

PLANT FIELD GUIDE

Lichtenberg Laboratory

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How to read the Lichtenberg Lab Plant Field Guide

The Lichtenberg Lab Plant Field Guide was developed to assist with identifying southern Great Plains wildflowers and introduced flowering plants. It does not require extensive botanical knowledge to use. This page describes how to read plant guide entries.

Each plant entry includes:

Scientific name (USDA Code) – Family

(Common name and/or previous scientific names)

- **Count as:** How the Lichtenberg Lab counts floral units during plant surveys. Terminology can be found at the end of this guide.
- **Bloom-Period:** Period the plant blooms in North Texas.
- **Stems:** Stem length and measurement along with if the stems are glabrous (smooth) or pubescent (hairy).
- **Leaves:** Shape and measurements of leaves.
- **Flowers:** Shape and measurement of flowers or floral units. May also include descriptions that differentiate plants based on floral structures.
- **Fruit:** Fruiting bodies can help identify plants if they are available.
- **Notes:** Essential information that should be included in the profiles
 - o Similar plants (which could also be under 'compare to/with').
 - o Specific habitat type where the plant is found.
 - o Any identifying features or details that do not fit in the above categories.

Entries are organized by color, then family in alphabetical order, then scientific name in alphabetical order.

Species Complex profiles:

Some plant entries are labeled as a species complex when two species have similar morphology and are difficult to distinguish. Sometimes distinguishing requires seeing certain parts that are not always available such as fruits, looking at the plant under a microscope, or consulting an expert. Generally, these plants are ecologically very similar. Here are a few for example:

VAAM2/VARA- *Valerianella amerella* and *Valerianella radiata*

AMDR/GUTE2- *Amphiachyris dracunculoides* and *Gutierrezia texana*

MIAL4/MILI3- *Mirabilis albida* and *Mirabilis linearis*

Profiles that denote 'Pollinative Prairie' are plants that have been found at the University of North Texas [Pollinative Prairie](#), a four acre North Central Texas tallgrass prairie reconstruction project.

Nothoscordum bivalve (L.) Britton (NOBI2) – Amaryllidaceae

(Crowpoison)

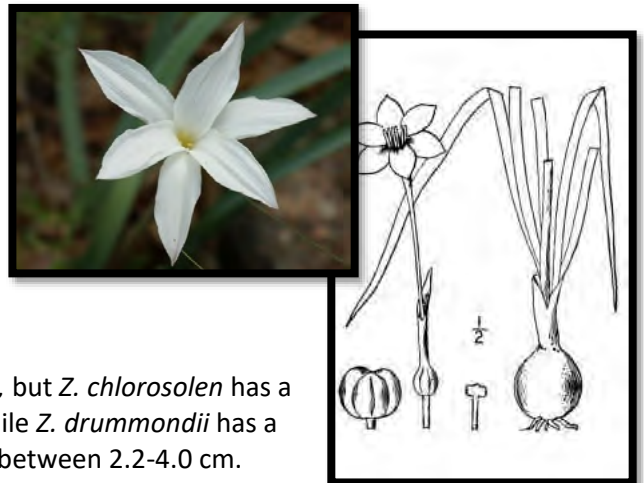
- **Count as:** Flower
- **Bloom period:** March-May, September-October
- **Stems:** 7-40 cm tall, glabrous; does not smell like onion or garlic
- **Leaves:** Basal; linear, 10-38 cm long and 3 mm wide; glabrous
- **Flowers:** Individual flowers 1.2cm in diameter. Fewer and larger flowers than *Allium spp.*, loose umbels of (3-)6-12 flowers on leafless stalks, each 8-10 mm long; 6 petals, white with yellow base, 6 stamens; lacking any scent.

*Zephyranthes chlorosolen* (Herb.) D. Dietr.

(CODR2) – Amaryllidaceae

(Brazos Rain-Lily, Evening Rain Lily, Cooperia drummondii (Herb.))

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Erect, single stem around 30.5 cm tall.
- **Leaves:** Narrow (< 5 cm), dull green, linear leaves; may be leafless at time of flowering.
- **Flowers:** White to pink, 6-petaled, solitary flower on a leafless stem. Individual flowers are 3.2 to 4.0cm in diameter.
- **Note:** Visually similar to *Zephyranthes drummondii*, but *Z. chlorosolen* has a sessile flower and a perianth tube length > 4 cm while *Z. drummondii* has a short-pedicelled flower and a perianth tube length between 2.2-4.0 cm.

*Zephyranthes drummondii* D. Don (COPE) - Amaryllidaceae

(Drummond's Rain Lily, Cooperia pedunculata (Herb.))

- **Count as:** Flower
- **Bloom period:** March-August
- **Stems:** Erect, unbranched; smooth; 12-23 cm tall.
- **Leaves:** Linear; 15-30 cm long, 6 mm wide; glaucous (waxy); only on the bottom of the plant; may or may not be present when flower appears.
- **Flowers:** White to light pink; terminal, solitary; 3 petals and 3 sepals; up to 5 cm across; fragrant.



Ammoselinum butleri (Engelm.) J.M. Coult & Rose (AMBU) – Apiaceae

(Butler's Sandparsely)

- **Count as:** Umbel
- **Bloom period:** July-September
- **Stems:** Stemy; thin and branching; not hairy; usually 5 to 12 cm tall.
- **Leaves:** alternate, compound, thin highly dissected pattern, lobed, not hairy, leaf size varies 2 to 7 cm.
- **Flowers:** small white flowers 1 to 2 mm wide, 5 petals, 1 pistil, fruits are nearly smooth (differs from *A. popei* which are highly grooved).

*Ammoselinum popei* Torr. & A. Gray

(AMPO4) – Apiaceae

(Plains Sandparsely)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** less than 1 foot
- **Leaves:** deeply lobed, lobes nearly linear
- **Flowers:** tiny white, 5-petaled, arranged on umbels that are sessile
- **Note:** this ID was limited by the quality of the specimen; collection of another, more mature specimen is necessary to confirm or correct this ID.

*Bifora americana* Benth. & Hook. f. ex S. Watson (BIAM2) – Apiaceae

(Prairie Bishop)

- **Count as:** Umbel
- **Bloom period:** April-June
- **Stems:** Slender, erect branching plant 15-60cm tall
- **Leaves:** Glabrous; up to 5 cm and helically alternate to tripinnate; divided into slender threadlike filaments
- **Flowers:** Compound inflorescence composed of small umbels, each subtended by small bractlets; individual flowers 1.5 to 3.1mm wide
- **Fruit:** Joined in pairs; turn straw-colored at maturity; flower clusters flat instead of rounded



Chaerophyllum tainturieri Hook. (CHTA) – Apiaceae

(Hairyfruit Chervil)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** Erect annual 15-90 cm tall; moderately to densely pubescent.
- **Leaves:** Ternate-pinnately dissected. 1-4 opposite pairs of lateral lobes. Paired lobes ovate to obovate. Lobes haired or glabrous with some hairs on lower surface. Petiole sheathed, sometimes ciliate or waxy. Blade up to 8 cm long.
- **Fruit:** narrowly oblong, 4.5-7mm long, slightly beaked or narrowed toward the apex.
- **Compare with:** *Spermolepis inermis* (filiform leaves)

*Cymopterus macrorhizus* Buckley (CYMA) - Apiaceae

(Bigroot springparsley)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** Perennial. Acaulescent (stemless) plant less than 30 cm tall.
- **Leaves:** Alternate green-gray leaves ovate to oblong. Darkened (purplish) central nerves near base. Pinnate to bipinnately divided. Lacerate fringed (cut or cleft at the margin). Leaves fleshy.
- **Flowers:** Blooms white (sometimes slight pink tinge). Rays of umbel spread 3 cm, inner umbellets typically sessile (stemless) and sterile.

*Daucosma laciniata* Engelm. & A. Gray (DALA5) –

Apiaceae

(Meadow Parasol, *Dausosma laciniatum*)

- **Count as:** Compound umbel
- **Bloom period:** June-July
- **Stems:** 1.2 m tall with aromatic crushed leaves.
- **Leaves:** bi- to tripinnate and are about 10 cm long.
- **Flowers:** Ray flowers 2-5 cm long with peduncles to 10 cm long; involucels equaling or longer than rays and pedicels.



Daucus carota L. (DACA6) – Apiaciae

(Queen Anne's lace)

- **Count as:** Compound umbel
- **Bloom period:** April-July; sporadically in fall
- **Stems:** Erect and branched, generally about 60 cm high, tough and furrowed. Sparsely to densely pubescent.
- **Leaves:** Very finely divided, the lowest leaves much larger than the upper; their arrangement on the stem is alternate, and all the leaves embrace the stem with a sheathing base.
- **Flowers:** Packed together in terminal umbels, the outer ones of which are irregular and larger than the others. Flowers are small and may have a darker flower in the center of umbel.
- **Fruit:** Slightly flattened, with many bristles arranged in five rows.

*Daucus pusillus* Michx. (DAPU3) – Apiaciae

(Wild carrot)

- **Count as:** Compound umbel
- **Bloom period:** April-June
- **Stems:** Erect, 30-90 cm tall with single stem that may have a few branches in its upper half.
- **Leaves:** Pinnately divided leaves are up to 17.8 cm long.
- **Flowers:** Inflorescence is a compound umbel with pedicels that are unequal in length; on a peduncle (flower stalk) 10-30 cm long.

*Eryngium yuccifolium* Michx. (ERYU) – Apiaceae

(Rattlesnake Master)

- **Count as:** Head
- **Bloom period:** May-August
- **Stems:** Smooth, rigid; 30 to 180 cm tall.
- **Leaves:** Basal leaves broadly linear to 1m long. Blue-green, spiny, yucca-like, parallel-veined leaves. Glaucous.
- **Flowers:** Thistle-like flower heads made up of small greenish-white florets mingled with pointed bracts. The individual, greenish-white flowers cluster into globular head.



Spermolepis echinata (Nutt. ex DC.) A. Heller (SPEC2) – Apiaceae

(Bristly Scaleseed)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** Up to 40 cm tall; erect, low, and usually spreading growth habit; stems glabrous.
- **Leaves:** Ternately or ternate-pinnately decompound leaves; upper leaves thread-like or filiform.
- **Flowers:** Arranged in loose umbels with 5-14 rays; ovaries bristly.
- **Compare with:** Although visually similar to *Spermolepis inermis*, *S. echinata* possesses bristly ovaries and fruits (use hand lens).

*Spermolepis inermis* (Nutt. Ex DC.) Mathias & Constance (SPIN) – Apiaceae

(Spreading Scaleseed, Red River Scaleseed)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** Plant erect 10-60 cm tall
- **Leaves:** Glabrous and filiform ternate-pinnately decompound.
- **Flowers:** Arranged in loose umbels that have 5-9 rays. Flowers have white petals and are 2-5mm long. Pedicels uneven.
- **Compare with:** *Daucus pusillus* (flowers in a tighter umbel) *Chaerophyllum tainturieri* (leaves not filiform), and *Bifora americana* (leaves bigger, plant taller, and flowers bigger with yellow platform [stylopodium] in center).

*Torilis arvensis* (Huds.) Link (TOAR) – Apiaceae

(Common Hedge-Parsley)

- **Count as:** Compound umbel
- **Bloom period:** June-August
- **Stems:** Hispid (with bristly hairs), branched, erect, 30-100 cm tall.
- **Leaves:** 2-3x pinnately compound, alternate, petiolate, pubescent. Leaflets (0.5-6 cm long x 2 cm wide) ovate to linear-lanceolate, with toothed to incised margins and pointed apices.
- **Flowers:** Small, white, with 5 petals. Outer petals 2-lobed.
- **Fruits:** Schizocarp dividing into 2 bristly, ribbed mericarps 3-5 mm long.
- **Notes:** *T. nodosa* also present in Texas, but its flowers are sessile, and the plant has a spreading (not-erect) habit. [Texas Invasives](#)



Torilis nodosa (L.) Gaertn. (TONO) - Apiaceae
(Knotted Hedge-Parsley)

Pollinative Prairie

- **Count as:** Compound umbel
- **Bloom period:** April-June
- **Stems:** Procumbent (creeping) to erect bristly hairy annual, up to 60cm tall, branched stems, rigid
- **Leaves:** Pinnate, ovate-oblong with linear lobes, covered in long stiff hairs, blade 3-9 cm
- **Flowers:** Fruit ovoid, flower clusters on very short rays, often appearing like a cluster.
Each flower has five petals which are unequal in size and are white with a pinkish or reddish tinge. Each greenish or pinkish fruit is about 3 millimeters long and is coated in long prickles.
- **Notes:** Usually occurs in waste or disturbed ground, especially low and shady places.



Apocynum cannabinum L. (APCA) – Apocynaceae

(Hemp dogbane, Prairie Dogbane)

- **Count as:** Head
- **Bloom period:** April-August
- **Stems:** Erect to ascending to 1 m tall; red to purple stems.
- **Leaves:** Opposite; blades linear-lanceolate to oval with a broadly rounded base; short petiole.
- **Flowers:** Small (3-6 mm), white, greenish-yellow, or sometimes brown 5-petaled flowers in terminal cymes.
- **Note:** This species also possesses milky sap similar to most species of milkweed.



Asclepias asperula (Decne.) Woodson (ASAS) – Apocynaceae

(Antelopehorn Milkweed)

- **Count as:** Head
- **Bloom period:** March-October
- **Stems:** Clump-forming, 30-60 cm perennial with an upright or sprawling habit. Densely covered with minute hairs.
- **Leaves:** 10–20 cm long, narrow, and irregularly grouped. The long, thick, narrow leaves are often folded lengthwise.
- **Flowers:** Pale, greenish-yellow, tinged maroon; crowded in round, terminal clusters 7.6–10 cm across at the end of the flower stem; partially divided petals is a crown, out of which extend 5 white stamens with large, ball-like anthers.



Asclepias verticillata L. (ASVE) - Apocynaceae (Whorled Milkweed)

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** Perennial. Tall slender stems typically unbranching, erect. Fine, short hairs extending downward. Can be glabrous.
- **Leaves:** Linear leaves in distinct whorls of 3-4, sometimes opposite, ascending (upright). 1.5 mm wide, approximately 7 cm long. Surface membranous and glabrous.
- **Flowers:** Solitary or paired inflorescence, typically few small flowers. Calyces are triangular, can be slightly haired or smooth. Blooms greenish white.
- **Notes:** Look for whorled slender ascending leaves on the unbranched stem with few flowers.



Yucca arkansana Trel. (YUAR2) - Asperagaceae (Arkansas yucca)

- **Count as:** Raceme
 - **Bloom period:** April-June
 - **Stems:** Evergreen perennial. Branching from low caudex, no more than 15 cm from ground. Leaves reach up to 1 m, stalk of inflorescence can reach 1.5m
 - **Leaves:** Long, lance-like, succulent blades tapering towards end. Margins white with curled fibers.
 - **Flowers:** Smooth raceme emerging about 1 m above base. Typically unbranching, tightly clustered if branched. Flowers greenish-white, 30-60 mm long. Ovary is slightly shorter than style and stigma early in bloom.
- Notes:** Flowers are usually eaten by deer shortly after emerging. Distinguish from *Y. pallida* by the fine white hairs on the blade and white margins instead of yellow. Can hybridize with *Y. pallida* resulting in species very similar to the locally rare *Y. necopina*.



Achillea millefolium L. (ACMI2) – Asteraceae (Common Yarrow)

- **Count as:** Compound head
- **Bloom period:** April-September
- **Stems:** Up to 1 m tall and has no branches except near the top.
- **Leaves:** Alternate, 7.6-12.7 cm long, with many leaflets on each side of the midrib (1- pinnately lobed); and these are further divided into smaller leaflets, giving them a delicate, fernlike, lacy appearance.
- **Flowers:** Heads are arranged in large, compact clusters at the top of the stem, each cluster consisting of 1 or more flower heads. The flower head has 20-25 yellowish-white (rarely pink) ray flowers and similarly colored disk flowers.



Arnoglossum plantagineum Raf. (ARPL4) – Asteraceae

(Prairie Indian Plantain, Groovestem Indian Plantain)

- **Count as:** Compound head
- **Bloom period:** June-August
- **Stems:** 0.45 to 1.2m tall
- **Leaves:** Basal; alternate; glabrous; broadly lanceolate to elliptic; long petioles; shallowly dentate margins; few small leaves are found on stem.
- **Flowers:** White to cream-colored flower heads clustered in a corymb-like arrangement.



Artemisia ludoviciana (Nutt.) (ARLU) - Asteraceae

(Louisiana Sage, Silver Woodworm)

- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** 1-3 ft tall, erect, hairy, bright green
- **Leaves:** Simple, alternate, irregularly lobed, 3-11 cm long, up to 1.5 cm wide, densely hairy, grayish green
- **Flowers:** Yellowish gray discoid flower heads, no rays, appear as dense panicles in the summer months, 0.5 cm wide

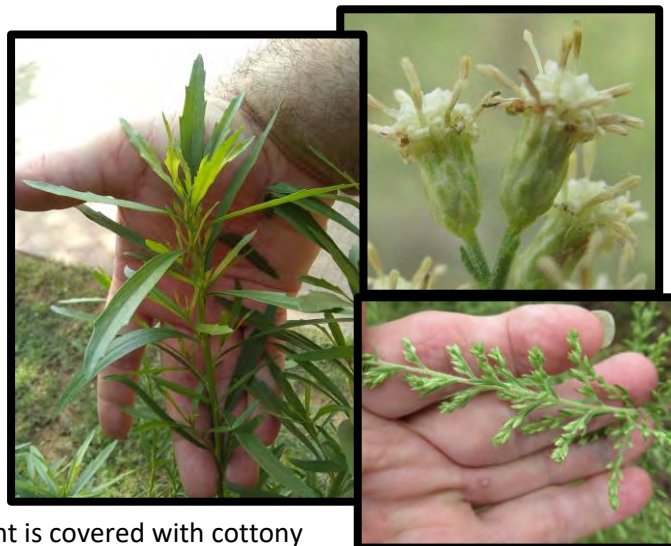


Baccharis neglecta Britton (BANE2) - Asteraceae

(Poverty weed, Rooseveltweed)

Pollinative Prairie

- **Count as:** Raceme
- **Bloom period:** August-October
- **Stems:** Perennial, 6-12ft, ascending light brown branches
- **Leaves:** Almost needle-like shape, narrow, pyramidal arrangement, less than ¼ inch wide and 3 inches long
- **Flower:** Male and female flowers on separate plants, flower minute, present in clusters. Female plant is covered with cottony plume-like, pyramid-shaped achene that is dispersed by wind.
- **Notes:** Often found in disturbed areas.



Brickellia eupatorioides (L.) Shinnars (BREU) – Asteraceae

(False Boneset)

- **Count as:** Compound umbel
- **Bloom period:** August-November
- **Stems:** Woody taproot; tall, herbaceous perennial (0.4-1.3 m).
- **Leaves:** Alternate; generally lanceolate shaped leaves with serrate margins, but leaf shape can be highly variable.
- **Flowers:** Cream-colored disk flowers with no ray flowers are arranged in flat-topped, corymbose groups; pappus bristles featherlike with numerous side branches.
- **Compare with:** *B. eupatorioides* can be easily confused with *Eupatorium serotinum*; however, *B. eupatorioides* has an alternate leaf arrangement while *E. serotinum* has an opposite arrangement.

*Chaetopappa asteroides* Nutt. ex DC. (CHAS) – Asteraceae

(Arkansas Leastdaisy)

- **Count as:** Compound head
- **Bloom period:** March-August
- **Stems:** Very small 5-15 cm tall; stem pubescence appressed to spreading.
- **Leaves:** Basal rosette leaves narrowly obovate to orbicular.
- **Flowers:** Ray flowers 1.2 cm in diameter with ligules 2-4 mm long, white turning bluish, violet, or pinkish, curling under at night or in age. Disk flowers yellow.

*Chaetopappa bellidifolia* (A. Gray & Engelm.) Shinnars

(CHBE2) – Asteraceae

(Hairy Leastdaisy, Whiteray Leastdaisy)

- **Count as:** Compound head
- **Bloom period:** April-October
- **Stems:** : 8–40 cm; eglandular or minutely glandular; taproot.
- **Leaves:** Not densely overlapping, proximal and mid cauline blades oblanceolate to oblong-spatulate, 7–35 × (1–)2–10 mm, herbaceous, bases not clasping, flat, faces glabrous or sparsely strigose.
- **Flowers:** Involucres narrowly to broadly conic, 3.8–4.5 × 1.5–2.5 mm. Ray florets 6–15; corollas violet to blue or lavender. Disc florets 8–22, bisexual or functionally staminate.



Chloracantha spinosa (Benth.) G. L. Nesom (CHSP11) – Asteraceae

(Spiny Chloracantha)

- **Count as:** Compound head
- **Bloom period:** May-December
- **Stems:** 30-90 cm high, erect or sprawling, usually much-branched, mostly leafless with occasional, small thorns
- **Leaves:** When present, leaves are glabrous, entire, and drop in early summer. Stays green most of the year.
- **Flowers:** Tiny heads up to 1.25 cm diameter; white ray, and yellow disk florets.

*Conyza canadensis* (L.) Cronquist (COCA5) - Asteraceae(Horseweed, *Erigeron canadensis* (L.))

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** Erect; 50-200 cm tall; stiff hairs; branched mostly in the upper portion.
- **Leaves:** Alternate; petiole short or not present; oblanceolate to linear; sparsely toothed to entire; often with spreading hairs, especially from the margins
- **Flowers:** Inflorescences emerge in panicles, or sometimes corymbs, from the upper leaf axils; small, white ray florets, yellow disk florets

*Diaperia prolifera* (Nutt. Ex DC.) Nutt. (DIPR2) – Asteraceae

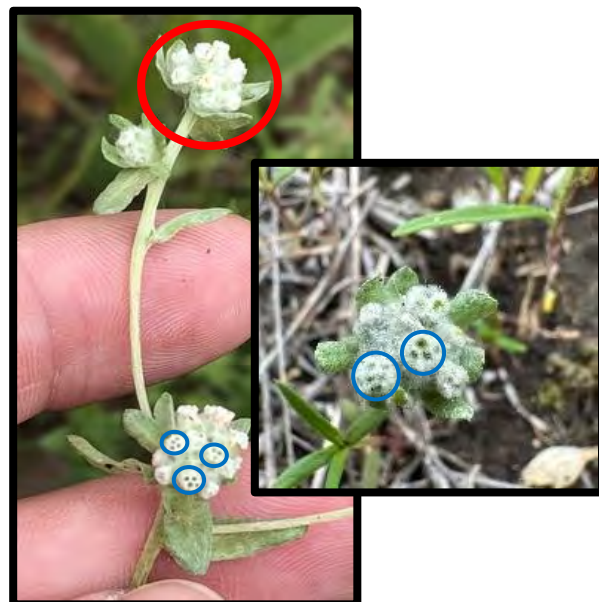
(Flathead Rabbit Tobacco)

- **Count as:** Flower (yellow spot)
- **Bloom period:** Apr-Jun
- **Stems:** Up to 0.15 m, 2-10; branches proximal and distal
- **Leaves:** 0.3175-1.5 cm long, less than 0.43 cm wide. Leaves subtend dense cluster of flowers, hairy, sessile, oblong.
- **Flowers:** Inconspicuous heads (yellow spots), oblong/spindle-shaped, sessile in small compact clusters, surrounded by dense white-grey woolly hairs.



Diaperia verna (Raf.) Morefield (EVMU) – Asteraceae(Many Stem Evax, *Evax verna* (Raf.))

- **Count as:** Compound umbel (red circle)
- **Bloom period:** April-June
- **Stems:** Stemmy and trailing; hairy 1.5 mm in diameter at base, 2-18 cm tall.
- **Leaves:** Small leaves, 2-4.5 mm; greyish to green; alternate, sessile, oblong; hairy; surrounding compound umbel
- **Flowers:** covered in silica hairs; appears with many small holes; looks like many small faces
- **Note:** Count individual compound heads (blue circles) for traits data.

*Eclipta prostrata* L. (ECPR) – Asteraceae

(False Daisy, Pie Plant)

- **Count as:** Compound head
- **Bloom period:** April-November
- **Stems:** Prostrate, sprawling red-brown stems (30.5-70 cm long) with appressed hairs.
- **Leaves:** Opposite; sessile or with a very short petiole; lanceolate leaves that are either entire or shallowly toothed.
- **Flowers:** Small (≤ 3 mm), inconspicuous corollas with numerous short (1 mm), white ray flowers.

*Erigeron modestus* A. Gray (ERMO2) –

Asteraceae

(Plains Fleabane)

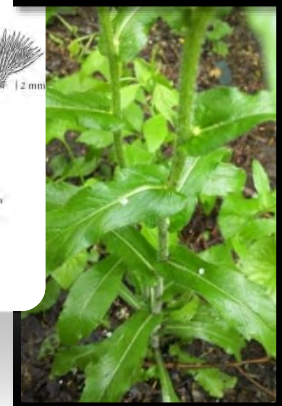
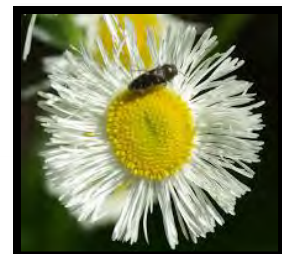
- **Count as:** Compound head
- **Bloom period:** April- October
- **Stems:** Forms a low clump 7.5-15.5 cm high and 10-25.5 cm wide
- **Leaves:** Oblanceolate leaves are sometimes few pinnately lobed or toothed
- **Flowers:** 1.5 to 2 cm flowers are carried above the foliage on peduncles 7.5-18 cm long on which the young, unopened flowers characteristically nod.



Erigeron philadelphicus L. (ERPH) – Asteraceae

(Philadelphia Fleabane)

- **Count as:** Compound head
- **Bloom period:** March-May
- **Stems:** Erect, 15–70 cm tall; roughly hairy
- **Leaves:** Alternate; basal leaves oblanceolate to obovate, margins shallowly crenate to coarsely serrate or pinnately lobed, surfaces hairy; cauline blades oblong-ob lanceolate to lanceolate, bases clasping to auriculate-clasping
- **Flowers:** Corymbiform arrays of up to 35 heads; each head 12-20 mm across; 150-400 thread-like ray flowers, 5-10 mm long, usually white, sometimes purple-pink; disk flowers yellow
- **Note:** There are three varieties: *var. philadelphicus*, *var. glaber*, and, *var. provancheri*. To distinguish between them, use a key.

*Erigeron strigosus* Muhl. ex Willd. (ERST3) – Asteraceae

(Daisy Fleabane and Prairie Fleabane)

- **Count as:** Compound head
- **Bloom Period:** April-October
- **Stems:** Erect stems up to 30-70 cm tall; upper stems have incurved or appressed hairs.
- **Leaves:** Basal leaves (≤ 70 mm wide) are lanceolate to ovate with toothed margins; generally, well-developed linear to lanceolate stem leaves.
- **Flowers:** Numerous (> 50) conspicuous white ray flowers with corollas < 1 mm wide; rarely has blue ligules.
- **Note:** *Erigeron strigosus* differs from other *Erigeron* spp. by possessing all the following: fibrous roots, non-clasping leaves, white ligules (rarely blue), stems between 30-70 cm tall, and well-developed stem leaves.



Erigeron tenuis Torr. & A. Gray (ERTE7) – Asteraceae

(Slenderleaf Fleabane)

- **Count as:** Compound head
- **Bloom Period:** March-May
- **Stems:** 10-40 cm
- **Leaves:** Linear to lanceolate on stem, basal leaves ovate, usually less than 15 cm wide with tapering base to petiole.
- **Flowers:** Ligules of ray flowers purple to blue, distinct from white *Erigerons*. Ligules of ray flowers less than 1 mm in diameter, hair-like, and numerous (more than 25 on a head).
- **Note:** If ligules broader than 1 mm and less than 25 on head then see genus *Symphyotrichum*.

*Eupatorium serotinum* Michx. (EUSE2) – Asteraceae

(White boneset, Late boneset)

- **Count as:** Compound umbel
- **Bloom period:** July- November
- **Stems:** 50-150+ cm; single; sparsely to densely branched in the upper portion; pubescent
- **Leaves:** Opposite; $\pm$ 3-veined; lanceolate; rounded to slightly oblique base; margins entire or serrate
- **Flowers:** Arranged in terminal arrays of corymbs with many flower heads; each head has $\pm$ 15 flowers

*Hymenopappus scabiosaeus* L'Hér. (HYSC) – Asteraceae

(Carolina Woollywhite)

- **Count as:** Compound head (previously counted as calyx)
- **Bloom period:** April-June
- **Stems:** Erect, between 40-100 cm tall.
- **Leaves:** Alternate; once-pinnately to bipinnately divided, where ultimate divisions are linear (2-8 mm wide); leaf blades glabrous on top, but white-wooly underneath.
- **Flowers:** Cream-colored disk flowers; ray flowers absent; corollas 3-5 mm long; white to yellow phyllaries.



Hymenopappus tenuifolius Pursh. (HYTE2) – Asteraceae

(Chalk Hill Hymenopappus, Chalkhill Woollywhite)

- **Count as:** Compound head
- **Bloom period:** April-August
- **Stems:** Biennial, erect, 40-150 cm.
- **Leaves:** Pinnately dissected leaves, 8-15 cm, many basal and some cauline leaves, reduced upwards.
- **Flowers:** 20-200 heads per stem, 25-50 white disc florets per head, no ray florets. 3.5-4.5 mm seeds.



Iva L. (IVA) – Asteraceae

(Sumpweed, *Iva annua*, *Iva angustifolia*)

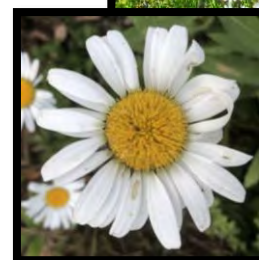
- **Count as:** DO NOT COUNT
- **Bloom period:** September-November
- **Stems:** Annual with taproot. Erect, 50-150cm tall. Freely branching, upper stems often with short appressed hairs.
- **Leaves:** Opposite near base, uppermost leaves alternate. Simple, lanceolate to ovate. Margin entire, dentate, or serrate. Lower leaves larger and entire, uppermost dentate and narrow and covered in appressed hairs. Leaves have strong camphor-like smell.
- **Flowers:** White, but very inconspicuous appearing on racemes. Fused bracts form cup around each flower. 8-15 staminate florets in center with 2mm long green corolla and yellow-white anthers. 3-5 pistillate florets on periphery with 1mm green corolla and white styles.
- **Notes:** Wind pollinated. **Heavy pollen loads, allergen warning. Can cause hay fever.**



Leucanthemum vulgare Lam. (LEVU) – Asteraceae

(Oxeye daisy)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** Glabrous, erect stems between 30-100 cm tall.
- **Leaves:** Mostly basal, but cauline leaves alternate; leaf blades oblong or spatulate-obovate with serrate to irregularly pinnatifid margins.
- **Flowers:** Yellow corollas with white three-toothed ligules (10-30 mm long and 2-10 mm wide); heads borne solitary on long peduncles.



Marshallia caespitosa Nutt. ex DC. (MACA7) – Asteraceae

(Barbara's-Buttons)

- **Count as:** Head
- **Bloom period:** April-June
- **Stems:** 15.5-46 cm tall on sandy or calcareous soils
- **Leaves:** Near base narrowly oblanceolate leaves 2.5-10cm long. At mid-stem and above the leaves become sparse, linear, and smaller (1.5-4 cm)
- **Flowers:** Rounded flower heads are solitary on the ends of stems. Each head consists of numerous green, narrowly lanceolate phyllaries 6.5-9.5mm long and numerous white to cream colored disk flowers are about 13mm long. No ray flowers.

*Melampodium leucanthum* Torr. & A. Gray (MELE2) –

Asteraceae

(Blackfoot daisy)

- **Count as:** Compound head
- **Bloom period:** March- November
- **Stems:** Bushy perennial or subshrub growing 15.5-46cm tall on dry caliche soils. Normally wider than tall. Very short rough hairs coat the stems and leaves.
- **Leaves:** Linear-oblong; 2-4.5 cm long and may be entire to pinnately few lobed.
- **Flowers:** Heads are 2-3 cm wide with 8-10 white ray flowers and numerous yellow disk flowers. Dark veins are conspicuous on the underside of the ray flowers.



Mikania scandens L. Willd. (MISC) - Asteraceae

(Hempvine)

- **Count as:** Umbel
- **Bloom period:** July-November
- **Stems:** Twining perennial vine. Glabrous to densely pilose (hairy) stems.
- **Leaves:** Triangular to triangular-ovate 2-11cm long. Shape variable, margins may be entire (smooth) to undulate (wavy), crenate (rounded teeth), or dentate (toothed outward). Tips often caudate (tail-like). Face slightly pubescent.
- **Flowers:** Dense cluster of white to pink flowers, heads 6-7 mm.
- **Fruits:** Single seeded, dark brown to black, 2 mm long and densely gland-dotted.

Notes: Blooms in the fall in wet soils along streams and lakes. *M. scandens* is distinguished from Autumn Clematis (*C. terniflora*) by its often dentate leaf margin, composite flower shape and seeds. Clematis will have plumose (tassel-like) seeds, ranunculus flowers, entire margins.

*Pinaropappus roseus* Less. (PIRO) – Asteraceae

(White Rocklettuce)

- **Count as:** Compound head
- **Bloom period:** March-August
- **Stems:** Few branched stems 15.5-30.5 cm tall
- **Leaves:** Crowded at the base, but a few narrowly lanceolate to linear leaves 2.5-7.5 cm long advance up the stem. They may be entire or sparsely shallowly toothed.
- **Flowers:** White to lavender-white flower heads about 4 cm in diameter; solitary and terminal on scape-like branches; linear-lanceolate phyllaries which often have lavender margins and dark tips.



Silphium albiflorum A. Gray (SIAL) - Asteraceae

(White Rosinweed)

- **Count as:** Compound head
- **Bloom period:** May-July
- **Stems:** Perennial. Rough stems up to 1 m tall.
- **Leaves:** Alternate leaves, rigid, and deeply pinnatifid. Leaves more sessile or clasping on upper stem.
- **Flowers:** Blooms white. Heads in raceme like arrangement typically unbranched at top either sessile or with very short peduncles (stems). Ray flowers are white and numerous.
- **Notes:** Texas endemic, prefers calcareous well drained soils. If not in bloom, distinguish by achenes (seeds) with wings that form triangular projections to a V-shaped notch roughly 3-5mm deep.

*Symphotrichum ericoides* var. *ericoides* (L.) G. L. Nesom (SYERE) –

Asteraceae

(White Heath Aster)

- **Count as:** Compound head
- **Bloom period:** August-October
- **Stems:** Reclining, arching or erect, up to 1 m tall; hairy; rhizomatous, forming colonies; usually much-branched
- **Leaves:** Light gray-green; midstem leaves (usually withered at time of flowering) linear or oblong, sessile, margins entire, 1-2 cm long; leaves on branch ends are 2-3 mm long, crowded, and stiff
- **Flowers:** Dense racemes of numerous flower heads, 1 cm across; around 25 white ray flowers, yellow disk flower



Symphyotrichum subulatum var. *ligulatum*
(Shinners) S.D. Sundb. (SYDI2) – Asteraceae
(Southern Annual Saltmarsh Aster, *Symphyotrichum*
divaricatum (Nutt.) G.L. Nesom)

- **Count as:** Compound head
- **Bloom period:** September–November
- **Stems:** Between (10–)30–150 cm tall, single, erect (often with purple or purplish brown areas), glabrous or mostly glabrous.
- **Leaves:** Upper cauline leaves petiolate or sessile, narrowly lanceolate, margins entire or minutely toothed, apices narrowing to a long tip, surfaces glabrous; basal and lower cauline leaves withered by time of flowering.
- **Flowers:** Between (10–) 30–100(–150) heads in open, panicle-like arrays; white, pink, blue, or lavender.



Verbesina virginica L. (VEVI3) - Asteraceae
(Frostweed, White Crownbeard)

Pollinative Prairie

- **Count as:** Umbel
- **Bloom period:** August–November
- **Stems:** Soft, fleshy green ridges running longitudinally down the length, 3–6ft tall.
- **Leaves:** Alternately, green, toothed margins, lanceolate to ovate. Leaves are often pointed with 4–5 on a stem. Up to 10 inches long.
- **Flowers:** Herbaceous perennial 1–7 white ray florets and 8–15 off-white disk florets with purplish–black anthers. Flower size 1–3 inches.



Buglossoides arvensis (L.) I.M. Johnst. (BUAR3) - Boraginaceae
(Corn Gromwell)

Pollinative Prairie

- **Count as:** Head
- **Bloom period:** March–May
- **Stems:** Erect annual, 20–70cm tall, hairy
- **Leaves:** Simple, alternate leaves. Lanceolate to linear, dark green, hairy. Leaves have central veins with non-visible radiating side veins.
- **Flower:** Solitary flowers in upper leaf axils. In leafy bracted racemes, corolla's white (sometimes yellowish or purplish), tuberculate, wrinkled, 3mm long. Has five petals, sepals, and tepals.
- **Notes:** Usually found in ditch banks, roadsides, and disturbed sites. Can be confused with plants from the *Myosotis* spp.



Lappula occidentalis (S. Watson) Greene (LAOC3) – Boraginaceae

(Flatspine Stickseed)

- **Count as:** Head
- **Bloom period:** March-May
- **Stems:** Erect, usually single; 10-60 cm tall with small, stiff hairs, much branched in the upper half.
- **Leaves:** hairy; upper leaves sessile, 1-2 mm long; lower leaves petioled, up to 6 cm long; lanceolate to oblanceolate; hairy; margins ciliate.
- **Flowers:** Terminal on stems or branches, pale blue or white, sometimes with yellow eye; tubular, with 5 rounded lobes; hairy appendages at the top of the tube opposite the corolla lobes.
- **Fruit:** 4 nutlets, approximately 3 mm long, single row of barbed prickles on margin.

*Myosotis macrosperma* Engelm. (MYMA) – Boraginaceae

(Large-Seed Forget-Me-Not)

- **Count as:** Head
- **Bloom period:** March-May
- **Stems:** Hairy erect stems between 20-50 cm tall.
- **Leaves:** Alternate; sessile oblong leaves covered in spreading and appressed hairs.
- **Flowers:** Tiny white corollas (2-3.5 mm long) on straight, slightly curved, or diagonally spreading pedicels; majority of calyx hairs hooked; quickly elongating racemes (calyxes 5-30 mm apart); fruiting calyxes > 5 mm long; ovary 4-parted.
- **Compare with:** *Myosotis verna* closely resembles *M. macrosperma*; however, *M. macrosperma* has larger fruiting calyxes (> 5 mm long), numerous hooked hairs on calyxes, and calyxes that are 5-30 mm apart.

*Myosotis verna* Nutt. (MYVE) – Boraginaceae

(Early Forget-Me-Not, Spring-Forget-Me-Not)

- **Count as:** Head
- **Bloom period:** March-May
- **Stems:** Short, erect stems covered in dense appressed hairs.
- **Leaves:** Alternate; entire lance-oblong leaves (< 7.5 cm long) with dense spreading and appressed hairs.
- **Flowers:** Tiny white corollas (2-3.5 mm long) on pedicels that are either closely ascending or erect at the base but curved outward at the tip; few hooked calyx hairs; gradually elongating racemes (calyxes 1-8 mm apart); fruiting calyxes < 5 mm long; ovary 4-parted.
- **Compare with:** *Myosotis verna* closely resembles *M. macrosperma*; however, *M. verna* has smaller fruiting calyxes (< 5 mm long), fewer hooked hairs on calyxes, and calyxes that are 1-8 mm apart.



Nama jamaicensis L. (NAJA) – Boraginaceae
(Jamaicanweed, Nama jamaicense)

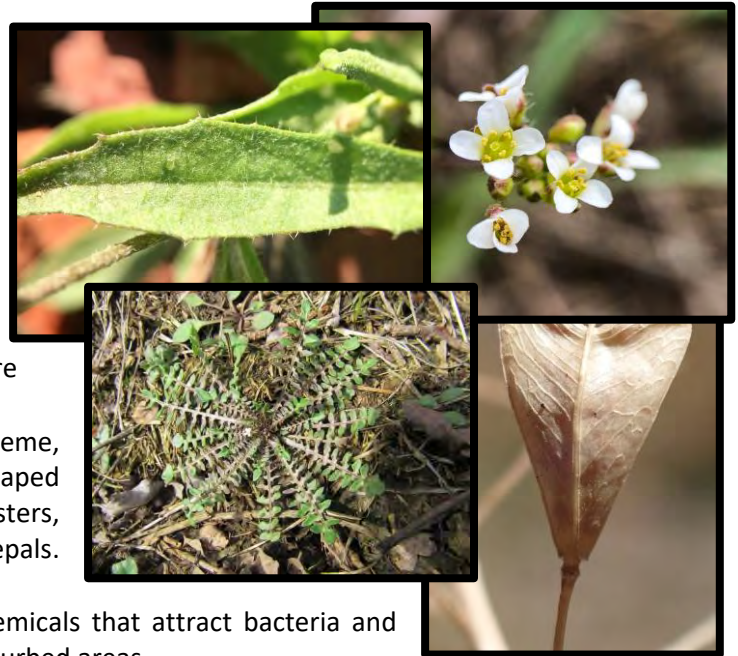
- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Prostrate or sprawling, pubescent stems between 10-50 cm long; square-shaped.
- **Leaves:** Blades oblanceolate, obovate, or spatulate and covered in soft hairs; conspicuously decurrent.
- **Flowers:** Flowers 2.5 to 3mm in diameter, white, five-lobed, nearly tubular corollas; corollas short in relation to slender calyx lobes; calyx lobes pubescent.



Capsella bursa-pastoris (L.) Medik. (CABU2) - Brassicaceae
(Shepherd's-Purse)

Pollinative Prairie

- **Count as:** Raceme
- **Bloom period:** February-May
- **Stems:** Inconspicuously pubescent, upright, branched, annual, up to 70 cm tall.
- **Leaves:** Basal leaves deeply lobed, forming a rosette. Stem leaves mostly sessile, simple and alternately arranged. The edges of leaves are shallowly lobed and can have teeth. They are approximately 15cm long and 4cm wide.
- **Flower:** Usually self-pollinated, elongated, raceme, petals are white or yellow, followed by heart shaped seed pods. Flowers grow in terminal clusters, individual flowers having 4 petals, sepals and tepals. They are 2.5mm in diameter.
- **Notes:** Plant is protocarnivorous, secretes chemicals that attract bacteria and nematodes. Found in roadsides, lawns, and disturbed areas.



Draba cuneifolia Nutt. ex Torr. & A. Gray (DRCU) – Brassicaceae

(Wedgeleaf Draba)

- **Count as:** Umbel
- **Bloom Period:** February-April
- **Stems:** Erect stems up to 30 cm tall; pubescent in upper portions.
- **Leaves:** Cauline leaves absent or present (1-7) and crowded near base; oblanceolate to obovate leaves that are either entire or toothed; pubescent.
- **Flowers:** Four-petalled white flowers arranged in tight racemes; petals ≤ 7 mm long.
- **Fruits:** Elliptic to oblong (8-16 mm long, 1-3 mm wide); fruit and fruiting pedicels hairy.

*Lepidium virginicum* L. (LEVI3) – Brassicaceae

(Virginia Peppergrass, Virginia Pepperweed)

- **Count as:** Spike
- **Bloom Period:** March-May
- **Stems:** Erect stem up to 60 cm tall.
- **Leaves:** Alternate; oblanceolate to linear, petiolate cauline leaves; basal leaves pinnatifid, but often withered at time of flowering.
- **Flowers:** Small, but still conspicuous, white, 4-petalled flowers arranged on racemes; petals generally longer than sepals.
- **Fruit:** Flattened, nearly orbicular but sometimes elliptic to obovate; fruiting pedicels slightly longer than fruits; smooth.

*Polypremum procumbens* L. (POPR4) –

Tetrachondraceae

(Rust Weed, Juniper Leaf)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Spreading; many stems, reclining to erect; up to 30 cm high.
- **Leaves:** Opposite; narrowly linear; up to 3 cm long.
- **Flowers:** Solitary or in a terminal cyme; white; 4 petals; ring of hairs in the throat.



Arenaria serpyllifolia L. (ARSE2) – Caryophyllaceae

(Thyme-leaved Sandwort)

- **Count as:** Flower
- **Bloom period:** February-May
- **Stems:** Multiple short, ascending or sprawling stems up to 20 cm tall.
- **Leaves:** Opposite; sessile elliptic or ovate leaves; stipules absent.
- **Flowers:** Five white petals and five green sepals; sepals longer than petals and covered in small scabrous-pubescent hairs; short pedicels (1-3 mm long) during flowering but elongating in fruit (≤ 10 mm).

*Cerastium* spp. L. (CERAS) – Caryophyllaceae

(Mouse-ear Chickweed)

- **Count as:** Flower
- **Bloom period:** February-April
- **Stems:** Short erect, ascending, or decumbent stems; glandular or eglandular pubescent.
- **Leaves:** Opposite; sessile or petiolate, linear to broadly ovate blades.
- **Flowers:** Five white petals that split less than halfway to the base or are completely absent.
- **Fruit:** Capsules longer than calyces and have 10 valves; capsules eglandular or glandular pubescent; cylindrical or oblong capsules that are sometimes curved.
- **Compare with:** *Stellaria* spp. are similar in appearance to *Cerastium* spp.; however, *Stellaria* spp. have petals that split more than halfway to the base or have capsules that have 6 valves and eglandular pubescence.

*Stellaria media* (L.) Vill. (STME2) – Caryophyllaceae

(Common Chickweed)

- **Count as:** Flower
- **Bloom period:** year-round
- **Stems:** Branching, procumbent (creeping), 4-sided, 5-40 cm long.
- **Leaves:** Simple, opposite, petiolate (basally) or sessile (distally). Leaf blade ovate to elliptic (0.5-4 cm long, 0.2-2 cm wide). Margins entire. Apex acute/acuminate.
- **Flowers:** 2-5 mm wide, with 5 divided, white petals (technically modified stamens) and 5 green sepals (technically tepals) which are longer than the petals (3 mm). Flowers are perfect, with 2-10 stamens and 1 pistil.
- **Fruits:** Green or straw-colored capsule with 6 segments. There are 3 white styles, which are typical of *Stellaria*. Seeds reddish brown, 0.9- 1.3 mm wide.



Lechea mucronata Raf. (LEMU3) - Cistaceae(Hairy pinweed, *Lechea villosa*)

- **Count as:** Raceme
- **Bloom period:** June-November
- **Stems:** Perennial. Erect stems arising from base 30-90 cm tall. Stems densely villous (long spreading hairs).
- **Leaves:** Opposite or whorled. Leaf at mid stem are 3mm or wider. Elliptic to ovate. Apex acute, mucronate. Lower surface villous.
- **Flowers:** White, slightly pink. Calyx deep red, subglobose, and deeply concave. Flowers on single pedicel, can cluster to form dense glomerules.
- **Notes:** Distinguish by large (3mm+) mid-stem leaves and strongly villous pubescence.

*Convolvulus arvensis* L. (COAR4)– Convolvulaceae

(Field bindweed)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Herbaceous, prostrate vine with a deep taproot. Slender, branched stems. Glabrous stems can be slightly pubescent at new growth.
- **Leaves:** Leaves may vary considerably depending on conditions. Alternating, often sagittate (arrow shaped) leaves 1-10 cm long and 0.3-6cm wide. Margins are typically smooth but may be slightly ciliate (fringe of hairs).
- **Flowers:** White to light pink, 1-3 flowers on cymes. Shallow lobed funnelform corolla 2.5cm wide. Yellow patch at base of corolla. 5 stamens and divided style.
- **Fruit:** Glabrous, round seed 5-10 mm wide. 2 celled capsules contain 1-4 seeds.
- **Notes:** Weedy, aggressively spreads. Common in disturbed areas.



Convolvulus equitans Benth. (COEQ) – Convolvulaceae

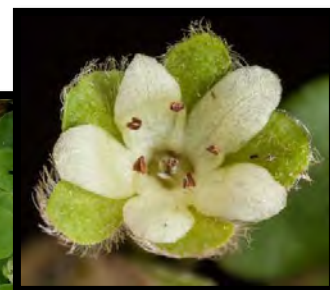
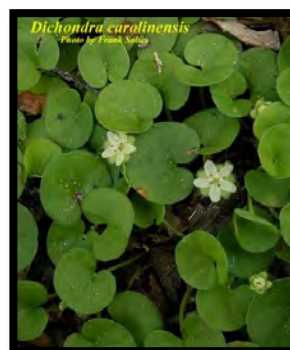
(Texas Bindweed)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Herbaceous vine; branched, prostrate or decumbent stems arising from a taproot, densely pubescent.
- **Leaves:** Variable, ovate-elliptic to triangular-lanceolate or narrowly oblong with projecting basal lobes; 1-7 cm long, 0.2-4 cm wide, densely pubescent on both surfaces with loosely appressed hairs, the margins toothed or lobed or both, rarely entire; petioles 0.25-5 cm long.
- **Flowers:** 1-3-flowered cymes; 6-12 mm long, 3-6 mm wide, white to pink, at times with a reddish center, (1.5-2.5-3 cm long, sericeous on the petal lobes.
- **Fruit:** capsular, 4-valved, mostly brown, chartaceous, globose, 7-8 mm wide, glabrous.

*Dichondra carolinensis* Michx. (DICA3) – Convolvulaceae

(Carolina ponysfoot)

- **Count as:** Flower
- **Bloom period:** March-September
- **Stems:** Low, creeping growth habit; forms dense mats.
- **Leaves:** Kidney-shaped to nearly round; margins entire.
- **Flowers:** White-green; inconspicuous.

*Evolvulus sericeus* Sw. (EVSE) – Convolvulaceae

(Silky Evolvulus, silver dwarf morning-glory)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** 6-35 cm long densely villous.
- **Leaves:** Lanceolate leaves densely pubescent on lower surface in contrast to upper surface. The underside looks silvery.
- **Flowers:** White silky flowers solitary, axillary corollas 8-18 mm across, rotate or shallowly bell-shaped.
- **Note:** Leaf shape can help differentiate *Evolvulus sericeus* from *Convolvulus equitans* and *Convolvulus arvensis*.



Ipomoea lacunosa (L.) (IPLA) – Convolvulaceae

(White Morning-Glory, Whitestar)

- **Count as:** Flower
- **Bloom period:** September-October
- **Stems:** Twining vine; covered in sparse to dense white hairs.
- **Leaves:** Alternate; large cordate or hastate blades that are sparse to densely pubescent.
- **Flowers:** White, sometimes light pink, funnellform corollas (1.6-2(-2.5) cm long) with five “tips” and a white to yellowish center.

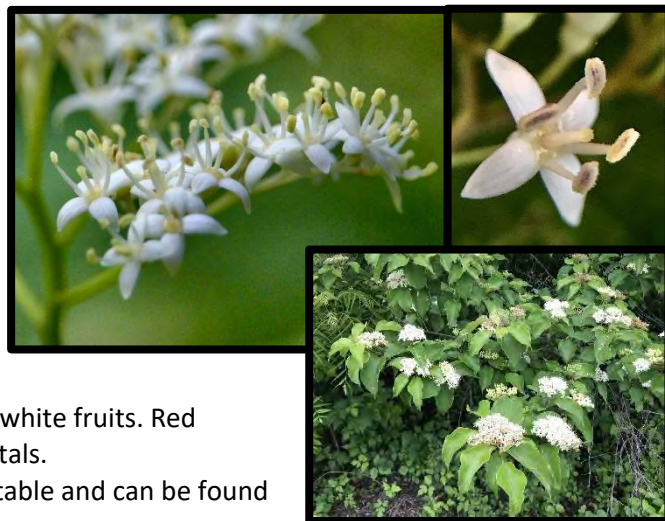
*Cornus drummondii* C.A. Mey. (CODR) -

Cornaceae

(Roughleaf dogwood)

Pollinative Prairie

- **Count as:** Umbel
- **Bloom period:** April-June
- **Stems:** Clumping shrub/small tree that can grow up to 16ft, reddish-brown or gray branchlets.
- **Leaves:** Opposite. Ovate. Rough to the touch with a slightly velvety lower. 3-6 inches long.
- **Flowers:** Flattop clusters, creamy-yellow flowers, and white fruits. Red appearance in flowers in the fall. ¼ inch wide. Four petals.
- **Notes:** Grows best in moist soil areas but is very adaptable and can be found anywhere from swamps, woods, streams, or hill

*Diospyros virginiana* L. (DIVI5) - Ebenaceae

(Common persimmon)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Typically, 10-20m tall, short slender trunk with drooping branches, thick dark gray bark divided into furrows that form square blocks.
- **Leaves:** Pinnate, leaflets are elliptic-oblong to ovate, 3.5-8cm long, smooth edges, rounded base.
- **Fruit:** Fruit is round or oval, 2-5cm wide, yellow-orange when ripe.
- **Flower:** White, bell-shaped, sessile, 2cm long, 2-3 flowering cymes. Male and female flowers.
- **Notes:** Prefer moist, well-drained, sandy soil. Appears as a shrub in poor conditions.



Cnidoscolus texanus (Müll. Arg.) Small (CNTE) – Euphorbiaceae

(Texas Bull Nettle)

- **Count as:** Flower
- **Bloom period:** March-July
- **Stems:** 45–90 cm high with several stems from taproot
- **Leaves:** Alternate, 5–10 cm long, 3-5 lobed, crinkled in appearance and covered with stinging hairs. **If one brushes against the leaves, one will feel the sting for 30–45 minutes.**
- **Flowers:** consists of 5–7 white, petal-like sepals, united below; there are no petals. There are 10 or more stamens and a 3-lobed pistil.
- **Seeds:** Clustered in 4 separate compartments held tightly together by a roundish seedpod.
- **Note:** If any part of the stem is broken, a milky sap appears, and some people are allergic to this as well as the sting of the hairs.

*Cnidoscolus urens* var. *stimulosus* (Michx.) Govaerts (CNURS) –

Euphorbiaceae

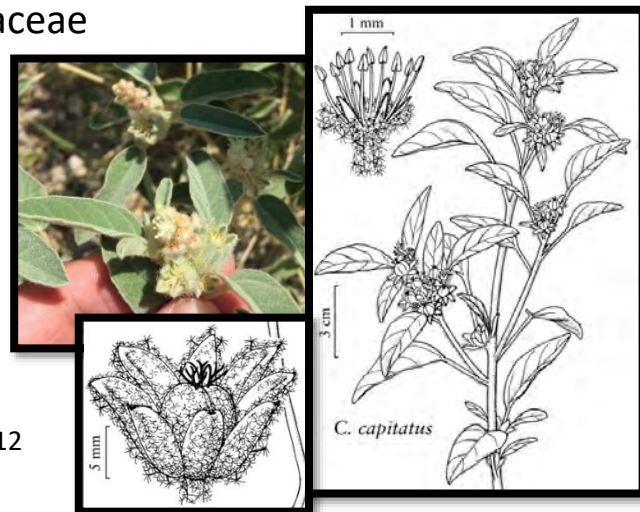
(Finger rot)

- **Count as:** Flower
- **Bloom period:** March-December
- **Leaves:** Deeply 3-5 lobed,
- **Flowers:** White, trumpet-shaped flowers in a few-flowered, terminal cluster
- **Note:** If any part of the stem is broken, milky sap appears, and some people are allergic to this as well as the sting of the hairs.

*Croton capitatus* Michx. (CRCA6) – Euphorbiaceae

(Hogwort)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Woolly annuals typically with a single main stem, not typically branching at the base; 20 cm–1.5 m tall; covered in dense, stellate hairs.
- **Leaves:** Alternate; lanceolate-ovate; rounded or wedge-shaped base, not cordate (heart-shaped). Lateral nerves on lower surface curving (not parallel).
- **Flowers:** Monoecious. Terminal spike; Pistillate flower: 3 styles, two or three times 2-parted. Staminate flower: 7-12 stamens, petals 5, sepals 5
- **Fruit:** Sepals longer than fruit, the tips curve outward at maturity; produces 3 seeds.
- **Note:** This species is not as common as *C. lindheimeri*. The two species are often mixed up. The distinguishing characteristic is the recurved sepals.



Croton glandulosus L. (CRGL2) – Euphorbiaceae

(Tropic Croton, Tooth-leaved croton)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Low, erect annuals often branching at the base and without a strong main stem; up to 60 cm tall; hairs in stellate pattern
- **Leaves:** Distinctly serrated, petioles 0.2–1 cm long; large gland at the base of the leaf on both sides of the petiole
- **Flowers:** Monoecious. Staminate flowers: sepals 5, petals 5 and 1.5x longer than sepals, 7-13 stamens. Pistillate flowers: sepals 5, petals tiny linear structures .1 mm long, 3 styles divided once near base.

*Croton lindheimeri* (Engelm. & A. Gray) Alph. Wood (CRLI10) – Euphorbiaceae(Lindheimer's Doveweed, *Croton capitatus* var. *lindheimeri*)

- **Count as:** Flower
- **Bloom period:** May-September
- **Stems:** 30-90 cm high; coated in wooly hairs; typically has a single main stem, not branching at the base
- **Leaves:** simple; pale, gray-green; ovate-lanceolate blade; base cordate (heart-shaped) to rounded
- **Flowers:** Monoecious. Inconspicuous, yellowish-white terminal flowers on spike-shaped racemes, 1.5–3 cm. Sepals longer than fruit, tips curve inward to enclose the fruit at maturity. Staminate and pistillate flowers same as *C. capitatus*.
- **Note:** An image of the leaf petiole assists in ID for this species. This is the most common species in north TX. While the leaf bases of this species are variable, if the bases are cordate, it is most likely *C. lindheimeri*. Younger growth will have more yellowish hairs and consistently acute leaf tips.



Croton lindheimerianus Scheele (CRLI2)- Euphorbiaceae

(Threeseed Croton)

- **Count as:** Flower
- **Bloom period:** March-November
- **Stems:** 10-50 cm high; dichotomously branched (branching out in two's); dense hairs arranged in stellate pattern; often branching at the base and without a strong main stem
- **Leaves:** Dense hairs arranged in a stellate pattern; sometimes clustered near inflorescences, blade lanceolate to suborbiculate (round); margins entire; apex rounded to acute; leaf underside pale green, top surface darker green
- **Flowers:** Monoecious. Staminate flowers: 5 nearly distinct oblong-lanceolate sepals, petals about as long as sepals, petals opposite of sepals, stamens 7-9. Pistillate flowers: 5 nearly distinct sepals, petals absent, ovary subglobose, styles divided at base.



Croton monanthogynus Michx. (CRMO6) – Euphorbiaceae

(Prairie Tea)

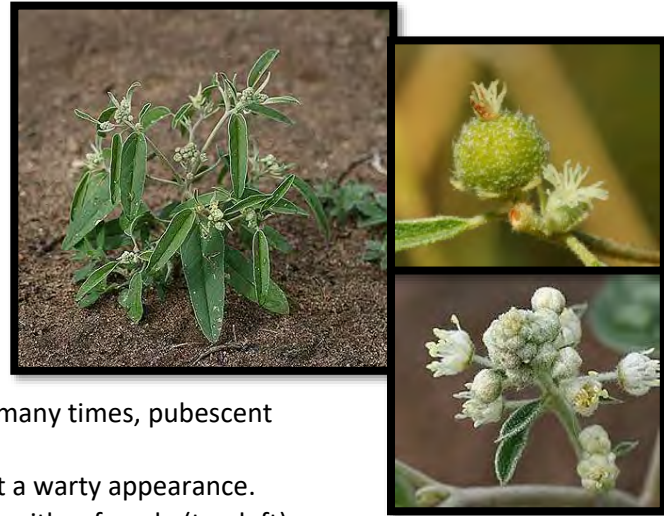
- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Maximum height is 50 cm tall, often branching at the base and without a strong main stem.
- **Leaves:** Silvery color; ovate to alternate, sometimes opposite near the tips of branches; upper surface green and finely pubescent; lower surface whitish-green and appears brown-dotted, with woolly appressed hairs
- **Flowers:** Monoecious. One female flower. Each staminate flower has a woolly green calyx with 5 lobes that are spreading, 3-8 narrow white petals, and 3-8 white stamens. Only a single pistillate flower develops from each axil of the upper leaves. Each female flower has a woolly green calyx with 5 lobes that are spreading and oblong, a woolly green pistil that is ovoid in shape, a pair of cleft styles at its apex, and no petals.
- **Fruit:** Mature capsule 1 seeded.



Croton texensis (Klotzsch) Müll. Arg. (CRTE4) – Euphorbiaceae

(Skunkweed, Texas Croton)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Erect and often branched near the top; stems between 20-80 cm tall.
- **Leaves:** Alternate; lanceolate, linear, or ovate-lanceolate blades (15-35 mm long, ≤ 10 (-12) mm wide) that are densely stellate pubescent.
- **Flowers:** Dioecious. Flowers lack petals but have 5 sepals (1-2 mm); Staminate flowers: 8-12 stamens, petals absent, glands distinct and opposite of calyx lobes. Pistillate flowers: petals absent, 3 styles divided many times, pubescent globose ovary.
- **Fruit:** Globose with many tufts of hair that give the fruit a warty appearance.
- **Note:** *C. texensis* is dioecious, where individuals possess either female (top left) or male (bottom left) reproductive parts.

*Euphorbia bicolor* Engelm. & A. Gray (EUBI2) - Euphorbiaceae

(Snow-on-the-prairie)

- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** Erect; 40-130 cm tall; solitary base stem branched in the upper portion in groups of two's or three's; covered with soft hairs.
- **Leaves:** Lower leaves are alternate, usually sessile (without petioles); Leaf-like bracts in the upper portion are white-margined; thin; narrowly elliptic to lanceolate; margins entire; 7-10 cm long, usually 5-10 times as long as wide; arranged in whorls subtending the flowers.
- **Flowers:** Inconspicuous; white with 5 petal-like glands; arranged in terminal clusters, which group together in larger clusters.
- **Note:** The milky sap of broken stems or leaves can cause a skin rash.



Euphorbia maculata L. (EUMA7) - Euphorbiaceae(Spotted Spurge, *E. supina*)

Pollinative Prairie

- **Count as:** Raceme (each stem a raceme)
- **Bloom period:** July-November
- **Stems:** Height up to 30cm, stems spread out in a mat along the ground, light green, hairy. Stems do not root at nodes.
- **Leaves:** Opposite, light green underneath, up to 3cm in length, often have a red spot in the middle, rounded or slightly pointed at the tip, the base of the leaf is asymmetrical. Leaves slightly toothed.
- **Flowers:** White, flowers and fruit can turn red in stress. Monoecious. Has 4 white to pink, petal-like structures with unevenly lobed edges and a gland at the base. Flowers: peduncle shorter than flower. Pistillate flowers: styles 0.3-0.4mm branched at apex, ovary covered in silky hairs, fruit ovoid and protruding from involucre. Staminate flowers: 2-5 stamens.
- **Notes:** Sap of this plant can cause a rash. Distinguish from other sand mats by short, branched styles, unrooted stems, and toothed leaves.

*Euphorbia marginata* Pursh (EUMA8) - Euphorbiaceae

(Snow-on-the-mountain)

- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** Up to 200 cm; glabrous or with soft hairs; solitary base stem widely branched in pairs in the upper portion
- **Leaves:** Alternate on the main stem; sessile (without petioles); glabrous; thick; margins entire; elliptic-oblong or ovate; upper leaves in opposite pairs; 6 cm long, usually twice as long as wide
- **Flowers:** white with 5 petal-like glands, 2-4 mm long
- **Note:** In the early summer, *E. marginata* can resemble broad-leaf milkweed before it develops the white margins. **The milky sap of broken stems or leaves can cause a skin rash.**



Euphorbia missurica Raf. (EUMI5) – Euphorbiaceae

(Prairie Sandmat)

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Erect, glabrous, branched stems up to 1 m tall.
- **Leaves:** Opposite; petiolate, linear to narrowly oblong (4.5-10 times as long as wide), glabrous blades.
- **Flowers:** Possesses four white and sometimes pink petaloid appendages (0.5-2.5 mm long); appendages are crowded on one half of the cyathium giving the appearance that half of the “flower” is missing.

*Euphorbia nutans* Lag. (CHNU9) - Euphorbiaceae

(Eyebane, Chamaesyce nutans)

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** Spreading habit; usually ascending, occasionally erect; stems 1 to several; up to 1 m long; pinkish-red; short, incurved hairs, often concentrated at nodes and distally, occasionally in 2 bands along opposite sides of stem.
- **Leaves:** Opposite; up to 3.5 cm long; blade oblong to oblong-lanceolate; base asymmetric; margins finely-toothed; apex angled with blunt tip; upper surface sometimes bears a conspicuous reddish spot; light-green color on underside.
- **Flowers:** Solitary or in clusters; 4 petals white to pink, rounded petal-like appendages contain staminate and pistillate flowers inside

*Acacia angustissima* (Mill.) Kuntze (ACAN) - Fabaceae

(Prairie Acacia, Acaciella angustissima)

- **Count as:** Head
- **Bloom period:** June-September
- **Stems:** Perennial. Woody at base, typically less than 1m tall, but can be greater than 2m. Thornless
- **Leaves:** Alternate. Bi-pinnate leaf that will fold when touched.
- **Flowers:** White, or pinkish. Blooms on axil or terminally on erect racemes. Numerous stamens.
- **Notes:** Distinguish from *Desmanthus* sp. By its woodiness and many stamens.



Dalea candida Michx. ex Willd (DACA7) – Fabaceae

(White Prairie Clover)

- **Count as:** Spike
- **Bloom period:** May-July
- **Stems:** Herbaceous, spreading or ascending, striate, glabrous stems up to 100 cm tall.
- **Leaves:** Alternate; once oddly pinnate, glabrous leaves (5-9 leaflets); leaflets linear-lanceolate or oblanceolate (10-30 mm long).
- **Flowers:** Small white corollas arranged in long, cylindric spikes (14-70(-100) mm long); outside of calyces glabrous.
- **Compare with:** *D. candida* is similar in appearance to *Dalea multiflora*. Look at spike shape and length to differentiate the two species.

*Dalea multiflora* (Nutt.) Shinnery (DAMU) – Fabaceae

(Roundhead Prairie Clover)

- **Count as:** Spike
- **Bloom period:** June-July
- **Stems:** 10-90 cm tall with several erect stems rising from a woody base; striate (grooved)
- **Leaves:** 1.27 to 2.5 cm long which consist of 3-9 leaflets. Linear to linear-oblong, the leaflets are 6.3-12.7 mm long with gland dotted undersides.
- **Flowers:** White, in nearly globose spikes 9.5 to 12.7 mm across, each flower 4.7 to 6.3 mm long.

*Desmanthus illinoensis* (Michx.) MacMill. ex B.L. Rob. & Fernald (DEIL)

– Fabaceae

(Illinois Bundleflower)

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** One to several erect stems grow from the base to 0.3-0.9 m (sometimes up to 1.5 m) in height.
- **Leaves:** Twice pinnately compound. 6-15 pinnae, each have 20-30 leaflets. Leaves fold in strong sunlight and when touched.
- **Flowers:** Small, ball-shaped clusters of whitish to greenish flowers occur on axillary stalks.
- **Fruit:** Flat, leathery, twisted seedpods follow.



Eysenhardtia texana Scheele (EYTE) – Fabaceae

(Texas kidneywood)

- **Count as:** Spike
- **Bloom period:** May-October
- **Stems:** Unarmed, much-branched shrub, 0.9-3m tall, with an open, airy structure.
- **Leaves:** are gland-dotted up to 9cm long, consisting of a central axis and as many as 40 small leaflets, each about 6.5mm long, pungent when crushed.
- **Flowers:** 7.5-10 cm spikes of white flowers are fragrant arranged in spikes up to 11.5cm long at the ends of branchlets.
- **Fruit:** Pod about 95mm inch long, often with a threadlike tip.

*Lespedeza cuneata* (Dum. Cours.) G. Don (LECU) - Fabaceae

(Chinese bushclover)

- **Count as:** Raceme
- **Bloom period:** July-October
- **Stems:** Erect; bushy; 0.5-2 m tall; strongly ridged and covered with appressed hairs.
- **Leaves:** Alternate; densely crowded; petiolate leaf with narrowly oblong, trifoliate leaflets, 1-2 cm long.
- **Flowers:** White to yellow with purple at the base; 6-9 mm long; 5-lobed; appearing in clusters of 1-3.

*Lespedeza hirta* (L.) Hornem. (LEHI2) - Fabaceae

(Hairy Lespedeza)

- **Count as:** Raceme
- **Bloom period:** July-September
- **Stems:** Perennial. Stems erect or low spreading. 50-150 cm long. Dense, spreading hairs throughout.
- **Leaves:** Tri-pinnately compound. Leaflets mostly ovate to elliptic. Terminal leaflet 2x long as wide. Lower face pubescent.
- **Flowers:** White, banner with dark pink spot. Flowers on short peduncles, clustered, nearly globose on spike.
- **Notes:** Genus known to hybridize. Distinguish by spike inflorescence and ovate leaves.



Melilotus albus (L.) Lam. (in USDA, treated as MEOF) - Fabaceae

(White Sweetclover)

- **Count as:** Raceme
- **Bloom period:** May-June.
- **Stems:** Tall, lanky and branching annual or biennial, 0.5-2m.
- **Leaves:** Trifoliolate, alternate, petiolate. Fragrant when crushed.
- **Flowers:** Corolla white, 3-6-5.2 mm. Standard petals longer than wings.
- **Fruits:** Indehiscent fruit with 1-2 seeds, 2.5-4 mm long.
- **Notes:** *M. officinalis* is similar to *M. albus*, but the standard petal is roughly equal in length to the wings, and the flowers are yellow. *M. indicus* has yellow flowers, the corolla is shorter (1.7-2.4(-3) mm) and the stipules have clasping, auricled bases.

*Senegalia roemeriana* (Scheele) Britton & Rose (SERO) – Fabaceae

(Acacia roemeriana)

- **Count as:** Head
- **Bloom period:** April-August
- **Stems:** 1-2 meter, round-topped shrub or, more rarely, a small tree to 4.5 m with spreading branches. Young trunks are covered with smooth bark, becoming scaly with age. Branchlets with scattered straight or recurved prickles.
- **Leaves:** divided into numerous leaflets 1.25 cm long or less.
- **Flowers:** Fragrant, cream to greenish flowers 9.5 mm wide arising mostly from the axils of the leaves.
- **Fruit:** Leathery, brown to reddish, flat, curved pod up to 10.2 cm long and 2.9 cm broad.

*Trifolium repens* L. (TRRE3) – Fabaceae

(White clover)

- **Count as:** Head
- **Bloom period:** April-July
- **Stems:** 15 cm tall or more, branching from the base
- **Leaves:** Several compound leaves from a short stem that grows only a little, after which this stem rapidly elongates and becomes up to 30.5cm long. Leaflets are obovate or ovate about 2 cm long. Their margins are finely serrate. Sometimes the upper surface of each leaflet are white markings in the form of an upside down "V".
- **Flowers:** Heads about 2 cm across are produced on long naked stalks (peduncles) that are unbranched and hairless. Each flowerhead has 20-50 flowers and are more or less globular in shape. The flowers gradually turn brown and are replaced by seedpods



Trifolium vesiculosum Savi (TRVE)-Fabaceae
(Arrowleaf Clover)

- **Count as:** Head
- **Bloom period:** April-July
- **Stems:** Erect and branched, annual, glabrous, 15-70 cm.
- **Leaves:** Palmately trifoliate, petiolate, glabrous, lanceolate to elliptic, 0.5-4 cm, grooved along edges. Typically have a white arrow-shaped marking.
- **Flowers:** Approximately 50-100 small flowers per inflorescence; is 3-6 cm, terminal or axillary. Individual flowers are 12-16 mm. Blossoms are white to pinkish but turn brown as they mature.
- **Notes:** Introduced, typically found in disturbed areas.



Vicia caroliniana Walter (VICA2) – Fabaceae
(Carolina Vetch)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Erect, branching, pubescent stems.
- **Leaves:** Alternate; leaves even-pinnate; leaflets elliptic, narrowly ovate, or linear-oblong; tendrils present.
- **Flowers:** Corollas (8-12 mm long) white to pale lavender; inflorescences arranged on racemes of 6-20 flowers.



Vicia hirsuta (L.) Gray (VIHI) – Fabaceae
(Hairy Tare)

- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Climbing, glabrous stems up to 15-90(-120) cm tall.
- **Leaves:** Alternate; leaves even-pinnate; leaflets linear or narrowly oblong and sometimes notched at the tip; tendrils present.
- **Flowers:** Corollas (2-4(-5) mm long) white to pale lavender; inflorescences arranged on racemes of 2-4(-7) flowers; racemes shorter than leaves.



Geranium texanum (Trel.) A. Heller (GETE2) – Geraniaceae
(Texas Geranium)

- **Count as:** Flower
- **Bloom period:** March-July
- **Stems:** Pubescent, Sprawling, low growing, up to 50 cm long, branched at base.
- **Leaves:** Deeply, palmately dissected into 3-9 primary lobes, each lobe being cleft or lobed again; long petioles, 2-3.5 cm.
- **Flowers:** White to pale pink with 5 notched petals; arranged in loose, terminal clusters; 8 mm across; stamens are red-pink.



Heliotropium tenellum (Nutt.) Torr. (HETE3) –
Heliotropiaceae

(Pasture Heliotrope, Euploca tenella)

- **Count as:** Flower
- **Bloom period:** May-November
- **Stems:** 15.5-46 cm tall erect bushy multi-branched plant; antrorse, strigose hairs cover the stems and leaves giving them a mild gray-green appearance.
- **Leaves:** Linear leaves are up to 5 cm long by 0.3 cm wide.
- **Flowers:** White funnel-shaped flowers have yellow throats and are arranged in elongate, loose, raceme-like cymes; individual flowers are 5-6.4mm long and 3-5mm wide.



Marrubium vulgare L. (MAVU) – Lamiaceae

(White Horehound, Common Horehound)

- **Count as:** Raceme
- **Bloom period:** April-July.
- **Stems:** Perennial to 0.3-0.7(-1) m tall.
- **Leaves:** Simple, opposite, petiolate. Covered in white tomentum. Leaf blades ovate to suborbicular, rugose, with prominent veins, 1.5-5 cm long.
- **Flowers:** Calyx with 10 subequal, hooked lobes, 4-5 mm long. Corolla tubular, white with purplish dots, two-lipped, 5-6 mm. Stamens 4.
- **Fruits:** 4 nutlets.
- **Notes:** Weedy, associated with nutrient-rich soil. Formerly used in medicine and confectionery.



Monarda clinopodiodes A. Gray (MOCL2) - Lamiaceae

(Basil beebalm)

- **Count as:** Raceme
 - **Bloom period:** April-June
 - **Stems:** Annual herb up to 30 cm tall.
 - **Leaves:** Simple lanceolate to oblong opposite leaves, tapering at both ends, pubescent and slightly toothed.
 - **Flowers:** Light pink to purple glomerulic tiered (clustered) flowers on spike typical in Monardas. Dark purple calyx, greener at base.
- Notes:** Aromatic. Flowers bloom less densely in the cluster than other Monardas and significantly more pubescent leaves.

*Teucrium canadense* L. (TECA3) - Lamiaceae

(American germander)

- **Count as:** Spike
- **Bloom period:** May-August
- **Stems:** Erect; solitary; branched in upper portion; rhizomatous; hairy, 4-angled.
- **Leaves:** 5-10 cm long and 2-4 cm wide; opposite; lower surface densely hairy; margins toothed.
- **Flowers:** Each flower up to 2 cm long; tubular; 5 petals; 2 lipped at rim, upper lip deeply notched; lower lip 3-lobed; white, pink or lavender with purple lines or spots; arranged in dense spikes.

*Teucrium laciniatum* Torr. (TELA) - Lamiaceae

(Lacy germander)

- **Count as:** Spike
- **Bloom period:** April-September
- **Stems:** Perennial herb 7-15 cm tall. 4 angled stems (mint family), glabrous or slightly haired.
- **Leaves:** Green leaves, opposite and abundant along the stem. Blades 1-5 cm long. Deeply pinnately lobed. Surface glabrous.
- **Flowers:** White crowned spikes, 5 petaled. Calyx bell shaped. 5 unequally sized teeth. Lowest petals are 2 to 3 times as large as other petals.
- **Fruits:** 4 per flower, ovular, 3 mm long, glabrous.
- **Notes:** Typically, in limestone or alkaline soils. Look for the dense and deeply lobed leaves compared with *T. canadense* which is not typically lobed.



Callirhoe alcaeoides (Michx.) A. Gray (CAAL) - Malvaceae

(Light Poppymallow)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Perennial. Erect stems up to 80 cm. Strigose (short appressed) hairs.
- **Leaves:** Unlobed, to deeply lobed of 5-7. Upper
- **Flowers:** White to pinkish. Flowers without subtending bracts. Calyx with rough stiff hairs. Flowers are bisexual or functionally pistillate. Sterile male flowers with petals .7-1.7 cm.
- **Notes:** Include picture of separated fruit if possible. Status not ranked in TX, but neighboring states list it as endangered or threatened. Please obscure locational data.

*Cocculus carolinus* (L.) DC. (COCA) – Menispermaceae

(Carolina Snailseed)

- **Count as:** Flower
- **Bloom period:** June-July
- **Stems:** Twining, climbing stems up to 5 m long.
- **Leaves:** Alternate; highly variable, but blades are usually ovate or triangular with cordate, truncate, or cuneate bases; often longer than wide (≤ 12 cm long); soft-pubescent on undersides of leaves; tendrils absent.
- **Flowers:** Inconspicuous white, cream, or yellow flowers with 6-9 sepals, (5-)6 petals, and 6 stamens.
- **Fruit:** Vibrant red, globular berries; seeds snail shaped.
- **Note:** Leaves are similar in appearance to *Smilax spp.* but *Cocculus carolinus* lacks tendrils.

*Mollugo verticillata* L. (MOVE) – Molluginaceae

(Green Carpetweed)

- **Count as:** Umbel
- **Bloom period:** May-October
- **Stems:** Prostrate to ascending, glabrous stems up to 20(-50) cm long.
- **Leaves:** Whorled; blades (≤ 3 cm long and 2-5(-10) mm wide) spatulate, oblanceolate, or narrowly obovate; glabrous.
- **Flowers:** Petals absent; sepals white above, green below (2.5 mm long); 2 to 5 inconspicuous flowers arranged in axillary umbels; pedicels thread-like.



Claytonia virginica L. (CLVI3) – Montiaceae

(Virginia Springbeauty)

- **Count as:** Flower
- **Bloom period:** February-April
- **Stems:** Ascending, glabrous stems between 5-30 cm long; grows from corms.
- **Leaves:** Basal, cauline leaves opposite; blades linear to narrowly lanceolate.
- **Flowers:** Five-petaled, white corollas; petals (9-15 mm long) usually lined with pink veins and have yellow bases; flowers solitary or in loose, racemes (6-15 flowers); five pink stamens; buds characteristically nod.

*Morus alba* L. (MOAL) - Moraceae

(White Mulberry)

Pollinative Prairie

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Trees are usually deciduous but may be evergreen in tropical regions. 8-20 meters, grainy and rough.
- **Leaves:** Up to 20cm long, unlobed, cordate, glossy.
- **Flowers:** Edible fruit, white flowers with single sex catkins, grows in bunches, 1-2 cm long.

*Oenothera glaucifolia* W. L. Wagner & Hoch (STLI2) - Onagraceae(False gaura, *Stenosiphon linifolius*)

- **Count as:** Spike
- **Bloom period:** June-August
- **Stems:** Perennial herb. Woody at base, unbranching. Typically 2 m high. Glabrous and glaucous (smooth and waxy) stem.
- **Leaves:** Alternating, lanceolate leaves. Margins entire. 2-6 cm long.
- **Flowers:** White blooming, radially symmetrical flowers. Petals 4-5mm long. 8 stamens.
- **Notes:** Distinguish by large, white, symmetrical blooms.



Oenothera lindheimeri (Engelm. & Gray) W.L. Wagner & Hoch (OELI2) - Onagraceae

(Clockweed, White Gaura, Butterfly Gaura, Lindheimer's Gaura)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Hairy. Solitary to several, branched, densely clustered, 5 feet tall.
- **Leaves:** Finely hairy, lanceolate, 1-9cm long, coarsely toothed margined
- **Flowers:** White or pink. 1-3 inches. Delicate flowers in elongated terminal. Four petals and turn pink with age. Bilateral symmetry. Stamens have reddish -brown anthers. Open in the evening.
- **Notes:** Flower fragrance smells slightly of cat urine



Argemone albiflora Hornem. (ARAL3) – Papaveraceae

(White Prickly Poppy, Bluestem Pricklypoppy)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** 0.6-1.2 m high, sometimes reaching 1.8 m. Stems have prickles and may be moderately to densely crowded.
- **Leaves:** Glaucous leaves have fewer prickles, with most emerging from the margins of the primary and secondary veins.
- **Flowers:** White flowers have numerous yellow stamens which are shorter or equal to the purple stigma.



Phytolacca americana L. (PHAM4) – Phytolaccaceae

(American Pokeweed)

- **Count as:** Spike
- **Bloom period:** June-September
- **Stems:** Erect to ascending, branched stems up to 3 m tall; maroon at time of flowering.
- **Leaves:** Alternate; blades lanceolate or elliptic-lanceolate margins.
- **Flowers:** Petals absent; five white to pink sepals each mm long; arranged on large racemes.
- **Fruit:** Dark purple or black, grape-like fruit.
- **Warning:** All parts of this plant are toxic. Toxins can be through cuts and wounds, potentially causing severe **You are putting your health at risk if you do not wear handling this plant.**



Leucospora multifida (Michx.) Nutt. (LEMU) – Plantaginaceae

(Obi-wan conobea)

- **Count as:** Flower
- **Bloom period:** Jun-Nov
- **Stems:** Branched from base, spreading to ascending; glandular-hairy.
- **Leaves:** 2-4 leaves per node. Each leaf is pinnately lobed and glandular-hairy. Each lobe is lanceolate to linear with a few dentate teeth or small secondary lobes.
- **Flowers:** Each flower has a tubular corolla with fused petals, 5 linear-lanceolate teeth. Corolla is pale blue, lavender, and white; throat is open and yellow or greenish yellow. Calyx is green, glandular-hairy, and has 5 linear-lanceolate teeth.
- **Fruits:** Capsule is ovoid.

*Plantago helleri* Small (PLHE) - Plantaginaceae

(Heller's Plantain)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** Annual. Acaulescent (stemless).
- **Leaves:** Linear, deep green leaves broadening upward. Acute apex. Margins entire. Long shaggy hairs throughout.
- **Flowers:** Blooms white, centers dark. Erect, thick spikes. Bracts linear. Scape hairs spreading. Calyx lobes long and ovular. Corolla lobes orbicular-ovate and spreading.
- **Notes:** Distinguish by thick (8-12mm) spike, spreading hairs on spike, and non-clasping linear bracts.

*Persicaria* spp. (L.) Mill. (Persi) – Polygalaceae

(Knotweeds, Smartweeds, and Waterpeppers)

- **Count as:** Raceme
- **Bloom period:** May-November
- **Stems:** Erect or prostrate, branched, or unbranched, glabrous or pubescent stems; from fibrous roots, rhizomes, stolons, or a taproot; possess ocrea, which are dry membranous sheathes formed by the fusion of the stipules (bottom picture).
- **Leaves:** Alternate; blades lanceolate, ovate to hastate (spearhead-shaped), or sagittate (arrowhead-shaped); glabrous or pubescent.
- **Flowers:** Perianth white, rose-colored, green, red, or purple; tepals 4-5; arranged on terminal spike-like or raceme-like inflorescences.
- **Note:** Measure the length of the ocrea cilia (if present) to further identify species.



Polygala alba Nutt. (POAL4) - Polygalaceae

(White Milkwort)

- **Count as:** Spike
- **Bloom period:** April-November
- **Stems:** 20.5-30.5 cm high with many erect stems ascending from a woody base.
- **Leaves:** Numerous alternate leaves are scattered thinly on the upper part of the stem. Linear; up to 3 cm long above, obovate and smaller near the base.
- **Flowers:** White flowers have yellow-green centers and are in dense, slender racemes 2.5-7.5 cm long. Membranous wings line the sepal.

*Polygala verticillata* L. (POVE) - Polygalaceae

(Whorled Milkwort)

- **Count as:** Spike
- **Bloom period:** July-October
- **Stems:** 6 to 12 in height, hairless, angled, branched oppositely.
- **Leaves:** Appear in whorls of 4 or 5 on the mid to upper stem, 1 inch long, 3/8 inch wide, stalkless, 3-12 cm.
- **Flowers:** Can bloom white, pink, green, or brown, tapered 3/4 inch spikes, 1/8 inch wide, flanked bi-laterally by sepals, do not open (bulbous appearance).

*Eriogonum annuum* Nutt. (ERAN4) - Polygonaceae

(Annual buckwheat)

- **Count as:** Flower
- **Bloom period:** April-November
- **Stems:** 45-92 cm high; white, unbranched until near the top; covered in matted grayish hairs.
- **Leaves:** Alternate, oblong, 0.3-8 cm long, covered in matted grayish hairs; margins entire or slightly curled under; leaves typically on the lower portion of the plant.
- **Flowers:** White, 1-2.5 mm, arranged in compound umbels; each flower has 6 sepals in 2 rows.



Anemone berlandieri Pritz. (ANBE) - Ranunculaceae

(Tenpetal Anemone)

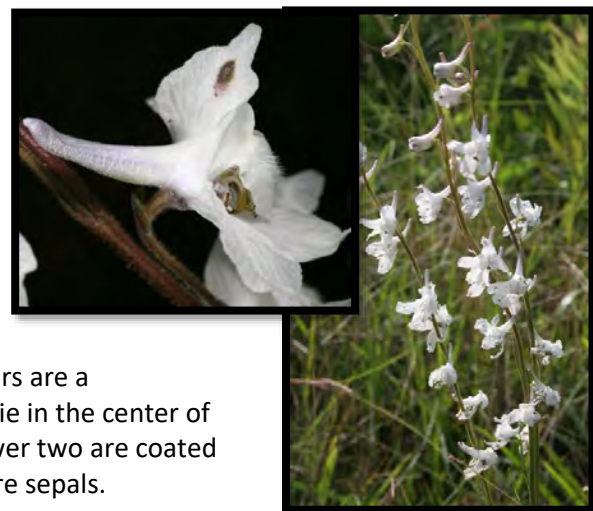
- **Count as:** Flower
- **Bloom period:** February-April
- **Stems:** Erect; 10-40 cm tall; solitary, rising from a small tuber
- **Leaves:** Whorled, mostly at the base; divided into three, shallowly toothed leaflets
- **Flowers:** Terminal; solitary; up to 4 cm across; 10-20 petal-like sepals; linear-oblong; upper surface white, blue or violet, lower surface white; 60-70 stamens; pistils form an elongated head 2.5-7.5 cm long

*Delphinium carolinianum* ssp. *virescens*

(Nutt.) R.E. Brooks (DECAV2) – Ranunculaceae

(Prairie Larkspur)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Erect plant 2.5-7.5 cm tall found in open woods, meadows, and fields.
- **Leaves:** Palmately divided.
- **Flowers:** 1.5-2.5 cm wide and 1.5-2.5 cm long range in color from white to blue with any range of hues in between. Flowers are a combination of sepals and petals with four small petals that lie in the center of the flower. The upper two are usually glabrous, while the lower two are coated with long hairs. The outer 5 flower parts including the spur are sepals.

*Ceanothus herbaceus* Raf. (CEHE) - Rhamnaceae

(Inland Ceanothus, Prairie Redroot)

- **Count as:** Umbel
- **Bloom period:** March-July
- **Stems:** Perennial. Erect stems less than 1 m tall. Thornless, glabrous, or nearly so.
- **Leaves:** Alternate leaves narrowly elliptic-oblong. Base cuneate to rounded. Margins serrate. Apex acute to obtuse. Leaves are not aromatic.
- **Flowers:** Terminal, umbel like with all parts of flower white. Short peduncle (flower stalk).
- **Notes:** Prefers rocky slopes or sandy areas that drain well.



Prunus mexicana S. Watson (PRME) - Rosaceae
(Mexican plum)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Tree will grow 4.5-10.5m tall. Partly thorny. Dark grey furrowed bark.
- **Leaves:** Thick, rough, slightly hairy. Simple and alternately arranged with serrated margins. Shape is ovate to obovate. The bottom of leaves are hairy. Leaves are up to 12.7cm long and 5cm wide.
- **Flower:** Sits on an inverted cone shaped cup in clusters. Has five petals, white, with diameter up to 1". Glabrous ovaries.
- **Fruit:** Purplish red to dark blue and fleshy.
- **Notes:** Edible, larval host for tiger swallowtail butterflies and cecropia moths.



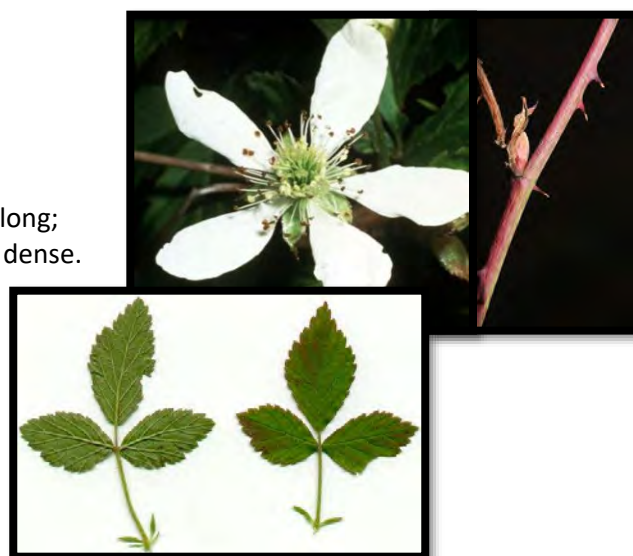
Rosa foliolosa Nutt. ex Torr. & A. Gray (ROFO) - Rosaceae
(White Prairie Rose)

- **Count as:** Flower
- **Bloom period:** May-June
- **Stems:** Rhizomatous (possessing underground stems); small shrub or groundcover, sometimes thicket-forming; few or no prickles; dull reddish-brown bark
- **Leaves:** 3–7 cm, glabrous; margins entire or serrate; usually nine tiny leaflets per leaf
- **Flowers:** corymbs of white, sometimes pink, five-stellate flowers, 3.5–4.5 cm across



Rubus flagellaris Willd. (RUFL) - Rosaceae
(Northern dewberry)

- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Trailing or low arching stems between 30-120 cm long; glabrous or moderately hairy; recurved prickles sparse to dense.
- **Leaves:** Alternate; 3 or 5 leaflets; blades ovate or elliptic to suborbicular and usually unlobed with serrated margins; base broadly wedge-shaped or rounded to shallowly cordate; glabrous or sparsely to moderately hairy.
- **Flowers:** Terminal, but appearing as axillary; 1–3(–8)-flowered; 5 white petals up to 3 cm in diameter.
- **Note:** Does not possess bristles unlike *R. trivialis*.



Rubus trivialis Michx. (RUTR) - Rosaceae

(Southern dewberry)

- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Trailing or low arching stems between 30-120 cm long; red, glandular-tipped bristles (stiff hairs) in addition to prickles; recurved prickles moderate to dense; glabrous or moderately hairy.
- **Leaves:** Alternate; 3 or 5 leaflets; blades ovate to obovate or elliptic and usually unlobed with serrated margins; bases rounded or cuneate; glabrous or sparsely hairy along veins.
- **Flowers:** Terminal, but appearing as axillary; 1–3-flowered; 5 white to pink petals up to 3 cm in diameter.
- **Note:** Has bristles while *R. flagellaris* does not.

*Cephalanthus occidentalis* L. (CEOC2) -

Rubiaceae

(Buttonbush)

- **Count as:** Head
- **Bloom period:** June-September
- **Stems:** Shrub or small tree, 1-5 m tall; trunk rarely to 30 cm in diameter; gray-brown bark, thin and tight at first, later breaking into flattened ridges and deep fissures; older twigs are reddish-brown, new twigs are green; small, elongated whitish lenticels (pores).
- **Leaves:** Opposite or in whorls of 3; short petioles (leaf stalks); blades elliptic-lanceolate, apex pointed; base rounded; margins entire; 5-20 cm long, 2.5-7.5 cm wide; dark green, smooth, and lustrous above, smooth or with faint hairs below.
- **Flowers:** Round, white balls, mature to reddish-brown, then black; 2.5-4 cm across; 1-3 stems bear the flowers.

*Cruciata pedemontana* (Bellardi) Ehrend. (CRPE10) –

Rubiaceae

(Piedmont Bedstraw)

- **Count as:** Flower
- **Bloom period:** May-August
- **Stems:** up to 30 cm, erect; can be simple or branched; hairy
- **Leaves:** ovate to elliptic and in whorls of 4 or less
- **Flowers:** flowering cymes of 2-3 flowers, yellow, 1mm wide, 4 petals



Diodia virginiana L. (DIVI3) - Rubiaceae

(Buttonweed)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** ~June-October
- **Stems:** Spreading or procumbent, 1-3ft tall, floppy and squarish
- **Leaves:** Simple, linear-lanceolate to broadly lanceolate. Opposite. Stiff. 3.5 inches long.
- **Flowers:** Perennial, typically in small clusters. White cross-shaped with 4 petals that fuse into a cup/tube. Flower head less than an inch in size.
- **Notes:** Can be found in swamps, wet meadows, streams, ponds, and disturbed areas.

*Galium aparine* L. (GAAP2) – Rubiaceae

(Catchweed Bedstraw, Stickywilly)

- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Decumbent or ascending stems up to 100 cm long.
- **Leaves:** Whorled (6-9 leaves per whorl); blades oblanceolate to obovate with entire margins; covered in hooked hairs that often stick to clothing and skin.
- **Flowers:** Inconspicuous, white corollas with four petals; flowers borne on small branchlets.
- **Fruit:** Small, bristly round fruit.

*Galium obtusum* Bigelow (GAOB) – Rubiaceae

(Bluntleaf Bedstraw)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Up to 80 cm tall, 4-angled
- **Leaves:** Mostly in whorls of 4 per node, rarely 5 or 6, each leaf up to 3 cm long and 6 mm wide
- **Flowers:** Long-stalked 2-3 mm across, white, usually 4-lobed
- **Note:** This species is less common in our range than *G. tinctorium*. Both species are variable and can display characteristics of each other, so pay attention to what most leaves and flowers look like. *G. obtusum* is generally a larger plant than *G. tinctorium*.



Galium tinctorium (L.) Scop. (GATI) – Rubiaceae

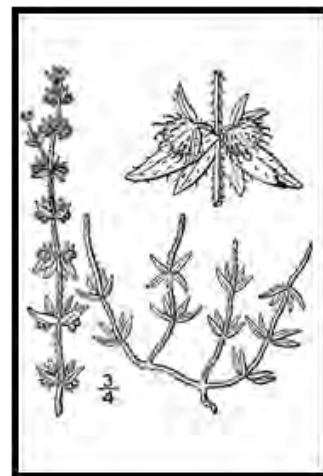
(Stiff Marsh Bedstraw)

- **Count as:** Flower
- **Bloom period:** March-August
- **Stems:** Up to 25 cm tall, 4-angled, 1 to several stems from the base; sprawling, ascending habit
- **Leaves:** Mostly in whorls of 5 or 6 per node, sometimes 4, up to 2 cm long, 1-2(-4) mm wide, oblong-linear to narrowly oblanceolate, margins entire, and lined with stiff hairs; surfaces mostly glabrous, may have a somewhat rough texture
- **Flowers:** Terminal and axillary, long-stalked; less than 2 mm across, white, 3-lobed.
- **Note:** This species is more common in our range than *G. obtusum*. Both species are variable and can display characteristics of each other, so pay attention to what most leaves and flowers look like. If the flowers are 2mm wide, and look almost the same width as the leaves, then it is likely *G. tinctorium*

*Galium virgatum* Nutt. (GAVI) - Rubiaceae

(Southwest Bedstraw)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Annual, herbaceous. Stems erect (sometimes multiple) up to 40 cm long.
- **Leaves:** In whorls of 4-6. Margins with short bristly hairs. Leaf blades widest at or below the midpoint.
- **Flowers:** Greenish-white. Inconspicuous blooms subsessile and axillary. Fruits bristly.
- **Notes:** Distinguish by sessile flowers and bristled leaves widest at midpoint.



Houstonia parviflora Holz. ex Greenm. (HOPA3) – Rubiaceae

(Greenman's Bluet)

- **Count as:** Flower
- **Bloom period:** February-April
- **Stems:** Erect to ascending stems between 3-15(-20) cm tall.
- **Leaves:** Opposite; blades lanceolate, narrowly elliptic, or oblong-lanceolate with entire margins.
- **Flowers:** Four-numerous, white flowers with rosy tips (0.8-2.5 mm long); sepals extend past petals; arranged in few-flowered, terminal cymes.
- **Fruit:** Glabrous, heart-shaped capsules on erect peduncles
- **Note:** So far only found as north as Bell County, Texas.

*Stenaria nigricans* (Lam.) Terrell (STNI6) – Rubiaceae(Diamond-flowers, *Hedyotis nigricans*)

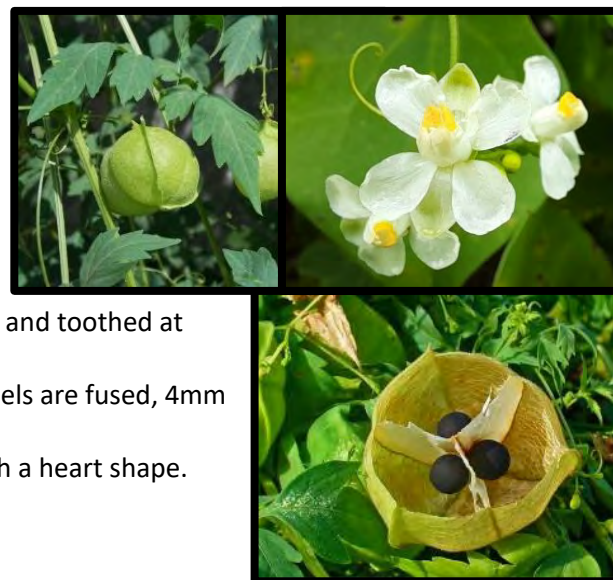
- **Count as:** Umbel
- **Bloom period:** April-November
- **Stems:** Many branched erect to reclining-ascending plant 7.5-46 cm tall.
- **Leaves:** are threadlike and narrowly linear and up to 4cm long. Leaves are opposite and glabrous.
- **Flowers:** are arranged in cymes and may be sessile or short-peduncled with funnel-like corollas. Numerous flowers are 4.8-6.4 mm long and may be white, light pink, or pale violet.

*Cardiospermum halicacabum* L. (CAHA13) - Sapindaceae

(Balloon vine, Lesser balloon vine)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** July-August
- **Stems:** Stems are square, climbing vine using forked tendrils, can be woody and bark is thin.
- **Leaves:** Compound and alternate, lobed, one leaf per node and toothed at margins, 5-6mm long.
- **Flower:** Flowers are in panicles, color is red and white, carpels are fused, 4mm long.
- **Fruit:** Capsule fruit with seeds that are black to opaque with a heart shape.
- **Notes:** Invasive plant.



Sideroxylon lanuginosum Michx. (SILA20)

- Sapindaceae

(Gum bumelia, Chittamwood tree)

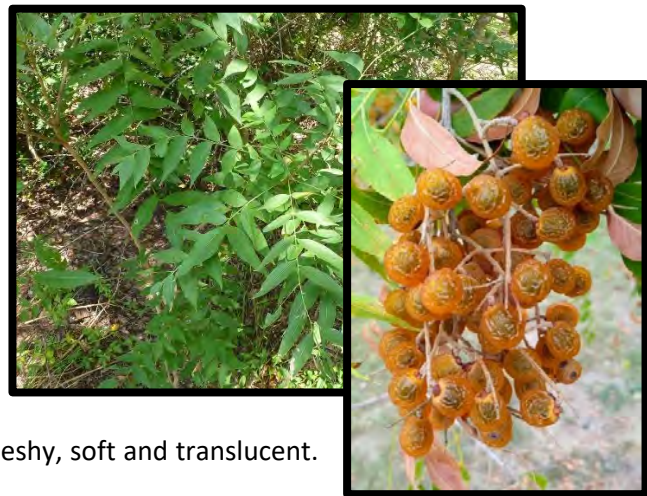
- **Count as:** Flower
- **Bloom period:** June-July
- **Stems:** Up to 13m tall. Short stout small branches or branch divisions (branchlets) that have spines form an oval crown. Bark is dark brown to grey with a tight interlacing pattern, and flattened ridges.
- **Leaves:** Alternate or in clusters. Leaf margins are smooth and roll down to a rounded tip. Hairy underside. Shape is oblanceolate-elliptic (long oval, oblanceolate is longer), leathery and thin.
- **Flower:** Small white, 5 petaled flowers 4mm in diameter
- **Fruit:** Black to purple with an oblong shape between 1.5-2.5cm in diameter. Often has a flower remnant at the tip
- **Notes:** Plant is considered endangered in most places they occur.

*Sapindus saponaria* var. *drummondii* (Hook. & Arn.) L. D. Benson

(SASAD) – Sapindaceae

(Western soapberry)

- **Count as:** Raceme
- **Bloom period:** May-June
- **Stems:** Broad topped tree growing 10-15m tall. Bark is sculpted and grey in dormant season (Fall/Winter).
- **Leaves:** Pinnately compound leaf growing 20-60cm long. Usually even in number with 4-9 pairs of leaflets alternate on the rachis. Leaflets are curved-lanceolate up to 3-10cm.
- **Flower:** Radially symmetric large cream-colored clusters.
- **Fruit:** Female trees contain clusters of round yellow/orange fruits that are 2cm in diameter. Can be fleshy, soft and translucent. Contains dark-brown seeds.
- **Notes:** See *Sapindus saponaria* var. *saponaria* (SASAD) for differences. Inflorescence form *S. saponaria* is similar. This variety is found in Mexico and Southern USA. Fruits are considered poisonous and can cause contact dermatitis.



Sapindus saponaria var. *saponaria* L. (SASAS) - Sapindaceae

(Wingleaf soapberry)

- **Count as:** Raceme
- **Bloom period:** May-June
- **Stems:** Broad topped tree growing 10-15m tall. Bark is sculpted and grey in dormant season (Fall/Winter).
- **Leaves:** Pinnately compound growing 20-60cm long. Usually even in number with 4 to 9 pairs of leaflets alternate on the rachis. Leaflets are blunt-lanceolate up to 3-10cm.
- **Flower:** Radially symmetric large cream-colored clusters.
- **Notes:** Distinctions from *Sapindus saponaria* var. *drummondii* (SASAD) include larger blunted narrow leaflets. Larger and more developed trunks as well as larger fruits. Typically, more frost sensitive.

*Veronica peregrina* L. (VEPE2) –
Scrophulariaceae

(Purslane Speedwell, American Speedwell)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** Erect stems between 3-30 cm tall; glabrous (*ssp. peregrina*, right) or glandular pubescent (*ssp. xalapensis*, left).
- **Leaves:** Alternate and/or opposite; blades narrowly oblong or oblanceolate and mostly sessile; upper stem leaves subtending flowers are much reduced.
- **Flowers:** Corollas (2-3 mm across) 4-lobed and white; sessile or subsessile; arranged in racemes closely subtended by leaves/bracts.

*Bouchetia erecta* DC. (BOER3) – Solanaceae

(Erect Bouchetia)

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Maximum height ~ 23 cm; Variable appearance, either erect or decumbent.
- **Leaves:** Alternate leaves unequal at base; broad hips, gradually tapering to a round point; color is dull, satiny, matte olive.
- **Flowers:** from end of stems.
- **Note:** Similar to *Evolvulus* or *Argythamnia*. Does not have white margin (like *Evolvulus*) or tiny hairs on the leaves (like *Argythamnia*).



Solanum carolinense L. (SOCA3) – Solanaceae

(Carolina Horsenettle)

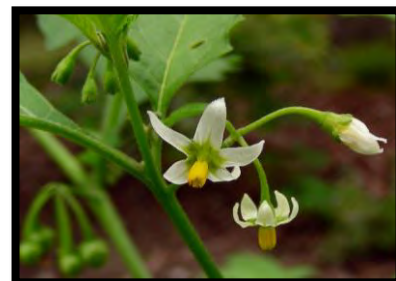
- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Erect to ascending, branched stems up to 91.44 cm tall and armed with needle-like hairs.
- **Leaves:** Alternate; blades broadly ovate or rhombic to oblong-elliptic with coarsely toothed or lobed margins; undersides of leaves defensively armed with needle-like hairs.
- **Flowers:** Corollas usually white, rarely blue to lavender, with five petals; each flower has five yellow anthers, which release pollen through pores; inflorescences arranged in terminal clusters.
- **Warning:** Painful hairs on undersides of leaves and stems; fruit is toxic to humans.
- **Note:** Shinnery & Mahler's *Illustrated Flora of Northern Central Texas* (1999) depicts the wrong illustration for *Solanum carolinense*.



Solanum ptychanthum Dunal (SOPT7) – Solanaceae

(Eastern Black Nightshade)

- **Count as:** Flower
- **Bloom period:** April-September
- **Stems:** Erect to sprawling, much-branched stems up to 33 cm tall.
- **Leaves:** Alternate; blades lanceolate or elliptic with entire or toothed margins.
- **Flowers:** Corollas usually white, sometimes blue-lavender, with five petals; anthers (1-2 mm long) yellow and closely pressed together; inflorescences arranged in terminal clusters.
- **Fruit:** Small, black globular fruit (5-9 mm in diameter).
- **Note:** Stems and leaves are unarmed, which can help distinguish this species from other *Solanum* spp.



Valerianella amarella (Lindh ex Engelm.) Krok / *Valerianella radiata* (L.)
Dufr. (VAAM2/VARA) – Valerinaceae

(Bitter/Beaked Cornsalad)

- **Count as:** Compound umbel
- **Bloom period:** March-May
- **Stems:** Erect stems exhibit dichotomous branching. Sparse hairs along angles (Divide into symmetrical pairs of branches going towards the inflorescence)
- **Leaves:** Opposite, sessile; with fused bases. Lower leaves are oblong-spatulate and upper leaves are oblong-ovate. Lobed or coarsely toothed towards the base, bases not fused. *Valerianella amarella*: 10-30.5 cm tall, glabrous, often found in colonies. *Valerianella radiata*: 15-60 cm tall.
- **Flowers:** Inflorescence is an aggregation of cyme-like clusters. Individual flowers are white with funnel-like corolla and are 1.5-3 mm wide, flat-topped; funnellform flowers, each with 5 fused petals.



Phyla lanceolata (Michx.) Greene (PHLA3) –
Verbenaceae

(Lanceleaf frogfruit)

- **Count as:** Head
- **Bloom period:** May-October
- **Stems:** Spreading perennial herb 6-15 cm tall, erect to prostrate stems. Glabrous to slightly pubescent.
- **Leaves:** Opposite ovate-lanceolate leaves up to 7.5 cm long, 5-10 serrations on the margin extending below the middle of the blade.
- **Flowers:** Globular to cylindric head with 5 mm flowers arranged in a whorl. 5 lobed white to pink corolla with yellow throat.
- **Fruit:** 2 celled capsule with a pair of nutlets in each cell.
- **Notes:** Much larger leaf and more serrations than *P. nodiflora*, and often grows in more moist soils.



Phyla nodiflora (L.) Greene (PHNO2) – Verbenaceae
(Turkey tangle frogfruit)

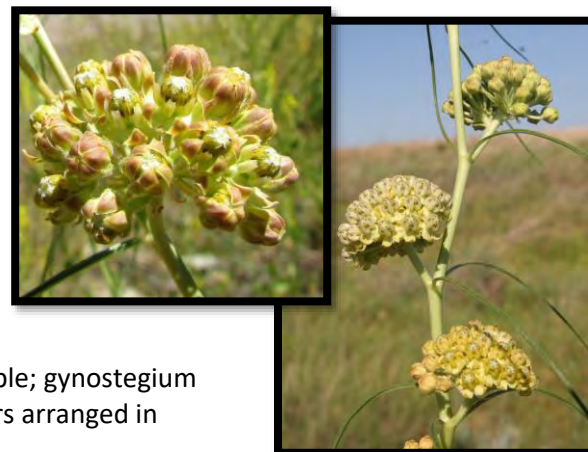
- **Count as:** Head
- **Bloom period:** May-October
- **Stems:** Ground hugging plant 7.5-13 cm high with creeping and prostrate stems. Stems are up to 7.5 cm long and they root at the nodes along the ground.
- **Leaves:** Blades are spatulate to oblanceolate with a cuneate base. They average 1.5-4.5 cm long and are serrate above the middle of the blade.
- **Flowers:** Globe like at first, as they develop they become cylindric, sometimes approaching 2.5 cm in length. They are carried on axillary peduncles up to 10 cm long. Individual flowers are usually white sometimes with yellow centers.



Asclepias engelmanniana Woodson (ASEN) – Apocynaceae

(Engelmann's Milkweed)

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** Erect, glabrous, gangly stems up to 1.2 m tall.
- **Leaves:** Alternate to sub-opposite; blades (10-20 cm long and 1-3(-5) mm wide) narrowly linear, sessile, and drooping.
- **Flowers:** Corolla lobes green and sometimes tinged with purple; gynostegium (inner part of flower) yellow; horns absent from hood; flowers arranged in domed heads.



Asclepias oenotheroides Cham. & Schltdl. (ASOE) – Apocynaceae

(Zizotes Milkweed)

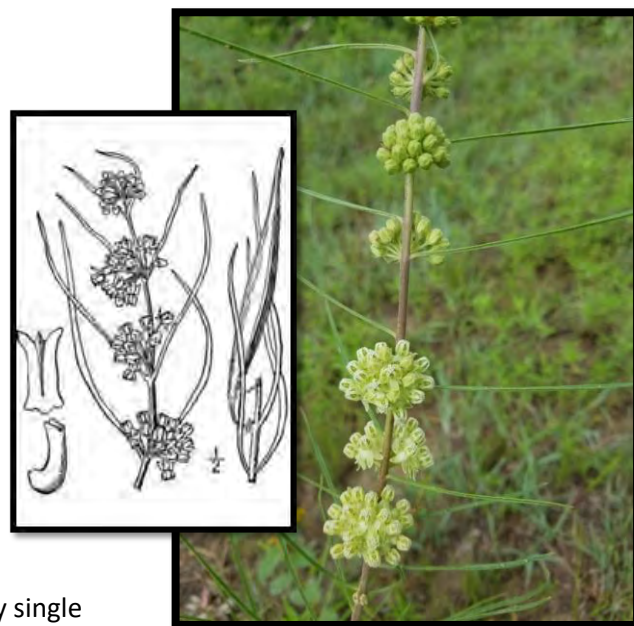
- **Count as:** Head
- **Bloom period:** March-October.
- **Stems:** Erect or spreading, 10-45 cm long.
- **Leaves:** Wavy, opposite leaves, oblong-lanceolate to elliptic. 2.5-12 cm long; 1.5-6mm wide.
- **Flowers:** 15 +/- green flowers per umbel; corolla curled back, a lighter shade of green than the hoods.



Asclepias stenophylla A. Gray (ASST) - Apocynaceae

(Slimleaf Milkweed)

- **Count as:** Head
- **Bloom period:** May-August
- **Stems:** Perennial. Tall slender stems. Fine, short hairs.
- **Leaves:** Slender, linear leaves borne approximate (nearly opposite, not fused). 6-14 cm long, 2-4 mm wide. Surface membranous, sometimes finely haired.
- **Flowers:** Inflorescence lateral along upper nodes and sessile (attached directly to stem). Gynostigium (where the anthers fuse with the stigma) sessile. Blooms greenish-white
- **Notes:** Distinguish by very long linear leaves off a lanky single stem, with short gynostigiums on the flower.



Asclepias viridiflora Raf. (ASVI) – Apocynaceae

(Green Comet Milkweed)

- **Count as:** Head
- **Bloom period:** June-September
- **Stems:** 0.3-0.9 m tall stems are mostly solitary or in pairs
- **Leaves:** Opposite; up to 10cm long (sometimes smaller 2.5- 3.8 cm long). Leaves are variable in shape with plants from dry sites having long narrow leaves and those from moist sites having round leaves with notched tips.
- **Flowers:** 20-80 pale green flowers occur in two inch clusters in upper leaf axils.
- **Fruit:** The pods of green milkweed are about four inches long and pointed at both ends. The pods lack the warts or tubercles found on other common milkweeds.

*Asclepias viridis* Walter (ASVI2) – Apocynaceae

(Green Antelopehorns)

- **Count as:** Head
- **Bloom period:** April-September
- **Stems:** Stout, erect to reclining stems 30-60 cm tall
- **Leaves:** Alternate, entire leaves 3.8 to 7.6 cm long on petioles 3.1-6.4 mm long. The leaf margins are often wavy. Glabrous and sometimes notched on the tip.
- **Flowers:** White, arranged in an umbel, mostly one per plant. Upon close inspection, some rose or purple color is evident in the center of each individual flower.

*Matelea reticulata* (Engelm. ex A. Gray)

Woodson (MARE4) – Apocynaceae

(Pearl milkvine)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Twining vine that climbs fences and brush, up to 30.5cm; covered with soft spreading hairs.
- **Leaves:** Heart shaped leaves are 5-10 cm long and on 2.5-5 cm petioles; bases often cordate (basal lobes curve back toward the petiole creating a heart shape). Covered with soft spreading hairs.
- **Flowers:** Green flowers have webbed veins that pattern the flat flower surface that is 13-19mm across. There is a silver or pearl-like dot at the top of the stamen column in the center of each flower.



Acalypha ostryifolia Riddell (ACOS) – Euphorbiaceae

(Hornbeam Copperleaf, Rough-Pod Copperleaf, *A. persimilis*)

- **Count as:** DO NOT COUNT
- **Bloom period:** June-November
- **Stems:** Erect, annual, branching, up to 70 cm, pubescent.
- **Leaves:** Alternate, petiolate, 2.5-12 cm long, pubescent to glabrous, ovate with cordate base, serrate margins.
- **Flowers:** Monoecious, green. Staminate flowers 1-3 cm long, 4 sepals, several white stamens. Pistillate flowers located above the male flowers, 2-7 cm long, green ovary, several white styles.
- **Fruits:** Capsule, 3.5-4.5 mm wide.
- **Notes:** Wind-pollinated.



Ditaxis humilis (Engelm. & A. Gray) Pax

(DIHU) – Euphorbiaceae

(Low Silverbrush, *Argythamnia humilis*)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Trailing or erect, much-branched stems.
- **Leaves:** Alternate; sessile, linear, lanceolate to obovate blades (5-70 mm long and 2-22 mm wide) with entire margins that are either covered in hairs or glabrous; prominent venation on undersides of leaves.
- **Flowers:** Five greenish-white petals that are either absent or present (0.5 mm long); five green sepals; inflorescence shorter than leaves.
- **Note:** Stems and leaves do not produce milky sap.



Ditaxis mercurialina (Nutt) J.M. Coult (DIME3) - Euphorbiaceae

(Tall Silverbush)

- **Count as:** Raceme
- **Bloom period:** April-June
- **Stems:** Perennial. Several erect stems up to 50 cm tall, typically unbranching. Can be pubescent.
- **Leaves:** Alternate. Leaves stemless (sessile or subsessile). Shape varies from elliptic to ovate, locally typically lanceolate. Roughly 3 times as long as wide. Margins entire to serrulate. Upper and lower surfaces pubescent.
- **Flowers:** Blooms greenish-yellow. Separate male and female flowers, inflorescence either androgenous or bisexual. Raceme up to 12 cm long. Staminate flowers: petals oblanceolate and 3mm long, slender androphore, whorled stamens typically 8. Pistillate flowers: petals usually absent, 1-5 when present and .5 mm long, ovary pubescent, styles spreading bifid at the tip, stigmas flattened. Nectaries present in both flower sexes.
- **Notes:** Distinguish by elongated inflorescence with linear floral glands.

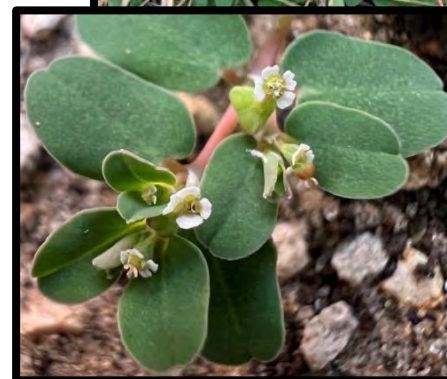


Euphorbia davidii Subils (EUDA5) – Euphorbiaceae(David's Spurge, *Euphorbia dentata*)

- **Count as:** Head
- **Bloom period:** May-October
- **Stems:** Erect, sometimes branched, stems between 20-70 cm tall; sparsely covered in hairs.
- **Leaves:** Opposite near base and alternate on upper portions of stem; narrowly to broadly elliptic or lanceolate blades with serrate margins; distinctly petiolate.
- **Flowers:** Pistillate flowers possess large, glabrous, lobed ovaries topped with divided styles; staminate flowers inconspicuous (5-8 per plant); flowers terminally clustered at branch tips; inflorescence closely subtended by a ring of green leaves, which sometimes have white bases.

*Euphorbia serpens* Kunth (EUSE4) – Euphorbiaceae(Matted Sandmat, *Chamaesyce serpens*)

- **Count as:** Raceme
- **Bloom period:** Year round
- **Stems:** Cylindric, up to 1.5 mm diameter, flexible, green becoming tan/pink above, glabrous, 15-50 cm long, and can grow just under the ground.
- **Leaves:** Opposite, simple, short-petiolate, with stipules 2 (4 per node), glabrous, oblong, or roundish 1.3-7mm long by 1.1-5mm wide, obtuse to rounded or slightly notched at tip.
- **Flowers:** About 0.5 mm in diameter, scalloped, white petals.
- **Fruit:** Capsule 3-seeded, 3-lobed and broadly triangular-ovoid, glabrous.



Tragia spp. L. (TRAGI) - Euphorbiaceae

(Noseburns)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Perennial. Erect to trailing, apex rarely flexuous, possibly twining stems covered in stinging hairs. *Tragia ramosa* are typically 30cm tall while *tragia urticifolia* are 20-70cm tall.
- **Leaves:** *T. ramosa* has alternate; lanceolate to ovate blades (length is often 2-4 times size of width). *T. urticifolia* has triangular to lanceolate. Both have toothed margins and acute apex; covered in stinging hairs.
- **Flowers:** *T. ramosa*: Staminate flowers have 3-4 green sepals; pistillate flowers have styles that are united for at least 1/3 to 1/2 of their length and have papillate (covered in small bumps) stigmatic surfaces; flowers arranged in spike-like racemes. Pedicels staminate 0.7-2mm. Fruits are 1.5-3mm. Calyx is 6 lobed, 0.8-2.5 mm long at flowering pistillate calyx lobes 5-7, and calyx lobes are shorter than pistils. *T. urticifolia*: Yellow. Pistillate and staminate flowers with 3-5 sepals on same raceme. Staminate flowers 11-40 per raceme, evenly distributed; persistent base of staminate pedicel 1-1.8 mm, longer than subtending bract; pistillate sepals 1.3-2.3 mm. Stigma extremely papillate (small round bumps). Male flowers have shorter sepals and stamens only. Fruits are 2-3mm.
- **Note:** Plants in noseburn genus have peduncles of 1-10mm long typically. Most common species found in the area are *T. ramosa* and *T. urticifolia*. *T. ramosa* are found in disturbed areas and Post Oaks ecosystems while *T. urticifolia* are found in sandy habitats to the east of North Central Texas. Their leaf blades are a lighter green compared to a dark green *T. Ramosa*.
- **Warning: DO NOT TOUCH.** Contact with stinging hairs causes a lasting burning sensation similar to stinging nettle (*Urtica dioica*) or bull nettle (*Cnidoscolus texanus*). This species can also sting through thin clothing. Distinguish by bases of staminate pedicels that extend as long or well past their bracts.



Desmanthus leptolobus Torr. & A. Gray (DELE2) – Fabaceae

(Prairie Bundleflower, Slenderlobe Bundleflower)

- **Count as:** Head (red circle)
- **Bloom period:** Apr-Sep
- **Stems:** 60-100 cm long, woody stems 2.5 mm diameter, internodes to 30 mm long.
- **Leaves:** Helically alternate, pinnately compound, linear, or narrowly elliptic, petioles 2-5 mm long, 8-12+ leaflets, 15-30mm wide, glabrous to glabrate.
- **Flowers:** Oblong-linear, 3 mm in diameter, 5 petals, pale yellow with whitish margins, 5 free stamens, and calyx 5 lobed 1.5 mm long. May get confused with *D. illinoensis*, which has globular flower heads.
- **Fruit:** Legume pod, subsessile, glabrous, 20-50 mm long, 2 mm wide. *D. illinoensis* have brown, curved, and clustered seed pods.
- **Note:** May be easily confused with *Acacia angustissima*, which has round flower heads that are about 19 mm in diameter and have larger seed pods.



Forestiera pubescens Nutt. (FOPU2) – Oleaceae (Stretchberry)

- **Count as:** Head (red circle)
- **Bloom period:** Jan-June
- **Stems:** Up to 5 m tall, opposite woody twigs on long, arched branches, young branches are pubescent, shrub.
- **Leaves:** Simple, acute, or obtuse, 2.5-4 cm long, entire, or minutely toothed, leathery, 1-7 mm petiole, glabrous or pubescent.
- **Flowers:** Yellow/green without petals borne in small clusters on bare twigs, umbel-like or corymbose cluster of 3-12 flowers with a diameter of 5 mm per head.
- **Fruit:** Elliptic, 5-8 mm, purple-black, waxy bloom.



Phyllanthus polygonoides Nutt. ex Spreng. (PHPO3) – Phyllanthaceae

(Smartweed Leafflower)

- **Count as:** Spike
- **Bloom period:** March-September
Stems: Many stems ascending from the base; 10–30(–50) cm tall.
- **Leaves:** Helically alternate; ascending, leaning towards the stem; oblanceolate to oblong, petiolate, margins entire, bases rounded to obtuse; glabrous, lower surface slightly waxy and lighter in color; produces a milky sap when broken.
- **Flowers:** Axillary; 6-lobed, ± 0.25 mm across, green with narrow white margins.

*Plantago rhodosperma* Decne. (PLRH) – Plantaginaceae

(Redseed Plantain)

- **Count as:** spike (up to 20 cm long)
- **Bloom period:** Feb-May
- **Stems:** Multiple unbranched stems connecting to floral spikes 0-10 mm, pubescent.
- **Leaves:** Lanceolate to ovate shaped leaves that may reach 35 cm long, lightly hairy, grayish-green, toothed margins, short stemmed,
- **Flowers:** whitish in elongated clusters 2-3 mm long, lance shaped. Flowers protrude from the yellow, brown, reddish calyx (red circle).
- **Fruit:** Dark red capsule, oval $\frac{1}{4}$ in long.
- **Note:** *P. rhodosperma*, seeds are deep red, sepals acute to acuminate, usually evenly pubescent, the inner surface flat. *P. virginica* seeds are light brown, sepals obtuse to acute, inner surface deeply concave.



Plantago virginica L. (PLVI)- Plantaginaceae

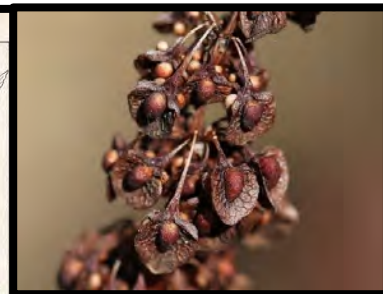
(Dwarf Plantain, Virginia Plantain)

- **Count as:** Spike
- **Bloom period:** April-June
- **Stems:** unbranched stems connecting to the floral spike. Covered in hairs.
- **Leaves:** Simple, basal leaves that are oblanceolate to obovate, lightly hairy, lateral veins starting at base down the blade of leaf.
- **Flower:** Flowering stalks on every stem, color ranges from green to brown. Flowers protrude from the orange tooth like calyx. Flowers approximately 3mm
- **Notes:** Usually grows less than 1,000m above sea level. Seeds are 2mm wide, light brown and round.

*Rumex crispus* L. (RUCR) - Polygonaceae

(Curly Dock)

- **Count as:** Raceme
- **Bloom period:** April-May
- **Stems:** Green angular sides forming a circular stem. 30-60cm tall and mainly unbranched.
- **Leaves:** Alternate simple waved leaves, usually 14-24cm and entire.
- **Flower:** Circular flowering stem often branching, consisting of a panicle of racemes forming dense whorls of 3mm flowers. Flowers are fused into a cup shape with six petals, sepals, and tepals. Flowers can be green to brown and pink to red.



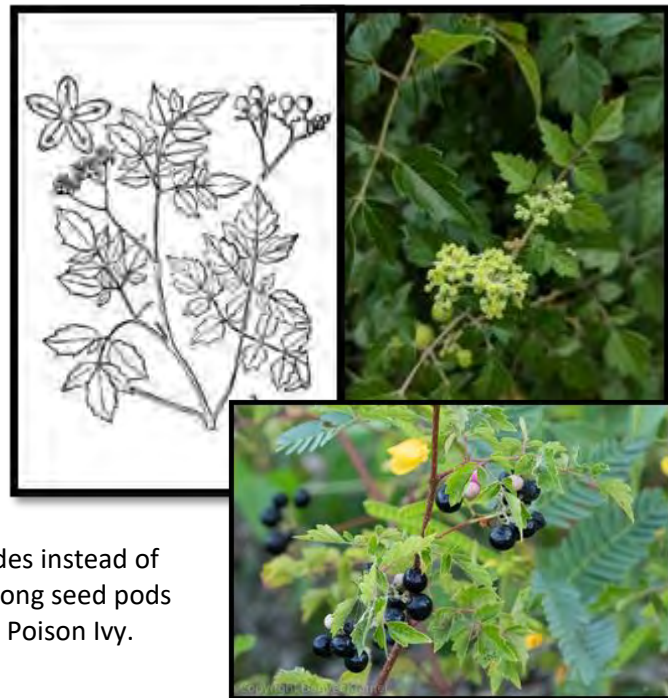
Smilax rotundifolia L. (SMRO) - Smilacaceae

(Roundleaf greenbriar)

- **Count as:** Umbel
- **Bloom period:** April-June
- **Stems:** Vine; thicket forming; woody, glabrous stems with many tendrils; small, green prickles with dark tips.
- **Leaves:** Ovate with 3- 5 ± prominent veins; lustrous; top surface glabrous; base cordate to rounded; margins entire.
- **Flowers:** Pale yellowish green; axillary to leaves, 5–12(–20)-flowered.

*Nekemias arborea* L. (NEAR5) - Vitaceae(Peppervine, *Ampelopsis arborea* (L.) Koehne)

- **Count as:** Compound umbel
- **Bloom period:** March-May
- **Stems:** May grow to 10 m or more as vine or ground cover. Deciduous perennial.
- **Leaves:** Dark green bi- or tri-pinnately compound leaves 15 cm long. Leaflets ovate, margins toothed.
- **Flowers:** Inconspicuous, flat-topped clusters of small green flowers.
- **Fruit:** Fleshy grape-like fruits 1.5 cm wide. White to red when ripening, black when ripe.
- **Notes:** Can look similar to Sorrelvine (*Cissus trifoliata*) and Trumpetvine (*Campsis radicans*). Sorrelvine will have 3-foliolate succulent blades instead of tri-pinnately compound leaves. Trumpetvine will have long seed pods instead of grape-like fruits. No adhesive tendrils unlike Poison Ivy.



Polytaenia texana (J. M. Coult. & Rose)
Mathias & Constance (POTE3) – Apiaceae
(Texas Prairie Parsley)

- **Count as:** Compound umbel
- **Bloom period:** April-June
- **Stems:** Erect, stout, branching plant 0.3-0.8 m tall.
- **Leaves:** Once or twice pinnately divided and then incised, the leaves are up to 23 cm long.
- **Flowers:** Born in umbels and are greenish yellow with no apparent petals.



Amphiachyris dracunculoides (DC.) Nutt. (AMDR) –
Asteraceae

(Broomweed)

NOW: AMDR/GUTE2

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** Raises 15-91 cm high on a single stem which is highly branched in its upper two-thirds. Found on poor caliche soils and dry calcareous uplands through the Edwards-Plateau.
- **Leaves:** Glabrous; linear to linear-lanceolate leaves, 6-32mm long.
- **Flowers:** Numerous yellow flower heads are terminal on short corymbiform branchlets; small, averaging 6- 9.5 mm across.



Berlandiera betonicifolia (Hook.) Small (BEBE4) – Asteraceae
(Texas Greeneyes)

- **Count as:** Compound head
- **Bloom period:** April-October
- **Stems:** Up to 1 m tall with erect, densely leafy stems; base of stem sometimes woody; internodes < 3 cm apart.
- **Leaves:** Alternate; ovate to triangular leaves (4-15 cm long, 2-6 cm wide) with crenate margins; middle stem leaves sessile or with very short petioles; stiffly to finely hirsute.
- **Flowers:** Ray flowers yellow (ligules 10.5-17 mm long) with green venation on the undersides; green to brown disk flowers; lacks pappus; born on peduncles with spreading hairs.



Bidens frondosa L. (BIFR) – Asteraceae

(Devil's Beggarticks)

- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** Erect annual between 20-120 cm tall.
- **Leaves:** Compound leaves with 3 or 5 deltoid to lanceolate leaflets with serrate margins.
- **Flowers:** Inconspicuous to no ray flowers; golden-brown disk flowers surrounded by numerous long and projecting outer phyllaries (30-50 mm); achenes are dark, barbed, wedge-shaped, and flattened.

*Bradburia pilosa* (Nutt.) Semple (BRPI10) – Asteraceae

(Soft Goldaster, Chrysopsis pilosa)

- **Count as:** Compound head
- **Bloom period:** June-October
- **Stems:** 15-90 cm tall; sparsely to densely pilose (covered in long, soft hairs).
- **Leaves:** Alternate; covered in long, soft hairs; basal (emerging from the roots) and cauline (emerging from the stem), basal blade oblanceolate with petiole present, margins entire to distally dentate; cauline blade linear-elliptic without petiole, margins toothed to entire.
- **Flowers:** Heads 1–30(–70); flowers bright yellow; solitary or in panicle-like arrays; ray florets (11–)16(–24); each petal 7–12 × 1–2 mm.

*Calyptocarpus vialis* Less. (CAVI2) – Asteraceae

(Horseherb, Straggler daisy)

- **Count as:** Compound head
- **Bloom period:** March-November
- **Stems:** Low growing herb, 15-30 cm high with sprawling stems up to 45 cm long.
- **Leaves:** Opposite simple leaves that have strigose pubescence. Leaf margins are serrate.
- **Flowers:** Solitary yellow flower heads, about 6.4mm in diameter and have 5 phyllaries.
- **Fruit:** Flattened achene which has two horn-like pappus awns.



Chrysactinia mexicana A. Gray (CHME3) – Asteraceae
(Damianita)

- **Count as:** Compound head
- **Bloom period:** April-September
- **Stems:** 30-60 cm bushy, low-growing, aromatic, evergreen shrub with stems rising in a mounded or bouquet form from a woody base.
- **Leaves:** Crowded on the twigs, dark green, up to 9.5mm long by 1.6mm or less wide, covered with green to black glandular dots visible under a 10x hand lens. This is a very leafy plant - with narrow, fragrant foliage.
- **Flowers:** 2.5-7.6 cm long peduncles extend from branch tips and bear a solitary, yellow, composite flower. The flower heads are golden yellow, 2.5 cm across, commonly with 8 narrow ray flowers, on slender stems at the end of the branches.
- **Fruit:** Very small, 3.2mm long and with a crown of short bristles visible under a 10x hand lens.



Coreopsis basalis (A. Dietr.) S.F. Blake (COBA2) – Asteraceae
(Golden Wave Tickseed, Goldenmane tickseed)

- **Count as:** Compound head
- **Bloom period:** June-July
- **Stems:** 10–50+ cm. proximal to first peduncle, peduncle 6–15+ cm.
- **Leaves:** Blades simple or 1(–2)-pinnately lobed with 3–9+ lobes, simple blades, or terminal lobes elliptic or lanceolate to oblanceolate or linear, 25–55+ × (1–)2–9(–20) mm.
- **Flowers:** Ray flowers yellow, usually each with a proximal, red-brown to purple spot or band, 15–20+ mm. Disc flowers 3–4 mm, apices red-brown to purple.
- **Seeds:** 1.2–1.8 mm, wingless



Coreopsis lanceolata L. (COLA5) - Asteraceae

(Lance-leaved coreopsis)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** April-June
- **Stems:** Stems can grow 1-2.5 feet tall.
- **Leaves:** Grows 3-4 inches long, leaves grow opposite but can grow alternately near the top. Leaves are deeply lobed forming a lanceolate shape.
- **Flower:** Yellow rays that have 4 lobes and notched at the apex, 1-2 inches in diameter.



Coreopsis tinctoria Nutt. (COTI3) – Asteraceae

(Plains coreopsis)

- **Count as:** Compound head
- **Bloom period:** April-June
- **Stems:** 30-120 cm high, peduncle (stem bearing the flower) is 1–5(–15+) cm.
- **Leaves:** proximal blades usually 1(–3) pinnate, terminal lobes lance-ovate to oblanceolate.
- **Flowers:** Usually yellow, terminal head up to 3 cm across, one head per stem; 5-9 yellow ray flowers (petals), 3-toothed tip; red-brown disk flowers.



Croptilon hookerianum (Torr. & A. Gray) House (CRHO7) - Asteraceae

(Hooker's Scratchdaisy)

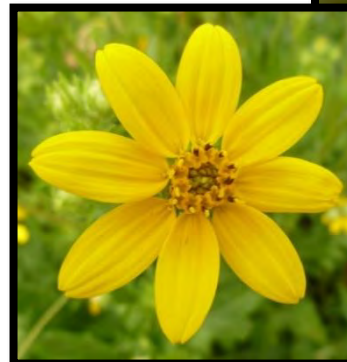
- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** Erect; 20–80(–120) cm; dense, short hairs.
- **Leaves:** Cauline (emerging from the stem); alternate; sessile (without petiole); 3-veined; linear to lanceolate; margins usually serrate near the tip, rarely entire.
- **Flowers:** Solitary or in widely branched panicles; yellow ray and disc florets; (10–)13–21(–29) ray florets; each petal 6-12 mm.
- **Note:** There are three similar varieties of this species: *validum*, *hookerianum*, and *graniticum*.



Engelmannia peristenia (Raf.) Goodman & C. A. Lawson (ENPE4) – Asteraceae

(Englemann Daisy, *Engelmannia pinnatifida*)

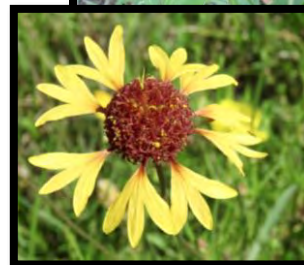
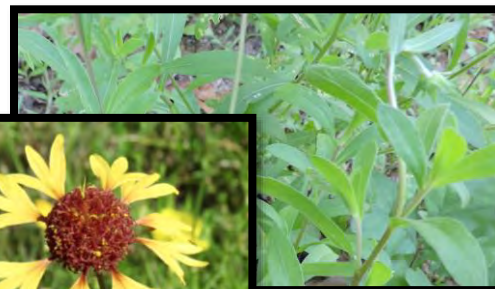
- **Count as:** Compound head
- **Bloom period:** March-July
- **Stems:** 15.5-61 cm tall with one to several erect stems; coated in relatively stiff hairs.
- **Leaves:** At the base the leaves are 15.5-30.5 cm long and deeply pinnatifid. Going up the stem the leaves become smaller. Coated in relatively stiff hairs.
- **Flowers:** Inflorescence is composed of numerous yellow flower heads 2.5-4 cm wide. Usually, 8 ray flowers which are fertile and 3 toothed, and numerous disk flowers, which are infertile and are 5 toothed. Phyllaries are in 3 series, the outermost being linear, the next slightly broader, and the innermost broadly obovate.



Gaillardia aestivalis (Walter) H. Rock (GA AE) – Asteraceae

(Lanceleaf Blanketflower)

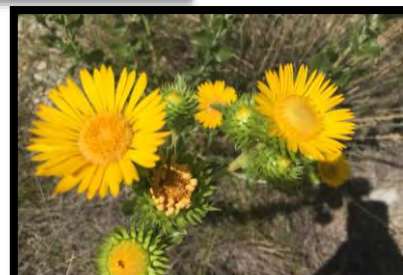
- **Count as:** Compound head
- **Bloom period:** April-October
- **Stems:** Single erect stem around 12-65 cm tall.
- **Leaves:** Alternate; sessile oblanceolate to oblong leaves with entire or few toothed margins.
- **Flowers:** Individual flowers can be up to 7.5 cm in diameter. Ray flowers usually present but not necessarily; ligules yellow, occasionally red at base; disk flowers either purple-brown (var. *aestivalis*) or yellow (var. *flavovirens*); narrow lobes on ligules are at least half as long as the corolla tube.



Grindelia ciliata (Nutt.) Spreng. (GRCI4) – Asteraceae

(Spanish Gold, *Grindelia papposa* G.L. Nesom & Suh)

- **Count as:** Compound head
- **Bloom period:** August-October
- **Stems:** Erect, glabrous stems between 50 -150 cm tall; branching at top.
- **Leaves:** Alternate; clasping oblong to obovate leaves with spiny serrate margins.
- **Flowers:** Bright yellow corollas with numerous ray flowers (25-45); pappus bristles (> 8) form a united ring at the base of each achene.
- **Note:** Unlike other *Grindelia* spp., the leaves, and buds of *G. ciliata* are not gummy or resinous.



Grindelia squarrosa (Pursh) Dunal (GRSQ) – Asteraceae(Curlycup Gumweed, *Grindelia nuda*)

- **Count as:** Compound head
- **Bloom period:** August-October
- **Stems:** Erect stems up to 100 cm tall.
Leaves: Alternate; clasping, oblong leaves with 13-30 teeth per side; stem leaves reduced near heads.
- **Flowers:** Yellow ray flowers absent or present; heads covered in a gummy resin; involucre bracts recurved and spreading at a 90-degree angle or greater.
- **Note:** *G. squarrosa* with ray flowers is rare in North-Central Texas. *Grindelia nuda* (rayless) is now considered the same as *G. squarrosa*.

*Gutierrezia sarothrae* (Pursh) Britton & Rusby (GUSA2) –

Asteraceae

(Broom snakeweed)

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** Shrubby much-branched stems between 0.2-1.0 m tall; woody base.
- **Leaves:** Alternate; blades narrowly linear with entire margins.
- **Flowers:** Yellow ligules ((2-)3-5(-8)) and disk flowers; flower heads cylindrical not campanulate (bell-shaped); inflorescences densely clustered.
- **Compare with:** *Amphiachyris dracunculoides* is very similar in appearance; however, *G. sarothrae* has cylindrical heads, less than 7 ligules per inflorescence, and is usually branched at the base.



Gutierrezia texana (DC.) Torr & A. Gray (GUTE2) - Asteraceae

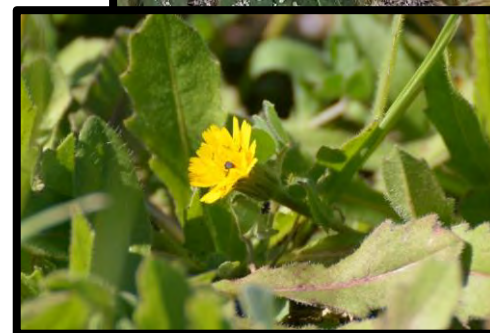
(Texas snakeweed)

NOW: AMDR/GUTE2

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** Annual. Stems erect and glabrous, 20-100 cm tall.
- **Leaves:** When in flower, basal leaves typically absent. Linear, significantly reduced on upper stem.
- **Flowers:** Yellow. Typically few per stem, paniculiform array on upper stems. Phyllaries narrow, form V shape. Pappus reduced or absent. At anthesis, styles long and branched.
- **Notes:** Distinguish from similar species by open branching, narrow phyllaries, short pappus. Visually similar to *Amphiachyris* sp..

*Hedypnois cretica* (L.) Dum. Cours. (HECR2) – Asteraceae(Cretanweed, *Hedypnois rhagadioloides*)

- **Count as:** Flower
- **Bloom period:** February-June
- **Stems:** one flower per stem, erect and branched from base, can be hairy up to 40 cm long.
- **Leaves:** oblong to oblanceolate, and tapers to base of leaf, basal and cauline; basal and or petiolate, distal sessile, margins entire, can be hairy, usually 5 to 18 cm long.
- **Flowers:** entirely yellow with several petal layers, petal ends cut-like, flower up to 2 cm wide.

*Helenium amarum* (Raf.) H. Rock (HEAM) – Asteraceae

(Bitterweed, Yellow sneezeweed)

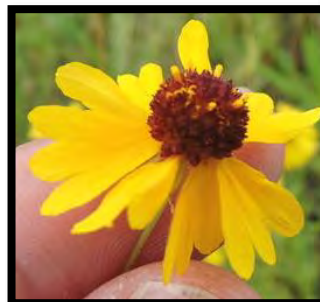
- **Count as:** Compound head
- **Bloom period:** April-September
- **Stems:** Erect, multi-branched; 20-70 cm tall.
- **Leaves:** Narrow to threadlike leaves, basal leaf margins entire to toothed or occasionally pinnately lobed; lower and basal leaves are typically withered at time of flowering.
- **Flowers:** Tops of stem branches hold inflorescences of many daisy-like flower heads. Each head has a rounded center of golden yellow to yellow-brown disc florets and a fringe of usually lighter yellow ray florets which are reflexed away from the center.



Helenium amarum var. *badium* (A. Gray ex S. Watson) Waterf.
(HEAMB2) – Asteraceae

(Yellowdicks, Brown bitterweed)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** 30-80 cm high, hairy except on flower stems; peduncle (stem holding the flower head) 10-20 cm long.
- **Leaves:** 4-5 cm long; linear, concentrated below the peduncle; lower and basal leaves sometimes withered at time of flowering; basal leaves pinnately lobed.
- **Flowers:** 2.5-5 cm across; bloom at the end of the stem; yellow ray flowers, 3 toothed petals, typically pointed downwards; reddish-brown to purple disc flowers.



Helenium elegans DC. (HEEL) - Asteraceae
(Pretty Sneezeweed)

- **Count as:** Compound head
- **Bloom period:** February-September
- **Stems:** Annual. 20-120 cm tall. Typically, singular winged stem that branches distally. Stem glabrous to moderately haired.
- **Leaves:** Mid stem leaves lanceolate to elliptic, and entire or irregularly lobed/toothed. Distal blades lanceolate to linear with entire margins.
- **Flowers:** Yellow, sometimes with red-brown blotches near base of ray florets. Disk florets are reddish brown. The inflorescence is nearly globular on a long peduncle in paniculiform arrays.



Helenium microcephalum var. *microcephalum* DC. (HEMIM) -
Asteraceae

(Smallhead sneezeweed)

- **Count as:** Compound head
- **Bloom period:** June-July
- **Stems:** Winged; angular; 10-120 cm tall; singular base stem, branching in the upper portion.
- **Leaves:** Alternate; lanceolate to oblong-elliptic; coarsely and irregularly toothed; base extends down the stem connecting to the wings.
- **Flowers:** Numerous, terminal heads, 1.25 cm across; 8 short 3-lobed ray florets surround the yellow to brown disk florets; ray florets droop downwards.



Helenium quadridentatum Labill. (HEQU) –
Asteraceae

(Longdisk sneezeweed)

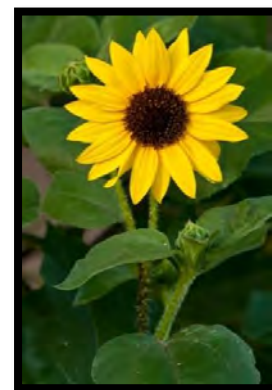
- **Count as:** Compound head
- **Bloom period:** May-June, potentially year-round
- **Stems:** Usually one stem, 30–100 cm high; moderately to strongly winged; glabrous or sparsely hairy.
- **Leaves:** Glabrous or sparsely hairy; blades elliptic to lance-linear, usually entire; proximal blades sometimes pinnately lobed.
- **Flowers:** 5-50 flower heads arranged in a panicle; 10-15 yellow ray florets; disk florets yellow-yellow/brown.



Helianthus annuus L. (HEAN3) – Asteraceae

(Common Sunflower)

- **Count as:** Compound head
- **Bloom period:** May-October
- **Stems:** Solitary; 0.5-3 m tall; coarsely hairy; much-branched.
- **Leaves:** Up to 40 cm long; mostly alternate; coarsely hairy.
- **Flowers:** Solitary, terminal heads up to 15 cm across; 20-25 yellow ray flowers; purple-brown disk flowers.



Helianthus maximiliani Schrad. (HEMA2) – Asteraceae

(Maximilian Sunflower)

- **Count as:** Compound head
- **Bloom period:** September-November
- **Stems:** Erect; unbranched; coarsely hairy; 1-3 m tall; rhizomatous, creating large colonies.
- **Leaves:** Alternate; lanceolate to linear; up to 20 cm long; margins entire or sometimes toothed; apices acute; surfaces coarsely hairy.
- **Flowers:** Solitary, terminal heads up to 13 cm across; 10-25 ray flowers, each petal slightly toothed and deeply veined; Disk 2.5+ cm across; yellow with dark brown or black anthers.



Helianthus petiolaris Nutt. (HEPE) - Asteraceae

(Showy sunflower, Plains sunflower)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** May-October
- **Stems:** 3-5 ft, many branched and erect stems, hairy, dark to light green.
- **Leaves:** Alternate, blades are triangular-ovate to narrowly ovate. Rough texture with wavy edges. 3-6 inches long. Leaf stalks are $\frac{3}{4}$ to 1.5 inches long.
- **Flowers:** Paniculate. Flower heads grow terminally. Flower heads are 1.5-3 inches across. Ray flowers are yellow and disk flowers are red purple. 12-25 petals. Bracts are flat and wide at the base, tapering to pointed tips. Bracts are hairy.



Heterotheca canescens (DC.) Shinnery (HECA8) – Asteraceae

(Hoary False Goldenaster)

- **Count as:** Compound head
- **Bloom period:** July-September
- **Stems:** Bushy, up to 75 stems, 15-45 cm tall; rhizomatous, forming colonies; greyish-green or silvery-grey due to pubescence.
- **Leaves:** Alternate; usually ascending; congested; short, rough hairs lay flat, covering the surface; greyish-green or silvery-grey; blades oblanceolate; apices acute.
- **Flowers:** Singular heads or in corymbiform arrays; each flower has 10-22 yellow rays with yellow disk flowers.



Heterotheca subaxillaris (Lam.) Britton & Rusby (HESU3) - Asteraceae
(Camphorweed)

- **Count as:** Compound head
- **Bloom period:** July-November
- **Stems:** 10–200 cm with many branches laying flat to erect; long, sticky hairs.
- **Leaves:** Alternate; slightly or coarsely toothed; basal leaves lanceolate to oblong; long petioles that later develop winged, clasping bases; upper leaves have broad, clasping bases, with or without petioles; blades lanceolate becoming oblong or ovate later on, with toothed or entire margins.
- **Flowers:** Numerous, terminal heads in arrays of panicles or corymbs, each flower 1-1.25 cm across; 15-35 yellow ray florets, 25-60 yellow disk florets.



Hypochaeris radicata L. (HYRA3) - Asteraceae
(Hairy cat's ear, Common cat's ear, Flatweed)

Pollinative Prairie

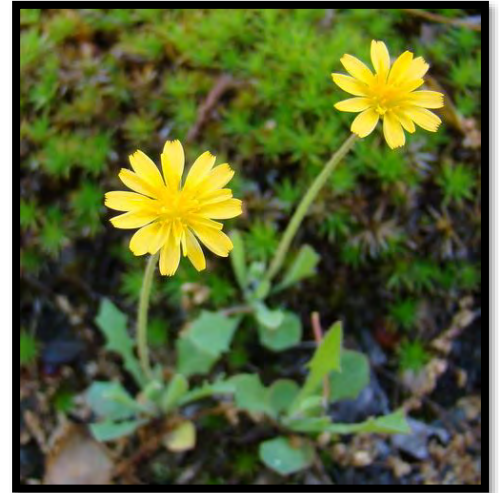
- **Count as:** Compound head
- **Bloom period:** June-September
- **Stems:** Perennial, 15-80cm, mostly glabrous, hollow and has a white sap.
- **Leaves:** Rough, oblanceolate, pinnatifid (deeply lobed), densely hairy, 6in long and 2in wide, toothed, or lobed. Basal leaves are pubescent.
- **Flowers:** Solitary pale-yellow flowers with 20-30 rays and green bracts at the base. 1-3 inches in size. Petals truncated. Fruits are achene (small fruits with seed inside ex. strawberry "seeds" are achenes).
- **Notes:** Low severity of poison characteristics. Invasive in some areas. Often mistaken for Taraxacum genus (Dandelion).



Krigia spp. Schreb. (KRIGI) – Asteraceae

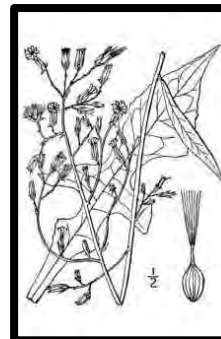
(Dwarf Dandelions)

- **Count as:** Compound head
- **Bloom period:** February-May
- **Stems:** Erect, glabrous stems between 4-25 cm tall; either leafless or leafy.
- **Leaves:** Leaves mostly basal and crowded at the base; blades linear, lanceolate, oblanceolate, or spatulate with margins ranging from entire to pinnately lobed.
- **Flowers:** Yellow-orange corollas (4-17 mm long) with 5-60 florets; pappus either absent or present; flowering heads borne singly.
- **Note:** Flowers are often only open in the morning. *Hedypnois cretica* looks similar but has ray flowers with purple tips. *Krigia* spp. also have milky sap comparable to *Lactuca* spp.

*Lactuca* spp. L. (LACTU) - Asteraceae

(Wild Lettuces)

- **Count as:** Compound head
- **Bloom period:** May-September
- **Stems:** Mostly biennial or cool season annuals. Stems always erect, range in height can be upwards of
- **Leaves:** Alternate, typically lobed with serrate margins that form spines. Upper leaves often clasping.
- **Flowers:** 5-35 perfect flowers per head. Colors range, typically yellow but can be blue. Green phyllaries erect, lanceolate, flat receptacle. Rays terminally 5-toothed, achenes flattened.
- **Notes:** Indigenous species known to hybridize. Young leaves are edible. Most species are determined from the involucre (whorl of bracts under the flower) or the achene's body length. *L. floridiana* only blue blooming species in region. *L. saligna* has nearly sessile flowers that do not form panicle.



Lindheimera texana A. Gray & Engelm. (LITE3) – Asteraceae

(Texas Yellowstar)

- **Count as:** Compound head
- **Bloom period:** March-May
- **Stems:** 10-30.5 cm high with either a simple stem or multiple branches.
- **Leaves:** Alternate leaves are lanceolate, ovate, oblanceolate and are up to 13cm long, usually 1.5-4 cm. They are usually sessile and may be entire to coarsely toothed.
- **Flowers:** Yellow flower heads have 5 ray flowers and 2 to 3 times as many disk flowers.

*Packera obovata* (Muhl. ex Willd.) W.A. Weber & Å. Löve (PAOB6) – Asteraceae

(Roundleaf Ragwort, Golden groundsel)

- **Count as:** Compound head
- **Bloom period:** February-June
- **Stems:** Glabrous; 15.5-46 cm tall with unbranched stem.
- **Leaves:** Glaucous; basal leaves are round to oval with unlobed, toothed margins; narrow petioles 2-4 times as long as the blades. There are only a few leaves along the stem (cauline leaves) and they tend to be narrowly oblanceolate to lanceolate in outline and are usually deeply pinnately lobed. Clasping, sessile.
- **Flowers:** Numerous yellow flower heads 1.5-2 cm wide.
- **Fruit:** Mature achenes have a pappus of soft silky bristles.



Packera plattensis (Nutt.) W. A. Weber & Á. Löve (PAPL12) - Asteraceae

(Prairie Groundsel, *Senecio plattensis*)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** Biennial. 20-50 cm tall. Typically found in rhizomatic clusters. Stems are woolly particularly around nodes.
- **Leaves:** Leaves clustered around base. Basal leaves oblong or ovate and serrated at margin. Reduced leaves on stem. Stem leaves deeply pinnatifid and clasping. Lower face of basal leaves deep purple.
- **Flowers:** Blooms yellow. Hairy peduncles (stems). Congested corymbiform array.
- **Notes:** Hybrids occur. Distinguish by deeply pinnate midstem leaves and glabrous involucre. Similar to *Packera aurea*, which is glabrous and has heart shaped leaves.



Packera tampicana (DC.) C. Jeffrey (PATA5) – Asteraceae

(Great Plains Ragwort, Yellowtop)

- **Count as:** Compound head
- **Bloom period:** February-June
- **Stems:** Well-branched plant 15.5-61 cm high.
- **Leaves:** Basal leaves: petiolate, blades oblanceolate and usually pinnately lobed. 1-6 pairs. Terminal lobes larger than laterals. Midribs sometimes winged or toothed between primary lobes. Margins vary, dentate or lobed. Cauline leaves: clasping, sessile. Gradually reduced along upper stem. Pinnately dissected to pinnately lobed.
- **Flowers:** The yellow flower heads are typical of the genus but are only about 2 cm in diameter.



Pyrrhopappus pauciflorus (D. Don) DC. (PYPA4) – Asteraceae

(Smallflower Desert-Chicory)

- **Count as:** Compound head
- **Bloom period:** February-June
- **Stems:** Grows 15.5-46 cm tall in calcareous soils.
- **Leaves:** Crowded at the base and are 7.5-20.5 cm long and are oblanceolate. Margins may be entire, toothed, or pinnately lobed. Few reduced leaves extend 1-3 nodes up the stem and are usually deeply pinnatifid with linear lobes.
- **Flowers:** Yellow flower heads, 2-3 cm in diameter. Flowers are distinct with the black to dark purple anther tubes scattered across the center of the head.

*Rudbeckia amplexicaulis* (Vahl) Cass. (RUAM7) – Asteraceae(Clasping Coneflower, *Dracopsis amplexicaulis*)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** Erect 0.6-0.9 m tall
- **Leaves:** Oblong with heart-shaped, clasping bases.
- **Flowers:** Terminal solitary yellow petals, with reddish-purple bases, are numerous and droop away from the dark, elongated, cone-shaped center.
- **Note:** May be confused for *Ratibida columnaris*, check for clasping leaves, present in *Rudbeckia amplexicaulis*.

*Rudbeckia hirta* L. (RUHI2) – Asteraceae

(Black-eyed Susan)

- **Count as:** Compound head
- **Bloom period:** June-October
- **Stems:** Un-branched or few branched stems 0.3-0.75 m tall. Often found in large showy colonies in open grassy areas. Covered in rough, spreading hairs.
- **Leaves:** Oblovate to oblanceolate and may be sessile or short-petiolate. Covered in rough, spreading hairs. Margins are entire or toothed. When squeezed between fingers leaves feel like a sponge.
- **Flowers:** The ray flowers normally droop downwards and are yellow with a red brown base. Disk flowers are tightly packed in a purple, brown cone 1-4 cm high.



Silphium laciniatum L. (SILA3) – Asteraceae

(Compass Plant)

- **Count as:** Compound head
- **Bloom period:** June-September
- **Stems:** Tall, coarse, sunflower-like perennial, growing 0.9-3.5 m high.
- **Leaves:** Deeply incised and pubescent, up to 61 cm in length.
- **Flowers:** 5-13 cm wide, with yellow ray and disk flowers. Disk flowers are sterile, ray flowers are bracts are large and covered in hair similar to leaves.

*Silphium simpsonii* Greene (SISI) – Asteraceae(Simpson's Rosinweed, *S. asteriscus* var. *simpsonii* (Greene) J.A. Clevinger)

- **Count as:** Compound head
- **Bloom period:** July-October
- **Stems:** Large perennial 1.2-1.5 m high with resinous stems and leaves.
- **Leaves:** Opposite on lower part of plant becoming alternate and less frequent near the top of the plant. They are ovate to lanceolate-ovate and covered in sticky hairs making them feel like sandpaper.
- **Flowers:** Solitary, yellow and about 13 cm across borne on sometimes short pedicles of the main stem of the plant. Disk flowers sterile.

*Simsia calva* (A. Gray & Engel.) A. Gray (SICA7)

- Asteraceae

(Awnless bush sunflower)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** May-November
- **Stems:** 1-3ft tall, herbaceous from woody base, coarsely pubescent, splits into 3 separate stems.
- **Leaves:** Opposite, petioled, have an arrowhead appearance with jagged edges. Leaves get smaller as they reach the top of the plant. 1.5-6 inches in length.
- **Flowers:** Disc shaped solitary flowers, 11.5 inches wide with 21-43 yellow petals and a yellow center. Sometimes has purple or red stripes.
- **Notes:** Extremely tolerant to drought.



Solidago rigida L. (SORI2) - Asteraceae(Stiff-leaved Goldenrod, *Oligoneuron rigidum*)

- **Count as:** Raceme
- **Bloom period:** July-October
- **Stems:** Perennial herb 1-1.5 m tall, wood at base. Erect unbranched stems.
- **Leaves:** Ovate-oblong leaves at base, abruptly narrowed to long petiole. Leaves larger than most goldenrods. Margins crenate to entire. Face densely hairy.
- **Flowers:** Yellow flat-topped inflorescence. Peduncles slight to densely haired. 1-3 lanceolate bracteoles. Phyllaries in 3-4 series, oblong, conspicuously striate (parallel lines) in 3-5 nerves.
- **Fruits:** Wind spread achene.
- **Notes:** Can be differentiated from *S. canadensis* by the inflorescence shape. *S. canadensis* will be paniculate (spreading branched flowers)

*Solidago* spp. L. (SOLID) - Asteraceae

(Goldenrods)

- **Count as:** Raceme
- **Bloom period:** June-October
- **Stems:** 5–100(–200) cm; decumbent (lying along the ground with the ends curving upward), ascending or erect, sometimes branched near the top; glabrous or hairy.
- **Leaves:** Alternate; sessile or short-petioled; ovate-oblongate, margins often serrate, faces glabrous or densely hairy.
- **Flowers:** Terminal spikes, often only on one side of the stem; ray flowers linear, flower heads cylindrical to funnel-form.
- **Note:** *Solidago rigida* (SORI2) has flat-topped inflorescences instead of pyramidal panicle-like inflorescences.



Sonchus asper (L.) Hill (SOAS) – Asteraceae

(Spiny sowthistle)

- **Count as:** Compound head
- **Bloom period:** March-June, sporadically later
- **Stems:** 0.1-1(-1.5) m tall
- **Leaves:** Blades obovate, oblong or ovate-lanceolate. Prickly to the touch. Leaf auricles (clasping basal lobes) rounded, with prickles.
- **Flowers:** Ligulate, yellow. Corolla tube of each flower longer than ligule. Phyllaries narrow, green, in several rows.
- **Fruits:** Flattened cypselae (2-3 mm long) with white, bristly pappus (5-9 mm). Nerves evident.
- **Notes:** Weedy, found in disturbed areas. Sap milky.

*Tetragonotheca texana* Engelm. & A. Gray ex A. Gray (TETE2) – Asteraceae

(Nerve-Ray, Squarebud Daisy)

- **Count as:** Compound head
- **Bloom period:** April-September
- **Stems:** Multi-branched open bushy plant 0.3-0.6 m tall.
- **Leaves:** Opposite leaves (2.5-13cm long) are ob-elliptic to obovate in outline with pinnately incised or coarsely toothed margins. Most leaves are long-petiolate and clasping. Upper leaves have their bases fused together on the stem.
- **Flowers:** Heads bear 6-15 yellow ray flowers and numerous brown disk flowers. Heads are 2.5-4.5 cm across and are solitary at the end of long peduncles. 4 outer phyllaries are large, and the 6-15 inner are small.



Tetraneuris linearifolia (Hook.) Greene (TELI3) – Asteraceae

(Fineleaf Four-nerved Daisy)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** Low growing, 40-60 cm tall with stems ranging from very hairy to nearly hairless.
- **Leaves:** In a rosette with blades oblanceolate to linear-lanceolate, entire to few lobed. Leaves present part way up the stem.
- **Flowers:** Flowering heads up to 2.54cm in diameter, has yellow on naked peduncles above the leaves. Ray flowers are variable in number.
- **Notes:** Distinguished from *T. scaposa* by annual habit, internodes often evident, not tightly clustered.

*Tetraneuris scaposa* (DC.) Greene (TESC2) – Asteraceae

(Stemmy Four-nerved Daisy, Four-nerve Daisy)

- **Count as:** Compound head
- **Bloom period:** March-October
- **Stems:** Leafless; 10-30 cm tall with stems densely to slightly hairy.
- **Leaves:** Only present at the base; blades linear to linear-lanceolate, entire with a few short lobes 2-10cm long and clasping at base, possibly with short petioles 0.5-1.5 mm wide.
- **Flowers:** 1-50 flowering heads on long, leafless flower stalks coming directly from the roots, with 12-26 ray flowers. Achenes 2-3.5 mm.
- **Note:** This species is similar to *T. linearifolia*, *T. linearifolia* has linear, simple leaves along stem and ligules less than 10mm long.



Thelesperma filifolium (Hook.) A. Gray (THFI) – Asteraceae

(Stiff Greenthread)

- **Count as:** Compound head
- **Bloom period:** May-July
- **Stems:** Few to multiple branched bushy plant 15-61 cm high.
- **Leaves:** Once, twice, or tri-pinnate narrowly oblanceolate or linear segments. Towards the top of the plant the segments become more linear and leaves are either three parted or simple.
- **Flowers:** Heads are 2.5-6.5 cm wide with 8 yellow ray flowers and numerous brown disk flowers. They are carried on peduncles 5-25.5 cm long.

*Thelesperma simplicifolium* A. Gray (THSI) – Asteraceae

(Slender Greenthread)

- **Count as:** Compound head
- **Bloom period:** May-September
- **Stems:** Glaucous, 30-76 cm tall with one to several erect slender stems.
- **Leaves:** Few, when they are present, they are glaucous, linear, 2.5-7.5 cm long and pinnately divided into linear segments at the base of the plant becoming three parted to simple and entire going up the stem.
- **Flowers:** Yellow; 2-3 cm wide on peduncles 2.5-15 cm long. Each flower has 8 ray flowers.

*Thymophylla pentachaeta* var. *pentachaeta* (DC.) Small (THPEP) – Asteraceae

(Parralena, Fiveneedle Pricklyleaf)

- **Count as:** Compound head
- **Bloom period:** May-October
- **Stems:** Low bushy dense plant 5-20.5 cm tall.
- **Leaves:** Opposite leaves pinnately divided into 3-11 lobes and are sometimes stiff to the touch.
- **Flowers:** Flowering heads are on 2.5-10 cm peduncles and carry yellow flower heads which are 0.6-1.5 cm in diameter. Disk corollas dull yellow.
- **Note:** Plant has an unpleasant smell when handled.



Tragopogon dubius Scop. (TRDU) – Asteraceae

(Yellow Salsify)

- **Count as:** Compound head
- **Bloom period:** April-July
- **Stems:** Long stemmed, medium sized flowering plant. The stems are leafy and between 10-30 cm tall. At the base of the flower bud the stem is slightly swollen or enlarged and sometimes contains a milky sap. Stems come from a large tap root.
- **Leaves:** Long, skinny and grass-like extensions that clasp the stem, extend up and outward to a point.
- **Flowers:** Solitary, yellow, usually between the size of a half dollar and a quarter (2.5-2.6 cm in diameter), with ray flowers that are evenly spaced out around the flower and are only one layer thick with green bracts extending past them.
- **Notes:** Weedy.

*Wedelia acapulcensis* var. *hispida* (Kunth) Strother (WEACH) –

Asteraceae

(Texas Creeping Oxeye)

- **Count as:** Compound head
- **Bloom period:** May-October
- **Stems:** Forms bushy clumps 0.3-0.75 m high that are basally woody; covered in rough, stiff hairs.
- **Leaves:** Ovate-lanceolate and are pointed at both ends and are sessile or nearly so. Few teeth on either margin; covered in rough, stiff hairs. Lower pairs of leaves may be lobed.
- **Flowers:** Yellow-orange; on flower stalks well above the foliage.

*Lithospermum incisum* Lehm. (LIIN2) – Boraginaceae

(Fringed Puccoon, Narrowleaf Puccoon)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Erect; hairy; 25-50 cm tall.
- **Leaves:** Alternate; linear to lanceolate; margins entire; 2.5-5 cm long, lower leaves up to 12 cm; hairy.
- **Flowers:** Two forms: early form is a showy, tubular 5-petaled flower with fringed edges, late form is a minute flower at the leaf nodes.



Camelina microcarpa DC. (CAMI2) – Brassicaceae

(Littlepod Falseflax)

- **Count as:** Umbel
- **Bloom period:** March-May
- **Stems:** Erect, up to 30-75 cm tall; long, spreading hairs on lower branches; unbranched or with ascending to erect branches.
- **Leaves:** Basal leaf rosette usually withered at time of flowering; cauline (on stem) leaves sessile; bases sagittate or auricled to clasping; oblong to triangular-lanceolate; margins entire, often ciliate, rarely slightly dentate; apices acute; surfaces pubescent.
- **Flowers:** Terminal racemes of pale-yellow flowers; petals 2-6 mm long.
- **Seed:** Produces oval, rounded to flattened pods (siliques), about 3 mm long, with an elongated tip; pods are held out from main stem on a stalk at about a 45-degree angle.

*Descurainia pinnata* (Walter) Britton (DEPI) – Brassicaceae

(Western Tansymustard)

- **Count as:** Umbel
- **Bloom period:** March-April
- **Stems:** 5-80 cm tall, unbranched or branched; sparsely to densely pubescent, sometimes glabrous near the top.
- **Leaves:** Basal leaves petiolate, blade ovate or oblong to oblanceolate, pinnately lobed to compound, leaflets linear to widely obovate; margins entire or dentate; cauline leaves sessile or with short petioles, surfaces densely pubescent.
- **Flowers:** Yellow or whitish flowers in racemes; each flower oblong, 0.8-2.6 mm, pubescent.
- **Note:** There are two similar species: *D. sophia* and *D. incana*, and four varieties of *D. pinnata*, use a key to distinguish.



Myagrum perfoliatum L. (MYPE) – Brassicaceae

(Bird's Eye Cress)

- **Count as:** Flower
- **Bloom period:** Feb-May
- **Stems:** Branched distal to middle, 20-80 cm, pale green, waxy.
- **Leaves:** Helically alternate, pinnately lobed, oblanceolate to oblong, glabrous, clasping leaves, leaves form rosettes that can reach 45 cm in diameter.
- **Flowers:** Yellow petals 3-4 mm long in diameter, 4 petals, and clustered.
- **Fruit:** Fruits roughly pear-shaped, 6-7mm with a 1 mm beak, glabrous, one seed.

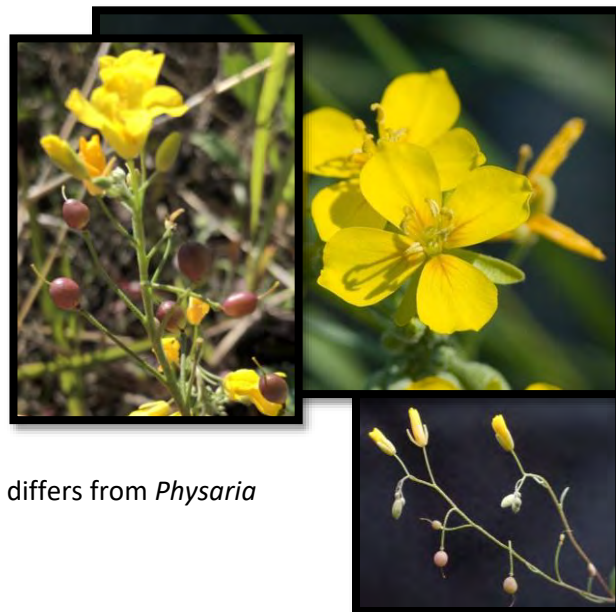
*Physaria engelmannii* (A. Gray) O'Kane & Al-Shehbaz (LEEN) – Brassicaceae(Engelmann's Bladderpod, *Lesquerella engelmannii*)

- **Count as:** Umbel
- **Bloom period:** April-May
- **Stems:** Several stems up to 50 cm tall arising from a woody base; silvery gray-green stems with appressed, stellate hairs.
- **Leaves:** Many basal leaves, cauline leaves alternate; linear to oblanceolate, petiolate leaves covered in appressed, stellate hairs.
- **Flowers:** Bright yellow 4-petalled flowers that are crowded together in umbel-like racemes; petals between 8-12 mm long.
- **Fruits:** Globular fruits (4.5-8 mm in diameter) with a stipe between 0.5-1 mm long; fruiting pedicels simply curved or straight.
- **Compare with:** A woody base and fruit with a non-sessile stipe differentiate *P. engelmannii* from other *Physaria* spp.



Physaria gracilis (Hook.) O’Kane & Al-Shehbaz (PHGR6) – Brassicaceae(Cloth-of-gold, Spreading Bladderpod, *Lesquerella gracilis*)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Erect to decumbent stems up to 50 cm tall; older stems sparsely pubescent; does not have a woody base.
- **Leaves:** Alternate; linear to lanceolate cauline leaves (1-5 cm long, 2-20 mm wide).
- **Flowers:** Yellow-gold, 4-petalled flowers on rapidly elongating racemes, where flowers are not densely crowded together; inflorescences not closely subtended by leaves.
- **Fruits:** Globular fruits between 3-5 mm in diameter; fruiting pedicels simply curved or straight; small stipe between 0.75-2.00 mm long.
- **Compare with:** *P. gracilis* differs from *Physaria engelmannii* by being an annual without a woody base and differs from *Physaria recurvata* by not having recurved fruiting pedicels.

*Physaria recurvata* (Engelm. ex A. Gray) O’Kane & Al-Shehbaz

(LERE4) – Brassicaceae

(Gaslight Bladderpod)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Slender thinly pubescent low plant. Stems branched at base; branches ascending or spreading, 5-30 cm long.
- **Leaves:** Varying from spatulate to obovate or linear; 0.5-3cm long.
- **Flowers:** Pedicels recovering about 1cm long, petals yellow 4-6mm long.
- **Fruit:** Pods subglobose and recurved (curve down)
- **Compare with:** Recurved fruiting pedicels is the defining characteristic of this species that differentiates *P. recurvata* from other *Physaria* spp.



Rapistrum rugosum (L.) All. (RARU) – Brassicaceae

(Annual Bastard Cabbage)

- **Count as:** Flower
- **Bloom period:** Nov-Jun
- **Stems:** Branched, cylindric, glabrous down pointing hairs increasing in density upwards, can grow up to 0.3 m to 1.5 m in height.
- **Leaves:** Alternating deeply pinnately lobed basal and lower cauline leaves and mostly unlobed upper cauline leaves, petiole 1-5 cm, blades with 1-5 lobes each side, lightly pubescent to glabrous. Lower cauline leaves oblong to oblanceolate and upper cauline leaves lanceolate to obovate, leaf edges are lobed and wrinkled.
- **Flowers:** Radial, 7-9 mm across, 4 petals, sepals are oblong and green, 2.5-5 mm.
- **Fruit:** 2 segments; 3-9 mm long, beak 1-3 mm long (lower fruit segment), fruit segment globose (upper fruit segment) 3 mm in diameter, one seed.

*Sisymbrium irio* L. (SIIR) - Brassicaceae

(London Rocket)

Pollinative Prairie

- **Count as:** Umbel
- **Bloom period:** March-June
- **Stems:** Slender stems may be sparsely hairy at their base, erect stems are mostly branched near the base, green stems sometimes with a purple tinge. About 3 feet tall.
- **Leaves:** Alternate, oblanceolate to oblong in outline, pinnately lobed; lateral lobes. About 6mm wid.
- **Flowers:** Raceme, small bright to pale yellow flowers form in clusters at the tips of the branches, 4 petals, 4 sepals, and 4 tepals in the flower, petals and sepals are separate and not fused. Petals are 6-8mm long.



Sisymbrium officinale (L.) Scop. (SIOF) – Brassicaceae

(Hedge Mustard)

- **Count as:** Umbel
- **Bloom period:** Apr-Oct
- **Stems:** Downward appressed hairs in lower region of plant and may be glabrous on the flowering branches. The upper stems terminate into long slender racemes up to 25 cm.
- **Leaves:** Compound to alternate, 15 cm long, 5 cm wide, deeply divided into narrow angular lobes, tip lobe is the largest and triangular to arrowhead shaped in outline, 2-5 pairs of lateral lobes, edges vary from toothless to irregularly toothed to shallowly lobed, glabrous to pubescent.
- **Flowers:** Clusters at the end of branching stems, 4 rounded petals, 3.2 mm in diameter, 6 greenish stamens with yellow tips, glabrous to pubescent sepals.
- **Fruit:** Slender pod appressed to the stem and 1-2 cm long.
- **Note:** Can be easily confused with *Sisymbrium irio*, pedicels are spreading/ascending in age and 4-10 mm long. Whereas, *S. officinale* pedicels closely appressed in age and 1-2 mm long.

*Coryphantha sulcata* (Engelm.) Britton & Rose (COSU7) - Cactaceae

(Grooved nipple cactus, Mammillaria sulcata)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Perennial. Spherical, smooth, clump forming cactus. 30-50 cm wide.
- **Leaves:** Spines. Radial spines 8-15 per areole, central spines 0-4. Central spines often speckled black. Longest central spines 9-15mm.
- **Flowers:** Petals yellow on upper half and pinkish red at base. Blooms from top or near the apices of the plant. Anthers and stigma yellow.
- **Notes:** This species and morphologically similar species are frequently poached, please obscure any locational information. Related taxa have strong heteromorphic growth- changes with maturity and can be difficult to distinguish if certain traits are not present.



Escobaria missouriensis (Sweet) D.R. Hunt (ESMI3) - Cactaceae(Missouri foxtail cactus, *Coryphantha missouriensis*)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Perennial. Spherical, up to 25 cm in diameter. Mature plants may form clumps. Stems deep seated in substrate.
- **Leaves:** Spines. 12-40 radial spines and 3-10 central spines, white weathering to tan/brown. Spines appressed (flat). Spines bear short white wool. Spines .5mm wide and 8-20 mm long.
- **Flowers:** Yellow-green. Outer tepals fringed, purplish-pink base. Anthers bright yellow.
- **Notes:** This species and morphologically similar species are frequently poached, please obscure any locational data. *E. Vivipara* is similar but has purplish-pink blooms. *Coryphantha sulcata* has a similar bloom, but fewer radial and central spines.

*Opuntia* spp. Mill. (OPUNT) – Cactaceae

(Prickly Pears)

- **Count as:** Flower
- **Bloom period:** April-July
- **Leaves:** Prostrate to semi-erect 0.5-1.5 m tall (or taller) Pads are small 10-25 cm long. Spines are white or yellow and found in groups of 1-6, 3-5 cm long. The base of each grouping of spines is surrounded by glochids (sharp micro-spines).
- **Flowers:** Bright to pale yellow, orange, red, pink and are 5-12 cm wide, found on the edge of pads.

*Paronychia lindheimeri* Engelm. ex A. Gray (PALI5) – Caryophyllaceae

(Lindheimer's Nailwort, Forked Nailwort)

- **Count as:** Umbel
- **Bloom period:** July-November
- **Stems:** Erect to ascending stem up to 30 cm tall; greatly branched.
- **Leaves:** Narrowly linear leaves (≤ 15 mm long and ≤ 1 mm wide); scale-like stipules.
- **Flowers:** Five-merous, pale-yellow petals with red-brown sepals (1.7-2 mm long); appressed hairs on the bases of calyces.



Paronychia virginica Spreng. (PAVI4) - Caryophyllaceae
(Whitlow Wort)

- **Count as:** Compound umbel
- **Bloom period:** March-June
- **Stems:** Perennial. Stem procumbent to ascending, up to 50 cm long. Yellow to brown as the plant ages. Dense branching from base. Minutely hirsute.
- **Leaves:** Linear blades 10-30 mm long. Leathery surface with very small coarse hairs.
- **Flowers:** Yellow. Cymes of 3-10 often compact flower clusters. Star shaped when open, conical when closed. No petals, sepals brown to yellow. Threadlike staminodes and 1 style.
- **Notes:** Some debate on the distinction from *P. parksii*, some sources combine while others differentiate. *P. virginica* is the most abundant species in the genus for NCTX.



Crocanthemum rosmarinifolium (Pursh) Janch.
(CRRO10) – Cistaceae

(Rosemary frostweed, *Helianthemum rosmarinifolium*)

- **Count as:** Compound head
- **Bloom period:** Chasmogamous flowers May-June; cleistogamous flowers June-July.
- **Stems:** Erect to ascending, branched stems between 13-50 cm tall.
- **Leaves:** Alternate; blades linear to narrowly oblanceolate (< 4(-) mm wide) and covered in stellate pubescence.
- **Flowers:** Corollas yellow with five wedge-shaped petals (4-6.4 mm long); 3-8 stamens on cleistogamous (only self-pollinating) flowers and 15-36 stamens on chasmogamous (cross or self-pollinating) flowers; stamens arranged in a wheel-like fashion; calyces $\leq$ 4 mm long.
- **Fruit:** Capsules (1.3-4 mm long) contain 1-6 seeds.



Cuscuta spp. L. (CUSCU) – Convolvulaceae
(Dodders)

- **Count as:** # 1cm tubes of flowers
- **Bloom period:** June-October
- **Stems:** Parasitic, twining itself around host plants; orange, yellow or whitish.
- **Leaves:** Leafless (leaves are reduced to scales).
- **Flowers:** Usually in clusters, yellowish to white.



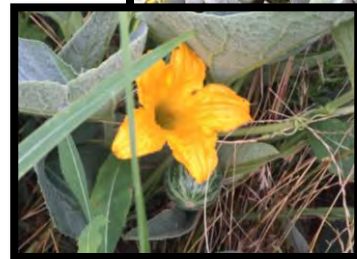
Sedum nuttallianum Raf. (SENU) – Crassulaceae(Yellow Stonecrop, *Sedum nuttallii*)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Usually forms mats in limestone soil. Found in shallow soil on rock or crevices, low succulent 5-10 cm high.
- **Leaves:** Pale green linear sessile leaves are roughly 0.6 cm long.
- **Flowers:** Yellow and arranged in cymes and are sessile. Flowers have 5 petals 0.6 cm in diameter.

*Cucurbita foetidissima* Kunth (CUFO) – Cucurbitaceae

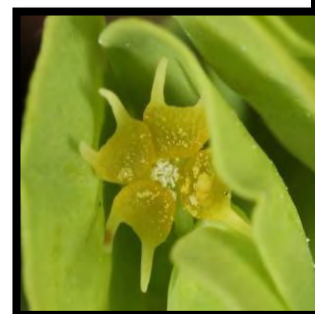
(Buffalo Gourd, Stinking Gourd)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Sprawling vine that can be over 6 m long.
- **Leaves:** Alternate; angled to weakly lobed, finely toothed, scabrous, triangular to ovate blades that are longer than wide (≤ 30 cm) with cordate bases.
- **Flowers:** Large five-petaled, orange-yellow flowers (≤ 10 cm long).
- **Fruit:** Large, striped, globose gourd.
- **Note:** The fruit has an incredibly foul smell that is similar to bad body odor and stale sweat.

*Euphorbia longicruris* Scheele (EULO2) – Euphorbiaceae

(Wedgeleaf Spurge)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Erect, short branched stems up to 25 cm tall.
- **Leaves:** Opposite; glabrous, obovate to oblong blades with a long base.
- **Flowers:** Possesses inconspicuous staminate flowers, which are surrounded by four yellow-orange, appendage-less glands; each gland has two horn-like projections; involucre made up of asymmetric reniform floral bracts.
- **Notes:** Distinguish from *E. spathulata* by entire leaves, non warty ovary.



Euphorbia spathulata Lam. (EUSP) - Euphorbiaceae

(Reticulate-seeded Surge, Warty spurge)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Annual with taproot. Erect, glabrous stems 10-50 cm tall. Few basal branches, but many upper branches. 3 whorled branches off the main inflorescent stem.
- **Leaves:** Alternate, but opposite at branch forks and whorled at branch bases. Leaves without a petiole. Shape oblanceolate or spatulate, rounded at both ends but tapering at the base. Glabrous at surface. Toothed margin.
- **Flowers:** Blooms green. Separate male and female flowers. Petal-less blooms a yellowish green with fused involucre bracts. Staminate flowers: 3-10 stamens at base of ovary. Pistillate flowers: glabrous, globose, warty ovary with 3 spreading split (about midway) styles at top. 3 lobed capsules.
- **Notes:** Distinguish by 3 branched main inflorescence, warty ovary, and toothed margin.

*Stillingia texana* I. M. Johnst. (STTE3) – Euphorbiaceae

(Texas Stillingia, Texas Queen's Delight)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Plant is 20-40.5 cm tall with multiple erect stems from thickened woody taproot.
- **Leaves:** Linear to linear-lanceolate with serrate to crenate margins; 2.5-6.5 cm long and very narrow.
- **Flowers:** Yellow-green; male and female flowers are both found on the same spike, male at the top, female at the bottom.



Chamaecrista fasciculata (Michx.) Greene (CHFA2) - Fabaceae

(Partridge Pea)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Erect; solitary; smooth; 30-90 cm tall; sparsely branched.
- **Leaves:** Alternate; pinnately compound; leaflets oblong, 8-20 in opposite pairs.
- **Flowers:** Bright yellow; 5 petals, 4 with a red spot at the base, 2 petals prominently cupped; flowers appear in clusters of 2-7, only opening one at a time; each flower 1.25-3.5 cm long.

*Dalea aurea* Nutt. ex Pursh (DAAU) – Fabaceae

(Golden Prairie Clover, Golden Dalea)

- **Count as:** Spike
- **Bloom period:** April-June
- **Stems:** 30-45cm high with 1 to several erect stems rising from a woody taproot.
- **Leaves:** are 1.27- 3.2 cm long and are pinnately 5-7 foliate. Each leaflet is roughly 4.7– 6.3 mm long and leaves and stems are covered in a fine silvery pubescence.
- **Flowers:** Bright yellow, on rounded compact spikes. Individual flowers are 9.5-12.7mm long.

*Dalea hallii* A. Gray (DAHA) - Fabaceae

(Hall's Prairie Clover)

- **Count as:** Spike
- **Bloom period:** May-June
- **Stems:** Perennial. Erect woody stems 10-20 cm tall.
- **Leaves:** Trifoliate leaves gland-dotted with strigose (stiff, appressed hairs) pubescence on lower surface. Leaflets linear.
- **Flowers:** Yellow. Spikes terminal on short 1-2 cm long peduncles. Calyx with long silky gray-white hairs. Bloom color fading to red-orange.
- **Notes:** Endemic to TX and imperiled (S2), please obscure locational data. Favors limestone calcareous soils. Distinguish by linear leaflets and appressed (flat) hairs on stems.



Dalea nana Torr. ex A. Gray (DANA) – Fabaceae

(Dwarf Prairie Clover)

- **Count as:** Spike
- **Bloom period:** May-July
- **Stems:** 5-20 cm tall with numerous decumbent stems branching from base. Short silky hairs cover both leaves and stems.
- **Leaves:** 1.27-2.5cm long, with 5-9 leaflets; each leaflet 6.3-9.5mm.
- **Flowers:** Yellow flowers are dense terminal spikes 1.25 to 2.5 cm long which become loose with maturity. Ovate bracts have a single short point at the tip and are densely covered with a silky pubescence.



Lotus corniculatus L. (LOCO6) – Fabaceae

(Bird's-foot Trefoil)

- **Count as:** Head
- **Bloom period:** May-August
- **Stems:** Erect, non-twining, sparsely pubescent or glabrous stems up to 80 cm tall.
- **Leaves:** Alternate; five obovate to lanceolate leaflets.
- **Flowers:** Yellow corollas (10-14 mm long) with petals that are minimally to markedly lined with red; flowers clustered together in head-like umbels ((2-)4-8).



Medicago spp. L. (MEDIC) - Fabaceae

(Medicks)

Genus Profile:

- **Count as:** Head
- **Bloom period:** March-July
- **Stems:** Annual, low growing, sprawling; ascending or trailing stem, spreading along the ground with its extremities curving upward.
- **Leaves:** Alternate, ovate.
- **Notes:** 3 main types identified: *Medicago lupulina*, *Medicago minima*, *Medicago orbicularis*.

Medicago lupulina (MELU):

(Black Medick)

- **Leaves:** Petiolate; trifoliolate, 10-20 mm long, toothed toward the tips
- **Flowers:** Dense, rounded head with 8-20+ yellow flowers

Medicago minima (MEMI):

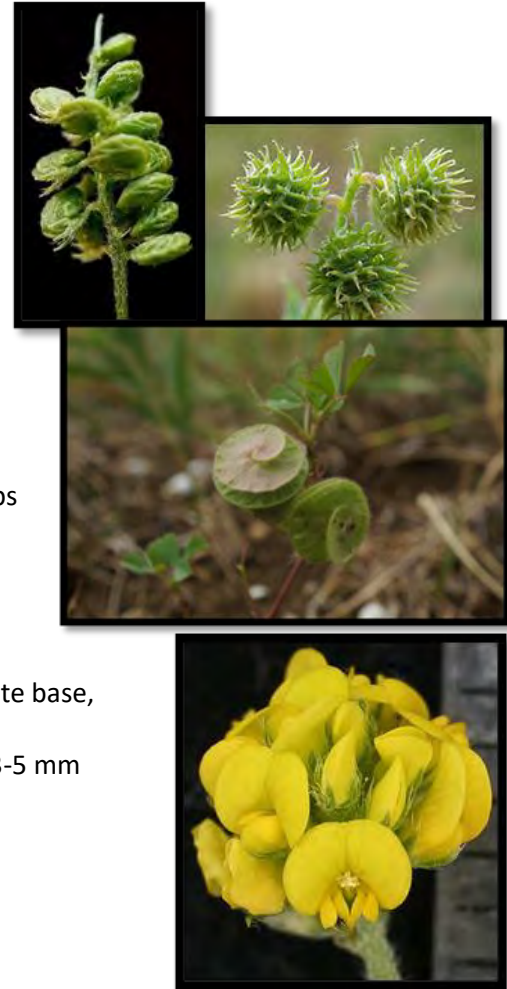
(Little Bur-Clover)

- **Stems:** 10 cm tall; sparsely to densely hairy
- **Leaves:** Helically alternate, pinnately trifoliolate, obovate with cuneate base, petiolate; widely spaced along stems; covered in soft hairs
- **Flowers:** Axillary; bilaterally symmetrical flowers; yellow or orange; 3-5 mm long; 2-5 flowers in a cluster. Has pod flowers with prickles.

Medicago orbicularis (MEOR2):

(Button Medick)

- **Stems:** Decumbent to erect, 10-50 cm long. Often forms mats. Stems occasionally pubescent, often glabrous.
- **Leaves:** Ovate or rhombic. Divided stipules and lacerate at margin.
- **Flowers:** Blooms yellow, often 1-5 flowers Banner can have dark purple spot. Has coiled flattened fruit.



Melilotus officinalis (L.) Lam. (MEOF) – Fabaceae
(Yellow Sweetclover)

- **Count as:** Raceme
- **Bloom period:** March-September
- **Stems:** Annual to biennial herb that can grow from 0.9-2.5 m tall.
- **Leaves:** are alternate, trifoliate with petioles up to 2.5cm long. Leaflets are greyish green, 2.5cm long and 0.8cm wide, dentate, and oblong to ovate.
- **Flowers:** Appear in racemes 5-15.5 cm long. Flowers are small, floppy, tubular at the base, becoming broader toward outer edges; 0.8 cm long with 5 petals.
- **Fruit:** Seed pods are smooth or slightly reticulated, 0.8 cm long, terminates in a beak, and contains 1 or 2 seeds.



Neptunia lutea (Leavenw.) Benth. (NELU2) – Fabaceae

(Yellow Puff, Yellow Sensitive Briars)

- **Count as:** Head
- **Bloom period:** May-June
- **Stems:** 2.5-13 cm long, radiating outwards from a woody taproot.
- **Leaves:** 2.5-7.5 cm long with 3 to 5 pairs of pinnae, each pinna having 10-16 pairs of leaflets. Each Leaflet is roughly 3mm long. 'Sensitive' to touch. Leaves will fold up when touched.
- **Flowers:** Clusters are slightly elliptic yellow globes 19 mm long on peduncles up to 6.5cm long.



Prosopis glandulosa Torr. (PRGL2) – Fabaceae

(Honey Mesquite)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Shrub or small tree to 9 m tall; twigs have sharp thorns up to 5 cm long.
- **Leaves:** Bright green, twice-compounded leaves have a feathery appearance; leaflets up to 5 cm long and 8 cm wide.
- **Flowers:** Tiny, yellow-green, fragrant flowers occur in dense, spike-like racemes.



Senna lindheimeriana (Scheele) H.S. Irwin & Barneby (SELI4) – Fabaceae

(Lindheimer's Senna)

- **Count as:** Flower
- **Bloom period:** August-October
- **Stems:** 1 to several ascending/erect stems rising from a woody root. Grows 0.5-0.9 m tall. Stems and leaves are covered with velvety hairs.
- **Leaves:** are 7.5-15.5 cm long usually with 5-6 pairs of oblong leaflets which are asymmetric at the base.
- **Flowers:** Yellow-orange flowers carried on racemes 7.5-15.5 cm long. Each flower is about 2.5 cm wide with red veins permeating the 5 elliptic obovate petals.
- **Notes:** Distinguished from *S. roemeriana* by leaves, *lindheimeriana* has more than 1 pair of leaflets.



Senna roemeriana (Scheele) H.S. Irwin & Barneby (SERO8) – Fabaceae

(Two-leaved Senna)

- **Count as:** Flower
- **Bloom period:** April-September
- **Stems:** Erect; 30-60 cm tall; gray-green; pubescent.
- **Leaves:** Alternate; long-stalked; 2 leaves per leaflet; leaflets lanceolate, 7-12 mm wide, 2.5-6 cm long; gray-green; pubescent.
- **Flowers:** Clusters of 2-6 in the upper-axils; 3 cm across; 5 petals, usually with brown veins.



Stylosanthes biflora (L.) Britton, Sterns & Poggenb. (STBI2) – Fabaceae

(Sidebeak Pencilflower)

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** Up to 60 cm long; Erect to spreading; smooth to densely hairy; one to many stems.
- **Leaves:** Alternate; short-stalked; subtended by small, leaf-like stipules; trifoliolate, each leaflet up to 2 cm long; linear; margins ciliate; apex bristle-pointed.
- **Flowers:** Terminal racemes subtended by reduced leaves; yellow-orange flowers; up to 1 cm long; uppermost petal notched at the apex and sometimes marked with red lines.

*Trifolium campestre* Schreb. (TRCA5) – Fabaceae

(Hop Trefoil)

- **Count as:** Head
- **Bloom period:** March-May
- **Stems:** Erect to sprawling; pubescent to nearly hairless; much-branched; up to 40 cm long.
- **Flowers:** Yellow; 20-40 condensed in a globe-shaped or elongated spike.
- **Leaves:** Alternate; trifoliolate; leaflets obovate to oblong-elliptic; margins entire proximally, serrate distally.

*Corydalis curvisiliqua* Engelm. (COCU2) – Fumariaceae

(Curvepod Fumewort)

- **Count as:** Spike
- **Bloom period:** February-April
- **Stems:** Erect to ascending; 1 to several; glaucous; 10-40 cm high.
- **Leaves:** Leaves compound; blade with 2-3 orders of leaflets and lobes; margins sometimes incised, apex obtuse or rounded.
- **Flowers:** Yellow; racemes of 6-18 flowers; each flower often curved; 2.5 cm; 4 petals, with the outer two enclosing the inner two.



Hypericum drummondii (Grev. & Hook.) Torr. & A. Gray (HYDR) – Hypericaceae

(Nits and lice, St. John's Worts)

- **Count as:** Flower
- **Bloom period:** July-September
- **Stems:** Erect, much-branched up to 80 cm tall.
- **Leaves:** Opposite; narrowly linear (6-20 mm long, ≤ 1.5 mm wide), entire blades.
- **Flowers:** Five yellow-orange petals (2.5-4.5 mm long) with five prominent green sepals; flowers look like tiny pinwheels; approximately 12 stamens.
- **Fruit:** Ovoid shaped capsules.



Hypericum perforatum L. (HYPE)—Hypericaceae (Common St. John's Wort)

- **Count as:** Flower
- **Bloom period:** June-September
- **Stems:** Perennial, erect and branched in the upper half, typically 0.3-1.0 m (up to 1.5 m) tall, woody at the base, glabrous, green to reddish; rhizomatous.
- **Leaves:** Opposite, sessile leaves, oval to oblong at the base with an elliptical tip, 0.8-3.5 cm long and 0.31-1.6 cm wide. Have tiny, translucent dots that look like perforations.
- **Flowers:** Yellow with black dots along the edges of the petals, 25-100 flowers per flowering stem, 1.5-2.5 cm wide, 5 petals 8-12 mm long. Several yellow stamens.
- **Fruit:** Capsule, 7-8 mm long.
- **Notes:** Contact with the sap may cause photosensitivity.



Hypoxis hirsuta (L.) Coville (HYHI2) – Hypoxidaceae (Yellow Star Grass, Common Goldstar)

- **Count as:** flower
- **Bloom period:** May-July
- **Stems:** slender, threadlike; one or more stems; 16 to 25 cm long; hairy; located in center of leaves.
- **Leaves:** basal, long and linear up to 25 cm long and 2 cm wide, hairy; leaves often longer than stems.
- **Flowers:** Star shaped; up to 1 in. across, 6 petals, 6 stamens and anthers all parts are yellow.



Monarda punctata L. (MOPU) – Lamiaceae

(Spotted beebalm, Horsemint)

- **Count as:** Raceme
- **Bloom period:** May-July
- **Stems:** Erect, branched stems up to 100 cm tall.
- **Leaves:** Opposite; shallowly toothed, oblong to lanceolate blades.
- **Flowers:** Spotted, creamy yellow, bilaterally symmetric flowers reminiscent of overripe bananas; flowering heads “tiered” on an interrupted spike; tiers sandwiched between involucre made up of large white to pink, acute to acuminate bracts; aromatic.

*Linum hudsonioides* Planch. (LIHU2) – Linaceae

(Yellow flax)

- **Count as:** Flower
- **Bloom period:** March-September
- **Stems:** 15.5-20.5 cm tall and has ascending to erect habit.
- **Leaves:** Opposite at the base, becoming alternate above; linear; about 6.5mm long; tending to hug the stem.
- **Flowers:** Pale yellow flowers are approximately 19mm across, usually with a brick-red spot in the lower 1/3 of the petal. The sepals are 3-5 mm long.
- **Fruit:** Ovoid fruit splits into 5 segments.

*Linum rigidum* Pursh (LIRI) – Linaceae

(Yellow Flax, Stiffstem Flax)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Erect or ascending, glabrous, branched stems up to 40 cm tall.
- **Leaves:** Alternate; blades linear, lanceolate, linear-lanceolate, acute or acuminate.
- **Flowers:** Yellow-orange, five-petaled flowers sometimes with dark red-orange centers; styles united halfway or more; inflorescence arranged in racemose inflorescences; glandular-toothed sepals.
- **Fruit:** Ovoid fruit (3.5-4.7 mm long) breaks into 5 segments.
- **Compare with:** Other yellow *Linum* spp. can be similar in appearance. Key distinguishing features for *L. rigidum* is that the fruit splits into 5 segments, the style is united halfway or more, and the sepals are glandular-toothed (use hand lens).



Linum rupestre (A. Gray) Engelm. (LIRU2) – Linaceae

(Rock Flax)

- **Count as:** Flower
- **Bloom period:** May-June
- **Stems:** 2.5-5 cm tall with few to many erect stems.
- **Leaves:** Alternate, linear leaves scattered sparsely on the stem, sometimes opposite at the base. 9.5-19 mm long.
- **Flowers:** Inflorescence is panicle-like with 5-petaled yellow flowers 6.5-13 mm wide. Tiny gland-tipped teeth line the margins of the lanceolate-ovate sepals.
- **Fruit:** Splits into 10 segments.

*Linum sulcatum* Riddell (LISU4) - Linaceae

(Grooved Yellow Flax)

- **Count as:** Flower
- **Bloom period:** June-August
- **Stems:** 20-80cm tall, dark green, thin, purplish near the base, loosely branched.
- **Leaves:** Simple, alternate, stalkless, lance-linear, 7-30mm in size.
- **Flowers:** Yellow, 5 petals, 8-19 mm wide.

*Mentzelia oligosperma* Nutt. ex Sims (MEOL) –

Loasaceae

(Stick-Leaf)

- **Count as:** Flower
- **Bloom period:** June-September
- **Stems:** Semi-woody, bushy plant with several stems that grows 2.5-5 cm tall.
- **Leaves:** Lanceolate, ovate, or three lobed, all with coarsely toothed margins. Sessile to short petiolate and are 1.5-5 cm long. Sticky hairs cover the surface of leaves.
- **Flowers:** Open in the morning and evening. Orange to yellow-orange flowers are 2cm in diameter.
- **Fruit:** Sessile, cylindrical, slightly curved capsule 6.5-13 mm long.



Abutilon fruticosum Guill. & Perr. (ABFR3) – Malvaceae

(Texas Indian Mallow, Indian Mallow)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Erect, branched stems up to 85 cm tall; woody base.
- **Leaves:** Alternate; blades (~10 cm long) ovate to triangular with cordate bases and shallowly toothed margins; covered in grey stellate (star-shaped) pubescence.
- **Flowers:** Five-petaled, yellow-orange flowers (1.9-2.54 cm across) on short peduncles (1-3 cm long); calyces 3-5 mm long; flowers often do not open until the afternoon.
- **Fruit:** Stout, fluted, cylindrical capsule (6-9 mm long) with 5-9 carpels; nearly awnless (not beaked).



Sida abutilifolia Mill. (SIAB) – Malvaceae

(Spreading Sida)

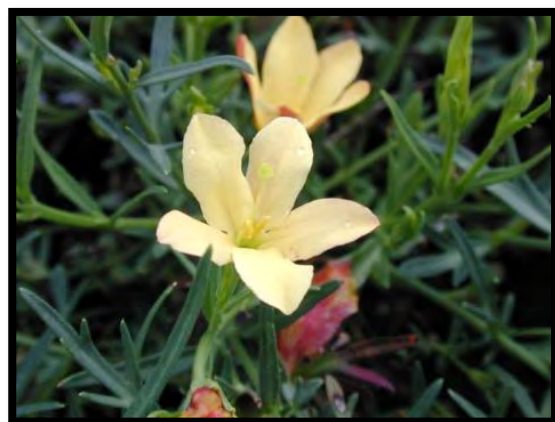
- **Count as:** Flower
- **Bloom period:** March-October
- **Stems:** Sprawling ground hugging stems up to 46 cm long. Stems and leaves with stellate-pubescent and usually with simple hairs 1-2 mm long.
- **Leaves:** Ovate to oblong, crenate, up to 1.5 cm long (occasionally larger).
- **Flowers:** Solitary in the leaf axils on slender pedicels; calyx 4-7 mm long; petals white to light yellow, 5-6 mm long.
- **Note:** Flowers often do not open until the afternoon.



Menodora heterophylla Moric. ex DC. (MEHE2) – Oleaceae

(Redbud, Low Menodora)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Herbaceous plant, semi-erect stems 5-25.5 cm tall.
- **Leaves:** Deeply incised opposite leaves are entire to 3.7 lobed. They are crowded on stems and are 2.5cm long.
- **Flowers:** Folded in bright red buds prior to opening. Open flowers (13-19 mm wide) are pale yellow with red streaks on the outside of the petal. Flowers are surrounded by 10-14 calyx lobes, each 6.5-9.5mm long.

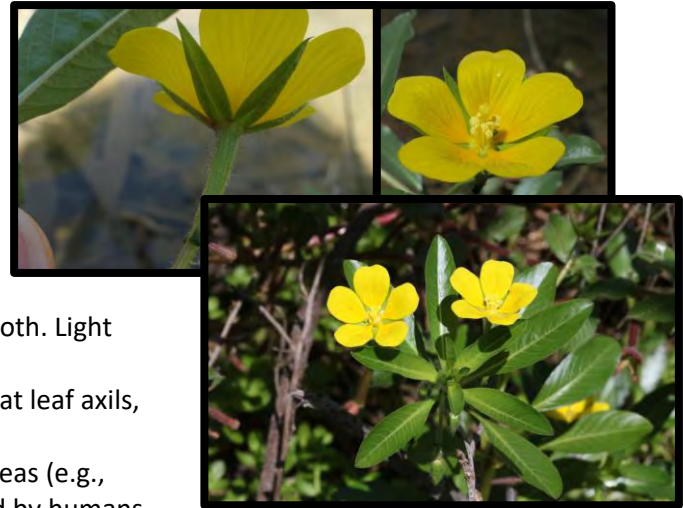


Ludwigia peploides (Kunth) P. H. Raven (LUPE5) - Onagraceae

(Floating primrose willow)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Somewhat ascending branches, can grow over 2 meters long, grows upwards from water.
- **Leaves:** Leaf shape can be variable across individuals. Leaves alternate, pinnate, oblong-elliptic or lanceolate. Petioles are 2-40mm long. Smooth. Light green venation.
- **Flowers:** Yellow has 5 petals, 5 calyx lobes, attached at leaf axils, shape, 1-1.5 cm in size.
- **Notes:** Found in shallow water, mud, or other wet areas (e.g., ponds, lakes, streams). Can be mildly toxic if ingested by humans.

*Oenothera berlandieri* (CABE6) – Onagraceae(Berlandier's Sundrops, *Calylophus berlandieri* Spach)

- **Count as:** Flower
- **Bloom period:** March-July
- **Stems:** Not usually bushy, 30-80 cm tall and sometimes becomes woody near the base.
- **Leaves:** Alternate leaf arrangement. Narrowly linear to lanceolate, spiny-toothed blades that are between 2.5-9 cm. long.
- **Flowers:** Yellow flowers are 5 cm across with four, broad, crinkled petals. Hypanthium (inside of flower) and stigma sometimes black, often yellow. Stigmas shield-shaped and entire or slightly lobed.

*Oenothera laciniata* Hill (OELA) – Onagraceae

(Cutleaf Evening Primrose)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Decumbent to ascending stems up to 0.5 m tall.
- **Leaves:** Alternate; blades oblong-lanceolate to oblong-oblongate and sinuate-dentate or sinuate-pinnatifid; hairy.
- **Flowers:** Four yellow shallowly lobed petals (5-22 mm long) and four, often recurved, green sepals (5-12(-15) mm long); stigma at the same height as anthers with a cross-shaped stigmata; hypanthium (inside of flower, 1.5-3.5 cm long) at least as long as ovary; flowers often solitary.
- **Fruit:** Cylindrical capsules between 2-5 cm long.



Oenothera macrocarpa Nutt. (OEMA) - Onagraceae

(Bigfruit primrose)

- **Count as:** Flower
- **Bloom period:** April-August
- **Stems:** Perennial herb. 15-30 cm reddish stem. Stems branch from slightly woody base.
- **Leaves:** Shape and color vary through range. Shorter, paler, more ovate leaves to long, dark green, lanceolate leaves.
- **Flowers:** Large yellow blooms 7 cm wide. 4 petaled and blooms in the evening.
- **Notes:** Due to flower shape and bloom time-primarily pollinated at night by hawk moths (*Sphingidae*). Distinctive dried fruits typically remain on plant.

*Oenothera rhombipetala* Nutt. ex Torr. & A. Gray (OERH) – Onagraceae

(Fourpoint Evening Primrose)

- **Count as:** Spike
- **Bloom period:** May-September
- **Stems:** Erect to ascending, stems up to 0.3-1(-1.5) m tall.
- **Leaves:** Alternate; blades lanceolate or oblong-lanceolate and sometimes wavy; leaves crowded on stems.
- **Flowers:** Four yellow, diamond-shaped petals (1.5-3 cm long) and four green sepals (1.5-3 cm long); arranged in many-flowered spikes; buds covered in appressed hairs that are not pustulate-based.

*Oenothera spachiana* Torr. & A. Gray (OESP) – Onagraceae

(Spach's Evening Primrose)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Erect to ascending, pubescent stems up to 0.5 m tall.
- **Leaves:** Alternate; blades oblong-lanceolate to oblong-linear with entire margins.
- **Flowers:** Four yellow, wedge-shaped petals (5-15 mm long) and four green sepals (4-10 mm long) with free tips; hypanthium between 3-10 mm long and shorter than ovary; solitary to few-flowered in leaf axils.
- **Compare with:** *Oenothera spachiana* differs from *Oenothera lacianata* by having leaves with entire margins versus sinuate-dentate or sinuate-pinnatifid margins.



Oenothera triloba Nutt. (OETR2) – Onagraceae

(Stemless Evening Primrose)

- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Stemless or nearly stemless.
- **Leaves:** Basal; blades elliptic with entire to deeply pinnatifid margins.
- **Flowers:** Showy pale-yellow corollas with four petals (1-2 cm) and four sepals (1-1.8 cm long); flowers solitary; hypanthium between 2-10 cm long.

*Oxalis dillenii* Jacq. (OXDI2) – Oxalidaceae

(Slender Yellow Woodsorrel)

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Grows in compact mass 15.5 cm high with several erect stems. The stems are usually densely pubescent.
- **Leaves:** Trifoliate and slightly less pubescent and range from 9.5-32 mm wide. They tend to fold in the heat of the day.
- **Flowers:** Axillary peduncles carry the yellow flowers in an umbel like arrangement. Flowers are 6.5-9.5 mm wide.

*Eriogonum longifolium* Nutt. (ERLO5)

- Polygonaceae

(Longleaf Buckwheat)

- **Count as:** Flower
- **Bloom period:** July-November
- **Stems:** Perennial. Tall, erect, leafy stems 10-40 cm. Stems typically glabrous, can be sparsely pubescent.
- **Leaves:** Basal leaves cauline (arising from ground level), 10-20 cm long, oblong to lanceolate. The lower leaf surface slightly pubescent.
- **Flowers:** Blooms yellow, appears white-silver due to dense exterior floral pubescence. Inflorescence a paniculate cyme roughly half the length of the plant and extensively branched. Inflorescence stem glabrous. Involucres top-shaped. Dense white to silver hairs cover the external surface of flower, glabrous and yellow on interior of bloom.
- **Notes:** Blooms earlier in response to fire. Several recognized varieties.



Ranunculus sardous Crantz (RASA) – Ranunculaceae

(Hairy Buttercup)

- **Count as:** Flower
- **Bloom period:** Apr-Jul
- **Stems:** Branched, hairy stems up to 50 cm tall.
- **Leaves:** Hairy, alternate; pinnate; deeply cleft; compound; toothed leaf blade, 1-7 cm long, 1-6 cm wide. Leaves are divided into three leaflets which are borne on petioles.
- **Flowers:** 5 petals up to 7-10 mm long and 5 reflexed sepals; glossy yellow; style present.
- **Fruit:** Achene in spherical cluster, grows in clusters of up to 35.

*Ranunculus sceleratus* L. (RASC3) – Ranunculaceae

(Cursed Crowfoot, Cursed Buttercup)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Erect to ascending, freely branched stems up to 1 m long.
- **Leaves:** Basal, cauline leaves alternate; lower stem and basal leaf blades reniform or oval-cordate and are divided nearly to the base into 3-5 lobes.
- **Flowers:** Five, glossy yellow petals (2-5 mm long) that are shorter or equal in length to the sepals; achenes smooth and nearly beakless (1-1.2 mm long).

*Verbascum blattaria* L. (VEBL) –Scrophulariaceae

(Moth Mullein)

- **Count as:** Spike
- **Bloom period:** June-September
- **Stems:** Erect, 60-150 cm tall, may be branched just below the inflorescence. Glabrous below the flower cluster, glandular upper section.
- **Leaves:** 4-25 cm, grow smaller as they ascend the plant, shallowly lobed or toothed, glabrous. Basal leaves petiolate, oblong to lanceolate; cauline leaves are simple and alternate, sessile to clasping, elliptic to ovate.
- **Flowers:** Glandular, bilaterally symmetric; usually yellow but can also be white. 5 petals with reddish-purple center, irregularly sized; 5 reddish-purple stamens with orange anthers and purple hairs, corolla 25-40 mm wide.
- **Fruits:** Round capsule, 5-8 mm.



Verbascum thapsus L. (VETH) – Scrophulariaceae

(Mullein)

- **Count as:** Spike
- **Bloom period:** May-July
- **Stems:** Erect, hairy stems between 0.7-2.0 m tall.
- **Leaves:** Basal rosette, cauline leaves alternate; blades (≤ 50 cm long) oblanceolate to elliptic, or obovate and covered in velvety soft hairs similar to lamb's ear (*Stachys byzantina*); margins entire to shallowly crenate.
- **Flowers:** Yellow, 5-petalled corollas (12-30(-35) mm across) that are nearly bilaterally symmetrical; flowers subsessile on long bracted spikes.

*Chamaesaracha* spp. (A Gray.) Benth. (CHAMA8) – Solanaceae

(Five-Eyes)

- **Count as:** Flower
- **Bloom period:** March-November
- **Stems:** Sprawling-reclining, branched stems; glabrous or pubescent; green or purplish-grey at base.
- **Leaves:** Alternate; blades rhombic, broadly lanceolate, or ovate with entire, undulate, crenate, or deeply pinnately lobed margins; glabrous or pubescent with glandular or eglandular hairs.
- **Flowers:** Corollas short-campanulate to rotate, 5-angled and yellow to greenish-white; calyces divided greater than $1/3$ of the total length with 5 ovate to subacute lobes that are not greatly enlarged; pedicels glandular or eglandular; inflorescence solitary or sometimes paired in leaf axils.

Note: Look at stem, leaves and/or pedicel hairs to further identify to species (use hand lens).



Physalis spp. L. (PHYSA) - Solanaceae

(Groundcherries)

- **Count as:** Flower
- **Bloom period:** March-September
- **Stems:** Much-branched, spreading at the top; 30-90 cm tall; ridged; in the fork of each stem are a single leaf and flower.
- **Leaves:** Alternate; petiolate; 2.5-10 cm long; ovate, to lanceolate, with toothed, smooth, or wavy edges, depending on the species.
- **Flowers:** 5 fused petals, bell or funnel shaped; yellow-green with purplish centers; solitary at the end of curved stalks in the leaf axils.
- **Fruit:** Round, yellow, red, purple, or blue-black berry surrounded by an inflated, papery husk.
- **Note:** Unripe berries and leaves are poisonous

*Solanum rostratum* Dunal (SORO) – Solanaceae

(Buffalo-Bur)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Erect to ascending, much-branched stems up to 70 cm tall; conspicuously armed with needles; stems covered in stellate (star-shaped) hairs.
- **Leaves:** Alternate; leaves deeply pinnatifid with obtuse lobes and wavy margins; undersides defensively armed with needle-like hairs.
- **Flowers:** Corollas showy, yellow, and 5-lobed; uppermost anthers yellow and up to 8 mm long; lowermost anthers tinged with purple and up to 14 mm long; inflorescences terminal and clustered.
- **Note:** While the needles are painful to touch, they do not inject chemical irritants like noseburn (*Tragia spp.*) or bull nettle (*Cnidoscolus texanus*).



Lantana horrida Kunth (LAUR2) – Verbenaceae(Texas Lantana, *Lantana urticoides*)

- **Count as:** Head
- **Bloom period:** April-October
- **Stems:** Spreading shrub; 60 cm-2 m high.
- **Leaves:** Opposite; broadly ovate; 2.5 cm-8 cm long.
- **Flowers:** Heads 2.5 cm-8 cm across; red, orange, and yellow; tubular with four flared lobes.

*Tribulus terrestris* L. (TRTE) – Zygophyllaceae

(Puncturevine)

- **Count as:** Flower
- **Bloom period:** March-October
- **Stems:** Prostrate annual to 1 m.
- **Leaves:** Opposite, compound, stipulate, with sericeous (silky) hairs. The smaller leaf of each pair bears a flower in its axil. Each leaf has 3-6 leaflet pairs.
- **Flowers:** Solitary, axillary, yellow, with 5 petals and 5 sepals. Flowers perfect, with 10 stamens and 1 pistil. Style 5-ridged; stigma globose. Nectary glands are present in 2 tiers.
- **Fruits:** Schizocarp dividing into 5 sections; each section bears 2 large prickles.
- **Notes:** Weedy.



Asclepias tuberosa L. (ASTU) – Apocynaceae

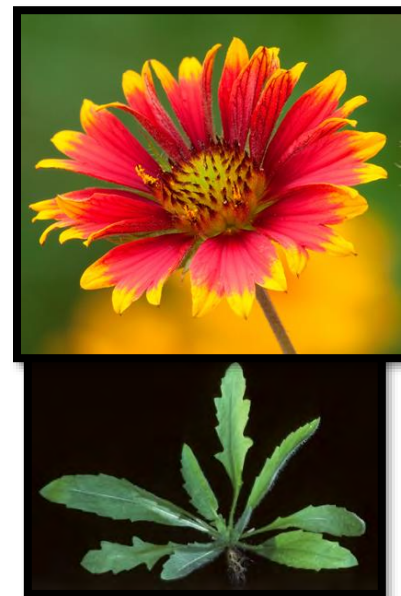
(Butterfly milkweed)

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** Up to 90 cm; branching at the inflorescence.
- **Leaves:** 3-11 cm long and 3 cm wide; short petioles (leaf stalks); extremely variable; usually crowded; lanceolate to very broadly oblanceolate; rounded to acuminate at apices; cuneate (wedge-shaped) to broadly cordate at bases; surfaces conspicuously hirsute (covered in coarse, stiff hairs).
- **Flowers:** One to several terminal or subterminal branches bearing few to numerous umbelliform cymes, each several to many-flowered; usually orange, occasionally yellow.
- **Note:** Lacks milky sap.

*Gaillardia pulchella* Foug. (GAPU) – Asteraceae

(Indian blanket, Firewheel)

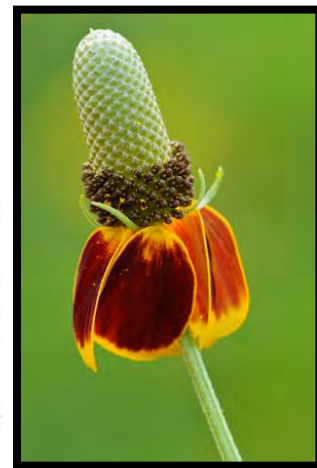
- **Count as:** Compound head
- **Bloom period:** May-August
- **Stems:** The pubescent stem is usually much-branched and becomes woody at the base late in the season.
- **Leaves:** Oblanceolate; 2.5-9 cm long; may be lobed, coarsely toothed, or entire. The apex of the leaf may be pointed or rounded while the base may be sessile or clasping.
- **Flowers:** Heads 2.5-5 cm across with rays red at base, tipped with yellow, each with 3 teeth at broad end. The disk flowers in the center are brownish red.



Ratibida columnifera (Nutt.) Wooton & Standl. (RACO3) – Asteraceae

(Upright Prairie Coneflower)

- **Count as:** Compound head
- **Bloom period:** May-October
- **Stems:** Bushy with numerous spreading branches 0.3-1.2 m tall.
- **Leaves:** 2.5-15.5 cm long, pinnately divided into the midrib into 5-13 linear lobes. Each lobe may be entire or three parted and occasionally some are broad or oblanceolate.
- **Flowers:** Heads have green columnar disks 1.5-4 cm tall with brown disk flowers. There are 3-7 ray flowers which are yellow with brown markings though the proportions of the two colors are variable.
- **Note:** This plant may be confused with *Dracopsis amplexicaulus*, which has different leaves.

*Pedimelum rhombifolium* (Torr & A. Gray) Rydb. (PERH2) - Fabaceae

(Roundleaf scurfpea)

- **Count as:** Raceme
- **Bloom period:** March-June
- **Stems:** Perennial. Prostrate or trailing stems up to 1 m long. Pubescence sparse and appressed (flat).
- **Leaves:** Alternate leaves pinnately trifoliate. Leaflet shape orbicular at base, ovate to lanceolate on upper stem. Stipules small, linear, or lanceolate.
- **Flowers:** Blooms distinctly reddish orange. Inflorescent raceme short and dense, often with 3-8 small flowers.
- **Notes:** Differentiate by typically reddish blooms, prostrate leafy stems, membranous leaves with similar upper and lower faces without white veins. Favors very sandy soils.

*Krameria lanceolata* Torr. (KRLA) – Krameriaceae

(Trailing Rhatany, Trailing Krameria)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Sprawling, prostrate stems 4 cm long.
- **Leaves:** Silky pubescent leaves are 9.5- 19mm long and are lineare sometimes oblong.
- **Flowers:** 5 large red to reddish-purple sepals which surround the 5 true petals. The upper three petals are 1.5-3 mm long and are united at their base. The lower 2 petals have been highly modified and look like red rimmed green glands flanking either side of the flower's center.



Modiola caroliniana (L.) G. Don (MOCA) -
Malvaceae

(Carolina bristlemallow)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** February-June
- **Stems:** Prostrate, pubescent, rooting at the nodes.
- **Leaves:** Leaves can vary from delta-kidney shape and shallow-deeply toothed to 3-7 palmately lobed with lobes themselves being pinnately lobed. Hairy, alternate, and simple. 3-4mm long.
- **Flower:** Diecious, radically symmetrical, five fused petals, 13+ stamens, red/pink color. 7-9mm in diameter.



Sphaeralcea hastulata A. Gray (SPHA) - Malvaceae

(Spear globemallow)

- **Count as:** Flower
- **Bloom period:** June-July
- **Stems:** Perennial herb 30-60 cm tall. Typically, low growing. Stems gray-green, slightly pubescent.
- **Leaves:** Green-gray, ovate-lanceolate, lobed leaves. Not rugose (wrinkled). Cuneate to cordate base. Margins entire to dentate. Face pubescent. Leaf distinctly halberd or spear shaped.
- **Flowers:** Orange, may be pink or purple. Sepals form beak in bud.
- **Fruits:** 1 or 2 per mericarp. Brown or black.
- **Notes:** Can be differentiated from *S. angustifolia* by leaf shape. *S. Hastulata* is distinctly halberd (sagitate) shaped.



Castilleja indivisa Engelm. (CAIN13) – Orobanchaceae

(Texas paintbrush)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** 15-40 cm high. Several unbranched stems form clumps topped by bright-red, paintbrush-like spikes.
- **Flowers:** Inconspicuous and greenish, subtended by showy, red-tipped bracts. Together, the flowers and bracts form 8-20 cm spikes.



Ipomopsis rubra (L.) Wherry (IPRU2) - Polemoniaceae

(Standing cypress)

- **Count as:** Flower
- **Bloom period:** May-July
- **Stems:** Erect, unbranched; 60-120 cm high.
- **Leaves:** Finely divided, feathery, pinnate leaves (to 2.5 cm long) with thread-like segments.
- **Flowers:** Red; arranged in terminal spike, tubular-funnelform corollas.

*Phlox drummondii* Hook. (PHDR) - Polemoniaceae

(Drummonds phlox, Annual phlox)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Perennial. Stems pubescent, 10-50 cm tall. Can be branched, typically simple single stemmed.
- **Leaves:** Opposite leaves on lower stem alternating on upper stem. Upper leaves clasping or sessile (stemless). Leaf surface pubescent. Apex pointed. Leaves can be sticky.
- **Flowers:** Bloom color variable, typically red in local wild populations. Typically, paler at center. Terminal blooms clustered in spiral inflorescence. Sepals united at base. Corolla tube 2 cm long. Styles united half their length.
- **Notes:** Several recognized subspecies. Many cultivated varieties have escaped. Distinguish by long corolla tube (1.5 cm +) and leaves less than 10 times long as wide.



Allium spp. L. (ALLIU) – Amaryllidaceae

(Onions)

- **Count as:** Flower
- **Bloom period:** March-July, after rain.
- **Stems:** 10-50 cm tall, glabrous; smell of garlic or onion.
- **Leaves:** Long, glabrous, linear, flat or cylindrical and hollow.
- **Flowers:** Terminal, on a leafless stem; solitary or in clusters; 6-petaled, white, pink, or red.

*Asclepias incarnata* L. (ASIN) – Apocynaceae

(Swamp Milkweed)

- **Count as:** Head
- **Bloom period:** June-October
- **Stems:** 0.6-1.2 m tall, branching stem bearing numerous narrow, opposite lanceolate leaves line the erect, open-branched stem.
- **Flowers:** Deep pink flowers cluster to make terminal large, bright, blossoms.
- **Fruit:** Elongated, tan-brown seed pods persist into winter.

*Asclepias speciosa* Torr. (ASSP) - Apocynaceae(Showy milkweed, *Asclepias giffordii*)

Pollinative Prairie

- **Count as:** Head
- **Bloom period:** May-September
- **Stems:** Stout, sparingly branched, pubescent perennial. 1½-3 ft tall.
- **Leaves:** Opposite, large, oval, blue-green leaves.
- **Flowers:** Occur at the top of the stem and on stalks from leaf axils. Spherical clusters of rose-colored flowers and umbels of star-like pinkish flowers at the top. Sap is milky.
- **Notes:** Can be distinguished from species *A. syriaca* since *A. speciosa* does not form large clones.



Cirsium spp. Mill. (CIRSI) - Asteraceae

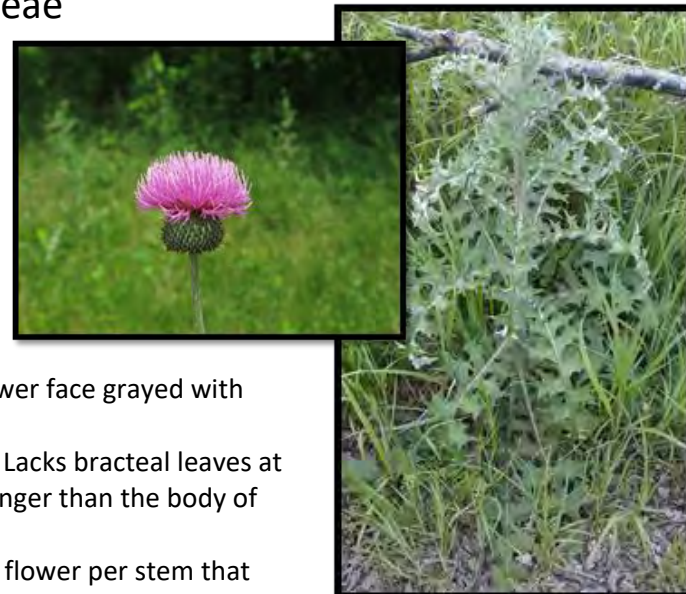
(Plume Thistles)

- **Count as:** Compound head
- **Bloom period:** April-August
- **Stems:** Erect, up to 2 m tall; hairy.
- **Leaves:** Alternate, margins toothed or lobed, and lined with prickles; apices terminate in a prickle; nearly hairless to densely covered in matted hairs.
- **Flowers:** Purple to white linear disk flowers; lacks ray flowers.

*Cirsium texanum* Buckley (CITE2) - Asteraceae

(Texas Thistle)

- **Count as:** Compound head
- **Bloom period:** April-August
- **Stems:** Biennial. Low basal leaves form first year, up to 2 m second year. Typically unbranched or branched towards base. Spines are generally absent except for leaves.
- **Leaves:** Alternate leaves slightly clasping and tapered at base. Triangular or rounded lobes with spined teeth. Upper face dark green and glabrous, lower face grayed with whitish wool.
- **Flowers:** Blooms pink. Flowers only in disk flowerets. Lacks bracteal leaves at the involucre base. Each flower tipped with prickle longer than the body of the phyllary.
- **Notes:** Distinguish by spineless stems with typically 1 flower per stem that lack spiny bracts. Leaves not as pinnately divided and upper leaves reduced. Some populations exhibit characteristics of *C. undulatum*.



Cirsium undulatum (Nutt.) Spreng. (CIUN) - Asteraceae
(Wavyleaf Thistle)

- **Count as:** Compound head
- **Bloom period:** June-July
- **Stems:** Perennial. Can grow just over 1 m tall. Upper part of stem naked.
- **Leaves:** Alternate leaves similarly gray-green from woolly hairs on both upper and lower surfaces. Shape lanceolate or oblanceolate. Yellow spines occur at the end of each lobe. Lobes less than 1/3 of the total breadth. Leaf attachment is not decurrent (extending downward along the stem).
- **Flowers:** Blooms lavender to white. Head typically longer than wide. Phyllaries have long spines extending out of flower head.
- **Notes:** Possible hybridization with other thistles. Differentiate by distinctly wavy leaf shape with shallow lobes no more than 1/3 of the width.



Echinacea angustifolia DC. (ECAN2) – Asteraceae
(Narrow-leaved Purple Coneflower, Black Samson)

Count as: Compound head

Bloom period: May-July

Stems: 2.5-6.5 cm tall

Leaves: Basal leaves are covered in rough stiff hairs, long-petiolate, narrowly oblanceolate, and 7.5-25.5 cm long with 3-5 main veins. The leaves of the upper stem are much smaller.

Flowers: Ray flowers are pale reddish purple surrounding a dark reddish-purple disk making a flower head that is 5-9 cm across.



Echinacea atrorubens Nutt. (ECAT) - Asteraceae
(Topeka purple coneflower)

- **Count as:** Compound head
- **Bloom period:** April-June
- **Stems:** Perennial. Up to 90 cm tall with light green to tan colored stems.
- **Leaves:** Alternate. Leaves attenuate (taper to base), lanceolate-linear to narrowly elliptic. Basal leaves several times longer than wide. Margin entire.
- **Flowers:** Dark purple, rarely pink or white. The ligule of the flower is reflexed down, nearly touching the stem.
- **Notes:** Species listed as S3 Vulnerable in TX. Please obscure location data. It is distinguished by dark purple flower with reflexed ligules.



Echinacea purpurea (L.) Moench (ECPU) - Asteraceae
(Purple coneflower)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** April-September
- **Stems:** 2-5ft stems, thin, light green, top of stem more narrow.
- **Leaves:** Scattered leaves that become small near the top of the stem. Alternate, linear to lanceolate. Typically 3-6 inches.
- **Flowers:** Occur singly atop the stems and have domed purplish-brown, spiny centers. Drooping lavender rays. 7-20 petals, about 5 inches across.



Hymenopappus artemisiifolius DC. (HYAR3) - Asteraceae

(Old plainsman)

- **Count as:** Compound head (previously counted as calyx)
- **Bloom period:** April-June
- **Stems:** Biennial. 40-90 cm tall unbranched stem. Short flat hairs to nearly glabrate.
- **Leaves:** Alternate. Basal leaves simple to 1-pinnate, larger than cauline leaves. Densely haired on lower surface, glabrate above. Stem leaves not significantly reduced along stem.
- **Flowers:** Blooms purple to pinkish-white. Ray florets absent. Tube glandular, throat funnellform. Disk florets 40-60.
- **Notes:** Distinguish by purple disk florets and simple to 1-pinnate basal leaves. Common in sandy soils.



Palafoxia callosa (Nutt.) Torr. & A. Gray (PACA3) – Asteraceae

(Small Palafox)

- **Count as:** Compound head (previously counted as calyx)
- **Bloom period:** June-November
- **Stems:** Erect, scabrous stems between 20 to 60 cm tall.
- **Leaves:** Alternate; linear leaves (1-4 mm wide) with glandular hairs.
- **Flowers:** Ray flowers absent with pink to violet disk flowers; pappus roughly same size in all achenes; phyllaries narrowly linear and less than 1.2 mm wide; dark maroon anthers.



Plectocephalus americanus (Nutt.) D. Don (CEAM2) – Asteraceae(American Basketflower, *Centaurea americana*)

- **Count as:** Compound head
- **Bloom period:** May-June
- **Stems:** 45-150 cm annual with a stout, leafy, much-branched stem.
- **Leaves:** Sessile and entire on stems and are lanceolate 2.5-5.7cm long. At the base of the plant leaves obovate.
- **Flowers:** Lavender-pink, filamentous flower heads with cream-colored centers. The flower heads are 10-13 cm wide and are subtended by fringed bracts.
- **Note:** The plant looks similar to the thistles (*Cirsium* spp.), but lacks their prickly characteristics.

*Vernonia baldwinii* Torr. (VEBA) – Asteraceae

(Western Ironweed)

- **Count as:** Compound head
- **Bloom period:** Compound head
- **Stems:** Erect, striate stems 0.6-1.5 m tall that are much branched at the top near the inflorescence.
- **Leaves:** Finely serrate with minute hairs coating the undersides. The upper surface of the leaves is glabrous. Leaves are ovate-lanceolate and are sessile, reaching 15 cm in length.
- **Flowers:** Purple and numerous 6.5-9.5 mm long in aggregate.

*Silybum marianum* (L.) Gaertn. (SIMA3) – Asteraceae

(Milk Thistle)

- **Count as:** flower
- **Bloom period:** July-September
- **Stems:** 40-200 cm, branched, Glabrous to matted with hairs, grooved hollow stems.
- **Leaves:** 50-60 cm long, 20-30 cm wide, clasping, winged coarsely lobed leaves; white web like venation.
- **Flowers:** 4-12cm wide, disc flower with petals shaped into tubes, red to purple, surrounded by hairless bracts with spined edges, spine-tipped lobes, and apical spines.



Symphoricarpos orbiculatus Moench (SYOR)- Caprifoliaceae

(Coralberry)

- **Count as:** Flower
- **Bloom period:** July-September
- **Stems:** older stems are woody while newer growth appears reddish and flexible. Arching stems that grow 1-5 inches tall.
- **Leaves:** Grow pinnately and opposite of each other, oval-ovate, and smooth along the margins. Bottom of leaves can be hairy. Leaves are between 1-4 to 5cm long.
- **Flowers:** 4-5 petals, white/purple flowers, usually 3-5mm long, bell shaped, and hairy appearing in small clusters at leaf axils and in spikes.
- **Notes:** It is usually 3-4 feet tall but can reach 6 feet. The fruit is 2-4 mm long, pink, purple, or sometimes white.

*Lechea tenuifolia* Michx. (LETE) - Cistaceae

(Narrowleaf pinweed)

- **Count as:** Technically solitary flowers- Flowering stem? May need field determination.
- **Bloom period:** April-July
- **Stems:** Perennial. Erect stems 10-40 cm tall. Sparse silky, flat hairs.
- **Leaves:** Opposite or whorled. Linear to narrowly oblanceolate, roughly 5-10x long as wide. Rounded apex.
- **Flowers:** Reddish pink, staminate centers white, styles absent. Calyx with fine silky hair. Spaced somewhat apart, one flower per axil of stem.



Ipomoea cordatotriloba Dennst. (IPCO8) - Convolvulaceae

(Tievine)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** July-October
- **Stems:** Twining and low climbing vine from branched root, 1-3 m long.
- **Leaves:** Simple, broad leaves, alternate, petiolate, cordate or 3-5 lobed leaves, scattered hairs, 2-12 cm long.
- **Flower:** Purple-rose with dark eye (sometimes white), petals 3 lobed and funnelform.
- **Notes:** Invasive. Usually at disturbed sites. *Ipomoea cordatotriloba* var. *torreyana* is found in prairie and plain areas while *Ipomoea cordatotriloba* var. *tricarpa* is found in deciduous forests. Some intermediates are known where the two habitats meet.

*Acmispon americanus* var. *americanus* (Nutt.) Rydb. (LOUNU) – Fabaceae(Spanish clover, *Lotus unifoliolatus* (Hook.) Benth.)

- **Count as:** Flower
- **Bloom period:** May-June
- **Stems:** Prostrate or erect stems up to 80 cm tall; stems covered in short-pilose hairs.
- **Leaves:** Alternate; generally trifoliate leaves but sometimes only one leaflet on upper stem segments; leaflets lanceolate to ovate and covered in fine soft hairs.
- **Flowers:** Pink, cream, or yellow corollas (5-7(-8) mm long); solitary in leaf axils.



Desmodium paniculatum (L.) DC. (DEPA6) - Fabaceae

(Panicled tickfoil)

- **Count as:** Flower
- **Bloom period:** July-September
- **Stems:** Perennial herb up to 100 cm tall. Light green stems are usually hairless. Upper stems terminate in either racemes or flower panicles.
- **Leaves:** Can be variable in size and shape. Alternate compound trifoliate leaves extended parallel to the ground. Leaflets can be 8 cm long and 2 cm wide.
- **Flowers:** Paniculate inflorescence light pink-purple in typical pea-like structure
- **Fruit:** Sticky seed pods (flat lomants) varying around 2.5 cm long. Each pod has 2-6 segments with 1 seed in each segment. Superiorly sinuate and triangulate on the bottom.
- **Notes:** Disturbance pioneer species, commonly found along woodland edges. Distinguished by its nearly glabrous stem (not haired), leaves often 2-3x as long as wide, and nearly lanceolate terminal leaflet.

*Desmodium sessilifolium* (Torr.) Torr. & A. Gray (DESE) – Fabaceae

(Sessileleaf Ticktrefoil)

- **Count as:** Flower
- **Bloom period:** May-September
- **Stems:** Erect to ascending, much-branched, densely pubescent stems between 0.5-1(-2) m tall.
- **Leaves:** Alternate; trifoliate leaves that are sessile or nearly so; undersides of the oblong leaflets are densely soft-pubescent and have prominent veinlets.
- **Flowers:** Pink, purple, or cream flowers arranged on narrow racemes with short pedicels (≤ 5 mm long).
- **Fruit:** Flat and divided into 2 to 3 one-seeded segments; fruit tends to stick to clothing.
- **Notes:** Corolla color is highly variable in this species. This species was placed in the pink category because the pink variant has been seen in study sites (top left).



Indigofera miniata Ortega (INMI) – Fabaceae

(Scarlet Pea)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Low growth habit, sprawling or trailing; usually with multiple stems; 20-30 cm high; 30-90 cm wide.
- **Leaves:** Alternate, pinnately compound leaves; 4 cm long with 5-9 leaflets, each 0.75-2.5 cm long.
- **Flowers:** 8-25 pink-red flowers on axillary racemes.

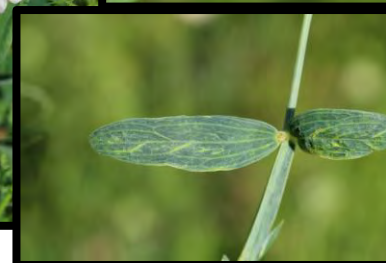
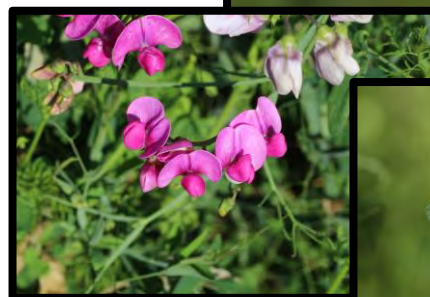
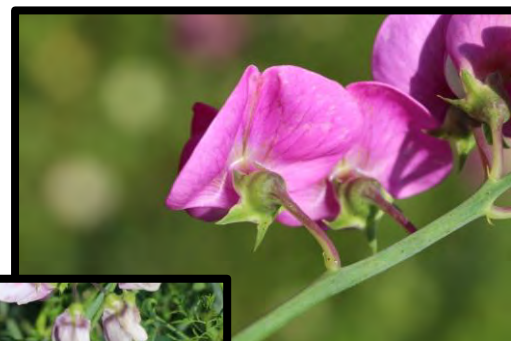


Lathyrus latifolius L. (LALA4) - Fabaceae

(Perennial sweet-pea, Everlasting pea)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Glabrous, climbing with tendrils, winged stems.
- **Leaves:** Lanceolate to ovate, ternately compound leaves. 3 branched tendrils.
- **Flowers:** Fruits 7-10mm wide. calyces 10-11mm long, usually pink to purple in color, grows in clusters.
- **Notes:** Low severity of poison characteristics.



Lespedeza stuevei Nutt. (LEST5) - Fabaceae

(Tall Bush-Clover)

- **Count as:** Raceme
- **Bloom period:** Late May-October
- **Stems:** Spreading to erect; to 1(-1.5) m; few stems growing from a woody base; densely hairy.
- **Leaves:** Margins entire; dark, pointed stipules 0.5 cm long at the base of the trifoliate leaves; elliptic leaflets 1.25-2.5 cm long, underside densely hairy.
- **Flowers:** Numerous in sessile axillary clusters; pink to purple; 6-8 mm; in dense racemes in the upper axils, intermingled with the foliage.



Lespedeza texana Britton (LETE2) – Fabaceae

(Texas Bush-Clover, Texas lespedeza)

- **Count as:** Raceme
- **Bloom period:** May-September
- **Stems:** Briefly erect (≤ 15 cm tall) then trailing stems up to 1.5 m long; covered in appressed hairs.
- **Leaves:** Alternate; trifoliate leaves on petioles up to 20 cm long; leathery, oblong-elliptic leaflets (≤ 3.5 cm long) with gray-green pubescence underneath; narrowly linear stipules.
- **Flowers:** Purple to pink corollas; arranged on few-flowered, axillary racemes.

*Lespedeza virginica* (L.) Britton (LEVI7) - Fabaceae

(Slender lespedeza)

- **Count as:** Raceme
- **Bloom period:** July-September
- **Stems:** Perennial. Stems erect, 30-100 cm tall. Covered in fine, appressed pilose hairs.
- **Leaves:** Alternate. Tri-pinnately compound leaves on slender petioles. Lower face covered in short appressed pilose hairs. Leaflets linear to linear-oblong.
- **Flowers:** Pink. Can range from white to purple. Flowers 4-14 on racemose dense clusters. Either cleistogamous or chasmogamous blooms.
- **Notes:** Genus known to hybridize. Distinguish by linear leaflets, appressed hairs, and non-spikelike inflorescence.



Mimosa spp. L. (MIMOS) – Fabaceae

(Sensitive Plants)

Genus Profile:

- **Count as:** Head
- **Bloom period:** April-September
- **Stems:** Woody, stiff, cylindrical, aromatic (black currant/sweet cherry)
- **Leaves:** Bipinnately compound leaves
- **Flowers:** Blooms white, pink, or purple. Flowers measure about 1.5 inches long.
- **Notes:** MIAC3, MIACB, MIBO2, MIDY, MIEM, MIHY2, MIMA, MIPE2, MIQU2, MIQUN, MIQUQ, MIRO6, MITE6, and MITU (14 species) occur in Texas

*Mimosa nuttallii* (MINU6):

(Catclaw Briar, Nuttall's sensitive briar)

- **Stems:** Sprawling prostrate stems 2.5-15.5 cm long which are armed with recurved spines.
- **Leaves:** 2-5 pairs of pinnae, each pinna with 6-13 pairs of leaflets. When touched, the leaves fold up.
- **Flowers:** Clusters are round or slightly elongated pink globes on peduncles 2-6.5 cm long.

*Mimosa quadrivalvis* L. (MIQU2):

(Fourvalve Mimosa)

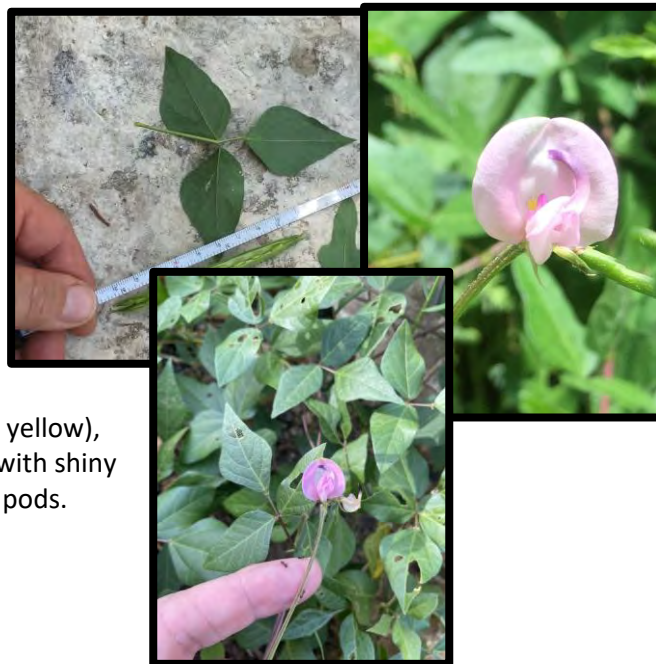
- **Stems:** Perennial. Trailing or slightly ascending stems up to 1 m. Stem slightly ribbed at base, strongly above midpoint. Yellow-brown spines curve downward and are sparser at base, dense above midpoint.
- **Leaves:** Simple, alternate. Bi-pinnate leaves on 2-5 cm petiole with short prickles and without glands. Blades 6-12 cm long with 8-16 pairs of oblong leaflets. Sparse ascending hairs on leaflet margin.
- **Flowers:** Pink. Spherical clusters of sessile flowers in heads, typically more than 75 per. Peduncles 1.5-4 cm at flowering, 3-10 cm at fruiting. 8-12 stamens per flower. 4 accepted varieties of *Mimosa quadrivalvis*.

Strophostyles helvola (L.) Elliot (STHE9) - Fabaceae

(Trailing fuzzybean, Amberique-bean)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** July-September
- **Stems:** Annual to perennial herbaceous vine, slender stems, up to 3 m long with light pubescence on the stem.
- **Leaves:** Light pubescence on leaves, compound, trifoliate, 3 lobes, panduriform (fiddle-shaped) rounded at the base and coming to a pointed tip. Sparsely hairy. Leaflets 1-2 inches long.
- **Flowers:** Pea-like pink-purple flowers (fading to cream or yellow), gradually curving keel petal. The fruit is up to 10cm long with shiny black seeds and hairy coats from the inner surface of the pods.

*Strophostyles leiosperma* (Torr. & A. Gray) Piper (STLE6) – Fabaceae

(Slickseed Fuzzybean)

- **Count as:** Flower
- **Bloom period:** June-September
- **Stems:** Twining or vining, pilose stems up to 76.5 cm long.
- **Leaves:** Alternate; trifoliate leaves with leaflets that are linear to ovate (2.5-5 cm long) and pubescent; rarely lobed; tendrils absent.
- **Flowers:** Pink to purplish flowers (5-8 mm long) with a strongly incurved keel.
- **Fruit:** Hairy pods ((15-)30-45 mm long) containing shiny, glabrous seeds.
- **Notes:** Distinguish from other *Strophostyles* by the abundance of fine silky hairs on the leaves and seed pods and a reduced sized keel on flower.



Vicia sativa L. (VISA) – Fabaceae

(Common Vetch, American Vetch)

- **Count as:** Flower
- **Bloom Period:** March-May
- **Stems:** Trailing to climbing stems between 30-100 cm long.
- **Leaves:** Alternate; once pinnately compound ((6-)8-14 leaflets); leaflets subacute to truncate or narrowly oblong, sometimes notched at the tip; possesses tendrils.
- **Flowers:** Pink to purple corollas (10-25(-30)) mm long; sessile or subsessile in leaf axils; paired or solitary.

*Centaurium* spp. Hill (CENTA2) - Gentianaceae

(Centauries)

- **Count as:** Flower
- **Bloom period:** June-August
- **Stems:** 10-50cm, smooth, glabrous (hairless), 4 sided stems.
- **Leaves:** Opposite, simple, entire, lanceolate, triangular, basal rosette leaf pattern, smooth.
- **Flowers:** Pink or yellow, radially symmetrical, petals fused at the base, about 0.25 inch across in size, 5-6 petals, many flowers per inflorescence.
- **Notes:** Includes *C. pulchellum*, *C. tenuiflorum*, and *C. (Zeltnera) texense*.

*Sabatia campestris* Nutt. (SACA3) – Gentianaceae

(Meadow Pink, Texas Star)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** Upright; up to 50 cm high; 4-sided and 4-ridged (short-winged); smooth; slender; solitary stem branched in upper portion.
- **Leaves:** Opposite; margins entire; up to 4.5 cm long and 2 cm wide; stalkless; clasping the stem.
- **Flowers:** Pink with white-yellow/green patch near the base, bordered in white; 5 petals; Up to 5 cm across; bright yellow anthers; flowers occur at ends of branches and on long axillary stalks.



Erodium cicutarium (L.) L'Hér. ex Aiton (ERCI6) –
Geraniaceae

(Redstem Stork's-Bill)

- **Count as:** Flower
- **Bloom period:** February-May
- **Stems:** Decumbent to ascending, hairy stems up to (10-15(-40)) cm tall; sometimes tinged with red.
- **Leaves:** Basal rosette, cauline leaves alternate; pinnately compound leaves with pinnately cleft leaflets.
- **Flowers:** Five-petalled, reddish-pink flowers; petals 6-8 mm long; inflorescences arranged in umbels each containing 2-8 flowers.



Geranium carolinianum L. (GECA5) – Geraniaceae

(Carolina Crane's-Bill, Carolina Geranium)

- **Count as:** Flower
- **Bloom period:** March-July
- **Stems:** Sprawling, low growing, up to 50 cm long.
- **Leaves:** Deeply, palmately dissected into 3-9 primary lobes, each lobe being cleft or lobed again; long petioles.
- **Flowers:** White to pale pink with 5 notched petals; arranged in loose, terminal clusters; 8 mm across.



Geranium dissectum L. (GED1) – Geraniaceae

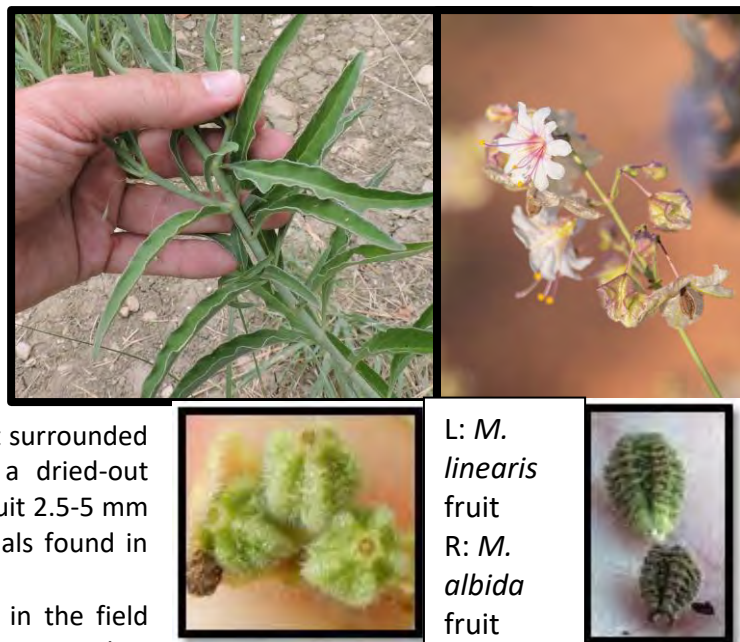
(Cut-leaved Crane's-Bill)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Ascending, to 60 cm long; rough hairs.
- **Leaves:** Deeply, palmately dissected into 5-7 linear to oblong segments, upper half of segments lobed; long petioles; blades 2-6 cm wide.
- **Flowers:** Pink to purple; 5 petals with a rounded or notched tip; usually in clusters of two.



Mirabilis albida (Walter) Heimerl/ *Mirabilis linearis* (Pursch) Heimerl
(MIAL4/MILI3) - Nyctaginaceae
(White/Narrowleaf Four o'Clock)

- **Count as:** Flower
- **Bloom period:** May-June and August-October
- **Stems:** Erect, glabrous stems 0.2-2m tall
- **Leaves:** Opposite, blades glaucous. Elliptic to linear-lanceolate. *M. albida* usually 3-12X long as wide, *M. linearis* usually 15-30X long as wide.
- **Flowers:** Pink to vibrant magenta, funnelform-campanulate, lobed perianth 10-15mm long. Inflorescence pubescent. *M. albida* perianth is slightly larger (0.5mm) than *M. linearis*.
- **Fruit:** Pubescent fruit with 5 prominent ribs; fruit surrounded by an umbrella-like structure that resembles a dried-out flower. *M. albida*: ribs tuberculate. *M. linearis*: fruit 2.5-5 mm long with ribs roughened (only true for individuals found in North Central Texas).
- **Notes:** These species are difficult to determine in the field without fruits as climatic and edaphic conditions may alter morphologies.



Mirabilis nyctaginea (Michx.) MacMill. (MINY) - Nyctaginaceae
(Heartleaf four o'clock, Wild four o'clock)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** April-November
- **Stems:** Several, erect to ascending, 0.3-1.2 m tall, smooth. Often striped white and near the nodes stripes can be red.
- **Leaves:** Ovate-lanceolate to cordate, heart shaped. Smooth wavy edges. Leaves are oppositely attached. 20-65 mm wide.
- **Flowers:** flattish clusters of 3 or more stalked flowers. Around 2 ½ cm in diameter. Petals fuse into a short tube. Pink with 3-5 petals. Fruits 4-6mm long. Small tubercles (warts). Pubescent. Bracts become rose colored with age and can be mistaken for flowers. Saucer shaped bract sits right behind the flower.
- **Notes:** Usually found in prairies. Opens in shaded areas during the afternoon hence the common name Four O' Clock.



Oenothera curtiflora W. L. Wagner & Hoch (OECU2) - Onagraceae(Velvetweed, *Gaura parviflora*)

- **Count as:** Spike
- **Bloom period:** April-September
- **Stems:** Annual herb. Erect stems can grow to 1-2 m tall. Stem densely glandular-pubescent.
- **Leaves:** Alternating elliptic or ovate leaves. 2-12 cm long, 5-40 mm wide. Margin can be slightly dentate.
- **Flowers:** Pink to white blooms. Distinctly small flowers, petals 1.5-3 mm long, sepals 2-3.5 mm long. Blooms at the apices of the plant and can be quite long, often drooping at the tip (hence a common name- lizardtail).
- **Notes:** Thrives in disturbances, considered weedy. Distinguished by its densely haired stem and small flower size. Include images of flower attachment to stem (hypanthium) for species confirmation.

*Oenothera sinuosa* W. L. Wagner & Hoch (OESI3)

- Onagraceae

(Wavy-leaved Gaura, Wavyleaf Beeblossom, *Gaura sinuata*)

- **Count as:** Flower
- **Bloom period:** May-September
- **Stems:** Rhizomatic perennial herb. Base approximately 20 cm tall with spike up to 60 cm. Covered in short, fine hairs flat against stem.
- **Leaves:** Linear to oblanceolate leaves up to 11 cm long. Margins sinuate-dentate (lobed and toothed)
- **Flowers:** Pink to white blooms 7-14 cm long petals and sepals. Inflorescence shorter and densely flowered. 8 prominent stamen and 1 pistil.
- **Notes:** Visually similar to *O. parviflora*, distinguished by shorter height, rhizomatic clumps, larger blooms, and stout inflorescence.



Oenothera speciosa Nutt. (OESP2) – Onagraceae
(Pinkladies, Pink Evening Primrose)

- **Count as:** Flower
- **Bloom period:** February-July
- **Stems:** Sprawling plant, 15.5-61 cm tall sometimes with a few erect stems but more often with long reclining stems rising at the tips.
- **Leaves:** Lanceolate to oblanceolate in overall outline the 4-7.5 cm leaves have subentire to sinuate-pinnatifid leaf margins.
- **Flowers:** Color varies from white to rose pink. The flowers are 5-9 cm wide with a floral tube 1.5-2 cm long.



Oenothera suffrutescens (Ser.) W. L. Wagner & Hoch (OESU3) –
Onagraceae

(Scarlet Beeblossom, Gaura coccinea)

- **Count as:** Flower
- **Bloom period:** May-August
- **Stems:** 30.5-61 cm with several stems, branched near base. May or may not be covered with gray hairs.
- **Leaves:** Narrowly oblong leaves; may or may not be covered with gray hairs.
- **Flowers:** Appear on racemes between 2.5-30.5 cm long, blooming from the bottom to top. Only one ring of the flowers is in bloom at a time. The fragrant flowers are white at first, fading to pink and finally scarlet, all in the same day. The flower remains open less than a day.
- **Note:** Branching woody base.



Oenothera suffulta (Engelm.) W. L. Wagner & Hoch (OESU4) – Onagraceae

(Roadside Gaura, Kisses)

- **Count as:** Flower
- **Bloom period:** February-June
- **Stems:** Erect or decumbent, pubescent stems between 0.25-1.2 m tall.
- **Leaves:** Alternate; blades lanceolate, elliptic, oblanceolate, or narrowly oblong with entire to shallowly toothed margins.
- **Flowers:** Light pink to white, clawed (petal has a petiole-like base), 4-merous inflorescences; petals between 10-15 mm long; inflorescences mostly glabrous, especially on the backs of sepals and buds; arranged on terminal, many-flowered spikes.
- **Fruit:** Ellipsoidal, sessile, winged, angular fruits between 4.5-8 mm long.
- **Note:** *Oenothera suffulta* does not have a branching woody base or fruit with a thick cylindrical stipe like *Oenothera suffrutescens*.



Agalinis heterophylla (Nutt.) Small (AGHE4) – Orobanchaceae

(Prairie False Foxglove, Prairie Agalinis)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Erect plant 30-100 cm tall; smooth stem, many ascending branches at almost 90-degree angles.
- **Leaves:** Narrowly elliptic to oblanceolate simple leaves, pressed closely to stem, leaves at base 3-lobed.
- **Flowers:** Inflorescence: panicle of spike-like racemes; 5 lobed, funnel-shaped corolla 25mm long, pink to white flowers on a very short pedicel.



Agalinis homalanthae Pennell (AGHO4) - Orobanchaceae

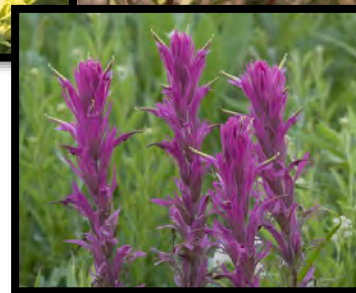
(San Antonio false foxglove)

- **Count as:** Flower
- **Bloom period:** June-October
- **Stems:** Annual. 40-70 cm tall.
- **Leaves:** Opposite, linear, few. Family hemiparasitic. Leaves near flowers are not longer than pedicels and 1 mm wide.
- **Flowers:** Pink. Bloom has 4 stamens in pairs, filaments pubescent. Peduncles 10-20 mm. Upper corolla lobes less than half the length of the flower.
- **Notes:** Prefers sandy soils. Distinguish by long peduncles (greater than 5mm) and corolla lobes less than half the length of the lower.

*Castilleja purpurea* (Nutt.) G. Don (CAPU11) – Orobanchaceae

(Purple Paintbrush, Prairie Paintbrush)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** Erect to ascending, pubescent stems between 15.24-45.72 cm tall; woody roots.
- **Leaves:** Alternate; blades linear to lanceolate and narrowly lobed.
- **Flowers:** Floral bracts and calyces typically purple, can be yellow, greenish yellow, yellow-orange, brown-orange, orange, red, red-purple; flowers concealed inside bracts with conspicuous lateral lobes; corollas between 25-40 mm long.
- **Note:** *Castilleja purpurea* is also known to hybridize with *Castilleja indivisa*.



Rivina humilis L. (RIHU2) – Petiveriaceae

(Pigeonberry)

- **Count as:** Raceme
- **Bloom period:** Year round
- **Stems:** Up to 85 cm tall, become slightly woody with age, younger stems are greenish and glabrous.
- **Leaves:** Ovate to elliptic-ovate, alternate, 3-13 cm long and 1-5 cm wide, mostly glabrous with pointed tips.
- **Flowers:** Four whitish, greenish, or rose-colored sepals 2-2.5 mm long, arranged in elongated clusters.
- **Fruit:** Green to bright glossy red berry, 2.5-5 mm in diameter.

*Penstemon cobraea* Nutt. (PECO4) – Plantaginaceae

(Cobaea Beardtongue, Prairie Penstemon)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Erect; 30-60 cm; one to several; hairy; clump forming.
- **Leaves:** Petiolate to long petiolate; sessile from the midstem up; 5-9 cm long with a waxy-shiny luster; coarse teeth at the margins; thick, paired leaves become smaller up the stem; lower leaves have often withered by the time of flowering.
- **Flowers:** The corolla tube is very narrow but once past the calyx the tube inflates broadly. The flowers are 4-5 cm long and may be white to pale lavender, or pale violet. Inside the inflated tube are several purple lines which extend, more or less, out onto 5 corolla lobes.



Penstemon laxiflorus Pennell (PELA10) - Plantaginaceae

(Nodding penstemon)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Perennial. Erect stem 1-3 m tall. Glabrous to slightly pubescent.
- **Leaves:** Opposite leaves. Margins dentate (toothed). Shaped narrowly lanceolate. Central vein typically darker.
- **Flowers:** Blooms white to pink. Glandular and pubescent corolla. 2-3 cm long and narrow. Staminode densely bearded (hairy flower floor), yellow, and protruding. Flower opening not very expanded. Corymbiform anther sacs.
- **Notes:** Distinguish from other *Penstemon* by its flower with a pleated floor and densely yellow haired staminode.



Phlox pilosa L. (PHPI) – Polemoniaceae

(Prairie Phlox, Downy Phlox)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** 15.5-46 cm semi-woody plant growing in clumps with several erect un-branched stems.
- **Leaves:** Linear to narrowly lanceolate the leaves are up to 6.5 cm long by 6.5 mm wide.
- **Flowers:** Inflorescence is a panicle composed of small cymes. Individual flowers are about 2.5 cm wide and may be rose, pink, lavender, or white. The sepals average 9.5 mm long, united for half their length or less.



Phlox roemeriana Scheele (PHRO3) – Polemoniaceae

(Goldeneye Phlox)

- **Count as:** Flower
- **Bloom period:** Feb-May
- **Stems:** 15.5-46 cm semi-woody plant growing in clumps with several erect un-branched stems.
- **Leaves:** Glabrous, sometimes pubescent, and opposite except a few directly below the inflorescence. Linear to narrowly lanceolate the leaves are up to 6.5 cm long by 6.5 mm wide.
- **Flowers:** Inflorescence is a panicle composed of small cymes. Individual flowers 2.5 cm wide, may be rose, pink, lavender, or white. The sepals average 9.5 mm long united for half their length or less.



Polygala incarnata L. (POIN4) – Polygalaceae

(Pink Milkwort, Procession Flower)

- **Count as:** Flower
- **Bloom period:** May-July
- **Stems:** Single erect, branched, or unbranched, glabrous, glaucous stem up to 50 cm tall.
- **Leaves:** Alternate; blades linear and few in number.
- **Flowers:** Magenta corollas with three divided petals; petals and staminal tube united into a single 5 mm long tube; arranged on spike-like racemes.



Primula meadia L. (DOME) - Primulaceae

(Eastern shooting star, Dodecatheon meadia)

- **Count as:** Umbel
- **Bloom period:** May-June
- **Stems:** Perennial. Acaulescent plant (stemless, basal rosette) rising about 50 cm tall. Glabrous.
- **Leaves:** Narrowly elliptic or oblanceolate leaves up to 20 cm long. Apex rounded or blunt, tapered base. Margins entire.
- **Flowers:** Blooms white-pink to dark purple. Number of flowers in umbel varies. Recurved at anthesis. Corolla in 5 oblong-elliptic lobes reflexed (bent backward). Linear converging anthers nearly fuse to form cone.



Verbena brasiliensis Vell. (VRBE2) -

Verbenaceae

(Brazilian verbena)

- **Count as:** Head
- **Bloom period:** March-October
- **Stems:** Annual herb 1-2.5 m. 4 angled sides, Glabrous on lower half, somewhere scabrous or hairy above. Lower branching opposite, irregular above.
- **Leaves:** Highly membranous, pubescent on the underside with a connate base
- **Flowers:** Purple or lilac blooms. Spikes are compact, 5 lobed hairy calyx, flower tube lightly longer than calyx.
- **Fruit:** Triangular nutlets 2 mm long. 4 nutlets per fruit.



Dyschoriste linearis (Torr. & A. Gray) Kuntze (DYLI) – Acanthaceae

(Snakeherb)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** 10-46 cm tall tending to be on the shorter side of the range.
- **Leaves:** Oblanceolate to oblong spatulate opposite leaves are 2.5-6.5 cm long with entire margins and a few sparse hairs on the midrib and veins.
- **Flowers:** Born on axils of the leaves, the light purple flowers are about 2.5 cm long. Unopened flowers are usually exceeded by the linear calyx lobes which are up to 2 cm long.

*Ruellia* spp. L. (RUELL) - Acanthaceae

(Ruellias)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Perennial herb or shrub, typically shorter than .5 meters. Stems branch from base either erect or slightly prostrate.
- **Leaves:** Petioled leaves, entire or undulate margins. 2-15 cm long.
- **Flowers:** Terminal panicle of large flowers typically 5 cm wide. Calyx 5-parted with narrow segments. Blooms typically purple, but can vary. Tubular corolla, narrow below and widens to trumpet shape with 5 obtuse lobes. 4 stamens, anther sac blunt.
- **Notes:** Known to hybridize, leave at genus. Dominant local species is *R. humilis*, distinguished by typically smooth leaf margins, taller growth habit, larger flowers (3-5 cm wide). Other species *R. nudiflora*, Distinguish from *R. humilis* by shorter growth, not conspicuously hairy.



Eryngium leavenworthii Torr. & A. Gray (ERLE11) - Apiaceae

(Leavenworth's Eryngo)

- **Count as:** Head
- **Bloom period:** July-October
- **Stems:** 50-100 cm tall; upper portion broadly branched.
- **Leaves:** Deeply lobed, each segment edged and tipped with stiff spines; a tuft of small, rigid, spiny leaves grows out of the top of the flower head.
- **Flowers:** Flowers are minute, purple, and mingled with small, spiny bracts in an elongated, terminal, head-like cluster, subtended by large, sharp-tipped bracts; blue-purple stamens extend from the flower.

*Amsonia ciliata* Walter (AMCI) – Apocynaceae

(Fringed Bluestar)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** 15-70 cm tall
- **Leaves:** Alternate; lanceolate to linear or filiform (rarely elliptic); margins entire; usually less than 5(-8) cm long; 0.5-17 mm wide.
- **Flowers:** Blue to lavender, rarely white; glabrous outside; 6-10 mm long.

*Amsonia tabernaemontana* Walter (AMTA2) – Apocynaceae

(Eastern Bluestar)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Erect up to 120 cm tall; form multi-stemmed clumps.
- **Leaves:** Alternate; lanceolate to elliptic leaves generally 5-12 cm long and 8-30 mm wide.
- **Flowers:** Five-petaled, pastel blue flowers that are pubescent on the outer portions of the corolla.
- **Compare with:** Can be distinguished from *Amsonia ciliata* by looking at whether the flowers and buds exhibit pubescence.



Matelea biflora (Raf.) Woodson (MABI6) – Apocynaceae

(Star Milkvine, Purple Milkweed Vine)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Trailing prostrate vine between 10-40 cm long.
- **Leaves:** Opposite; blades broadly triangular-ovate with cordate bases.
- **Flowers:** Five-petaled maroon flowers that are usually paired; pedicels directly attached to leaf axils.
- **Notes:** Possesses toxic milky sap.

*Camassia scilloides* (Raf.) Cory (CASC5)

- Asperagaceae

(Atlantic camas, Wild hyacinth)

- **Count as:** Raceme
- **Bloom period:** March-June
- **Stems:** Perennial arising from bulb. Up to 50 cm tall.
- **Leaves:** Grasslike clasping leaves crowded at base, 20-60 cm long.
- **Flowers:** Blooms light blue to lavender with yellow anthers. Scape (inflorescence) exceeds leaf length. Raceme cylindrical.
- **Notes:** Ephemeral, only present in spring. Bulb is edible.

*Muscari* spp. Mill. (MUSCA) -

Asparagaceae

(Grape hyacinth)

Pollinative Prairie

- **Count as:** Raceme
- **Bloom period:** March-June
- **Stems:** Light green, flowering stalk, up to 20cm tall. Sometimes seen in a reddish-purple hue.
- **Leaves:** Light green, grass-like foliage, 10-20cm in height.
- **Flowers:** Inflorescence bractless or flowers individually bracted; flower solitary, urceolate (shaped like an urn), 3-6mm long, dark blue/purple with whitish petals or rarely all white. Ovaries above flower stalk.
- **Notes:** 30 different species with similar characteristics.



Carduus nutans L. (CANU4) - Asteraceae

(Musk Thistle)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** May-August
- **Stems:** Leaf bases going down the stem form a ribbed stem. Up to 6 meters.
- **Leaves:** Up to 15 inches long. Leaves are deeply lobed. Lower leaves are more lobed than upper leaves. Edge of leaves have spines. Leaves are hairless except for the underside veins.
- **Flowers:** Flower heads 2-3 inches in diameter with purple to pink flowers. The flower tends to lean down. Bracts are showy and triangular.
- **Notes:** Invasive plant.

*Cichorium intybus* L. (CIIN) - Asteraceae

(Chicory)

- **Count as:** Compound head
- **Bloom period:** March-November
- **Stems:** Erect; 45-120 cm tall; lower stem hairy; upper stem, nearly hairless.
- **Leaves:** Basal leaves alternate, lanceolate to oblanceolate or elliptic, 7.5-20 cm long; margins variable, toothed, cut or lobed; rough, hairy surface; cauline (emerging from the stem) leaf margins entire; sessile (without petiole) or clasping.
- **Flowers:** Inflorescences spike-like or in open, branching panicles; stalkless; flowers light blue, 2.5-4 cm across; usually close by midday unless cloudy; 10-20 ray florets with 5 teeth at the tips.

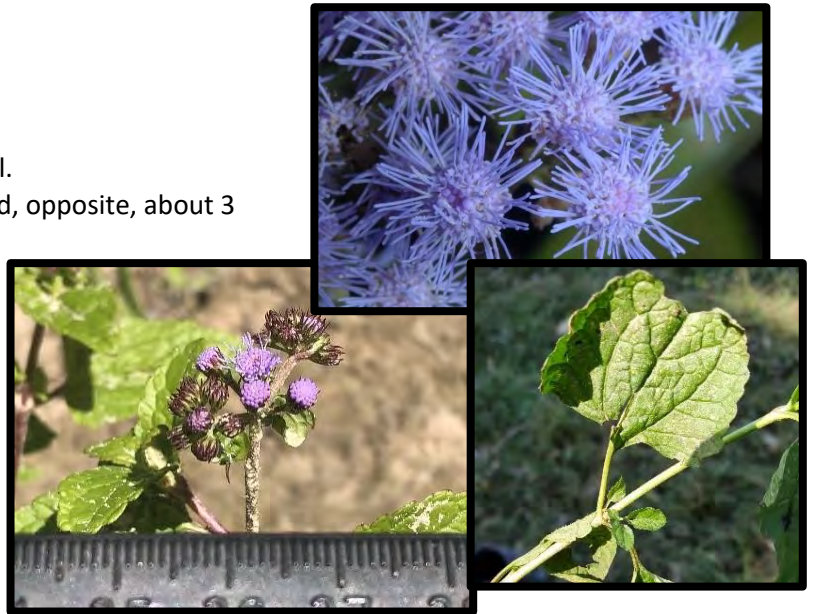


Conoclinium coelestinum (L) DC (COCO13) - Asteraceae

(Purple mistflower, Blue mistflower)

Pollinative Prairie

- **Count as:** Compound umbel
- **Bloom period:** July-November
- **Stems:** Light green perennial, 1-3 feet tall.
- **Leaves:** Green, triangular, bluntly toothed, opposite, about 3 inches long.
- **Flower:** Purple, lack rays, 1-2 inches across, flowering organ grows dense flowering units and flat terminal clusters.

*Conoclinium dissectum* A. Gray (CODI21) - Asteraceae

(Palmleaf mistflower, Palmleaf thoroughwort)

Pollinative Prairie

- **Count as:** Compound head
- **Bloom period:** March-November
- **Stems:** Perennials, light green to brown, sprawling, minutely hairy, 2ft stems.
- **Leaves:** Lobed, taper leaf base, minutely hairy, opposite, egg-shaped to triangular, 1-3 inches in length.
- **Flower:** Several flower heads, lavender or purple disc florets, no ray florets, 1-3 inches wide.
- **Notes:** Usually found in stream beds and overflow areas/dry soil.



Liatris punctata Hook. (LIPU) – Asteraceae

(Dotted Gayfeather, Dotted Blazing Star)

- **Count as:** Spike
- **Bloom period:** August-October
- **Stems:** One to several ascending to erect, glabrous stems between 0.3-0.8 m tall.
- **Leaves:** Alternate; blades narrowly linear (50-140 mm long and 1-7 mm wide) with entire margins; whorled around the stem.
- **Flowers:** Purple, sometimes white, corollas (9-10 mm long) arranged in spike-like inflorescences between 8-60 cm long; floral heads each contain 3-8 flowers; phyllaries often tinged with purple and are oblong-obovate with pointed tips; pappus bristles conspicuously feathery (hand lens optional).
- **Note:** Look at the corm to further identify to variety. *Liatris punctata* var. *mucronata* (LIPUM2) has a globose to depressed-globose corm while *Liatris punctata* var. *punctata* (LIPUP) has an elongate almost rhizome-like corm. White variants of *Liatris punctata* have been found in study sites.

*Lygodesmia texana* (Torr. & A. Gray) Greene (LYTE) – Asteraceae

(Skeleton-plant)

- **Count as:** Compound head
- **Bloom period:** April-August
- **Stems:** 25.5-61 cm tall erect plant with a few branches.
- **Leaves:** Few entire pinnately lobed leaves 10-15.5 cm long at the base of the plant that dry and fall off before flowering starts. Going up from the base there are a few short linear leaves 6.5-19mm long.
- **Flowers:** Pink to lavender flower heads are 2.5-5 cm in diameter and each one is composed of 11 ray flowers. Each ray flower looks like one petal on the flower head. Dark purple to black anther tubes rise from the middle of the head and a light purple velvety-looking two parted style emerges from the center of each anther tube.



Symphyotrichum patens (Aiton) G. L. Nesom var. *patens* (SYPAP2) –Asteraceae

(Late Purple Aster, Spreading Aster)

- **Count as:** Compound head
- **Bloom period:** July-August
- **Stems:** Grows 0.3-0.6 m tall
- **Leaves:** Basal leaves are obovate with winged, sub petiolar clasping base. The upper leaves are sharply truncated at their base and are ovate to short lanceolate.
- **Flowers:** Blue-purple and are 2-2.5 cm wide and are not crowded.



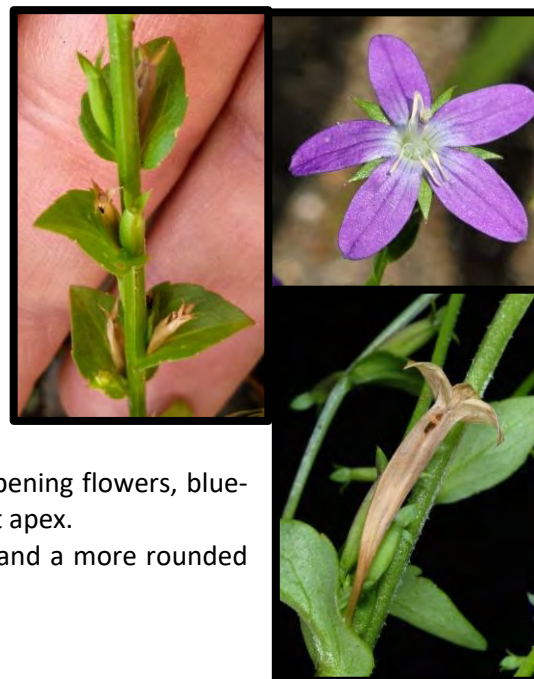
Triodanis perfoliata ssp. *biflora* (Ruiz & Pav.)

Lammers (TRBI2) -Campanulaceae

(Small Venus' Looking-Glass, *Triodanis biflora*)

Pollinative Prairie

- **Count as:** Flower
- **Bloom period:** May-June
- **Stems:** Typically, a singular stem, can be multiple branches. 12-30 inches tall.
- **Leaves:** Top leaves are somewhat larger than lower leaves, non-clasping, a pair of opposite leaves at the top. Typically, 5-15mm. Elliptic to ovate.
- **Flower:** Typically, singular flower. Five triangular petals, non-opening flowers, blue-purple or pink, lower flowers do not open. Pore oval to round at apex.
- **Notes:** Similar to *T. perfoliata*, *biflora* has non-clasping leaves and a more rounded pore.



Triodanis perfoliata (L.) Nieuwl. (TRPE4) – Campanulaceae

(Clasping Venus's Looking Glass)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Slender, unbranched stems 15-46 cm high.
- **Leaves:** Round to ovate leaves clasp the stems and have bract-like appearance. Commonly have toothed margins.
- **Flowers:** Blue and widely variable in width, ranging from 0.6-2 cm in diameter. Each leaf node may bear 1 or several flowers in its axil. Pore elliptical and at middle of fruit.
- **Notes:** Distinguish from ssp. *biflora* by its elliptical pore at middle of fruit and the clasped leaves.



Triodanis texana McVaugh (TRTE4) - Campanulaceae

(Texas Venus looking glass)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Perennial. Hirsute or pilose haired.
- **Leaves:** Glabrous on upper surface, pilose on lower surface. Leaves ovate to elliptic, with crenate margins.
- **Flowers:** Pink to violet. Pores of capsules near the middle, broad, greater than .5 mm wide.
- **Notes:** Endemic to Texas. Genus suspected to hybridize, may find intermediate individuals. Genus not well described, include images of lower surface of leaf, capsule, and seeds.

*Commelina erecta* L. (COER) – Commelinaceae

(Whitemouth Dayflower)

- **Count as:** Flower
- **Bloom period:** May-October
- **Stems:** Plant may grow up to 3 feet tall. Typically grows in disturbed areas.
- **Flowers:** Close midday and are approximately 1 inch in diameter.

*Tradescantia gigantea* Rose (TRGI) – Commelinaceae

(Giant Spiderwort)

- **Count as:** Flower
- **Bloom period:** March-April, or with rain
- **Stems:** Erect plant 30.5-91 cm feet tall found on the edge of woods and roadsides.
- **Leaves:** Lower leaves and stems are glabrous and upper stems are densely covered in short hairs. Linear lanceolate leaves are 10-30.5 cm long.
- **Flowers:** color varies from lavender-blue to pink. The bracts, pedicles and sepals are all densely pubescent. Notably ballooned into sac-like shape at base, bracts may be 7.5-15 cm long.



Tradescantia occidentalis (Britton) Smyth (TROC) - Commelinaceae

(Spiderwort)

- **Count as:** Flower
- **Bloom period:** February-July
- **Stems:** Erect or ascending, 5-90 cm high .
- **Leaves:** Alternate, sessile; linear-lanceolate, glaucous, up to 50 cm long, 2 cm wide, margins entire; usually folded in half lengthwise.
- **Flowers:** Up to 4 cm across, 3 petals, purple-blue, 6 feathery stamens with bright yellow anthers, arranged in terminal and axillary clusters subtended by long, leaf-like bracts; flowers close by mid-day.

*Tradescantia ohiensis* Raf. (TROH)

- Commelinaceae

(Bluejacket, Ohio Spiderwort)

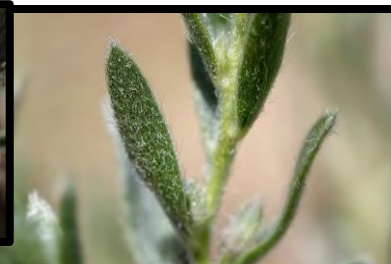
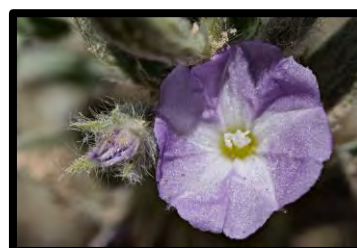
- **Count as:** Flower
- **Bloom period:** March-August
- **Stems:** Perennial. Erect stems 15-115 cm tall. Distinctly glaucous (waxy), typically glabrous (not haired) or slightly pilose at internodes.
- **Leaves:** Lanceolate to linear leaves form acute angles with stem. Blades equal to or just narrower than opened sheath.
- **Flowers:** Blue. Blooms terminally and on pedicles (stems). Sepals glaucous (waxy), glabrate (not haired), typically with a short tuft of glandular hairs at the apices of the sepals.
- **Notes:** Genus hybridizes when species are in proximity. Distinguish by acute leaf attachments and glaucous/glabrous sepals.

*Evolvulus nuttallianus* Schult. (EVNU) -

Convolvulaceae

(Shaggy Dwarf Morning-Glory)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Hairy, up to 25cm long, woody near base of plant.
- **Leaves:** Alternate, grayish green, densely hair, oblanceolate or lanceolate 8-20 mm long and 1.5-5 mm wide.
- **Flowers:** Very small, bell-shaped, lavender-blue color, 0.5 inch across, flowers close at night and on cloudy days.
- **Notes:** Prefers sandy or rocky limestone soils.



Astragalus crassicus/*plattensis* Nutt. (ASCR2/ASPL2) – Fabaceae

(Ground-Plum/ Platte River Milkvetch)

- **Count as:** Raceme
- **Bloom period:** Apr-Jun
- **Stems:** Decumbent or spreading *A. crassicus* stems 10-60 cm long; *A. plattensis* stems 5-40 cm, thinly to densely pubescent.
- **Leaves:** Alternately, odd-pinnately compound, 2-13 cm long, short stalked-sessile; 11-29 leaflets, elliptic to oblanceolate. Leaflets of apical leaves less than 2.5x longer than wide.
- **Flowers:** sweet scent; banner usually deeply notched, yellowish-white to lavender or rose, wings and keel slightly smaller; keel lavender to reddish-purple with dark tips; stamens 10, 9 united, 1 free.
- **Fruit:** *A. plattensis* fruit is densely grey pubescent, old plants with slender rhizomes, mature fruit 10-13 mm wide; *A. crassicus* glabrous fruit, plants without slender rhizomes, mature fruit 11-27 mm wide.
- **Note:** The only way to differentiate the two species is by their fruits.



Astragalus plattensis



Astragalus crassicus



Astragalus nuttallianus DC. (ASNU4) – Fabaceae

(Small-flowered Milkvetch, Nuttall's Milkvetch)

- **Count as:** Flower
- **Bloom period:** February-June
- **Stems:** 15-35(-45) cm long; sprawling, erect to decumbent (laying down with the distal end upright); nearly glabrous to densely pubescent.
- **Leaves:** Pinnately compound; 4-8 cm long with 7-19 leaflets; the linear-elliptic leaflets may have a rounded or notched tip.
- **Flowers:** Lavender, pink, light blue or white; 0.5-1.25 cm long.
- **Seeds:** Slender, slightly-curved seed pod.
- **Note:** Highly variable, with six recognized varieties, traits here are “averaged”, use a key to ID to variety. Unlike *Vicia spp.* and *Lathyrus spp.*, this species does not possess tendrils.

*Dalea compacta* Spreng./*Dalea purpurea* Vent.

(DACO2/DAPU5) – Fabaceae

(Compact/Purple Prairie Clover)

- **Count as:** Spike
- **Bloom period:** May-Sept
- **Stems:** Glabrous or sparsely pubescent between 30-70 cm tall.
- **Leaves:** Alternate; once oddly pinnate leaves (3-7 leaflets); linear-lanceolate leaflets (10-25 mm long) are glabrous or sparsely pubescent.
- **Flowers:** *D. compacta*: purple flowers in dense terminal spikes (10-14 mm wide) borne on long peduncles (4-12 cm long). *D. purpurea* has densely pubescent calyx tubes and thinner inflorescence spikes with peduncles <4cm.
- **Note:** *D. purpurea* is a species primarily of sandy prairies in far north Texas.

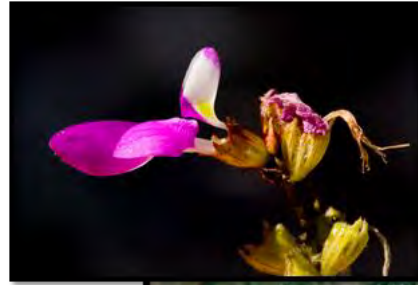
Top: *D. purpurea*
Bottom: *D. compacta*



Dalea frutescens A. Gray (DAFR2) - Fabaceae

(Black Dalea)

- **Count as:** Spike
- **Bloom period:** July-October
- **Stems:** Perennial. Woody stems 20-100 cm long.
- **Leaves:** Alternate compound leaves. Leaflets 13-17, glabrous, lower surface gland-dotted.
- **Flowers:** Pink. Spike on peduncle 1-5 cm long. Bracts and calyx conspicuously gland-dotted. Calyx lobes deltoid with short fine marginal hairs, calyx lobe much shorter than calyx tube. Few flowers per spike.
- **Notes:** Distinguish from other purple *Dalea* by woody branches.

*Lathyrus hirsutus* L. (LAHI2) – Fabaceae

(Hairy Vetchling)

- **Count as:** Flower
- **Bloom period:** April-May
- **Stems:** Ascending, trailing, or vining stems between 0.2-1 m long; glabrous or sparsely pubescent; winged.
- **Leaves:** Alternate; two ovate or oblong-ovate leaflets (2-7 cm long); tendrils present.
- **Flowers:** Pink-purple corollas (10-13 mm long) sometimes with a white “eye”; arranged in racemes (1-4 flowers).
- **Fruit:** Distinctly hirsute pod (6-8 mm wide).
- **Compare with:** *Vicia spp.* looks similar but often has more than 2 leaflets.



Lathyrus pusillus Elliott (LAPU3) – Fabaceae

(Tiny Pea)

- **Count as:** Flower
- **Bloom period:** April-July
- **Stems:** trailing, climbing tendrils, less than 1m tall, glabrous to slightly pubescent.
- **Leaves:** alternate, compound pinnate, glabrous, leaflets (leaves that make up a compound leaf) 2.5-6 cm long.
- **Flowers:** Blue, pink, or purple; flowers are in axillary clusters, 2-6 flowers, small bracts or absent, glabrous calyx, clawed petals.
- **Fruit:** Legume, elongated exserted from calyx, glabrous to glabrate.
- **Note:** *L. pusillus* has large stipules 1-3 cm long (red circle), whereas *L. hirsutus* have 10-18 mm stipules. *L. hirsutus* legume pod is densely pubescent, and *L. pusillus* legume pod is glabrous.

*Lespedeza procumbens* Michx. (LEPR) - Fabaceae

(Trailing lespedeza)

- **Count as:** Raceme
- **Bloom period:** May-September
- **Stems:** Perennial. Stems prostrate, typically 100 cm long. Stems with spreading pubescence.
- **Leaves:** Alternate. Tri-pinnately compound. Leaflets oblong-elliptic with spreading hairs on lower surface.
- **Flowers:** Purple. Blooms 8-12 flowers on long raceme. Banner with dark purple spot.
- **Notes:** Genus known to hybridize. Distinguish from other low growing *Lespedeza* by its long dense spreading hairs.

*Lespedeza violacea* (L.) Pers. (LEVI6) – Fabaceae

(Violet Bush Clover, Violet lespedeza)

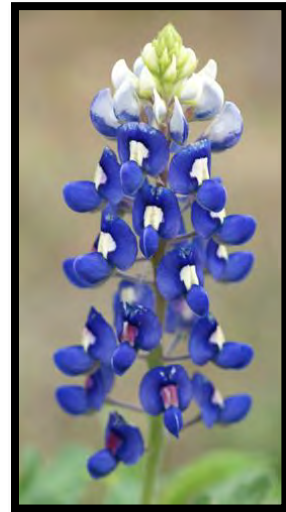
- **Count as:** Raceme
- **Bloom period:** July-September
- **Stems:** Ascending to trailing; 20-70 cm; usually branched; sparse, appressed hairs.
- **Leaves:** Alternate; pinnately trifoliate, leaflets 2-5 cm long, elliptic to oblong; smaller leaves in axils of larger leaves; petioles on main leaf 1.25-4 cm long; sparse hairs on underside.
- **Flowers:** Purple; 5-lobed; 6-10 mm long; arranged in short racemes.



Lupinus texensis Hook. (LUTE) – Fabaceae

(Bluebonnet)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** 20.5-40.5 cm tall with most stems upright though the outer stems are sometimes partially decumbent.
- **Leaves:** Palmately compound leaves with 5 oblanceolate leaflets, each up to 3cm long. Soft pubescence covers the whole plant.
- **Flowers:** Blue and white in racemes 4-10 cm long. Each flower has a white center that turns reddish purple with age.

*Medicago sativa* L. (MESA) - Fabaceae

(Alfalfa)

- **Count as:** Raceme
- **Bloom period:** May-September
- **Stems:** Perennial herb with deep taproot up to 1 m tall. Glabrous stems erect growing from woody crown.
- **Leaves:** Alternately arranged compound leaves. 2 small stipules at the base. Leaflets 2.5 cm long and 8 mm wide oblanceolate to obovate. Smooth margin sometimes toothed along outer edge.
- **Flowers:** Purple to light pink flowers 8 mm long on racemes 5 cm long. Standard and keel widely spaced with exposed throat. 5 teeth on calyx and scattered white hairs.
- **Fruits:** Tightly coiled flat-sided pods 8 mm long, sometimes straight, with reticulated (net-like) surface.
- **Notes:** Cultivated plant, disturbance species often found in old pastures, or escaped in meadows and roadsides.



Pedimelum cuspidatum (Pursh) Rydb. (PECU3) - Fabaceae

(Largebract Indian Breadroot, Indian-turnip)

- **Count as:** Raceme
- **Bloom period:** April-June
- **Stems:** Perennial. Erect to procumbent stems 30-60 cm tall. Unbranched below with well-developed branching on upper portion. Pubescence flat and sparse.
- **Leaves:** Alternate leaves 3- to 5- foliolate. Leaves elliptic to ovate. Petioles (leaf stalk) shorter than peduncles (flower stalk). Lower stipules ovate, narrowing to lanceolate at top. Lower face pubescent, upper face glabrous and glandular.
- **Flowers:** Blooms dark blue to violet. Inflorescence conical or elongated raceme. Bracts ovate to elliptic, acuminate or cuspidate (tipped with a sharp point). Bracts and calyx gland dotted.
- **Notes:** Distinguish by robust looking bloom and plant with many erect branches, stipules of upper and middle leaves linear-lanceolate.

*Pedimelum hypogaeum* Nutt. Rydb (PEHY4) - Fabaceae

(Little breadroot)

- **Count as:** Raceme
- **Bloom period:** March-May
- **Stems:** Perennial. Stemless, less than 30 cm tall. Covered in fine flat white hairs.
- **Leaves:** Alternate leaves, typically 5 foliolate palmate leaves. Lanceolate-ovate stipules 2 cm long. Leaflets narrowly ovate to elliptic, 3 to 4 times as long as broad.
- **Flowers:** Purple. Dense globose raceme. Flowers are almost sessile (stemless). Calyx lobes broad typically with 3 veins. Flower banner lavender colored, keel dark purple.
- **Notes:** Distinguish by absent stem, white pubescence, and narrowly ovate leaves. 2 recognized subspecies that require examination of rootstalk to verify, typically left at species level to avoid uprooting plants.



Pediomelum linearifolium (Torr & A. Gray) (PELI10) - Fabaceae

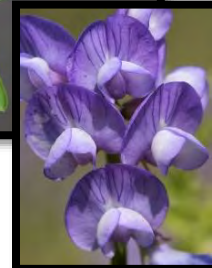
(Narrowleaf Indian Breadroot)

- **Count as:** Raceme
- **Bloom period:** April-June
- **Stems:** Perennial. Erect stem 30-80 cm tall. Leaves and stem strigose (stiff, straight, flat hairs).
- **Leaves:** Alternate leaves palmately trifoliate. Leaflets linear to lanceolate, often 7-16 times as long as wide. Surface glandular and glabrous above, strigose on lower face. Stipules lanceolate.
- **Flowers:** Blooms range from dark purple to white, typically lavender. Inflorescence loose with few flowers, 1 to 4 at each node of raceme.
- **Notes:** Distinguish by linear leaves 7-16 times longer than wide. Favors rocky calcareous soils.

*Vicia ludoviciana* Nutt. (VILU) – Fabaceae

(Slender Vetch, Deer Pea Vetch)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Trailing or climbing, stem ends turn into forked tendrils, 15-90 cm long; sparsely hairy.
- **Leaves:** Alternate, pinnately compound, with 7-15(-17) linear leaflets per leaf, each leaf up to 9 cm long, margins entire.
- **Flowers:** Racemes of 1-19 flowers, each flower 4.5-8 mm long, pinkish white, lavender, blue.

*Vicia minutiflora* D. Dietr. (VIMI) – Fabaceae

(Pygmyflower Vetch)

- **Count as:** Flower
- **Bloom Period:** March-April
- **Stems:** 20-80 cm long.
- **Leaves:** Palmately compound with two linear to lanceolate leaflets; terminal leaflet replaced with tendrils.
- **Flowers:** Solitary, on peduncles similar in length to leaves, blue to lavender in color.
- **Fruit:** Long pod 4-4.5 mm wide.



Vicia villosa Roth (VIVI) – Fabaceae

(Hairy Vetch)

- **Count as:** Flower
- **Bloom Period:** April-May
- **Stems:** Trailing or climbing stems between 50-100 cm long; glabrous, sparsely appressed-pubescent, or densely pubescent.
- **Leaves:** Alternate; once pinnately compound ((10-)14-18 leaflets); leaflets narrowly oblong to lanceolate.
- **Flowers:** Corollas (10-18 mm long) either completely purple or purple with white wing and keel petals, rarely completely white; usually arranged in many-flowered (≥ 10), peduncled racemes; calyces asymmetrically tapered at the base.

*Eustoma exaltatum* ssp. *russellianum* (Hook.)

Kartesz (EUEXR) – Gentianaceae

(Texas Bluebells)

- **Count as:** Flower
- **Bloom Period:** June-August
- **Stems:** Erect, glabrous, glaucous stems up to 70 cm tall.
- **Leaves:** Opposite; glabrous, glaucous, ovate to elliptic-lanceolate blades (1.5-8cm long); three conspicuous veins on each blade.
- **Flowers:** Showy, five-petaled, dark-purple to blue corollas with a black or dark purple center, rarely white with a yellow center; solitary or few-flowered, terminal inflorescences.

*Erodium texanum* A. Gray (ERTE13) – Geraniaceae

(Texas Stork's Bill)

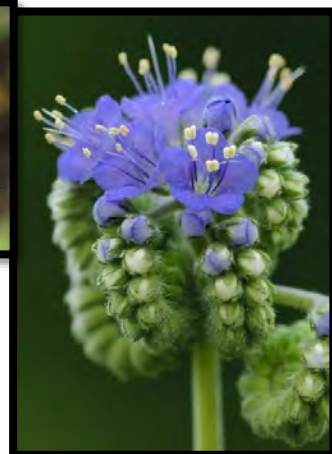
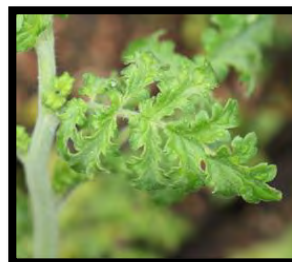
- **Count as:** Flower
- **Bloom Period:** March-April
- **Stems:** Decumbent to ascending stems up to 40 cm long.
- **Leaves:** Basal rosette, cauline leaves opposite; Ovate to cordate, palmately compounded leaves usually with three lobes and toothed margins; prominent, sometimes red-colored, venation.
- **Flowers:** Purple to pink, five-petaled corollas arranged in few-flowered umbels; petals ≥ 10 mm long.



Phacelia congesta Hook. (PHCO2) – Hydrophyllaceae

(Blue Curls, Caterpillars)

- **Count as:** Head
- **Bloom period:** March-May
- **Stems:** 30-91 cm tall, erect, branching plant.
- **Leaves:** Ovate in gross outline, but are twice pinnately divided, or once pinnate with segments pinnately lobed. 4-10 cm long.
- **Flowers:** are carried in a cluster of scorpioid (un-curling) cymes which are reminiscent of the suckered underside of an octopus. Individual flowers are about 6.5 cm long, blue, and bell-shaped. Long filaments exert the bright yellow stamens well past the throat of the flowers.



Nemastylis geminiflora Nutt. (NEGE) – Iridaceae

(Prairie Pleatleaf)

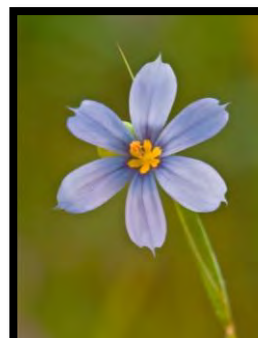
- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Erect to ascending flowering stems between 12-30(-46) cm tall.
- **Leaves:** Linear basal leaves between 20-40 cm long and 3-6 mm wide; linear cauline leaves up to 35 cm long and 5-11 mm wide.
- **Flowers:** Six blue to blue-violet tepals with white bases; tepals between 2.5-3 cm long; ephemeral, lasting only a couple of hours.



Sisyrinchium spp. L. (SISYR) – Iridaceae

(Blue-eyed Grasses)

- **Count as:** Flower
- **Bloom period:** March-May
- **Stems:** Erect, often glabrous, sometimes glaucous, stems up to 50 cm tall.
- **Leaves:** Basal only or basal and caulescent; basal leaves equitant (base partially overlapping neighboring leaves) and often glabrous; caulescent leaves alternate and often glabrous.
- **Flowers:** Six white, lavender-pink, blue, or blue-purple tepals (3-12 mm long) with yellow bases; solitary or in many-flowered terminal clusters.



Hedeoma acinoides Scheele (HEAC) – Lamiaceae

(Slender Hedeoma, Slender False Pennyroyal)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** 7.5-20.5 cm tall, stems erect or reclining ascending and may be simple or multi branched. Fine pubescence covers stems in the upper half while the lower half is normally bare.
- **Leaves:** Ovate to elliptic leaves are 6.5-25.5mm long and have short petioles. The leaf surfaces are glabrous, and the leaf margins are entire to sparsely crenate-dentate.
- **Flowers:** Inflorescence is a crowded spike of axillary cymes with 3-10 flowers per cyme. Individual flowers are 6.5-9.5mm long and are pink with a spreading lower lip.

*Hedeoma drummondii* Benth. (HEDR) – Lamiaceae

(Drummond's False Pennyroyal)

- **Count as:** Spike
- **Bloom period:** May-September
- **Stems:** Numerous reclining-ascending stems 15.5-61cm long averaging about 2.5 cm tall. Minute, stiff, downward-curved hairs cover the stems.
- **Leaves:** 6.5-13 mm; linear-elliptic to obovate with short petioles. Most leaves have entire margins, but a few are mildly crenate.
- **Flowers:** White to pale lavender, each flower is 6.5mm long, in the calyx 3-5 mm long. Many of the lower leaves may fall off at the time of flowering.
- **Note:** Smells like peppermint.



Hedeoma hispida Pursh (HEHI) - Lamiaceae

(Rough False Pennyroyal)

- **Count as:** Spike
- **Bloom period:** May-September
- **Stems:** Up to 20 cm high.
- **Leaves:** Simple, linear opposite arrangement, sessile; stems erect, unbranched or branched in lower portion, stem and leaves hairy.
- **Flowers:** Small; purple; two-lipped, upper lip erect, lower lip spreading; 3 mm long when open; fine hairs on the outside, glabrous inside; tubular, 13-ribbed calyx with fine hairs, upper teeth turned upwards.

*Hedeoma reverchonii* (A. Gray) A. Gray (HERE3) -

Lamiaceae

(Reverchon's False Pennyroyal)

- **Count as:** Spike
- **Bloom period:** April-September
- **Stems:** Erect to ascending, branched stems up to 60 cm tall; woody base and tap root; pubescent.
- **Leaves:** Opposite; elliptic-oblong blades that are generally less than three times as long as wide (6-14 mm long and 2.2-5 mm wide); pubescent.
- **Flowers:** Bilaterally symmetrical purple to white corollas (8-15 mm long); two-lipped.
- **Note:** Incredibly aromatic and smells like lemons.

*Lamium amplexicaule* L. (LAAM) - Lamiaceae

(Henbit Deadnettle)

- **Count as:** Raceme
- **Bloom period:** February-May
- **Stems:** Low growing, ascending, 10-30 cm tall; square; slightly hairy.
- **Leaves:** Opposite; circular to kidney-shaped; sparsely hairy; margins crenate (with rounded, symmetrical teeth) to palmately lobed; upper leaves subtend flower clusters with clasping bases; lower leaves have petioles.
- **Flowers:** 15 to 20 mm long; purple-red; tubular shape, appearing to be in bud, with unexpanded lobes.



Mentha spicata L. (MESP3) – Lamiaceae

(Spearmint)

- **Count as:** Spike
- **Bloom period:** June-September
- **Stems:** Herbaceous rhizomatous perennial plant growing 30–100 cm tall. Variably hairless to hairy stems and foliage. The stem is square-shaped, a trademark of the mint family of herbs.
- **Leaves:** 5–9 cm long and 1.5–3 cm broad, with a serrated margin.
- **Flowers:** Slender spikes, each flower lavender or white, 2.5–3 mm long and broad.

*Monarda citriodora* Cerv. ex Lag. (MOCI) –

Lamiaceae

(Lemon beebalm)

- **Count as:** Raceme
- **Bloom period:** May-July
- **Stems:** 30.5-76 cm tall, usually several stemmed. Small stiff downward curved hairs cover stems.
- **Leaves:** Lanceolate to oblanceolate leaves have blades 2.5-6.5 cm long on petioles up to 3 cm long. Leaf margins vary from subentire to serrate.
- **Flowers:** Strongly two lipped flowers are 2 cm long are pink to light purple.

*Monarda fistulosa* L. (MOFI) – Lamiaceae

(Wild bergamot, beebalm)

- **Count as:** Raceme
- **Bloom period:** May-July.
- **Stems:** Perennial to 70-150 cm.
- **Leaves:** Simple, opposite, petiolate, gray-green. Blades ovate, ovate-lanceolate, or oblong. Margins coarsely dentate to serrate.
- **Flowers:** Corolla two-lipped, pubescent, lavender, pink or white, tube 15-24 mm long. Calyx pubescent, with white interior throat, 7-9 mm, with acuminate teeth to 1-2 mm.
- **Fruits:** Nutlets.
- **Notes:** Leaves are fragrant (minty) and may be used to make tea.



Salvia azurea Michx. ex Lam. (SAAZ) – Lamiaceae

(Giant Blue Sage, Pitcher Sage)

- **Count as:** Spike
- **Bloom period:** September-November
Stems: 0.9-1.8 m tall usually with a single erect, stout stem branching in the upper half.
- **Leaves:** Lanceolate to oblanceolate up to 10cm long with serrate margins. Upper leaves are linear with entire margins. Most leaves fall away during flowering.
- **Flowers:** 1.5-2.5 cm and can vary from deep to light blue.
- **Note:** Different from *S. farinacea* because calyces are green.

*Salvia engelmannii* A. Gray (SAEN2) – Lamiaceae

(Englemann's Sage)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Dense bushy clumps 15.5-40 cm tall with numerous erect stems. The stems have long spreading hairs and below those are minute hairs. The small hairs are found on all sides of the stem except the internode face directly below the opposite leaves.
- **Leaves:** are narrowly oblanceolate, 4-7.5 cm long.
- **Flowers:** 2 cm and are pale purple to pale blue sometimes almost white. The throat of flowers have a dense ring of white hairs. Calyx is 9.5-13 mm.

*Salvia farinacea* Benth. (SAFA2) – Lamiaceae

(Mealy Blue Sage)

- **Count as:** Spike
- **Bloom period:** April-October
- **Stems:** Low clumping plant with one or a few flowering stalks 0.3-0.9 m high from the base.
- **Leaves:** are 2.5-7.5 cm and are linear-lanceolate to ovate-lanceolate with coarsely toothed margins. On the lower part of the plant tend to have longer petioles than those on the upper. Slender leafy branchlets rise from the axils of the main leaves near the inflorescence.
- **Flowers:** Violet blue flowers grow in whorls and are 1.5-2.5 cm long spaced in a spike like inflorescence.



Salvia texana (Scheele) Torr. (SATE3) – Lamiaceae

(Texas Sage)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Few spreading ascending stems forming a loose open plant 15.5-38 cm tall. Minute, spreading stem hairs on all 4 sides of the stem. 4-6 nodes below the inflorescence.
- **Leaves:** are oblanceolate and are up to 5cm long with few teeth on the upper two thirds.
- **Flowers:** Inflorescence is a raceme of dark purple to dark blue flowers 2-2.5 cm long. Dense white hairs close the throat of the 9.5 mm calyx.

Notes: Distinguished from *S. engelmannii* by smaller blooms (7-8mm wide, 11-12 mm long), longer bloom period.

*Scutellaria drummondii* Benth. (SCDR2) – Lamiaceae

(Drummond's Skullcap)

- **Count as:** Spike
- **Bloom period:** March-May
- **Stems:** Plant with several erect to reclining herbaceous stems; 15.5-30.5 cm tall. Soft spreading hairs are found on the stems especially in the upper sections.
- **Leaves:** Ovate and are 0.6-2 cm long with short petioles on the lower part of the stem.
- **Flowers:** Violet to purple flowers are 0.6-1.5 cm long. Long hairs are found on the calyx.
- **Fruit:** The seeds look like little baseball hats when looked at from the side.



Scutellaria wrightii A. Gray (SCWR2) – Lamiaceae

(Wright's skullcap)

- **Count as:** Flower
- **Bloom period:** March-July
- **Stems:** 15-20 cm tall, with woody base. Plant compact, with multiple stems.
- **Leaves:** Simple, opposite, petiolate (to 4mm) or sessile. Leaf blade ovate to elliptic (6-13+ mm), with entire margins. Leaf bases attenuate (tapered).
- **Flowers:** Dark purple, with lighter purple or white lip. (11-)12-23 mm long. Calyx with short pubescence, calyx hairs usually not gland-tipped. Stamens 4, didynamous (two unequally long pairs of stamen).
- **Fruits:** Black, tuberculate nutlets.
- **Notes:** *S. drummondii* is similar, but is annual (without woody base), has smaller flowers [5-11 (-13) mm long], a calyx with long spreading to pilose hairs, and petiolate lower leaves.

*Stachys crenata* Raf. (STCR7) – Lamiaceae(Mouseear, *Stachys agraria* Schltldl. & Cham.)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Erect or decumbent, pubescent stems up to 30 cm tall.
- **Leaves:** Opposite; ovate to oblong-ovate blades with crenate margins (≤ 4 cm long); petioles as long as or longer than lower leaf blades while upper leaves are sessile.
- **Flowers:** Bilabiate (2-lipped) pale lavender corollas (5-6 mm long); calyces shorter than corollas and radially symmetric; flowers arranged on interrupted spikes.
- **Note:** Odorless



Warnockia scutellarioides (Engelm. & A. Gray) M. W. Turner (WASC) – Lamiaceae

(Prairie Brazoria, Prairie brazosmint)

- **Count as:** Spike
- **Bloom period:** April-May
- **Stems:** Branched in the upper third or half, erect plant 15-30.5 cm forms colonies on roadsides. May grow up to 46 cm tall. All parts of plant are glabrous except inflorescences, which is covered in minute pubescence.
- **Leaves:** are sessile above to clasping at the base 2-4 cm and are oblanceolate oblong-spatulate with several teeth above the middle of the blade.
- **Flowers:** Pink-lavender flowers are 1-1.5 cm long in spike-like racemes up to 15 cm long. Ovate or lanceolate bracts 0.3-0.6 cm long underlie each flower.



Linum pratense (Norton) Small (LIPR) - Linaceae

(Meadow Flax)

- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** Annual herb, 5-60 cm glabrous stems branching prostrate from base
- **Leaves:** Linear to oblanceolate leaves .7-2.3 mm.
- **Flowers:** Blue, rarely white flowers 5-15 mm. Styles short, 1-3 mm No cilia on the inner sepals. Head-like (capitate) stigmas.
- **Fruits:** broadly ovate, 4-6mm with an obtuse tip and ciliate margins.
- **Notes:** Resembles *L. lewisii*, but *pratense* is an annual, typically has shorter styles and obtuse capsule (seed/maturing fruit) tips. *L. lewisii* is perennial with longer styles and acute capsule tips, and typically ranges in west Texas.



Lythrum alatum Pursh (LYAL4) – Lythraceae
(Winged loosestrife, Winged Lythrum)

- **Count as:** Raceme
- **Bloom period:** May-July
- **Stems:** Erect to ascending, branched, glabrous stems up to 1.2 m tall.
- **Leaves:** Upper cauline leaves alternate; lower cauline leaves opposite or subopposite; blades lanceolate, oblanceolate, or narrowly elliptic with entire margins; glabrous.
- **Flowers:** Delicate, six-petaled, lavender to magenta corollas; petals between 3-6 mm long; inflorescences arranged in spike-like racemes.



Lythrum californicum Torr. & A. Gray (LYCA4) – Lythraceae
(California Loosestrife)

- **Count as:** Raceme
- **Bloom period:** May-July
- **Stems:** Erect to ascending, branched, glabrous stems between 0.2-1 m tall.
- **Leaves:** Upper cauline leaves alternate; lower cauline leaves opposite or subopposite; blades linear, linear-oblong, or lanceolate-oblong with rounded to auriculated bases; glaucous and somewhat succulent.
- **Flowers:** Delicate, six-petaled, lavender to magenta corollas; petals between 4-6 mm long; inflorescences arranged in spike-like racemes.
- **Note:** There are very few distinguishing characteristics between *L. californicum* and *Lythrum alatum* var. *lanceolatum*. *L. californicum* possesses middle cauline leaves that are narrower than *Lythrum alatum* var. *lanceolatum* with rounded to auriculated bases, and are glaucous and somewhat succulent. These species also regularly hybridize together.



Callirhoe involucrata (Torr. & A. Gray) A. Gray (CAIN2) – Malvaceae

(Winecup Mallow)

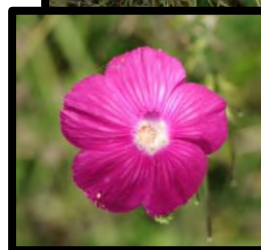
- **Count as:** Flower
- **Bloom period:** March-June
- **Stems:** 20-30 cm tall, sprawling to 90 cm wide, weakly erect or laying on the ground with the distal part upright; hairy.
- **Leaves:** Alternate; suborbiculate to ovate, 3–5-lobed, 1–8.5 × 1–12 cm, surfaces hairy; petiolate.
- **Flowers:** Axillary, solitary; reddish purple with a white spot at the base, sometimes pink or white; 5 large, showy petals up to 23 mm; 5-lobed calyx; involucler of 3 bracts at or close to the base.



Callirhoe leiocarpa R. F. Martin (CALE2) - Malvaceae

(Tall poppy mallow)

- **Count as:** Flower
- **Bloom period:** March- August
- **Stems:** erect to weakly erect, no hairs to sparingly hairy growing up to 0.9 meters.
- **Leaves:** Simple and alternate. shallowly to deeply lobed margins forming a palmate shape.
- **Flower:** Blooms are about 5cm in diameter. No involucler, calyx lobes do not overlap at edges and form a point. Petals are reddish-purple with a basal white spot and calyx lobes.
- **Notes:** very few or absence of hairs on the calyx. Can be distinguished from other species by the underside of the flower by the lack of hairs and stipules that partially surround the stem.



Callirhoe pedata (Nutt. ex Hook.) A. Gray (CAPE23) - Malvaceae

(Palmleaf Winecup, Palmleaf Poppymallow)

- **Count as:** Flower
 - **Bloom period:** April-May
 - **Stems:** Perennial. Erect, glabrous (smooth), glaucous (waxy) stems 20-70 cm long.
 - **Leaves:** Simple, alternate leaves. Size and shape can vary considerably, but not typically used for ID. Stipules linear-lanceolate. Blade crenate or lobed (nearly palmately). Surface sparsely haired.
 - **Flowers:** Blooms pink to purple. Involucel bracts absent. Calyx lobes form a point at full bloom. Flowers lack basal spot on petals.
- Notes:** Distinguish by lack of involucel below bloom.

*Passiflora incarnata* L. (PAIN6) - Passifloraceae

(Passion flower, Maypop)

- **Count as:** Flower
- **Bloom period:** April-September
- **Stems:** Herbaceous vine, up to 8 m; climbs with axillary tendrils or sprawls along the ground; spreads by root suckers.
- **Leaves:** Alternate; 3-lobed, 6-15 cm wide; margins serrate; dark-green above and whitish below.
- **Flowers:** 6-8 cm across; a central crown of pinkish-purple filaments rests on 5 sepals and 5 petals; 5 stamens form a long tube; 3-parted pistil rising above stamens.
- **Fruit:** Large, orange-yellow berry.

*Nuttallanthus texanus* (Scheele) D. A. Sutton (NUTE) – Plantaginaceae

(Texas Toadflax)

- **Count as:** Flower
- **Bloom period:** February-May
- **Stems:** Delicate plant with one or several stems growing up to 5 cm tall. Short branches (2.5-7.5 cm) reclining or spreading grow at the base of otherwise erect stems.
- **Leaves:** Narrowly linear leaves, 2-4 cm long.
- **Flowers:** Violet to pale blue flowers are pastel to the point of almost appearing off-white. They are 6.5-13 mm long with slender curved spurs 6.5-9.5 mm long.



Veronica arvensis L. (VEAR) – Plantaginaceae

(Corn Speedwell)

- **Count as:** Spike
- **Bloom period:** February-May
- **Stems:** Ascending to erect, 5-20(-30) cm tall; pubescent.
- **Leaves:** 1.5-2.5 cm long, mostly opposite or the upper leaves/bracts alternate, oblong to oblong-ovate, coarsely toothed to crenate, petiolate, hairy; uppermost leaves sessile.
- **Flowers:** Axillary or terminal, 4 lavender-blue lobes, 2 stamens; each flower 2-3 mm across.

*Veronica polita* Fr. (VEPO) - Plantaginaceae

(Grey field-speedwell)

Pollinative Prairie

- **Count as:** Spike
- **Bloom period:** February-March
- **Stems:** Hairy, annual with prostrate or reclining stem to 30cm long.
- **Leaves:** Dull green, simple, alternate, petiolate, serrate, ovate, slightly wider than long, 1-5mm long.
- **Flowers:** Small and bright blue, 4 petals, pedicels in age 5-12 mm long, corollas 3-6 mm across.
- **Notes:** Found in lawns and waste spaces.

*Polygala lindheimeri* A. Gray (POLI) – Polygalaceae(Lindheimer's Milkwort, *Rhinotropis lindheimeri* J.R. Abbott)

- **Count as:** Flower
- **Bloom period:** March-October
- **Stems:** A straggling, sub-erect, semi-woody plant 10-25.5 cm tall, covered with very fine straight, soft hairs. Stem cylindrical, 1 mm diameter.
- **Leaves:** Elliptic to ovate leaves are 0.6-2 cm long and have short projections at the tip. The leaves below the flowering stalks are shorter and oblanceolate. Lower surface sparsely haired.
- **Flowers:** Reddish-purple flowers are in short, loose racemes. Two large wing-like petals are modified colored sepals. Rachis zigzagged with roughly 8 mm internodes.



Diodella teres (Walter) Small (DITE2)

- Rubiaceae

(Rough Buttonweed, *Hexasepalum teres* J. H. Kirkbr.)

- **Count as:** Flower
- **Bloom period:** July-September
- **Stems:** Erect or prostrate; simple or branched; up to 7-40+ cm; densely hairy; reddish-brown.
- **Leaves:** Opposite; linear to narrowly elliptic, tapering to a long, sharp tip; margins entire; stiff, roughly textured hairs; up to 3 cm long; dark green; each pair of leaves subtends a flower.
- **Flowers:** White to pinkish-purple; in groups of 2 or 3; 4 stiff petal-like sepals, each 1 mm long.

*Galium pilosum* Aiton (GAPI2) – Rubiaceae

(Hairy Bedstraw)

- **Count as:** Flower
- **Bloom period:** April-June
- **Stems:** Erect to ascending, pilose stems up to 90 cm tall.
- **Leaves:** Whorled (4 leaves per whorl); blades elliptic with entire margins; middle cauline leaves between 10-25 mm long; often minutely punctate on undersides; covered in pilose hairs.
- **Flowers:** Maroon, brown-orange, sometimes white corollas with four petals; borne on pedicels arising from leaf axils.

*Houstonia pusilla* Schoepf (HOPU3) – Rubiaceae

(Tiny Bluets)

- **Count as:** Flower
- **Bloom period:** February-April
- **Stems:** Short, erect to ascending, stems between 1.5-15(-25) cm tall.
- **Leaves:** Opposite; blades elliptic, narrowly elliptic, ovate or spatulate with entire margins.
- **Flowers:** Four-merous, blue-violet or lavender flowers with red and yellow centers; solitary or paired, axillary inflorescences on long peduncles; inner portions of floral tube glabrous or sparsely pubescent.



Sherardia arvensis L. (SHAR2) – Rubiaceae

(Field Madder)

- **Count as:** Flower
- **Bloom period:** March-May
Stems: Prostrate or decumbent stems up to 40 cm long.
- **Leaves:** Whorled (4-6 per whorl); blades obovate to lanceolate or elliptic with entire margins; tips acuminate or acute.
- **Flowers:** Pink to purple flowers (4-5 mm across) with four petals and 4-6 sepals; arranged on terminal heads (4-8 flowers per head) closely subtended by floral bracts; sessile or nearly so.

*Quincula lobata* (Torr.) Raf. (QULO2) - Solanaceae(Purple groundcherry, Chinese lantern, *Physalis lobata*)

- **Count as:** Flower
- **Bloom period:** March-September
- **Stems:** low growing perennial herb up to 15 cm tall. Rigid spreading stems can be 0.5 m long.
- **Leaves:** Alternate gray-green lanceolate leaves 7 cm long
- **Flowers:** Erect blue to purple corolla (not nodding green flowers like other *Physalis*). Up to 3 cm wide. Bell shaped calyx during bloom.
- **Fruit:** Typical *Physalis* 'lantern' shaped inflated 5-sided calyx up to 2 cm wide.
- **Notes:** Woodland edges, fields, dry soils. Fruits are technically edible, but similar looking *Solanum* and *Physalis* are toxic. Distinguish from other Physaleae by its bloom color. Leave at tribe name if not in bloom as it is very difficult to distinguish from genus *Chamaesaracha*.

*Solanum dimidiatum* Raf. (SODI) – Solanaceae

(Western Horsenettle)

- **Count as:** Flower
- **Bloom period:** May-August
- **Stems:** Erect bushy plant 0.3-0.6 m tall. Stems are covered in stellate hairs but plant is still dark green.
- **Leaves:** Leaves are ovate in gross outline and are 5-15.5 cm and are 5-7 lobed each lobe has an entire margin. Stout prickles are distributed along the stems and on the main veins on the underside of the leaves.
- **Flowers:** Inflorescence is few flowered cyme with blue, violet-purple or white flowers roughly 2.5 cm wide.



Solanum elaeagnifolium Cav. (SOEL) – Solanaceae
(Silverleaf Nightshade)

- **Count as:** Flower
- **Bloom period:** April-October
- **Stems:** Erect bushy-branched plant 0.3-0.75 m tall.
- **Leaves:** Covered by tiny stellate hairs which gives the stems and leaves a silvery-green appearance. Linear-lanceolate to oblanceolate leaves are 4-15.5 cm long with shallowly sinuate margins.
- **Flowers:** Light blue to violet-purple and are 2.5 cm wide. White plants are occasionally found. Prickles are found on the pedicles.



Glandularia bipinnatifida (Nutt.) Nutt. (GLBI2) – Verbenaceae
(Dakota Mock Vervain, Prairie Verbena)

- **Count as:** Head
- **Bloom period:** March-October
- **Stems:** Reclining stems up to 5 cm long with ascending tips radiate from the base 10-30.5 cm high.
- **Leaves:** The petiolate leaves (2.5-6.5 cm long) may be simple and twice pinnate or 3 part with each part twice pinnate. Lobes are linear to oblong.
- **Flowers:** Individual flowers are 6.5 mm wide with a floral tube half again as long as the calyx. Inflorescence is a pedunculated compressed spike which elongates in fruit.



Glandularia pumila (Rydb.) Umber (GLPU4) – Verbenaceae
(Dwarf Verbena, Dwarf Vervain)

- **Count as:** Umbel
- **Bloom period:** February-July
- **Stems:** Several reclining-ascending stems from base reach the height of 15.5-30.5 cm.
- **Leaves:** are 2-3 cm and are 3 parted, each part lobed and incised. The base of the leaves is a wedge shape, creating a short-margined petiole.
- **Flowers:** Inflorescence is a compressed spike which elongates about 4.5 cm in fruit. Pink to lavender flowers are 3-19 mm across with a floral tube that is barely longer than the calyx.



Verbena canescens Kunth (VECA5) – Verbenaceae

(Woolly Vervain, Gray Vervain)

- **Count as:** Spike
- **Bloom period:** April-October
Stems: Several erect stems 7.5-38 cm tall. Covered in short spreading hairs which gives it a dusty, grey green appearance.
- **Leaves:** are 1-4 cm and are lanceolate to oblanceolate in outline. They are shallowly incised-dentate to almost pinnatifid. Raised veins are found on the underside of the leaf. Upper surface is somewhat rugose.
- **Flowers:** are small lavender to purple 0.3 cm wide and are arranged in spikes 7.5-15 cm long. The sessile or short stalked flowers each have a calyx 0.3 cm long and are subtended by a lanceolate bract.

*Verbena halei* Small (VEHA) – Verbenaceae

(Texas Vervain)

- **Count as:** Spike
- **Bloom period:** May-August
- **Stems:** 15-46 cm tall with 1 to several erect stems. Tends to be divided into multiple ascending branches in its upper half.
- **Leaves:** Lanceolate, oblong or ovate in gross outline and are 1-2 time pinnatifid. Leaves on upper stem are entire to sparsely dentate, becoming narrowly linear on flowering branches.
- **Flowers:** Numerous blue to purple flowers are born in panicle like spikes and are very small about 0.6cm across.

*Vitex agnus-castus* L. (VIAG) – Verbenaceae

(Lilac Chaste Tree)

- **Count as:** Spike
- **Bloom period:** May-October
- **Stems:** Erect to ascending, much-branched woody tree or shrub up to 6 m tall.
- **Leaves:** Opposite; palmately compound leaves (3-9 leaflets); leaflets (≤ 12 cm long) lanceolate with entire margins; leaflets densely white-pubescent below, green above.
- **Flowers:** Corollas lavender to blue and 5-lobed; inflorescences arranged in dense spike-like cymes.



Hybanthus verticillatus (Ortega) Baill. (HYVE) – Violaceae

(Nodding Green Violet, Babyslippers, Pombalia verticillata)

- **Count as:** Flower
- **Bloom period:** April-Oct.
- **Stems:** clustered; 10 to 40 cm, erect; not hairy; can be branched.
- **Leaves:** higher leaves are opposite basal leaves are alternate; linear, narrow, lanceolate stipules, leaves linear or slender and tapering to a point, 3–40 mm, glabrous or hirsute, gland-tipped.
- **Flowers:** upper greenish white, cream, or yellowish, with purple tips.

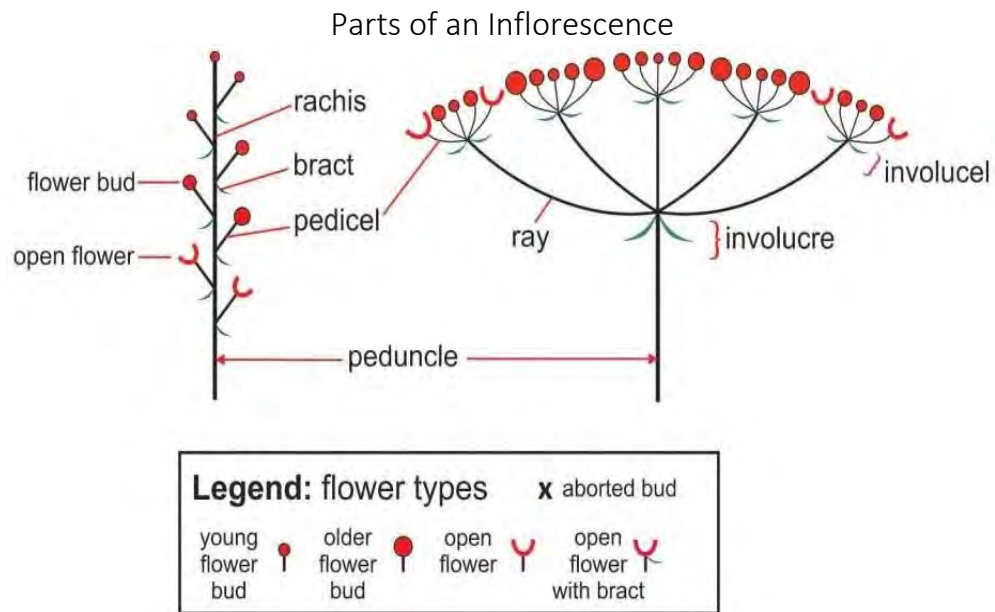
*Viola bicolor* Pursh (VIBI) – Violaceae

(American Field Pansies, Wild Pansies, Viola rafinesquei)

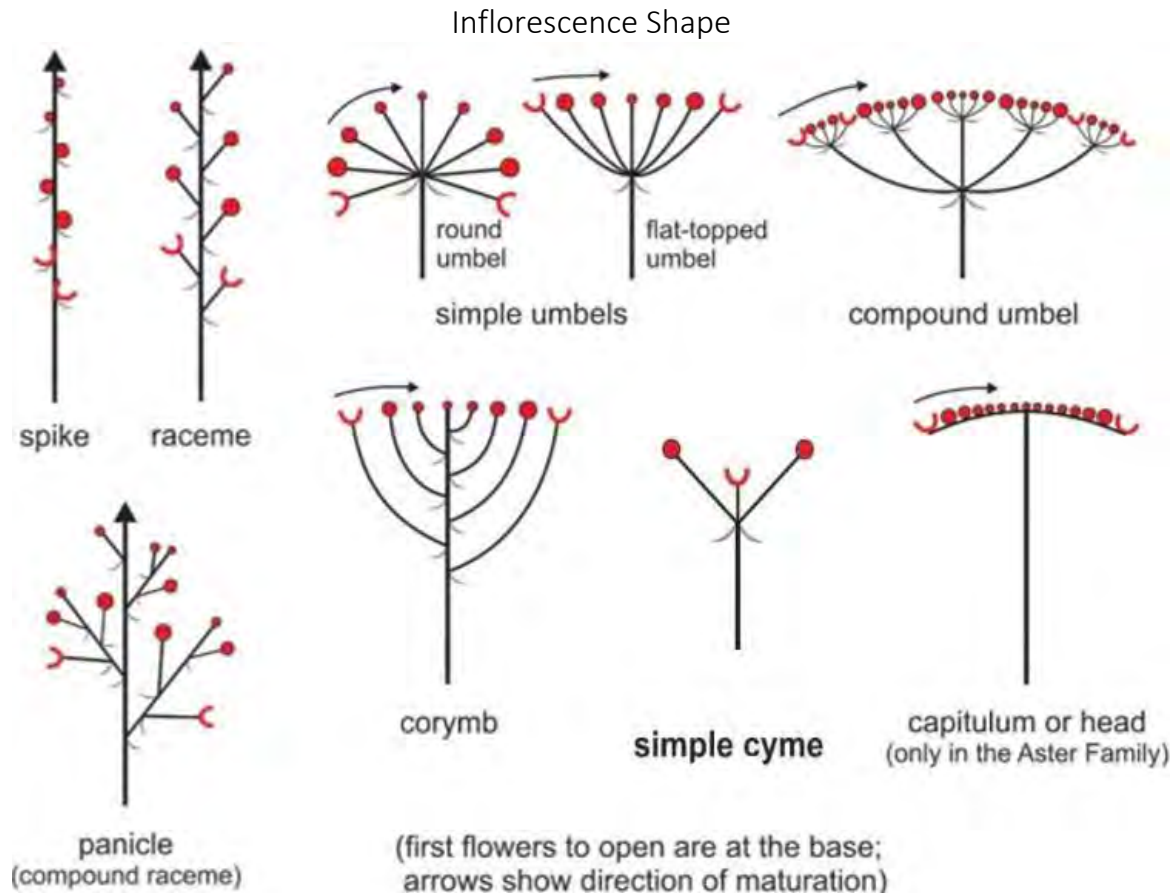
- **Count as:** Flower
- **Bloom period:** March-April
- **Stems:** Erect to ascending, stems between 2–15(-25) cm tall.
- **Leaves:** Basal, cauline leaves alternate; blades spatulate to obovate, elliptic, lanceolate, or orbicular to ovate with entire or shallowly crenate margins; large pectinate (comb-shaped)-palmately lobed stipules (10–20 mm long).
- **Flowers:** Corollas purple, lavender, or white with yellow centers and five petals; solitary to few-flowered.
- **Note:** *Viola bicolor* differs from most other *Viola* spp. by having cauline leaves.



Terminology Guide



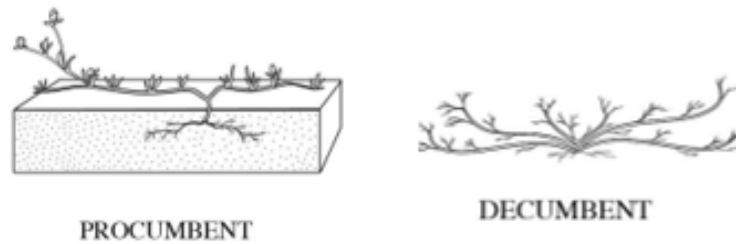
- **Bract:** A reduced leaf or leaf-like structure at the base of a flower or inflorescence.
- **Involucel:** A small *involucre*; a secondary involucre (Umbelliferae and Apiaceae).
- **Involucre:** A *whorl* of *bracts* subtending (supporting) a flower or flower cluster.
- **Pedicel:** A *stalk* of a single flower in an inflorescence.
- **Pedicelled flower (pedicellate):** Flower that comes off a *pedicel*.
- **Ray:** An inflorescence branch in an *umbel*.



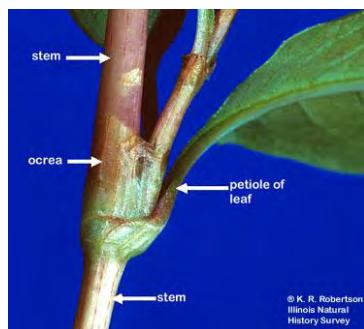
- **Capitulum (head)**: A small flower head, Lichtenberg Lab Plant Guide uses 'head' instead of capitulum.
- **Cyme**: A flat-topped or round-topped determinate inflorescence (type of inflorescence where the terminal or central flower open first). Used as a botanical description not as an inflorescence count in the Lichtenberg Lab Plant Guide.
- **Glomerulus**: A head or dense cluster of flowers, formed by condensation of a *cyme*. Used as a floral description.
- **Raceme**: An unbranched, elongated inflorescence with *pedicellate* flowers maturing from the bottom upwards.
- **Umbel**: A flat-topped or convex (curves inwards) inflorescence with the *pedicels* arising from a common point, like the struts of an umbrella; a highly condensed *raceme*.
- **Compound head**: Dr. Lichtenberg's Lab term, refers to Asteraceae and Euphorbiaceae heads of many *capitulum* (head) arising from the same stalk, e.g., *Grindelia ciliata* has a compound head (Spanish gold).
- **Compound umbel**: Inflorescence branches, at the end of each branch is a secondary *umbel*.
- **Corymb**: A flat-topped or round-topped inflorescence, racemose (*raceme*-like), but with the lower *pedicels* longer than the upper. This guide does not use corymb as an inflorescence count, but as a botanical description.
- **Cyathium**: Inflorescence consisting of several naked *staminate* flowers accompanied by usually one naked *pistillate* flower and subtended and mostly enclosed by a cup-shaped, characteristic of (Euphorbiaceae). 'False flower,' used as botanical description not inflorescence count.

- **Panicle (paniculate):** A branched, racemose inflorescence with flowers maturing from the bottom upwards also known as compound raceme. Used as a floral description in the Lichtenberg Lab Plant Guide.
- **Spike:** An unbranched, elongated inflorescence with *sessile* or subsessile flowers or spikelet maturing from the bottom upwards.

Stem Terminology



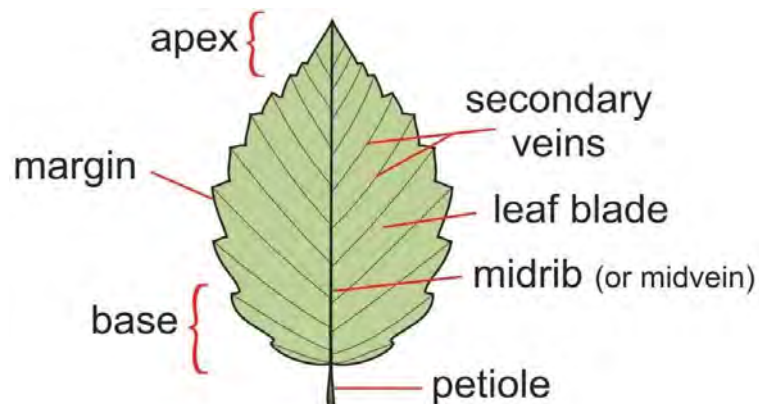
- **Antorse:** Upward pointing towards the distal end (furthest from the point of attachment).
- **Cauline:** Pertaining to the stem, arising on the stem.
- **Decumbent:** Stems or branches reclining or lying on the surface of the ground, but with the tip erect or ascending.
- **Procumbent:** Lying flat, stem growing horizontally on the surface of the ground.
- **Prostrate:** Laying flat on the ground.
- **Glabrous:** Smooth, lacking hair.
- **Glaucous:** Waxy bluish-gray or green bloom.
- **Ocrea:** Dry membranous sheathes formed by the fusion of the *stipules*.



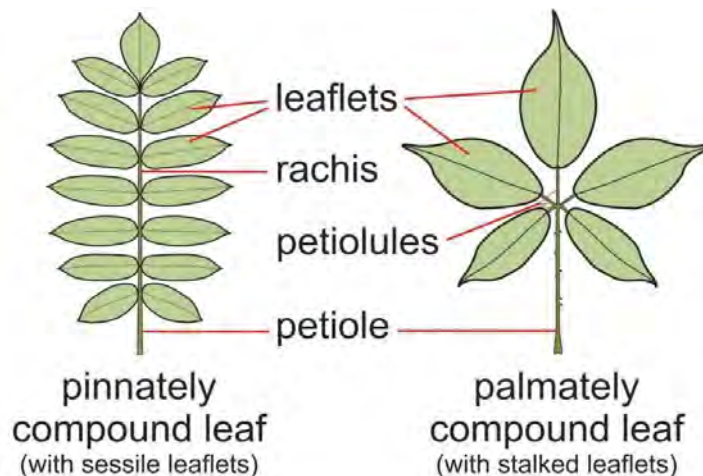
- **Pubescence:** Bearing hairs.
- **Strigose:** Covered with short stiff appressed (close together) hairs.



Parts of a Leaf



- **Simple Leaf:** A single undivided blade.
- **Apex:** The tip, the furthest point from the point of attachment.
- **Base:** Positioned at, or near the lower point of a leaf.
- **Blade:** Broad part of a leaf or *petal*.
- **Margin:** The edge of a leaf *blade*.
- **Midrib:** Central nerve or vein of a leaf.
- **Petiole:** Leaf *stalk* or stem.
- **Secondary Veins:** Smaller vascular strands originating from the primary veins.

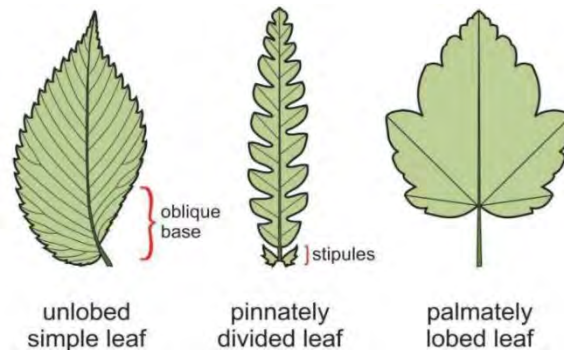


- **Compound leaf:** A leaf with a *blade* divided into two or more segments or *leaflets*.
- **Leaflets:** The division of a *compound leaf*.
- **Trifoliate (Ternate):** Having three *leaflets* (of a *compound leaf*).
- **Palmate:** *Lobed*, veined, or divided from a common point, like fingers of a hand.
- **Rachis:** The main axis of a structure.
- **Stalk:** Supporting structure of an organ, typically smaller than the organ.
- **Petiolules:** The *stalk* of a *leaflet*, a diminutive *petiole*.

- **Pinnate:** *Leaflets* arranged on *opposite* sides of an elongated axis, like a feather.
- **Bipinnate:** Twice *pinnate*.



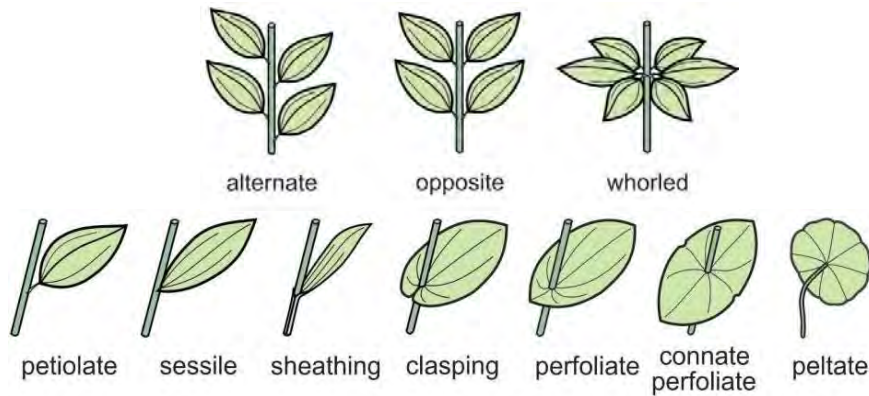
Leaf Divisions



- **Divided:** Cut or *lobed* to the *base* or to the *midrib*.
- **Lobed:** *Rounded* division or segment of an organ.
- **Unlobed:** A leaf without protrusions.
- **Stipules:** Pair of leaf like appendages at the *base* of the *petiole* in some leaves.

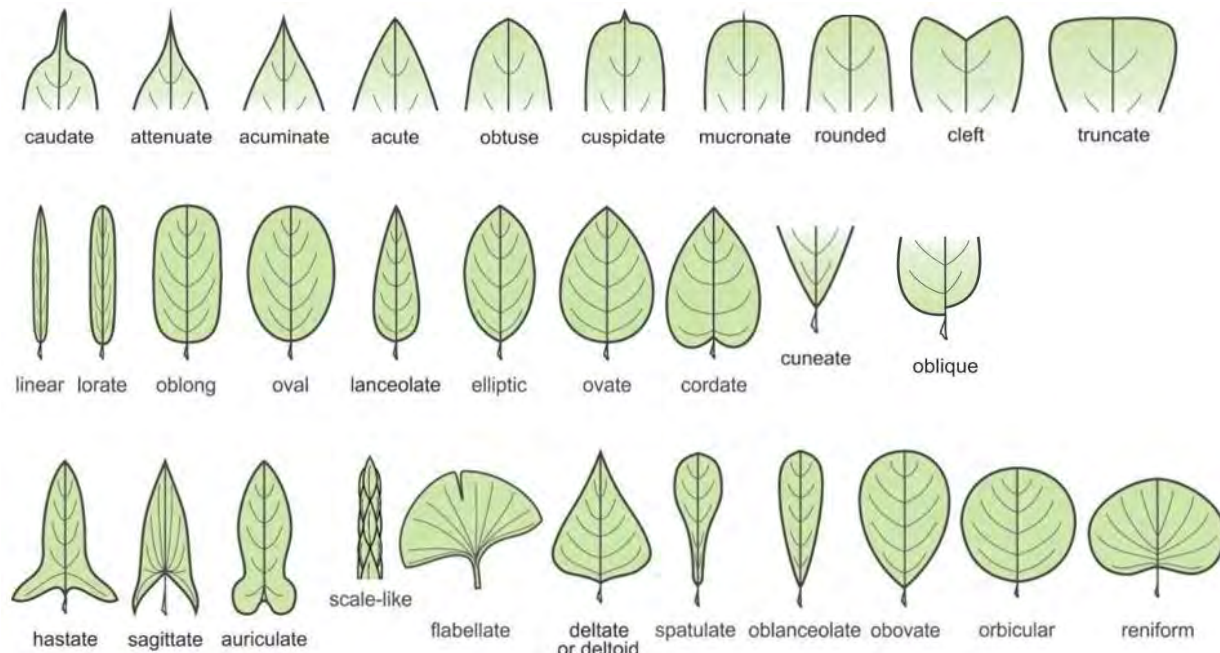
Leaf Arrangements and Attachments

- **Alternate:** One leaf per node.



- **Clasping:** Fully or partly surrounding the stem.
- **Connate perfoliate:** The *bases* of *opposite* leaves fused around the stem.
- **Opposite:** Leaves across from each other at the same node.
- **Peltate:** Flat structure borne on a *stalk* attached to the lower surface rather than to the base.
- **Perfoliate:** The *margins* surrounding the stem.
- **Petiolate:** Existing with a leaf *stalk*.
- **Sessile:** Directly attached to base.
- **Sheathing:** Portion of an organ surrounds at least in part another organ.
- **Whorl/verticil:** A ring like arrangement of similar parts arising from a common point or node. Also, referring to the arrangement of a node that bears 3 or more similar organs, such as leaves or flowers.
- **Basal leaves:** Leaves connected to the base of the plant.

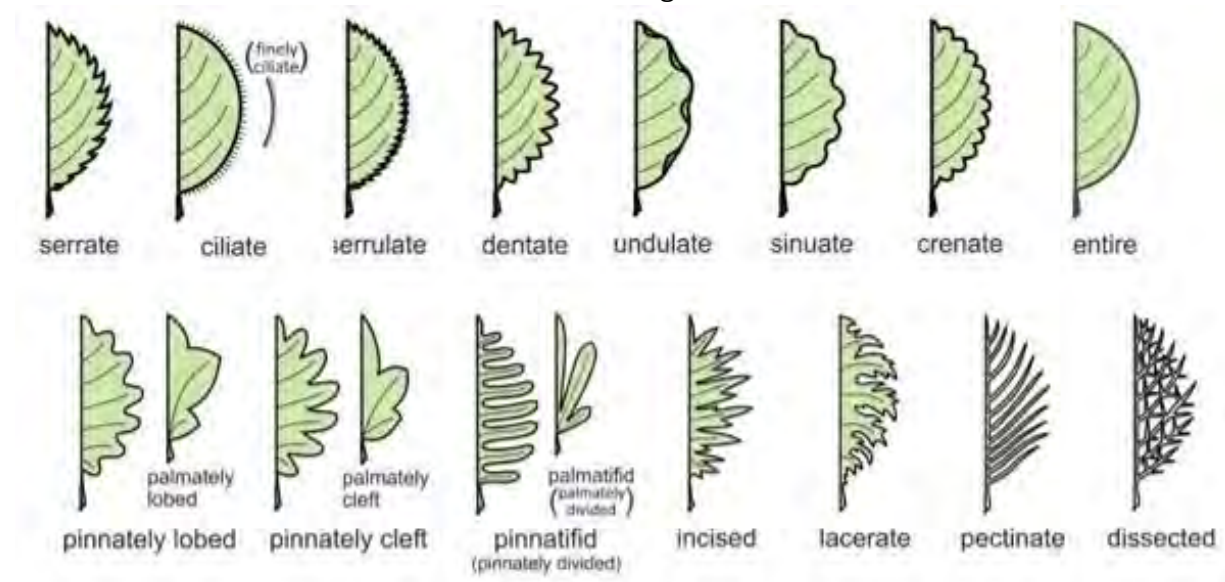
Leaf Shapes, Apices (tips), and Bases



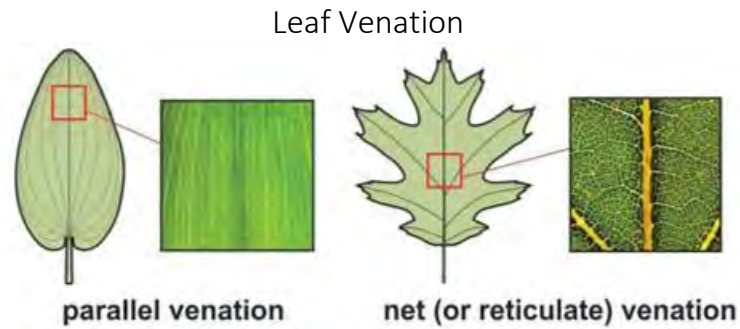
- **Acuminate:** Gradually tapering to a sharp point and forming concave sides along the tip. More of a triangular point in contrast to *attenuate*.
- **Acute:** Tapering to a pointed *apex* with straight sides.
- **Attenuate:** Tapering gradually to a narrow base.
- **Auriculate:** Ear-lobed shaped leaf base(s) attached to *petiole*.
- **Caudate:** With tail-like appendage.
- **Cleft:** Deep notch to *midrib*.
- **Cordate:** Heart shaped, notched at the base.
- **Cuneate:** Wedge-shaped, triangular, and tapering to a point at the base.
- **Cuspidate:** Tipped with a short, sharp, and rigid point.
- **Deltate (deltoid):** Triangle shaped, broad base with sides tapering to the index.
- **Elliptic:** Shape of a narrow *oval*, broadest at the middle, narrowing at both ends.
- **Flabellate:** Fan shaped.
- **Hastate:** Arrowhead-shaped, but with the basal lobes turned outward rather than downward.
- **Lanceolate:** Lance shaped, much longer than wide, widest at the middle.
- **Linear:** Resembling a line, long and narrow with parallel sides.
- **Mucronate:** Abruptly tipped with a small and short point, like projection of the *midrib*.
- **Oblanceolate:** Inversely *lanceolate*, attachment at the narrower end.
- **Oblong:** Two-four times longer than wide.
- **Oblique:** With unequal sides; slanting.
- **Obovate:** Inversely ovate, attachment at the narrower end.
- **Obtuse:** Blunt or *rounded* at the *apex*; with sides coming together at the *apex* at an angle greater than 90 degrees.
- **Orbicular:** Circular in outline.
- **Oval:** Broadly *elliptic*, width over one half the length.

- **Ovate:** Egg shaped in outline, attached at the broad end.
- **Reniform:** Kidney shaped, wider than long, broad *rounded apex* and two rounded basal lobes.
- **Rounded:** With a rounded *apex/base*.
- **Sagittate:** Arrowhead-shaped, with the basal lobes directed downward.
- **Scale-like:** Small, flat, overlapping structures e.g., juniper tree leaves.
- **Spatulate:** Spatula shaped, *rounded blade* tapering to the *base*.
- **Truncate:** With the *base/apex* squared at the end as if cut off.

Leaf Margins



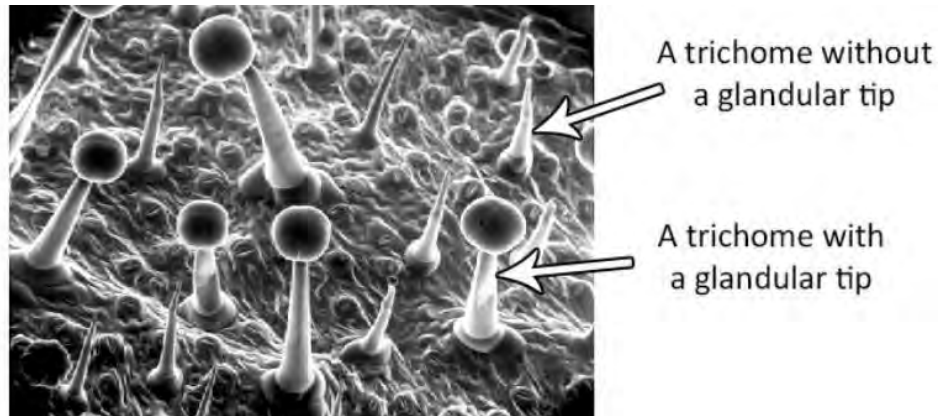
- **Ciliate:** Hairs oriented perpendicular to the *margin*.
- **Crenate:** With *rounded* teeth along the *margin*.
- **Dentate:** Toothed along the *margin*, the teeth directed outward rather than forward.
- **Dissected:** Deeply divided into many narrow segments.
- **Entire:** Not toothed, notched, or divided, as the continuous *margins* of some leaves.
- **Incised:** Cut sharply, deeply, and usually irregularly.
- **Lacerate:** Cut or *cleft* irregularly, as if torn.
- **Rugose:** Wrinkled leaves.
- **Pectinate:** *Pinnately* divided into fine, parallel segments, comb- or feather-like.
- **Pinnately cleft:** Indentations cut $\frac{1}{4}$ - $\frac{1}{2}$ to the *midrib*.
- **Pinnately lobed:** Indentations cut $\frac{1}{8}$ - $\frac{1}{2}$ to the *midrib*.
- **Pinnatifid:** *Pinnately cleft* or *lobed* half the distance or more to the *midrib*, but not reaching the *midrib*.
- **Serrate:** Toothed along the *margin*, the sharp teeth pointing forward.
- **Serrulate:** Toothed along the *margin* with minute, sharp, forward-pointing teeth.
- **Sinuate:** With a strongly wavy *margin*.
- **Undulate:** Wavy, but not so deeply or as pronounced as *sinuate*.

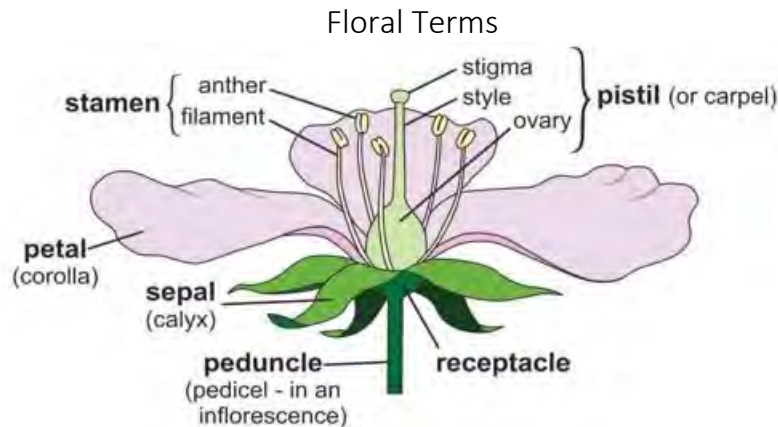


- **Net (or reticulate) venation:** In the form of a network.
- **Parallel venation:** Main veins parallel to the leaf axis or to each other.

Leaf Glands

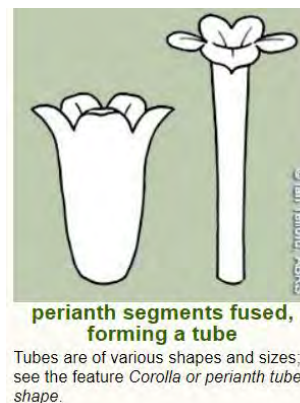
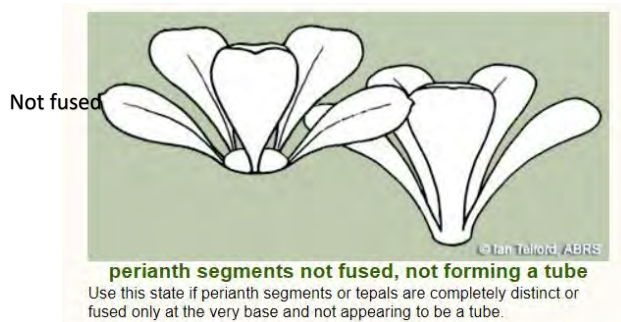
- **Eglandular:** Without glands, lack glandular heads.
- **Trichome:** Small hair or outer outgrowth from the epidermis of the plant.



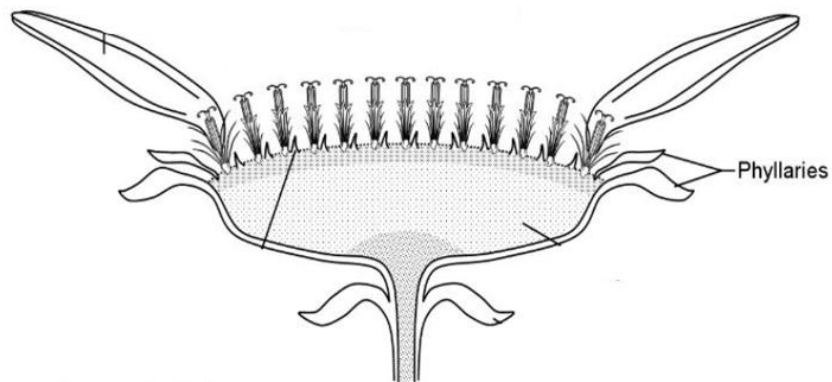


- **Stigma:** The portion of the *pistil* which is receptive to pollen.
- **Style:** The usually narrow portion of the *pistil* connecting the *stigma* to the *ovary*.
- **Ovary:** The expanded basal portion of the *pistil* that contains the ovules.
- **Pistil:** Female reproductive parts of a flower e.g., *stigma*, *style*, and *ovary*.
- **Carpel:** Female reproductive part of a flower (pistil).
- **Stamen:** Male reproductive organ of a flower consisting of *anther* and *filament*.
- **Anther:** The expanded pollen bearing portion of the *stamen*.
- **Filament:** The *stalk* of the *stamen* which supports the *anther*.
- **Staminode:** Rudimentary, sterile, or abortive *stamen* (does not produce pollen).
- **Sepal:** Outer parts of a flower that encloses the flower bud.
- **Calyx (calyces pl.):** Outer *whorl* of a flower consisting of *sepals*.
- **Corolla:** All the *petals* of a flower.
- **Peduncle:** *Stalk* of an inflorescence or solitary flower.
- **Perianth:** *Calyx* and/or *petals (corolla)* that enclose the reproductive parts of an angiosperm flower.

Fused

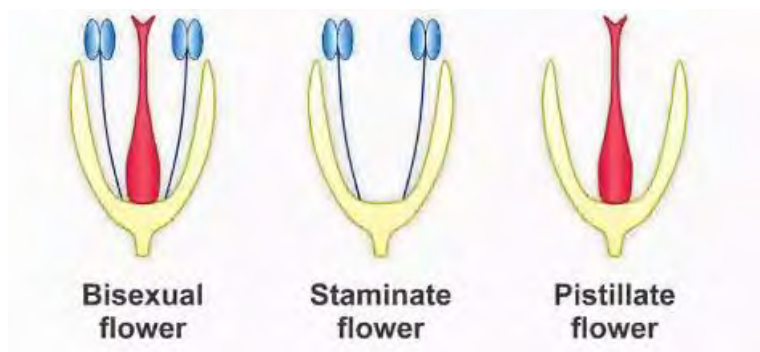


- **Phyllaries:** One of the many leaf-like *bracts* that surround the base of the *capitulum* in Asteraceae.
- **Receptacle:** Portion of the *pedicel* upon which the flower parts are born.



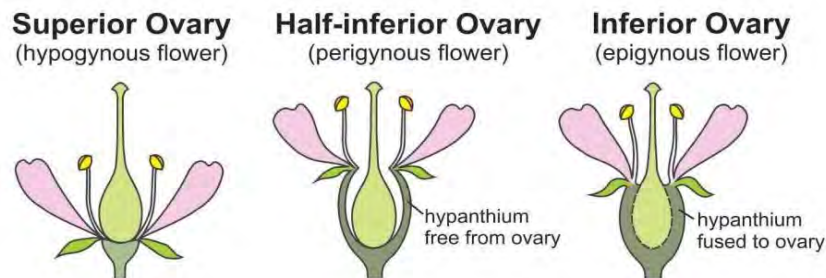
Sexual Reproduction

- **Bisexual:** Containing both male and female reproductive organs.
- **Pistillate:** Female reproductive organ of a flower containing the *pistil*.
- **Staminate:** Male reproductive organ of a flower containing the *stamen*.



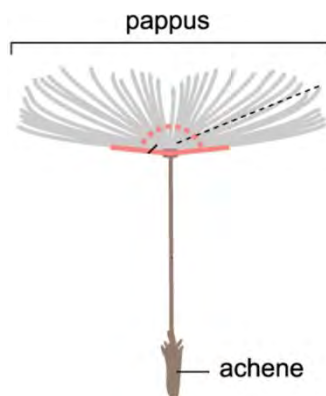
Plant Ovary

- **Anthesis:** Period of opening of the flower bud.
- **Chasmogamous (CH):** Open pollinated flowers.
- **Cleistogamy (CL):** Permanently closed self-pollinating flowers.
- **Half-Inferior Ovary (perigynous flower):** A flower type in which the *sepals*, *petals*, and *stamens* are attached to the rim of the floral tube (hypanthium), which surrounds but is not fused to the ovary wall.
- **Inferior Ovary (epigynous flower):** A flower type in which the *sepals*, *petals*, *stamens* are attached above the ovary to the rim of the hypanthium, which is fused to the *ovary* wall.
- **Superior Ovary (hypogynous):** A flower type in which the *sepals*, *petals*, and *stamens* are attached below the *ovary* to the *receptacle*.



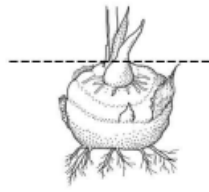
Seed Terminology

- **Achene:** Dry, one-seeded fruit that does not open to release the seed.
- **Indehiscent:** Pod or fruit not splitting open to release the seeds when ripe.
- **Schizocarp:** Fruit in which each *carpel* of a compound ovary splits apart to form 2+ parts.
- **Mericarp:** One seeded bits of *schizocarp* dry fruit e.g., *Acacia*.
- **Pappus:** Appendage of the cypsela of Asteraceae consisting of one-to-many bristles, awns, scales, setae, or coronas that assists in seed dispersal.

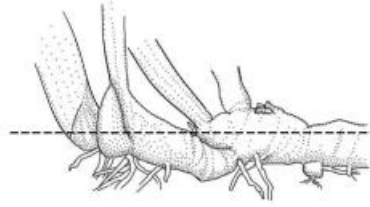


Root Terminology

- **Corm:** Usually, short squat stems filled with food storage tissue.
- **Rhizome:** Horizontal underground stem capable of having lateral shoots.



CORM



RHIZOME

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