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Mogollon Chaparral

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Shrubland

Map Zones

23, 24

Geographic Range

Central and northern Arizona and central New Mexico. Some patches associated with Sky Islands of southern Arizona and New Mexico.

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 (1,000-2,200m). 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-texture substrates such as limestone, basalt, or alluvium, especially in transition areas with more mesic woodlands (NatureServe 2004).

Vegetation Description

Quercus turbinella is the dominant species. *Ceanothus greggii*, *Cercocarpus montanus*, and *Arctostaphylos pungens* are also present.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
QUTO2	<i>Quercus toumeyi</i>	Toumey oak
QUTU2	<i>Quercus turbinella</i>	Sonoran scrub oak
CEMO2	<i>Cercocarpus montanus</i>	Alderleaf mountain mahogany
CAHO3	<i>Canotia holacantha</i>	Crucifixion thorn
ARPR	<i>Arctostaphylos pringlei</i>	Pringle manzanita

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

Disturbance Description

Species are fire adapted and resprout vigorously after fire. Competition for resources may occur at mature growth stages. Monsoonal moisture gives herbaceous perennials an advantage over annuals. Drought affects this biophysical setting and increases the likelihood of a fire disturbance event.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
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Replacement	47	89	25	100
Moderate (Mixed)	367	11		
Low (Surface)				
All Fires	41	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

Replacement fire is the dominant disturbance. Disturbance extent depends on patch size, fuel continuity, and weather. Stand size can vary from tens to thousands of acres. Size of the mosaic composition is unknown.

Adjacency or Identification Concerns

Stands occurring in montane woodlands are seral and the result of recent fire.

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.

Issues or Problems

Literature on stand mosaic composition was unavailable. The coarse-scale landscape percentage was retained.

“Arizona” chaparral is described here. The less known “Coahuilan” chaparral of Mexico, southern New Mexico, and Texas is not captured in this description.

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	C	C	B	B	B	B	B	B	B	B
Shrub	>3.0	D	D	E	E	E	E	E	E	E	E
Tree	0-5	E	E	E	E	E	E	E	E	UN	UN
Tree	5-10	E	E	E	E	E	UN	UN	UN	UN	UN
Tree	10-25	E	E	E	E	E	UN	UN	UN	UN	UN
Tree	25-50	E	E	E	E	E	UN	UN	UN	UN	UN

Tree	>50	E	E	E	E	E	UN	UN	UN	UN	UN
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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 24 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUTO2	Quercus toumeyi	Toumey oak	All
QUTU2	Quercus turbinella	Sonoran scrub oak	All
CEMO2	Cercocarpus montanus	Alderleaf mountain mahogany	All
CAHO3	Canotia holacantha	Crucifixion thorn	All

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.

Maximum Tree Size Class

None

Class B 47 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUTO2	Quercus toumeyi	Toumey oak	Upper
QUTU2	Quercus turbinella	Sonoran scrub oak	Upper
CEMO2	Cercocarpus montanus	Alderleaf mountain mahogany	Upper
CAHO3	Canotia holacantha	Crucifixion thorn	Upper

Description

Mid-seral, dense canopy cover, mixed-shrub stands with depauperate understory.

Maximum Tree Size Class

None

Class C 5 Mid Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUTO2	Quercus toumeyi	Toumey oak	Upper

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	15
Mid1:OPN	12	Mid1:CLS	21
Mid1:CLS	16	Late1:CLS	59
Late1:OPN	35	Late1:CLS	59
Late1:CLS	60	Late1: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
Competition or Maintenance	Early1:ALL	Early1:ALL	0.001	1000	No	0
Alternative Succession	Early1:ALL	Mid1:OPN	0.015	67	Yes	0
Replacement Fire	Early1:ALL	Early1:ALL	0.0222	45	Yes	0
Wind or Weather or Stress	Mid1:OPN	Mid1:OPN	0.001	1000	No	0
Alternative Succession	Mid1:OPN	Late1:OPN	0.001	1000	Yes	0
Competition or Maintenance	Mid1:OPN	Mid1:OPN	0.005	200	No	0
Mixed Fire	Mid1:OPN	Mid1:OPN	0.01	100	No	0
Replacement Fire	Mid1:OPN	Early1:ALL	0.012	83	Yes	0
Mixed Fire	Mid1:CLS	Mid1:OPN	0.0042	238	Yes	0
Competition or Maintenance	Mid1:CLS	Mid1:CLS	0.02	50	No	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.02	50	Yes	0
Wind or Weather or Stress	Late1:OPN	Late1:OPN	0.001	1000	No	0
Mixed Fire	Late1:OPN	Late1:OPN	0.0022	455	No	0
Replacement Fire	Late1:OPN	Early1:ALL	0.02	50	Yes	0
Mixed Fire	Late1:CLS	Late1:OPN	0.001	1000	Yes	0
Wind or Weather or Stress	Late1:CLS	Late1:OPN	0.005	200	Yes	0
Wind or Weather or Stress	Late1:CLS	Late1:CLS	0.005	200	No	0
Competition or Maintenance	Late1:CLS	Late1:CLS	0.01	100	No	0
Replacement Fire	Late1:CLS	Early1:ALL	0.025	40	Yes	0

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