

Scientific Name: *Geocarpon minimum* Mackenzie

Synonyms: None.

Common Name(s): geocarpon, tiny Tim, earth fruit

Global/State Ranks: G2S1

Federal Status: Threatened

Global Range: Arkansas, northwestern Louisiana, southwestern Missouri and northeastern Texas.

State Range: Anderson County.

Description (adapted from NatureServe, 2004 and Steyermark, 1963): Glabrous winter annual, stems simple or branched at the base, the branches few, erect or spreading-ascending, mostly 3-4 cm high and less than 0.5 mm thick, often a bright pinkish or reddish or pale purplish color. **Leaves** simple, opposite, green or pinkish in color, 3-4 mm long, narrowly oblong or ovate-oblong, the margins entire, the apex acute. **Flowers** usually axillary, regular, funnelform-campanulate; sepals 5, 3-4 mm long, reddish or reddish-green; petals absent; stamens 5; staminodes 5; ovary superior, lance-ovoid, somewhat trigonous, about the length of the sepals. **Fruit** a capsule containing numerous, long-funicular seeds.

Similar Species: None.

Habitat: In some states, *Geocarpon minimum* occurs in glades and other open, sparingly vegetated areas on shallow soils over sandstone outcrops, sometimes in shallow depressions within such areas. In Arkansas it has been found in sparingly vegetated areas on saline prairie. Soils in both types of habitat are high in magnesium or sodium.

Phenology: Flowering in March.

Comments:

Illustrations: Line drawings appear in Steyermark (1963). A black-and-white photograph is provided in Steyermark, Voigt & Mohlenbrock (1959). In March 2004, a color photograph appeared on the website of the Center for Plant Conservation (<http://www.centerforplantconservation.org>).

Selected References:

- Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. United States Department of Agriculture, Forest Service, Technical Publication R8-TP2. 1305 pp.
- Mackenzie, K. K. 1914. A new genus from Missouri. *Torreyia* 14: 67-68.
- McInnis, N. C., L. M. Smith, and A. B. Pittman. 1993. *Geocarpon minimum* (Caryophyllaceae), new to Louisiana. *Phytologia* 75(2): 159-162.
- Morgan, S. 1980. Status report on *Geocarpon minimum* in Missouri. Missouri Department of Conservation, Jefferson City, Missouri. 16 pp.
- Orzell, S. L. and E. L. Bridges. 1987. Further additions and noteworthy collections in the flora of Arkansas, with historical, ecological, and phytogeographical notes. *Phytologia* 64(2): 81-144.
- Palmer, E. J. and J. Steyermark. 1950. Notes on *Geocarpon minimum* MacKenzie. *Bulletin of the Torrey Botanical Club* 77: 266-273.
- Pittman, A. B. 1988. Identification, survey and evaluation of potential habitats of *Geocarpon minimum* MacKenzie in Arkansas. Arkansas Natural Heritage Commission, Little Rock, Arkansas.

- Rettig, J. H. 1983. A New Arkansas station for *Geocarpon minimum* MacKenzie (Caryophyllaceae). *Bulletin of the Torrey Botanical Club* 110(2): 213.
- Shephard, W. 1987. Monitoring of *Geocarpon minimum* at Warren Prairie Natural Area in the spring of 1987. Arkansas Natural Heritage Commission, Little Rock, Arkansas.
- Steyermark, J. A. 1963. *Flora of Missouri*. Iowa State University Press, Ames. 1728 pp.
- Steyermark, J., J. W. Voigt, and R. H. Mohlenbrock. 1959. Present biological status of *Geocarpon minimum* MacKenzie. *Bulletin of the Torrey Botanical Club* 86: 228-235.
- Thurman, C. M. 1989. A Missouri survey of six species of federal concern. Final report. Missouri Department of Conservation. 99 pp.

Scientific Name: *Helianthus occidentalis* Riddell subsp. *plantagineus* (T. & G.) Heiser

Synonyms: *Helianthus occidentalis* Riddell var. *plantagineus* T. & G.

Common Name: plantainleaf sunflower

Global/State Ranks: G5T3QS3

Federal Status: None.

Global Range: Mostly in southeast Texas, with reports from one county in Arkansas (Smith, 1988) and one parish in Louisiana (MacRoberts, 1989).

State Range: Coastal plain of southcentral Texas, with records from Austin, Bastrop, Caldwell, Colorado, Dewitt, Fayette, Goliad, Jackson, Lavaca, Lee, Victoria, Waller and Washington counties (TEX-LL, 1999; BRIT/SMU, 1999; SBSC, 1999); seemingly disjunct in Dimmit County in the South Texas Brush Country and Newton County in the Pineywoods. Reported by Turner et al. (2003) from Matagorda and Smith counties; no vouchers have come to light.

Description (adapted from Correll & Johnston, 1970): Perennial with stems mostly 8-15 dm tall, finely pubescent; stem leaves opposite (sometimes reduced and alternate in inflorescence), usually few in number, the blade ovate, thick, ca. 10 cm long and about half as wide, the petiole about as long as the blade; flower heads few, arranged in a loose terminal panicle; phyllaries narrowly lanceolate, subulate-attenuate, longer than the disk; disk ca. 1 cm wide; disks and rays yellow; achenes flattened; achene of 2 lanceolate awns.

Similar Species: The opposite, long-petiolate, ovate leaves distinguish this taxon from other *Helianthus* species within its Texas range. It may be more easily confused with *Silphium gracile* and *S. simpsonii*. In these species, the disk flowers are infertile, i.e., only the ray flowers produce achenes; in *Helianthus*, both disk and ray flowers produce achenes.

Habitat: Mostly in Alfisol prairies on the coastal plain.

Phenology: Flowering in late summer and early fall (late August-September).

Comments:

Illustrations: None known. Line drawings of unspecified subspecies (presumably ssp. *occidentalis*) appear in Gleason (1952) and Heiser (1969).

Type specimen: [No county specified:] Texas, 1842, *T. Drummond s.n.* (NY).

Selected References:

- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 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.
- Heiser, C. B., Jr. 1969. The North American sunflowers (*Helianthus*). Memoirs of the Torrey Botanical Club 22(3): 1-218.
- MacRoberts, D. T. 1989. A documented checklist and atlas of the vascular flora of Louisiana. Dicotyledoneae: Acanthaceae to Fabaceae. Bulletin of the Museum of Life Sciences, Louisiana State University Number 8.

- Smith, E. B. 1988. An atlas and annotated checklist of the vascular plants of Arkansas. Second edition. Distributed by Kinko's of Fayetteville. 489 pp.
- Turner, B. L., H. Nichols, G. Denny and O. Doron. 2003. Atlas of the vascular plants of Texas. Two volumes. Sida Botanical Miscellany, Botanical Research Institute of Texas, Fort Worth. 888 pp.

Scientific Name: *Hesperaloë funifera* (K. Koch) Trelease subsp. *funifera*

Synonyms: *Yucca funifera* K. Koch.

Common Name: Mexican hesperaloe, white hesperaloe, samandoque

Global/State Ranks: G3T3S1

Federal Status: None.

Global Range: Coahuila, Nuevo León and one location in Texas. Plants from San Luis Potosí were recently segregated as subsp. *chiangii* G. D. Starr (Starr, 1997).

State Range: At present known only from a small population in the Devils River watershed in Val Verde County.

Description: Yucca-like shrub. **Leaves** numerous in a basal rosette, lime green in color, thick, stiff, almost woody, round to concave or almost flat, to 2 m (6 feet) long and 4 cm (1 1/2 inches) wide, with curling white fibers along the margins. **Flowers** on a branched woody stalk taller than the clump of leaves; corolla creamy to salmon in color, tubular at base and spreading into 6 elliptic lobes above, about 3 cm (1 inch) long. **Fruit** a 3-celled capsule containing numerous flat black seeds.

Similar Species: None. *Hesperaloe parviflora* also occurs in Val Verde County, but its leaves are generally less than 1 m (3 feet) long, and its flowers are reddish.

Habitat: Grasslands and thorn shrublands on xeric rocky limestone slopes and flats.

Phenology: Detected and identified at any season on the basis of vegetative characters alone.

Comments: This species has been studied as a possible commercial source of fibers (McLaughlin & Schuck, 1991).

Illustrations: A black-and-white photograph appears in Smith & Butterwick (1975).

Selected References:

- Butterwick, M. and J. M. Poole. 1980. *Hesperaloë funifera* in Texas. *Sida* 8(3): 314-315.
- McLaughlin, S. P. and S. M. Schuck. 1991. Fiber properties of several Agavaceae from the southwestern United States and northern Mexico. *Economic Botany* 45: 480-486.
- Powell, A. M. 1998. Trees and shrubs of the Trans-Pecos and adjacent areas. University of Texas Press. 498 pp.
- Smith, J. and M. Butterwick. 1975. A vegetational survey of the Devils River-Dolan Creek area. Pp. 36-57 in: LBJ School of Public Affairs. Devils River, a natural area survey. Lyndon Baines Johnson School of Public Affairs, The University of Texas at Austin. 109 pp.

Scientific Name: *Hexalectris nitida* L. O. Williams

Synonyms: None.

Common Name: Glass Mountains coral-root, shining coral-root

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Northern Coahuila, southwestern New Mexico and the western half of Texas.

State Range: Mostly on the Edwards Plateau and Lampasas Cutplain (Bandera, Bell, Bexar, Blanco, Bosque, Comal, Coryell, Dallas, Hays, Kendall, Kerr, Real, Somervell, Travis and Uvalde counties) but also on the Callahan Divide (Taylor County) and in the Trans-Pecos (Brewster County).

Description (adapted from Correll & Johnston, 1970; Luer, 1975): A saprophyte with somewhat succulent, purplish-brown stem up to one foot tall. **Leaves** essentially absent. **Flowers** few, in a single terminal raceme. Three sepals and two upper petals essentially alike; all lanceolate, ca. 5/16 inch long, purplish-brown; labellum (lower petal) 1/4 - 5/16 inch long, 3-lobed; central lobe white with rose-purple streaks and patches; lateral lobes smaller, solid white; sinuses separating central lobe from lateral lobes ca. 1/32 inch deep.

Similar Species: When in flower this orchid can be distinguished from other Texas *Hexalectris* species by its small (less than 1/2 inch long) labellum, which consists of a mostly rose-purple central lobe and smaller white lateral lobes.

Habitat: On the Edwards Plateau, Lampasas Cutplain and the Callahan Divide, *Hexalectris nitida* is found in leaf litter, shallow clay loam and gravel under mature Ashe juniper (*Juniperus ashei*) on limestone slopes and uplands. In most cases, few other herbaceous species are present, and the surface of the soil is bare except for leaf litter. Details of habitat in the Trans-Pecos are unknown.

Phenology: Flowering mid to late June through August. Fruiting stems sometimes remain conspicuous until late autumn (November).

Comments: Once thought to be restricted to mountains of the Trans-Pecos and adjacent Mexico, *Hexalectris nitida* is now also known from limestone areas in much of in north-central Texas and the Edwards Plateau.

Illustrations: Line drawings appear in Correll (1978) and Diggs, Lipscomb & O'Kennon (1999). Color photographs appear in Luer (1975), Warnock (1977), Liggio & Liggio (1999) and Diggs, Lipscomb & O'Kennon (1999).

Selected References:

- Carr, W. R. 1995. An informal update on the status of Glass Mountains coral-root (*Hexalectris nitida*) in Texas. Texas Natural Heritage Program, Texas Parks and Wildlife Department, Austin. 17 pp.
- Correll, D. S. 1978. Native orchids of North America north of Mexico. Stanford University Press, Stanford. 399 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.
- Howell, D. J. 1986. Status report [on *Hexalectris nitida*]. Report prepared for U.S. Fish & Wildlife Service, Albuquerque.

- 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.
- Warnock, B. H. 1977. Wildflowers of the Davis Mountains and the Marathon Basin, Texas. Sul Ross State University, Alpine. 276 pp.

Scientific Name: *Hoffmannseggia drummondii* T. & G.

Synonyms: *Caesalpinia drummondii* (T. & G.) Fisher; *Caesalpinia texensis* (Fisher) Fisher; *Hoffmannseggia texensis* Fisher

Common Name: Drummond's rushpea

Global/State Ranks: G3S2

Federal Status: None.

Global Range: South Texas and eastern Tamaulipas.

State Range: Atascosa, Bee, Goliad, Gonzales, Karnes, Jim Wells, McMullen, San Patricio and Wilson counties (Simpson, 1999; Correll & Johnston, 1970; Isely, 1975; Jones, 1977).

Description (adapted from Simpson, 1999): Low-growing, intricately branched subshrub to 30 cm tall; leaves alternate, bipinnately compound; pinnae 3, 10-23 mm long and 10-15 mm wide; leaflets 3-6 pairs (terminal leaflet absent), oblong to ovate, ca. 3.0-3.3 mm long and 1 mm wide; glabrous or with a very few trichomes on lower surface; flowers on red pedicels in short axillary and terminal racemes; calyx with 5 lobes; petals 5, 3-4 mm long, yellow; pod lunate, broadest in the upper half, short-tipped, 16-20 mm long and 6-8 mm wide, seeds 1-2.

Similar Species: The only other shrubby *Caesalpinia* or *Hoffmannseggia* within the known range of *Hoffmannseggia drummondii* is *Caesalpinia phyllanthoides*, which occurs in shrublands on caliche or calcareous sandstone in Jim Wells and Live Oak counties. In *Caesalpinia phyllanthoides*, there are 3-6 pairs of pinnae; the terminal pinna is absent. In *Hoffmannseggia drummondii*, there is one pair of pinnae plus the terminal pinna (for a total of 3 pinnae).

Habitat: Open areas on sandy clay.

Phenology: Flowering sporadically almost throughout the year (Simpson, 1999).

Comments: Considered by Simpson (1999) to be among the rarest of *Hoffmannseggia* species.

Illustrations: A color photograph of a fruiting branch appears in Simpson (1999).

Type specimen: [County not stated:] Texas, 1834, *T. Drummond s.n.* (NY; isotypes GH, US).

Selected References:

Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.

Isely, D. 1975. Leguminosae of the United States: II. Subfamily Caesalpinoideae. Memoirs of the New York Botanical Garden 25: 1-228.

Jones, F. B. 1977. Flora of the Texas Coastal Bend. Second edition. Welder Wildlife Foundation, Sinton. 262 pp.

Simpson, B. B. 1999. A revision of *Hoffmannseggia* (Fabaceae) in North America. *Lundellia* 2: 14-54.

Scientific Name: *Houstonia croftiae* Britt. & Rusby

Synonyms: *Hedyotis croftiae* (Britt. & Rusby) Shinnars

Common Name: Croft's bluets

Global/State Ranks: G3S3

Federal Status: None

Global Range: Endemic to south Texas.

State Range: Duval, Hidalgo, Jim Wells, Refugio, San Patricio, Starr, Webb and Zapata counties (Terrell, 1996).

Description: Annual with ascending to almost prostrate stems up to 10 cm long; leaves opposite, simple, narrowly oblanceolate, mostly 5-15 mm long and 1-4 mm wide, with entire and somewhat revolute margins; flowers solitary in the leaf axils, the calyx with four short lobes, the corolla 1.5-3 mm long, white, with a short tube and four triangular lobes; fruit a bilobed capsule ca. 1.5-3 mm long and a bit wider, usually longer than the subtending pedicel (Jones, 1977; Terrell, 1996).

Similar Species: Many other small-flowered "bluets" occur within the range of *Houstonia croftiae*, including *Houstonia parviflora* (*H. greenmanii*), *Houstonia subviscosa* and *Oldenlandia bosicii*. *Houstonia croftiae* can be distinguished by its combination of narrow leaves and axillary flowers with the corolla longer than the calyx and the pedicel shorter than the fruit.

Habitat: Sparsely vegetated areas in grasslands or among shrubs, often on tight loamy soils.

Phenology: Flowering / fruiting February-March and then quickly disappearing from landscape.

Comments: Seldom collected but probably simply overlooked rather than truly rare.

Illustrations: A line drawing appears in Terrell (1996).

Type specimen: Duval Co.: San Diego, 1885, *Croft 85* (holotype NY; isotypes GH, MICH, NY, PH, US).

Selected References:

- Jones, F. B. 1977. Flora of the Texas Coastal Bend. Second edition. Welder Wildlife Foundation, Sinton. 262 pp.
- Terrell, E. E. 1996. Revision of *Houstonia* (Rubiaceae-Hedyotideae). Systematic Botany Monographs 48: 1-118.

Scientific Name: *Ipomoea shumardiana* (Torr.) Shinnery

Synonyms: *Convolvulus shumardianus* Torr. According to Shinnery (1961), *Ipomoea carletonii* Holzinger is synonymous.

Common Name: narrowleaf morning-glory, Shumard's morning-glory

Global/State Ranks: G2G3S1

Federal Status: None.

Global Range: Eastern Kansas through central Oklahoma to north Texas (McGregor et al., 1977).

State Range: Cooke and Montague counties (TEX-LL, 2004). Diggs, Lipscomb & O'Kennon (1999) echoed Correll & Johnston (1970) in attributing this species to the Edwards Plateau.

Description (adapted from Correll & Johnston, 1970): Perennial with glabrous, trailing to twining stems. **Leaves** alternate, simple, on petioles 5-36 mm long, the blade deltoid-ovate to narrowly ovate-lanceolate, 3-8 cm long and 1-4 cm wide. **Flowers** solitary or in few-flowered clusters from the axils, the corolla funnelform, pink to white with purple-red center, 5-8 cm long.

Similar Species: According to Diggs, Lipscomb & O'Kennon (1999), this morning-glory is similar to *Ipomoea pandurata*, which has broader cordate leaves that are typically indented or almost lobed as in *Smilax bona-nox*.

Habitat: According to Correll & Johnston (1970), this is a prairie species.

Phenology: Flowering June-August.

Comments:

Illustrations: A line drawing 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.
- Shinnery, L. H. 1961. *Ipomoea shumardiana* (Convolvulaceae), a neglected Oklahoma-North Texas endemic. Southwestern Naturalist 6(2): 100-101.

Scientific Name: *Lenophyllum texanum* (J. G. Smith) Rose

Synonyms: *Sedum texanum* J. G. Smith

Common Name: Texas stonecrop

Global/State Ranks: G3S3

Federal Status: None.

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

State Range: Brooks, Cameron, Hidalgo, Kleberg, Nueces, Starr and Webb counties (Turner, 1983; Moran, 1994); unvouchered reports from Willacy and Matagorda counties (Moran, 1994). A specimen from Galveston County reported on the Flora of Texas Website was recently annotated to *Cakile* sp.

Description (adapted from Correll & Johnston, 1970 and Moran, 1994): Succulent perennial with somewhat trailing to ascending stems up to 2 dm tall, usually much shorter. **Leaves** opposite on lower stem, becoming alternate just below inflorescence, simple, thick and fleshy, obovate to ovate-lanceolate, up to 25 mm long. **Flowers** in a short spicate raceme; sepals 4, lanceolate, 2-3 mm long; petals 4, rosy yellow, lanceolate, 4-5 mm long. **Fruit** a set of separate elliptic-attenuate follicles 7-8 mm long.

Similar Species: None. This is the only "sedum" in Texas with succulent opposite leaves on the lower part of the stem (Turner, 1983). *Talinum paniculatum*, a native semi-succulent herb that is present in small numbers on lomas, has long trailing stems with alternate leaves. *Kalanchoë verticillata*, an introduced succulent that has become established in several areas in the Rio Grande delta, has cylindrical leaves quite different from those of *Sedum texanum*.

Habitat: In coastal counties, Texas stonecrop occurs primarily under shrubs or in openings in thornscrub on clay dunes (lomas) at the mouth of the Rio Grande and along the west side of Laguna Madre, as well as in taller subtropical vegetation on alluvial deposits along Arroyo Colorado. To the west, it occurs under thorny shrubs on xeric calcareous rock outcrops. sites.

Phenology: Flowering mostly in the fall (October-December).

Comments:

Illustrations: A beautifully detailed line drawing appears in Clausen (1975); another drawing appears in Moran (1994).

Selected References:

Clausen, R. T. 1975. *Sedum* of North America north of the Mexican Plateau. Cornell University Press, Ithaca. 742 pp.

Moran, R. 1994. The genus *Lenophyllum* Rose (Crassulaceae). *Haseltonia* 2: 1-19.

Smith, J. G. 1895. Notes and observations on some new or little known species. Report of the Missouri Botanical Garden 6.

Turner, B. L. 1983. Status report [on *Lenophyllum texanum*]. Report prepared for U. S. Fish & Wildlife Service, Albuquerque.

Scientific Name: *Leptopus phyllanthoides* (Nutt.) Webster

Synonyms: *Andrachne phyllanthoides* (Nutt.) Coult.; *Savia phyllanthoides* (Nutt.) Pax & K. Hoffm.

Common Name: maidenbush, Missouri buck-brush

Global/State Ranks: G4S1S2

Federal Status: None.

Global Range: Alabama, Arkansas, Missouri, Oklahoma and Texas.

State Range: Bexar, Comal, Johnson, Kendall, Kerr, McLennan, Travis, Williamson and Val Verde counties.

Description (adapted from Correll & Johnston, 1970): Small shrub with numerous wiry stems, usually 1-2 feet tall. **Leaves** alternate, on short petioles, elliptic-oblong, usually 1 inch long or less and about half as wide, with entire margins, **Flowers** green in color and rather inconspicuous; male and female flowers borne on separate plants. **Fruit** a pendulous, vaguely 3-lobed capsule about 1/2 inch wide and not quite as long.

Similar Species: None.

Habitat: Usually rooted in fractured limestone shelves situated just above the normal water level of perennial streams yet subject to violent scouring during occasional floods.

Phenology: Flowering periodically throughout the growing season, at least through summer and fall.

Comments: Although common in some parts of its range, maidenbush is quite rare in Texas. In some counties it is known from a single small population. The causes of its regional rarity are unclear.

Illustrations: A line drawing appears in Volume 2 of Britton & Brown (1913) and is reproduced in Diggs, Lipscomb & O'Kennon (1999). Other line drawings are provided in Vines (1960), Gleason (1952), and Steyermark (1963). A color photograph appears in Hunter (1989).

Selected References:

- Clark, R. C. 1967. *Andrachne phyllanthoides* (Nuttall) Muell. Arg. on the Cumberland Plateau of Alabama. *Castanea* 32(1): 73-74.
- Correll, D. S. and M. C. Johnston. 1970. *Manual of the vascular plants of Texas*. Texas Research Foundation, Renner. 1881 pp.
- Gleason, H. A. 1952. *The new Britton and Brown illustrated flora of the northeastern United States and adjacent Canada*. Three volumes. New York Botanical Garden, New York.
- Hunter, C. G. 1989. *Trees, shrubs, and vines of Arkansas*. Ozark Society Foundation, Little Rock. 207 pp.
- Mahler, W. F. 1988. *Shinners' manual of the north central Texas flora*. Sida Botanical Miscellany Number 3. Botanical Research Institute of Texas, Fort Worth. 313 pp.
- Steyermark, J. A. 1963. *Flora of Missouri*. Iowa State University Press, Ames. 1728 pp.
- Vines, R. A. 1960. *Trees, shrubs and woody vines of the southwest*. The University of Texas Press, Austin. 1104 pp.
- Warnock, B. H. and M. C. Johnston. 1960. The genus *Savia* (Euphorbiaceae) in extreme western Texas. *Southwestern Naturalist* 5: 1-6.
- Webster, G. L. 1967. The genera of Euphorbiaceae in the southeastern United States. *Journal of the Arnold Arboretum* 48: 303-361; 363-430.

Webster, G. L. 1994. Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 33-144.

Scientific Name: *Lesquerella angustifolia* (Nutt.) Wats.

Synonyms: *Vesicaria angustifolia* Nutt.; *Physaria angustifolia* (Nutt.) O'Kane & Al-Shehbaz; *Lesquerella longifolia* Cory

Common Name: thread-leaf bladderpod, narrowleaf bladderpod

Global/State Ranks: G3S1

Federal Status: None.

Global Range: Four counties in southeastern Oklahoma (Watson, 1988) and one county in adjacent northeast Texas.

State Range: Collected to date only from Red River County (Gentry et al., 1978).

Description (adapted from Correll & Johnston, 1970 and Diggs, Lipscomb & O'Kennon, 1999): Annual with one to several stems up to 4 dm long, the stems and leaves with scattered stellate pubescence. **Leaves** basal and cauline; cauline leaves mostly sessile, narrowly obovate to almost linear, the margins entire or nearly so, 4-10 cm long and 1-3.5 mm wide. **Flowers** on slender straight (not recurved) pedicels in terminal racemes; petals 4, yellow. **Fruit** a glabrous, somewhat globose silique 4.5-5 mm long, sessile or nearly so (i.e., pedicellate but not stipitate).

Similar Species: The flora of Texas includes just under 20 species of *Lesquerella*, many of which are very hard to distinguish from their closest relatives. In most cases, mature fruit rather than fresh flowers are required for identification; microscopic details of stem- and leaf-vestiture are also important. Diagnostic features of *Lesquerella angustifolia* include its annual habit, its very narrow leaves, and its glabrous fruit that is sessile at the tip of a short straight pedicel.

Habitat: Limestone glades or chalk outcrops on the Annona and other Cretaceous formations.

Phenology: Flowering or fruiting late March through Late April.

Comments: Serious students should note an significant error in the key to *Lesquerella* on page 699 of Correll & Johnston (1970). In the first part of couplet 10, the word "lyrate" should read "lorate." The leaves of *Lesquerella angustifolia* are seldom if ever lyrate.

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

Selected References:

- Al-Shehbaz, I. A. and S. L. O'Kane, Jr. 2002. *Lesquerella* is united with *Physaria* (Brassicaceae). *Novon* 12(3): 319-329.
- 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. *Shinners and Mahler's illustrated flora of North-central Texas*. Botanical Research Institute of Texas, Ft. Worth. 1626 pp.
- Gentry, J. L., Jr., R. L. Tyrl, P. G. Risser and J. J. Crockett. 1978. Status report [on *Lesquerella angustifolia*]. Report prepared for U. S. Fish & Wildlife Service, Albuquerque.
- Watson, L. E. 1988. *Lesquerella angustifolia* ranking form. Oklahoma Natural Heritage Program.

Scientific Name: *Lesquerella engelmannii* (Gray) Wats.

Synonyms: *Physaria engelmannii* (Gray) O'Kane & Al-Shehbaz

Common Name: Engelmann's bladderpod

Global/State Ranks: G4T3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Mostly along the eastern edge of the Edwards Plateau, ranging as north as far as the Red River but not, according to Clark (1975), into Oklahoma; records from Bandera, Brown, Burnet, Caldwell, Collin, Cooke, Dallas, Ellis, Erath, Guadalupe, Hays, Kerr, Lampasas, Montague, Parker, San Saba, Tarrant, Travis and Wise counties (Clark, 1975; Stanford, 1971; TEX-LL, 1997).

Description (adapted from Correll & Johnston, 1970): Herbaceous perennial with several erect stems ca. 1 foot tall from a somewhat woody base. **Leaves** simple, mostly basal, variable in shape but generally spatulate or lanceolate, less than 2 inches long, the margins entire, the blades densely covered with stellate hairs that give the whole plant a vaguely silvery (rather than green) appearance. **Flowers** in rather dense terminal racemes, with four sepals and four yellow petals. **Fruit** an inflated globose silique about 1/4 inch in diameter.

Similar Species: Members of the genus *Lesquerella* can be very difficult to identify, but this species is obviously perennial and much more robust than other *Lesquerella* species encountered in its range.

Habitat: Grasslands and rock outcrops on limestone uplands, usually in full sun.

Phenology: Flowering in spring (April-May).

Comments:

Illustrations: A set of detailed line drawings from a 19th century publication by Asa Gray is reproduced in Diggs, Lipscomb & O'Kennon (1999). Color photographs appear in Enquist (1987) and Rickett (1970); black-and-white photographs appear in Rollins & Shaw (1973).

Selected References:

- Al-Shehbaz, I. A. and S. L. O'Kane, Jr. 2002. *Lesquerella* is united with *Physaria* (Brassicaceae). *Novon* 12(3): 319-329.
- Clark, C. 1975. Ecogeographic races of *Lesquerella engelmannii* (Cruciferae): distribution, chromosome numbers, and taxonomy. *Brittonia* 27: 263-278.
- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. *Shinners 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.
- Rickett, H. W. 1970. *Wild flowers of the United States: Texas*. Volume 3, Parts 1 and 2. McGraw-Hill, New York City.
- Rollins, R. C. and E. A. Shaw. 1973. *The genus Lesquerella* (Cruciferae) in North America. Harvard University Press. 288 pp.
- Stanford, J. W. 1971. *Vascular plants of the three central Texas counties of Brown, Comanche, and Hamilton*. Ph.D diss., Oklahoma State University. 244 pp.

Scientific Name: *Lythrum ovalifolium* Koehne

Synonyms: None.

Common Name: plateau loosestrife

Global/State Ranks: G3G4S3S4

Federal Status: None.

Global Range: Central Texas and central Coahuila (S. Graham in Henrickson & Johnston, in prep.).

State Range: Edwards Plateau, Llano Uplift and Lampasas Cutplain, with records from Bandera, Bexar, Blanco, Burnet, Comal, Edwards, Kerr, Kimble, Kinney, McCulloch, Real, Terrell, Travis, Uvalde, Williamson and Zavala counties (Mahler, 1982; TEX-LL, 2003).

Description (adapted from Correll & Johnston, 1970): Herbaceous perennial to about 1 foot tall. **Leaves** simple, opposite below, often alternate on upper stem, elliptic to elliptic-obovate, up to 1 inch long and about 1/4 to 1/3 inch wide. **Flowers** solitary in axils of upper leaves; petals 4-6, lavender, less than 1/4 inch long. **Fruit** a small capsule enclosed within the calyx.

Similar Species:

Habitat: Moist silty to gravelly alluvial soils on unshaded to partially shaded banks of perennial and larger intermittent streams; sometimes on gravel bars. A seldom-flowering submersed form can be found in active stream channels.

Phenology: Flowering mostly April-June and again in fall, sometimes (during wetter years?) through the summer.

Comments:

Illustrations: A line drawing appears in Correll & Correll (1975), and a color photograph appears in Enquist (1987).

Selected References:

- Correll, D. S. and H. B. Correll. 1975. Aquatic and wetland plants of southwestern United States. 2 volumes. Stanford University Press, Stanford. 1777 pp.
- 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.
- Mahler, W. F. 1982. Status report [on *Lythrum ovalifolium*]. Report prepared for U. S. Fish & Wildlife Service, Albuquerque.
- Shinners, L. H. 1953. Synopsis of the United States species of *Lythrum*. Field and Laboratory 21(2): 80-89.

Scientific Name: *Malaxis wendtii* G. Salazar

Synonyms: Plants of Texas were previously (and erroneously) assigned to *Malaxis ehrenbergii*, which as currently circumscribed occurs no farther north than the Mexico state of Hidalgo (Todsens, 1997).

Common Name: Wendt's malaxis, Wendt's adder's-mouth

Global/State Ranks: G2S1

Federal Status: None.

Global Range: Coahuila, Nuevo León and west Texas (Salazar, 1993; Liggio & Liggio, 1999).

State Range: Brewster County (Liggio & Liggio, 1999).

Description (adapted from Salazar, 1993 and Liggio & Liggio, 1999): Perennial orchid with a single stem 15-25 cm (6-10 inches) tall. **Leaves** one per stem, appearing to clasp the stem near base, the blade ovate to elliptical, light green, usually 37-76 mm (14 3/4 - 30 inches) long and 18-40 mm (3/4 - 1 1/2 inches) wide. **Flowers** in a loose elongate raceme 6.5-15 cm (2 1/2 - 6 inches) long, subtended by purplish bracts about 1 mm long; flowers themselves deep velvety purple, about 4.5-6.3 mm (3/16 - 1/4 inch) high, the lip narrowly sagittate at base but narrowed at apex, various segments papillose. **Fruit** a glabrous ellipsoid-globose capsule about 3 mm (1/8 inch) in diameter and slightly longer.

Similar Species: Similar to *Malaxis ehrenbergii* of southern Mexico, *Malaxis hintonii* of northern Mexico, and *Malaxis porphyrea* of New Mexico, Arizona and northern Mexico. No other *Malaxis* species is known from Trans-Pecos Texas.

Habitat: Known in Texas only from oak-juniper-pinyon woodlands in moist canyons and on north-facing slopes in the Chisos Mountains (Liggio & Liggio, 1999).

Phenology: Flowering July-September.

Comments: Named in honor of Dr. Tom Wendt of the University of Texas at Austin, student of the Mexican flora and authority on Polygalaceae and various groups of tropical trees.

Illustrations: A camera lucida drawing appears with the type description in Salazar (1993). According to Joe Liggio (pers. comm., 2003), the color photograph on p. 127 of Liggio & Liggio (1999) is *Malaxis porphyrea* rather than *Malaxis wendtii*; that photo was taken in New Mexico.

Selected References:

- Liggio, J. and A. O. Liggio. 1999. Wild orchids of Texas. University of Texas Press, Austin. 228 pp.
Salazar, G. A. 1993. *Malaxis wendtii*, a new orchid species from Coahuila and Nuevo León, Mexico. *Orquidea* (Mexico), 13(1-2): 281-284.
Todsens, T. K. 1995. *Malaxis wendtii* (Orchidaceae) in the United States. *Sida* 16(3): 591.
Todsens, T. K. 1997. Naming a southwestern *Malaxis* (Orchidaceae). *Sida* 17(3): 637-638.

Scientific Name: *Manfreda sileri* Verhoek-Williams

Synonyms: *Agave sileri* (Verhoek-Williams) Thiede & Eggi

Common Name: Major Siler's huaco

Global/State Ranks: G3S3

Federal Status: None.

Global Range: South Texas and near the Rio Grande in Tamaulipas (Verhoek, 1978).

State Range: Bexar, Cameron, Starr and Webb counties (Verhoek, 1978; TEX-LL, 1998).

Description (adapted from Verhoek, 1978): Perennial with rosette of somewhat succulent leaves and a tall leafless flower spike. **Leaves** succulent, brittle, channeled or flat, light green with brownish spots, ovate-lanceolate and long-attenuate, (14-) 25-39 cm long and 2.2-4.8 cm wide, with irregularly spaced marginal teeth. **Flowering spike** 2.42-2.59 m tall, densely flowered. **Flowers** consisting of a perianth tube (7-) 9-15 (-22) mm long (from top of ovary) and six narrow revolute or recurved lobes (7-) 10-21 mm long, glaucous green, 27-46 (-81) mm long; stamens exerted by 40-66 (-97) mm. **Fruit** a capsule 23-31 mm long and 16-19 mm long.

Similar Species: All five of the North American species of *Manfreda* occur in South Texas (Verhoek, 2002). Characteristic features of Major Siler's huaco include its spreading (not erect) leaves, recurved perianth lobes and long-exserted stamens.

Habitat: A variety of grasslands and shrublands on dry sites.

Phenology: Flowering spring-mid summer (Verhoek, 2002).

Comments: This species was described after the publication of the Manual of the Vascular Plants of Texas (Correll & Johnston, 1970), and as a result many botanists are unaware of its existence. It was named in honor of Major Arnold M. Siler, a plant enthusiast from Corpus Christi who collected the type specimen (Verhoek, 1978).

Illustrations: Black-and-white photographs of a basal rosette and part of a flowering spike appear in Verhoek (1978).

Selected References:

- Verhoek, S. 1978. Two new species and a new combination in *Manfreda* (Agavaceae). *Brittonia* 30(2): 165-171.
- Verhoek, S. 2002. *Manfreda*. Pp. 462-465 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.
- Verhoek-Williams, S. E. 1975. A study of the tribe Poliantheae (including *Manfreda*) and revisions of *Manfreda* and *Prochnyanthes* (Agavaceae). Ph.D. dissertation, Cornell University, Ithaca. 405 pp.

Scientific Name: *Manfreda virginica* (L.) Rose subsp. *lata* (Shinners) O'Kennon

Synonyms: *Agave lata* Shinners; *Polianthes lata* (Shinners) Shinners. Not recognized by Verhoek (2002) in her treatment of the genus for the Flora of North America.

Common Name: wide-leaf false-aloe

Global/State Ranks: G5T2QS2

Federal Status: None.

Global Range: Endemic to the Crosstimbers and Southern Tallgrass Prairie Ecoregion of North Texas and adjacent Oklahoma (Shinners, 1951; Diggs, Lipsomb & O'Kennon, 1999).

State Range: Grayson, Hunt, Kaufman, Parker and Tarrant counties (Diggs, Lipsomb & O'Kennon, 1999), mostly in clay Vertisols of blackland prairie sites.

Description (adapted from Diggs, Lipsomb & O'Kennon, 1999): Glabrous perennial consisting of a basal rosette of somewhat succulent leaves and an erect flowering scape 0.6-1.7 m tall. **Leaves** 4-10, basal, fleshy, green to bluish gray-green, sometimes with reddish splotches, elliptic to broadly lanceolate, concave in cross-section, 12-18 cm long and 2-10 cm wide. **Flowers** in a fairly dense raceme at the end of scape, the tubular perianth 6-lobed in upper half, greenish or yellowish with darker spots toward tips of lobes, the lobes 5-8 mm long; anthers cream-colored, conspicuously exerted. **Fruit** a 3-celled oblong to globose capsule 14-20 mm long.

Similar Species: *Manfreda virginica* subsp. *virginica* is extremely similar, and some authorities (e.g., Verhoek, 2002) do not recognize subsp. *lata*. Differences between the two are provided in Diggs, Lipsomb & O'Kennon (1999).

Habitat: Blackland prairies on clay soils.

Phenology: Mid-June to mid-July (Diggs, Lipsomb & O'Kennon, 1999).

Comments:

Illustrations: A line drawing by Linny Heagy and a color photograph of the inflorescence, appear in Diggs, Lipsomb & O'Kennon (1999).

Selected References:

- Diggs, G. M., Jr., B. L. Lipscomb and R. J. O'Kennon. 1999. Shinners and Mahler's illustrated flora of North-central Texas. Botanical Research Institute of Texas, Ft. Worth. 1626 pp.
- Shinners, L. H. 1951. *Agave lata*, a new species from north Texas and Oklahoma. *Field and Laboratory* 19: 171-173.
- Shinners, L. H. 1966. Texas *Polianthes*, including *Manfreda* (*Agave* subgenus *Manfreda*) and *Runyonia* (Agavaceae). *Sida* 2(4): 333-338.
- Verhoek, S. 2002. *Manfreda*. Pp. 462-465 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: *Matelea edwardsensis* Correll

Synonyms: None.

Common Name: plateau milkvine

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to central Texas.

State Range: Edwards Plateau and adjacent Lampasas Cutplain, with records from Bandera, Bexar, Bosque, Comal, Dallas, Edwards, Kendall, Medina, Real, Terrell and Travis counties (Rowell, 1983; TEX-LL, 2001); a Reverchon specimen has been attributed to San Saba County but could have been collected elsewhere.

Description (adapted from Correll & Johnston, 1970): Herbaceous perennial vine with milky sap, the stems with short, curved or appressed pubescence. **Leaves** opposite, sparingly pubescent, heart-shaped, to 6 (or 8?) cm (2 1/2 - 3 inches) long. **Flowers** in small clusters from the leaf axils, 1 - 1.5 cm (1/2 to 3/4 inch) in diameter, green, bell-shaped, densely pubescent on the inner surface, with dark parallel veins on each of the five lobes. **Fruit** a lanceolate, single-celled capsule (follicle) up to 1 dm (4 inches) long, covered with bumps or dull spines.

Similar Species: *Matelea reticulata*, the common broad-leaved milkvine of the Edwards Plateau, is very similar in growth habit and leaf shape but differs in having a flat, glabrous flower with net-veined lobes and a bright silver spot in the center. In addition, the stems of *Matelea reticulata* usually have long spreading hairs rather than short appressed hairs, and the leaf blades tend to be somewhat larger. Photographs in Enquist (1987) allow easy identification of both species.

Habitat: Various types of juniper-oak and oak-juniper woodlands on limestone slopes and uplands.

Phenology: Flowering April-May (Correll & Johnston, 1970), usually just before *Matelea reticulata*, which often continues flowering into summer. Flowers are required for accurate identification.

Comments:

Illustrations: A color photograph appears in Enquist (1987), along with a photograph of the similar *Matelea reticulata*. Another color photograph and a line drawing by Linny Heagy appear in Diggs, Lipscomb & O'Kennon (1999).

Selected References:

- Correll, D. S. 1965. Some additions and corrections to the flora of Texas. *Wrightia* 3(7): 126-140.
- 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.
- Rowell, C. M., Jr. 1983. Status report [on *Matelea edwardsensis*]. Report prepared for U.S. Fish & Wildlife Service, Albuquerque.