11010
Madrean Oriental Chaparral
BpS Model/Description Version: Aug. 2020

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Vegetation Type
Shrubland

Map Zone
25

Geographic Range
This ecological system's northern extent occurs in the Guadalupe Mountains in map zone (MZ)25 and extends south to the Davis and Chisos mountains in Trans Pecos.

Biophysical Site Description
It occurs on foothills, mountain slopes, and canyons in drier habitats below the encinal and pine woodlands, and is often associated with more xeric and coarse-texture substrates such as limestone, basalt, or alluvium, especially in transition areas with more mesic woodlands.

Vegetation Description
The moderate to dense shrub canopy includes many shrub oak species such as *Quercus intricata*, *Quercus pringlei*, *Quercus invaginata*, *Quercus laceyi*, *Quercus grisea*, *Quercus emoryi*, *Quercus toumeyi*, and *Q. pungens var. pungens*, and several widespread chaparral species such as *Ceanothus greggii*, *Fallugia paradoxa*, and *Garrya wrightii*. Additional species characteristic of this system are *Arbutus arizonica*, *Arbutus xalapensis* (=*Arbutus texana*), *Fraxinus greggii*, *Fendlera rigida* (=*Fendlera linearis*), *Garrya ovata*, and *Rhus virens var. choriophylla* (=*Rhus choriophylla*); and endemics *Salvia lycioides* (=*Salvia ramosissima*), *Salvia roemeriana*, and *Salvia regla*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
QUGR3	*Quercus grisea*	Gray oak
QUMO	*Quercus mohriana*	Mohr oak
QUIN3	*Quercus intricata*	Dwarf oak
RHVI3	*Rhus virens*	Evergreen sumac
MUSE	*Muhlenbergia setifolia*	Curlyleaf muhly

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

Disturbance Description
The primary disturbance mechanism is mixed-severity fire resulting in top-kill and rare mortality. Various oak species present respond to fire with vigorous sprouting from the root

crown. Larger forms may survive low-intensity surface fire. Extended drought also contributes to disturbance. Most chaparral species are fire adapted, resprouting vigorously after burning or producing fire-resistant seeds. Stands occurring in montane woodlands are seral and a result of recent fires.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	41	40		
Moderate (Mixed)				
Low (Surface)	28	60		
All Fires	16	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

Scale ranges from tens to thousands of acres.

Adjacency or Identification Concerns

This biophysical setting (BpS) is characterized by >80% various oak species. This type merges with the mountain shrub BpS at lower elevations and intermingles with the deciduous woodland BpS at higher elevations and/or northern exposures. Co-located with 261127 (Inter-Mountain Basins Semi-Desert Shrub-Steppe) and with montane forests above.

Issues or Problems

Gambel oak community found in very small formation in the Davis Mountains and probably the Guadalupe Range.

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	B	B	B	B	B	B	B	B
Shrub	0.5-1.0	A	A	B	B	B	B	B	B	B	B
Shrub	1.0-3.0	A	A	C	C	C	C	C	C	C	C
Shrub	>3.0	A	A	C	C	C	C	C	C	C	C
Tree	0-5	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	5-10	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	10-25	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	25-50	C	C	C	C	C	UN	UN	UN	UN	UN

Tree	>50	C	C	C	C	C	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 10 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUGR3	Quercus grisea	Gray oak	Upper
QULA	Quercus laceyi	Lacey oak	Upper
RHVI3	Rhus virens	Evergreen sumac	Upper
MUSE	Muhlenbergia setifolia	Curlyleaf muhly	Upper

Description

Post-replacement sprouts to approximately 0.5m high. Dense resprouting with high number of stems per acre. Abundant grass and forb cover.

Maximum Tree Size Class

None

Class B 30 Mid Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUGR3	Quercus grisea	Gray oak	Upper
QULA	Quercus laceyi	Lacey oak	Upper
RHVI3	Rhus virens	Evergreen sumac	Upper
MUSE	Muhlenbergia setifolia	Curlyleaf muhly	Upper

Description

Stem mortality due to competition, with slight decrease in understory species due to shading. Grass and forbs declining.

Maximum Tree Size Class

None

Class C 60 Late Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
QUGR3	Quercus grisea	Gray oak	Upper

QULA	Quercus laceyi	Lacey oak	Upper
RHVI3	Rhus virens	Evergreen sumac	Upper
MUSE	Muhlenbergia setifolia	Curlyleaf muhly	Upper

Description
Nearly continuous canopy cover of 2ha+, with only occasional openings (Brown 1958).

Maximum Tree Size Class
None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	4
Mid1:OPN	5	Late1:OPN	20
Late1:OPN	21	Late1:OPN	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:OPN	Early1:ALL	0.025	40	Yes	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.04	25	No	0
Replacement Fire	Late1:OPN	Early1:ALL	0.025	40	Yes	0
Surface Fire	Late1:OPN	Late1:OPN	0.04	25	No	0

References

Brooks, M.L., T.C. Esque and T. Duck. 2003. Fuels and fire regimes in creosotebush, blackbrush, and interior chaparral shrublands. Report for the Southern Utah Demonstration Fuels Project, USDA Forest Service, Rocky Mountain Research Station, Fire Science Lab, Missoula, Montana. 17 pp.

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Simonin, K.A. 2000. Quercus gambelli in Fire Effects Information System [Online]. USDA Forest Service, Rocky Mountain Research Station, Forestry Sciences Laboratory (producer). Www.fs.fed.us/database/feis/ [2004, October 28].