A TAXONOMIC TREATMENT OF *SIDA* SECT. *ELLIPTICIFOLIAE* (MALVACEAE)

S.J. Siedo
Plant Resources Center and Department of Integrative Biology
University of Texas, Austin, TX 78712

Abstract: A taxonomic treatment of *Sida* L. sect. *Ellipticifoliae* Fryxell is presented in which eight species and two varieties are recognized. Brief descriptions, a key to species, distribution maps, illustrations, and notes on ecology, etymology, typification, and species relationships are included. *Sida inflexa* Fernald is reduced to synonymy under *S. elliottii* Torr. & A. Gray, *S. rubromarginata* Nash is resurrected in light of new characters, and *S. elliottii* var. *parviflora* Chapm. is broadly redefined.

Key Words: *Malvaceae*, *Sida*, *Sida* sect. *Ellipticifoliae*.

Sida L. was described in 1753 and included species now distributed in the genera *Abutilon* Mill., *Allosidastrum* Fryxell & D.M. Bates, *Anoda* Cav., *Bastardiopsis* (K. Schum.) Hassl., *Billieturnera* Fryxell, *Bogenhardia* Rchb., *Dendrosida* Fryxell, *Krapovickasia* Fryxell, *Malachra* L., *Malvella* Jaub. & Spach, *Meximalva* Fryxell, *Rhynchosida* Fryxell, *Sidasodes* Fryxell & Fuertes, *Sidastrum* Baker f., *Tetrasida* Ulbr., and *Wissadula* Medik. (Clement, 1957; Fryxell, 1971, 1978b, 1982, 1985; Fryxell & Fuertes, 1992). Even with these exclusions, *Sida* remains large and taxonomically difficult with much synonymy and unclear species boundaries. The need for a modern revision of *Sida*, as noted by Fryxell (1985), is testament to its understudied nature. Significant taxonomic treatments prior to 1975 include those of Schumann (1891), Baker (1892), Kearney (1954, 1958) and Clement (1957) but these were neither generically complete nor monographic. Additionally, the concept of the genus has been refined dramatically since their work leaving a narrower and more natural group of about 100 species (Fryxell, 1997). The most recent papers by Fryxell (1975, 1978a, 1978b, 1979, 1985, 1987a, 1987b, 1988), Burandt (1992), and Sivarajan and Pradeep (1994) indicate a revival of interest in the taxonomy of the genus and it is the purpose of this paper to provide a modern treatment of sect. *Ellipticifoliae* as a contribution to this ongoing work.

In the present revision eight species and two varieties distributed from the southeastern United States to Guatemala are recognized. The morphologically distinctive peninsular Florida endemic, *Sida rubromarginata* Nash, is resurrected from synonymy following Nash (1896), Small (1933), and Long & Lakela (1971). *Sida inflexa* Fernald is found to be a peripherally derived population of *S. elliottii* Torr. & A. Gray and is reduced to synonymy following Gleason (1952), Gleason & Cronquist (1963), Cronquist (1980), and Radford, Ahles, & Bell (1964). *Sida elliottii* var. *parviflora* Chapm., a name ignored in the literature since its publication in 1897, is conceptually broadened to include the Mexican, Guatemalan, and Texan representatives of *S. elliottii*.

TAXONOMIC TREATMENT

Sida L., *sensu stricto*, Sp. Pl. 683. 1753; Gen. Pl., ed. 5, 306. 1754.

Malveola Fabr., Enum. Meth. Pl. 152. 1759.
Lamarckia Medik., Phil. Bot. 1: 28. 1789, *nomen rejiciendus* (fide Fryxell, 1997).
Malvinda Boehm. in Ludw., Defin. Gen. Pl., ed. 3, 74. 1760.
Dictyocarpus Wight, Madras J. Sci. 5: 309. 1837.
Pseudomalachra (K. Schum.) Monteiro, Portug. Acta. Biol. B, 12: 134. 1973.

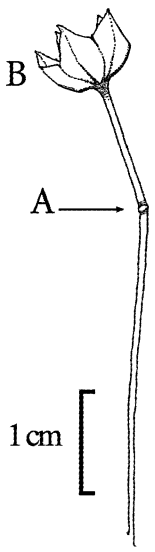

FIG. 1. Peduncle of *Sida lindheimeri* (*S.J. Siedo #644*) showing A. articulation and B. calyx venation.

The main features separating *Sida* from the rest of the Malvaceae are: 10–costate calyx; lack of an epicalyx; and characteristics of the schizocarpic fruit and enclosed seeds (Fryxell, 1978b, 1985). The costae correspond to each calyx lobe and sinus (Fig. 1) and vary in prominence among species. The schizocarp contains 5–14 mericarps, half-moon shaped laterally and trigonal transversally, with a dorsal shoulder roughly demarcating the boundary between the apical and basal hemispheres. The apical portion is variably developed into two spines or dorso-ventral ribs, separated by the mericarp's line of dehiscence. The basal portion is indehiscent and rounded to cradle the seed; dorsal and lateral reticulation is also sometimes present. The seed itself is smooth, brown, and variably glabrous to pubescent on and around the hilum (Fig. 2). This pubescence arises from maternal tissue overlying the chalaza and is ventral to the point of blister formation and water imbibition of the seed (Egley & Paul, 1981).

TYPIFICATION: Fryxell (1988, 1997) notes the type for the genus is *Sida alnifolia* L., designated by Britton and Brown (1913), and not *S. rhombifolia* L., as listed in the Index Nominum Genericorum and as reported by Clement (1957). Borssum Waalkes (1966) lectotypified *S. alnifolia*, submerging it under *S. rhombifolia* ssp. *retusa*, but failed to recognize Britton and Brown's lectotypification of the genus and followed Clement in reporting *S. rhombifolia* as the type species.

ETYMOLOGY: Linnaeus states in *Critica Botanica* (1737) that the name *Sida* was conceived by Theophrastus, probably in reference to *Nymphaea alba* L. (=*Castalia speciosa* Salisb.), and was "daringly" transferred to the Malvaceae suppressing its primary, pre-Linnaean application (Fryxell, 1988; Greene, 1909). The root for "sida" is unknown but may be derived from the Germanic *sido* ("long surface or part"...possibly in reference to mericarps) or *sediz* ("seed").

CHROMOSOME NUMBERS: The most frequent chromosome numbers reported for the genus are n=7 or 8, the latter being exclusive to sections *Nelavagae* and *Oligandrae*, with haploid counts ranging from 7 to 16 (Bates, 1966, 1976; Fryxell & Stelly, 1993; Krapovickas, 1969). The only two counts known for sect. *Ellipticifoliae* are $2n$=28 for *Sida lindheimeri* Engelm. & A. Gray and n=ca. 7 for *S. neomexicana* A. Gray (Bates, 1976; Fryxell & Stelly, 1993; Krapovickas, 1969).

Sida sect. *Ellipticifoliae* Fryxell, Sida 11: 82. 1985. Type: *Sida rzedowskii* Fryxell (= *Sida linearis* Cav.).

Decumbent to erect HERBS. Laminae linear to elliptic, unlobed, dentate to base, truncate or attenuate at base (rarely somewhat cordate). FLOWERS yellow or orange to rose-colored with yellow center, petals oblique at apex; axillary, internodes con-

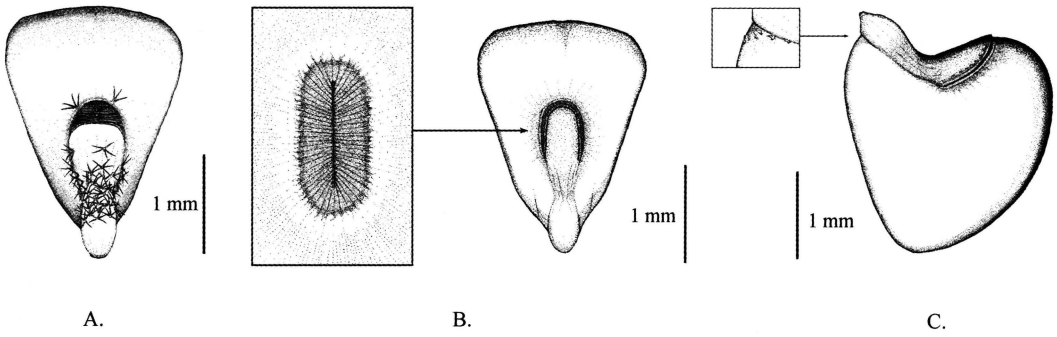

FIG. 2. Seed morphology of selected species: A. *Sida turneroides* (*Cowan #3725*) showing apical pubescence. B. *Sida elliottii var. elliottii* (*Thomas #15082*) showing apical morphology and inset detail of chalazal area beneath hilum. C. *Sida elliottii* var. *elliottii* (*Thomas #15082*) showing lateral morphology and inset detail showing ventro-apical pubescence of *Sida rubromarginata* (*Nash 2472*).

stant to notably shortened apically; short to long pedicellate, articulated or not. MERICARPS (5–)7–12 in number; upper hemisphere with short stellate pubescence, apically rounded or blunt to short-awned (awns up to 1.2 mm); lower hemisphere smooth to reticulated dorsally and laterally.

This section is distinct from the genus for a number of reasons; leaf shape being the most obvious morphological feature. The laminae are: truncate to attenuate at base, very rarely pseudo-cordate, but never truly cordate as in sections *Nelavagae* Borss. Waalk., *Spinosae* Small, *Muticae* Presl., and *Cordifoliae* (DC.) Fryxell; unlobed versus deeply lobed as in sections *Oligandrae* Clement, *Pseudo-Napaeae* A. Gray, and *Hookerianae* Clement; dentate throughout, not just distally, as in sections *Malachroideae* G. Don and *Sidae*, nor entire as in section *Stenindae* Griseb.; and linear to broadly elliptic in shape. Additionally, mericarp number varies from (5–)7–12 in this section, separating it from sections *Nelavagae* Borss. Waalk., *Spinosae* Small, and *Malachroideae* G. Don (5 for the former two, 5–7 for the latter). I refer the reader to Table 1 for a review of the New World sections and to Fryxell's (1985) treatment for a comprehensive sectional characterization.

Artificial Key to the Species of *Sida* section *Ellipticifoliae*

1. Peduncles 6–20 cm long, 1.5–4 times as long as subtending leaves. Seeds glabrous.
   2. Plants short-stellate pubescent, hairs < 0.2 mm. Leaves linear to lance-linear. Mericarps bluntly beaked apically, moderately to prominently reticulated dorso-laterally on lower hemisphere. Peduncles 6–20 cm long. Western Texas and northern Coahuila. 4. *S. longipes*
   2. Plants covered with erect, velvety, stellate hairs up to 0.5 mm long. Leaves broadly to narrowly elliptic. Mericarps blunt apically and weakly reticulated dorso-laterally on lower hemisphere. Peduncles 6–15 cm long. Southern Tamaulipas and central San Luis Potosí. 6. *S. potosina*
1. Peduncles 0.5 to 6 cm long, shorter than to slightly exceeding subtending leaves. Seeds glabrous to apically pubescent.
   3. Laminae narrowly to broadly oblong or elliptic, 1.5–6 times as long as wide along mid to upper stems. Mericarps blunt, rounded to apically 2–awned and weakly, if at all, reticulated dorso-laterally; peduncles to 2 cm long. Central to southern Mexico.
      4. Leaves narrowly elliptic, 2–6 times as long as wide, serrate; upper leaf surface stellate-pubescent with simple hairs sometimes present. Mericarps blunt to very weakly spinose apically (awns to 0.3 mm

long), smooth to weakly reticulated dorso-laterally. Seeds glabrous to sparsely apically pubescent (2–3 hairs). 3. *S. linearis*

4. Leaves elliptic to ovate, 1.5–3 times as long as wide, dentate; upper leaf surface glabrous to sparsely pubescent with simple hairs. Mericarps apically spinose (up to 1.0 mm long), smooth dorso-laterally. Seeds prominently apically pubescent with short, branched hairs (Fig. 2). 8. *S. turneroides*

3. Laminae linear, lance-linear to elliptic, 6–21 times as long as wide, or narrowly rhombo-elliptic and 4–6 times as long as wide. Mericarps usually 2–awned apically and dorso-laterally reticulated (at least toward base); peduncles 0.5 to 6 cm long. Southeastern USA to Mexico and Guatemala.
   5. Stipules approximately 2 times the length of adjacent petiole, linear. Leaves narrowly rhombo-elliptic, 4–6 times as long as wide, glabrate above. Seeds pubescent apically and ventro-apically (Fig. 2). Peduncles 0.5–2(–3) cm long, 1/2 to 3/4 the length of the subtending leaf, articulated ca. 0.5–1 cm below the calyx. Peninsular Florida. 7. *S. rubromarginata*
   5. Stipules 1/2 to equal the length of the adjacent petiole, falcate or subulate. Leaves linear, lance-linear to narrowly elliptic, 6–21 times as long as wide, glabrate to pubescent above. Seeds glabrous to apically pubescent, usually ventro-apically glabrous. Peduncles 1/2 to 1 1/4 times the length of the subtending leaf but if articulated then 3/4 to 1 1/4 times the length of the subtending leaf. Southeastern US to Guatemala.
      6. Peduncles 2–6 cm, approximately equal to or exceeding but less than twice as long as subtending leaf; articulated 1–2 cm below the calyx with the articulation becoming most prominent on mature, fruiting peduncles (Fig. 1). Flowers axillary. Texas and Louisiana. 2. *S. lindheimeri*
      6. Peduncles 0.5–4.5 cm long, shorter than the subtending leaf (rarely exceeding in *S. elliottii*, see discussion); not articulated. Flowers axillary to aggregated apically. Southeastern US and Mexico.
         7. Plants decumbent to ascendant, to 0.5 m high, diffusely branched basally and lacking a well-defined central axis. Flowers drying rose-colored, usually aggregated apically. Calyx stellate pubescent with simple to branched villous hairs along the costae. Peduncles to 2 cm long. Leaves stellate pubescent above. 5. *S. neomexicana*
         7. Plants erect, to 1 m tall, few stemmed with a well-defined central axis, not diffusely branched at base. Flowers drying yellow, usually axillary (sometimes aggregated apically in southeastern US populations). Calyx with villous hairs present (southeastern US, excluding southern Florida, and southern Mexican to Guatemalan populations) or absent (central to northern Mexican and southern Floridian populations). Leaves usually glabrate, sometimes stellate pubescent above (southeastern US excluding southern Floridian populations). 1. *S. elliottii*
            8. Calyx stellate-pubescent, usually villous hirsute at base and along costae. Flowers axillary to apically congested. Leaves linear to narrowly elliptic, purplish along margins or not, glabrate to stellate/simple above. Plants to 1 m tall. Roughly distributed north of 29° N latitude, from eastern Arkansas to Virginia. 1A. *S. elliottii var. elliottii*
            8. Calyx stellate pubescent at base. Flowers axillary. Leaves linear, usually purplish along margins, glabrate above. Plants to 0.5 m tall. Roughly distributed south of 29° N latitude, southern Florida and Texas to Guatemala. 1B. *S. elliottii var. parviflora*

1. SIDA ELLIOTTII Torr. & A. Gray (Figs. 2, 3, 4)

Sida elliottii Torr. & A. Gray, Fl. N. Amer. 1: 231. 1838. *Sida gracilis* Elliott, Sketch Bot. S. Carol. 2: 159. 1822, non *Sida gracilis* Richard, 1792, nec Salisbury, 1796, nec R. Brown, 1814. TYPE: USA. SOUTH CAROLINA: near Beaufort, s.d., *Elliott s.n.* (HOLOTYPE: CHARL (fide Fryxell, 1985, 1988)).

Sida leptophylla Small, Bull. Torrey Bot. Club 25: 468. 1898. TYPE: USA: ex Torrey herb., *sine coll. 40* (HOLOTYPE: NY!).

Sida inflexa Fernald, Rhodora 42: 463. 1940. TYPE: USA. VIRGINIA: Southampton Co., near Three Creek, northwest of Carey Bridge, 23 Sep 1939, *M. Fernald & B. Long 11373* (HOLOTYPE: GH!; ISOTYPES: GH!, MO, NY! PH, US!).

Table 1. Leaf characters, mericarp number, and base chromosome number (x) for the New World sections of Sida.

Section	Leaf Shape	Leaf Margin	Mericarp No.	x=?
Cordifoliae (DC.) Fryxell	linear, narrowly elliptic to rotund, lanceolate or cordate	dentate to crenate	7–14	7
Ellipticifoliae Fryxell	linear to broadly elliptic	serrate or dentate	(5–)8–12	7
Malachroideae G. Don	linear to narrowly elliptic	distally serrate to essentially entire	5–8	7
Muticae Presl.	cordate, apex acute to weakly 3-lobed	serrate	5–8	7
Nelavagae Borssum Waalkes	cordate, acute at apex	serrate to crenate	5	8
Oligandre Clement	palmately 3-9 lobed, basally cordate	serrate to serrate-crenate	5(–9)	8
Pseudo-Napaeae A. Gray	palmately 5-7 lobed	dentate	8–10	7
Sidae	narrowly elliptic to rotund, rhombic or lanceolate	serrate distally or essentially to base	6–13	7
Spinosae Small	rotund to elliptic to lanceolate	serrate to dentate to crenate, rarely basally entire	5	7
Stenindae Grisebach	narrowly linear to elliptic	entire	5–9	7

Tab. 1. Leaf characters, mericarp number, and base chromosome number (x) for the New World sections of Sida.

Erect perennial HERBS to 1 m tall. LEAVES serrate, densely stellate pubescent below. FLOWERS with smooth peduncles, not articulated; petals pale yellow to orange yellow, drying the same. Stipules 1/2 to approximately equal the length of adjacent petiole. Calyx smooth, shiny, and glabrous on inner surface. FRUIT schizocarpic with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps moderately to strongly reticulated dorso-laterally on the basal hemisphere; interior smooth, shiny with reticulation evident.

1A. SIDA ELLIOTTII VAR. ELLIOTTII (Figs. 2, 3)

HERBS to 1.0 m high. LEAVES purplish along margins or not, linear to narrowly elliptic, laminae 2–7.5 cm long, (3–)6–15 times as long as wide; somewhat glabrous to moderately stellate and/or simply pubescent above. FLOWERS axillary to somewhat congested apically (up to 4 flowers); peduncles 0.5–2(–4.5) cm long, not articulated. Calyx 6–10 mm long; short, stellate pubescent on outer surface with longer villous hairs at the base and along the costae. MERICARPS variably

blunt to spinose apically (awns up to 1.0 mm long). Seeds glabrous to moderately pubescent apically.

DISTRIBUTION (Fig. 3) AND HABITAT: This variety occurs from Virginia to northern Florida west to Arkansas and Louisiana north of 29° N latitude. It prefers sandy soils and disturbed sites throughout its range (Smith, 1988; Long & Lakela, 1971).

REPRESENTATIVE SPECIMENS EXAMINED: UNITED STATES. **Alabama.** Bibb Co.: AL 5, ca. 5 mi. N of Centreville, 5 Sep 1970, *R. Kral 41092* (NCU, US, WILLI). Coosa Co.: sine loc., 1874, *E.A. Smith s.n.* (US). Elmore Co.: Tallassee, 10 Aug 1899, *F. S. Earle 2151* (NMSU, US). Franklin Co.: NE side of Russellville by US 31, 20 Jul 1969, *R. Kral 31721* (BRIT). Talladega Co.: Talladega, Jul 17–19 1900, *C. L. Pollard & W. R. Maxon 215* (NY, US). **Arkansas.** Calhoun Co.: 1.8 mi. NW of US 167, S of Hampton, 19 Aug 1994, *R.D. Thomas 141406* (NY, TEX). Craighead Co.: Lake City, 6 Jul 1927, *D. Demaree 3590* (LSU). Independence Co.: Polk Bayou N of Cushman, Sandtown, 21 Jul 1969, *R. D. Thomas 15271* (BRIT, NCU, NLU). Izard Co.: White River, 2 mi. NW of Croker, 22 Jul 1969, *R. D. Thomas 15358* (BRIT, NLU). Lawrence Co.: Imboden, 8 Sep 1951, *D. Demaree 31319* (NCU). Lee Co.: 6 mi. E of Haynes on Crowley Ridge, 11 Sep 1959, *S. McDaniel 1368* (NY). Sharp Co.: AK 56, 4.2 mi. E of Evening Shade, 9 Aug 1970, *R. D. Thomas & R. Reid 20673* (BRIT, FLAS, NCU, NLU, VPI). **Florida.** Alachua Co.: Devil's Millhopper, Gainesville, 25 Sep 1927, *Loucks & West s.n.* (FLAS); Newman's Lake, Gainesville, 21 Sep 1939, *E. West s.n.* (FLAS). Columbia Co.: 5 mi. NW of Ft. White off US 27 in Ichetuknee Springs State Park, 28 Sep 1991, *B. & D. Herring 454* (FLAS). Leon Co.: Anton Dr., W of Sharer Rd., Tallahassee, 16 Sep 1991, *L. C. Anderson 13488* (BRIT, NY). **Georgia.** Baker Co.: Ichauway, SW of Newton, ca. 28 mi. SW of Albany, 6 Jul 1995, *L. C. Anderson 15668* (BRIT). Catoosa Co.: 1.9 mi. E of Ft. Oglethorpe, alt. 730 ft., 12 Aug 1951, *W. H. Duncan & J. B. Harris 13019* (BRIT, FLAS, NCU, NY, US). Decatur Co.: Bainbridge, s.d., *Chapman s.n.* (GH). Dooly Co.: Open woods near Flint River, alt. 200 ft., 3 Sep 1900, *R. M. Harper 578* (GH, NY, US). Jenkins Co.: Scarboro, 1860, *T. P. Cleveland s.n.* (FLAS). Thomas Co.: Thomasville, Sep 1904, *G.C. Harrison s.n.* (GH). **Louisiana.** East Baton Rouge Parish: 1 mi. S of Plains, 17 Aug 1938, *C.A. Brown 7208* (LSU); Open dry soil near Plains, 22 Aug 1938, *D. S. & H. B. Correll 10496* (GH, LSU, NY). **Mississippi.** Lowndes Co.: 18 mi. E of Crawford, near Tombigbee River, 30 Sep 1970, *S. McDaniel 14588* (BRIT); Along Tombigbee River near AL/MS state line, 31 Aug 1967, *M. G. Lelong 3644* (NCU). **Missouri.** Dunklin Co.: Sands, Campbell, 9 Sep 1910, *B. F. Bush 6293 &6293A* (GH, NY, US). Scott Co.: Sandy ground, 31 Aug 1894, *H. Eggert s.n.* (GH). Stoddard Co.: sine loc., 12 Sep 1893, *B. F. Bush 15* (GH, NY). **North Carolina.** Halifax Co.: Weldon, Aug 1892, *C. S. Williamson s.n.* (GH, LL). Nash Co.: Tar River, ca. 1 mi. NW of Rocky Mt. on NC Rte. 43, 15 Oct 1956, *H. E. Ahles & R. S. Leisner 21282* (BRIT, NCU). Wake Co.: Near old Mill dam on Neuse River, Milburnie, 4 Aug 1948, *W. B. Fox & L. A. Whitford 1801* (GH). **South Carolina.** Allendale Co.: River bottom, Savannah River, at end of C.R. 40, 1.4 mi. SW of Jct. w/ C.R. 60, 11 Sep 1956, *C. R. Bell 5139* (NCU). Beaufort Co.: 1.6 mi. S of Frogmore on C.R. 37, 6 Sep 1956, *H. E. Ahles & C. R. Bell 18044* (FLAS, GH, NCU, NY). Berkeley Co.: Santee Canal, 5 mi. W of Pineville, 17 Jul 1939, *R. K. Godfrey & R. M. Tryon, Jr. 589* (GH, NY, US). Charleston Co.: McClellanville, open place, 2 Sep 1940, *P. O. Schallert 5394* (BRIT). Jasper Co.: sine loc., Sep 1884, *J. H. Mellinchamp s.n.* (US). **Tennessee.** Davidson Co.: Cedar Glades, LaVergne, Sep 1885, *A. Gattinger s.n.* (GH, US). Rutherford Co.: 5 mi. N of LaVergne, Rd. to level Acres Farm, 28 Sep 1946, *E. Quarterman 1878* (TEX). **Virginia.** Dinwiddie Co.: Petersburg, s.d., *M. Tuomey s.n.* (GH, NY). Greensville Co.: Dry sandy pine and oak woods N of Orion, 14 Sep 1941, *M.L. Fernald & B. Long 13689* (GH, NY, US). Mecklenberg Co.: Along Roanoke River, near Buggs island, 12 Sep 1949, *B. Mikula 4487* (WILLI). Southampton Co.: Sandy woods and clearings by Three Creek above Carey Bridge, 11 Sep 1946, *M. L. Fernald & B. Long 15300* (BRIT, GH, NY, TEX, US). Sussex Co.: Along Nottoway River, Double Bridge, ca. 6 mi. NE of Jarratt, 18 Aug 1939, *M. L. Fernald & B. Long 11076* (GH, US).

Sida inflexa was originally described by Fernald (1940) as occurring in Virginia, Tennessee, Missouri and Alabama. He later restricted this distribution to the southeastern corner of Virginia, citing leaf shape and mericarp morphology as diagnostic (Fernald, 1950). Fryxell (1985, pers. comm.) follows Fernald in recognizing *S. inflexa*, distinguishing it based on calyx length in addition to mericarp morphology. I take the Virginia material, heretofore known as *S. inflexa*, to be an anomalous population of *S. elliottii*. The variation displayed in the characters cited by the above authors is of equal or lesser degree to that seen elsewhere within the range of *S. elliottii* var. *elliottii* and is easily included in it.

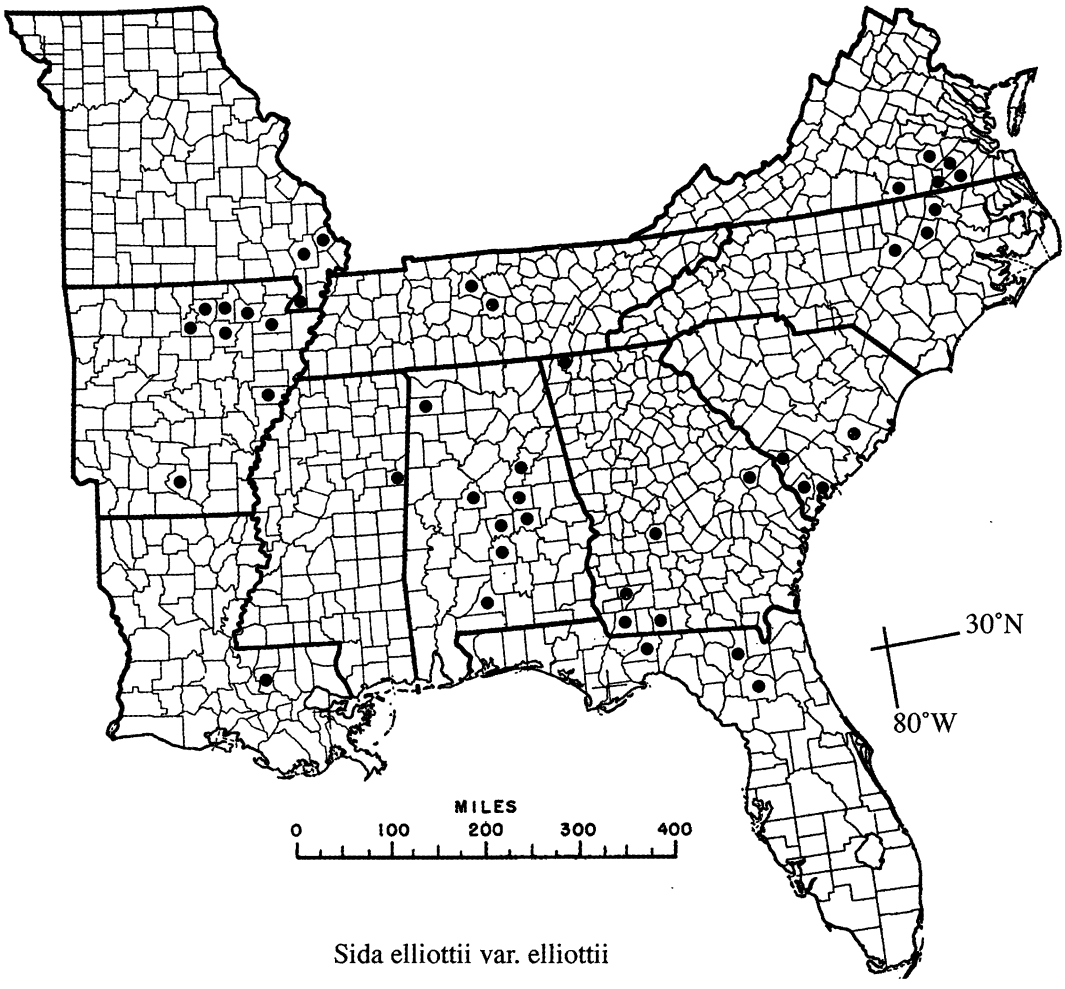

FIG. 3. Distribution of *Sida elliottii* var. *elliottii* in the USA.

The Virginia populations can be roughly characterized by blunt to weakly spinose mericarps (awns to ca. 0.2 mm long) but no other characters warrant mention. Peripheral populations in northeastern Arkansas and southeastern Missouri are also considered anomalous and can be characterized by unusually long peduncles (up to 4.5 mm long) and robustly spinose fruit. These populations could be given some infra-specific ranking but such assignments would be derelict until sufficient evidence exists to make an informed judgment. *Sida elliottii* var. *elliottii* is highly variable and requires field work beyond the scope of this paper to determine how to appropriately treat this highly regional variability.

ETYMOLOGY: *Sida elliottii* is named in honor of the noted American botanist Stephen Elliott (1771–1830), the first to publish a name for this species. Torrey and Gray presumably renamed this species to credit its discoverer since, as noted in the above synonymy, Richard's earlier name invalidated that of Elliott.

1B. SIDA ELLIOTTII VAR. PARVIFLORA Chapm. (Fig. 4)

Sida elliottii var. *parviflora* Chapm., *sensu amplificato*, Flora of the Southern United States, ed. 3: 48. 1897. TYPE: USA. FLORIDA: South Florida, s.d., *sine coll., s.n.* (NEOTYPE (here designated): NY!; ISONEOTYPE (here designated): NY!).

HERBS to 0.5 m high. LEAVES usually purplish along margins, linear to very narrowly elliptic, laminae 2–6 cm long, 6–21 times as long as wide; glabrous above, stellate pubescent below. FLOWERS axillary; peduncles 0.5–4 cm long, not articulated. Calyx 6–9 mm long; short, stellate pubescent on outer surface, rarely with longer villous hairs along the costae (extreme southern Mexican and Guatemalan populations). MERICARPS usually spinose apically (awns 0.2–0.7 mm long). Seeds glabrous to weakly pubescent apically (with 1–5 hairs).

DISTRIBUTION (Fig. 4) AND HABITAT: Southern peninsular Florida and south Texas (south of ca. 29° N latitude) to Mexico and Guatemala roughly along the Sierra Madre Oriental. Substrates range from sandy Quaternary soils to rocky limestone slopes.

REPRESENTATIVE SPECIMENS EXAMINED: **GUATEMALA. Huehuetenango:** Between Nenton and Las Palmas, via Yalisjao, Rincón Chiquite, Chiaquial, Guaxcana, in Sierra de los Cuchumatanes, alt. 800–1200 m, 30 Aug 1942, *J. Steyermark 51603* (F). **Petén:** Sabana Zizha, La Libertad, 9 Apr 1933, *C. L. Lundell 2750* (F).

MEXICO. Chiapas: Between San Richardo and Ocozucuantla, alt. 2600–3300 ft., 18 Aug 1895, *E. W. Nelson 2962 & 2969* (GH, US). **Chihuahua:** Vicinity of Rancho Encampanada, Sierra Hechiceros near the Coahuilan boundary, 10–12 km NE of Rancho Hechiceros, 30 Sep 1940, *R. M. Stewart 207* (GH). **Coahuila:** Rancho el Trozado, ca. 25 km por la brecha Ocampo-Sierra Mojada, 27°15′N, 102°40′W, alt. 1800–2000 m, 11 Sep 1991, *M. A. Carranza & L. García S. 1284* (IEB, TEX); End of rd. from T. Armendãiz N into the Sierra del Pino, vicinity of La Noria, 20–26 Aug 1940, *I. M. Johnston & C. H. Muller 428* (GH, LL); Santa Rosa Mts., 14 Jul 1938, *E.M. Marsh 1374A* (F, GH, TEX); 6 mi. W of Saltillo, 10 Aug 1959, *U. T. Waterfall 15341* (BRIT, US). **Guanajuato:** Mpio. San Luis de la Paz, 6 km W de Pozos, sobre el camino a la autopista, 10 Sep 1987, *J. Rzedowski 44695* (IEB, NY). **Hidalgo:** Mpio. Zimapán, camino a Minas de San Miguel, 10 km al N de Zimapán, alt. 2100 m, 6 Oct 1980, *R. H. Magaña & D. Rodríguez 5127* (NY); 7 km al NNE de Tasquillo, alt. 2200 m, 27 Aug 1965, *L. G. Quintero 2986* (ENCB). **México:** Mpio. Huasteca, Wartenberg, near Huasteca, 1858, *L. C. Ervendberg 176* (GH). **Nuevo León:** Mpio. Galeana, 2 mi. S of Galeana on Hwy. 51, 1.8 mi. N of Jct. w/ Hwy. 58, alt. 1680 m, 4 Jul 1985, *C. P. Cowan, M. Luckow, & N. Jacobsen 5439* (NY, TEX); 1 mi. E of San Marcos, ca. 13 mi. SE of Galeana, 15 Sep 1963, *F. W. Gould 10712* (ENCB, TEX); N of Aramberri, alt. 920 m, 9 Sep 1990, *Hinton et al. 20595* (GH, TEX); Sierra Madre Mts., Monterrey, 18 Jul 1933, *C. H. & M. T. Mueller 80* (NY, TEX); Hacienda Pablillo, Galeana, 5 Aug 1936, *M. Taylor 91* (F, NY, TEX). **Querétaro:** 15 mi. from Higuerillas to Bernal, 20°54′N, 99°54′W, 25 Jun 1972, *F. Chiang, T. Wendt, & M. C. Johnston 8090* (LL, MEXU); Mpio. Toliman, 5 km al NE de Bernal, sobre la carretera a Tolimán, alt. 1850 m, 4 Jul 1992, *J. Rzedowski 51466* (IEB, NY). **San Luis Potosí:** 21.3 km N of Ahualulcoon on Rd. to Moctezuma, 22°31′N, 101°08′W, alt. 2100 m, 1 Jul 1972, *F. Chiang, T. Wendt, & M. C. Johnston 8210* (LL); Minas de San Rafael, May 1911, *C. A. Purpus 4935* (F, GH) & *4935a* (MEXU, NY); La Joya, 4 km al NW de Ventura, alt. 1900 m, 21 Apr 1956, *J. Rzedowski 7550* (ENCB). **Tamaulipas:** 8.5 mi. N of Galeana, on rd. to Cerro Potosí, 24°53′N, 100°11′W, alt. 2050 m, 3 Jul 1997, *S. J. Siedo & J. K. Williams 464* (TEX); 1.8 mi. S of Aramberri on rd. from Aramberri to Zaragoza, 24°04′N, 99°48′W, 3 Jul 1997, *S. J. Siedo & J. K. Williams 476A* (TEX); Cerro de la Tamaulipeca, vicinity of San Miguel, 26 Jul 1930, *H. H. Bartlett 10621* (F, NY, US); Near reservoir of Miquihuana at base of hills, 10 Jul 1949, *L. R. Stanford, Lauber, & R. J. Taylor 2368* (NY, US). **Veracruz:** Corral de Piedra, Zacuapán, Sep 1906, *C. A. Purpus 4419* (F, GH, US); Mpio. Emiliano Zapata, Tiradores, alt. 1000m, 16 Jul 1973, *J. Dorantes & M. Acosta 2156* (NY).

UNITED STATES. Florida. Dade Co.: Dry, calcareous land, Miami, 5 Apr 1897, *A. H. Curtiss 5853* (BRIT, FLAS, GH, NY, TEX, US). Hernando Co.: N slope of Chinsegut Hill, 4 mi. NE of Brooksville, 18 May 1965, *D. B. Ward & J. Beckner 4684* (FLAS, GH, NY). Highlands Co.: Highland Hammock, near Sebring, 6 Apr 1975, *Baker 5394* (BRIT). Lake Co.: Vicinity of Eustis, 1–15 Jul 1894, *G. V. Nash 1260* (GH, NY, US). Monroe Co.: Along pipeline to Palm Willow, Big Pine Key, 12 May 1954, *E. P. Killip 44214* (GH, NY, US). Texas. Jackson Co.: Lavaca River, 28 Aug 1941, *B. C. Tharp s.n.* (GH, TEX). Refugio Co.: Near Copano Creek, Greta Ranch, 8.1 mi. NE of Refugio, SE side of Hwy. 77, 19 Jul 1981, *S. R. Hill 10570* (GH, NY). San Patricio Co.: 2 mi. NW of Ingleside, 4 Oct 1950, *F. B. Jones 405* (BRIT).

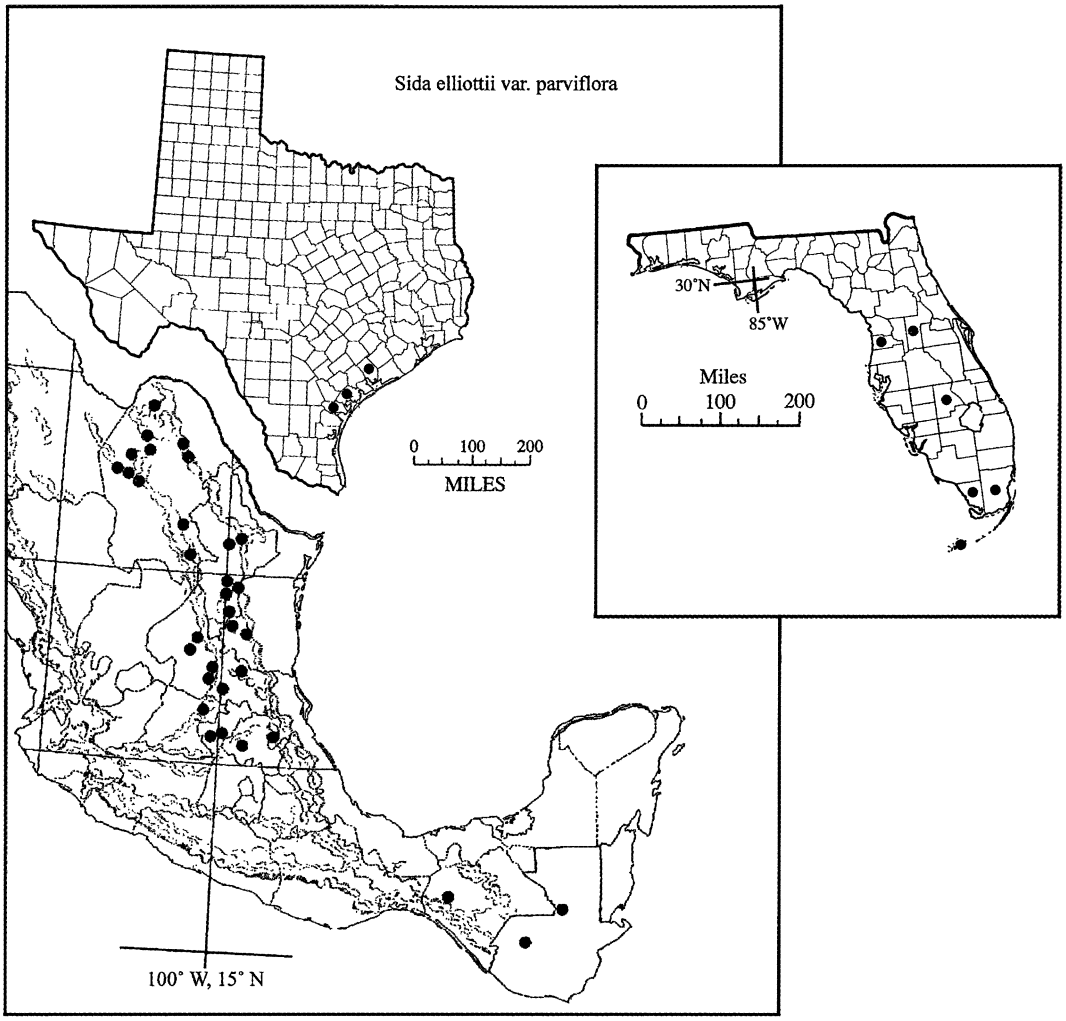

FIG. 4. Distribution of *Sida elliottii* var. *parviflora* in Florida, Texas, Mexico and Guatemala.

This variety has been ignored in the literature since its proposal over 100 years ago. The original distribution was given as "Key West" but is greatly expanded here to include southern peninsular Florida, south Texas, Mexico, and Guatemala. This entity shows a great deal less variation than *Sida elliottii* var. *elliottii*, making it more readily circumscribed. It is interesting to note that Chapman (1883) originally treated the material from "Key West" as *Sida lindheimeri*, prior to changing his assessment and applying the newly created varietal name, while Standley (1923), similar to but independent of Chapman's initial evaluation, treated the Mexican material of *S. elliottii* as *S. lindheimeri*. This confusion of var. *parviflora* with *S. lindheimeri* is due to the relatively long, axillary peduncles of the former resembling the latter; however, they are easily separated by the articulated peduncle, which does not occur in *S. elliottii*. This variety conceivably has sufficient morphogeographic integrity to be elevated to specific level, but for the reasons alluded to in the discussion of var. *elliottii*, judgement will be reserved until adequate field research can be conducted.

TYPIFICATION: The type for this variety was given by Chapman (1897) as "Key West (Blodgett)" with no other information. "Key West" refers to the island off Florida's southern coast and "(Blodgett)" to John Loomis Blodgett (1809–1853) a prominent collector of the Florida Keys and a colleague of Chapman's (Lanjouw & Stafleu, 1954). Stafleu & Cowan (1976) report that the types for Chapman's first edition of his *Southern Flora* were deposited at the New York Botanical Garden while those for the 2nd and 3rd editions were deposited at the Biltmore Herbarium. The Biltmore was partially destroyed and all specimens salvaged were transferred to the Smithsonian and later widely disseminated. Inspection of material from the US National Herbarium did not yield the specimen collected by Blodgett nor did a preliminary and ongoing search of the herbaria where Blodgett's specimens are reported to have been distributed, namely: CGE, DS, GH, K, KSC, NY, & TCD (Lanjouw & Stafleu, 1954). No evidence of the existence of any type specimen can be found and all such material is assumed to have been destroyed necessitating neotypification of this name. Should any part of the aforementioned Blodgett collection come to light, the following neotypification will become null and void. The neotype selected above is from "Herb. Chapman" and bears the label *S. lindheimeri* in addition to the locality "South Florida." This indicates the material was probably seen by Chapman during completion of the 1st edition of his Flora and therefore is similar to the material he had in mind when later elevating this entity to varietal level under *S. elliottii.* The isoneotype was also selected from material at NY and bears the same scant label data as the above specimen, but differs slightly in that it is from "Ex herb. J. Torrey" and not "Herb. Chapman." Nevertheless, these appear to be material of the same collection and since both are deposited at NY, it is felt they can both properly serve as types.

2. SIDA LINDHEIMERI Engelm. & A. Gray (Figs. 1, 5)

Sida lindheimeri Engelm. & A. Gray, Boston J. Nat. Hist. 5: 213. 1845. TYPE: USA. TEXAS: prairies E of the Brazos, 1843, *Lindheimer 24* [fascicle I, 1843] (HOLOTYPE: GH!; ISOTYPES: K, OXF).

Sida elliottii var. *texana* Torr. & A. Gray, Fl. N. Amer. 1: 681. 1840. *Sida texana* (Torr. & A. Gray) Small, Fl. S.E. U.S. 772. 1903. TYPE: USA. TEXAS: *Drummond 14* (fide Fryxell, 1988) (HOLOTYPE: GH!; ISOTYPES: BM, OXF).

Erect HERBS to 1.0 m high. LEAVES serrate, linear to lance-linear, laminae 2–5(–7.5) cm long, 6–20 times as long as wide; short-stellate hairs above with more dense stellate pubescence below. Stipules 1/2 to approximately equaling adjacent petiole, falcate to subulate. FLOWERS axillary, mostly terminal; peduncles 2–6 cm long with an articulation 1–2 cm below the calyx becoming most prominent in fruit (Fig. 1). Petals yellow to pale orange to somewhat reddish, drying the same. Calyx 6–12 mm long, stellate pubescent on outer surface, the inner surface smooth, shiny. FRUIT schizocarpic with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps spinose (awns 0.5–1.2 mm long), strongly reticulated dorso-laterally on the basal portion, the walls membranaceous to somewhat disintegrating; interior smooth, shiny with reticulation prominent. Seeds apically pubescent with short, branched hairs.

DISTRIBUTION (Fig. 5) AND HABITAT: Nearly endemic to Texas with one population along the Gulf coast in Cameron Parish, Louisiana. This species prefers well-drained, deep, sandy soils in south and central Texas with a disjunct population on late Tertiary sandy substrates in the Llano uplift region of Gillespie, Mason, and Llano counties, Texas (Correll & Johnston, 1970). Fryxell (1988) reported several specimens from Mexico but I take these to be *Sida elliottii* var. *parviflora* (i.e., *Bartlett 10621* F!, US!; *Hinton 20595* GH!,

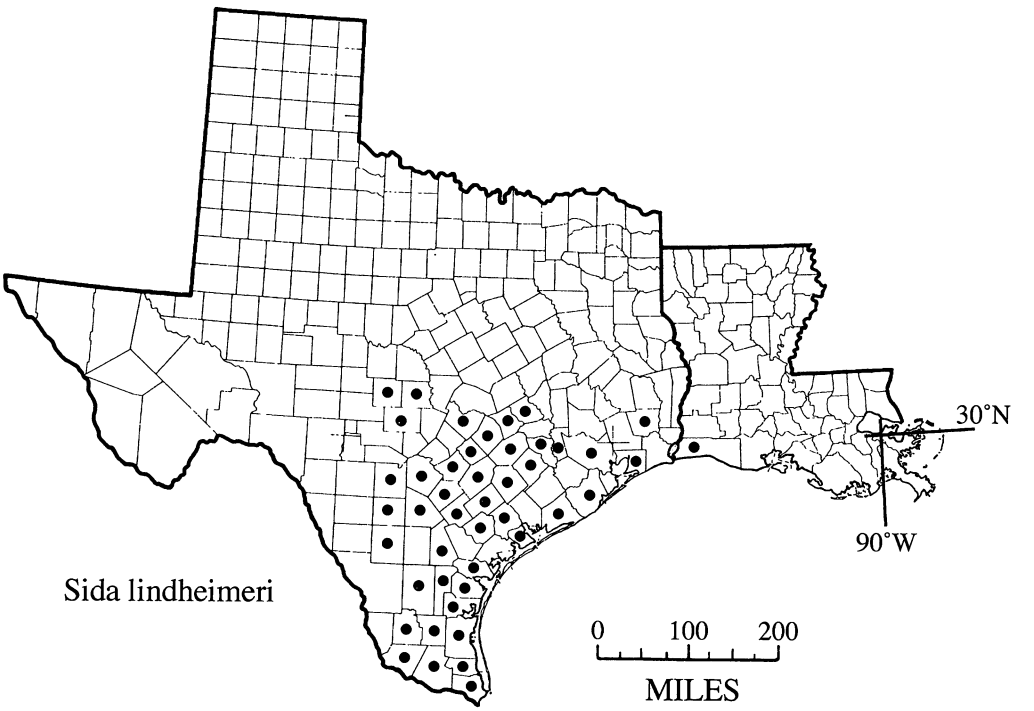

FIG. 5. Distribution of *Sida lindheimeri* in Texas and Louisiana.

TEX!). Thus far I have not seen any collections of *S. lindheimeri* from Mexico but its presence there seems probable.

REPRESENTATIVE SPECIMENS EXAMINED: UNITED STATES: **Louisiana.** Cameron Parish: Hwy. 82, 1.8 mi. E of Johnson's Bayou, 1 Aug 1998, *S. J. Siedo 656* (FLAS, IEB, LSU, TEX). **Texas.** Aransas Co.: 200 yds. E of Goose Island, 26 Nov 1945, *V. L. Cory 51232* (BRIT, TEX). Atascosa Co.: IH-37/Hwy. 281 15 mi. S of Pleasanton, 1.1 mi. N of Hwy. 281 service branch, 28°28′N, 98°20′W, 18 Jul 1998, *S. J. Siedo 644* (BRIT, IEB, LSU, MEXU, NCU, NLU, TEX). Austin Co.: 6.5 mi. N of Sealy, 16 May 1953, *L. H. Shinners 14663* (BRIT). Bastrop Co.: ca. 5 mi. SW of Bastrop, 12 Jun 1970, *P. A. Fryxell 1318* (NY); E of P.R. 1C, E of C.R. 180 near Bastrop State Park, 30°07′N, 97°12′W, 16 Jun 1998, *S. J. Siedo 630* (TEX). Bexar Co.: IH-37 just S of Loop 1604, S of San Antonio, 29°12′N, 98°25′W, 18 Jul 1998, *S. J. Siedo 645* (BRIT, TEX). Brazoria Co.: End of trail opposite Bastrop Island, Brazoria National Wildlife Refuge, 6 Jul 1970, *R. J. Fleetwood 9860* (TEX). Brooks Co.: Falfurrias, 16 May 1925, *B. C. Tharp 3605* (TEX, US). Burleson Co.: 10 mi. W of Caldwell, 16 Sep 1972, *P. A. Fryxell 2051* (BRIT, NY). Burnet Co.: 4 mi. W of Burnet, 19 May 1955, *B. L. Turner & M. C. Johnston 2436* (TEX). Caldwell Co.: Field W of roadside park, 4.3 mi. S of Lockhart on TX Hwy. 183, 6 Aug 1966, *J. A. Mears 676* (TEX). Calhoun Co.: Matagorda Island, E end of island by windmill dune area, 19 Jul 1973, *R. L. Hartman & J. Smith 3522* (TEX). Cameron Co.: sine loc., s.d., *I. Shiller 3008* (TEX). Colorado Co.: sine loc., 27 May 1876, *J. F. Joor s.n.* (US). Dewitt Co.: Post Oak timber, Cuero, 24 Apr 1899, *W. L. Bray 140* (TEX, US). Dimmit Co.: Sandy ridge 14 mi. NW of Carrizo Springs, Rte. 277, 8 Jul 1958, *D. S. Correll & I. M. Johnston 19483* (LL). Duval Co.: 6.4 mi. NW of Hebbronville, 7 Oct 1935, *V. L. Cory 16894* (GH). Fayette Co.: Colony, 1892, *E. W. Crawford 20* (US); Muldoon, 8 Apr 1950, *A. L. Ripple 51-629* (TEX). Frio Co.: N edge of county, 8 Apr 1948, *W. D. Higdon 53-74* (TEX); Moore, 9 May 1928, *E. J. Palmer 32853* (GH). Galveston Co.: San Luis Pass, Galveston Island, alt. 2 m, 29 Apr 1960, *A. Traverse 1456* (BRIT, GH, LL). Gillespie Co.: William Creek, s.d., *G. Jermy 827* (US). Goliad Co.: Prairie, Goliad, May 1927, *C. B. Williams 159* (TEX). Gonzales Co.: Ottine, 30 Aug 1920, *E. R. Bogusch 1252* (TEX); 13 mi. E of Nixon, 1 Nov 1968, *P. A. Fryxell 804* (NY). Guadalupe Co.: 7 mi. S of Seguin, 16 Jul 1958, *D. S.*

Correll & I. M. Johnston 19676 (LL). Hardin Co.: 3 mi. SE of Silsbee, 10 Jul 1972, *P. A. Amerson 1252* (BRIT). Harris Co.: Sima Lake, S 2 mi., 10 Jul 1943, *E. Boon 191* (TEX); Crosby, 12 Aug 1923, *G. L. Fisher 62* (US). Hidalgo Co.: Between San Manuel and Encino, ca. 6 mi. N of San Manuel, 9 Apr 1944, *C. L. & A. A. Lundell 12780* (LL). Jackson Co.: Alligator Lake, 1 Jul 1935, *J. A. Drushel 10237* (NY). Jim Hogg Co.: 30 mi. S of Hebbronville, 15 Jun 1928, *B. C. Tharp 6034* (TEX, US). Jim Wells Co.: 15 mi. N of Falfurrias, 24 May 1946, *R. P. Wagner & F. A. Barkley 16T3-14* (NY, TEX). Karnes Co.: Second terrace above Escondido Creek, 2.5 mi. NE of Kenedy, 27 Sep 1953, *J. C. Johnson 1359* (TEX). Kenedy Co.: King Ranch off US Hwy. 77, S of Norias, 24 Sep 1958, *C. L. Lundell & D. S. Correll 15199* (LL). Kleberg Co.: Pastures E of Stratton Camp, King Ranch, Kingsville, 13 Apr 1949, *E. R. Bogusch S-121* (US). Lavaca Co.: Near Victoria Co. line on US 77, 22 Jul 1961, *M. C. Johnston 6731* (LL). Leon Co.: Railroad right-of-way on E side of TX 39, ca. 0.9 mi. S of Margie, 31°13′N, 96°07′W, alt. 540–560 ft., 5 Jun 1989, *S. L. Orzell & E. L. Bridges 10306* (TEX). Live Oak Co.: 1.5 mi. S of George West, 9 Apr 1955, *L. H. Shinners 19552* (BRIT). Llano Co.: Open slope along Llano River, 6 mi. E of Llano, 10 Jul 1958, *D. S. Correll & I. M. Johnston 19590* (TEX). Mason Co.: 13 mi. W of Mason, 29 Jun 1950, *F. W. Gould 5708* (BRIT, TEX). Matagorda Co.: Bay City, 12 Aug 1956, *L. H. Shinners 24336* (BRIT). Medina Co.: 2 mi. S of Devine, just past US 81-IH 35 Jct., 29°04′N, 98°56′W, 18 Jul 1998, *S. J. Siedo 641* (BRIT, IEB, LSU, MEXU, NCU, NLU, TEX, US). Montgomery Co.: On white sand, 20 Jun 1905, *F. W. Thurow 4* (US). Nueces Co.: Rte. 53 at Fish Pass, Mustang Island State Park, 24 Jul 1987, *S. R. Hill 18284* (BRIT, GH, NY, TEX). Refugio Co.: W bank of Aransas River, River Pasture, 8.5 mi. SW of Woodsboro, 21 Jul 1978, *S. R. Hill 7529* (NY). San Patricio Co.: S side of Arleigh Burke Blvd. in SW corner of Naval Station, Ingleside, 27°49′N, 97°12′W, alt. 15 ft., 9 Apr 1996, *W. R. Carr 15166* (TEX). Starr Co.: Loose sandy loam 2.9 mi. SW of Santa Elena on Rd. #755, 13 Sep 1954, *M. C. Johnston 541437* (TEX). Travis Co.: NE bank of Lake Austin at S end of Lake Austin Metro Park, ca. 0.6–0.7 river mi. upstream from the mouth of Turkey Creek, 30°19′N, 97°50′W, 24 Sep 1989, *W. R. Carr, et al. 10071* (TEX). Victoria Co.: Rte. 59 at Winding Way Dr., 1 mi. SW of Coleto Creek, 21 Jul 1987, *S. R. Hill 18215* (GH, NY, TEX). Waller Co.: Prairies E of the Brazos, Jun to Aug 1844, *F. J. Lindheimer 24*, [fasc. II] (BRIT, GH). Willacy Co.: Loose sand prairie a few mi. W of Redfish Bay, edge of Norias erg. Sauz Ranch, 19 Apr 1954, *M. C. Johnston 54565* (TEX). Wilson Co.: Rest stop ca. 12 mi. S of Seguin along Hwy. 123, 29°22′N, 97°57′W, 19 Jun 1998, *S. J. Siedo 634* (ENCB, IEB, MEXU, TEX); CR 434, W of Hwy. 123 ca. 14 mi. S of Seguin, 29°21′N, 97°58′W, 19 Jun 1998, *S. J. Siedo 635* (FLAS, LSU, TEX).

Sida lindheimeri is most closely allied with *S. elliotti*, especially *S. elliotti* var. *parviflora*, with which it is often confused. The articulation of the peduncle, which easily separates the two, becomes most notable in fruit and for this reason seems to have been largely overlooked as a diagnostic character. The only confirmed chromosome number reported for this section is of *S. lindheimeri* with $2n=28$ (Fryxell & Stelly, 1993; Krapovickas, 1969).

Ecology: Field observations of habit as it relates to rootstock age and trauma experienced deserve noting. Plants with rootstocks more than two growing seasons old or those having experienced physical trauma were generally shorter, more diffusely branched, and lacked a defined central axis. This change in habit was only directly observed in *Sida lindheimeri* but other members of the section seem to demonstrate this as well. Herbivory is one source of trauma and usually results in local eradication of *Sida* in the case of livestock grazing, with the possible exception of prostrate species like *S. ciliaris* L. At one site in Louisiana the only specimen observed within browsing range of cattle was an individual of *S. lindheimeri* (*Siedo 656*) protected by a stoutly thorned rosaceous shrub which served as a "guard" plant. Exposed vegetative material had been removed, as had all other individuals in the area, resulting in a population of scattered plants surviving only where adequately protected. Mowing in roadside habitats is another source of trauma, though incomplete relative to grazing, often leaving the lower portion of the plant, above the rootstock, unharmed. Populations in Bexar and Atascosa counties (*Siedo 642, 644, & 645*) were observed subsequent to incomplete mowing of median areas by the Texas Department of Transportation (TXDOT) to yield shorter, more

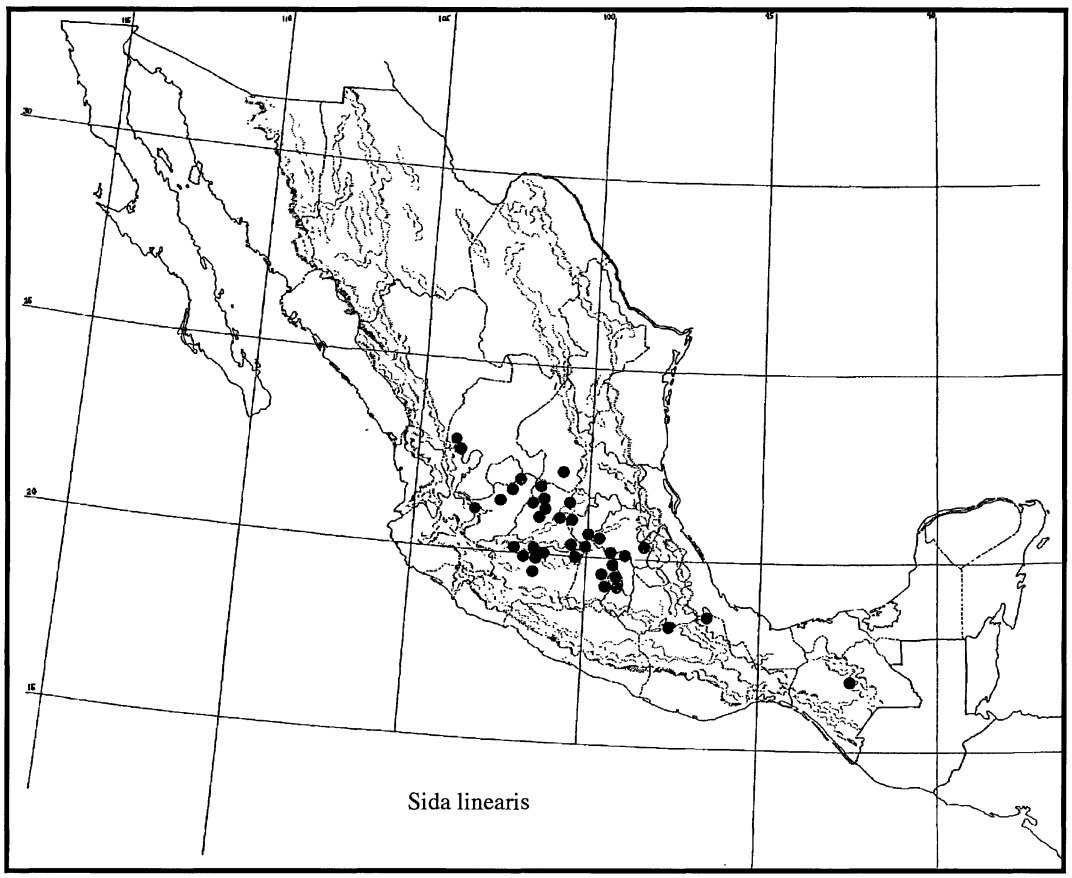

FIG. 6. Distribution of *Sida linearis* in Mexico.

decumbent individuals where mowed and taller, more erect individuals where not.

TYPIFICATION: *Lindheimer 24* fasc. I was collected at an earlier date than fasc. II of that same number and for this reason I follow Fryxell (1988) in excluding fasc. II from the type collection.

ETYMOLOGY: *Sida lindheimeri* was named after the indefatigable Texas collector, Ferdinand J. Lindheimer (1801–1879), the "Father of Texas Botany" and a native of Germany who settled near New Braunfels, TX (Geiser, 1948; Goyne, 1991; Warren, 1987). It is interesting to note that Mr. Lindheimer named his daughter Sida Rose upon her birth in 1860 (Goyne, 1991).

3. SIDA LINEARIS Cav. (Fig. 6)

Sida linearis Cav., Icones 4: 6. t. 312. f. 1. 1797. TYPE: MEXICO. sine loc., herb. Cavanilles (MA).

Sida rzedowskii Fryxell, Sida 8: 125. 1979. Type: MEXICO. HIDALGO: Cerro Ventoso entre Pachuca y Real del Monte, 29 Aug 1965, *J. Rzedowski 20560* (HOLOTYPE: ENCB).

Decumbent to ascendant HERBS to 0.5 m high. LEAVES serrate, narrowly elliptic, laminae 1–4.5 cm long, 2–6 times as long as wide; short stellate hairs, occasionally mixed with simple hairs, above, more densely stellate pubescent below. Stipules 1/2 to approximately equaling adjacent petiole, falcate to subulate. FLOWERS axillary to moderately congested apically;

peduncles to 2 cm long. Petals pale yellow to orange-yellow, sometimes with light colored center, often drying rose colored. Calyx 4–8 mm long, short-stellate pubescent outside, smooth, shiny, glabrous inside. FRUIT with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps blunt to very weakly spinose apically (awns to 0.3 mm long), smooth to weakly reticulated dorso-laterally on the basal portion; interior smooth, shiny. Seeds usually glabrous with sparse (2–3) branched hairs present in some populations.

DISTRIBUTION (Fig. 6) AND HABITAT: Central and southern Mexico from Jalisco and San Luis Potosí to Chiapas (Fryxell, 1979). This species reportedly prefers dry matorral, deciduous forest, and savanna (Fryxell, 1988) at altitudes of 1400–2800 m.

REPRESENTATIVE SPECIMENS EXAMINED: **MEXICO. Guanajuato:** Camino á San Miguel, pasando la frontera con Guanajuato, alt. 2100 m, 1 Aug 1982, *E. Argüelles 1888* (MEXU); 27 km al N de Juventino Rosas, sobre la carretera a Guanajuato, alt. 2300 m, 12 Jul 1987, *J. Rzedowski 43610* (IEB); 41 km al NE de León, cerca de Cañada Grande, alt. 2450 m, 14 Jul 1987, *J. Rzedowski 43724* (IEB, TEX). **Hidalgo:** NE de San Francisco Zacacalco, alt. 2460 m, 26 Oct 1980, *M. Equihua 697* (IEB); Dry rocky hills near Hacienda El Abra, between Tulancingo and Acaxochitlán, alt. ca. 2300 m, 6 Sep 1948, *H. E. Moore, Jr. & C. E. Wood, Jr. 4879* (F, GH, NY, TEX). **Jalisco:** 12 mi. SE of Guadalajara, alt. 5000 ft., 12 Aug 1947, *F. A. Barkley, G. L. Webster, & C. M. Rowell 7570* (F, TEX); Paso de la Troje, near km 36, SW of Ojuelos on Rd. to Aguascalientes, alt. 2100–2300 m, 9–12 Aug 1958, *R. McVaugh 16832* (ENCB, IEB, US). **México:** Cerro del Tigre, al NW de Atizapán, alt. 2500 m, 4 Aug 1974, *J. Rzedowski 32004* (IEB, MEXU); Mpio. de Nicolás Romero, La Colmena, alt. 2300 m, 7 Aug 1982, *E. Lyonnet 1605* (MEXU). **Distrito Federal:** Valley of Mexico, 12 Aug 1897, *C. G. Pringle 7468* (GH, MEXU, US); Peña Pobre, near Tlalpan, alt. 7900 ft., 8 Aug 1944, *A. J. Sharp 44244* (GH). **Michoacán:** Mpio. de Pátzcuaro, Chapultepec, alt. 2150 m, 24 Jul 1990, *J. M. Escobedo 1905* (IEB); Colonia L. Cárdenas, cerca de Tzintzutzan, alt. 2100 m, 6 Aug 1985, *J. Rzedowski 38908* (ENCB, IEB). **Oaxaca:** Cerro de San Felipe, al N de Oaxaca, 9 Jul 1976, *J. A. S. Magallanes 150* (MEXU). **Puebla:** Vicinity of San Luis Tultitlanapa, near Oaxaca, Jul 1907, *C. A. Purpus 2609* (F). **Querétaro:** Near San Juan del Río, 18 Aug 1905, *J. N. Rose, J. H. Painter, & J. S. Rose 9572* (GH, MEXU, NY, US). **San Luis Potosí:** Region of San Luis Potosí, 22° N Lat., alt. 6000–8000 ft., 1878, *C. C. Parry & E. J. Palmer 88* (GH, US).

Sida linearis is closely allied with *S. turneroides* Standl., with which it is sometimes confused, but is readily distinguishable by virtue of its leaf and fruit morphologies. *Sida linearis* has more narrowly elliptic (2–6 times as long as wide), serrate, stellate pubescence leaves and blunt mericarps versus elliptic (1.5–2 times as long as wide), dentate, glabrate leaves and prominently spinose mericarps in *S. turneroides*. The only known exception to this being a single anomalous collection from the state of Hidalgo which demonstrates leaf shape and pubescence characteristic of *S. linearis* but has the spinose fruit and pubescent seeds of *S. turneroides*; this deserves further investigation. *Sida neomexicana* has also been confused with *S. linearis* and this similarity is worth noting, especially in the region from northern Jalisco to Durango. The differences in leaf shape vegetatively distinguishing the two tend to break down making identification problematic in the absence of fruit.

TYPIFICATION: *Sida linearis* was listed as a synonym for *S. spinosa* L. by Fryxell (1985) but was later found to have priority over *S. rzedowskii* by Fuertes and Fryxell (1993) upon examination of Cavanilles' collections at MA (Fryxell, pers. comm.); I follow their taxonomic assessment having seen only the illustration in *Icones*. A description of the specimen published by Garilleti (1993) in *Herbarium Cavanillesianum* agrees well with this species and confirms the presence of the type for *S. linearis* at MA (herb. no. 29789).

4. SIDA LONGIPES A. Gray (Fig. 7)

Sida longipes A. Gray, Smithsonian Contr. Knowl. 3: 19. 1852, non *Sida longipes* E. Meyer ex Harvey &

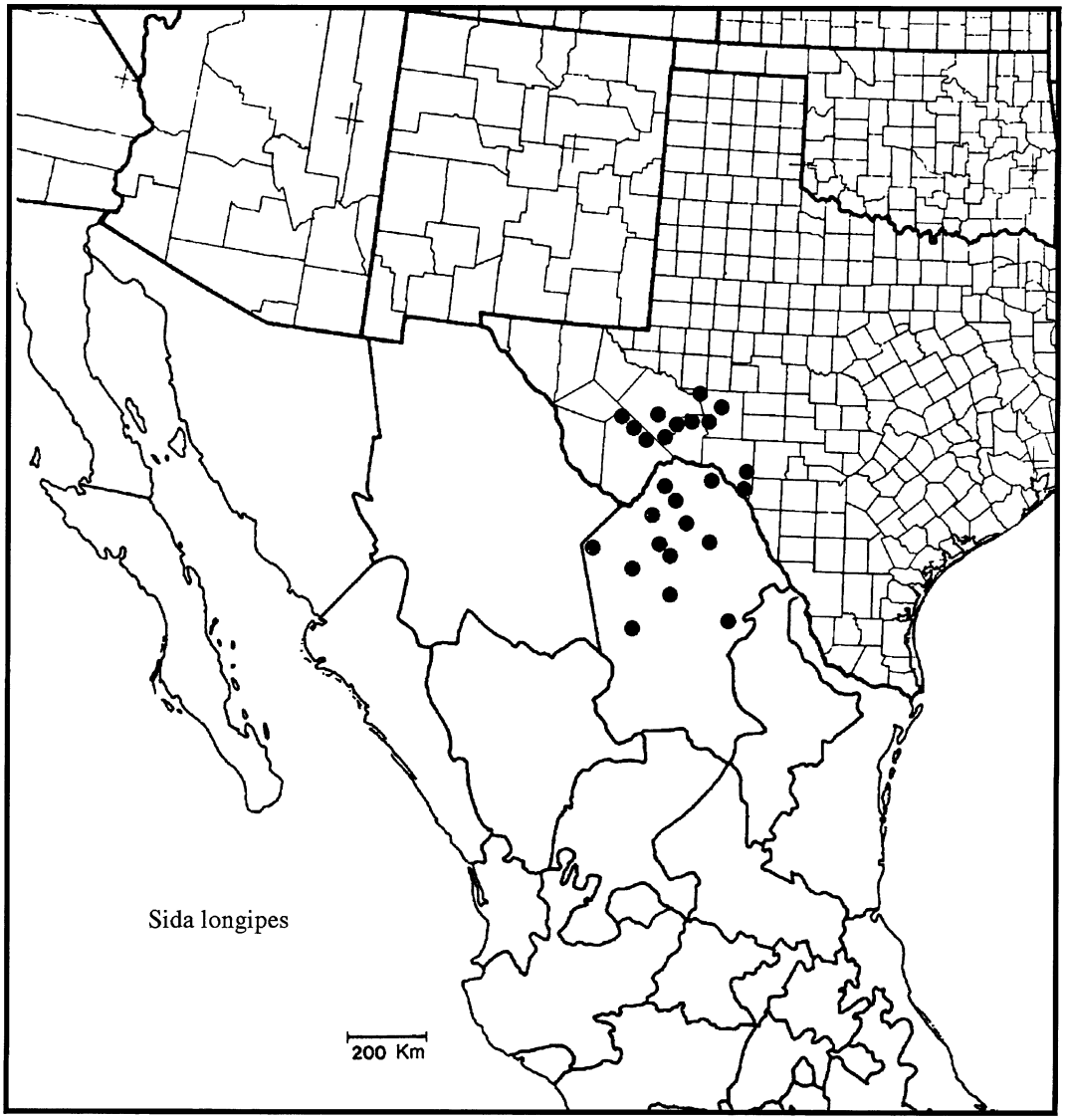

FIG. 7. Distribution of *Sida longipes* in Texas and Coahuila.

Sonder, 1860. TYPE: USA. TEXAS: Kinney Co., Prairies of Liveoak [Arenosa] Creek, 29 Jun 1849, *Wright 556* (HOLOTYPE: GH!; ISOTYPES: GH!, K, OXF, US!).

Erect HERBS to 0.75 m high. LEAVES serrate, linear to lance-linear, laminae 2.5–6(–8) cm long, 6–20 times as long as wide; short stellate hairs (to 0.2 mm) present below and above. Stipules 1/2 to approximately equaling petiole, falcate to subulate. FLOWERS axillary, mostly terminal; peduncles 6–20 cm long, articulated 1–2 cm below the calyx (most prominent in fruit) where an elbow tends to form. Petals pale orange to orange-red, drying the same. Calyx 5–9 mm, often yellowish at base, evenly stellate pubescent outside, glabrous inside. FRUIT schizocarpic with 7–12 mericarps, short branched hairs present apically, glabrous otherwise. Meri-

carps bluntly beaked apically, moderately to prominently reticulated dorso-laterally on lower hemisphere of mericarp; walls sometimes disintegrating, appearing membranaceous; interior of mericarp smooth, shiny with reticulation prominent. Seeds glabrous.

DISTRIBUTION (Fig. 7) AND HABITAT: Western Texas and northern Coahuila in a discrete range straddling the Rio Grande Valley. This species prefers well-drained, rocky limestone mesas and mountain slopes (Correll & Johnston, 1970).

REPRESENTATIVE SPECIMENS EXAMINED: **MEXICO. Coahuila:** 22 km ESE of La Cuesta del Plomo on the Múzquiz-Boquillas Hwy., 28°38′N, 102°18′W, 7 Jun 1972, *F. Chiang, T. Wendt, & M. C. Johnston 7548* (MEXU, NY, TEX); Rancho Carrizalejo, entrada a Puerto del Aire, 28°17′N, 102°28′W, 7 Sep 1990, *P. A. Fryxell, et al. 5001* (MEXU, NY, TEX); 2 mi. S of the La Linda-Agua Chile Rd. at La Palma, 29°19′N, 102°41′W, 30 Jul 1973, *J. Henrickson 11589* (LL); Mpio. Castaños, San Lázaro, rocky slopes of El Puerto San Lázaro, 16 Jun 1936, *F. L. Wynd & C. H. Mueller 127* (GH, NY, US).

UNITED STATES. Texas. Brewster Co.: Limestone slopes of Green Valley, Glass Mts., 23 Jul 1940, *B. H. Warnock W92* (BRIT, NY). Crockett Co.: Live Oak Rd., ca. 1 mi. N of IH 10, 22 Aug 1998, *S. J. Siedo 680* (BRIT, GH, IEB, MEXU, TEX). Kinney Co.: Prairies of Liveoak [Arenosa] Creek, 29 Jun 1849, *C. Wright 556* (GH, US). Pecos Co.: Mesa caprock, 17 Jul 1943, *B. C. Tharp 43-705* (LL); 20–35 mi. S of Fort Stockton along Sanderson Hwy., alt. 3100 ft., 1 Jul 1955, *B. H. Warnock 13295* (LL). Sutton Co.: Rocky bank of R.R., Devil's River, 22 Jul 1900, *F. S. & E. S. Earle 438* (NY, US). Terrell Co.: Blackstone Ranch, 13 mi. S of Sheffield, Jun 1949, *G. L. Webster 304* (NY, TEX). Val Verde Co.: ca. 6.3 mi. S of Loma Alto, 7 May 1943, *V. L. Cory 41673* (GH) & 41676 (NY, TEX).

Sida longipes is seldom confused with any other member of the section although overall morphology allies it with *S. lindheimeri*. Its unusually long peduncles (6–20 cm), lance-linear leaves, beaked mericarps, and discrete distribution make it readily identifiable. Its flower color, while often reported as simply yellow or orange, is a distinctive salmon color, often with darker reddish or purplish veins.

TYPIFICATION: *Wright 556* is number *50* in A. Gray's distribution numbers and the type specimen bears the distribution number, not the collection number (Fryxell, 1988; Geiser, 1935; Shaw, 1987). Fryxell reports the type locality in Crockett Co., Texas; however inspection of Wright's field notes indicates Kinney Co. is correct with the error most likely arising from a redundancy in Wright's creek names. There are two references to "Live Oak" creeks in his field notes. Live Oak Creek retains this name and is a tributary of the Pecos River in Crockett Co.; Liveoak Creek has been renamed Arenosa creek, a tributary of Elm Creek, located in Kinney Co. on the Rio Grande. Arenosa represents the creek adjacent to the "prairies" where Wright collected number *556*.

5. SIDA NEOMEXICANA A. Gray (Fig. 8)

Sida neomexicana A. Gray, Proc. Amer. Acad. Arts 22: 296. 1887, non *Sida neomexicana* Gandoger, 1924. TYPE: **USA.** NEW MEXICO: Grant Co., on mountains at the Copper Mines, 18 Aug 1851, *Wright s.n.* (LECTOTYPE (here designated): GH!).

Sida elliottii var. *?humilis* Fryxell, *nomen nudum pro synonymo*, Sida 11: 84. 1985.

Somewhat decumbent to ascendant HERBS to sub-shrubs to 0.5 m high, diffusely branched basally and lacking a well-defined central axis. LEAVES serrate, linear to narrowly elliptic, laminae 1.5–5(–6) cm long, 6–15 times as long as wide; stellate pubescent above, sometimes mixed with simple hairs, more densely stellate pubescent below. Stipules 1/2 to approximately equaling the adjacent petiole, falcate to subulate. FLOWERS mostly aggregated apically; peduncles to 2 cm long, not articulated. Petals yellow to orange-yellow, often drying rose-colored. Calyx 5–9 mm long, stellate pubescent outside with simple to branched villous hairs along the costae, smooth, shiny, glabrous inside. FRUIT with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps blunt to weakly spinose apically

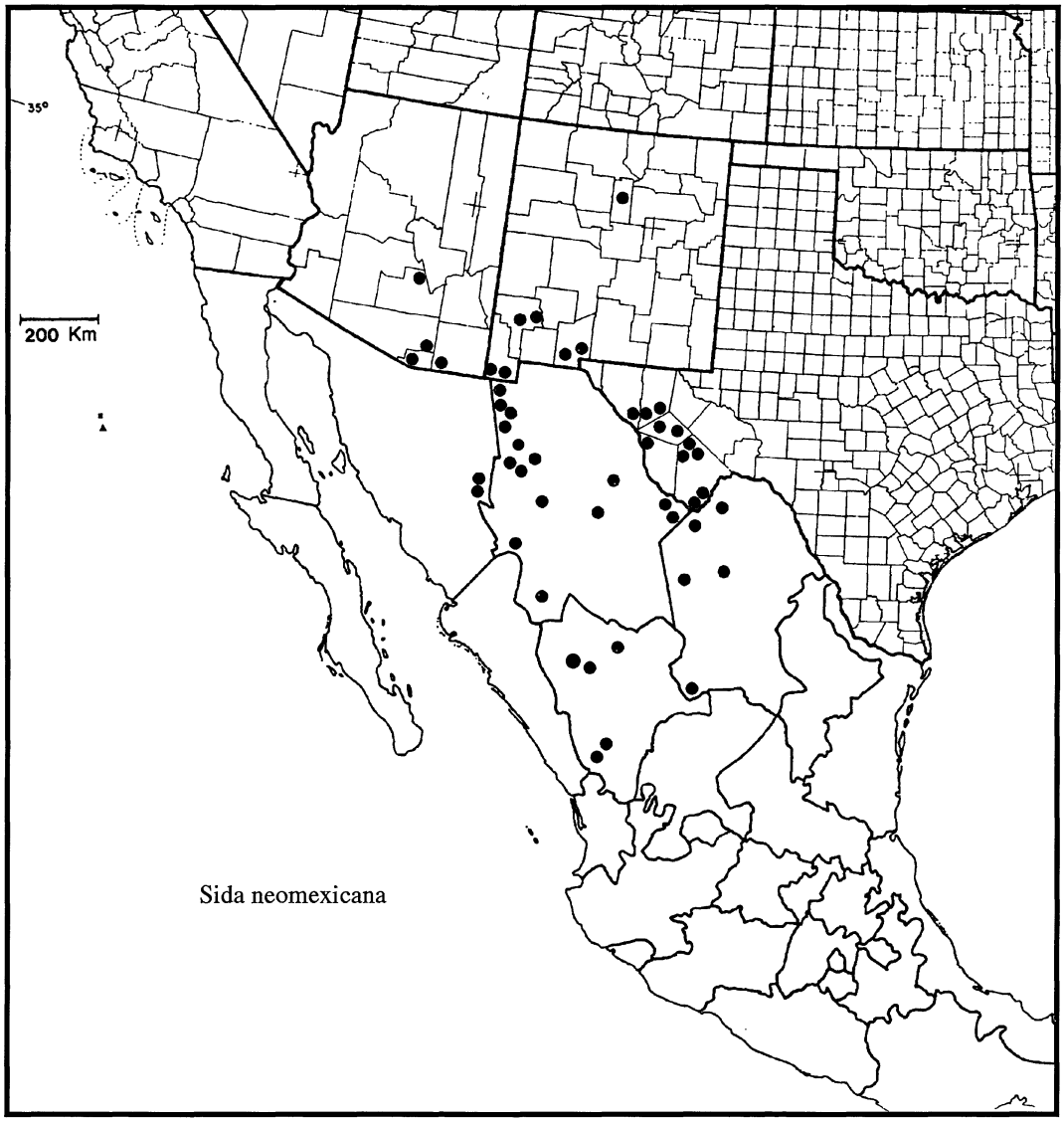

FIG. 8. Distribution of *Sida neomexicana* in the southwestern USA and Mexico.

(awns to 0.5 mm), smooth to weakly reticulated dorso-laterally on the basal portion; interior smooth, shiny with reticulation sometimes evident. Seeds glabrous (in southern part of range) to moderately apically pubescent with short, branched hairs (New Mexico and Arizona populations).

DISTRIBUTION (Fig. 8) AND HABITAT: Southwestern USA from Texas and Arizona south to the northern Mexican states of Sonora, Chihuahua, Coahuila, and Durango. This species seems to prefer igneous substrates and rocky slopes at elevations up to 2400 m (Martin & Hutchins, 1980; Kearney, Peebles, et al. 1951; Correll & Johnston, 1970).

REPRESENTATIVE SPECIMENS EXAMINED: MEXICO. **Chihuahua:** Mpio. Guachochic, along

Rd. btwn. Cusarare & Norogachic, alt. 2100 m, 22 Aug 1978, *R. A. Bye 8734* (NY); Mojarachic, 25 Aug 1938, *I. W. Knobloch 5512* (F); Mpio. Temosachi, Nabogame, 28°30′N, 108°30′W, alt. 1800 m, 28 Aug 1988, *J. E. Laferriere 1844* (NMSU, NY, TEX); hills and mesas near Chihuahua, 27 Aug 1887, *C. G. Pringle 1198* (F, MEXU, NY, US); NW corner of Chihuahua, W slope of San Luis Mts., 0.25 mi. S of US border, N of MX Hwy. 2, 10 Oct 1982, *R. Spellenberg & R. Soreng 6845* (NMSU, NY). **Coahuila:** Del Carmen Mts., 9 Sep 1936, *E. G. Marsh, Jr. 712* (F, GH, TEX); vicinity of Rancho el Tule, ca. 24 km due N of Castillon, 12 Jun 1941, *R. M. Stewart 435* (F, GH, LL). **Durango:** Mpio. Tepehuanes, 30–35 km al NE de Tepehuanes, alt. 2000 m, 27 Jul 1982, *R. Hernández M. 8299* (TEX); Ramos to Inde, 11–14 Aug 1898, *E. W. Nelson 4715* (GH, US); 19 mi. SW of Durango, 10 Aug 1957, *U. T. Waterfall & C. S. Wallis 13491* (BRIT, F). **Sonora:** Los Pilares, arroyo Los Pilares, ca. 23 km E of Yecora, 26 km W of Maycoba on MX Hwy. 16, 28°23′N, 47°30′W, 8 Sep 1995, T. R. VanDevender, et al. 95-910 (TEX); 1.2 mi. N of Yecora on Rd. to Agua Blanca, 28°23′N, 108°55′W, 16 Jul 1997, *T. R. VanDevender, et al. 97-822* (TEX).

UNITED STATES. Arizona. Cochise Co.: Chiricahua Mts., Paradise, alt. 5500 ft., 15 Aug 1907, *J. C. Blumer 2153* (GH, NY, US); Huachuca Mts., 3 Sep 1928, *G. J. Harrison & T. H. Kearney 5759* (US). Pima Co.: Rd. to Greaterville, 4.6 mi. E of AZ Hwy. 83, 11 Oct 1968, *D. J. Pinkava, D. J. Keil, & E. D. Lehto 14471* (NY). Santa Cruz Co.: 29 mi. NE of Nogales, 20 Aug 1956, *U. T. Waterfall 12903* (TEX, US). **New Mexico.** Dona Ana Co.: Dripping Springs, Bog Ranch, rocky canyon on W face of Organ Mts., alt. 600 ft., 21 Oct 1950, *D. B. Dunn 7272* (NMSU); Organ Mts., alt. 6000 ft., *E. O. Wooton 463* (NY, US). Grant Co.: Ft. Bayard watershed, 17 Sep 1905, *J. C. Blumer 239* (GH, NY); Copper Mines [near Silver City], [summer] 1851, *G. Thurber 1066* (GH, NY). Hidalgo Co.: Guadalupe Canyon and tributaries, vicinity of Hadley Ranch, 16 Aug 1979, *R. Spellenberg & R. Repass 5350* (NMSU, NY). Santa Fe Co.: Mts. N of Santa Fe, 23 Aug 1900, *E. O. Wooton s.n.* (US). **Texas.** Brewster Co.: Big Bend Nat'l. Park, Lost Mine Peak, alt. 7300 ft., 12 Sep 1961, *D. S. Correll & M.C. Johnston 24552* (LL); E of Alpine, 22 Jul 1928, *V. L. Cory 2046* (GH). Culberson Co.: 10 mi. E of Marfa, 100 mi. W of Sanderson, 25 Jun 1940, *C. L. Hitchcock & L. R. Stanford 6784* (GH). Hudspeth Co.: Eagle Mt. between Fluoride Mine and Eagle Peak, 31 Aug –1 Sep 1945, *U. T. Waterfall 6332* (GH, NY). Jeff Davis Co.: Davis Mts., near Limpia Canyon, 22 Jul 1919, *H. C. Hanson 57A* (GH, NY, US); 17 mi. NW of Alpine, 18 Oct 1946, *B. H. Warnock 46541* (NY, TEX). Presidio Co.: At bend, ZH canyon, Espy Miller Ranch, Tierra Vieja Mts., 18 Jun 1941, *L. C. Hinckley 1762* (NY, US). Terrell Co.: Sanderson, Nov 1907, *W. B. Crockatt 12* (NMSU).

Sida neomexicana is closely related to *S. elliottii* but is distinguished by its low habit, diffusely branched appearance, terminal inflorescences, and calyx and upper leaf surface pubescence. The zone of contact between these two in northeastern Coahuila has presented identification difficulties where *S. elliottii* var. *parviflora* takes on a lower, more basally branched habit, a form typical of the Mexican material (see *S. elliottii* var. *parviflor*a discussion). *Sida neomexicana* has also been confused with *S. linearis*, as noted in the latter's discussion, and this relationship deserves more investigation. An unconfirmed chromosome count of n=ca. 7 was reported by Bates (1976) for this species.

TYPIFICATION: Fryxell's (1985) publication of *Sida elliottii* var. ?*humilis* A. Gray as a synonym of *S. neomexicana* amounts to invalid publication of the varietal name. Gray (1887) does give *S. elliottii* var. ? as a synonym for *S. neomexicana* in the latter's protologue, a designation which first appears in *Plantae Wrightianae* (1853) as "S. ELIOTTII *Torr. & Gray*, Fl. 1. p. 232? var. ? humilis; floribus minoribus." In *Plantae Wrightianae* Gray set off all scientific names in capital letters and further separated new species or varietal names from the rest of the description with a colon. Neither of these formatting consistencies occur here and it is thought a misinterpretation of the original description led to Fryxell's error. This name was never validly published since the author did not see fit to assign a name to an entity then thought dubious. Gray (1882) later changed his mind and assigned a valid epithet upon examination of material not initially available. The result is a name published by Fryxell merely as a synonym without a description.

Two localities were associated by Gray with *S. elliottii* var. ?, "Between the Limpio and the Rio Grande" in Texas and "on the mountains at the copper mines, New Mexico." However the description of *S.*

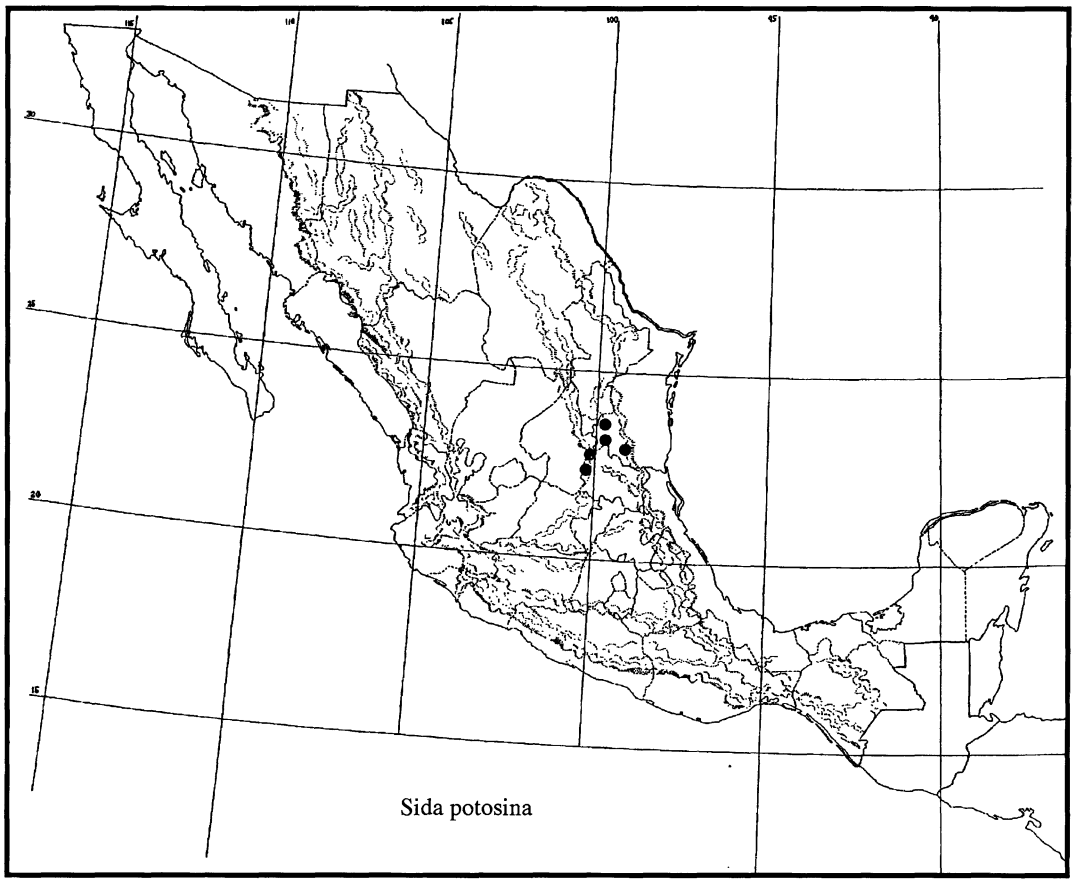

FIG. 9. Distribution of *Sida potosina* in Mexico.

neomexicana omits the Texas collection cited in *Plantae Wrightianae* and lists three from the "Eastern part of New Mexico." This appears to be an error on Gray's part since the specimens referred to are actually from western New Mexico. The Wright specimen bears the locality "Copper Mines" and consultation of his field notes indicates these are located at the town of Santa Rita, near Silver City, Grant County, New Mexico (Geiser, 1948; Hinckley, 1950; Johnston, 1940; Shaw, 1987). In fact, as noted by several of the aforementioned authors, Wright never botanized eastern New Mexico while employed by Gray and associated with the Boundary Commission from 1849–1852. The other two collections cited by Gray are those of Thurber and Greene & Co. (*Thurber 1066* (GH!); *Greene & Co. 224* (GH!)) and are also from Grant Co. in western New Mexico, the former even being there the same summer as Wright. Therefore, the type locality is taken to be the well known "Copper Mines" near Santa Rita, the common locality between the two descriptions, with Wright as the proper collector. Also cited in the protologue are the collections of Lemmon and Pringle from Arizona and Chihuahua, respectively (*Lemmon 516* (GH!); *Pringle 577* (GH!)) which are taken to be specimens of *S. neomexicana* collected after 1851. Two additional collections mentioned are those of *Schaffner* and *Parry & Palmer* from San Luis Potosí, Mexico (*Schaffner 162* (GH!); *Parry & Palmer 88*

(GH!, US!)) which are taken to be specimens of *S. linearis* Cav.; it should be noted that Gray recognized these as different from the other collections of *S. neomexicana* assigning them a varietal rank under the name "var. *microphylla*" on the herbarium sheet, making any lectotypification of *S. neomexicana* from these specimens unwise.

Fryxell (1988) reports *Wright 295* as the type collection for *Sida neomexicana*, designating the specimen at GH as the holotype and those at NY, PH, and US as the isotypes. This amounts to inadvertent lectotypification of this name. His reference to the collections as holo- and isotypes rather than lecto- and isolectotypes is in error. This does not invalidate his work but it is in need of correction and refinement. Examination of the collection cited by Fryxell and other material at GH reveals only one specimen which can properly serve as the lectotype: that which is deposited at GH and marked with the year "1851" and the locality "Copper Mines." The other labels examined bear the year "1851–2" (GH, NY, PH, US) and no locality information. The "–2" is written in Gray's hand and indicates a later collection date than August 1851 necessitating annotation of the pre-existing label. Gray often combined separate collections into common sets for sale and it is unknown if any 1851 collections are in existence outside of his herbarium at Harvard which could serve as isolectotypes (Shaw, 1987). The collection number reported by Fryxell (1988) may also be in error. During August of 1851 there are six references to the Malvaceae in Wright's field notes–only two of which were in the immediate vicinity of the Copper Mines, numbers *250* and *295*, and either could be the type collection (Johnston, 1940; Shaw, 1987).

6. SIDA POTOSINA Brandegee (Fig. 9)

Sida potosina Brandegee, Univ. Calif. Publ. Bot. 4: 184. 1911. TYPE: MEXICO. SAN LUIS POTOSÍ: Minas de San Rafael, Nov 1910, *Purpus 4906* (HOLOTYPE: UC; ISOTYPES: F!, GH!, MO, P, US!)

Erect HERBS to 0.5 m high. LEAVES serrate, broadly to narrowly elliptic, laminae 2–3.5 cm long, 1.5–2 times as long as wide; erect stellate hairs, up to 0.5 mm long, present above and below. Stipules 1/2 to approximately equaling adjacent petioles, falcate to subulate. FLOWERS axillary, mostly terminal; peduncles 6–15 cm long, articulated 1–2 cm below the calyx (most prominent in fruit) where an elbow tends to form. Petals pale yellow to orange-yellow, sometimes drying somewhat rose-colored. Calyx 8–12 mm, with erect stellate hairs outside (to 0.5 mm long), smooth, shiny, glabrous inside. FRUIT schizocarpic with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps blunt apically, weakly reticulated dorso-laterally on lower hemisphere; interior smooth, shiny, reticulation evident as discoloration of wall. Seeds glabrous.

DISTRIBUTION (Fig. 10) AND HABITAT: Endemic to the mountains of San Luis Potosí and southern Tamaulipas where it is apparently rare on limestone slopes and in dry arroyos.

REPRESENTATIVE SPECIMENS EXAMINED: MEXICO. **San Luis Potosí:** Minas de San Rafael, Nov 1910, *C. A. Purpus 4906* (F, GH, NY, US). **Tamaulipas:** 18 km SE of Bustamante toward La Presita and Tula, 23°21′N, 99°40′W, alt. 1700 m, 20 May 1973, *M. C. Johnston, T. L. Wendt, & F. Chiang 11172D* (TEX); 19 km SE of Miquihuana on rd. to Palmillas, alt. 2200 m, 23°40′N, 99°41′W, 11 Aug 1941, *L. R. Stanford, K. L. Retherford, & R. D. Northcraft 853* (GH, NY).

Sida potosina is covered by a vestiture of erect, stellate hairs (up to 0.5 mm long) giving it a velvety appearance and feel distinguishing it from the rest of the section along with its unusually long peduncles, elliptic leaves, and fruit morphology. Few collections of this plant exist but its distinctive leaves little doubt as to its merit.

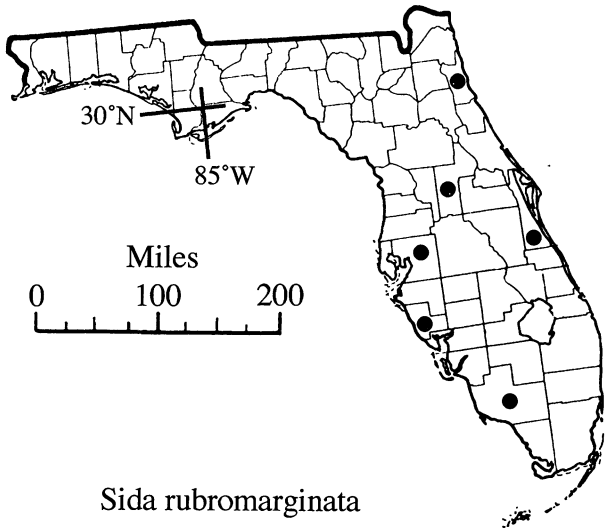

FIG. 10. Distribution of *Sida rubromarginata* in Florida.

7. SIDA RUBROMARGINATA Nash (Figs. 2, 10)

Sida rubromarginata Nash, Bull. Torrey Bot. Club 23: 102. 1896. TYPE: **USA.** FLORIDA: Hillsborough Co., Tampa, 24 Aug 1895, *Nash 2472* (LECTOTYPE (here designated): NY!; ISOLEC-TOTYPES (here designated): GH!, MASS, MO, OS, US!).

Erect HERBS to 1.5 m high. LEAVES serrate, usually purple-margined, narrowly rhombo-elliptic, laminae 3–5 cm long, 4–6 times as long as wide; moderately stellate pubescent to glabrate above, more densely stellate pubescent below. Stipules approximately twice the length of the adjacent petiole, linear. FLOWERS axillary to somewhat congested apically (up to 3 flowers); peduncles 0.5–2(–3) cm long, articulated ca. 0.5–1 cm below the calyx. Petals pale yellow to orange-yellow, drying the same. Calyx 6–9 mm long, the lobes acuminate at apex; short, stellate pubescent outside with longer villous hairs occurring at the base and along the costae; smooth, shiny, glabrous inner surface. FRUIT with 7–12 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps variably blunt to spinose apically (awns up to 0.75 mm long), strongly reticulated dorso-laterally on the basal hemisphere; interior smooth, shiny with reticulation evident. Seeds pubescent apically and ventroapically (Fig. 2).

DISTRIBUTION (Fig. 10) AND HABITAT: Endemic to peninsular Florida in disturbed sites and sandy pinelands.

REPRESENTATIVE SPECIMENS EXAMINED: **UNITED STATES. Florida.** Brevard Co.: Okeechobee region, 2 Oct 1903, *A. Fredholm 6046* (NY). Collier Co.: Kissimmee Billy, N of Alligator Alley, 1 Dec 1976, *D. S. Correll 47712* (NCU, NY). Hillsborough Co.: E of Double Branch River Bridge, 10 Sep 1961, *O. Lakela 24623* (BRIT). Sarasota Co.: Longboat Key, S end, beach Hammock overlooking Gulf of Mexico, 6 Oct 1964, *R. W. Long & O. Lakela 26575* (FLAS). St. Johns Co.: Waste ground, St. Augustine, 6 Sep 1898, *A. H. Curtiss 6423* (BRIT).

Sida rubromarginata has been listed as a synonym of *S. elliottii* in the past but is resurrected here on the basis of its distinctive morphology and geographic distribution. The leaves of *S. rubromarginata* are somewhat rhombic in shape (4–6 times as

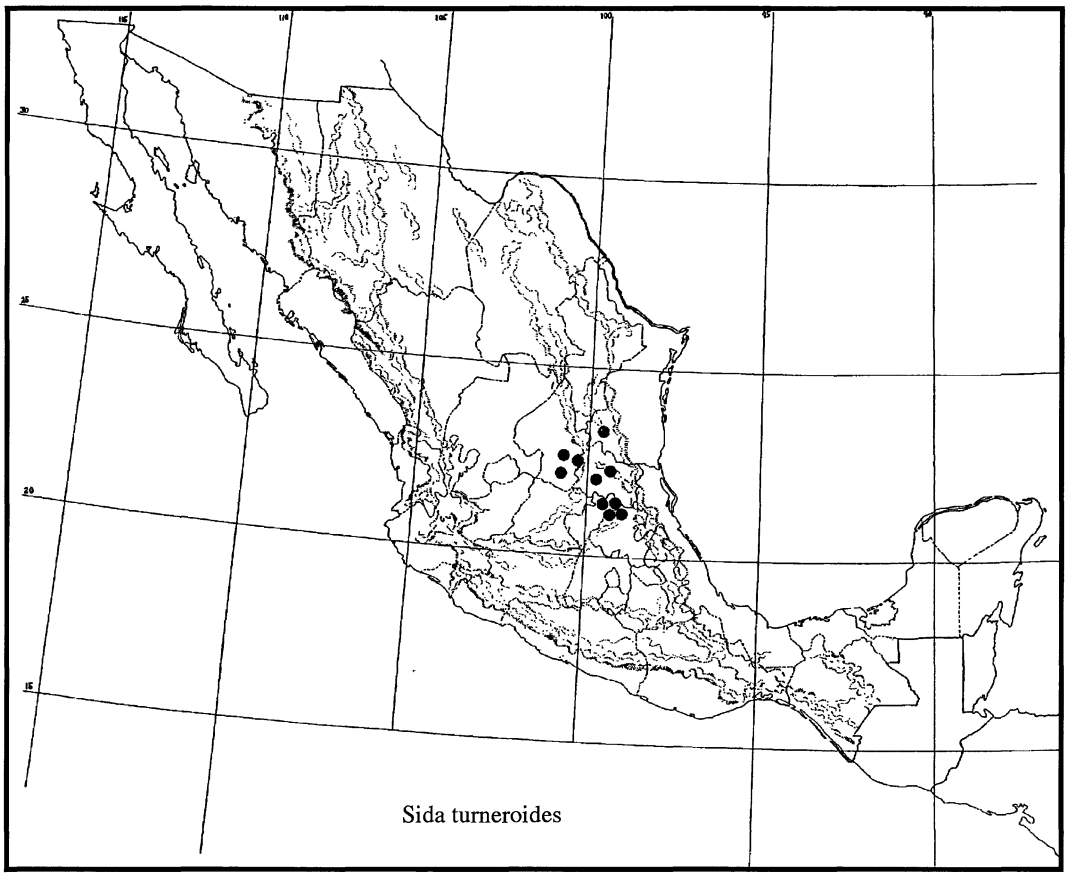

FIG. 11. Distribution of *Sida turneroides* in Mexico.

long as wide) with subtending stipules approximately twice the length of adjacent petiole, the seeds are pubescent apically and ventro-apically, and the peduncles are articulated 0.5–1 cm below the calyx (especially prominent in fruit). *Sida elliottii* contacts and occurs sympatrically with *S. rubromarginata* in peninsular Florida and has linear to narrowly elliptic leaves in this region with subtending stipules 1/2 to approximately equaling the length of adjacent petiole, glabrous to sparsely pubescent seeds, and an un-articulated peduncle throughout its range.

TYPIFICATION: Nash (1896) lists two collections in the protologue for *Sida rubromarginata*; his own (*Nash 2472*) and that of E.J. Palmer (*Palmer 54*). Fryxell (1985) gives Nash as the collector of the type but refers to the specimen at NY as the holotype and to those at F, GH, K, MASS, MO, OS, and US as lectotypes. This typification, while not invalid, is in error and needs correction. Fryxell's logical choice of Nash's own collection is followed here and, since the latter is known to have worked at NY, the choice of that specimen as the lectotype seems logical. The remaining known collections (F, GH, K, MASS, MO, OS, US) are here designated isolectotypes.

8. SIDA TURNEROIDES Standl. (Figs. 2, 11)

Sida turneroides Standl., Publ. Field Mus. Nat. Hist., Bot. Ser. 22: 90. 1940. TYPE: MEXICO.

TAMAULIPAS: Jaumave, Sierra near San Lucas, 1932, *von Rozynski 514* (HOLOTYPE: F!).

Erect HERBS to 0.5 m high. LEAVES dentate, elliptic to ovate, laminae 2–4 cm long, 1.5–2 times as long as wide; usually glabrous above with sparse, simple hairs present in some populations, more densely stellate pubescent beneath. Stipules 1/2 to approximately equaling adjacent petiole, falcate to subulate. FLOWERS axillary to slightly congested apically (2–3 flowers); peduncles up to 1 cm long. Petals yellow to orange-yellow, drying the same. Calyx 5–9 mm long, short stellate pubescent outside, smooth, shiny, glabrous inside. FRUIT schizocarpic with 5–9 mericarps; short branched hairs present apically, glabrous otherwise. Mericarps spinose apically (awns 0.2–1.0 mm), smooth dorso-laterally on the basal portion; interior smooth, shiny. Seeds prominently pubescent apically with short branched hairs.

DISTRIBUTION (Fig. 11) AND HABITAT: Endemic to east-central Mexico from southern Tamaulipas to northern Querétaro and Hidalgo at elevations of 200 to 2000 m in dry matorral or deciduous forest (Fryxell, 1988).

REPRESENTATIVE SPECIMENS EXAMINED: **MEXICO. Hidalgo:** Ca. 3 mi. N of Zimapán on side of Rd., alt. 6300 ft., 1 Oct 1969, *P. A. Fryxell 1124* (NY); Between Agua Fria and La Placita near km 267 on hwy. between Zimapán & Jacala, alt. 1500 m, 11 Jul 1948, *H. E. Moore, Jr. & C. E. Wood, Jr. 3920* (GH); 6.5 km al S de El Alamo, carretera a Jacala, alt. 1500 m, 28 Jun 1983, *C. R. Torres 3175* (MEXU). **Querétaro:** Mpio. Landa de Matamoros, 4.5 km NE de Encino Solo, alt. 1400 m, 20 May 1988, *A. Herrera 155* (IEB); Mpio. Landa, 7 km al NW de El Madroño, alt. 200 m, 22 Jun 1988, *J. Rzedowski 46733* (IEB). **San Luis Potosí:** 75 mi. N of San Luis Potosí on side Rd. to Guadalcazar, alt. 6400 ft., 19 Jul 1982, *P. A. Fryxell 3823* (ENCB, F, NY); Mpio. Rayón, Hwy. Valles to Rioverde at km 81.5, alt. 1300 m, 25 May 1981, *P. A. Fryxell & W. R. Anderson 3613* (NY); Minas de San Rafael, Jul 1911, *C. A. Purpus 5417* (F, MEXU, NY); Mpio. Ciudad del Maíz, 0.5 km al NE de Las Arbitas, alt. 800 m, 30 Jun 1959, *J. Rzedowski 11123* (ENCB). **Tamaulipas:** Cañon del Coyote, E of La Presita, ca. 48 km SW of Jaumave, alt. 1850 m, 17 Jul 1986, *P. A. Fryxell 4955* (NY, TEX).

The most distinctive feature of *Sida turneroides* is its leaves, which are elliptic, 1.5–2 times as long as wide, and glabrous to pubescent with sparse, simple hairs. As noted in the discussion for *S. linearis*, these species are often confused but are unquestionably distinct for the reasons alluded to there.

DOUBTFUL NAMES:
S. cardanisea Raf. (= *S. elliottii* ?)
S. bicallosa Raf. (= *S. lindheimeri* ?)

Both of the above names were proposed by Rafinesque (1817) based on second-hand descriptions provided by C.C. Robin (1807) during his travels in the New World and have neither specimens nor illustrations on which to base a taxonomic assessment. The description for *Sida cardanisea* bears a resemblance to *S. elliottii* except for his report of "flowers...nearly two inches in diameter," which is slightly too large for this species. The description of *S. bicallosa* bears a strong resemblance to *S. lindheimeri*. Rafinesque allies the former with *S. spinosa*, citing mericarps spinescence, while maintaining it as distinct stating "it resembles more *S. rhombifolia*" and specifying in the description "longe pedunculatis". Consequently both of these names are not applicable with certainty to any species.

LITERATURE CITED

Baker, E. G. 1892. Synopsis of genera and species of Malvaceae, XVII. *Sida*. J. Bot. 30: 137–142, 235–240, 290–296, 324–332.

Bates, D. M. 1966. Chromosome numbers in the Malvales. I. Gentes Herb. 10: 39–46.

———. 1976. Chromosome numbers in the Malvales. III. Gentes Herb. 11: 143–150.

Borssum Waalkes, J. van. 1966. Malesian Malvaceae revisited. Blumea 14: 1–213.

Britton, N. L. & A. Brown. 1913. *An Illustrated Flora of the United States, Canada, and the British Possesions, from Newfoundland to the Parallel of the Southern Boundary of Virginia, and from the*

Atlantic Ocean Westward to the 102nd Meridian. 2nd ed. 3 vols. New York: Charles Scribner's Sons.

Burandt, C. L. 1992. A Monograph of *Sida* sect. *Oligandrae* (Malvaceae). Syst. Bot. 17: 164–179.

Chapman, A. W. 1883. *Flora of the Southern United States.* 2nd ed. New York: Ivison, Blakeman, Taylor & Co.

————. 1897. *Flora of the Southern United States.* 3rd ed. New York: American Book Co.

Clement, I. D. 1957. Studies in *Sida.* Contr. Gray Herb. 180: 1–91.

Correll, D. S. & M. C. Johnston. 1970. *Manual of the Vascular Plants of Texas.* Renner, Tex.: Texas Research Foundation.

Cronquist, A. 1980. *Vascular Flora of the Southeastern United States.* Chapel Hill: University of North Carolina Press.

Egley, G. H. & R. N. Paul, Jr. 1981. Morphological observations on the early seed imbibition of water by *Sida spinosa* seed. Amer. J. Bot. 68: 1056–1065.

Fernald, M. L. 1940. A century of additions to the flora of Virginia. Rhodora 42: 419–498.

————. 1950. *Gray's Manual of Botany,* 8th ed. Boston: American Book Co.

Fryxell, P. A. 1971. A new genus from Mexico: *Dendrosida.* Brittonia 23: 231–237.

————. 1975. Sidus Sidarum. Sida 6: 1–6.

————. 1978a. Sidus Sidarum–II. Sida 7: 227–231.

————. 1978b. Neotropical segregates from *Sida* L. Brittonia 30: 447–462.

————. 1979. Sidus Sidarum–III. *Sida rzedowskii* sp. nov., including a preliminary discussion of the *Sida elliottii* species group. Sida 8: 123–127.

————. 1982. *Billieturnera,* a new genus from Texas and Mexico. Sida 9: 195–200.

————. 1985. Sidus Sidarum–V. The North and Central American Species of *Sida.* Sida 11: 62–91.

————. 1987a. Sidus Sidarum–VI. The *Sida martiana* complex in Mexico. Sida 13: 12–21.

————. 1987b. Sidus Sidarum–VII. The genus *Sida* in Australia. Sida 12: 22–27.

————. 1988. Malvaceae of Mexico. Syst. Bot. Monographs 25: 373–413.

————. 1997. The American Genera of the Malvaceae-II. Brittonia 49: 204–269.

———— & J. Fuertes. 1992. A re-evaluation of the *Abutilothamnus* complex I. Brittonia 44: 436–447.

———— & D. M. Stelly. 1993. Documented chromosome numbers 1993:2. Additional chromosome counts in the Malvaceae. Sida 15: 639–647.

Fuertes, J. & P. A. Fryxell. 1993. Nomenclatural notes on some Malvaceae species described by Cavanilles. Taxon 42: 661–664.

Garilleti, R. 1993. Herbarium Cavanillesianum. Fontqueria 38: 130.

Geiser, S. W. 1935. Charles Wright's 1849 collecting trip from San Antonio to El Paso; with type-localities for new species. Field & Lab. 4: 23–32.

————. 1948. *Naturalists of the Frontier.* Dallas: Southern Methodist University Press.

Gleason, H. A. 1952. *Illustrated Flora of the Northeastern U.S. and adjacent Canada.* 3 vol. Lancaster, Penn.: Lancaster Press, Inc.

———— **& A. Cronquist.** 1963. *Manual of the Vascular Plants of the Northeastern United States and Canada.* New York: D. Van Nostrand Co.

Goyne, M. A. 1991. *A Life Among the Texas Flora.* College Station: Texas A&M University Press.

Greene, E. L. 1909. Landmarks of botanical history. Part I. Smithsonian Misc. Collect. 54.

Hinckley, L.C. 1950. The centennial of Charles Wright's trip through Trans-Pecos Texas. Amer. Midl. Naturalist 44: 488–494.

Johnston, I. M. 1940. Field Notes of Charles Wright for 1849 and 1851–52. Cambridge, Mass.: Gray Herbarium, Harvard University.

Kearney, T. H. 1954. A tentative key to the North American species of *Sida.* Leafl. W. Bot. 7: 138–150.

————. 1958. A tentative key to the South American species of *Sida.* Leafl. W. Bot. 8: 249–270.

————, R. H. Peebles & collaborators. 1951. *Arizona Flora.* Berkeley: University of California Press.

Krapovickas, A. 1969. Notas citotaxonomicas sobre Malvaceas. Bonplandia 3: 9–24.

Lanjouw, J. & F. A. Stafleu. 1954. *Collectors A–D.* Regnum Vegetabile 2: 79.

Linnaeus, C. 1737. *Critica Botanica* (1938 translation). London: The Ray Society.

Long, R. W. & O. Lakela. 1971. *A Flora of Tropical Florida.* Chapel Hill: University of North Carolina Press.

Martin, W. C. & C. R. Hutchins. 1980. *A Flora of New Mexico.* Vaduz, Germany: Strauss & Cramer Co.

Nash, G. V. 1896. Notes on some Florida plants. Bull. Torrey Bot. Club 23: 102.

Radford, A. E., A. E. Ahles, & C. R. Bell. 1964. *Guide to the Vascular Flora of the Carolinas.* Chapel Hill: University of North Carolina Press.

Rafinesque, C. S. 1817. *Florula Ludoviciana: or a Flora of the State of Louisiana* (1967 facsimile edition). New York: Hafner Publishing Co.

Robin, C. C. 1807. *Voyages dans l'interieur de la Louisiane, de la Floride Occidentale, et dans les Isles de la Martinique et de Saint-Dominique.* Paris: F. Buisson.

Schumann, K. 1891. *Sida.* In *Flora Brasiliensis* 12: 279–347. ed. K.F. P. von Martius.

Shaw, E. A. 1987. *Charles Wright on the Boundary 1849–1852.* Westport, Conn.: Meckler Publishing Co.

Sivarajan, V. V. & A. K. Pradeep. 1994. Taxonomy of the *Sida rhombifolia* (Malvaceae) complex in India. Sida 16: 63–78.

Small, J. K. 1933. *Manual of the Southeastern Flora.* John Kunkel Small [published by the author].

Smith, E. B. 1988. *An Atlas and Annotated Checklist of the Vascular Plants of Arkansas.* Edwin B. Smith [published by the author].

Stafleu, F. A. & R. S. Cowan. 1976. *Taxonomic Literature Vol. 1: A–G.* Regnum Vegetabile 94: 485–6.

Standley, P. C. 1923. *Sida.* In *Trees and shrubs of Mexico.* Contr. U.S. Natl. Herb. 23: 761–767.

Warren, B. 1987. *Wilderness Walkers.* Dallas: Hendrick-Long Publishing Co.

Acknowledgments

I would like to thank: B.L. Turner, my major professor, for his inexhaustible encouragement; P.A. Fryxell for reviews on this manuscript, outstanding prior contributions, and the use of his personal library and slide collection; T.L. Wendt and J.K. Williams, also of the University of Texas, for their tolerance and willingness to help. I would also like to thank B.B. Simpson, R.K. Jansen, and J.L. Panero, and T.J. Mabry for instruction and advice rendered to me, both as an undergraduate and a first-year graduate student. I would like to thank J.W. Hayden, A. Belden, and J. Kallunki for their help as well as Steven R. Hill and an anonymous reviewer for comments on this manuscript. Finally, I thank the Plant Resources Center at the University of Texas (LL, TEX) for the use of their facilities and the following institutions generous enough to provide loans for this study: BRIT, ENCB, F, FLAS, GH, IEB, LSU, MEXU, NATC, NCU, NLU, NMSU, NY, US, VPI, and WILLI.

Numerical List of Taxa:

1A. *Sida elliottii* Torr. & A. Gray var. *elliottii*
1B. *Sida elliottii* var. *parviflora* Chapm.
2. *Sida lindheimeri* Engelm. & A. Gray
3. *Sida linearis* Cav.
4. *Sida longipes* A. Gray
5. *Sida neomexicana* A. Gray
6. *Sida potosina* Brandegee
7. *Sida rubromarginata* Nash
8. *Sida turneroides* Standl.

Plantae Exsiccatae

Ahles, H. E. & C. R. Bell 18044 (1A).
————. & R. S. Leisner 21282 (1A).
Albrecht, O. s.n., "Sept. 1930" (2).
Amerson, P. A. 1252 (2).
Anderson, L. C. 7646 (1A); 13488 (1A); 15668 (1A); 17135 (1A).
Andrews, P. B. 2 (2).
Arellano, M. s.n., "28/IX/1977" (3).
Argüelles, E. 220 (3); 1888 (3).
Barkley, F. A., G. L. Webster, & C. M. Rowell 7570 (3).
Bartlett, H. H. 10621 (1B).
Bell, C. R. 5139 (1A).
Berg, N. K. (1A).
Berlandier, J. L. 2038[=628] (2); 2387 (2); 3105 (2).
Blakey, H. L. s.n. "Jun 1946" (2).
Blumer, J. C. 239 (5); 2153 (5).
Board, V. s.n., "17 August 1969" (5).
Bogusch, E. R. s-121 (2); s-134 (2); 1252 (2); s.n. "6-9&10 1926" (2).
Boon, E. 191 (2).
Bray, W. L. 140 (2).
Bright, J. 4506 (1B).
Britton, N. L. 244 (1B).
———— & E. G. Britton 33 (1B).
Broome, R. 204 (1A).
Brown, C. A. 7208 (1A).
Brown, G. W. B-68 (5).
Bush, B. F. 15 (1A); 6293 (1A); 6293A (1A).
Butterwick, M. & E. Lott 3581 (4); 3657 (4).
———— & J. Lamb 3286 (2).
Bye, R. A. 8734 (5).
Byrd, N. L. 42 (2).
Carr, W. R. 7935 (2); 15166 (2); 15319 (2); 16343 (4).
————, et al. 7311 (2); 10071 (2); 11382 (2).
Carranza, M. A., et al. C-721 (4); 1284 (1B).
Chapman, A. W. s.n., s.d., "Bainbridge" (1A); s.n., s.d., "Florida" (1B); s.n., s.d., "Tallahassee" (1A).
Chase, V. H. 7525 (1B).
Chiang, F., T. L. Wendt, & M. C. Johnston 7513B (4); 7545E (1B); 7548 (4); 7617 (4); 8090 (1B); 8210 (1B).
Cleveland, T. P. s.n., "1860" (1B).
Correll, D. S. 26925 (2); 31603 (5); 34083 (4); 34107 (5); 47712 (7).
———— & H. B. Correll 10496 (1A); 28508 (2).
———— & I. M. Johnston 17457 (2); 17653 (2); 19483 (2); 19590 (2); 19676 (2).

———— et al. 24552 (5); 31043 (2); 49847 (1B).
Cory, V. L. 2046 (5); 7334 (5); 8337 (2); 9473 (5); 11813 (2); 14733 (2); 15096 (2); 16894 (2); 41673 (4); 41676 (4); 41721 (4); 44970 (5); 45423 (2); 45646 (2); 51232 (2); 51491 (2); s.n., "5-30-1944" (4).
Cowan, C. P. 3725 (8).
————, M. Luckow, & N. Jacobson 5439 (1B).
Crawford, E. W. 20 (2).
Crockatt, W. B. 12 (5).
Cross, W. H. 49 (2).
Curtiss, A. H. 377 (1B); 5853 (1B); 6423 (7).
Demaree, D. 3590 (1A); 31319 (1A).
Diaz-Barriga, H., et al. 6864 (3).
Dorantes, J. & M. Acosta 2156 (1B).
Dorr, L. J., et al. 2619 (1B).
Drushel, J. A. 10237 (2).
Drummond, T. 14 (2); 45 (2).
Duncan, W. H. & J.B. Harris 13019 (1A).
Dunn, D. B. 7272 (5).
Duval, H. H. 277 (2); s.n., "6.15.[19]28" (2).
Earle, F. S. 2151 (1A).
———— & E.S. Earle 438 (4).
Eaton, A. A. 300 (1B).
Eggert, H. s.n., "31 August 1894" (1A); s.n., "18 August 1897" (1A).
Elliott, s.n. (1A)
Equihua, M. 48 (3); 697 (3).
Ervendberg, L. C. 176 (1B).
Escobedo, J. M. 1103 (3); 1905 (3).
Ethridge, J. E. s.n. "2 May 1964" (2).
Fernald, M. L. & B. Long 11076 (1A); 11077 (1A); 11372 (1A); 11373 (1A); 13688 (1A); 13689 (1A); 15300 (1A).
Ferris, R. S. & C. D. Duncan 2860 (5).
Fisher, G. L. 23 (2); 62 (2); 81 (2); 246 (2); 41126 (2).
Fleetwood, R. J. 9860 (2); 10929 (2).
Fox, W. B. & L. A. Whitford 1801 (1A).
Fredholm, A. 6046 (7).
Fryxell, P. A. 782 (8); 804 (2); 1124 (8); 1275 (2); 1318 (2); 1340 (1B); 2051 (2); 3823 (8); 4955 (8); 4958 (1B); 4964 (2); 5157 (2).
————, et al. 3613 (8); 3644 (8); 5001 (4); 5002 (1B).
Galvan, R. & J. D. 2964 (3).
Garber, A. P. s.n., "Jun 1877" (1B).
García, E. & E. Pérez 2701 (3).
Gattinger, A. s.n., "Aug 1878" (1A); s.n., "Sept. [18]82" (1A); s.n., "1885" (1A); s.n., "Jun" (1A); s.n., "May" (1A); s.n., "Sept. 30" (1A); s.n., s.d., "Barrens of middle Tennessee" (1A); s.n., s.d., "Cedar Barrens..." (1A); s.n., s.d., "Nashville, Tennessee" (1A).
Gillespie, T. 125 (2); 127 (2); 128 (2).
Ginzbarg, S. 4 (2).
———— & R. Herndon 285 (1B).
Godfrey, R. K. 57819 (1A).
———— & R. M. Tryon, Jr. 589 (1A).
Gonzales, S. & J. M. Peña 469 (5).
Gonzales-Medraño, F., et al. 9771 (1B).
Gould, F. W. 5708 (2); 10652 (1B); 10712 (1B).
———— & M. Hycka 8107 (2).
Greene, E. L. 224 (5); s.n., "August 1880" (5).
Griffiths, D. & J. J. Thornber 221 (5).
Gutiérrez, R. & W. L. McCart 7827 (2).
Guzmán, R., et al. 7827 (2).
Hall, E. 56 (2).
Hanson, H. C. 57A (5); s.n., "7/22/[19]19" (5).
Hardin, J. W. 163 (1A).
Harper, R. M. 578 (1A).
Harrison, G. C. s.n., "Sept. 1904" (1A).
Harrison, G. J. & T. H. Kearney 5759 (5).
Hartman, R. L. & J. Smith 3522 (2).
Havard, V. s.n., "Oct [18]83" (5).
Henrickson, J. 11589 (4).
Hernández, M. R. 8299 (5); 8304 (5).
Herndon, A. 2865 (1A).
Herrera, A. 155 (8).
Herring, B. & D. 454 (1A).
Hess, W. 1375 (5).
Hewitt, W. P. 54 (5); 319 (5).
Higdon, W. D. 53-74 (2).
Hildebrand, H. H. & M. C. Johnston 541282 (2).
Hill, S. R. 2841 (1B); 3077 (1B); 4506 (2); 5310 (1B); 5353 (2); 6857 (2); 7529 (2); 7996 (1B); 10469 (1B); 10570 (1B); 10609 (2); 18215 (2); 18284 (2).
Hinckley, L. C. 271 (5); 869 (4); 1762 (5); 2548 (5); 2860 (5); s.n., "8/1/[19]35" (5); s.n., "6/30/[19]36" (5); s.n., "Jun 20, 1941" (5).
Hinton, G. B., et al. 20595 (1B).
Hiriart, P., et al. 699 (1B).
Hitchcock, C. L. & L. R. Stanford 6784 (5).
Holzinger, J. M. s.n., "Aug 10 1911" (5); s.n., s.d., "Hills east of Santa Rita" (5).
Jandry, F. & T. Reeves R4120 (5).
Janish, C. & J. 533 (1B).
Jermy, G. 165 (4); 827 (2).
Johnson, J. C. 841 (2); 1359 (2).
Johnston, I. M. 9162 (1B).
———— & C. M. Muller 428 (1B); 635 (1B).
Johnston, M. C. 6731 (2); 53175.45 (2); 53175.46 (2); 53175.47 (2); 53175.48 (2); 53175.49 (2); 53175.50 (2); 53175.51 (2); 53175.52 (2); 53175.53 (2); 54565 (2); 541437 (2); 541566 (2).
————, B. C. Tharp, & B. L. Turner 3389 (2).
————, T. L. Wendt, & F. Chiang 11172D (6).
Jones, F. B. 405 (1B); 1125 (2).
Jones, R. 135 (1B).
Jones, S. & G. 3145 (2).
Joor, J. F. s.n., "May 27, 1876" (2).
Keough, E. 27 (5).
Killip, E. P. 27 (5); 41400 (1B); 42300 (1B); 44214 (1B); 45856 (1B).
Kishler, J. 705 (3).
Knobloch, I. W. 858 (5); 5512 (5).
Kral, R. 27459 (5); 31721 (1A); 41092 (1A).
Laferriere, J. E. 1110 (5); 1581 (5); 1844 (5); 2000 (5).

Lakela, O. 24623 (7).
Lane, M. A. & D. W. Longstreth 2798 (5).
Latorre, D.L. s.n., "13 May 1968" (1B).
Lawson, D. 705 (1A).
Lelong, M. G. 3644 (1A).
Lemmon, J. G. 516 (5); s.n., "Aug 188_." (5); s.n., "Aug 1882." (5).
Leonard, S. W. & A. E. Radford 2749 (1A).
Lindheimer, F. 24, fasc. I (2); 24, fasc. II (2); s.n., "Aug 1847" (2).
———, et al. 7336 (1A).
Long, R. W. & O. Lakela 26575 (7).
Lundell, C. L. 2750 (1B); 5062 (1B); 13265 (5); 14889 (2).
——— & A. A. Lundell 8791 (2); 12780 (2); 13143 (5); 14184 (4); 14211 (4); 14231 (5).
——— & D. S. Correll 15199 (2).
Lynch, D. 7139 (2).
Lyonnet, E. 1605 (3); 3753 (1B).
Magallanes, J. A. S. 150 (3).
Magaña, R. H. & D. Rodríguez 5127 (1B).
——— & R. Hernández V. 4564 (3).
Marsh, E. 277 pro parte TEX (1A); 277 pro parte F, GH (4); 353 (5).
Marsh, E. G., Jr. 13 (5); 712 (5); 885 (5).
Martin, P. S. & D. Yetman s.n., "18 August 1991" (5).
———, M. Quinn, A. Martin, & S. Martin s.n., "12 August 1987" (5).
Matuda, E. 26274 (3).
Mayfield, M. H., B. G. Milligan & C. McCall 1418 (4).
——— & W. H. Westlund 593 (2).
McBryde, J. B. s.n., "Spring-Summer 1931" (2).
McDaniel, S. 1368 (1A); 14588 (1A).
McDonald, M. H. s.n., s.d., "Rocky mountain..." (5).
McFarlin, J. B. s.n., "Spring 1942" (1B).
McVaugh, R. 16832 (3).
Mearns, E. A. 2103 (5).
Mears, J. A. 676 (2); 764 (2).
Meents, J.K. & W. H. Moir 45 (5).
Mellinchamp, J. H. s.n., "1884" (1A); s.n., "Sept. 1884" (1A).
Metz, M. C. 128 (2).
Michel, F. J. S., et al. 1837 (3).
Mikula, B. 4487 (1A).
Miller, C. 52-375 (2).
Moldenke, H. N. 5550 (1B).
——— & A. L. Moldenke 29479 (1B).
Moore, D. M. 480717 (1A).
Moore, H. E., Jr. & C. E. Wood, Jr. 3920 (8); 4879 (3).
Moore, J. A. & J. A. Steyermark 3066 (5).
Mora-Olivio, A. 5326 (1B).
Mueller, C. H. 8089 (5).
——— & M. T. Mueller 80 (1B); 280 (1B); 4998-80 (1B).
Mulford, I. A. 698 (5).
Nash, G. V. 1260 (1B); 2472 (7).
Nealley, G. C. 142 (5).
Nee, M. 213 (3).
Nelson, E. W. 2962 (1B); 2969 (1B); 4715 (5); 6279 (5).
Orzell, S. L. & E. L. Bridges 10259 (2); 10306 (2); 10399 (2).
Palmer, E. J. 102 (2); 574 (1B); 9782 (2); 30840 (5); 30937 (5); 30960 (5); 31861 (5); 32853 (2); 33853 (2); 34459 (5).
Paredes, A. B. 883a (5).
Parker, H. M. 509 (1B).
Parry, C. C., J. M. Bigelow, C. Wright, & A. Schott 97 (4); s.n., s.d., "Mexican Boundary Survey" (5); s.n., s.d., "Sida" (1B).
Passini, J. & M. F. Robert 5325 (5); 5334a (5); 5342 (5).
Patterson, T. F. 5981 (1B).
Peebles, R. H., G. J. Harrison, & T. H. Kearney 3334 (5); 5342 (5).
Pennell, F. W. 18643 (5).
Pérez, E. & E. García 1369 (3).
Pollard, C. L. & G. N. Collins 263 (1B).
——— & W. R. Maxon 215 (1A).
Popenoe, J. & J. 879 (1B).
Pringle, C. G. 577 (5); 1011 (5); 1198 (5); 7468 (3).
Purpus, C. A. 2609 (3); 4419 (1B); 4906 (6); 4935 (1B); 4935A (1B); 5417 (8).
Quarterman, E. 1878 (1A).
Quintero, L. G. 2986 (1B).
Ramos, J., J. Sandoval, & W. L. McCart 7939 (2); 7981 (2).
Ramos, P.X. 135 (3).
Reeves, T. R3724 (5).
Reina, A.L., et al. 96-406 (5).
Reko, B.P. 5240 (5).
Riedel, M. s.n., "7/5/[19]41" (2).
Ripley, H. D. & R. C. Barneby 2538 (5).
Ripple, A. L. 51-629 (2).
Rogers, C. M., C. C. Albers, & J. Barksdale 6880 (2).
Rose, J. N. 2537 (3).
———, J. H. Painter & J. S. Rose 9572 (3).
——— & W. Hough 4854 (3).
Rose-Innes, R. & B. Moon 1135 (5).
Roybal, J. 98 (1B).
Rozynski, H. W. von 514 (8).
Ruiz, S. A. & D. L. Doan-Crider 84 (1A).
Runyon, R. 1474 (2); 2945 (2).
Rzedowski, J. 4516 (1B); 7550 (1B); 8041 (8); 9421 (1B); 11123 (8); 20560 (3); 31972 (3); 32004 (3); 37557 (3); 38908 (3); 43610 (3); 43724 (3); 44695 (1B); 46733 (8); 49524 (3); 49905 (3); 50785 (3); 51466 (1B).
Sandres, A. C., R. Manshardt, & K. Neisess 2970 (5); 3075 (5).
Schaffner, J. G. 162 (3).
Schallert, P. O. 5394 (1A).
Schiller, E. M. s.n., "6-29-[19]27" (2).
Schulz, E. D. 424 (2); 853 (2).
Scull, E. s.n., "6/11/37" (1B).
Sharp, A. J. 42244 (3).
Shiller, I. M124 (2); 3008 (2).

Shinners, L. H. 14663 (2); 19552 (2); 23457 (2); 24336 (2).
Shreve, F. S. 4967 (5).
Siedo, S. J. 142 (2); 624 (2); 630 (2); 634 (2); 635 (2); 641 (2); 642 (2); 644 (2); 645 (2); 656 (2); 680 (4).
———— & J. K. Williams 464 (1B); 476A (1B).
Small, J. K. s.n., "August 6-12, 1895" (1A).
———— & J.J. Carter 2608 (1B).
———— & C. A. Mosier 5550 (1B); 6348 (1B).
————, C. A. Mosier, & E. W. Small 5663 (1B).
————, C. A. Mosier, & G. K. Small 6482 (1B); 6536 (1B).
———— & G. V. Nash s.n., "November 2&5 1901" (1B).
———— & P. Wilson 1939 (1B); 1988 (1B).
Smith, E. A. s.n., "Aug 5, 1873." (1A).
Smith, J. & M. Butterwick 40 (2).
Smith, R. F. M379 (1B).
Smith, R. R., T. Myint, & A. Will 894 (1B).
Smith, R. S. s.n., "Jul 3 1955" (2).
Spellenberg, R., et al. 5350 (5); 6845 (5).
Sperry, O. E. T158 (5); T532 (5); T854 (5); T1163 (4); 1244 (5).
Stanford, L. R., K. L. Retherford, & R. D. Northcraft 120A (5); 853 (6).
Steiger, T. L. 117 (5).
Stewart, R. M. 59 (5); 207 (1B); 435 (5); 594 (5); 768 (5); 1359 (1B); 1579 (1B); 2456 (5); 30937 (5); s.n., "Sept. 30 1940" (5).
Steyermark, J. 51603 (1B).
Tan, B. & N. Raymond CR16 (1B).
Taylor, M. 91 (1B).
Tharp, B. C. 43-703 (4); 43-705 (4); 1502 (2); 2911 (2); 3592 (4); 3597 (5); 3605 (2); 5598 (2); 6034 (2); s.n., "5/19/[19]30" (2); s.n., "8-21-[19]38" (2); s.n., "11/30/[19]40" (2); s.n., "Jun 25, 1941" (2); s.n., "Aug 28, 1941" (1B).
Theiret, J. W. & W. D. Reese 10069 (2).
Thomas, R. D. 15082 (1A); 15271 (1A); 15358 (1A); 16133 (1A); 20065 (1A); 20295 (1A); 20354 (1A); 26711 (5); 141,406 (1A).
————, et al. 81677 (3); 20673 (1A).
Thurber, G. 1066 (5).
Thurow, F. W. 4 (2).
Torres, C. R. 3175 (8).
Torrey, J. s.n., s.d., "Georgia" (1A); s.n., s.d., "S. Fla." (1B).
Toumey, J. W. 3 (5); 6 (5).
Townsend, C. H. T. & C. M. Barber 229 (5).
Tracy, S. M. 9236 (2); 9237 (1B).
Traverse, A. 1456 (2).
Tuomey, M. s.n., s.d., "Petersburg, VA" (1A).
Turner, B. L. 5110 (4); 97-242 (4).
———— & G. Turner 96-66 (5).
———— & M. C. Johnston 2436 (2).
VanDevender, T. R., et al. 95-910 (5); 96-475 (5); 96-524 (5); 97-822 (5).
Ventura, A. A. 4012 (3).
Ventura, E. & E. López 8134 (3).
Vergara, G., et al. 8569 (2).
Vilchis, I. D., F. Gonzales M., & A. Hernández G. 273 (3).
Villareal, J. A. & M. A. Carranza 3959 (1B).
Wagner, R. P. & F. A. Barkley 16T3-14 (2); 16T389 (2).
Ward, D. B. & J. Beckner 4684 (1B).
Warnock, B. H. W92 (4); 195 (5); T368 (4); 525 (5); 568 (4); W845 (5); 6180 (5); 13295 (4); 21223 (4); 46541 (5).
———— & W. D. McBryde 14726 (4); 15233 (4).
Waterfall, U. T. 5428 (5); 6332 (5); 12903 (5); 15341 (1A); 15434 (5); 15659 (3).
———— & C. S. Wallis 13491 (5).
Webster, G. L. 304 (4).
Welch, W. A. 1593 (7).
Wendt, T. L. & A. Adamcewicz 391C (5); 532 (5).
————, E. J. Lott, & M. Mispagel 1767 (1B).
———— & J. Valdés R. 2055 1/2 (4); 2056 (4).
West, E. s.n., "21 Sept. 1939" (1A).
White, S. S. 2563 (5); 2566 (5).
Whitehouse, E. A. 18206 (2); 18320 (2); 18651 (4).
Wiens, J. F., et al. 96-113 (5).
Wilcox, T. E. 46 (5).
Wilkinson, D. L. 285 (2).
Williams, A. s.n., "April 1982" (1B).
Williams, C. B. 159 (2).
Williamson, C. S. s.n., "Aug" (1A); s.n., "August 1892" (1A).
Wilson, M., et al. 8428 (5).
Wolf, S. E. 3871 (2).
Wooton, E. O. 343 (5); 463 (5); s.n., "Sep 4, 1879" (5); s.n., "Aug 23, 1900" (5).
———— & P.C. Standley s.n., "Sept. 20, 1908" (5).
Worthington, R. D. 14349 (5); 19590 (5).
Wright, C. 556 (4); s.n. "1851" (5); s.n., "1851-2" (5); s.n., "1852" (5); s.n., s.d., "Texas" (2).
Wynd, F. L. & C. H. Mueller 127 (4).
Yen, C. & E. Estrada 3411 (5).
Young, J. P. 180 (1B).
Young, M.S. s.n., "8/13/[19]14" (5); s.n., "8/14/1918" (5).