical Setting Model

Biophysical Setting 2511470

**Western Great Plains Foothill and Piedmont
Grassland**

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

Date 8/28/2006

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Vegetation Type

Upland
Grassland/Herbaceous

Dominant Species

ANGE
SCSC

Map Zone

25

Model Zone

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

General Model Sources

☒ Literature
☐ Local Data
☒ Expert Estimate

HECO
HENE
MUMO

Geographic Range

The Front Range piedmont alongside the Chalk Bluffs along the CO-WY border, out into the Great Plains on the Palmer Divide, and on piedmont slopes below mesas and foothills in northeastern NM.

Biophysical Site Description

This system typically occurs between 1600-2200m in elevation. It is best characterized as a mixed-grass to tallgrass prairie on mostly moderate to gentle slopes, usually at the base of foothill slopes, e.g., the hogbacks of the Rocky Mountain Front Range where it typically occurs as a relatively narrow elevational band between montane woodlands and shrublands and the shortgrass steppe, but extends east on the Front Range piedmont alongside the Chalk Bluffs along the CO-WY border, out into the Great Plains on the Palmer Divide, and on piedmont slopes below mesas and foothills in northeastern NM. A combination of increased precipitation from orographic rain, temperature and soil type limits this system to the lower elevation zone with approximately 40 m of precipitation/year. It is maintained by frequent fire and associated with well-drained clay soils.

Vegetation Description

Usually occurrences of this system have multiple plant associations that may be dominated by *Andropogon gerardii*, *Schizachyrium scoparium*, *Muhlenbergia montana*, *Nassella viridula*, *Pascopyrum smithii*, *Sporobolus cryptandrus*, *Bouteloua gracilis*, *Hesperostipa comata* or *Hesperostipa neomexicana*.

Disturbance Description

It is maintained by frequent fire, small mammal disturbance of soils.

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100+ year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity.

Adjacency or Identification Concerns

Native Uncharacteristic Conditions

Scale Description

Issues/Problems

Front range CO, WY system, likely on the eastern edge of this map zone.

Comments

This is a new model developed for MZ25, one on one in Boulder CO 8/28/06.

Vegetation Classes

Class A 10 %		<u>Indicator Species and Canopy Position</u>	<u>Structure Data (for upper layer lifeform)</u>												
Early Development 1 All Structure		ANGE	<table><tr><td></td><td><i>Min</i></td><td><i>Max</i></td></tr><tr><td><i>Cover</i></td><td>0 %</td><td>50 %</td></tr><tr><td><i>Height</i></td><td>Herb 0m</td><td>Herb 1.0m</td></tr><tr><td><i>Tree Size Class</i></td><td colspan="2">None</td></tr></table>		<i>Min</i>	<i>Max</i>	<i>Cover</i>	0 %	50 %	<i>Height</i>	Herb 0m	Herb 1.0m	<i>Tree Size Class</i>	None	
	<i>Min</i>	<i>Max</i>													
<i>Cover</i>	0 %	50 %													
<i>Height</i>	Herb 0m	Herb 1.0m													
<i>Tree Size Class</i>	None														
<u>Upper Layer Lifeform</u>		Upper	☐ Upper layer lifeform differs from dominant lifeform.												
☒ Herbaceous		SCSC													
☐ Shrub		Upper													
☐ Tree		HECO													
<u>Fuel Model</u>		Upper													
1															

Description

0-2yrs. Immediate post fire for two years, resprouts during growing season. Few forbs. Annuals dependent upon moisture. Wind/weather/stress (probability = 0.01) and small mammal soil disturbance (probability = 0.01) occur but do not cause a transition.

Class B 90 %		<u>Indicator Species and Canopy Position</u>	<u>Structure Data (for upper layer lifeform)</u>												
Late Development 1 Closed		ANGE	<table><tr><td></td><td><i>Min</i></td><td><i>Max</i></td></tr><tr><td><i>Cover</i></td><td>51 %</td><td>100 %</td></tr><tr><td><i>Height</i></td><td>Herb 0.6m</td><td>Herb >1.1m</td></tr><tr><td><i>Tree Size Class</i></td><td colspan="2">None</td></tr></table>		<i>Min</i>	<i>Max</i>	<i>Cover</i>	51 %	100 %	<i>Height</i>	Herb 0.6m	Herb >1.1m	<i>Tree Size Class</i>	None	
	<i>Min</i>	<i>Max</i>													
<i>Cover</i>	51 %	100 %													
<i>Height</i>	Herb 0.6m	Herb >1.1m													
<i>Tree Size Class</i>	None														
<u>Upper Layer Lifeform</u>		Upper	☐ Upper layer lifeform differs from dominant lifeform.												
☒ Herbaceous		SCSC													
☐ Shrub		Upper													
☐ Tree		HECO													
<u>Fuel Model</u>		Upper													
1															

Description

Three years plus. Moderate to dense mid to tall grass species. Forbs and annuals dependent upon moisture. Canopy closure dependent on soils and percent rock. Wind/weather/stress (probability = 0.004), small mammal soil disturbance (probability = 0.002), native grazing (probability = 0.001) and replacement fire (MFRI = 15yrs) cause a transition to class A.

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100+ year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity.

Class C 0 %

[Not Used] [Not Used]

Indicator Species and
Canopy Position

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	%	%
<i>Height</i>		
<i>Tree Size Class</i>		

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model

☐ Upper layer lifeform differs from dominant lifeform.

Description

Class D 0 %

[Not Used] [Not Used]

Indicator Species and
Canopy Position

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	%	%
<i>Height</i>		
<i>Tree Size Class</i>		

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model

☐ Upper layer lifeform differs from dominant lifeform.

Description

Class E 0 %

[Not Used] [Not Used]

Indicator Species and
Canopy Position

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	%	%
<i>Height</i>		
<i>Tree Size Class</i>		

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model

☐ Upper layer lifeform differs from dominant lifeform.

Description

Disturbances

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100+ year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity.

Fire Regime Group:** II

Historical Fire Size (acres)

Avg 1000

Min 10

Max 10000

Sources of Fire Regime Data

- ☐ Literature
☐ Local Data
☐ Expert Estimate

Additional Disturbances Modeled

- ☐ Insects/Disease ☒ Native Grazing ☒ Other (optional 1) small mammal soil disturbance
☒ Wind/Weather/Stress ☐ Competition ☐ Other (optional 2)

Fire Intervals

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	17	2	30	0.05882	100
Mixed					
Surface					
All Fires	17			0.05884	

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.

References

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