

Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin.
1104 pp.

Scientific Name: *Croton coryi* Croizat

Synonyms: None.

Common Name: Cory's croton

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Coastal South Texas and the Holocene Sand Sheet, with records from Brooks, Jim Hogg, Kenedy, Kleberg, Nueces and Willacy counties (Johnston, 1958; TEX-LL, 1998).

Description (adapted from Correll & Johnston, 1970): Robust annual to 1 m tall, most parts densely covered with shaggy white stellate pubescence. **Leaves** alternate, simple, the blade ovate to narrowly ovate, 3-7 cm long, rounded at base and slightly acute at apex, the margins entire; petiole more than half as long as the blade. **Flowers** unisexual, with male and female flowers occurring in the same spikelike racemes; male flower with 5 sepals and 5 silvery petals about 3.5 mm long; female flowers with 7 sepals, the petals absent; styles 3, slender, ca. 4 mm long, each usually twice dichotomous (resulting in 12 ultimate segments). **Fruit** a shallowly 3-lobed, 3-seeded capsule about 5 mm long. According to Johnston (1958), the stems of *Croton coryi* exhibit considerable sap pressure. When a leaf is removed, the scar oozes a clear or slightly milky sap that turns brownish-red on exposure to air.

Similar Species: *Croton capitatus*, a common weed of pastures on sandy to loamy soils in South Texas, is somewhat similar. However, its male flowers lack the silvery petals of *Croton coryi*, and its styles are 1-2 mm long rather than 4 mm long. The lateral veins on the lower surface of the leaves of *Croton capitatus* are somewhat curved; in *Croton coryi* they are more or less straight and parallel.

Habitat: Grasslands and woodland openings on deep loose well drained sands on barrier island dunes and similar habitats inland.

Phenology: Flowering or fruiting more or less throughout the growing season.

Comments: Like other crotons, this species is avoided by cattle but does not become abundant in heavily utilized pastures in the manner of some of its relatives (Johnston, 1958). However, whether it should be considered a species of conservation concern is doubtful.

Illustrations: None known.

Selected References:

- Croizat, L. 1942. New and critical Euphorbiaceae chiefly from the southeastern United States. Bulletin of the Torrey Botanical Club 69(6): 445-460.
- Johnston, M. C. 1958. The Texas species of *Croton* (Euphorbiaceae). Southwestern Naturalist 3: 175-203.

Scientific Name: *Cucurbita texana* (Scheele) Gray

Synonyms: *Cucurbita pepo* L. var. *texana* (Scheele) Decker; *Cucurbita pepo* L. subsp. *ovifera* (L.) Decker var. *texana* (Scheele) Decker

Common Name: Texas gourd

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Long considered endemic to Texas, but recently reported from Eddy County, New Mexico (Sivinski & Lightfoot, 1992) and Louisiana (USDA, NRCS, 2002).

State Range: Widespread, occurring in several natural regions in the eastern half of the state, with records from Aransas, Bell, Bexar, Brazos, Burleson, Caldwell, Calhoun, Comal, Denton, Dewitt, Fayette, Goliad, Gonzales, Grimes, Hamilton, Jackson, Kinney, Kleberg, Lee, Llano, Madison, Menard, Milam, Navarro, Refugio, Robertson, San Jacinto, San Patricio, Sutton, Travis, Val Verde and Washington counties.

Description (adapted from Correll & Johnston, 1970): Annual vine of the gourd family, capable of climbing to the tops of trees; stems leafy, with "spicules" (minute spinelike structures 1-2 mm long) and numerous spiralling tendrils; leaves alternate, simple, pubescent, broadly ovate to almost kidney-shaped in outline, usually deeply 3- to 5-lobed, the margins sharply serrate, to about 15 cm long and about as wide; flowers large, conspicuous, solitary in the axils; calyx with 5 short slender lobes; corolla yellow to orange-yellow, usually with green veins, to about 7 cm long, lobed to about the middle, the 5 lobes acute and distinctly cuspidate; fruit an obovate gourd to 9 cm long and 6 cm wide, green or green with light-green carpellary (longitudinal) stripes, inedible.

Similar Species: Any number of food plants of the gourd family can escape from cultivation and persist for a season, particularly on the deep, well-watered alluvial soils in which *Cucurbita texana* usually occurs.

Habitat: Thickets and flotsam piles on riverbanks and frequently-scoured floodplains.

Phenology: Flowering in summer and fall (July-October).

Comments: Known historically from all major drainage systems in Texas; much of its bottomland habitat has presumably been lost to impoundments, agriculture and urban development, but a thorough assessment of its current status is difficult due to the ephemeral nature of the plant (Wilson, 1992).

Illustrations: A line drawing and a color photograph appear are provided in Diggs, Lipscomb & O'Kennon (1999). Drawings of various parts appear in Bailey (1943). A color photograph appears on the web at www.vvm.com/~jevans/sfbotany/folderwildflowers/gourdtexas.html.

Type specimen: [County not specified:] Bois de San Fernando, Oct 1835, *J. L. Berlandier 3028* (GH). [Described in *Linnaea* 21: 586-587 (1848); transferred to *Cucurbita*, *Boston Journal of Natural History* 6: 193 (1850).]

Selected References:

Bailey, L. H. 1943. Species of *Cucurbita*. *Gentes Herbarum* 6(5): 267-322.

- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shinnery and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Ft. Worth. 1626 pp.
- Kirkpatrick, K. J., D. S. Decker, and H. D. Wilson. 1985. Allozyme differentiation in the *Cucurbita pepo* complex: *C. pepo* var. *medullosa* vs. *C. texana*. *Economic Botany* 39(3): 289-299.
- Sivinski, R. and K. Lightfoot. 1992. Inventory of rare and endangered plants of New Mexico. New Mexico Forestry and Resources Conservation Division, Energy, Minerals and Natural Resources Department, Santa Fe. 58 pp.
- USDA, NRCS. 2002. The PLANTS database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- Wilson, H. D. 1992. TOES petition to nominate species: *Cucurbita texana* (Scheele) Gray. Unpublished memo, Texas Organization for Endangered Species. 1 p.

Scientific Name: *Cuscuta attenuata* Waterfall

Synonyms: None.

Common Name: marsh-elder dodder

Global/State Ranks: G2S2

Federal Status: None.

Global Range: Kansas, Oklahoma and Texas.

State Range: Cameron, Jackson, Liberty, Rains and Van Zandt counties.

Description: An annual parasitic vine with very slender orange stems that wind around the host like so much fishing line. The flowers are tiny, white and waxy, and the fruit is a small roundish capsule. *Cuscuta attenuata* is not among the 24 species of *Cuscuta* reported from Texas in Correll & Johnston (1970); for a description, see Tyrl & Prather (1990) or the type description in Rhodora 73: 575 (1971).

Similar Species: Much like *Cuscuta indecora*, in which the calyx is 1-2 mm long (less than 2 times long as wide) and the corolla is more than 2 times as long as calyx. In *C. attenuata*, the calyx is 2-3 mm long (more than 2 times long as wide), and the corolla is 1-1.5 times as long as calyx.

Habitat: Apparently parasitizes only *Iva annua* (Tyrl & Prather 1990), a weed of overgrazed moist to wet pastures. *Cuscuta attenuata* and its host are usually found in clays or various loams on floodplains, where associates include *Ambrosia trifida*, *Aster ericoides*, *Cynodon dactylon*, *Juncus* spp., *Solidago* sp., *Cephalanthus occidentalis*, *Populus deltoides*, *Quercus* spp., *Rhus toxicodendron*, *Salix nigra* and *Ulmus americana*. However, occurrence of the species is not related to a specific aspect of the host's habitat (Tyrl & Prather 1990). Note that *Cuscuta cuspidata* may also parasitize *Iva annua*.

Phenology: Flowering/fruitletting mid August-October.

Comments: Not considered a species of concern in Texas because it, or at least its host, benefits from abusive range management practices.

Illustrations: None known, but type description has not been checked.

Selected References:

Tyrl, R. J. and L. A. Prather. 1990. A study of the biology of *Cuscuta attenuata*. Report prepared for U.S. Fish & Wildlife Service, Tulsa.

Scientific Name: *Cuscuta exaltata* Engelm.

Synonyms: None.

Common Name: tree dodder, oak dodder

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Texas and Florida

State Range: Scattered across the eastern half of the state, with records from Aransas, Bell, Bexar, Comal, Coryell, Dallas, Hays, Johnson, Kendall, Kerr, Kinney, Llano, McLennan, San Patricio, Travis, Uvalde and Val Verde counties (TEX-LL, 1998; Yuncker, 1966; Diggs, Lipscomb & O'Kennon, 1999).

Description (adapted from Correll & Johnston, 1970): leafless parasitic vine with orange to orange-brown stems about 1/8 inch in diameter, climbing high into trees and shrubs. **Flowers** in small clusters, about 1/4 inch long, white, the parts thickened or waxy. **Fruit** a small circumscissile capsule.

Similar Species: More than 20 other dodder (*Cuscuta*) species are known from Texas, and many of them are difficult to identify. However, *Cuscuta exaltata* is readily recognized by its comparatively thick stems and its host selection; most other Texas dodders have stems less than 1/16 inch thick and parasitize herbaceous plants. However, giant dodder (*Cuscuta japonica*), a recently introduced exotic, does climb into trees. According to Wunderlin (1998), the two species differ in calyx features: in *Cuscuta exaltata*, the lobes are entire, while in *Cuscuta japonica*, the lobes are minutely erose.

Habitat: Parasitic on various *Quercus*, *Juglans*, *Rhus*, *Vitis*, *Ulmus*, and *Diospyros* species (Yuncker, 1966) as well as *Acacia berlandieri* and other woody plants. In central Texas, the species is found most often on oaks in upland situations.

Phenology: Uncertain. Most records are from September and October, but a few others are from spring and summer months.

Comments:

Illustrations: Line drawings appear in Yuncker (1966) and are reproduced in Diggs, Lipscomb & O'Kennon (1999).

Selected References:

- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shiners and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Feet Worth. 1626 pp.
- Wunderlin, R. P. 1998. Guide to the vascular plants of Florida. University Press of Florida, Gainesville. 806 pp.
- Yuncker, T. G. Convolvulaceae: *Cuscuta*. Pp. 123-150 in: Lundell, C. L. 1966. Flora of Texas, volume 1. Texas Research Foundation, Renner. 407 pp.

Scientific Name: *Cyperus grayioides* Mohlenbrock

Synonyms: None.

Common Name: Mohlenbrock's umbrellasedge

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Arkansas, Illinois, Louisiana, Missouri and Texas.

State Range: Anderson, Angelina, Burleson, Colorado, Franklin, Freestone, Hardin, Henderson, Leon, Nacogdoches, Newton, Robertson, Rusk, San Augustine, Shelby, Smith, Tyler, Upshur, Van Zandt and Wood counties.

Description: A smallish perennial sedge of xeric upland habitats. Relatively recently reported from Texas, *Cyperus grayioides* does not appear in Correll & Johnston (1970), in which it will key to *C. filiculmis*. For a complete description, see Mohlenbrock (1959).

Similar Species: *Cyperus grayioides* was overlooked in the past due to its similarity to *C. filiculmis*, to which it will key in Correll & Johnston (1970). In *C. filiculmis*, the spikes are hemispherical, with the spikelets spreading or ascending but not (or rarely) reflexed, and the achene is 1.5- 2 mm long. In *C. grayioides*, the spikes are spherical, with the spikelets radiating in all directions, and the achene is 2- 2.6 mm long (Mohlenbrock 1959).

Habitat: Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; occasionally on dry sandbars. Associates in southeast Texas include *Aristida longespica*, *A. lanosa*, *A. desmantha*, *Berlandiera x betonicifolia*, *Cyperus retrofractus*, *Gymnopogon ambiguus*, *Hypericum hypericoides*, *Pinus palustris*, *Rhynchospora grayii*, *Stylisma pickeringii* var. *pattersonii*, *Bulbostylis ciliatifolia* and *Selaginella riddellii* (Orzell 1990).

Phenology: Flowering-fruiting in Texas early June-mid November.

Comments: At the time of its original description, *Cyperus grayioides* was thought to be restricted to sand prairies of southern Illinois. Investigations by botanists in other states revealed that many plants previously dismissed as the ubiquitous *C. filiculmis* actually belonged to this new species, and the known range has been greatly expanded. For this reason, it is no longer considered a species of conservation concern in Texas.

Illustrations: A line drawing appears in Marcks (1972).

Selected References:

- Bowles, M. L., D. R. Kurz, R. Nyboer, and J. E. Schwegman. 1986. Status report on *Cyperus grayioides*. Report prepared for U.S. Fish and Wildlife Service, Atlanta.
- Bridges, E. L. and S. L. Orzell. 1989. Additions and noteworthy vascular plant collections from Texas and Louisiana, with historical, ecological, and geographical notes. *Phytologia* 66: 12-69.
- Carter, R. and C. T. Bryson. 1991. A report of *Cyperus grayioides* and *Cyperus retroflexus* (Cyperaceae) new to Missouri and notes on other selected Missouri *Cyperus*. *Sida* 14(3): 475-481.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.

- Logan, J. M. 1994. A state record for *Cyperus grayioides* (Cyperaceae) in Arkansas. *Sida* 16(1): 215-216.
- MacRoberts, M. H. and B. R. MacRoberts. 1995. Noteworthy vascular plant collections on the Kisatchee National Forest, Louisiana. *Phytologia* 78(4): 291-313.
- Marcks, B. G. 1972. Population studies in North American *Cyperus* section *Laxiglumi* (Cyperaceae). Ph.D. dissertation, University of Wisconsin. 405 pp.
- McKenzie, P. M. 1993. Status review of umbrella sedge, *Cyperus grayioides* in Missouri. U.S. Fish & Wildlife Service, Columbia, Missouri.
- Mohlenbrock, R. H. 1959. A new species of *Cyperus* from the Illinois sand prairies. *Brittonia* 11: 255-256.

Scientific Name: *Dalea hallii* Gray

Synonyms: *Parosela hallii* (Gray) Heller

Common Name: Hall's prairie-clover

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: North-central Texas, south to a few spots on the Edwards Plateau; records from Brown, Burnet, Comanche, Dallas, Erath, Fannin, Hays, Hood, Johnson, Kendall, Kerr, Mills, Parker and Tarrant counties (Turner, 1959; TEX-LL, 1998; BRIT/SMU, 1999).

Description (adapted from Correll & Johnston, 1970): Herbaceous perennial; stems few, slender, somewhat creeping but with the tips ascending, purplish in color, usually 1 foot long or shorter. **Leaves** few, trifoliolate, the leaflets linear and 1/2 to 1 inch long, **Flowers** in loose terminal spikes 1/2 to 1 1/2 inches long, the calyx lobes conspicuously silky-plumose, the corolla pea-like, yellow. **Fruit** a tiny 1- or 2-seeded pod.

Similar Species: Dwarf dalea (*Dalea nana*) is vaguely similar in terms of creeping habit and yellow flowers, but it has pinnately compound leaves with 5-9 leaflets.

Habitat: Grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides (Barneby, 1977).

Phenology: Mostly in early summer (June-July).

Comments:

Illustrations: Line drawings appear in Barneby (1977) and are reproduced in Diggs, Lipscomb & O'Kennon (1999). A color photograph is provided in Enquist (1997).

Selected References:

- Barneby, R. C. 1977. *Daleae imagines*. Memoirs of the New York Botanical Garden 27: 1-891.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shinnery and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Feet Worth. 1626 pp.
- Enquist, M. 1987. Wildflowers of the Texas Hill Country. Lone Star Botanical, Austin. 275 pp.
- Shinnery, L. H. 1949. The genus *Dalea* (including *Petalostemum*) in north-central Texas. Field and Laboratory 17: 85-89.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.

Scientific Name: *Desmanthus reticulatus* Benth.

Synonyms: None.

Common Name: netleaf bundleflower

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Mostly on prairies of the coastal plain of central and south Texas, with reports from Bexar, Comal, Gonzales, Kerr, Kleberg, Live Oak, San Patricio, Travis, Uvalde and Wilson counties.

Description: Herbaceous perennial; stems several from the base, trailing or prostrate, usually 1-2 ft. long. **Leaves** alternate, pinnately twice-compound, 2-4 in. long; pinnae (first leaf divisions) 1-4 pairs; ultimate leaflets 4-10 pairs per pinna, with raised veins on the lower surface, oblong to elliptic, 1/8 to 1/4 in. long. **Flowers** tiny, whitish, in spherical heads about 1/2 in. in diameter produced on axillary stalks 2 to 4 3/4 in. long. **Fruit** a linear bean-pod up to 2 in. long and 3/16 in. wide.

Similar Species: Readily distinguished from the eight other *Desmanthus* species in Texas by the raised veins on the lower leaf surface and the long fruiting stalk.

Habitat: Mostly in grasslands on black clays of the Coastal Plain; sometimes in openings in juniper-oak woodlands over limestone.

Phenology: Flowering March-June, sometimes into the summer during wetter years; conspicuous in fruit until at least early summer.

Comments: A recent student of the genus suggested that *Desmanthus reticulatus* is endangered due to loss of habitat to agricultural use and recommended that it be propagated in protected areas (Luckow, 1993).

Illustrations: Excellent line drawings of all parts of the plant appear in Luckow (1993).

Selected References:

- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Luckow, M. 1993. Monograph of *Desmanthus* (Leguminosae-Mimosoideae). Systematic Botany Monographs Volume 38. 166 pp.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.

Scientific Name: *Echinacea atrorubens* Nutt.

Synonyms:

Common Name: Topeka purple-coneflower

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Kansas, Oklahoma and Texas, occurring mostly in tallgrass prairie of the southern Great Plains.

State Range: Scattered across the eastern half of Texas, including Cooke, Denton, Fannin, Galveston, Gonzales, Hunt, Kaufman, Navarro, Parker, Polk, Red River, Rockwall, Tarrant, Walker, Waller, Washington and Wise counties (Diggs, Lipscomb & O'Kennon, 1999; McGregor, 1968; TEX-LL, 2002)

Description (adapted from Correll & Johnston, 1970): Perennial with usually simple stems 3-9 dm tall, glabrous or with stiff appressed straight hairs, sometimes hirsute just below the flower head. **Leaves** basal and cauline; basal leaves with petiole 1-15 cm long, the blade 4-15 cm wide; cauline leaves progressively smaller, becoming sessile, strigose and ciliate. **Flowers** in large showy terminal heads 15-40 mm high and 20-36 mm wide (not counting ray florets); ray florets dark purple, rarely pink or white, 10-33 mm long, strongly reflexed, about as long as head is wide; disk flowers fertile. **Fruit** an achene 4-5 mm long, glabrous.

Similar Species: Much like several other *Echinacea* species in Texas, but characterized by the combination of appressed (rather than shaggy) hairs of the stem and the dark purple rays that are about as long as the head is wide.

Habitat: Blackland prairies, open limestone slopes, sandy woodlands and a variety of other sites.

Phenology: Flowering May-July (Diggs, Lipscomb & O'Kennon, 1999).

Comments:

Illustrations: A line drawing by Linny Heagy appears in Diggs, Lipscomb & O'Kennon (1999).

***Selected References:**

Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shinnery and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Ft. Worth. 1626 pp.

McGregor, R. L. 1968. The taxonomy of the genus *Echinacea* (Compositae). University of Kansas Science Bulletin 48: 113-142.

Scientific Name: *Echinocereus reichenbachii* (Terscheck) Haage f. subsp. *fitchii* (Britt. & Rose) N. Taylor

Synonyms: *Echinocereus fitchii* Britt. & Rose; *Echinocereus reichenbachii* (Terscheck) Haage f. var. *fitchii* (Britt. & Rose) L. Benson

Common Name: Fitch's hedgehog cactus

Global/State Ranks: G5T3S3

Federal Status: None.

Global Range: South Texas and adjacent Nuevo León and Tamaulipas.

State Range: Jim Hogg, Starr, Webb and Zapata counties.

Description: Small columnar cactus with usually solitary stems, to about 17 cm tall and 3 cm wide. See photographs in various cactus books.

Similar Species: Similar to other varieties of *Echinocereus reichenbachii*, but none of those other varieties occur within the range of var. *fitchii*.

Habitat: Under or among shrubs in low-stature thorn shrublands on a variety of substrates but mostly over Eocene strata.

Phenology: Flowering period unreported, presumably in spring and/or opportunistically after rains. Recognizable in vegetative condition throughout the year.

Comments: Benson (1982) referred to these plants as "little gems partly hidden in the underbrush and commonly overlooked." Others would suggest that Fitch's hedgehog is among the most conspicuous of South Texas cacti.

Illustrations: Color photographs appear in Weniger (1984) as *E. fitchii* and in Everitt, Drawe & Lonard (2002).

Selected References:

- Benson, L. 1982. The cacti of the United States and Canada. Stanford University Press, Stanford. 1044 pp.
- Everitt, J. H., D. L. Drawe and R. I. Lonard. 2002. Trees, shrubs and cacti of South Texas. Revised edition. Texas Tech University Press, Lubbock. 249 pp.
- Taylor, N. P. 1985. The genus *Echinocereus*. A Kew Magazine Monograph. The Royal Botanic Gardens, Kew, in association with Timber Press, Portland, Oregon. 160 pp.
- Weniger, D. 1984. Cacti of Texas and neighboring states: a field guide. University of Texas Press, Austin. 356 pp.

Scientific Name: *Eleocharis wolfii* (Gray) Patt.

Synonyms: *Scirpus wolfi* Gray

Common Name: Wolf's spikesedge

Global/State Ranks: G3?S1

Federal Status: None.

Global Range: Known from at least 20 states and 2 Canadian provinces, from Alberta, Saskatchewan and North Dakota east to New York and south to Mississippi and Texas.

State Range: Poorly known. There is one specimen from Jefferson County, and according to Correll & Correll (1975), *Eleocharis wolfii* also occurs in the "Plains Country."

Description (adapted from Correll & Johnston 1970; Godfrey & Wooten 1979; McGregor et al. 1986): Perennial (?) with slender, creeping rhizomes. **Culms** tufted, flattened or 2-edged, strongly inrolled and thus somewhat C-shaped in cross-section, 12-30 (-40) cm long and 0.6-1.3 mm wide; sheaths apically scarious, oblique. **Spikelets** ovoid-lanceolate, acute, (4-) 10-15 mm long, 15- 34-flowered; scales narrowly ovate, acute, to 3 mm long, usually with a green midvein bordered on either side by a purple longitudinal stripe, the balance stramineous, firm or marginally scarious; bristles absent; style 3-branched. **Achenes** narrowly obovoid, 0.8-0.9 mm long, pearly, obscurely trigonous to terete, with ca. 9 longitudinal ridges and between the ridges ca. 40 horizontal cells (trabeculae); tubercle depressed-conic, ca. 0.1 mm long, much narrower than the body.

Similar Species: *Eleocharis wolfii* belongs to a group of species in which the achene surfaces are covered with elongate cells neatly arranged in longitudinal rows. In the other three Texas species of this group, *E. acicularis*, *E. brachycarpa* and *E. radicans*, the culms are more or less round. In *E. wolfii*, the culms are flattened and C-shaped in cross section.

Habitat: Wet sand and wet swales in prairies (Correll & Correll 1975).

Phenology: Flowering/fruitlet spring-summer (Correll & Correll 1975).

Comments: Given its exceptionally wide range, as well as the difficulty of the genus, it is our opinion that *Eleocharis wolfii* is probably more common than suggested by the global rank of G2. Until a range-wide status survey can be conducted, we will remain skeptical that *E. wolfii* is a species of conservation concern.

Illustrations: A line drawing of upper culm and spikelet appears in Braun (1967). Line drawings of habit, spikelets, scales, and achenes appear in Gleason (1952).

Selected References:

- Braun, E. L. 1967. The Monocotyledoneae [of Ohio]: cat-tails to orchids. The Ohio State University Press, Columbus. 464 pp.
- Correll, D. S. and H. B. Correll. 1975. Aquatic and wetland plants of southwestern United States. Stanford University Press, Stanford. Reissue of 1972 edition originally published by the United States Environmental Protection Agency. 2 volumes. 1777 pp.
- Gleason, H. A. 1952. The new Britton and Brown illustrated flora of the northeastern United States and adjacent Canada. 3 volumes. New York Botanical Garden, New York.

- Godfrey, R. K. and J. W. Wooten. 1979. Aquatic and wetland plants of the southeastern United States. Monocotyledons. The University of Georgia Press, Athens. 712 pp.
- McGregor, R. L., T. M. Barkley, and the Great Plains Flora Association. 1986. Flora of the Great Plains. University Press of Kansas, Lawrence. 1392 pp.

Scientific Name: *Ephedra coryi* E. L. Reed

Synonyms: None.

Common Name: Cory's ephedra, Cory's Mormon-tea

Global/State Ranks: G3S3

Federal Status: None.

Global Range: West Texas, with an isolated population in the San Andreas Mountains of southeastern New Mexico (Stevenson, 1993).

State Range: Southern Plains Country, with records from Andrews, Dawson, Gaines, Howard, Loving, Lubbock, Martin, Midland, Sterling and Winkler counties (Correll, 1966).

Description (adapted from Correll & Johnston, 1970): Shrub to 1 m tall; branches terete, to 2.5 mm thick, opposite or whorled, erect and arranged in somewhat broom-like clusters; young stems bright green; bark of older stems red-brown, cracked and furrowed. **Leaves** opposite but tiny and inconspicuous. **Flowers** in unisexual cones on peduncles in pairs or clusters at the nodes of young branches, the shingle-like bracts of the cone opposite; staminate cones obovate, 4-7 mm long; ovulate cones obovate to spherical, 7-15 mm long.

Similar Species:

Habitat: Primarily in loose sands of dune areas but also in grasslands on limestone sites.

Phenology: Flowering in April (Vines, 1960).

Comments: Some species of *Ephedra* are highly preferred browse species.

Illustrations: A line drawing appears in Vines (1960).

Selected References:

- Correll, D. S. 1966. Gymnospermae. Pp. 322-368 in: Lundell, C. L. 1967. Flora of Texas, volume 1. Texas Research Foundation, Renner. 407 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Stevenson, D. W. 1993. Ephedraceae. Pp. 428-434 in Flora of North America Committee. 1993. Flora of North America north of Mexico. Volume 2. Pteridophytes and Gymnosperms. Oxford University Press, New York. 475 pp.
- Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin. 1104 pp.

Scientific Name: *Epipactis gigantea* Dougl. ex Hook.

Synonyms: *Amesia gigantea* (Dougl. ex Hook.) Nelson & MacBride; *Helleborine gigantea* (Dougl. ex Hook.) Druce

Common Name: chatterbox orchid, stream epipactis, giant hellebore

Global/State Ranks: G4S3

Federal Status: None.

Global Range: Much of western North America from southern British Columbia south to Baja California and Hidalgo, from the Pacific coast eastward to southwestern South Dakota and central Texas (Henrickson & Johnston, in prep.; Luer, 1975); also in China, Tibet, India and southern Japan (Brown & Argus, 2002).

State Range: Edwards Plateau and Trans-Pecos, with records from Austin, Bandera, Blanco, Brewster, Culberson, Dallas, Edwards, Garza, Gillespie, Gonzales, Hays, Kendall, Kerr, Presidio, Real, San Saba, Sutton, Travis, Uvalde, Val Verde and Wise counties (Liggio & Liggio, 1999).

Description (adapted from Correll & Johnston, 1970):

Similar Species:

Habitat: Moist soils in and along streams, often with maidenhair fern (*Adiantum capillus-veneris*) on seepy limestone cliff-faces.

Phenology:

Comments:

Illustrations: Line drawings appear in Correll (1978) and are reproduced in Correll & Correll (1975) and Diggs, Lipscomb & O'Kennon. Color photographs appear in Luer (1975), Liggio & Liggio (1999), Enquist (1987) and countless other wildflower books.

Selected References:

- Correll, D. S. 1978. Native orchids of North America north of Mexico. Stanford University Press, Stanford. 399 pp.
- Correll, D. S. and H. B. Correll. 1975. Aquatic and wetland plants of southwestern United States. 2 volumes. Stanford University Press, Stanford. 1777 pp.
- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shinnery and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Ft. Worth. 1626 pp.
- Enquist, M. 1987. Wildflowers of the Texas Hill Country. Lone Star Botanical, Austin. 275 pp.
- Henrickson, J. and M. C. Johnston. In prep. A flora of the Chihuahuan Desert Region. 3 volumes. 1990 draft.
- Liggio, J. and A. O. Liggio. 1999. Wild orchids of Texas. University of Texas Press, Austin. 228 pp.
- Luer, C. A. 1975. The native orchids of the United States and Canada excluding Florida. The New York Botanical Garden, New York. 361 pp.
- Brown, P. M. and G. W. Argus. 2002. *Epipactis*. Pp. 584-586 in: Flora of North America Committee. 2002. Flora of North America north of Mexico. Volume 26. Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, New York. 723 pp.

Scientific Name: *Euphorbia innocua* Wheeler

Synonyms: None.

Common Name: velvet spurge

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Coastal Bend and the South Texas Sand Sheet, with records from Aransas, Brooks, Calhoun, Kenedy, Kleberg, Nueces, Refugio, San Patricio and Willacy counties (TEX-LL, 1998; McAlister, 1999).

Description (adapted from Wheeler, 1939): Densely pubescent perennial forb with essentially prostrate stems (ascending when densely surrounded by taller vegetation) up to 50 cm long but usually 30 cm long or less; leaves on lower part of stem alternate and on very short petioles, those on upper part of stem opposite and sessile, in either location densely pubescent, the blades broadly ovate to oblong in outline, 4-15 mm long, with entire margins; cyathia sessile or short-pedicellate, pubescent; cyathial glands 4, appendaged, the appendage pale green (almost white), lunate, wider than gland itself, essentially entire; capsule 3-angled, pubescent, 2.4-2.8 mm long.

Similar Species: *Euphorbia innocua* resembles any number of strongly pubescent mat-spurges (*Euphorbia* spp. of subgenus *Chamaesyce*) but differs from them in having alternate leaves on lower portion of stem. Its pubescence is also shaggier and thus more obvious than that of its local congeners.

Habitat: Open areas within live oak or mesquite woodland / grassland mosaics on deep loose sands. In some locations, *Euphorbia innocua* is localized on and around gopher (*Geomys*) mounds within otherwise rather densely vegetated coastal prairie on sandy soils.

Phenology: Probably flowering / fruiting essentially throughout the growing season.

Comments: A striking species of limited distribution, one about which very few botanists are aware.

Illustrations: An excellent, highly-detailed line drawing appears in Wheeler (1939).

Type specimen: Willacy Co.: in sand in open fields 2 mi N of Yturria on Hwy 96, near Kenedy Co. line, 10 Apr 1937, R. Runyon 1627 (US).

Selected References:

McAlister, W. 1999. Vascular plant list, Matagorda Island. October 1999 draft. Unpublished manuscript, United States Fish & Wildlife Service. 12 pp.

Wheeler, L. C. 1939. A miscellany of New World Euphorbiaceae. Contributions from the Gray Herbarium 127.

Scientific Name: *Euphorbia peplidion* Engelm.

Synonyms: *Tithymalus peplidion* (Engelm.) Small

Common Name: low spurge

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Scattered locations in the southern half of Texas, with specimen records from Atascosa, Bee, Bexar, Dimmit, Goliad, Gonzales, Guadalupe, Karnes, Jim Wells, Live Oak, McMullen, Pecos, San Patricio, Travis, Uvalde and Wilson counties (TAES, 1999; TEX-LL, 2003; SBSC, 1999); reports from Duval, Tom Green and Val Verde counties (files of Rare Plant Study Center) need verification.

Description (adapted from Correll & Johnston, 1970): Tiny glabrous annual member of the spurge family (Euphorbiaceae); stems 5-20 cm tall, sparingly branched; stem leaves alternate, simple, sessile, narrowly lanceolate or spatulate, 5-20 mm long and 1-4 mm wide, long-tapering to base, the margins entire; leaves broader in inflorescence, whorled at base of inflorescence and usually opposite within inflorescence; flowers (actually cyathia) sessile in axils of inflorescence branches, the involucre 0.6-0.9 mm long; glands 4, oblong, without petaloid appendages but with a long white horn at each end; styles 3, 0.5 mm long, bifid nearly to base; capsule 3-lobed, 2-2.3 mm long and about 3 mm wide, smooth; seeds 3, 1.6-1.9 mm long, with a single pit on each of the two ventral faces and rows of smaller pits on the dorsal face.

Similar Species: Several species of *Euphorbia* sect. *Tithymalus* occur in southern Texas. *Euphorbia peplidion* is unique among them in having horns on the cyathial glands and seeds with a single pit on each of the two ventral faces.

Habitat: A variety of vernal-moist situations in a number of natural regions. Jones (1977) found the species to be "frequent in well drained sandy prairies and openings."

Phenology: Flowering in early spring, sometimes as late as May.

Comments:

Illustrations: None known. A sense of the general appearance of members of this genus can be obtained from the color photograph of *Euphorbia roemerianus* in Enquist (1987). See Correll & Johnston (1970) for technical characters used to identify *Euphorbia peplidion*.

Type specimen: [County not stated:] Stony prairies east of the San Pedro, Texas, 1851, *C. Wright 1823* (MO). Attributed by w³ specimen database (www.mobot.org) to Bell County at 31.03.00N, 097.28.00W.

Selected References:

- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Enquist, M. 1987. Wildflowers of the Texas Hill Country. Lone Star Botanical, Austin. 275 pp.
- Jones, F. B. 1977. Flora of the Texas Coastal Bend. Second edition. Welder Wildlife Foundation, Sinton. 262 pp.

Scientific Name: *Euphorbia strictior* Holzinger

Synonyms: *Tithymalus strictior* (Holzinger) Woot. & Standl.

Common Name: tall plains spurge, Panhandle spurge

Global/State Ranks: G3S2

Federal Status: None.

Global Range: East-central New Mexico and western Texas.

State Range: Armstrong, Deaf Smith and Oldham counties in the Panhandle and Crockett and Sutton counties on the Stockton Plateau. The Crockett and Sutton county records, *Cory 29702* (TAES) and *Cory s.n.* (TAES) respectively, merit close examination (Naumann, 1986).

Description (adapted from Correll & Johnson, 1970): Mostly glabrous perennial with stems often branched from near the base, to 1 m (3 feet) tall. **Leaves** alternate below, becoming opposite or whorled in the inflorescence, in either case simple, ascending, 25-50 mm long, linear or otherwise very narrow, the margins entire. **Flowers** minute, concealed within solitary cyathia in the upper stem-forks; cyathial glands 4 or 5, yellowish, each with a very narrow, single minutely scalloped appendage. **Fruit** a 3-angled, 3-seeded capsule.

Similar Species: *Euphorbia wrightii* is somewhat similar, but its cyathia are on peduncles that are longer than the subtending leaves, and the appendages on its cyathial glands are broader than the gland is long. In *Euphorbia strictior*, the cyathia are on peduncles that are shorter than the subtending leaves, and the appendages are very narrow.

Habitat: Shortgrass grasslands on dry rocky or, more commonly, deep sandy sites (Naumann, 1986).

Phenology: Flowering August-September (Correll & Johnston, 1970).

Comments:

Illustrations: Line drawings appear with the type description (Holzinger, 1892) and in New Mexico Native Plant Advisory Committee (1984).

Selected References:

Holzinger, J. 1892. [Title unknown.] Contributions from the U. S. National Herbarium 1: 214-215.

Naumann, T. S. 1986. Status report on *Euphorbia strictior*. Report prepared for U. S. Fish and Wildlife Service, Region 2, Albuquerque.

New Mexico Native Plant Protection Advisory Committee. 1984. A handbook of rare and endemic plants of New Mexico. University of New Mexico Press, Albuquerque. 291 pp.

Scientific Name: *Eurytaenia hinckleyi* Math. & Const.

Synonyms: None.

Common Name: Hinckley's spreadwing

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Monahans/Kermit Sandhills, with records from Andrews, Crane, Reeves, Ward and Winkler counties (Mathias & Constance, 1951; SRSC).

Description (adapted from Correll & Johnston, 1970): Annual with stems 3-12 dm tall. **Leaves** pinnately or ternately-pinnately dissected, to 10 cm long and 5 cm wide, ultimate segments oblong-lanceolate or narrower, the broader segments serrate. **Flowers** in compound umbels, with both involcre and involucl present; corolla tiny, white. **Fruit** a ribbed schizocarp about 5-8 mm long and 4-5 mm wide, oblong-oval in outline, scaberulous, truncate or emarginate at the apex, the dorsal ribs very narrowly winged, the lateral wings thicker than the body.

Similar Species: *Eurytaenia texana*, which ranges patchily across much of Texas and Oklahoma, differs mostly in fruit characters. Mathias and Constance (1951) seemed to wonder aloud about the probity of using fruit characters alone as the basis of classification in the Apiaceae. Nonetheless, *Eurytaenia hinckleyi* appears to be restricted to the Monahans and Kermit sandhills, whereas *Eurytaenia texana* occurs in any number of regions and situations.

Habitat: Grasslands, open mesquite (*Prosopis*) woodlands and Havard oak (*Quercus havardii*) shinneries on loose sandy soils of active or stabilized dune areas.

Phenology: Flowering or fruiting May-July.

Comments:

Illustrations: A line drawing appears in Mathias & Constance (1951), and a color photograph appears in Warnock (1974).

Selected References:

- Mathias, M. E. and L. Constance. 1951. Umbelliferae. Pp. 263-330 in Lundell, C. L. 1961. Flora of Texas, volume 3. Texas Research Foundation, Renner. 433 pp.
- Warnock, B. H. 1974. Wildflowers of the Guadalupe Mountains and the Sand Dune Country, Texas. Sul Ross State University, Alpine. 176 pp.