

Vegetative Key to Select Trees and Shrubs
of
Southern Nevada
by

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PREFACE

This vegetative key was prepared to assist non-professionals in the identification of Mojave Desert flora. It is useful in identifying plants in the absence of floral parts due to drought or between seasonal flowering. However, descriptions of floral parts and fruit types have been provided to enhance identification. This key is not intended to be inclusive, but will aid in identifying many common plants distributed along Nevada State Highway 160 (elevation 3000 - 5500 ft.) and to less extent other areas of the valley.

This is a dichotomous key, in which two choices are provided. Read both choices and select the feature that best suits the plant and continue keying through to the scientific name. Figure 1 provides an example of the dichotomous format and plant description. Photos have been included for some plants. Do not depend solely on common names because they can be misleading. For example, Poison-Ivy is not an ivy. Botany is encumbered with technical terms, so a glossary has been provided.

First part of first couplet.

1. Plants, cone-bearing or succulent. (Plants, not cone-bearing or succulent, page 8)
2. Plants, cone-bearing.
3. Leaves needlelike *Pinus monophylla*

Scientific name (Genus + Species)

Plant Family Pinaceae *Pinus monophylla* Torr. & Frem. "One-leaf Pinyon" — Common name

Photo 1, page 18. Low tree, 5 to 15 m. tall, sprawling growth. Leaves are needle-like, occurring in fascicled base. Cones ovoid. Scales are 4-sided, thick and open at maturity. Seeds edible. Common on desert mountain slopes at lower elevations, mostly between 3500 - 9000 ft. in Pinyon-Juniper Woodland.

1. Plants not cone bearing or succulent.

Second part of first couplet.

Figure 1 Example of taxonomic couplet and plant descriptions.

AREA OF COVERAGE

The area covered by the key runs parallel to Nevada State Highway 160, beginning at 3000 ft. elevation ending at 5500 ft. Figure 2 illustrates the location and boundaries.

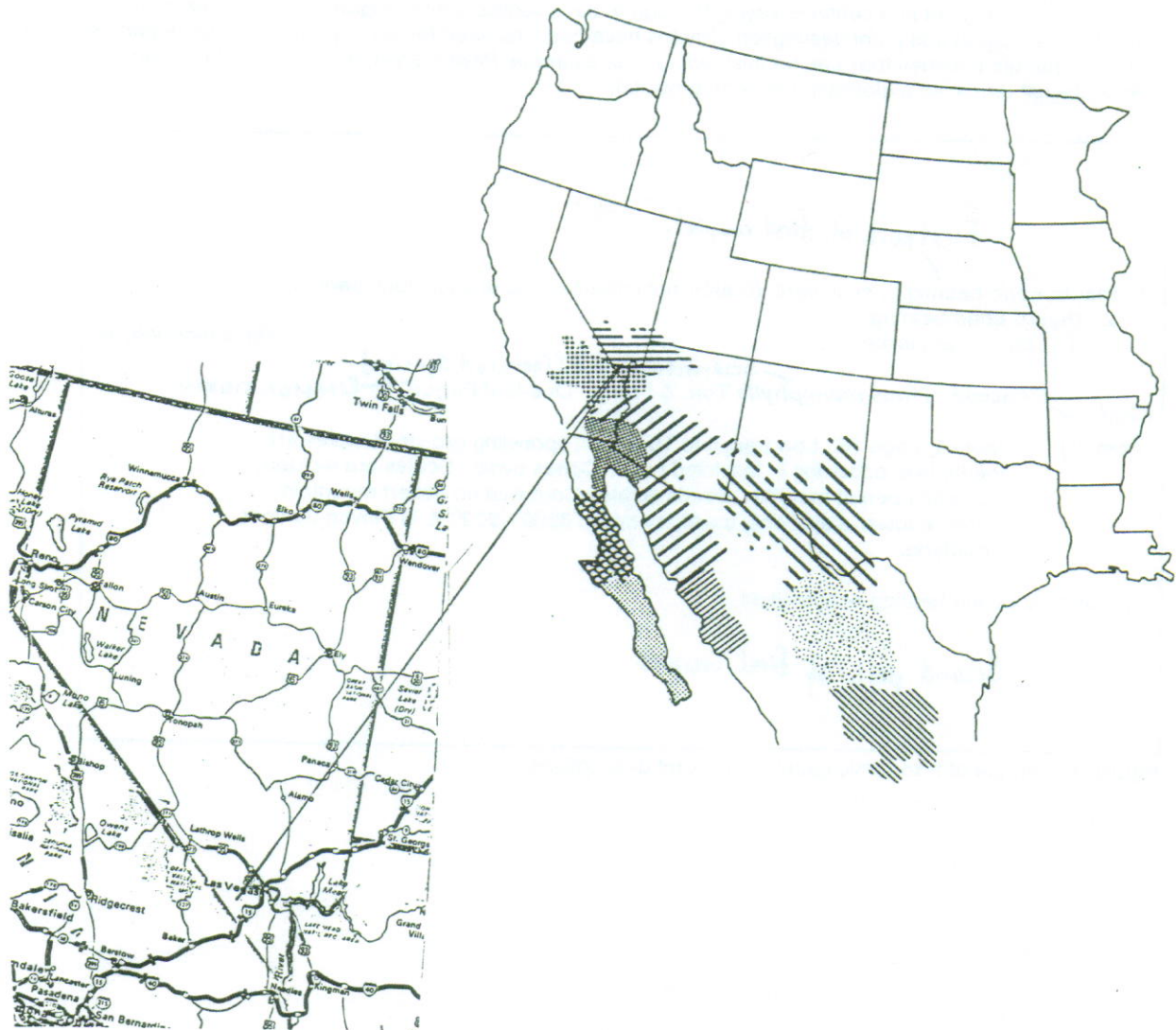


Figure 2 Map of area covered by Highway 160 Key.

PLANT IDENTIFICATION KEY

1. Plants, cone-bearing or succulent. (Plants, not cone-bearing or succulent, page 8)

2. Plants, cone-bearing.

3. Leaves needlelike *Pinus monophylla*

Pinaceae *Pinus monophylla* Torr. & Frem. "One-leaf Pinyon"

Photo 1, page 18. Low tree, 5 to 15 m. tall, sprawling growth. Leaves are needle-like, occurring in fascicled base. Cones ovoid. Scales are 4-sided, thick and open at maturity. Seeds edible. Common on desert mountain slopes at lower elevations, mostly between 3500 - 9000 ft. in Pinyon-Juniper Woodland.

3. Leaves scalelike or scalelike bracts.

4. Leaves scalelike *Juniperus osteosperma*

Cupressaceae *Juniperus osteosperma* (Torr.) Little. "Utah Juniper"

Photo 2, page 18. Arborescent shrub or small tree, mostly 3 - 6 m. tall, forming rounded clumps or crowns. Leaves scalelike and pressed close to stem, 2-3 mm. long. Fruit 6-9 mm. long, rounded or oblong, red-brown beneath the bloom when mature. Common on dry slopes and flats, 4800 - 8500 ft. in Pinyon-Juniper Woodland.

4. Leaves scalelike bracts or wanting.

5. Branching broom like-erect, bright green, at higher elevation *Ephedra viridis*

Ephedraceae *Ephedra viridis* Cov. "Mormon Tea"

Photo 3, page 19. Broom like, erect, shrub, 5-15 dm. tall, with numerous, broom like yellow-green rough textured slender branches. Leaves opposite. ♂ cones 2 or more, obovoid with 6-10 pairs of bracts; ♀ cones obovoid, with 4-8 pairs of ovate bracts. Frequently on dry rocky slopes, canyon walls, etc., 3000 - 7000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland.

5. Branching spreading-erect, gray-green, lower elevations *Ephedra nevadensis*

Ephedraceae *Ephedra nevadensis* Wats. "Mormon tea"

Photo 4, page 19. Broom like, spreading-erect, shrub, to about 12 dm. tall, young stems pale green and smooth., later stems gray. Leaves in 2's, after falling leaving gray bases. ♂ cones 1-several, ellipsoid with 5-9 pairs of ovate bracts, long, yellow to light brown; ♀ cones roundish, 5-11 mm., with 3-5 pairs of bracts, long light brown to yellow-green. Common on dry slopes and hills mostly below 4500 ft. In Creosote Bush Scrub and Joshua Tree Woodland.

2. Plants succulent.

6. Nodes producing spines or glochids. (Nodes not producing spines or glochids, page 6)

7. Stems jointed, flat or rounded; areolas with bristles (glochids) and usually also with spines. (Stems not jointed; areolas with out glochids, bearing only large spines, page 7)

8. Joints of stems cylindrical.

9. Spines solitary or wanting. *Opuntia ramosissima*

Cactaceae *Opuntia ramosissima* Engelm. "Pencil Cactus"

Photo 4, page 19. Freely branched, matted to erect, somewhat woody succulent with small jointed stems; 3-15 dm. tall. Branches cylindrical, grayish, 6-10 mm. thick, the core becoming woody after the first year; spiny to spineless, covered with low diamond-shaped plates, each with areolae at the tip. Spines solitary, 2-5 cm. long, yellow-sheathed, each barbed at the base. Glochids very small. Flowers yellow-green, tinged with red. Fruits at ends of short branches, dry, almost cylindrical, 2-5 cm. long, covered with tawny 1 cm. spines. Found on dry washes, slopes and mesas, below 4000 ft in Creosote Bush Scrub and Joshua Tree Woodland. Flowers usually during hot, summer months.

9. Spines more than one *Opuntia echinocarpa*

Cactaceae *Opuntia echinocarpa* Engelm. & Bigel. "Silver Cholla"

Photo 5, page 20. Erect, somewhat woody, succulent that is intricately branched, 6-12 dm. tall with a short woody trunk and dense crown of cylindrical branches; joints mostly 5-15 cm. long and 15-20 mm. thick. Stems easily detachable. Tubercles conspicuous, 8-10 mm. long, 5-15 cm. high and wide, with 3-10 silvery to golden spines 2-3 cm. long. Glochids very small. Flowers, greenish-yellow with streaks of red, clustered at ends of branches. Fruits, dry, many spined, 1-5 to 2 cm. long. Very common plant found on dry washes and mesas below 6000 ft. in Creosote Bush Scrub, Joshua Tree Woodland and Pinyon-Juniper Woodland. Flowers from April to May.

8. Joints of stems flattened.
10. Areolas 0.5-1.5 cm. apart.
11. Joints mostly spineless *Opuntia basilaris*

Cactaceae *Opuntia basilaris* Engelm. & Bigel. "Beavertail Cactus"

Low, spreading, succulent, 1-3 dm. long. Stems, strongly flattened, branched at base of flattened joints, forming clumps. Joints spineless; blue green and often with purplish tint, frequently wrinkled. Areolas small, closely placed, with many short brown glochids. Flowers orchid to rose, rarely white, clustered at upper edge of joints. Fruits dry and brown when ripe, spineless. Found frequently on dry benches and fans, up to 6000 or more ft. in Creosote Bush Scrub to Joshua Tree Woodland. Flowers from March to June. Edible stems, flowers and fruits.

11. Joints usually spiny *Opuntia erinaceae*

Cactaceae *Opuntia erinaceae* Engelm. & Bigel. "Old Man Cactus"

Low growing, succulent; forming low clumps. Stems, flat, jointed; the joints, oblong to obovate, 6-16 cm. long, 4-7 cm. wide. Areolas 8-10 mm. apart, with 4 to 7, white gray, or brown spines that are stiff and rigid. The longer spines may be 0.5 - 5 cm. long; glochids brownish. Flowers yellow, sometimes reddish in age. Fruits dry, short-spiny, almost cylindric, 2-3 cm.

long. Found on dry gravelly and rocky places, 1500 - 8000 ft. mostly in western Mohave Desert in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers in May.

10. Areolas 1.5-5.0 cm. apart *Opuntia phaeacantha*

Cactaceae *Opuntia phaeacantha* Engelm. "Mojave Prickly Pear"

Photo 6, page 20. Sprawling or flat to the ground, succulent with a horizontal, main stem about 0.5 to 3 m. long and erect, shrub-like branches, .3 to 1 m. high. Short-jointed and flat stems. Joints, elliptic to almost round. Areolas, usually with 1 to 3 spines; the spines, red-brown at the base, yellowish at ends 2.5-6 cm. long. Flowers yellow or with red base. Fruit wine-colored or purplish, fleshy 3-6 cm. long without spines. Growing mostly between 1500 - 4000 ft. in Creosote Bush Scrub and above. Flowers from May to June.

7. Stems not jointed; areolas without glochids, bearing only large spines.

12. Tubercles fused.

13. Stems usually single *Ferocactus acanthodes*

Cactaceae *Ferocactus acanthodes* (Lem.) Britt. & Rose "Barrel Cactus"

Photo 7, page 20. Unbranched, cylindrical or barrel-shaped, often massive, succulent with prominent ribs often twisted spirally around the stem, 2 or more m. tall. Stems globe shaped at first but soon becoming cylindric. Spines, dense in clusters on ribs; spreading and obscuring the stems. The central spines, red or yellowish; 7.2 to 15 cm. long, often curved; inner radial spines, shorter, and less curved. Flowers, yellow, occurring near apex of plant. Fruit cylindrical, ovate, fleshy at maturity. Found on rocky slopes, mostly below 2000 ft. in Creosote Bush Scrub. Flowers from April to May.

13. Stems more than one *Echinocereus engelmannii*

Cactaceae *Echinocereus engelmannii* (Parry) Lem. "Hedgehog Cactus"

Cacti, composed of clumps of 10-15, cylindrical, erect stems, in rather open mounds, 20-25 cm. tall. Stems ribbed. Spines, numerous on the ribs, yellowish, pink or gray, the lower spines are bent downward and flattened, stout and rigid, the other spines are straight, the largest nearly interlacing with lower spines. Flowers crimson-magenta to paler. Fruit, red about 3 cm. long, fleshy and edible. Found in rocky or gravelly slopes, below 6000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from April to May.

12. Tubercles separate.

14. Central spines hooked at tip *Mammillaria tetrancistra*

Cactaceae *Mammillaria tetrancistra* Engelm. "Fishhook Cactus"

Cacti, body simple, oblong, 1-2.5 dm. tall; tubercles 4-7 mm. high, central spines 1-4, dark, needlelike, one or more of them hooked; radial spines 30-60, mostly very slender and white, about 1 cm. long. Flowers, lateral, pale

pink-rose. Fruit, persistent, cylindric, scarlet, 1.2 - 2 cm. long. Found occasional on dry slopes below 2000 ft. in Creosote Bush Scrub. It is extremely small therefore can be difficult to find. Flowers in April.

14. Central spines not hooked at tip *Coryphantha vivipara*

Cactaceae *Coryphantha vivipara* (Nutt.) Britton & Rose "Foxtail or Cushion Cactus"

Photo 8, page 20. Low, unbranched cacti, with 1 or a few short, cylindric stems with conspicuous spirally arranged tubercles, 1-2 dm. tall. Spines numerous, central spines 12-16, straight, stout and divergent, dark-tipped; 30-35 radial spines, more slender, nearly concealing the plant surface. Flowers, apical or terminal, about 3 cm. long, magenta with deeper red midvein. Fruit, club-shaped, green or red, fleshy at maturity. Found on stony slopes from 2,000 to 5,000 ft. in Creosote Bush Scrub and Joshua Tree Woodlands. Flowers from May to June.

6. Nodes not producing spines or glochids.
 15. Leaves with free marginal fibers.
 16. Plant with definite trunk *Yucca schidigera*

Agavaceae *Yucca schidigera* Roez. ex Ortgies. [*Y. mohavensis* Sarg.] "Mohave Yucca"

Photo 9, page 21. Tree or shrub with definite trunk, 1-4.5 m. tall, simple or branched, head of leaves, 6-13 dm. long, 1-2 m wide. Leaves narrow, linear, yellow-green, with few coarse marginal fibers, the spine 7-12 mm. long. Flowers in clusters with 15-25 branches; perianth globe-shaped, cream or purple-tinged. Found on dry rocky slopes and mesas, below 5000 ft. in Creosote bush scrub. Flowers from April to May.

16. Plant without definite trunk *Yucca baccata*

Agavaceae *Yucca baccata* Torr. "Spanish Bayonet or Banana Yucca"

Photo 10, page 21. Mostly simple, stemless shrub, sometimes in clumps with 2-6 short, stems not affixed to yet laying on the ground. Leaves narrow, pale blue-green, stiff and rigid, with a sharp, spine tip, 1.5 to 7 mm. long and with a fibrous margin. Leaves 5 - 7.5 dm. long and 5-7 cm. wide. Flowers, in an elongate, terminal cluster, with about 15 branches on leafless, flowering stem. Flowers, fleshy, cream with a purplish tinge. Fruit, fleshy, eventually dangling. Not commonly found. Occurs on dry slopes, 3000-4000 ft.; Joshua Tree Woodland. Flowers from May to June.

15. Leaves without free marginal fibers *Yucca brevifolia*

Agavaceae *Yucca brevifolia* Engelm. In Wats. "Joshua Tree"

Photo 11, page 21. Tree 5-12 m. tall, branched mostly at 1-3 m. above ground; stem stout, red-brown or gray, the bark checkered into small squarish plates. Leaves clustered near end of branches. Leaves not fibrous on margin. Flowers fleshy, waxy, cream to greenish white. Fruit plump, but drying in age. Found on dry mesas and slopes, 2000-6000 ft.; Joshua Tree Woodland. Flowers from March to May.

E. nevadensis is not
broomlike (couplet 18)

1. Plants not cone bearing or succulent.
17. Stems photosynthetic. (Stems not photosynthetic, page 9)
18. Stems broom-like.
19. Plants glandular, strong smelling *Thamnosma montana*

Rutaceae *Thamnosma montana* Torr. & Frem. "Turpentine-Broom"

Photo 12, page 22. Aromatic small shrub covered with glands. Stems branching broom like, yellowish-green, 3-6 dm. tall. Leafless most of the year. Branchlets become sharp and spiny when dry. Leaves linear to oblanceolate, 5-15 mm. long, alternate, early deciduous. Flowers purplish, with a 4-lobed calyx and 4 petals. Fruit persistent, a leathery 2-lobed, gland-dotted, heavily-scented capsule opening at the apex. Found frequently on dry slopes, below 5500 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from March-May.

19. Plants not glandular, not strong smelling.
20. Branching broom like-erect, bright green, at higher elevations *Ephedra viridis*

Ephedraceae *Ephedra viridis* Cov. "Mormon Tea"

Photo 3, page 18. Broom like, erect, shrub, 5-15 dm. tall, with numerous, broom like yellow-green rough textured slender branches. Leaves opposite. ♂ cones 2 or more, obovoid with 6-10 pairs of bracts; ♀ cones obovoid, with 4-8 pairs of ovate bracts. Frequently on dry rocky slopes, canyon walls, etc., 3000 - 7000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland.

20. Branching spreading-erect, gray-green, lower elevations *Ephedra nevadensis*

Ephedraceae *Ephedra nevadensis* Wats. "Mormon tea"

Photo 4, page 18. Broom like, spreading-erect, shrub, to about 12 dm. tall, young stems pale green and smooth., later stems gray. Leaves in 2's, after falling leaving gray bases. ♂ cones 1-several, ellipsoid with 5-9 pairs of obovate bracts, long, yellow to light brown; ♀ cones roundish, 5-11 mm., with 3-5 pairs of bracts, long light brown to yellow-green. Common on dry slopes and hills mostly below 4500 ft. In Creosote Bush Scrub and Joshua Tree Woodland.

18. Stems not broom-like.
21. Plants bearing spine at the tip, branching alternate *Menodora spinescens*

Oleaceae *Menodora spinescens* Gray. "Twin fruit"

Photo 13, page 22. Low shrub, 1.5-8 dm. high, with irregular, yellow-green, divergent branches with short, stout spiny finely haired, alternate branchlets. Leaves 4-12 mm. long, linear to spatulate-oblong, entire, fleshy, and alternate. Flowers solitary or in clusters; color white, tinged brownish-purple. Fruit, a two-lobed capsule about 7-8 mm. long and 8-9 mm. wide. Occasionally found on dry mesa and slopes, mostly 3500-6500 ft. in Shadscale Scrub and Joshua Tree Woodland. Flowers from April to May.

21. Plants not bearing spine at the tip, branching opposite *Salazaria mexicana*

Lamiaceae *Salazaria mexicana* Torr. "Bladder-Sage or Paperbag Bush"

Low dense and divaricately branched shrub with spinescent branchlets. Leaves green, small, entire, short-petioled. Flowers in racemes 5-10 cm. long, purple. Calyx, 2-lobed and becomes swollen and papery in fruit. Commonly found in dry washes and canyons, below 5000 ft. in Creosote Bush Scrub and Joshua Tree Woodland. Flowers from March to June.

17. Stems not photosynthetic.
 22. Leaves and branching opposite. (Leaves and branching alternate, page 10)
 23. Branching widely spreading apart.
 24. Spur shoots present, dark low rounded shrub *Coleogyne ramosissima*

Rosaceae *Coleogyne ramosissima* Torr. "Black Bush"

Photo 14, page 22. Intricately branched shrub with opposite spinescent branches, 20 dm. tall, ashy gray, with divergent branches. Leaves in opposite fascicles, deciduous, 5-15 mm. long; stipules persistent after leaf fall. Flowers, solitary without petals and four sepals which are yellowish. Many stamens. Fruit a smooth, achene. Found on dry slopes, below 5000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from April to June.

24. Spur shoots absent, light upright widely branching shrub *Salvia dorrii*

Lamiaceae *Salvia dorrii* (Kell.) Abrams. "True Sage"

Photo 15, page 23. Low broad, much branched, strongly aromatic shrub 3-8 dm. tall. Branches densely scurfy-canescens, with short axillary fascicles, leaves opposite, round to spatulate. Flowers usually in 3 to 4 interrupted, compact, whorls. Flowers, subtended, by purplish-green bracts. Flowers, 2-lipped and blue. Found on dry flats and slopes, 2500-8000 ft. in Joshua Tree Woodland to Pinyon-Juniper Woodland to Sagebrush Scrub. Flowers from May to July.

23. Branching not widely spreading apart.
 25. Branches covered with fine hairs *Ceanothus greggii*

Rhamnaceae *Ceanothus greggii* Gray. "Mohave Buckbrush"

Erect, rigidly branched evergreen shrub, 1-2 m. tall, branches covered with densely matted coarse hairs. Leaves opposite, rigid and firm, elliptic-ovate, to oblanceolate, entire to fine toothed grayish-green and concave on top; gray woolly beneath. Flowers, cream-white, placed, umbrella-like. Petals 5 and sepals 5. Found dry slopes, 3500 - 7000 ft. in Joshua Tree Woodland and Pinyon-Juniper Woodland. Flowers from March to April.

25. Branches smooth. *Larrea tridentata*

Completed 29,
not complete!

Zygophyllaceae *Larrea tridentata* Cav. "Creosote Bush"

Photo 16, page 23. Evergreen strong-scented resinous shrub with branches 1-3 m. tall, brittle, grayish, irregular, with dark glandular bands at the nodes. Leaves opposite, with 2 divaricate sessile asymmetrical olive-green leaves. Flowers solitary, yellow. Sepals, 5, deciduous. Petals, 5, clawed aligned like the blades of a fan. Fruit, globe-shaped and hairy, separating at maturity into 5 indehiscent 1-seeded carpels. The dominant shrub over most of the Mohave Desert, found on dry slopes and plains up to 5000 ft. Flowers from November to May.

- 22. Leaves and branching alternate.
- 26. Flowering stalks persistent, conspicuous. (Flowering stalks not persistent, not noticeably conspicuous, page 11)
- 27. Leaves ovate *Encelia virginensis*

Asteraceae *Encelia virginensis* A. Nels. "Brittle Bush"

Photo 17, page 23. Low branching, rounded-topped shrub, 8-15 dm. tall. Leaves, alternate, broadly ovate, finely haired, yellowish-green. Floral heads medium-sized, showy, solitary with ray (yellow) and disk (yellow) flowers, well above the leaves on long naked peduncles (stalk). Found on dry slopes up to 5,000 ft. in Creosote Bush Scrub. Flowers from April to May.

- 27. Leaves linear to spatulate to oblanceolate.
- 28. Heads small, 1 to 2 mm wide.
- 29. Heads more or less flat, leaves linear
- 30. Heads in crowded dense flatten clusters *Gutierrezia microcephala*

Asteraceae *Gutierrezia microcephala* (DC.) Gray "Matchweed"

Photo 18, page 24. Many-stemmed, small, shrub, 3-6 dm. tall; strongly resinous and smooth, the slender stems are much branched. Leaves alternate, 2-5 cm. long, or a few solitary. Floral heads very small, radiate, yellow, numerous in broad terminal cluster. Ray flowers, present but inconspicuous, only 1 or 2. Disk flowers 1 to 2. Involucre, cylindric with straw-colored involucre bracts. Found in open desert up to 7500 ft. in Shadscale Scrub, Creosote Bush Scrub, and Joshua Tree Woodland. Flowers from July to October.

- 30. Heads in narrow elongated clusters or scattered along branches.
- 31. Heads narrowly elongated clustered *Artemisia tridentata*

Asteraceae *Artemisia tridentata* Nutt. "Sagebrush"

Photo 19, page 24. Rounded, evergreen shrub mostly 0.5 to 3 m. tall, with short thick trunk and silvery green herbage, usually very aromatic. Leaves alternate, crowded, wedge to triangular shaped, with 3 blunt teeth at the apex. Heads, small, looking like a disk, numerous, in terminal clusters. Involucre bracts, gray-green and overlapping. Disk flowers, 4 to 6, yellow. Found on dry slopes and plains, 1500 - 10,600 ft. in Sagebrush Scrub and Pinyon-Juniper Woodland. Flowers from August to October.

31. Heads scattered more or less solitary *Chrysothamnus paniculatus*

Asteraceae ***Chrysothamnus paniculatus*** (Gray) Hall "Sticky Rabbit-Brush"

Photo 20, page 25. Loosely, branched, broadly rounded shrub 6-20 dm. tall with smooth, resinous, many glanded, herbage. Leaves narrowly, cylindrical with minute, sharp pointed tip. Floral heads in profuse, terminal inflorescence. Involucres, with strongly overlapping involucre bracts. Heads, 5 to 8 flowered, yellow. Found in stony open places mostly below 4000 ft. in Creosote Bush Scrub. Flowers from June to December.

28. Heads larger, 1 to 3 cm wide.

32. Leaves evergreen *Haplopappus linearifolius*

Asteraceae ***Haplopappus linearifolius*** DC. "Linear Leaved Golden Bush"

Much-branched shrub, 4-15 dm. tall, mainly smooth however hairy below the floral heads. The broom like twigs are resinous. Leaves alternate, linear, entire, crowded with smaller leaves fascicled. Floral heads numerous, 1 to 3 cm. wide borne at the ends of nearly leafless peduncles. Both ray and disk flowers present. Rays yellow, 13 to 18. Involucre bracts, greenish, with a membranous margin, overlapping in 2 or 3 rows. Found on dry slopes and banks, up to 6500 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from March to May.

32. Leaves deciduous.

33. Leaves narrowly linear to lanceolate *Machaeranthera tortifolia*

Asteraceae ***Machaeranthera tortifolia*** (Gray) Cronq. & Keck "Desert Aster"

Erect, somewhat woody, herb. Stems and herbage, woolly or glandular hairy when young. Leaves, alternate, rough hairy, linear to lanceolate, spine toothed, with a spine tipped apex. Floral heads, solitary, large and showy at the ends of naked peduncle. Involucres, gray pubescent. Both ray (40-60, blue-violet) and disk (yellow) flowers present. Found on dry rocky places and washes, 2000 - 5500 ft. in Creosote Bush Scrub. Flowers from March to May and also in October.

33. Leaves spatulate, oblanceolate to elliptic . . . *Acamptopappus shockleyi*

Asteraceae ***Acamptopappus shockleyi*** Gray. "Goldenhead"

Low much branched, rounded desert shrub with white bark, 1.5-5 dm. high and with many slender stems. Spinescent-branched, the herbage, rough covered with firm, stiff hairs. Leaves alternate, spatulate, oblanceolate or elliptic. Floral heads spherical, spreading from central point (disk flower), yellow, and solitary at the ends of nearly naked peduncles. Rays (8-13) and disk flowers present. Found in desert plains and washes, 3000 - 6200 ft. in Creosote Bush Scrub and Joshua Tree Woodland. Flowers from April to June.

26. Flowering stalks not persistent, not noticeably conspicuous .

34. Leaves linear

35. Leaves willow-like.

36. Plants deciduous *Chilopsis linearis*

Bignoniaceae *Chilopsis linearis* (Cav.) Sweet. "Desert-Willow"

Photo 21, page 25. A large shrub to small tree, 2 - 6 m. tall, with few to many stems, twigs very slender. Leaves, alternate, deciduous, willow-like. Calyx inflated, deeply 2-lipped; corolla, funnel-shaped, lavender or pink or whitish, with purplish lines and markings. Fruit, cylindrical capsule. Seeds with wings splitting into long hairs. Found commonly along washes and waterways below 5000 ft. in Creosote Bush Scrub and Joshua Tree Woodland. Flowers from May to September.

36. Plants evergreen *Eriodictyon angustifolium*

Hydrophyllaceae *Eriodictyon angustifolium* Nutt. "Yerba Santa"

Aromatic, evergreen shrub about 1 m. tall with many smooth, sticky branches and leaves. Leaves alternate, linear to lance-linear and located mostly crowded on ends of branches. Flowers many, in terminal, branched scorpion-tail shaped inflorescence. Flowers white and finely haired. Fruit, tough, falsely two-lobed capsule. Found on dry slopes at 5000 - 5500 ft. in Pinyon-Juniper Woodland. Flowers from June to July.

35. Leaves not willow-like *Hymenoclea salsola*

Asteraceae *Hymenoclea salsola* T. & G. "Cheesebush"

Photo 22, page 25. Erect, twiggy desert shrub, 6-10 dm. tall. Leaves alternate, sparse, when present yellowish-green, resinous, covered with fine, gray-white hairs. Floral heads, multiple flowered, with scales of ♀ involucre spirally arranged from base to near the middle, sometime overlapping like cone. Phyllaries persistent. Found commonly in sandy washes, often in alkaline places, in Creosote Bush Scrub, Shadscale Scrub, and Pinyon-Juniper Woodland. Flowering from March to June.

34. Leaves not linear

37. Spur shoots present on stems.

38. Stems widely spreading *Prunus fasciculata*

Rosaceae *Prunus fasciculata* (Torr.) Gray. "Desert Almond"

Photo 23, page 26. Rigidly branched deciduous shrub, 1.5 to 4 m. tall with short stiff thorn like twigs. Young twigs covered with fine hairs. Leaves fascicled on short stubby branches, oblanceolate-spatulate, mostly entire, long, pale green, covered fine hairs. Flowers, attached directly to stalk, in few-flowered clusters; petals white. Fruit, drupe, ovoid and dry covered with fine hairs. Found in dry slopes and washes, 2500-6000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from March to May.

38. Stems not widely spreading.

39. Leaves gland dotted *Cowania mexicana*

Rosaceae *Cowania mexicana* D. Don. "Cliff rose"

Photo 24, page 26. Freely branched shrub up to 3 m. tall, with dark, shredded bark and red-brown glandular twigs. Leaves alternate, pinnatifid divided in 3-5 narrow, revolute segments, green above and white, densely matted with hairs underneath. Floral tube funnel-shaped and persistent. Flower with 5 overlapping sepals and 5 spreading cream-colored petals. Fruit an achene with long, feathery tail. Found on dry slopes and canyons, 4000 - 8000 ft. in Joshua Tree Woodland and Pinyon-Juniper Woodland. Flowers from April to July.

39. Leaves not gland dotted
40. Leaves simple *Amelanchier utahensis*

Rosaceae *Amelanchier utahensis* Koehne. "Service-Berry"

Photo 25, page 27. Deciduous shrub to small tree, 1-5 m. tall, with unarmed branches and slender, cylindrical branchlets. Young stems are whitish and finely haired. Leaves simple, alternate, pinnately veined, largely roundish to oval, grayish-green, matted with woolly hairs on both sides. Floral tube is urn-shaped. Flowers white and covered with fine hairs. Fruit is a fleshy pome. Found on dry slopes, 5000 - 7000 ft. in Pinyon-Juniper Woodland. Flowers from April to May.

40. Leaves deeply lobed to compound *Fallugia paradoxa*

Rosaceae *Fallugia paradoxa* (D. Don.) Endl. "Apache-Plume"

Photo 26, page 27. Low deciduous many branched shrub, with flaky bark, 3-15 dm. tall with young growth and leaves covered with small, scurfy, rusty scales. Leaves alternate, clustered pinnately divided into 3-5 linear divisions with margins rolled underneath. Flowers showy, white, solitary at ends of branches on long stalks. Petals 5; sepals 5, alternating with 5 bractlets. Fruit is a achene, with a long feathery tail. Found in shaded, damp areas, 4000 - 7500 ft. mostly in Montane Coniferous. Flowers from March to June.

37. Spur shoots absent on stems.
41. Branching widely spreading.
42. Fruit spiny and persistent *Krameria parvifolia*

Krameriaceae *Krameria parvifolia* Benth. "Little Leaf or Range Ratany"

Photo 26, page 27. Densely and intricately branched shrub, thorny, 3-7 dm. tall. Leaves alternate, simple and entire, narrowly linear. Flowers irregular, axillary, purplish on stalks with long, silky hairs with 1 pair of bracts. Fruits with spines with barbs. Found in dry sandy and rocky places, below 4000 ft. in Creosote Bush Scrub. Flowers from April to May.

42. Fruit not persistent, stems spine tipped *Grayia spinosa*

Chenopodiaceae *Grayia spinosa* (Hook.) Moq. "Hop-Sage"

Stiff, much-branched erect shrub, 3-10 dm. tall. gray-green, often spiny, scurfy-finely haired with mealy younger parts. Leaves alternate, entire,

oblanceolate to oblong-lanceolate rather fleshy and fixed to stem. Flowers, small, unisexual, flowers dense clusters at the tips. Male and female flowers on separate plants. Fruits enclosed in membranous bracts which are reddish or whitish. Found commonly on flats and mesas, mostly 2500 - 7500 ft. in Creosote Bush Shrub to Pinyon-Juniper Woodland. Flowers from March to June.

- 41. Branching not widely spreading.
- 43. Flowers and/or fruit persistent
- 44. Fruit winged *Atriplex canescens*

Chenopodiaceae *Atriplex canescens* (Pursh.) Nutt. "Four-winged Saltbush"

Photo 28, page 28. Erect, much-branched shrub 4-20 dm. tall, grayish-scurfy with spreading cylindrical branches. Leaves alternate, crowded, fixed to stem, linear spatulate to linear oblong, gray-scurfy. Flowers unisexual, male and female flowers borne on separate plants, small, greenish in dense clusters or spikes. Fruiting bracts, with 4 conspicuous wings with arise from middle of fruit. Wings entire or deeply toothed. Found on dry slopes, flats and washes below 7000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from June to August.

- 44. Fruit not winged *Psorothamnus fremontii*

Fabaceae *Psorothamnus fremontii* Torr. "Indigo Bush"

Photo 29, page 28. Intricately, branched deciduous shrub, 5-20 dm. high with young twigs gray and covered with fine hairs. Leaves small, green, hairy to smooth, gland-dotted, divided into several pairs of leaflets. Flowers, precocious, ranging in color from dark blue to deep purple, in showy racemes. Fruits ovoid pod with brown glands and a long beak. Found occasionally, gravelly plains and rocky slopes. 2500-4500 ft. in Sagebrush and Creosote Bush Scrub. Flowers from April to May.

- 43. Flowers and fruit not persistent
- 45. Stems pliable *Rhus trilobata*

Anacardiaceae *Rhus trilobata* "Squaw Bush"

Diffusely branched shrub, 8-14 dm. tall with branches spreading, often turned down and rooting at tips; strong scented when crushed; heavily pubescent. Leaves diamond to wedge to obovate; margin finely toothed. Flowers precocious. Flowers yellowish in clustered spikes. Fruit sticky, bearing long, straight hairs. Common in canyons and washes, mostly below 3500 ft. Flowers from March to April.

- 45. Stems brittle.
- 46. Leaves, gray scurfy and fleshy *Atriplex canescens*

Chenopodiaceae *Atriplex canescens* (Pursh.) Nutt. "Four-winged Saltbush"

Photo 30, page 28. Erect, much-branched shrub 4-20 dm. tall, grayish-scurfy with spreading cylindrical branches. Leaves alternate, crowded, fixed to stem, linear spatulate to linear oblong, gray-scurfy. Flowers

unisexual, male and female flowers borne on separate plants, small, greenish in dense clusters or spikes. Fruiting bracts, with 4 conspicuous wings with arise from middle of fruit. Wings entire or deeply toothed. Found on dry slopes, flats and washes below 7000 ft. in Creosote Bush Scrub to Pinyon-Juniper Woodland. Flowers from June to August.

- 46. Leaves not scurfy or fleshy
- 47. Leaves fascicled
- 48. Leaves linear to lanceolate.
- 49. Low erect shrub *Ceratoides lanata*

Chenopodiaceae *Ceratoides lanata* "Winter Fat"

Low, erect, shrub, with white woolly branchlets and young twigs. Branches becoming spiny with age. Leaves, alternate, linear to lanceolate. Smaller leaves may be fascicled in axil. Young leaves, hairy and slightly woolly. Flowers small and unisexual, in dense clusters along the branches. Female flowers are covered by long silky hairs. Fruits enclosed in lanceolate bracts and are covered with dense tuft of silvery hairs, looking like cotton. Found on flats and rocky places, mostly above 2,000 ft. Flowers from March to June.

- 49. Low spreading shrub *Eriogonum fasciculata*

Polygonaceae *Eriogonum fasciculata* Benth. "Flat-top or Wild Buckwheat"

Low spreading, shrub with stems laying on ground with tips erect. Branches long and leafy ending in leafless peduncles. Flowers in head like clusters at the tips. Leaves numerous and fascicled, linear, green and smooth above and white-woolly beneath. Flowers white or pinkish, in ball-like clusters. Petals, none. Calyx, petaloid, within a calyx-like involucre. Found on dry slopes and canyons, below 2,000 ft. Flowers from April to November.

- 48. Leaves deeply lobed or pinnatifid.
- 50. Lvs. irregularly toothed to lobed. *Ambrosia eriocentra*

Asteraceae *Ambrosia eriocentra* Gray. "Woolly Bur-Sage"

Photo 31, page 29. Rigidly branched spreading shrub 3-8 dm. tall, with lightly spiny branchlets and stems which are covered with fine white hairs when young becoming smooth as matures, strongly aromatic. Leaves alternate, gray woolly, becoming smooth above, round to ovate, margins fine toothed, often fascicled, toothed to deeply lobed or pinnatifid. Floral heads, unisexual, small and inconspicuous. Male heads, nodding in terminal spike, with shallow, bowl-shaped involucre. Female heads, 1-flowered, forming a spiny bur covered with long, white woolly, hairs. Found in dry washes or on rocky slopes above 2,500 to 5000 ft. in Creosote Bush Scrub, Joshua Tree Woodland and Pinyon-Juniper Woodland. Flowers from March to May.

- 50. Leaves, 1 to 3 times pinnatifid. *Ambrosia dumosa*

Asteraceae *Ambrosia dumosa* (Gray) Payne. "Burro-Weed"

Photo 32, page 29. Low, intricately branched rounded shrub 2-6 dm. high, stems white, which become spiny with age, covered with stiff, flattened hairs. Leaves, alternate, mostly fascicled, ovate, 1-3 pinnatifid with short, rounded lobes. Floral heads, small, greenish, unisexual. Male heads, nodding, in short spikes on ends with a shallow bowl-shaped involucre. Female heads, usually 2-flowered, becoming a beaked glandular bur in fruit with 20-35 spines. Found on well drained soils below 3500 ft. in Creosote Bush Scrub and Joshua Tree Woodlands. Flowers from February to June and sometimes in September to November.

47. Leaves not fascicled *Sphaeralcea ambigua*

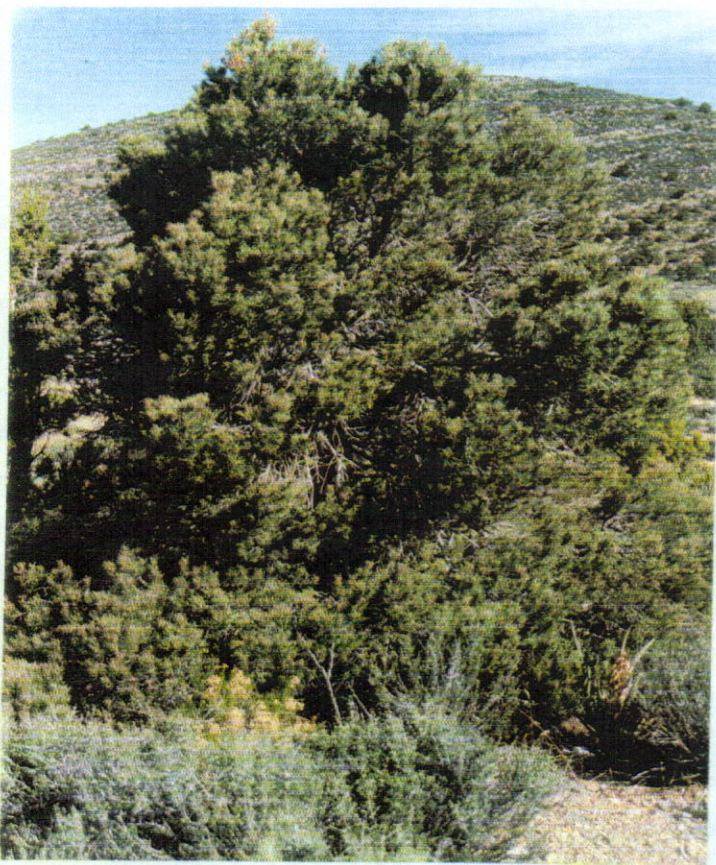
Malvaceae *Sphaeralcea ambigua* Gray. "Desert-Mallow"

Photo 33, page 29. Somewhat woody shrub with thick woody crown and woody lower stems, covered with whitish or yellowish hairs. Stems few to many, leaves thick, ovate to just less than circular, heart-shaped at base. Inflorescence usually open, paniculate with few to many flowers. Flowers large and showy, orange, with 5-lobed calyx and 5 petals. Many different subspecies with a variety of different characteristics. Found in dry rocky slopes and canyons, mostly below 4000 ft. in Creosote Bush Scrub and Joshua Tree Woodland. Flowers from March to June.

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- Harris, J. G. and M. W. Harris. 1994. Plant Identification Terminology, An Illustrated Glossary. Spring Lake Publishing, Spring Lake, UT. 197 pp.
- Munz, P.A. 1974. A flora of southern California. Univ. of California Press. Berkeley, CA. 1086 pp.

PHOTOGRAPHS



Pinus Monophylla

"One-leaf Pinyon"



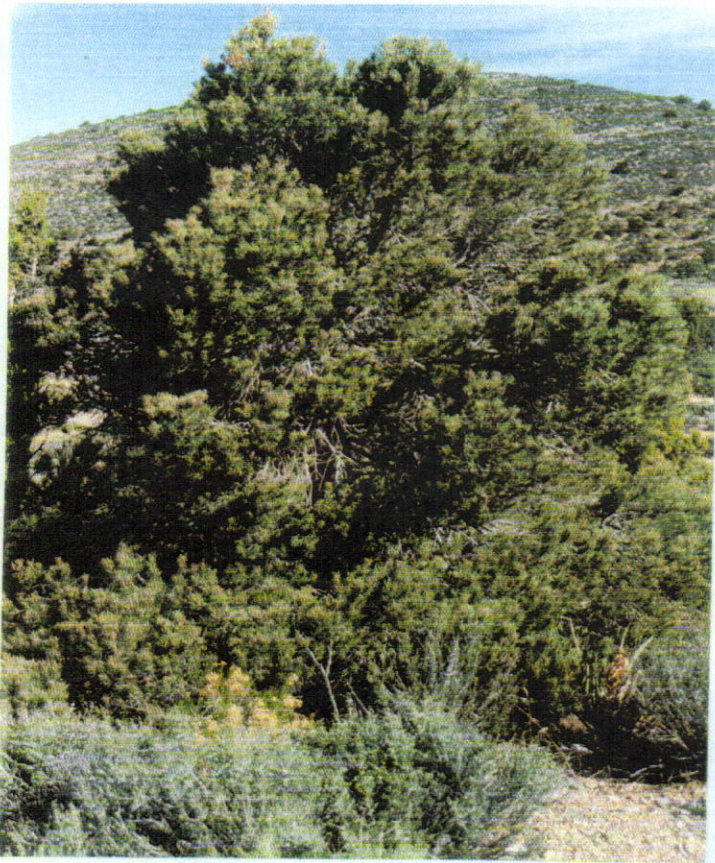
Juniperus osteosperma (Torr.) Little.

"Utah Juniper"

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PHOTOGRAPHS



Pinus Monophylla

"One-leaf Pinyon"



Juniperus osteosperma (Torr.) Little.

"Utah Juniper"



Ephedra viridis Cov.

"Mormon Tea"

Opuntia ramosissima Engelm.

"Pencil Cactus"



Ephedra nevadensis Wats.

"Mormon Tea"



Opuntia echinocarpa Engelm. & Bigel.

"Silver Cholla"



Opuntia phaeacantha Engelm.

"Mojave Prickly Pear"



Ferocactus acanthodes (Lem.) Britt. & Rose

"Barrel Cactus"



Coryphantha vivipara (Nutt.) Britton & Rose

"Foxtail or Cushion Cactus"



Yucca schidigera Roezl ex Ortgies. [*Y. mohavensis* Sarg.]

"Mohave Yucca"



Yucca baccata Torr.

"Spanish Bayonet"



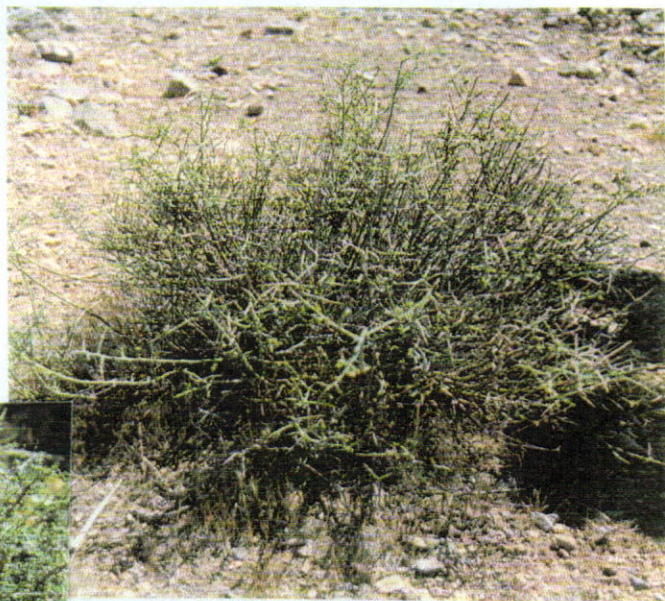
Yucca brevifolia Engelm. In Wats.

"Joshua Tree"



Thamnosma montana Torr. & Frem.

"Turpentine-Broom"



Menodora spinescens Gray.

"Twin fruit"



Coleogyne ramosissima Torr.

"Black Brush"



Salvia dorrii (Kell.) Abrams.

"True Sage"



Larrea tridentata Cav.

"Creosote Bush"



Encelia virginensis A. Nels.

"Brittle Bush"



Gutierrezia microcephala (DC.) Gray
"Matchweed"



Artemisia tridentata Nutt.
"Sagebrush"



Chrysothamnus paniculatus (Gray) Hall
"Sticky Rabbit-Brush"



Chilopsis linearis (Cav.) Sweet.
"Desert-Willow"



Hymenoclea salsola T. & G.
'Cheesebush'



Prunus fasciculata (Torr.) Gray.

"Desert Almond"



Cowania mexicana D. Don.

"Cliff rose"



Amelanchier utahensis Koehne.

"Service-Berry"



Fallugia paradoxa (D. Don.) Endl.

"Apache-Plume"



Krameria parvifolia Benth.

"Little Leaf or Range Ratany"



Atriplex canescens (Pursh.) Nutt.

"Four-winged Saltbush"



Psoralea fremontii Torr.

"Indigo Bush"



Ambrosia eriocentra Gray.
"Woolly Bur-Sage"



Sphaeralcea ambigua Gray.
"Desert-Mallow"



Ambrosia dumosa (Gray) Payne.
"Burro-Weed"

Fascicled. Grown or borne in a tight bundle or cluster. (Figure 11.)

Glochid. A fine, sharp hair or bristle, found in the Genus *Opuntia*. (Figure 12.)

Herbage. The vegetative or non reproductive parts of a plant; non woody stems, leaves and roots of a plant.

Indehiscent. Not naturally, opening or splitting at maturity along definite lines or pores.

Inflorescence. The flowering part of the plant; a flower cluster; the arrangement of the flowers on the plant.

Involucel. A small involucre.

Involucre. A whorl of bracts beneath a flower or flower cluster. (Figure 13.)

Joint. The section of the stem from which a leaf or branch arises. (Figure 14.)

Lanceolate. Lance-shaped; much longer than wide, with widest point below the middle.

Lateral. Borne or placed on or at the side.

Margin. The edge, as in the edge of a leaf. (Figure 15.)

Oblanceolate. Inversely lanceolate, with attachment at the narrower end. (Figure 16.)

Oblong. Two to four times longer than broad with nearly parallel sides. (Figure 17.)

Obovate. Inversely ovate, with the attachment at the narrower end. (Figure 18.)

Obovoid. Inversely ovoid, the attachment at the narrower end. (Figure 19.)

Ovate. Egg-shaped in outline and attached at the broad end (applied to plane surfaces). (Figure 20.)

Ovoid. Egg-shaped (applied to three-dimensional structures). (Figure 21.)

Peduncle. The stalk of a solitary flower or of an inflorescence. (Figure 22.)

Precocious. Developing or appearing very early; with the flowers developing before the leaves.

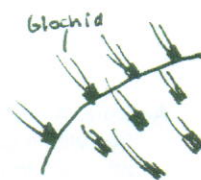


FIGURE 12

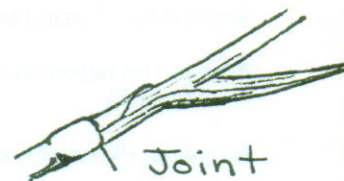


FIGURE 14

Margin
FIGURE 15

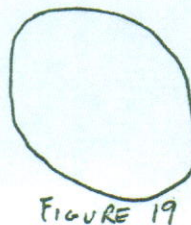
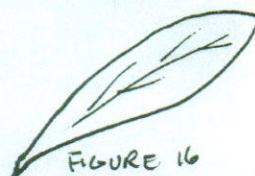


FIGURE 19

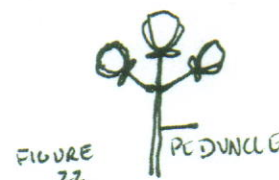
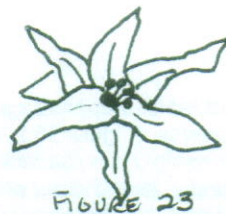


FIGURE 22

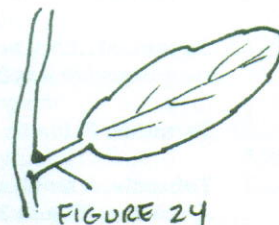
FIGURE 21

Perianth. The sepals (calyx) and petals (corolla) of a flower collectively, especially when they are similar in appearance. (Figure 23.)



Persistent. Remaining attached after similar parts are normally dropped, after the function has been completed.

Petiole. A leaf stalk. (Figure 24.)



Petioled. With a petiole.

Photosynthetic. Capable of forming energy (carbohydrates) from water and carbon dioxide by the action of sunlight, usually pertaining to a particular plant organ such as leaf; sometimes stems.



FIGURE 24

Phyllary. An involucral bract of the Family Asteraceae (Sunflower Family). (Figure 25.)

Phyllary
FIGURE 25

Pinnate. A compound leaf with leaflets arranged on opposite sides of the center part.

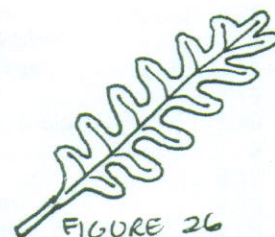


FIGURE 26

Pinnatifid. Pinnately cleft or lobed half the distance or more to the midrib, but not reaching the midrib; not truly divided. (Figure 26.)

Procumbent. Lying or trailing on the ground, not rooting at the nodes. (Figure 27.)

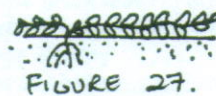


FIGURE 27.

Puberulent. With fine, short hairs.

Pubescent. Covered with fine, short, soft hairs.

Raceme. An unbranched, elongate inflorescence with flowers on pedicels maturing from bottom up. (Figure 28.)

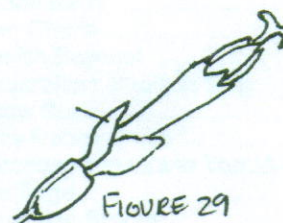


FIGURE 29

Resinous. Bearing resin and often sticky.



FIGURE 28

Scale. Any thin, flat, membranous structure. (Figure 29.)

Scurfy. Covered with small, branlike scales. (Figure 30.)

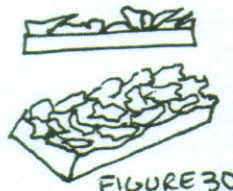


FIGURE 30

Sessile. Attached directly, without a supporting stalk, as a leaf with a petiole. (Figure 31.)

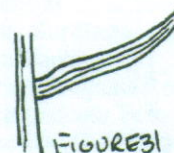


FIGURE 31

Spatulate. Like a spatula in shape, with a rounded blade above gradually tapering to the base. (Figure 32.)



FIGURE 32

Spinescent. Bearing a spine or a spine like point at the tip, bearing spines. (Figure 33.)



FIGURE 33

Spur shoot. A very, short, woody stem on which leaves, flowers and/or fruits are borne on the apex. (Figure 34.)

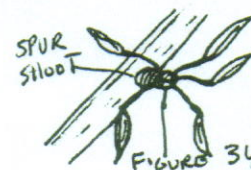


FIGURE 34

Stipule. One of a pair of leaflike appendages found at the base of the petiole in some leaves. (Figure 35.)

Succulent. Juicy and fleshy, as the stem of a cactus; belonging to group of plants bearing succulent stems. (Figure 36.)

Terminal. At the tip or apex.

Tubercle. A small swollen or fleshy area on the stem, as in some cactus. (Figure 37.)

Wanting. Absent.

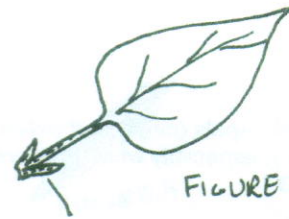


FIGURE 35

Stipule



Succulent
FIGURE 36



Tubercles
FIGURE 37

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