

MALPIGHIALES

(Flaxes)

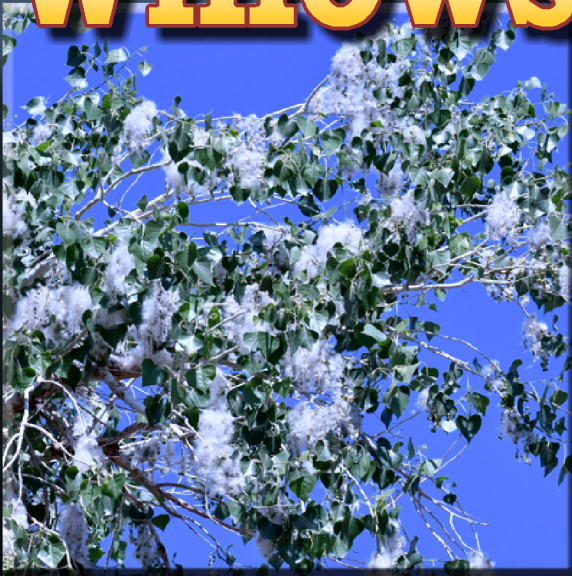
Spurges



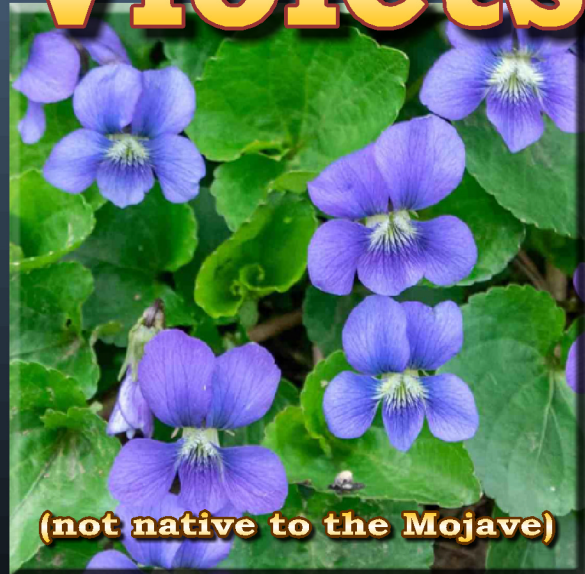
Flaxes



Willows



Violets



(42 Families Worldwide)

EUPHORBIACEAE

(Spurges)

Rattlesnake Weed

(*Euphorbia albomarginata*)



rocky habitat

Dolan Springs, AZ



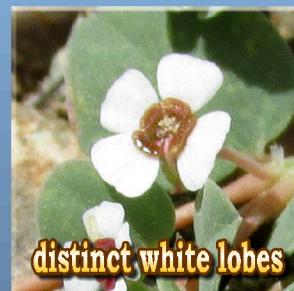
prostrate stems

Red Rock Cyn NCA; NV



April

First Creek; Red Rock Canyon NCA; NV



distinct white lobes

Xmas Tree Pass; CalNeAri, NV



ovate leaves

Dante's View; DVNP; CA

- Flowers:** cyathium*; axillary, solitary; fused bracts, 4-lobed, red nectar ring, to 30 stamens; white*; .15"
- Stems:** prostrate; numerous; freely branched; milky sap, glabrous; reddish; 2-32"
- Leaves:** ovate to oblong; entire with pale edges; opposite; short petioles, dull, glabrous; green; .25"
- Blooms:** February to September/November
- Range:** southwestern US; northern Mexico
- Habitat:** sandy to gravelly; desert scrub, washes, slopes, etc.; Lower to Upper Sonoran Life Zones

Notes:

common; herbaceous perennial; grows as a low mat to 2" tall, 32" wide, in the w US from TX/OK west to s CA south to c MEX at elevations of 1,000-7,000'; *"flowers" are actually cyathiums, which are campanulate (cup-shaped) involucre of fused bracts (in this species with *distinct white lobes surrounding a glandular red nectar ring), and 15-30 male flowers (each reduced to a single stamen) surrounding a stalked female flower; 3-chambered, oval .08" capsule fruit bearing oblong, pale, smooth, quadrangular .04" seeds; aka Whitemargin Sandmat; *traditionally used to treat various medical ailments (sores, snakebites, tea for colds and stomachaches, etc.)

Mojave presence: native

Comments:

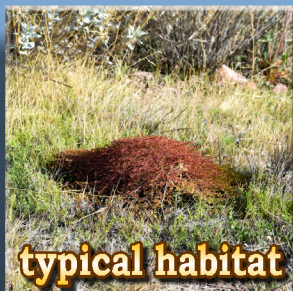
The common name of this spurge refers to its traditional use by native peoples to treat rattlesnake bites. However, the plant is *poisonous and its effectiveness for such a treatment is scientifically unsubstantiated! The specific name *albomarginata* refers to the white bracts.

EUPHORBIACEAE

(Spurges)

Smallseed Sandmat

(*Euphorbia polycarpa*)



typical habitat

Bullhead City, AZ



May

State Route 68; Bullhead City; AZ



red involucres

Bullhead City, AZ



red, branched stems

Bullhead City, AZ



ovate leaves

Bullhead City, AZ

- Flowers:** cyathium*; axillary, solitary; fused bracts, 4-lobed, red nectar ring, to 30 stamens; red*; .15"
- Stems:** prostrate to erect; many; branched; milky sap, woody taproot, zig-zagged, glabrous; reddish; 10"
- Leaves:** round to ovate; entire to ciliate; opposite; short petioles; green; .5"
- Blooms:** January to December
- Range:** southwestern US; northern Mexico
- Habitat:** arid, sandy to gravelly; desert scrub, washes, slopes; Lower Sonoran Life Zone

Notes:

uncommon; herbaceous perennial; mound-like growth to about 1' tall, 2.5' wide, in the Mojave Desert (s CA, s NV, nw AZ) of sw US south into n MEX at elevations of 500-3,000'; *'"flowers"' are actually **cyathiums**, which are **campanulate** (cup-shaped) **involucre**s of fused bracts (*in this species red with thin white lobes), and 15-32 staminate (male) flowers, and a single pistillate (female) flower; spherical, lobed .06" **capsule** fruit bearing oval, quadrangular, beige seeds; 11 subspecies; traditionally used in various medical applications (scorpion stings, snakebites, as a laxative, emetic, etc.)

Mojave presence: native

Comments:

The mound-like growth conspicuously distinguishes this spurge from **Rattlesnake Weed** (previous page), which grows so low to the ground that one has to practically step on it to find it. And while the "flowers" of both plants are superficially similar, the smallseed's white lobes are distinctly less petal-like.

EUPHORBIACEAE (Spurges)

Mojave Spurge (*Euphorbia incisa*)



montane habitat

Dolan Springs, AZ



March

Mt Tipton Wilderness Area; Dolan Springs; AZ



cyathium flower

Dolan Springs, AZ



smooth, erect stems

Dolan Springs, AZ



elliptical leaves

Dolan Springs, AZ

- Flowers:** cyathium (false flower); **monoecious**; umbel; no petals, surrounded by leafy bracts; **green**; .4"
- Stems:** erect to ascending; numerous; unbranched; glabrous to lightly **pubescent**; **green** to **purplish**; 16"
- Leaves:** elliptical to oblanceolate; entire; alternate; pointed tips, sessile or short petiole; **green**; .8"
- Blooms:** February to August
- Range:** southwestern US
- Habitat:** sandy to rocky; desert slopes to montane riparian areas; Lower Sonoran to Canadian LZs

Notes:

uncommon; herbaceous perennial; grows as a small shrub to 1.5' in sw US from CO/NM west to s CA at elevations of 3,000-9,000'; oblong, lobed .2" **capsule** fruit bearing rounded gray .12" seeds; 2 subspecies; exudes a toxic milky sap of white latex; used to increase fertility in livestock

Mojave presence: native

Comments:

This spurge is an uncommon vegetation component of montane habitats, occurring mainly in the Mojave region. The specimen shown here from Antelope Canyon in the **Mt. Tipton Wilderness Area** in the Cerbat Mountains near Dolan Springs, Az, in March of 2022 is the only one I have encountered thus far.

LINACEAE

(Flaxes)

Wild Blue Flax (*Linum lewisii*)



usual habitat

Goodsprings, NV



branched, erect stems

Goodsprings, NV



May

Goodsprings Valley; Goodsprings, NV



reflexed sepals

Lee Cyn; SMNRA; NV



linear leaves

Lee Cyn; SMNRA; NV

- Flowers:** bilateral, perfect; open raceme; 5 overlapping petals, 5 acute sepals; white, lt blue, blue; 1.25"
- Stems:** erect; numerous; branched from base; weak, faintly striated; gray green, green; 18"+
- Leaves:** linear to lanceolate; entire; spiral alternate; acute, sessile, glabrous; gray green, green; 1"
- Blooms:** March to September
- Range:** North America
- Habitat:** well-drained, sandy to gravelly; scrub, slopes, meadows, etc.; Upper Sonoran to Canadian LZs

Notes:

common; herbaceous perennial; sub-shrub grows to 3' (usually less) throughout most of CAN, western US from the Great Plains west to the Pacific coast (rarer to the east), AK south into n MEX at elevations of 3,500-11,000'; globose to acute ovoid .25" capsule fruit bearing glossy brown, pale green, or white .18" seeds with brown filaments (remains of stigmas); 3-5 subspecies; similar to cultivated annual variety; aka Blue Flax, Lewis' Flax, Prairie Flax, etc.; host to bees, butterflies, and other insects; seeds eaten by birds; traditionally used for various medical treatments (bruises, eye and skin wash, headaches, gastrointestinal issues, etc.)

Mojave presence: native

Comments:

Though common as a species throughout most of its range, this flax is less so in the Mojave region, restricted to mainly higher elevations that provide access to more precipitation. The specimen photographed in August, 2021, from Lee Canyon in the Spring Mountains west of Las Vegas is more typical than those encountered at much lower elevations near Goodsprings, NV, in the

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spring of 2018.

SALICACEAE

(Poplars)

Fremont Cottonwood

(*Populus fremontii*)



gray, furrowed bark

Red Spring; RRCNCA; NV



female

cottony seeds

CCWP; Henderson, NV



March

Clark County Wetlands Park; Henderson, NV



catkin buds

CCWP; Henderson, NV



cordate, crenate leaves

CCWP; Henderson, NV

- Flowers:** pendulous catkins (2-5"); **dioecious**; cup-like discs; (m) reddish (f) yellowish green; .1"
- Stems:** arborescent; solitary; branched at base; deeply furrowed bark, pubescent twigs; gray; 40"+
- Leaves:** cordate; crenate; alternate; glossy, strongly veined, sharply pointed, flat 2" petioles; green; 3"
- Blooms:** February to May
- Range:** southwestern US; northern Mexico
- Habitat:** arid, sandy to gravelly; riparian (washes, streams, springs, etc); Lower to Upper Sonoran LZs

Notes:

common; perennial; grows to 90' in the sw US from w TX/CO west to CA, south to c MEX at elevations up to 7,000'; **dioecious** (male and female catkins on separate trees); shade intolerant; **dehiscent**, round to elliptical .4" **capsule** fruit bearing 9-15 **achenes** with cottony hairs, dispersed by wind; 2-10 subspecies; aka **Arizona Cottonwood**, **Gila Cottonwood**, **Western Cottonwood**, etc.; generally wind pollinated, though also by insects; provides cover, shelter, and nesting habitat for various birds and mammals; wood traditionally used for construction, bark and leaves for various medical applications (infusions to treat headaches, bruises, wounds, inflammation, etc.)

Mojave presence: native

Comments:

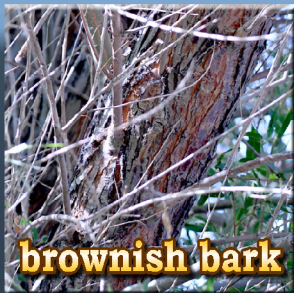
Since it only grows in riparian settings, this cottonwood is referred to by natives as the "Tree of Life," because it is an indicator of water that is either on or very close to the surface. Its stately stature and broad leaves make it readily recognizable.

SALICACEAE

(Poplars)

Narrowleaf Cottonwood

(*Populus angustifolia*)



Corn Creek; Desert NWR; NV



Corn Creek; Desert National Wildlife Refuge; NV



Corn Creek; Desert NWR; NV



Corn Creek; Desert NWR; NV



Mt Charleston; SMNRA; NV

- Flowers:** pendulous catkins (3.5"; 30-50 flowers); dioecious; shallow discs; (m) reddish (f) yellow green; .06"
- Stems:** arborescent; singular; branched; shallowly furrowed bark; lt brown (twigs orange brown); 60'+
- Leaves:** lanceolate; finely crenate; alternate; terete petioled, acutely pointed, glabrous; green; 4"
- Blooms:** March to April
- Range:** western North America
- Habitat:** moist, gravelly to rocky; riparian (streams, springs, etc.); Upper Sonoran to Transition LZs

Notes:

uncommon; perennial; grows to 60' or more in the Rocky Mountain region of NA from Alberta and Saskatchewan, CAN, south to n MEX at elevations of 4,000-7,000'; dioecious (male and female catkins on separate trees); shade intolerant; ovoid, bivalved .2" capsule fruit bearing 4-7 achenes with cottony hairs, dispersed by wind; hybridizes readily with other cottonwood species; aka Willow-Leaved Poplar; generally wind pollinated, though also by insects; buds traditionally used for food and as chewing gum, shoots for basketweaving, wood for construction and fuel

Mojave presence: native

Comments:

This cottonwood is far less common than its Fremont relative, thus less familiar in the field and harder to recognize--especially the male plants. When females are in seed, their fluffy catkins suggest cottonwood, and the lanceolate, finely toothed leaves then reveal the species.

SALICACEAE

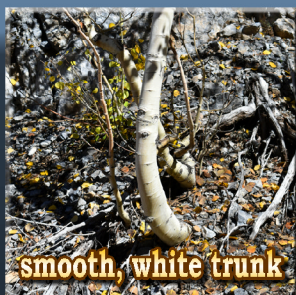
(Poplars)

Quaking Aspen

(*Populus tremuloides*)



Lee Cyn; SMNRA; NV



Lee Cyn; SMNRA; NV



Lee Canyon; Spring Mountains NRA; NV



Lee Cyn; SMNRA; NV

- Flowers:** pendulous catkins (4"; cottony tips); **dioecious**; deep cup-like disk; **greenish**; .05"
- Stems:** arborescent; many, clonal; branched near top; smooth bark, horizontal black ridges; white; 60'+
- Leaves:** deltoid; finely crenate; alternate; flat petiole; glabrous, glossy above; **green** (**golden** in fall); 3"
- Blooms:** March to May
- Range:** North America
- Habitat:** moist, sandy to gravelly; peat marshes to montane forests; Lower Sonoran to Canadian LZs

Notes:

common; deciduous perennial; grows to over 100' throughout the US, CAN, south to c MEX at elevations up to 10,000'; most widely distributed tree in NA; "trees" are clones from a single wide-spread root system, though the plant can reproduce by seed germination; bivalved, lanceoloid .25" **capsule** fruit bearing tan seeds with cottony hairs; 6 subspecies, hybridizes with other aspen species; aka **Trembling Aspen**, **American Aspen**, **Golden Aspen**, **White Poplar**, etc.; traditionally used for various medical treatments (colds, heartburn, gastrointestinal issues, etc.); wood used for pulp, furniture making, boxes, matches, etc; important food source for beavers (bark) and deer (foliage)

Mojave presence: native

Comments:

The common nickname of this aspen is derived from the sound the leaves make when shaken by the wind, made possible by their **laterally flattened** petioles. One of the largest known living organism on Earth, **Pando**, with its 47,000 identical stems, is a clonal stand in Utah that

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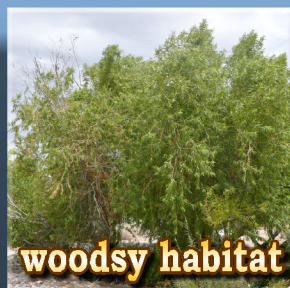
is estimated to be over 80,000 years old!

SALICACEAE

(Willows)

Goodding's Willow

(*Salix gooddingii*)



woody habitat

CCWP; Henderson, NV



June

Clark County Wetlands Park; Henderson, NV



female

fluffy catkins

CCWP; Henderson, NV



furrowed bark

CCWP; Henderson, NV



serrated, lance leaves

CCWP; Henderson, NV

- Flowers:** erect catkin (2-3"); **dioecious**; fuzzy floral bracts; greenish yellow; (m) .4" (f) .6"
- Stems:** arborescent; singular; branched; furrowed bark, **glabrescent**; gray brown (yellowish twigs); 40'+
- Leaves:** lanceolate; finely serrate; alternate; **puberulent** (when young), pointed, dull underside; **green**; 4"
- Blooms:** February to June (variable by region)
- Range:** southwestern US; northernwestern Mexico
- Habitat:** loamy, sandy to gravelly; riparian, desert shrub to pinyon-juniper; Lower to Upper Sonoran LZs

Notes:

common; deciduous perennial; grows to 60' (usually less) in the sw US from w TX west to CA, south to Baja and nw MEX at elevations up to 7,000'; most common native willow in the southwest, often associated with Fremont Cottonwood; **dehiscent**, stalked .3" **capsule** fruit bearing cottony seeds; 3 subspecies; aka **Goodding's Black Willow**, **Dudley Willow**, **Valley Willow**, etc.: host to numerous insects, particularly bees and butterflies, and provides food and cover for wildlife and livestock; traditionally used for fuel, basketweaving, bows, food (bark, leaves, catkins), etc.

Mojave presence: native

Comments:

This willow species can be very difficult to distinguish from the **Narrowleaf Willow** (next page). In general, the Goodding's leaves are considerably shorter and noticeably wider than those of its close cousin.

SALICACEAE

(Willows)

Narrowleaf Willow

(*Salix exigua*)



Henderson BVP; NV



Henderson BVP; NV



Henderson Bird Viewing Preserve; Henderson, NV



Henderson BVP; NV



Henderson BVP; NV

- Flowers:** erect catkin (2"); **dioecious**; greenish bracts (deciduous on f); greenish yellow; (m) .4" (f) .5"
- Stems:** shrubby; numerous, clonal; branched; thin smooth bark, **glabrescent**; gray green; to 25'
- Leaves:** narrow lance.; entire to sparsely toothed; alternate; petioled, dull below, **pubescent**; **green**; 8"
- Blooms:** March to June
- Range:** North America
- Habitat:** loamy, sandy to gravelly; riparian (wetlands, springs, etc.); Lower Sonoran to Transition LZs

Notes:

common; deciduous perennial; shrubby to tree-like growth, often forming thickets, to 25' (usually less) throughout most of NA (except se and far north) from AK/CAN south to Baja and n MEX at elevations of 1,000-9,000'; dehiscent, glabrous .3" **capsule** fruit bearing cottony seeds; 17 subspecies; aka **Sandbar Willow**, **Coyote Willow**, **Hinds' Willow**, etc.; bark extract traditionally used to treat fever, cough, sore throat, and as an emetic. etc.; provides food, cover, nesting, etc., for various wildlife (large and small mammals, birds, free-range livestock, insects)

Mojave presence: native

Comments:

Without experience, it can be difficult to distinguish this willow from **Narrowleaf Cottonwood** and **Gooding's Willow** in the field. Each gender of catkins on both willows are yellow, whereas male catkins on the cottonwood are reddish; its leaves are narrower than those of the cottonwood and Gooding's, but much longer than those of the latter; has a generally shrubbier habit versus the Gooding's