

Organ Pipe Cactus National Monument Vegetation Mapping Inventory

Key to Plant Community Types

This dichotomous key identifies the **34 vegetation associations** developed for the Organ Pipe Cactus National Monument Vegetation Mapping Inventory completed in 2025. Some associations may appear more than once in the key.

Codes preceding each type name are:

- C EGL = USNVC-accepted association codes
- NPSSODN = Newly described associations proposed for inclusion in the USNVC system

1' Community spans/bisects a bajada, valley (includes washes/arroyos and floodplains), or other hydrologic features → **2**

1'' Community spans or bisects a pediment or hill/mountain slopes → **19**

2' Community with cattle saltbush (*Atriplex polycarpa*) that outcompetes ragweed (*Ambrosia* spp.) → **3**

2'' If present, cattle saltbush (*Atriplex polycarpa*) is rare and/or does not compete for dominance with ragweed (*Ambrosia* spp.) → **5**

3' Community spans a floodplain dominated by a mix of cattle saltbush (*Atriplex polycarpa*) and Mojave seablite (*Suaeda nigra*)
→ **NPSSODN180 *Atriplex polycarpa* / *Suaeda nigra* Shrubland**

3'' Community not as above → **4**

4' Community spans a bajada dominated by creosote (*Larrea tridentata*) and cattle saltbush (*Atriplex polycarpa*)
→ **CEGL005765 *Larrea tridentata* – *Atriplex polycarpa* Shrubland**

4'' Community spans a floodplain dominated by velvet mesquite (*Prosopis velutina*) and cattle saltbush (*Atriplex polycarpa*)
→ **NPSSODN181 *Prosopis velutina* / *Larrea tridentata* – *Atriplex polycarpa* Shrubland**

5' Upland community not associated with a floodplain or an arroyo/wash → **6**

5'' Community associated with a floodplain or an arroyo/wash → **13**

6' Lower to middle bajada communities with yellow paloverde (*Parkinsonia microphylla*) present on the alluvial fan interfluves → **7**

6'' Lower bajada or valley community with very low (<< 1 %) to absent yellow paloverde (*Parkinsonia microphylla*) that, if present, is only associated with included hydrologic features → **11**

7' Community contains ironwood (*Olneya tesota*) with cover values like that of yellow paloverde (*Parkinsonia microphylla*). This cover is spread across the community and is not primarily associated with the included minor washes. Community does not contain senita cactus (*Pachycereus schottii*). This community typically occurs on low, rolling hills within the broader bajada

→ **NPSSODN185 *Parkinsonia microphylla* – *Olneya tesota* / *Larrea tridentata* / *Ambrosia deltoidea* Wooded Shrubland**

7'' If community contains ironwood (*O. tesota*), it is only present in washes or is far less common than yellow paloverde (*Parkinsonia microphylla*) or community contains senita cactus (*Pachycereus schottii*) → **8**

8' Community contains senita cactus (*Pachycereus schottii*)

→ **NPSSODN195 *Parkinsonia microphylla* – *Stenocereus thurberi* – *Pachycereus schottii* / *Larrea tridentata* / *Ambrosia deltoidea* Wooded Shrubland**

8'' Community does not contain senita cactus (*Pachycereus schottii*) → **9**

9' Upland community with ocotillo (*Fouquieria splendens*) as the dominant canopy species, with creosote (*Larrea tridentata*) and triangle bur ragweed the dominant shrubs. Yellow paloverde and desert ironwood are sparse to absent, occurring only along community edges or in shallow washes

→ **NPSSODN186 *Fouquieria splendens* / *Larrea tridentata* / *Ambrosia deltoidea* Shrubland**

9'' Upland community not as above. Ocotillo (*Fouquieria splendens*) is only an occasional community associate and is not dominant → **10**

10' Upland community dominated by creosote (*Larrea tridentata*) and triangle bur ragweed (*Ambrosia deltoidea*) with a very open (< 5%) canopy of yellow paloverde (*Parkinsonia microphylla*). Creosote (*L. tridentata*) is more dominant than triangle bur ragweed (*A. deltoidea*), usually with 2–4 times the

cover. Species diversity is low (5) and saguaro (*Carnegiea gigantea*) are typically absent

→ **NPSSODN183** (*Parkinsonia microphylla*) / *Larrea tridentata* / *Ambrosia deltoidea* Shrubland

10" Upland community dominated by creosote (*Larrea tridentata*) and triangle bur ragweed (*Ambrosia deltoidea*) with an open (5 - 10%) canopy of yellow paloverde (*Parkinsonia microphylla*). Creosote (*L. tridentata*) and triangle bur ragweed (*A. deltoidea*) provide similar cover. Species diversity is higher (10) and saguaro (*Carnegiea gigantea*) are typically present

→ **NPSSODN184** *Parkinsonia microphylla* / *Larrea tridentata* / *Ambrosia deltoidea* Shrubland (Middle Bajada)

11' Community solely dominated by creosote (*Larrea tridentata*) with seasonal flushes of annual forbs. *Ambrosia* sp. (ragweed) is rare to absent

→ **CEGL001261** *Larrea tridentata* Shrubland

11" Community dominated by creosote (*Larrea tridentata*) with consistent low-cover burrobush (*Ambrosia dumosa*) and/or triangle bur ragweed (*A. deltoidea*) → **12**

12' Burrobush (*Ambrosia dumosa*) is the primary *Ambrosia* sp. (ragweed)

→ **CEGL002954** *Larrea tridentata* / *Ambrosia dumosa* Shrubland

12" Triangle bur ragweed (*Ambrosia deltoidea*) is the primary *Ambrosia* sp. (ragweed)

→ **NPSSODN182** *Larrea tridentata* / *Ambrosia deltoidea* Shrubland

13' Community emergent from standing water or seasonally saturated soils. Usually dominated by Chairmaker's bulrush (*Schoenoplectus americanus*)

→ **NPSSODN192** *Schoenoplectus americanus* Herbaceous Aquatic

13" Community not associated with standing water and/or saturated soils → **14**

14' Arroyo/wash with a clearly defined channel > 1m → **15**

14" Floodplain/Bosque without a clearly defined channel, or a channel less than 1m → **16**

15' Channels > 5m wide lined with a canopy of velvet mesquite (*Prosopis velutina*) and blue paloverde (*Parkinsonia florida*)

→ **NPSSODN190** *Prosopis velutina* – *Parkinsonia florida* Intermittently Flooded Woodland

15' Channels < 5m wide lined by a mix of shrubs and forbs, most often dominated by catclaw acacia (*Senegalia greggii*) and Ambrosia leaf ragweed (*Ambrosia ambrosioides*) with low-cover velvet mesquite (*Prosopis velutina*)

→ NPSSODN189 *Prosopis velutina* / *Senegalia greggii* – *Larrea tridentata* Intermittently Flooded Shrubland

16' Floodplain with very low (< 1%) to absent creosote (*Larrea tridentata*) → 17

16'' Floodplain with dominant creosote (*Larrea tridentata*) → 18

17' Community without a canopy of velvet mesquite (*Prosopis velutina*), typically dominated by a mix of alkali goldenbush (*Isocoma acradenia*) and saltgrass (*Distichlis spicata*)

→ NPSSODN193 *Isocoma acradenia* – *Distichlis spicata* Open Shrubland

17'' Community with a canopy of velvet mesquite (*Prosopis velutina*) with an understory that may contain lotebush (*Ziziphus obtusifolia*) and arrowweed (*Pluchea sericea*). Alkali goldenbush (*Isocoma acradenia*) and saltgrass (*Distichlis spicata*) may be present but should not become dominant

→ NPSSODN191 *Prosopis velutina* / *Ziziphus obtusifolia* – *Lycium* spp. Wooded Shrubland

18' Dense wooded shrubland formation with big galleta (*Hilaria rigida*)

→ NPSSODN187 (*Prosopis velutina*) / *Larrea tridentata* / *Hilaria rigida* Wooded Shrubland

18'' Open shrubland with low to absent big galleta (*Hilaria rigida*)

→ NPSSODN188 (*Prosopis velutina*) / *Larrea tridentata* Floodplain

19' Community spans mountain drainages or gullies → 20

19'' Community spans a mountain slope/pediment → 21

20' Community is dominated by a mix of jojoba (*Simmondsia chinensis*), spiny hackberry (*Celtis ehrenbergiana*) and catclaw acacia (*Senegalia greggii*)

→ NPSSODN202 *Simmondsia chinensis* – *Senegalia greggii* – *Celtis ehrenbergiana* / *Ambrosia ambrosioides* Intermittently Flooded Shrubland

20'' Community like the above, but with a dominant canopy of Ajo Mountain scrub oak (*Quercus ajoensis*) and Arizona rosewood (*Vauquelinia californica*)

→ NPSSODN203 *Quercus ajoensis* – *Vauquelinia californica* / *Simmondsia chinensis* Intermittently Flooded Woodland

21' Community contains jojoba (*Simmondsia chinensis*) → 22

21” Community does not contain jojoba (*Simmondsia chinensis*) → **31**

22’ Community has Arizona rosewood (*Vauquelinia californica*) as a dominant species, with either redberry juniper (*Juniperus arizonica*) or a mixture of shrubs such as redberry buckthorn (*Rhamnus crocea*) and netleaf hackberry (*Celtis reticulata*) as codominant/common species → **23**

22” Community not as above → **24**

23’ Community contains an open canopy of redberry juniper (*Juniperus arizonica*) with Arizona rosewood (*Vauquelinia californica*) common or occasionally having more cover, but juniper is always present. Ocotillo is a low cover but consistent species
→ **NPSSODN200 (*Juniperus arizonica* – *Vauquelinia californica*)/ Mixed Shrub Wooded Shrubland**

23” Arizona rosewood (*Vauquelinia californica*) is the dominant canopy species, with a dense subcanopy of mixed shrubs, mostly commonly including jojoba (*Simmondsia chinensis*), redberry buckthorn (*Rhamnus crocea*) but also netleaf hackberry (*Celtis reticulata*) and desert olive (*Forestiera shrevei*)
→ **NPSSODN201 *Vauquelinia californica* / *Simmondsia chinensis* – *Rhamnus crocea* Wooded Shrubland**

24’ Jojoba (*Simmondsia chinensis*) is the most dominant species with numerous co/sub-dominants, such as Parish goldeneye (*Bahiopsis parishii*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), and Wright’s beebrush (*Aloysia wrightii*). If present, brittlebush (*Encelia farinosa*) is very patchy and only occurs on more exposed inclinations
→ **NPSSODN205 *Simmondsia chinensis* (*Bahiopsis parishii* – *Aloysia wrightii* – *Eriogonum fasciculatum*) Shrubland**

24” Jojoba (*Simmondsia chinensis*) is sub-dominant to triangle bur ragweed (*Ambrosia deltoidea*), brittlebush (*Encelia farinosa*), and/or Arizona spikemoss (*Selaginella arizonica*) → **25**

25’ Community spans areas of shallow soil that include expanses of exposed bedrock. The vegetation is very diverse (~24 species) and is typically composed of ocotillo (*Fouquieria splendens*), Schott’s century plant (*Agave schottii*), and Arizona spikemoss (*Selaginella arizonica*)
→ **NPSSODN196 *Fouquieria splendens* / *Selaginella arizonica* Shrubby Rock Outcrop**

25” Community not as above → **26**

26’ Community contains dominant brittlebush (*Encelia farinosa*). Triangle bur ragweed (*Ambrosia deltoidea*) may be present but should never approach the cover provided by brittlebush → **27**

26” Community not as above → **30**

27' If present, organ pipe cactus (*Stenocereus thurberi*) are inconsistent and very sparse (<< 1%) → **28**

27'' Organ pipe cactus (*Stenocereus thurberi*) are a consistent, but typically low-cover (1 – 3%) component of this community → **29**

28' Community is dominated by cattle saltbush (*Atriplex polycarpa*)

→ **NPSSODN206 *Simmondsia chinensis* – *Atriplex polycarpa* (*Encelia farinosa*) Shrubland**

28'' Community is not dominated by cattle saltbush (*Atriplex polycarpa*), if present it is very sparse (<< 1%)

→ **NPSSODN209 (*Parkinsonia microphylla*) / *Simmondsia chinensis* / *Encelia farinosa* Shrubland**

29' *Elephant tree* (*Bursera microphylla*) are present

→ **NPSSODN208 (*Parkinsonia microphylla*) *Fouquieria splendens* / *Simmondsia chinensis* - (*Bursera microphylla*) / *Encelia farinosa* Shrubland**

29'' *Elephant tree* (*Bursera microphylla*) are absent

→ **NPSSODN207 *Parkinsonia microphylla* (*Stenocereus thurberi*) / *Simmondsia chinensis* / *Encelia farinosa* Shrubland**

30' Community contains dominant triangle bur ragweed (*Ambrosia deltoidea*)

→ **NPSSODN204 *Parkinsonia microphylla* / *Simmondsia chinensis* / *Ambrosia deltoidea* Shrubland**

30'' Community contains dominant cattle saltbush (*Atriplex polycarpa*)

→ **NPSSODN206 *Simmondsia chinensis* – *Atriplex polycarpa* (*Encelia farinosa*) Shrubland**

31' Community contains dominant brittlebush (*Encelia farinosa*). Triangle bur ragweed (*Ambrosia deltoidea*) may be present but should never approach the cover provided by brittlebush → **32**

31'' Community contains dominant triangle bur ragweed (*Ambrosia deltoidea*) or a mix of triangle bur ragweed and burrobrush (*A. deltoidea* and *A. dumosa*). Brittlebush (*Encelia farinosa*) may be present but should never approach the cover provided by triangle bur ragweed (*Ambrosia deltoidea*) → **34**

32' If present, organ pipe cactus (*Stenocereus thurberi*) are inconsistent and very sparse (<< 1%)

→ **NPSSODN197 *Parkinsonia microphylla* / *Jatropha cuneata* / *Encelia farinosa* Shrubland**

32'' Organ pipe cactus (*Stenocereus thurberi*) are a consistent, but typically low-cover (1–3%) component of this community → **33**

33' *Elephant tree* (*Bursera microphylla*) are present

→ **NPSSODN199** *Parkinsonia microphylla* / *Jatropha cuneata* (*Bursera microphylla*) / *Encelia farinosa* Shrubland

33'' *Elephant tree* (*Bursera microphylla*) are absent

→ **NPSSODN198** *Parkinsonia microphylla* (*Stenocereus thurberi*) / *Jatropha cuneata* / *Encelia farinosa* Shrubland

34' Community is characterized by an open canopy dominated by Ocotillo (*Fouquieria splendens*), with creosote (*Larrea tridentata*) dominant in the subcanopy and a field stratum primarily composed of burrobush (*A. dumosa*) and/or triangle bur ragweed (*A. deltoidea*)

→ **CEGL005136** *Fouquieria splendens* / *Larrea tridentata* / *Ambrosia dumosa* Shrubland

34'' Community other than above → **35**

35' *Pachycereus schottii* (senita cactus) and *Stenocereus thurberi* (organ pipe cactus) are present

→ **NPSSODN195** *Parkinsonia microphylla* – *Stenocereus thurberi* – *Pachycereus schottii* / *Larrea tridentata* / *Ambrosia deltoidea* Shrubland (Pediment)

35'' *Pachycereus schottii* (senita cactus) are absent and *Stenocereus thurberi* (organ pipe cactus) are present

→ **NPSSODN194** *Parkinsonia microphylla* (*Stenocereus thurberi*) / *Larrea tridentata* / *Ambrosia deltoidea* Shrubland (Pediment)