

10760

Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Shrubland

Map Zone

25

Geographic Range

Chihuahuan Desert.

Biophysical Site Description

Coppice dunes and sandsheets found in the Chihuahuan Desert. Most moisture occurs during intense, short-duration, late-summer thunderstorms

Vegetation Description

Dominated by *Prosopis glandulosa* but includes *Atriplex canescens*, *Ephedra torreyana*, *Ephedra trifurca*, *Poliomintha incana*, and *Rhus microphylla* coppice sand scrub with 10-30% total vegetation cover. *Yucca elata*, *Gutierrezia sarothrae*, and *Sporobolus flexuosus* are commonly present.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PRGL2	<i>Prosopis glandulosa</i>	Honey mesquite
ATCA2	<i>Atriplex canescens</i>	Fourwing saltbush
EPTO	<i>Ephedra torreyana</i>	Torrey's jointfir
EPTR	<i>Ephedra trifurca</i>	Longleaf jointfir
POIN3	<i>Poliomintha incana</i>	Frosted mint
RHMI3	<i>Rhus microphylla</i>	Littleleaf sumac

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

Disturbance Description

Mesquite is topkilled by fire but resprouts and also regenerates from seed. FEIS has a mean fire return interval (MFRI) of 35-100yrs. Fire return interval (FRI) may be on the average more like 35yrs. McPherson identified a 7-10yr FRI in grasslands now dominated by mesquite. Shussman and Gori identify some desert scrubs as invaded desert grasslands when grasslands have an MFRI at 7-10yrs. Model 20yr MFRI based on compromise between 7-10yrs and minimum 35yrs in FEIS.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
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Replacement	22	100	7	100
Moderate (Mixed)				
Low (Surface)				
All Fires	22	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

Large Patch.

Adjacency or Identification Concerns

See issues for possible effects of early extensive grazing, which may have impacts on identification.

Issues or Problems

Heavy grazing in late 1800s and early 1900s may have caused mesquite to increase. Christiansen agrees with model overall. The fire interval depends on amount, if any, of fine fuel to spread a fire. On WSMR, there is almost no fine fuel so the FRI is almost nonexistent except for the very rare shrub fire that has not yet been recorded on WSMR for this system.

Native Uncharacteristic Conditions

Comments

New model for this map zone. See disturbance section for discussion on FRI. Needs confirmation this is correct interval.

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	UN	UN	UN	UN	UN	UN	UN
Herb	0.5-1.0	A	A	A	UN	UN	UN	UN	UN	UN	UN
Herb	>1.0	A	A	A	UN	UN	UN	UN	UN	UN	UN
Shrub	0-0.5	A	A	A	UN	UN	UN	UN	UN	UN	UN
Shrub	0.5-1.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Shrub	1.0-3.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Shrub	>3.0	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	0-5	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	5-10	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	10-25	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	25-50	B	B	B	UN	UN	UN	UN	UN	UN	UN
Tree	>50	B	B	B	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 **26** **Early Development 1 - Open**

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PRGL2	Prosopis glandulosa	Honey mesquite	All
ATCA2	Atriplex canescens	Fourwing saltbush	All

Description

Early growth stage. Significant amounts of bare soil and dune conditions result in low percent canopy closure.

Maximum Tree Size Class

None

Class B **74** **Late Development 1 - Open**

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PRGL2	Prosopis glandulosa	Honey mesquite	All
ATCA2	Atriplex canescens	Fourwing saltbush	All

Description

Mesquite becomes established, may establish clones.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:OPN	0	Late1:OPN	9
Late1:OPN	10	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:OPN	Early1:OPN	0.06	17	No	0
Replacement Fire	Late1:OPN	Early1:OPN	0.04	25	Yes	0

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