

11040

Mogollon Chaparral

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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Vegetation Type

Shrubland

Map Zones

17

Model Splits or Lumps

This BpS is lumped with: 1103 (models are identical)

Geographic Range

This ecological system occurs across central AZ (Mogollon Rim), western NM, southern UT and eastern NV (MZ17). It often dominates along the mid-elevation transition from the Mojave, Sonoran and northern Chihuahuan deserts.

Biophysical Site Description

Found in mountains from 1000-2200m. It occurs on foothills, mountain slopes and canyons in drier habitats below the encinal (southwestern oak woodlands) and *Pinus ponderosa* woodlands. Stands are often associated with more xeric and coarse-textured substrates such as limestone, basalt or alluvium, especially in transition areas with more mesic woodlands.

Vegetation Description

The moderate to dense shrub canopy includes species such as *Quercus turbinella*, *Quercus toumeyii*, *Cercocarpus montanus*, *Canotia holacantha*, *Ceanothus greggii*, *Forestiera pubescens* (*Forestiera neomexicana*), *Garrya wrightii*, *Juniperus deppeana*, *Purshia stansburiana*, *Rhus ovata*, *Rhus trilobata* and *Arctostaphylos pungens* and *Arctostaphylos pringlei* at higher elevations. Most chaparral species are fire-adapted, resprouting vigorously after burning or producing fire-resistant seeds. Stands occurring within montane woodlands are seral and a result of recent fires.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
CAHO3	<i>Canotia holacantha</i>	Crucifixion thorn
ARPU5	<i>Arctostaphylos pungens</i>	Pointleaf manzanita
CEGR	<i>Ceanothus greggii</i>	Desert ceanothus
CEMO2	<i>Cercocarpus montanus</i>	Alderleaf mountain mahogany
QUTU2	<i>Quercus turbinella</i>	Sonoran scrub oak
PUST	<i>Purshia stansburiana</i>	Stansbury cliffrose

Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

Typical fire regime in these systems varies with the amount of organic accumulation. The only significant disturbance to the system is stand-replacing fire occurring every 50yrs on average. Shrubs resprout rapidly after fire, often making the vegetation impenetrable.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	51	100	10	90
Moderate (Mixed)				
Low (Surface)				
All Fires	51	100		

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. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Vegetation found in small patches of 10ac to whole mountain slopes of 10000ac.

Adjacency or Identification Concerns

At higher elevations, chaparral vegetation may blend into ponderosa pine woodlands and oak woodlands (encinal). Stand replacement fires will periodically remove these trees.

Compared to other Great Basin systems deserving splitting (eg, BPS 1080, 1081, 1125, and 1126), chaparral systems for MZs 12 and 17 (1104 Mogollon Semi-Desert Chaparral, 1107 Rocky Mountain Gambel Oak-Mixed Montane Shrublands, and 1108 Sonora-Mojave Semi-Desert Chaparral) are described too finely to be distinguished and share nearly identical fire dynamics.

Issues or Problems

Uncertainty exists about the size of this system in MZ17. The BpS is assumed absent from MZ12.

Native Uncharacteristic Conditions

Comments

Succession Classes

Mapping Rules

Upper Layer Lifeform	Height (m)	Canopy Cover (%)									
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Herb	0-0.5	A	A	A	A	A	A	A	A	A	A
Herb	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Herb	>1.0	A	A	A	A	A	A	A	A	A	A
Shrub	0-0.5	A	A	A	A	A	A	A	A	A	A
Shrub	0.5-1.0	A	A	A	A	A	A	A	A	A	A
Shrub	1.0-3.0	B	B	B	B	B	B	B	B	B	B
Shrub	>3.0	B	B	B	B	B	B	B	B	B	B
Tree	0-5	B	B	UN	UN	UN	UN	UN	UN	UN	UN

Tree	5-10	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Tree	10-25	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Tree	25-50	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Tree	>50	B	B	UN	UN	UN	UN	UN	UN	UN	UN

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A 17 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUTU2	Quercus turbinella	Sonoran scrub oak	Upper
ARPU5	Arctostaphylos pungens	Pointleaf manzanita	Upper
CEGR	Ceanothus greggii	Desert ceanothus	Upper
CEMO2	Cercocarpus montanus	Alderleaf mountain mahogany	Upper

Description

After fire, shrubs resprout strongly from roots or from the base of plants. Shrubs can cause stands to become impenetrable.

Maximum Tree Size Class

None

Class B 83 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUTU2	Quercus turbinella	Sonoran scrub oak	Upper
ARPU5	Arctostaphylos pungens	Pointleaf manzanita	Upper
CEGR	Ceanothus greggii	Desert ceanothus	Upper
CEMO2	Cercocarpus montanus	Alderleaf mountain mahogany	Upper

Description

Dense shrubs with grasses present in the few openings.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	9
Mid1:CLS	10	Mid1:CLS	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
Replacement Fire	Early1:ALL	Early1:ALL	0.02	50	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.02	50	Yes	0

References

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Dick-Peddie, W.A. 1993. New Mexico vegetation: Past, present, and future. University of New Mexico Press, Albuquerque. 244 pp.

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