

Scientific Name: *Abronia ameliae* Lundell

Synonyms: None.

Common Name: Amelia's sand-verbena

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to the Holocene sand sheet in South Texas.

State Range: Brooks, Hidalgo, Jim Hogg, Kenedy, Kleberg, Live Oak and Starr counties. Reports from the Panhandle and Leon County (Correll & Johnston, 1970) were based on other *Abronia* species.

Description (adapted from Correll & Johnston, 1970): Viscid/sticky perennial with trailing stems to 6 dm long, often forming low rounded clumps. **Leaves** opposite, simple, on petioles of varying lengths; blades fleshy, ovate to round, 3-8 cm long and 2-6 cm wide. **Flowers** numerous in showy heads about 5 cm wide, on peduncles 2.5-12 cm long; perianth bright pink, 18-25 mm long, viscid like the rest of the plant, 5-lobed and about 1 cm wide at apex, much narrower toward base. **Fruit** a single seeded 5-winged anthocarp 7-9 mm long.

Similar Species: Amelia's sand-verbena is the only *Abronia* species in South Texas. Nothing in its range resembles it.

Habitat: Early successional grasslands on deep sands, mostly in the live oak belts on the Holocene sand sheet of South Texas.

Phenology: Flowering mostly March-April, occasionally later in the season or intermittently following rains.

Comments: An extremely showy plant with obvious horticultural potential (Cheatham, Johnston & Marshall, 1995).

Illustrations: A line drawing by Linny Heagy appears in Diggs, Lipsomb & O'Kennon (1999). Color photographs appear in Cheatham, Johnston & Marshall (1995); Diggs, Lipsomb & O'Kennon (1999); Rickett (1970); and Tull & Miller (1991).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 1995. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 1. Useful Wild Plants, Inc., Austin, Texas. 568 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.
- Galloway, L. A. 1975. Systematics of North American desert species of *Abronia* and *Tripterocalyx* (Nyctaginaceae). *Brittonia* 27: 328-347.
- Reed, C. F. 1969. Nyctaginaceae. Pp. 151-220 in Lundell, C. L. 1969. Flora of Texas, volume 2. Texas Research Foundation, Renner. 417 pp.
- Rickett, H. W. 1970. Wild flowers of the United States: Texas. Volume 3, parts 1 and 2. McGraw-Hill, New York City.
- Tull, D. and G. O. Miller. 1991. A field guide to wildflowers, trees, and shrubs of Texas. Texas Monthly Field Guide Series. Gulf Publishing Co., Houston. 344 pp.

Scientific Name: *Agalinis densiflora* (Benth.) Blake

Synonyms: *Tomanthera densiflora* (Benth.) Penn.; *Gerardia densiflora* Benth.

Common Name: denseflower false-foxglove, Osage false-foxglove, fineleaf gerardia

Global/State Ranks: G3S2

Federal Status: None.

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

State Range: Known at least historically from Bell, Bexar, Blanco, Bosque, Brown, Comal, Dallas, Hays, Hood, Shackelford, Tarrant and Wise counties (Pennell, 1921; Stanford, 1971; TEX-LL, 1997); also Cooke, Coryell, Montague, Palo Pinto and Parker counties (Diggs, Lipscomb & O'Kennon, 1999).

Description (adapted from Correll & Johnston, 1970): Herbaceous perennial usually with a single stem and numerous crowded branches, somewhat bushy in appearance, 1-2 feet tall. **Leaves** opposite, pinnately dissected into 3-7 linear segments less than 1/16 inch wide, somewhat coarse from numerous stiff hairs. **Flowers** about 1 inch long, campanulate, five-lobed, pale pink with small purple spots in throat.

Similar Species: Much like other *Agalinis* species illustrated in various wildflower books, but differing in having pinnately dissected (rather than entire or merely toothed) leaf margins.

Habitat: Occurs in small numbers in grasslands on shallow, gravelly, well drained, calcareous soils. Presumed to be partially parasitic on the roots of grasses.

Phenology: Flowering August-October.

Comments:

Illustrations: A line drawing appears in Volume 3 of Britton & Brown (1913) and is reproduced in Diggs, Lipscomb & O'Kennon (1999). A small color photograph appears in McCoy (1978). Several photographs appear on the Kansas Wildflowers and Grasses website (www.lib.ksu.edu/wildflower/).

Selected References:

- Britton, N. L. and A. Brown. 1913. An illustrated flora of the northern United States and Canada. 1970 Dover Reprint edition, New York. 3 volumes.
- 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.
- McCoy, D. 1978. Roadside flowers of Oklahoma. Volume Two. Privately published, Lawton, Oklahoma. 116 pp.
- McGregor, R. L., T. M. Barkley, and the Great Plains Flora Association. 1977. Atlas of the flora of the Great Plains. Iowa State University Press, Ames. 600 pp.
- Pennell, F. W. 1921. Scrophulariaceae of the west gulf states. Proceedings of the Academy of Natural Sciences of Philadelphia 73: 459-536.

Scientific Name: *Allium canadense* L. var. *ecristatum* (M. E. Jones) Ownbey

Synonyms: *Allium reticulatum* G. Don var. *ecristatum* M. E. Jones [nomen nudum]; *Allium canadense* L. subsp. *ecristatum* (M. E. Jones) Traub & Ownbey

Common Name: crestless wild-onion

Global/State Ranks: G5T3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Mostly in the Coastal Bend area, but details uncertain at present. Reported by Turner et al. (2003) from Bee, Goliad, Jim Hogg, Kleberg, Live Oak, Nueces, San Patricio and Victoria counties; however, the sources for most of these records are unclear as TEX-LL contains specimens only from Goliad, Nueces and San Patricio counties. Other counties from which the variety has been reported with uncertainty include Matagorda, Refugio and Wilson. A collection attributed to Bee County (probably the source of the Bee County record above) was probably taken from a site in San Patricio County (Ownbey, 1950).

Description (adapted from Correll & Johnston, 1970): An onion with a grayish or brown fibrous coating on the bulb; leaves 3-6 per bulb, grasslike, 1-5 mm wide; flowers arranged in a single scapose umbel subtended by 3 bracts, fragrant, 5-7 mm long; pedicels linear, stout; tepals (sepals and petals) 6, deep pink; ovary and capsule crestless.

Similar Species: *Allium canadense* var. *mobilense* ranges from Florida across the southeastern United States to eastern Texas (McNeal & Jacobsen, 2002). It is distinguished from var. *ecristatum* primarily on the basis of its slender (rather than stout) pedicels, narrow leaves (up to 2 mm wide), and the occasional presence of bulblets at the base of the main bulb.

Habitat: Poorly drained sites on sandy substrates within coastal prairies.

Phenology: Flowering in early spring (March-April).

Comments: A poorly-understood taxon which either doesn't exist in a discrete fashion or, if so, may well be more common than collections indicate.

Illustrations: A color photograph appears in Cheatham, Johnston & Marshall (1995).

Type specimen: [County not stated:] Beeville, 30 March 1932, *M. E. Jones 29074* (isotype MO).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 1995. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 1. Useful Wild Plants, Inc., Austin, Texas. 568 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- McNeal, D. W., Jr. and T. D. Jacobsen. 2002. *Allium*. Pp. 224-276 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.

- Ownbey, M. 1950. The genus *Allium* in Texas. Research Studies of the State College of Washington 18(4): 181-222.
- 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: *Amorpha laevigata* Nutt.

Synonyms: None.

Common Name: smooth indigobush

Global/State Ranks: G3?S1

Federal Status: None.

Global Range: Oklahoma, east Texas and northern Louisiana

State Range: Details unknown. Mapped by Turner (1959) from Cass and Van Zandt counties, but mapped by Turner et al. (2003) from only Morris County. The map in Wilbur (1975) consists of two dot clusters, one suggesting Cass and Morris counties and the other of four counties in deep East Texas (vicinity of Jasper and Hardin counties and east). In January 1998, TEX-LL had a single specimen from Morris County; in September 1998, the Flora of Texas Herbarium Specimen Browser cited one specimen from Harris County.

Description (adapted from Correll & Johnston (1970): Glabrous shrub 1-2.5 m tall. **Leaves** alternate, pinnately compound, 1-2 dm long; leaflets 7-21, oblong to obovate, 2-3 cm long and 1-2 cm wide, rounded at both ends thin, with conspicuous gland-dots on the lower surface and leaflet stalk. **Flowers** in slender racemes 15-30 cm long; calyx glabrous, gland-dotted, 5-lobed; corolla reduced to a single purple petals. **Fruit** a gland-dotted pod ca. 5 mm long.

Similar Species: *Amorpha roemerana* (*Amorpha texana*) is similar, but it occurs on the Edwards Plateau rather than within the range of *Amorpha laevigata*.

Habitat: Uncertain. A specimen from Morris County was collected on iron ore hills; the specimen from Cass County was collected in low shrub in pine-oak vegetation on a sandy slope.

Phenology: Flowering in June.

Comments:

Illustrations: A line drawing is provided in Vines (1960).

Selected References:

- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 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.
- Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin. 1104 pp.
- Wilbur, R. L. 1975. A revision of the North American genus *Amorpha* (Leguminosae-Psoraleae). *Rhodora* 77: 337-409.

Scientific Name: *Amorpha paniculata* T. & G.

Synonyms: None.

Common Name: panicled indigo-bush, plume indigo-bush

Global/State Ranks: G2G3S2S3

Federal Status: None.

Global Range: Oklahoma, southeastern Arkansas, northern Louisiana and east Texas. Rare in Arkansas (only Hempstead County is mapped in Smith, 1988, following Wilbur, 1975) and Oklahoma (S1 per NatureServe, February 2004).

State Range: Wide-ranging across East Texas, but probably uncommon in most of the counties in which it has been collected. The map in Turner (1959) indicates specimens from Anderson, Angelina, Camp, Gregg, Harrison, Henderson, Morris, Newton, Robertson, Smith, Titus, Tyler and Upshur counties.

Description (adapted from Correll & Johnston, 1970): Shrub 2-3 m tall, with tomentose branchlets. **Leaves** alternate, pinnately compound, 20-35 mm long; leaflets 15-19, ovate to oblong, 3-8 cm long, 20-30 mm wide, rounded at both ends, the upper surface glabrous at maturity, the lower surface tomentose and with conspicuous veins. **Flowers** in showy purple spikes 14-40 cm long; corolla reduced to one petal. **Fruit** a pubescent, gland-dotted pod 6-8 mm long.

Similar Species: Much like several other *Amorpha* species, but the broad, conspicuously veined leaflets and long flower spikes are diagnostic.

Habitat: Bogs and wet woodlands on acid soils.

Phenology: Flowering May-June.

Comments: Cheatham, Johnston & Marshall (1995) discussed the horticultural value of this shrub.

Illustrations: A drawing appears in Vines (1960). A color photograph appears in Cheatham, Johnston & Marshall (1995).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 1995. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 1. Useful Wild Plants, Inc., Austin, Texas. 568 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- 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. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.
- Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin. 1104 pp.
- Wilbur, R. L. 1975. A revision of the North American genus *Amorpha* (Leguminosae-Psoraleae). *Rhodora* 77: 337-409.

Scientific Name: *Amorpha roemerana* Scheele

Synonyms: *Amorpha texana* Buckley

Common Name: Texas amorpha

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to the Edwards Plateau of central Texas.

State Range: Bandera, Bexar, Comal, Gillespie, Hays, Kendall, Kerr, Kinney, Medina, Travis and Uvalde counties.

Description (adapted from Correll & Johnston, 1970): Shrub or small tree, usually less than 6 feet in height, sparingly branched. **Leaves** alternate, compound, composed of 7-15 leaflets; leaflets dark green, fairly thick, ovate, about 1-2 inches long and half as wide, the margins toothless except for a single shallow apical notch, the upper surface smooth but the lower surface usually appressed-hairy. **Flowers** tiny but produced in a very conspicuous indigo-purple spike 2-8 inches long and about an inch wide. **Fruit** a plump, gland-dotted, single-seeded pod about 1/4 inch long.

Similar Species: The more widespread *Amorpha fruticosa* occurs within this range; the two are easily distinguished on the basis of leaf characters. *Amorpha fruticosa* has between 11 and 27 leaflets; *Amorpha roemerana* has 7 to 15. Leaflets of *Amorpha fruticosa* are thin, glabrous, rounded apically, and usually more than 2 times long as wide; those of *Amorpha roemerana* are leathery, pubescent on lower surface, notched apically, and seldom more than 2 times long as wide. *Amorpha fruticosa* is usually found in riparian situations, whereas *Amorpha roemerana* is found on upland slopes (Mahler, 1988). From a distance, Texas amorpha (particularly when small or browsed) may vaguely resemble evergreen sumac (*Rhus virens*), but in that shrub the leaflets are somewhat pointed at the tip rather than notched and are smooth on both sides rather than hairy below.

Habitat: Juniper-oak woodlands or shrublands on dry to somewhat mesic rocky limestone slopes, sometimes on relatively xeric shelves just above the scour plain of flood-prone creeks. The other amorpha of central Texas, the globally-common *Amorpha fruticosa*, occurs in wetter habitats on the same landscape.

Phenology: Flowering late spring and early summer (May-early July). Recognizable foliage is present for most of the growing season. However, Texas amorpha is sometimes leafless after summer droughts, making its detection difficult in the fall.

Comments:

Illustrations: A line drawing appears in Vines (1960) as *Amorpha texana*. A color photograph appears in Cheatham, Johnston & Marshall (1995).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 1995. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 1. Useful Wild Plants, Inc., Austin, Texas. 568 pp.
- Mahler, W. F. 1982. Status report [on *Amorpha texana*]. Report prepared for U. S. Fish & Wildlife Service, Albuquerque.

- Mahler, W. F. 1988. *Amorpha roemeriana* Scheele (Fabaceae), an upland species. *Sida* 13(1): 121.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.
- Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin. 1104 pp.
- Wilbur, R. L. 1975. A revision of the North American genus *Amorpha* (Leguminosae-Psoraleae). *Rhodora* 77: 337-409.

Scientific Name: *Arida blepharophylla* (Gray) Morgan & Hartman

Synonyms: *Aster blepharophyllus* Gray; *Machaeranthera gypsitherma* G. L. Nesom, Vorobik & R. L. Hartman; see Morgan and Hartman, 2003. NOT *Machaeranthera blephariphylla* (Gray) Shinnars.

Common Name: gypsum hot-spring aster

Global/State Ranks: G1S1

Federal Status: None.

Global Range: Restricted to a few spots in the Chihuahuan Desert of west Texas, New Mexico and Chihuahua (Turner & Nesom, 2003).

State Range: Known only from gypsum walls of Blumberg Canyon north-northwest of Ruidosa, Presidio County, where it occurs with *Arida mattturneri* (Turner & Nesom, 2003).

Description (adapted from Nesom, Vorobik & Hartman, 1990): Perennial consisting of a dense mat of numerous basal rosettes and comparatively few erect sparingly-branched flowering stems 4-35 cm (1 1/2 - 13 inches) tall. **Leaves** of basal rosettes thick, entire, linear-oblong, 8-30 mm (5/16 - 1 1/4 inches) long and 1.5-3 mm (1/16 - 1/8 inch) wide, the margins conspicuously ciliate with a few thick trichomes about 1 mm (less than 1/16 inch) long; leaves of stem few, much smaller, ascending or appressed to stem, narrowly oblong to linear-lanceolate, ciliate. **Flowers** in heads typical of many members of the sunflower family, terminating the branch tips; phyllaries in 4-6 sharply imbricate series, whitish with a dark midvein; ray florets 8-12, blue, 8-10 mm (5/16 - 3/8 inch) long, 2.1-3 mm (about 1/8 inch) wide, often cleft at tip, coiling at maturity; disk flowers yellow (sometimes with purple tinges), 4.5-5.5 mm (about 3/16 inch) long. **Fruit** a narrowly oblong-oblong achene 1.7-2.4 mm (about 1/16 inch) long and 0.5-0.8 mm (less than 1/16 inch) wide, silvery-sericeous; pappus of 25-40 bristles, the longest 3.5-4.5 mm (1/8 - 3/16 inch) long.

Similar Species: None; the mat of numerous basal rosettes is striking, especially when combined with the sparingly-leafy stems and the aster-like flower heads. Nesom, Vorobik & Hartman (1990) noted that *Machaeranthera gypsitherma* most closely resembles *Machaeranthera riparia* (now *Arida riparia*), which is not known to occur in Texas.

Habitat: Around spring and seeps in gypsum areas.

Phenology: Flowering in summer and/or fall.

Comments:

Illustrations: A set of excellent line drawings by Linda Vorobik appears in Nesom, Vorobik & Hartman (1990) as *Machaeranthera gypsitherma*.

Selected References:

- Morgan, D. R. and R. L. Hartman. 2003. A synopsis of *Machaeranthera* (Asteraceae), with recognition of segregate genera. *Sida* 20(4): 1387-1416.
- Nesom, G. L., L. A. Vorobik and R. L. Hartman. 1990. The identity of *Aster blepharophyllus* A. Gray (Astereae: Asteraceae). *Systematic Botany* 15: 638-342.
- Turner, B. L. and G. L. Nesom. 2003. A new species of *Arida* (*Machaeranthera* sect. *Arida*-- Asteraceae: Astereae) from Trans-Pecos, Texas. *Sida* 20(4): 1417-1422.

Scientific Name: *Arida matturneri* B. L. Turner & G. Nesom

Synonyms: None.

Common Name: Matt Turner's aster

Global/State Ranks: G1S1

Federal Status: None.

Global Range: Apparently endemic to the Chihuahuan Desert of west Texas.

State Range: Known only from gypsum walls of Blumberg Canyon north-northwest of Ruidosa, Presidio County (Turner & Nesom, 2003).

Description (adapted from Turner & Nesom, 2003): Sticky-viscid perennial with several wiry, branched stems from a woody base, 50-80 cm (20-32 inches) tall. **Leaves** basal and cauline; basal leaves in a persistent rosette, broadly obovate in outline but bipinnately divided, 4-6 cm (1 1/2 - 2 3/8 inches) long and 1.5-3.5 cm (1/2 - 1 1/2 inches) wide; cauline leaves smaller, pinnately divided on lower stem, becoming entire and scale-like on upper stem. **Flowers** in aster-like heads typical of many members of the sunflower family, terminating bracteate peduncles; ray florets 9-13, the petal-like portion 9-10 mm (3/8 inch) long, lavender, drooping when in bloom, tightly coiling during fruit maturation; disk florets 40-100, yellow. **Fruit** an achene 1.0-1.5 mm (less than 1/16 inch) long, obovate-oblong, with 8-12 nerves, covered with short silky hairs; pappus on disk achenes of numerous whitish bristles; pappus of ray achenes absent.

Similar Species: Reminiscent of several *Machaeranthera*-like composites that are now placed in the genus *Arida*. Two annuals, *Arida turneri* and *Arida parviflora*, are similar to the perennial *Arida matturneri* but lack its persistent basal rosette.

Habitat: Seepy areas within gypsum-walled canyon in the Chihuahuan Desert.

Phenology: Flowering in summer (July-?).

Comments:

Illustrations: Color photographs of complete plants in habitat, as well as close-ups of flowering and fruiting heads, are provided in Turner & Nesom (2003).

Selected References:

Turner, B. L. and G. L. Nesom. 2003. A new species of *Arida* (*Machaeranthera* sect. *Arida*-- Asteraceae: Astereae) from Trans-Pecos, Texas. *Sida* 20(4): 1417-1422.

Scientific Name: *Astragalus mollissimus* Torr. var. *coryi* Tidestr.

Synonyms: *Astragalus argillophilus* Cory

Common Name: Cory's woolly loco

Global/State Ranks: G5T3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Western Edwards Plateau, including Crockett, Irion, Martin, Reagan, Sterling and Upton counties (Barneby, 1964; Turner, 1959; TEX-LL, 2001).

Description (adapted from Correll & Johnston, 1970): Low growing, silvery-hairy perennial with trailing stems. **Leaves** alternate, pinnately compound, 6-26 cm long; leaflets 11-35, round or ovate to elliptic, 3-4.5 mm long. **Flowers** in dense showy racemes, the petals cream-colored, 10-25 mm long. **Fruit** a somewhat inflated, ovate to linear-oblong legume pod 9-25 mm long and half as wide.

Similar Species: Much like other *Astragalus* species, and even more similar to the several other varieties of *Astragalus mollissimus* that occur in Texas, differing only in having cream-colored rather than bluish petals. However, identification of *Astragalus* species is difficult and should be attempted only with a complete specimen, a powerful microscope, and a copy of Correll & Johnston (1970) or Barneby (1964) on hand.

Habitat: Grasslands over limestone.

Phenology: Flowering March-May.

Comments: This variety is considered by some to be abundant on the western part of the Edwards Plateau from Crockett County north to Martin County (Correll & Johnson, 1970), yet it is seldom collected. It should probably be considered a botanical curiosity rather than a taxon of conservation concern, but information is needed about its current status.

Illustrations: None known. A color photograph of *Astragalus mollissimus* var. *earlei* appears in Tull & Miller (1991).

Selected References:

Barneby, R. C. 1964. Atlas of North American *Astragalus*. Memoirs of the New York Botanical Garden 13: 1-1188.

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

Tull, D. and G. O. Miller. 1991. A field guide to wildflowers, trees, and shrubs of Texas. Texas Monthly Field Guide Series. Gulf Publishing Co., Houston. 344 pp.

Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.

Scientific Name: *Astragalus reflexus* T. & G.

Synonyms: *Hesperastragalus reflexus* (T. & G.) Rydb.

Common Name: Texas milkvetch

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Scattered locations in the eastern half of Texas, with records from Bell, Brown, Cameron, Dallas, Fayette, Gonzales, Hill, Kleberg, Johnson, McLennan, Somervell, Tarrant, Travis, Walker and Zavala counties (Turner, 1959; Correll & Johnston, 1970; Diggs, Lipscomb & O'Kennon, 1999; TEX-LL, 1998).

Description (adapted from Correll & Johnston, 1970 and Barneby, 1964): Winter annual; stems variable in height but usually small, with widely scattered pubescence. **Leaves** alternate, pinnately compound; leaflets usually 11-15, oblong ovate to ovate-cuneate, thin, notched at the tip, roughly 1/4 to 1/2 in. long. **Flowers** pea-like, about 1/2 in. long, with 5 petals, the upper and lower petals bicolored, bluish- or reddish-violet, the others more or less white. **Fruit** a reflexed pod, ca. 1/4 to 3/8 in. long and 1/16 to 1/4 in. wide, triquetrously compressed.

Similar Species: Identifying members of the genus *Astragalus* can be difficult, especially in Texas. However, this one is easy, at least according to Barneby (1964) who claimed that "the combination of scattered hirsute vestiture, submembranous, retuse leaflets, and small, triquetrously compressed, sharply deflexed fruit combine to make *A. reflexus* instantly recognizable."

Habitat: Grasslands on calcareous clayey to gravelly soils; sometimes in areas that are seasonally moist, sometimes weedy on roadsides.

Phenology: Flowering in spring and probably not detectable in other seasons.

Comments: *Astragalus* is a genus of some 1500 species, of which 27 occur in Texas. This particular species is not among the showier of the group. Nonetheless, Barneby (1964) remarked that "*Astragalus reflexus*, which must appear to the casual or uninstructed eye an inconsiderable and trifling weed, cannot fail to excite the admiration of anyone who has paused to ponder the mysterious impulses which have given rise to the protean variations on the astragalus motif." He went on to add that one of its features "seems to be the product of sportive fancy operating outside the realm of common evolutionary pressures."

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

Selected References:

- Barneby, R. C. 1964. Atlas of North American *Astragalus*. Memoirs of the New York Botanical Garden 13: 1-1188.
- 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.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.

Scientific Name: *Astragalus soxmaniorum* Lundell

Synonyms: None.

Common Name: Soxmans' milkvetch

Global/State Ranks: G3S3

Federal Status: None.

Global Range: East Texas, Louisiana and Arkansas (Orzell & Bridges, 1987).

State Range: Anderson, Cass, Freestone, Hardin, Henderson, Houston, Leon, Nacogdoches, Rusk, Smith, Titus, Van Zandt, Walker and Wood counties (Turner, 1959; TEX-LL, 1998).

Description (adapted from Correll & Johnston, 1970): Short-lived perennial with few prostrate to ascending stems from base, 7-20 cm long. **Leaves** alternate, pinnately compound, mostly 35-90 cm long; leaflets 9-21, oblong to obovate, deeply notched, 4-15 mm long. **Flowers** zygomorphic, pea-like, in axillary racemes; corolla greenish-white or cream-colored, the longest petal 11-17 mm long. **Fruit** a pod 15-21 mm long and 5-8 mm thick, fleshy when young and leathery in age.

Similar Species: Closely related to *Astragalus distortus* var. *engelmannii*, which occurs in the same habitats in the same parts of the state. However, no intermediates are known, suggesting that the two taxa are genetically isolated by some unseen mechanism (Barneby, 1964). In *Astragalus soxmaniorum* the flowers are larger, the calyx teeth are proportionately longer, and the petals are yellowish-white in color.

Habitat: Primarily in deep sandy soils of sandhills, fallow fields, and open scrub oak-pine woodlands (Orzell & Bridges, 1987).

Phenology: Flowering in spring.

Comments: Dr. Cyrus Lundell (1945) named this species "in honor of Mr. and Mrs. G. M. Soxman of Dallas as a token of recognition for their work upon the flora of Texas. Both have devoted years to the critical collecting, growing, and study of the native and naturalized pteridophytes of the state." A search of the TEX-LL node of the Flora of Texas database in February 2004 revealed 386 specimens collected by one Soxman or the other, most of them ferns and fern allies, including several records of relative rarities such as *Isoetes lithophila*.

Illustrations: A color photograph of an inflorescence tip is provided in Cheatham, Johnston & Marshall (2000).

Selected References:

- Barneby, R. C. 1964. Atlas of North American *Astragalus*. Memoirs of the New York Botanical Garden 13: 1-1188.
- Cheatham, S., M. C. Johnston, and L. Marshall. 2000. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 2. Useful Wild Plants, Inc., Austin, Texas. 599 pp.
- Lundell, C. L. 1945. New spermatophytes. Field & Laboratory 13: 3.
- Orzell, S. L. and E. L. Bridges. 1987. Further additions and noteworthy collections in the flora of Arkansas. Phytologia 64: 88-144.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.

Scientific Name: *Bauhinia lunarioides* Wats.

Synonyms: *Bauhinia congesta* (Britt.) Lundell; *Casparea jermyana* Britt.

Common Names: Anacacho orchid-tree, Texas bauhinia, pata vaca

Global/State Ranks: G3S1

Federal Status: None.

Global Range: South Texas and adjacent Coahuila and Nuevo León (Wunderlin, 1983).

State Range: Southwestern edge of the Edwards Plateau and northern edge of the Tamaulipan Thornscrub ecoregions, with verified records from the Anacacho Mountains in Kinney County and the Devils River area in Val Verde counties. Historical collections from other localities in Texas (near Eagle Pass in Maverick County, near Laredo in Webb County, and at Enchanted Rock in Gillespie County) have all been questioned by at least one authority; see discussions in Turner (1959) and Wunderlin (1983).

Description (adapted from Correll & Johnston, 1970 and Cheatham, Johnston & Marshall, 2000): Deciduous shrub or small tree to about 4 m tall. **Leaves** alternate, composed of a short petiole and two divergent leaflets 15-30 mm long and almost as broad. **Flowers** in clusters among leaves, with 5 white or light pink petals. **Fruit** a narrow, few-seeded, flattened legume pod ca. 3 cm. long.

Similar Species: None. Anacacho orchid-tree is easily recognized by foliage alone at any time during the growing season. No other *Bauhinia* species occur in the wild in Texas.

Habitat: Known sites are in shrublands in draws on rocky limestone slopes and on limestone ledges along rivers.

Phenology: Flowering March to May; identifiable by its unique foliage at any time during the growing season.

Comments: The attractive flowers of this shrub have earned it the common name "Anacacho orchid;" its curiously shaped leaves are the source of the Spanish name "pata vaca." It is now fairly common in the native plant nursery trade.

Illustrations: A line drawing appears in Vines (1960). Color photograph appears in Enquist (1987) and Cheatham, Johnston & Marshall (2000).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 2000. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 2. Useful Wild Plants, Inc., Austin, Texas. 599 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.
- Turner, B. L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 pp.
- Vines, R. A. 1960. Trees, shrubs and woody vines of the southwest. The University of Texas Press, Austin. 1104 pp.
- Wunderlin, R. P. 1983. Revision of the arborescent bauhinias native to Middle America. Annals of the Missouri Botanical Garden 70: 95-127.

Scientific Name: *Berberis swaseyi* Buckl.

Synonyms: *Mahonia swaseyi* (Buckl.) Fedde

Common Name: Texas barberry

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Endemic to Texas.

State Range: Essentially restricted to the Edwards Plateau (Bandera, Blanco, Comal, Hays, Kerr, Real and Travis counties), with one report from Bailey County in the Texas Panhandle (Rowell, 1949).

Description (adapted from Correll & Johnston, 1970): Medium-sized evergreen shrub. **Leaves** pinnately compound, with 5-9 leaflets; leaflets light green to dark green or even purplish-green, rigid, with stiff spines on the tips of the marginal teeth. **Flowers** 1/2 to 3/4 inch wide, composed of numerous bright yellow waxy petals. **Fruit** an edible orange berry about 3/8 inch in diameter.

Similar Species: Texas barberry often occurs with its close relative, the common agarito (*Berberis trifoliolata*). *Berberis swaseyi* has pinnately compound leaves with 5-9 leaflets, whereas *Berberis trifoliolata* has palmately compound leaves with three leaflets.

Habitat: Grasslands and shrublands on shallow stony clay soils on limestone uplands; sometimes in oak-juniper woodlands on loamier soils on creek terraces and canyon slopes.

Phenology: March-early April; fruit ripens in late May and early June (Durand, 1973).

Comments: A favorite among native plant enthusiasts. The fruits of can be eaten raw, mixed with water as a cool drink, boiled into jellies or baked into pies; the shrubs themselves are valued in garden landscapes (Cheatham, Johnston & Marshall, 2000; Nokes, 1986; Tull, 1987; Wasowski & Ryan, 1985). In the opinion of Cheatham et al., the fruits of *Berberis swaseyi* are tastier than those of other *Berberis* species.

Illustrations: Line drawings appear in Lynch (1981) and Vines (1960). Color photographs appear in Cheatham, Johnston & Marshall (2000), Enquist (1987), Wasowski & Ryan (1985) and elsewhere.

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 2000. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 2. Useful Wild Plants, Inc., Austin, Texas. 599 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Durand, H. K. 1972. Texas mahonia--a neglected economic plant. *Economic Botany* 26(4): 319-325.
- Enquist, M. 1987. Wildflowers of the Texas Hill Country. Lone Star Botanical, Austin. 275 pp.
- Lynch, D. L. 1981. Native and naturalized woody plants of Austin and the Hill Country. Acorn Press, Austin. 165 pp.
- Nokes, J. 1986. How to grow native plants of Texas and the southwest. Gulf Publishing Company, Houston, Texas. 404 pp.
- Rowell, C. M., Jr. 1949. Vascular plants of the Texas Panhandle and South Plains. Ph.D. dissertation, Oklahoma State University. 206 pp.

Wasowski, S. and J. Ryan. 1985. Landscaping with native Texas plants. Texas Monthly Press, Austin.

Scientific Name: *Bothriochloa exaristata* (Nash) Henr.

Synonyms: *Amphilophus exaristatus* Nash

Common Name: awnless bluestem

Global/State Ranks: G3S3

Federal Status: None.

Global Range: Four parishes in coastal Louisiana and eastern Texas; disjunct in Brazil and Paraguay (Gould, 1975; MacRoberts, 1989).

State Range: Aransas, Brazoria, Chambers, Fort Bend, Galveston Harris, Jefferson and Wharton counties (BRIT/SMU, 1999; TEX-LL, 1998).

Description (adapted from Hatch, Schuster & Drawe, 1999): Clump-forming perennial grass with culms to 130 cm tall, usually less than 1 m tall. **Leaves** relatively long, the blade 3-8 mm wide. **Flowers** in spikelike panicles 9-15 cm long, silvery-pubescent; spikelets in pairs, one sessile and one stalked; sessile spikelet fertile, 3 mm long, the upper (outer) lemma hyaline and either awnless or with an awn 4 mm long or less; stalked spikelet 2-4 mm long, neuter, narrower than sessile spikelet, awnless.

Similar Species: Very much like the common silver bluestem (*Bothriochloa saccharoides*) but different in having awnless (or very short-awned) spikelets.

Habitat: Coastal prairies on various substrates.

Phenology: Flowering specimens have been collected from April through December.

Comments: One of several coastal prairie species exhibiting an amphitropical distribution with the northern node in Texas. Information about its status in South America could raise the G rank to G4 or G5.

Illustrations: Line drawing of spikelet pairs appear in Hitchcock (1950) and Gould (1975).

Selected References:

- Gould, F. W. 1975. The grasses of Texas. Texas A & M University Press, College Station. 653 pp.
Hatch, S. L., J. L. Schuster and D. L. Drawe. 1999. Grasses of the Texas Gulf prairies and marshes. Texas A & M University Press, College Station. 355 pp.
Hitchcock, A. S. 1950. Manual of the grasses of the United States. Second edition, revised by Agnes Chase. 2 volumes. 1971 Dover reprint edition, New York. 1051 pp.

Scientific Name: *Brazoria arenaria* Lundell

Synonyms: None.

Common Name: sand brazos-mint

Global/State Ranks: G3S3

Federal Status: None

Global Range: Endemic to Texas.

State Range: Sandy areas in South Texas, with records from Aransas, Brooks, Hidalgo, Jim Hogg, Jim Wells, Kenedy, Kleberg, Refugio and San Patricio counties (Lundell, 1969; TEX-LL, 1998).

Description (adapted from Correll & Johnston, 1970): Annual forb of the mint family (Lamiaceae); stems pubescent, usually 10-20 cm tall, twice as tall on wet years or under otherwise optimal conditions; leaves opposite, few (only 3-5 pairs below inflorescence), simple, oblong, the margins with a few inconspicuous teeth near the apex, up to 12 cm long and 35 mm wide; flowers showy, zygomorphic, in terminal racemes; calyx 2-lipped, the middle lobe of the upper lip rounded and entire, the two lobes of the lower lip not overlapping each other, the sinus between them open; corolla two-lipped, pink to lavender to rose-purple with darker spots inside, 13-18 mm long, the tube dilated toward upward, the upper lip 2-lobed, the lower with 3 smaller lobes that are notched at the tip.

Similar Species: *Brazoria truncata*, another Texas endemic, occupies similar open sandy habitats just to the north of *Brazoria arenaria*; their ranges overlap in Jim Wells, Refugio and perhaps other counties. In *Brazoria truncata*, the racemes are short and dense, and the lower lip of the calyx is conspicuously bearded. In *Brazoria arenaria*, the racemes are elongated and sometimes interrupted, and the calyx is short-pubescent but not bearded with long hairs.

Habitat: Early successional areas within coastal prairies on deep loose sandy soils. Disappears under heavy grazing, but light or time-limited grazing may create appropriate successional structure.

Phenology: Flowering in spring, mostly March and April.

Comments:

Illustrations: Color photographs appear in Cheatham, Johnston & Marshall (2000), Everitt, Drawe & Lonard (1999), and Rickett (1970).

Type specimen: Brooks Co.: Off Hwy 181, S of Encino, on sandy plain, 6 Apr 1944, C. L. Lundell & A. A. Lundell 12766 (TEX-LL; BRIT/SMU).

Selected References:

- Cheatham, S., M. C. Johnston, and L. Marshall. 2000. The useful wild plants of Texas, the southeastern and southwestern United States, the southern plains, and northern Mexico. Volume 2. Useful Wild Plants, Inc., Austin, Texas. 599 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner. 1881 pp.
- Everitt, J. H., D. L. Drawe and R. I. Lonard. 1999. Field guide to the broad-leaved herbaceous plants of South Texas used by livestock and wildlife. Texas Tech University Press, Lubbock. 277 pp.

- Lundell, C. L. 1969. Labiatae: *Brazoria* and *Physostegia*. Pp. 319-330 in Lundell, C. L. 1969. Flora of Texas, volume 2. Texas Research Foundation, Renner. 417 pp.
- Rickett, H. W. 1970. Wild flowers of the United States: Texas. Volume 3, Parts 1 and 2. McGraw-Hill, New York City.
- Shinners, L. H. 1953. Synopsis of the genus *Brazoria* (Labiatae). Field & Lab. 21(4): 153-154.

Scientific Name: *Brazoria enquistii* M. W. Turner

Synonyms: None.

Common Name: Enquist's sandmint

Global/State Ranks: G2S2

Federal Status: None.

Global Range: Endemic to the Llano Uplift (Central Mineral Basin) of central Texas.

State Range: Burnet, Llano and Mason counties (Turner, 2003).

Description (adapted from Turner, 2003): Annual with simple or branched square stems mostly 15-40 cm (6-16 inches) tall. **Leaves** opposite, simple, oblong to elliptic, the margins entire to denticulate, the upper leaves sessile and somewhat clasping but the lower ones often long-petiolate. **Flowers** in dense bracted spikes or spikelike racemes composed of four vertical rows; calyx two-lipped, 5-10 mm (3/16 - 3/8 inch) long; corolla two-lipped, 15-25 mm (5/8 - 1 inch) long, lavender with paler lobes and darker veins, the upper lip 2-lobed, the lower lip 3-lobed; stamens 4, all fertile. **Fruit** a set of four separate nutlets mostly 1.5-2.5 mm (1/16 inch) long, strongly three-angled, with short incurved hairs.

Similar Species: According to Turner, *Brazoria enquistii* is the only *Brazoria* species in the Llano Uplift area. In that region, it was long mistaken for *Brazoria truncata*, which occurs in post oak regions to the east. In *Brazoria enquistii*, the mature spikes are densely flowered, the bracts at the base of the flowers are 8-12 mm (3/8 - 1/2 inch) long, and the lower lobes of the calyx are shallowly apiculate with one tooth per lobe. In *Brazoria truncata*, the mature spikes are less densely flowered, the bracts at the base of the flowers are 4-9 mm (3/16 - 3/8 inch) long, and the lower lobes of the calyx are dentate with 3-5 teeth per lobe. *Warnockia scutellarioides* (*Brazoria scutellarioides*), which occurs in clayey soils in limestone areas surrounding the Llano Uplift, has flowers less than 15 mm (5/8 inch) long.

Habitat: Enquist's sandmint occurs primarily on sand banks in and along beds of streams that drain granitic /gneissic landscapes (Turner, 2003).

Phenology: All the specimens cited in Turner (2003) were collected in early to mid May. Flowering may be a bit earlier, and the fruiting period probably continues into June.

Comments: This species is named in honor of Marshall Enquist, student of *Anemone*, *Crataegus*, *Desmodium*, *Prunus* and other groups as well as the Texas flora in general; also the author of the most useful and accurate wildflower book ever written for any part of Texas.

Illustrations: Color photographs of *Brazoria enquistii* and the similar *Brazoria truncata* are provided in Turner (2003).

Selected References:

Turner, M. W. 2003. A new species of *Brazoria* (Lamiaceae) from the Central Mineral Region of Texas. *Sida* 20(4): 1565-1571.