

## **SAGERETIA REBMANII (RHAMNACEAE), A NEW SPECIES FROM BAJA CALIFORNIA AND A SYNOPSIS OF THE AMERICAN SPECIES**

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### **ABSTRACT**

***Sageretia rebmanii*** Nesom, **sp. nov.**, is described from a region of Baja California and Baja California Sur. It previously has been identified as *Sageretia wrightii* but differs from it in features of vestiture and inflorescence and is long-disjunct from nearest populations of *S. wrightii*. A taxonomic synopsis and detailed distribution maps (Mexico) are provided for the New World species of *Sageretia* — *S. elegans*, *S. minutiflora*, *S. rebmanii*, *S. spicata*, (including *S. mexicana*), and *S. wrightii*. *Sageretia thea* is included, as it is sporadically naturalized in the USA.

Context for the description of *Sageretia mexicana* (Nesom 1993) was provided with a taxonomic and geographic summary of the other American species. Since that time, accumulation of new collections and increased ease of access via digital files support an updated and more complete account of the formal taxonomy and geographic distributions. *Sageretia mexicana* proves to be a synonym of the much earlier *S. spicata* Brongn. A review of *Sageretia* in Baja California/Baja California Sur reveals that the plants there are distinct from *S. wrightii*, as they previously have been identified — they are described here as the fifth American species of the genus, *S. rebmanii*, endemic to the Baja California peninsula.

*Sageretia* Brongn. includes about 35 species — most are in subtropical and tropical Asia, with a few in northeastern Africa and five native to Americas. Recent taxonomic studies of Chinese plants (Chen & Schirarend 2007; Yang et al. 2017, 2021) have brought to light new species, *S. ellipsoidea* Yang, Sun, & Peng and *S. liuzhouensis* Yang & Sun. Two new species from western Himalaya, India, were recently described by Pusalkar & Singh (2010), *S. devendrae* and *S. santapau*.

A molecular phylogenetic study of the genus (Yang et al. 2019) found that the American species sampled, *S. elegans* (from Guatemala and Mexico), *S. spicata* (from Jalisco), and *S. wrightii* (from Arizona), are monophyletic — all five species probably are part of a single clade. The American species are sister to a large group of Asian species (or all the rest of the genus, Yang et al., their Fig. 4), the ancestral form apparently reaching North America through migration across a Bering Land Bridge.

### **Key to American species of *Sageretia***

1. Leaf blades mostly elliptic to elliptic-obovate or broadly oblanceolate, 0.5–2.2 (–3) cm long, 0.4–1.1 (–2) cm wide, apex obtuse, retuse, or rounded.
2. Inflorescence axis, hypanthium, and calyx densely puberulent; primary inflorescence axes mostly 2–4 cm long ..... ***Sageretia rebmanii***

2. Stems persistently short-strigillose with rigid, antrorsely arching hairs; leaves glabrous on both surfaces; inflorescence axis, hypanthium, and calyx glabrous; primary inflorescence axes mostly 0.5–1 cm long ..... **Sageretia wrightii**
1. Leaf blades mostly ovate to lanceolate, (3–) 4–11.5 cm or 1.5–3.8 cm, apex acute or acuminate.
3. Leaf apices mostly acute to obtuse, not acuminate; inflorescence axes puberulent **Sageretia thea**
3. Leaf apices acuminate; inflorescence axes glabrous.
4. Inflorescence a single, short, terminal branch and several, axillary, short ones; leaf blades lanceolate, 2.5–3 times longer than wide ..... **Sageretia spicata**
4. Inflorescence a broad, branched, terminal and lateral panicle; leaf blades ovate to elliptic-ovate, mostly 1.4–2.2 (–2.8) times longer than wide.
5. Leaf blades (3–) 4–11.5 cm long, (1.4–) 2–4 (–6) cm wide, (1.3–) 1.7–2.2 (–2.8) times longer than wide; petioles 6–12 mm long ..... **Sageretia elegans**
5. Leaf blades 1.5–3.8 cm long, 1.2–2 cm wide, 1.4–2.1 times longer than wide; petioles 1–2 mm long ..... **Sageretia minutiflora**

**1. SAGERETIA REBMANII** Nesom, **sp. nov.** **TYPE: MEXICO. Baja California.** [Sierra La Libertad], El Rancho Viejo, 30 Apr 1889, *T.S. Brandegee s.n.* (holotype: UC, Fig. 1; isotype: MO). Other localities visited by Brandegee at around the same time place Rancho Viejo in the Sierra La Libertad (Moran 1952).

Similar to *Sageretia wrightii* in its relatively small leaves with apex acute to obtuse, rounded, or retuse; different in its stems initially puberulent to tomentose with crinkly hairs, leaves puberulent adaxially, glabrescent, primary inflorescence axes mostly 2–4 cm long, and hypanthium and inflorescence axes densely and persistently puberulent.

**Shrubs** ca. 0.5–2.5 m high, intricately branched, branches arcuate-decumbent to scandent, lateral branches breaking off and becoming short and thorn-like but sometimes without a sharp-pointed tip, young branches villous-puberulent with fine, crinkly hairs, glabrescent. **Leaves** persistent, opposite, blades elliptic to broadly elliptic or oblong-elliptic, elliptic-obovate, or broadly lanceolate, 0.6–1.8 cm long, 0.4–1 cm wide, 1.3–2 times longer than wide, lustrous, glabrous abaxially, sparsely tomentose or puberulent adaxially and glabrescent, base rounded to obtuse, apex acute to obtuse, rounded, or retuse, margins entire to shallowly crenate or crenate-serrate at least distally, petioles 0.5–1 mm long, venation camptodromous, without veins from the very base, reticulate venation not prominently raised abaxially. **Inflorescences** terminal and axillary, primary axes mostly 2–4 cm long, with short lateral branches; hypanthia, sepals, and inflorescence axes densely and persistently villous-puberulent. **Drupes** 4–5 mm long, orange to dark red. Figures 1–7.

Flowering Apr–Oct. Canyons, rocky mesas and slopes, talus, with *Brahea*, *Bursera*, *Celtis*, *Dodonaea*, *Jatropha*, *Lysiloma*, *Pachycereus*, *Prosopis*; 750–1300 m; Baja California and Baja California Sur. Map 1.

**Additional collections. MEXICO. Baja California.** Sierra La Libertad, NE of the abandoned Rancho El Paraíso, along the riparian area of a small palm canyon off (E) of Arroyo El Paraíso, 28.5435° N, 113.617° W, shrub to 2.5 m tall, very spiny, fruits fleshy & orange, Central Desert subregion along arroyo with *Brahea armata*, *Toxicodendron*, *Dodonaea viscosa*, *Ambrosia ambrosioides*, *Baccharis salicifolia*, and *Prosopis articulata*, 820 m, 26 Apr 2009, *Rebman 17291* (SD); Sierra La Libertad, vicinity of El Rodeo, along the trail between Rancho Hierba Buena and Las Cuevitas, in canyon and on surrounding rocky slopes and mesas, 28.4987° N, 113.5907° W, uncommon shrub, Central Desert subregion with *Celtis pallida*,

*Dodonaea viscosa*, *Prosopis articulata*, *Condalia brandegeei*, *Cylindropuntia cholla*, *C. alcahes*, and *Brahea armata*, 25 Oct 2009, *Rebman 18639* (SD). **Baja California Sur**. S side of Cerro Giganta, N-facing slopes and cañada S of La Puerta, W end of Valle de Los Encinos, arcuate-decumbent shrub, 26° 04' N, 111° 36' W, with *Ficus palmeri*, *Lysiloma divaricata*, *Erythrina*, *Bursera microphylla*, 750-930 m, 8 Jun 1963, *Carter 4575* (MEXU, MO, SD, TEX, US); Sierra de la Giganta, peak S of Portezuelo de Peloteado (SW of Notrí), 25° 49' N, 111° 23' W, clumps 3-4 m in diameter and up to 0.75 m high, with many scandent long branches, steep talus on N-facing slope, with *Pachycereus*, *Jatropha vernicosa*, 950-1200 m, 10 Oct 1963, *Carter 4680* (MEXU, TEX).

**2. SAGERETIA WRIGHTII** S. Wats., Proc. Amer. Acad. Arts. 20: 358. 1885. **LECTOTYPE** (Johnston & Johnston 1969): **MEXICO. Sonora.** Protologue: "Rocky banks E of Santa Cruz, Sonora." Wright's field notes, no. 684, 2nd collection: "Branches of the San Pedro, on rocky banks," 30 Sep 1851, *C. Wright 925* (GH 51490; isolectotypes: GH 51491, GH 51492, K, MO, US).

**Shrubs**, densely and intricately branched, lateral branches breaking off and becoming thorn-like but rarely with a sharp-pointed tip, branches short-strigillose with antrorsely arching hairs. **Leaves** persistent, opposite, blades elliptic-oblong to broadly oblanceolate, 0.5–2.2 (–3) cm long, 0.5–1.1 (–2) cm wide, 1.5–2.1 (–2.8) times longer than wide, lustrous, surfaces sparsely tomentose, glabrescent, base rounded to obtuse, margins entire or mucronate to serrate, apex obtuse, rounded, or retuse, petioles 1–2 mm long, secondary and reticulate venation prominently raised abaxially. **Inflorescences** mostly terminal or in axils of distalmost well-developed leaves, primary axes 0.5–1 cm long, unbranched or with short branches proximally; hypanthia, sepals, and inflorescence axes glabrous or glabrate. **Drupes** 5 mm long, purple to black. Figures 8–16.

Flowering Mar–Sep. Rocky canyons and hillsides, riparian areas, washes, desert grasslands, scrub, oak and pinyon-juniper woodlands; 900–1500 m; USA (Arizona, New Mexico, Texas), Mexico (Coahuila, Chihuahua, Durango, Sonora). Map 2. See Kartesz (2015) for USA distribution.

The disjunct plants on Isla Tiburón have a short (9–11 mm long), unbranched inflorescence and are identified here (as on the label) as *Sageretia wrightii*. **Sonora.** Isla Tiburón, Capxölim, N-facing side of solitary peak just E of the main portion of the Sierra Kunkaak, steep canyon in upper cliffs below top of mountain, rare shrub 1.5 m tall, with *Acacia willardiana*, *Agave chrysoglossa*, *Carnegiea gigantea*, *Croton magdalanae*, *Dasyllirion gentry*, *Dodonaea viscosa*, *Ficus palmeri*, *Fouquieria splendens*, *Galvezia juncea*, 670 m, 24 Oct 2007, *Wilder 482* (ARIZ, CAS, SD). Figure 13.

Plants of a Pringle collection from Jalisco are tentatively identified here as a disjunct southern occurrence of *Sageretia wrightii*. **Jalisco.** Mpio. Juanacatlán: Falls of Juanacatlán, rocky river bank, 10 ft high, 2 Oct 1891, *Pringle 3881* (CM, COLO, MEXU, MO, US, VT). Figures 14–16. Type collections of other species were made at Juanacatlán Falls by Pringle, e.g., *Boerhavia octandra* S. Wats. (*Pringle 2958*), *Polianthes pringlei* Rose (*Pringle 5438*), *Prionosciadium macrophyllum* Coult. & Rose (*Pringle 3889*).

**3. SAGERETIA MINUTIFLORA** (Michx.) C. Mohr, Contr. U.S. Natl. Herb. 6: 609. 1901 — not (Michx.) Trel., Trans. Acad. Sci. St. Louis 5: 367. 1889 (invalid, an alternative name to *Sageretia michauxii* Brongn. and not adopted by Trelease in his further studies). *Rhamnus minutiflora* Michx., Fl. Bor.-Amer. 1: 154. 1803. *Sageretia michauxii* Brongn., Mém. Fam. Rhamnées, 53. 1826 (a superfluous replacement name for *Rhamnus minutiflora* Michx.). **TYPE: USA.** Protologue: "*HAB.* in maritimis, a Carolina septentrionali ad Floridam." Probable holotype: P 01818872 (label in Michaux's script); probable isotypes: P 01818873 (noted as from "herbarium Richard") and C (with label in the same script as P 01818873).

**Shrubs** to 8 m high, with drooping, sprawling, or subscandent branches, branches villous-tomentose, sometimes with understory of minute, erect, glandular hairs; thorns or short, thorn-like branches widely spaced. **Leaves** persistent, opposite, blades lustrous, ovate to elliptic-ovate or broadly oblong-ovate, mostly 1.5–4 (–6) cm long, 1.2–2 cm wide, 1.4–2.1 times longer than wide, base rounded to truncate-rounded or subcordate, apex acute to acuminate, petioles 1–2 mm long, margins evenly serrate to serrulate, secondary and reticulate venation prominently raised abaxially. **Inflorescence** terminal and axillary, primary axes 5–15 cm long, lateral branches 4–8 cm long; hypanthia and inflorescence axes glabrous or glabrate. **Drupes** 5–9 mm long, purple. Figures 17–21.

Flowering Aug–Sep. Hammocks, shell mounds, calcareous sandy soils, beach borders, rocky bluffs, woods margins, live oak, oak-palm, oak-hickory, and beech-magnolia woods; ca. 0–100 m. Southeastern USA — South Carolina to Florida and west to Alabama and Mississippi. Not mapped here, but see Kartesz (2015).

**4. SAGERETIA ELEGANS** (Kunth) Brongn., Ann. Sci. Nat. (Paris) 10: 359. 1827. *Rhamnus elegans* Kunth, Nov. Gen. Sp. [H.B.K.] 7: 53, tab. 619. 1824. [quarto] **Type:** COLOMBIA. "Bords du Rio Magdalena, (N<sup>elle</sup> Grenada)," *M.A. Bonpland s.n.* (holotype: P 00660062; isotype: P 01818868). The holotype label has no collection information; the isotype label has the data noted above.

*Sageretia salamensis* Loes., Verh. Bot. Vereins Prov. Brandenburg 51: 30. 1909. **TYPE:** GUATEMALA. Dept. Salamá, in silvaticis ad Cuesta Choacuz, *E. Seler 2482* (B?, not located).

**Shrubs**, erect or climbing, 2–6 (–10) m high, stems glabrous, lateral branches occasionally short and thorn-like without the sharp apex of a true thorn. **Leaves** persistent, opposite, blades subcoriaceous, lustrous, mostly elliptic to ovate-elliptic, oblong-elliptic, or oblong-lanceolate, (2–) 4–9 (–14) cm long, (1.5–) 2–3 (–6) cm wide, both surfaces glabrous or glabrescent, margins serrate to crenate, apex acute to acuminate, base rounded to subcordate, secondary and reticulate venation prominently raised abaxially, petioles 6–12 mm long. **Inflorescence** terminal and axillary, primary axes 6–16 cm long, with numerous, long lateral branches; hypanthia and inflorescence axes glabrous or glabrate. **Drupes** 6–8 mm long, red. Figures 22–28.

Flowering (May–) Jul–Oct (–Nov). Oak, pine-oak, river borders and riparian, tropical deciduous woods, matorral; 50–1700 (–2100) m; Mexico (mostly coastal regions), Central America, South America (Columbia to Peru). Map 3.

**Outlying collections.** **Querétaro.** Mpio. Jalpan: 2–3 km al N de La Parada, arbusto 4–5 m de alto, bosque de pino y encino, 1100 m, 27 Mar 1990, *Servín 63* (IEB, MEXU). **Jalisco.** Mpio. Talpa de Allende: La Crucecita, orilla de arroyo, árbol 4 m de alto, 23 May 1971, *Palafox T. 15* (ASU, TEX, USF). **Sinaloa.** Mpio. Concordia: Petrerillos, semitrepadora, abundante, bosque perturbado de encinos y pinos, 1100 m, 25 Jun 1982, *Hernández M. 7410* (MEXU); near Colonias, foothills of the Sierra Madre, 18 Jul 1897, *Rose 1744* (US).

**5. SAGERETIA SPICATA** Brongn., Mém. Fam. Rhamnées, 53. 1826. *Rhamnus spicatus* Sessé & Moc., Fl. Mex. ed. 2, p. 62. 1894 (the name published without reference to Brongniart's earlier *Sageretia spicata*, but probably homotypic; nor did Brongniart allude to Sessé & Mociño's name). **TYPE:** MEXICO. [Edo. México]. Protologue: "Habitat juxta Oppidum de Malacatepec," *M. Sessé 812* (holotype: MA, Fig. 29; isotypes: BM, F). Nelson (1997, p. 406)

described 812 as "material tipo." Brongniart indicated that he saw a collection — "V. in herb. Pavon" — taken here as the holotype. See McVaugh (2000) for other comments. San Pablo Malacatepec is a small town in Mpio. Villa de Allende, Edo. México.

*Sageretia mexicana* Nesom, *Phytologia* 75: 369. 1994 ["1993"]. **TYPE: MEXICO. Michoacán.** Mpio. Maravatío: Balneario Huapamacátaro, 10 km SE de Maravatío, arbusto 2 m alto, orilla de un estanque y canales adyacentes, 2050 m, 31 Mar 1988, *J. Rzedowski 46308* (holotype: TEX, Fig. 27; isotypes: IEB, MEXU-2 sheets, TEX).

**Shrubs** 1.5–2 m tall, with scandent or subscandent branches, without thorns. **Leaves** persistent, opposite, blades lanceolate, 2–5 cm long, 0.5–1.5 cm wide, 2.5–3 times longer than wide, thin-coriaceous, lustrous, 4–7 pairs of lateral veins, apex acute to acuminate, base rounded to obtuse or subcordate, margins evenly serrulate, petioles 1–2 mm long, reticulate venation prominently raised abaxially. **Inflorescence** terminal, primary axis 1.5–3.4 cm long, unbranched, with widely separated fascicles of sessile flowers (epedunculate), additional sessile fascicles or short branches commonly in the axils of the distalmost 1–3 pairs of leaves; hypanthia and inflorescence axes glabrous or glabrate. **Drupes** 4–7 mm long, reddish to purple, darkening. Figures 29–32.

Flowering Mar–Oct (–Dec). Pine-oak, deciduous tropical woods, riparian zones, disturbed roadsides; 1700–2200 m; Jalisco, Michoacán, Edo. México, Puebla. Map 4.

**Additional collections. MEXICO. Edo. Mexico.** Mpio. Coatepec Harinas: La cuenca del Río Tlapala, Carretera (San Luis), bosque *Pinus-Quercus*, 2003 m, 17 Apr 2011, *Dorantes Hernández 279* (MO-2 sheets); la cuenca del Río Tlapala, Cruz de los pozitos, bosque tropical, 2340 m, 20 Aug 2011, *Dorantes Hernández 396* (MEXU). Mpio. Ixtapan de la Sal: Villa Guerrero, a la barranca del Puente de Calderón, ladera húmeda, 1800 m, 18 Jan 1963, *Matuda 27886* (MEXU-2 sheets); Puente Calderón, en barranca honda, ladera húmeda, 1800 m, 21 Feb 1954, *Matuda 30404* (MEXU-2 sheets); Ixtapan de la Sal, May 1953, *Paray 364* (MEXU). Mpio. Temascaltepec: Ypericones, vine, wet barranca, 1500 m, 4 May 1933, *Hinton 3891* (US); Ypericones, wet barranca, 1500 m, 5 Jan 1935, *Hinton 7720* (MO, US-2 sheets, USF). Mpio. Valle de Bravo: Enredadera en sombra, 9 May 1971, *Boege 1757* (MEXU); Cerito de peña, ladera rocoso, seca asoleada, 1850 m, 1 Feb 1953, *Matuda 28045* (MEXU, MO-2 sheets). **Jalisco.** Mpio. Concepción de Buenos Aires: Arroyo Rancho Viejo al N de los Sauces por la presa de La Yerbabuena, arbusto 3-4 m de altura, bosque tropical caducifolio muy perturbado, 1850 m, 14 Mar 1993, *Machuca 6956* (MEXU); cercano a Concepción de Buenos Aires, bosque de pino y encino, 2000 m, 3 May 1975, *Villarreal de Puga 15748* (MEXU). Mpio. Mascota: Arroyo El Molino, 5.2 km en línea recta al NE de Navidad, arbusto escandente de 3-4 m de alto, ecotono bosque encino-pino y bosque tropical, 1720 m, 2 Jul 2015, *Carrillo Reyes 7907* (MEXU). Mpio. Tapalpa: 2.1 km SO de Barranca del Refugio sobre la vereda que baja a la cascada del Salto del Nogal, arbustiva frecuente de 5 m de alto, escandentes, bosque de galería con *Sideroxylon*, *Fraxinus*, *Juglans*, *Sageretia*, 20 Jun 2014, *Carrillo Reyes 7346* (MEXU); Tapalpa, arbusto 3 m de altura, bosque de *Pinus*, 2200 m, 18 May 1970, *Díaz Luna 1669* (MEXU); Barranca del Nogal, 15 km SE de Tapalpa, bosque tropical caducifolio, 2100 m 14 Oct 1990, *Flores 2540* (MO, TEX); 150 m de las instalaciones del DIF rumbo a las Animas, abundante, enredadera bastante extensa, veg. riparia con *Alnus*, *Prunus*, *Crataegus*, 2100 m, 5 Jun 1993, *González Sahagún 15* (MEXU); NE del campamento DIF rumbo a la cañada, arbusto 2-2.5 m high, bosque de pino-encino, 2050 m, 9 Mar 1991, *Huerta 51* (MEXU); 1 km al S de Tapalpa centro, camino a Venustiano Carranza, bejuco arbustivo, veg. perturbada en la orilla del camino, 29 Jun 1981, *Lott 398* (MEXU, MO); Tapalpa, 28 Mar 1992, *Ramírez s.n.* (IBUG); Zona Arqueologica del Sur de Tapalpa, 9 May 1965, *Villarreal de Puga 97* (TEX). Mpio. Tequila: Salcillo, shrub 10-20 ft high, 1 Jun 1892, *Jones 75* (MO, RSA-2 sheets, US). Mpio. Tepatitlán: Jiquilpan-Colima hwy, ca. 2 mi E of San José de Gracia, abundant woody vine, climbing mostly on *Forestiera*, grassland with many trees of *Forestiera*, 2000 m, 2 Dec 1959, *McVaugh and Koelz 1346* (MICH). **Michoacán.** Mpio. Contepec: San Rafael, ca. 6 km SO de Contepec, arbusto, 16 May 1985, *Soto Núñez 8547* (MEXU). Mpio.

**Maravatío:** Tungareo, orilla del Río Lerma, abundante arbusto 2 m de alto, 2050 m, 28 Apr 1986, *Rzedowski 39635* (IEB); Paciniquato, 15 km E de Maravatío, arbusto 1-2 m, veg. riparia, 2020 m, 27 Apr 1982, *Torres Colín 321* (MEXU). **Mpio. Senguio:** Senguio, 15 Apr 1979, *Calvert s.n.* (TEX); Senguio, alrededores del la población, arbusto 0.8 m de alto, 10 Feb 1987, *Rzedowski 42446* (IEB, MEXU). **Puebla.** Teteletla, 14 Sep 1966, *Boege 245* (MEXU).

**6. SAGERETIA THEA** (Osbeck) M.C. Johnston, *J. Arnold Arbor.* 49: 378. 1968. *Rhamnus thea* Osbeck, *Dagb. Ostind. Resa*, 232. 1757. **LECTOTYPE** (Johnston 1968): **CHINA.** *P. Osbeck s.n.* (LINN 262.7: isolectotypes: LINN 262.8, M, S).

*Rhamnus theezans* L. and *Sageretia theezans* (L.) Brongn. are superfluous, illegitimate names. See Johnston (1968) for other synonyms and comments on typification. Varieties have been recognized within *Sageretia thea*, but the phylogenetic analysis of Yang et al. (2019) indicates that these taxa are not most closely related to each other and should be recognized at specific rank.

**Shrubs or vines**, loosely to compactly branched, branches erect to sprawling or clambering, glabrous or closely and thinly tomentose, thorns as short lateral branches blunt or sharp at the apex. **Leaves** persistent, opposite to subopposite proximally, becoming alternate distally, blades elliptic to oblong, ovate, or elliptic-ovate, (1–) 2–4.5 cm long, 0.5–2.5 cm wide, base rounded to subcordate, apex usually acute to obtuse (as naturalized in the Americas), margins serrulate, surfaces glabrous, secondary and reticulate venation prominently raised on both sides; petioles 2–4 mm long. **Inflorescences** terminal and axillary, primary axis 2–5 cm long, lateral branches 4–8 cm; hypanthia, sepals, and inflorescence axes sparsely puberulent. **Drupes** 4–5 mm long, black to dark purple. Figures 33–36.

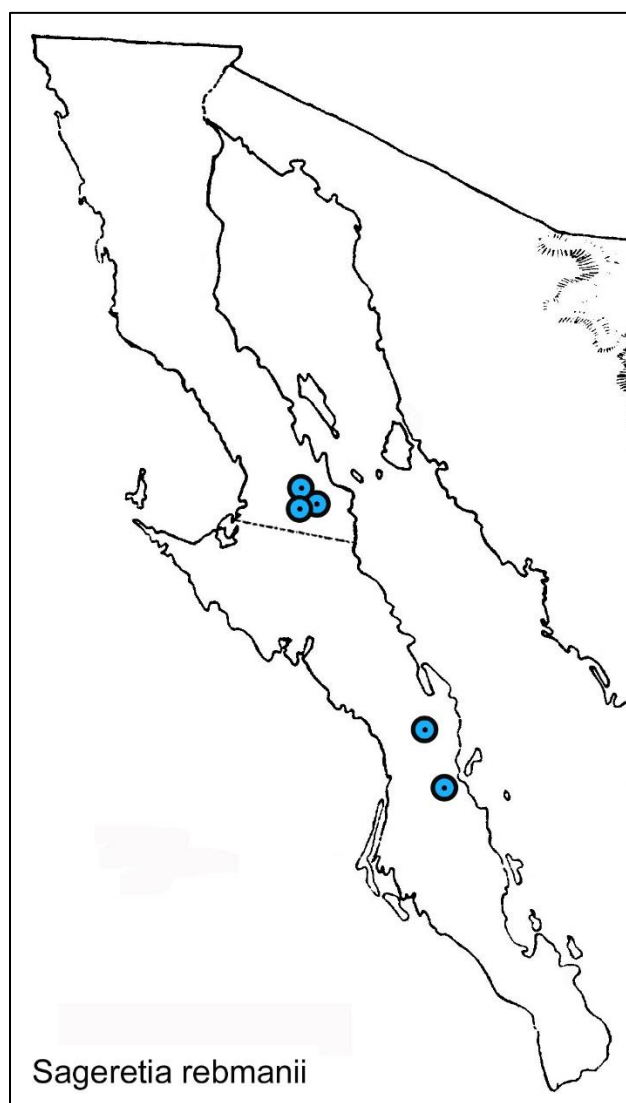
Flowering Aug–Sep. Roadsides, between hwy and adjacent fields; ca. 10 m (in Texas); native to Asia (Afghanistan, China, India, Iran, Japan, Korea, Nepal, Pakistan, Thailand, Vietnam), naturalized in Texas (Brown & Gandhi 1989) and probably northeastern Africa (Qaiser & Nazimuddin 1981).

**USA collections (naturalized).** **TEXAS.** **Brazoria Co.:** ca. 4 mi S of Alvin, along Hwy 35 in a roadside thicket, 25 Jun 1988, *Brown 12200* (NLU-Fig. 33, SBSC); common roadside shrub along Hwy 1462, 2.8 mi W of intersection with Hwy 409 in Alvin, 19 Jul 1989, *Brown 13998* (SBSC). Brown and Gandhi (1989) noted that *Sageretia thea* forms "hedges between highways and adjacent fields near Alvin." Additional comments in Nesom (2016).

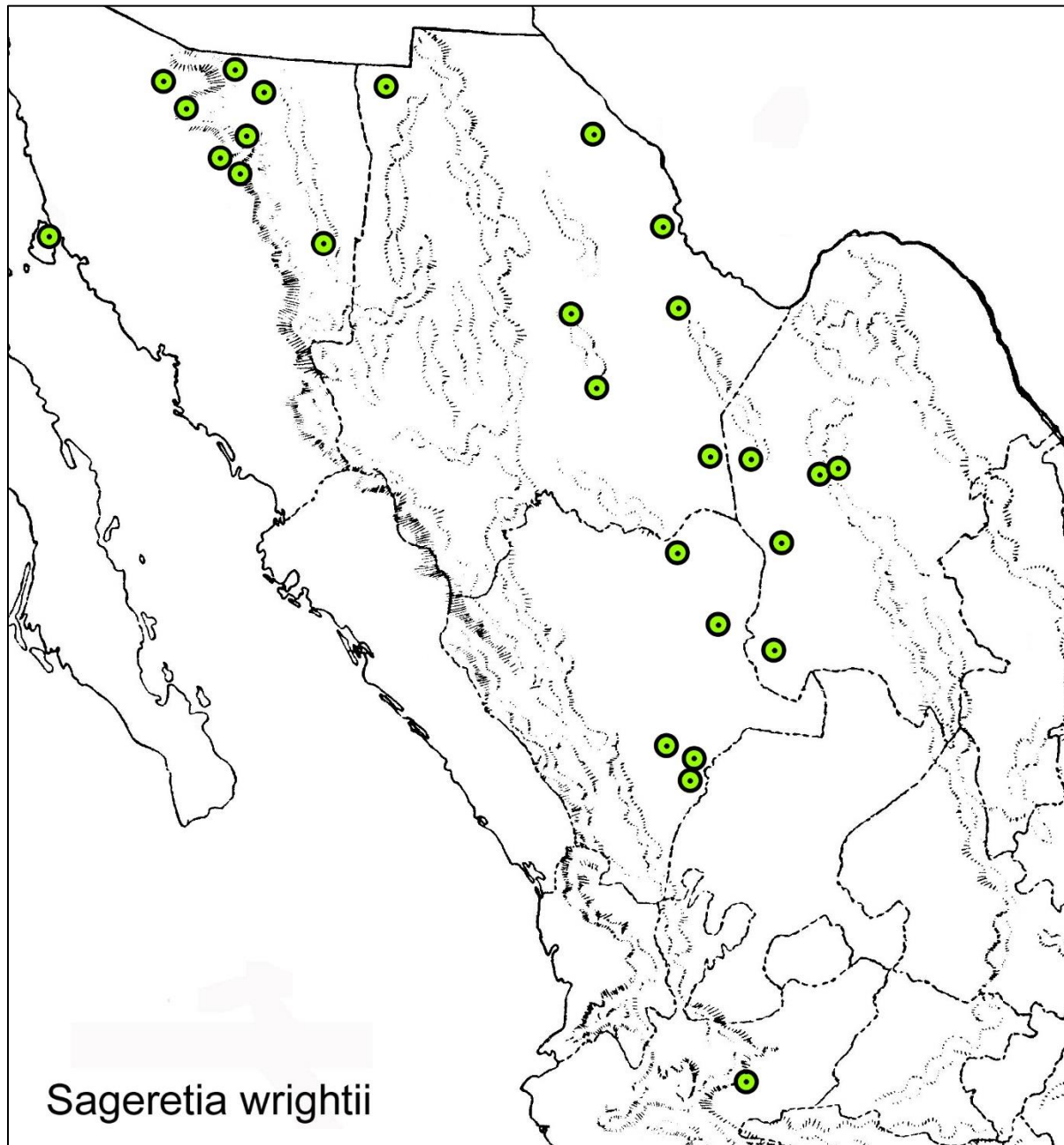
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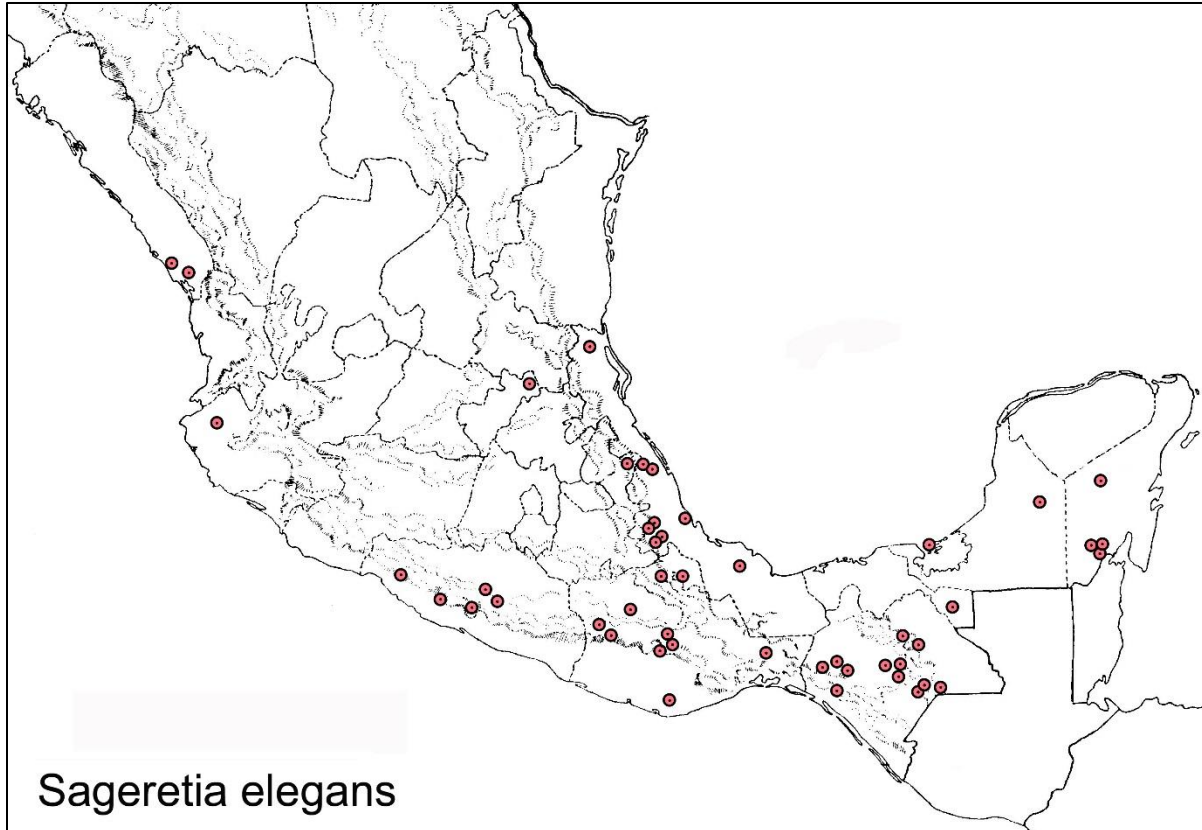


Map 1. Distribution of *Sageretia rebmanii*.

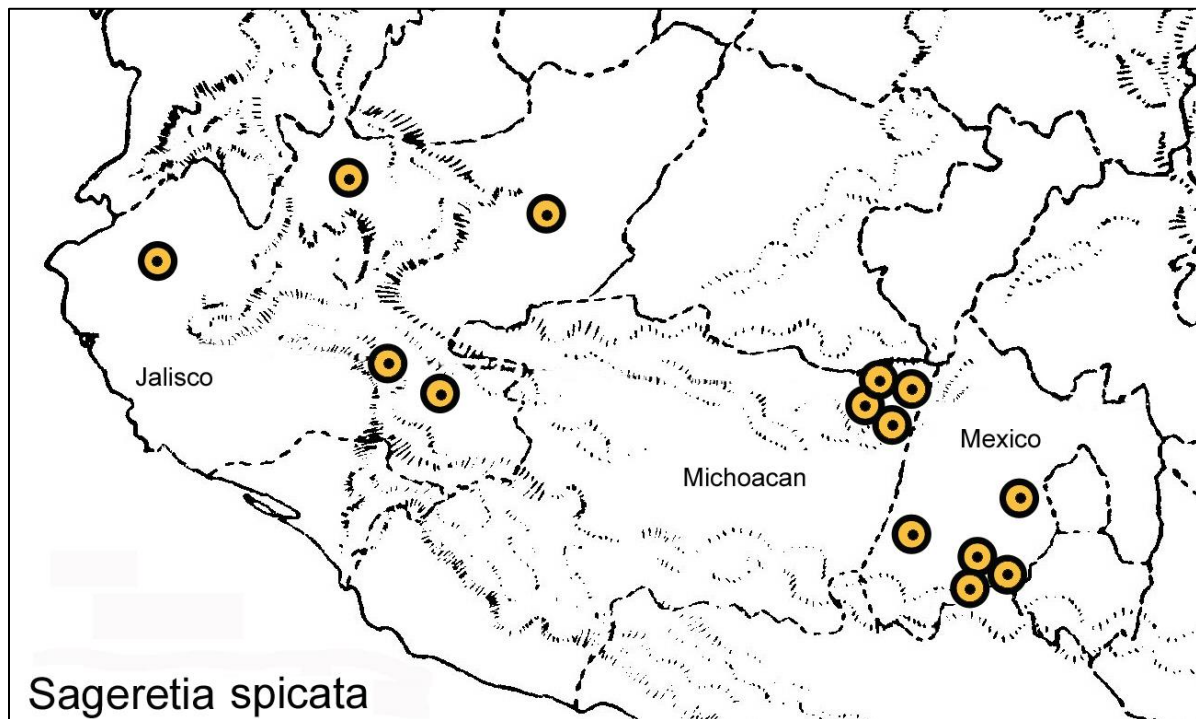


Map 2. Distribution of *Sageretia wrightii* in Mexico. Outlying collections in Jalisco and Isla Tiburón are cited in the text.





Map 3. Distribution of *Sageretia elegans* in Mexico. The species occurs through Central America into South America.



Map 4. Distribution of *Sageretia spicata*.

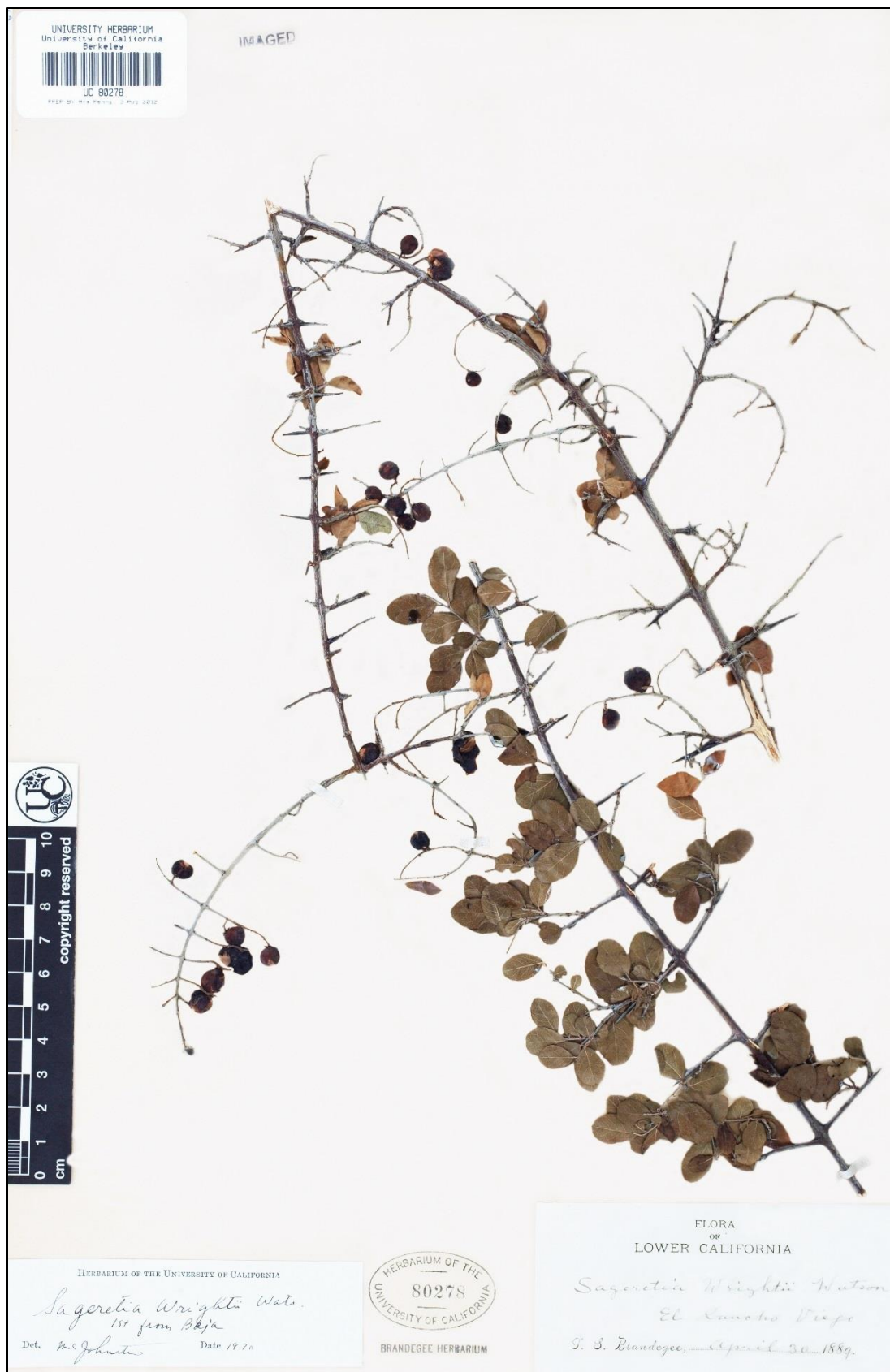


Figure 1. *Sageretia rebmanii*. Baja California, Brandege s.n. (UC). Holotype.



Figure 2. *Sageretia rebmanii*. Baja California, Rebman 18639 (SD).

Figure 3. *Sageretia rebmanii*. Baja California Sur, Carter 4575 (US).



Figure 4. *Sageretia rebmanii*. Baja California Sur, Carter 4575 (MEXU).



Figure 5. *Sageretia rebmanii*. Baja California Sur, Carter 4680 (MEXU).



Figure 6. *Sageretia rebmanii*. Baja California, Sierra La Libertad, vicinity of El Rodeo, site of *Rebman 18639* (MEXU). Photo by Jon Rebman, 25 Oct 2009.



Figure 7. *Sageretia rebmanii*. Baja California, Sierra La Libertad, vicinity of El Rodeo, site of *Rebman 18639* (MEXU). Photo by Jon Rebman, 25 Oct 2009. .



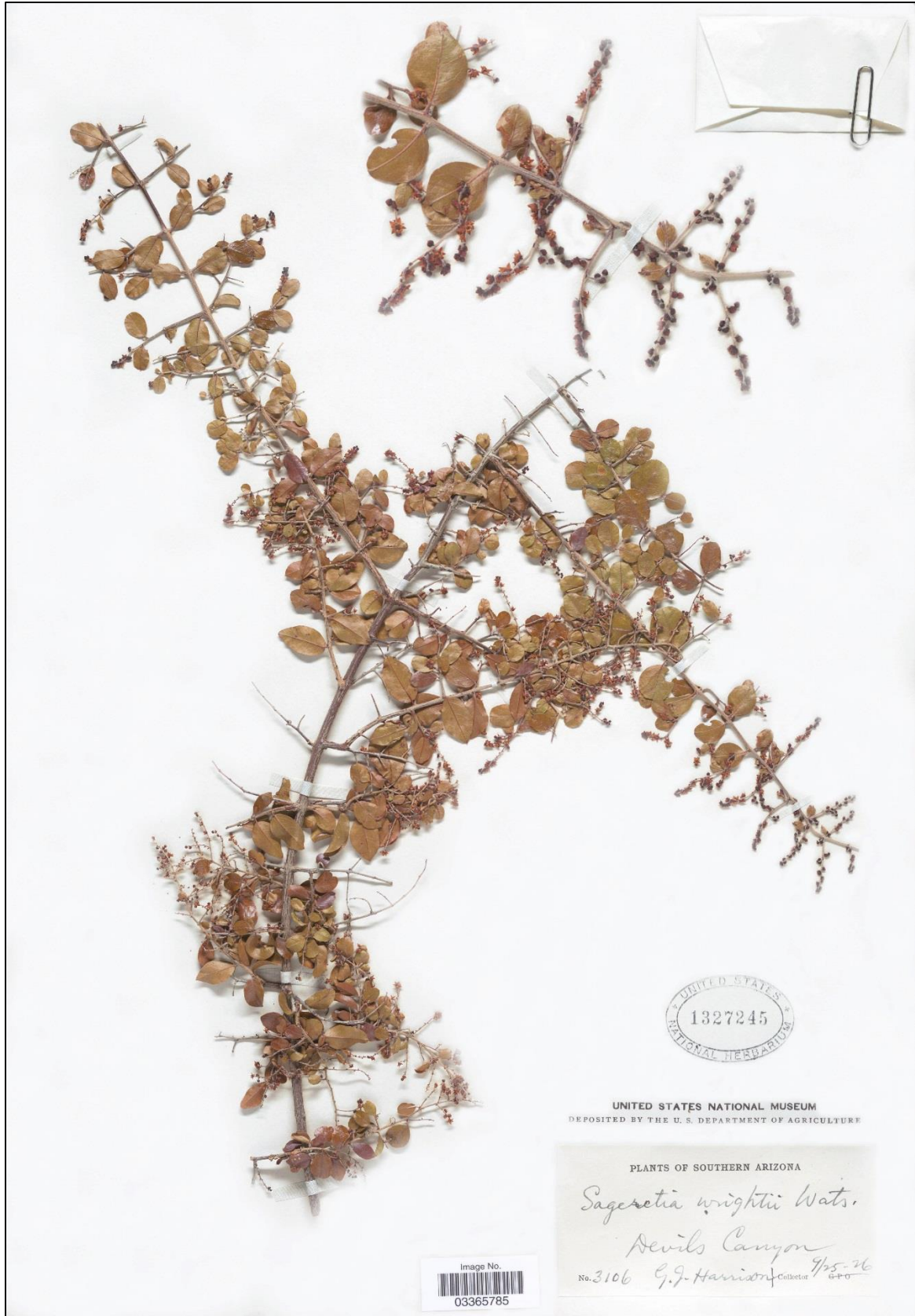


Figure 8. *Sageretia wrightii*. Pinal Co., Arizona, Harrison 3106 (US).



Figure 9. *Sageretia wrightii*. Pinal Co., Arizona, Kearney 5996 (US).



Figure 10. *Sageretia wrightii*. Coahuila, Chiang et al. 9068 (MEXU).



Figure 11. *Sageretia wrightii*. Sonora, Jenkins 91-71 (MEXU).



Figure 12. *Sageretia wrightii*. Santa Cruz Co., Arizona, Daniel & Butterwick 3472 (MEXU).



Figure 13. *Sageretia wrightii*. Sonora, Isla Tiburón, Wilder 07-482 (SD).



Figure 14. *Sageretia wrightii*. Jalisco, Pringle 3881 (COLO).



Figure 15. *Sageretia wrightii*. Jalisco, Pringle 3881 (US).



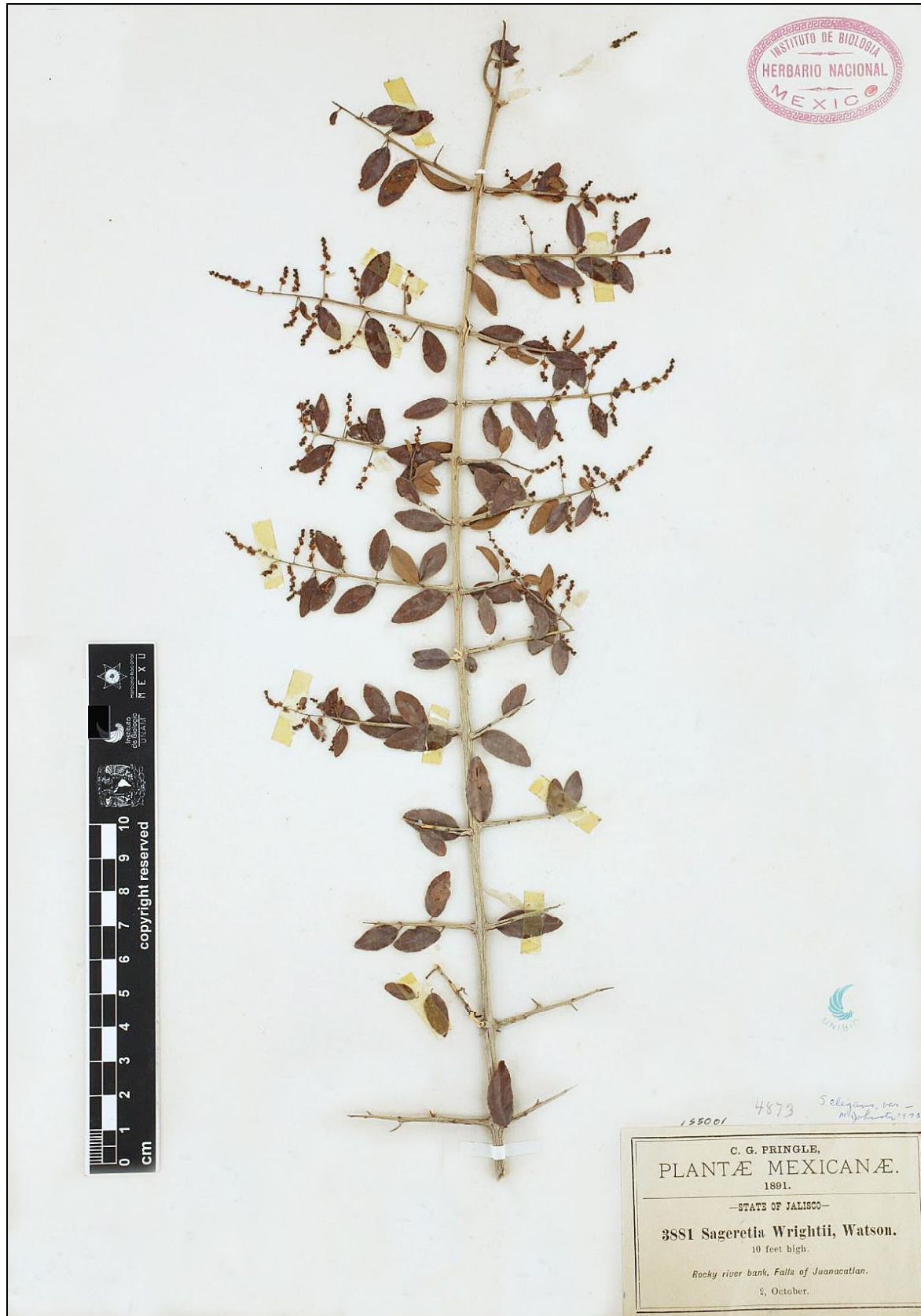


Figure 16. *Sageretia wrightii*. Jalisco, Pringle 3881 (MEXU).

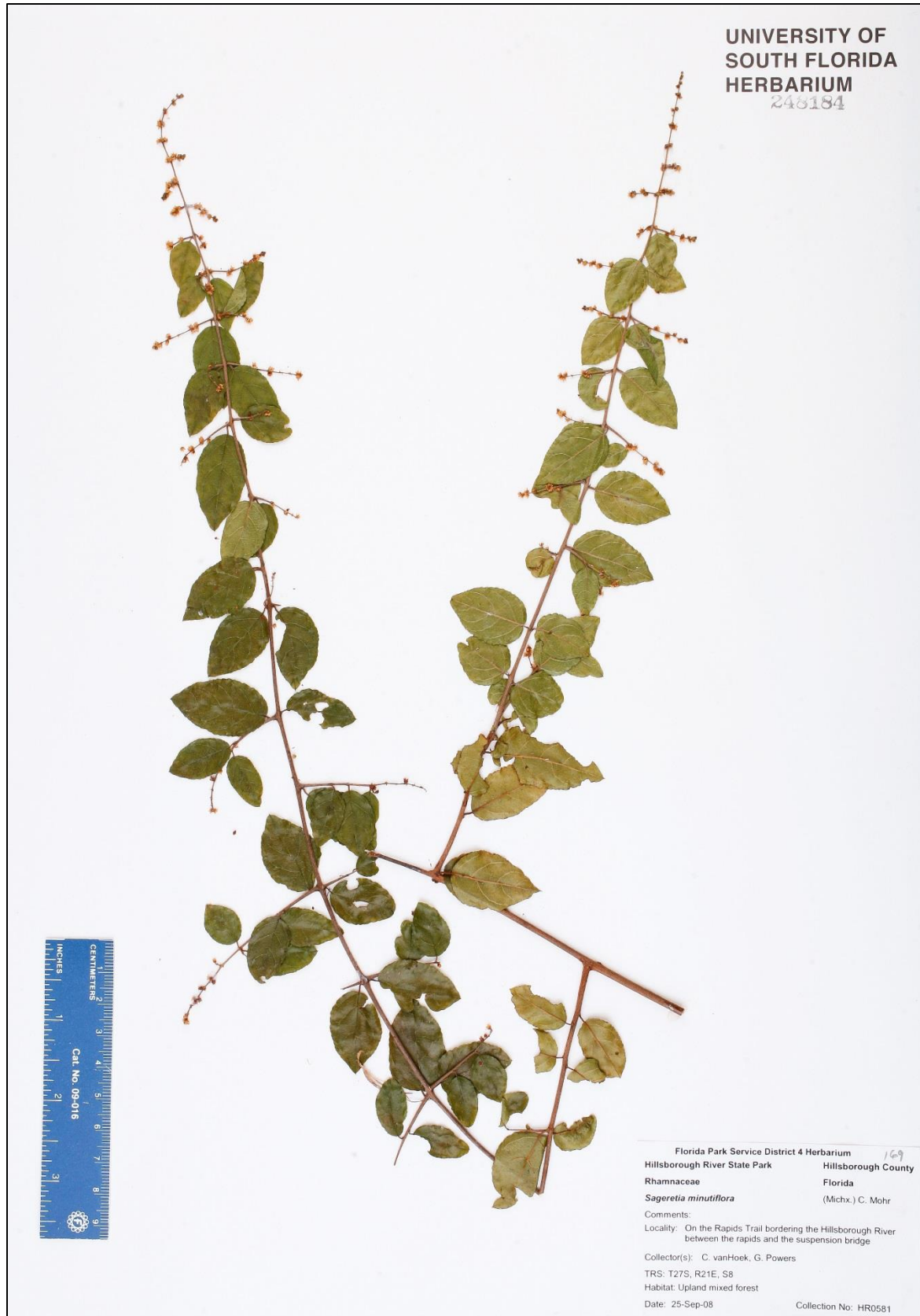


Figure 17. *Sageretia minutiflora*. Florida, vanHoek HRO581 (USF).



Figure 18. *Sageretia minutiflora*. Florida, vanHoek WBO466 (USF).



Figure 19. *Sageretia minutiflora*. Florida, Shuey & Poppleton s.n. (USF).



Figure 20. *Sageretia minutiflora*. Florida, Lakela 26503 (USF).



Figure 21. *Sageretia minutiflora*. South Carolina, Ahles 10409 (USF).



Figure 22. *Sageretia elegans*. Guatemala, Contreras 5772 (US).



Figure 23. *Sageretia elegans*. Guatemala, Contreras 2485 (US).





Figure 24. *Sageretia elegans*. Chiapas, Breedlove 7889 (US).



Figure 25. *Sageretia elegans*. Oaxaca, Cortes 1045 (US).



Figure 26. *Sageretia elegans*. Guerrero, García G. 57 (MEXU).

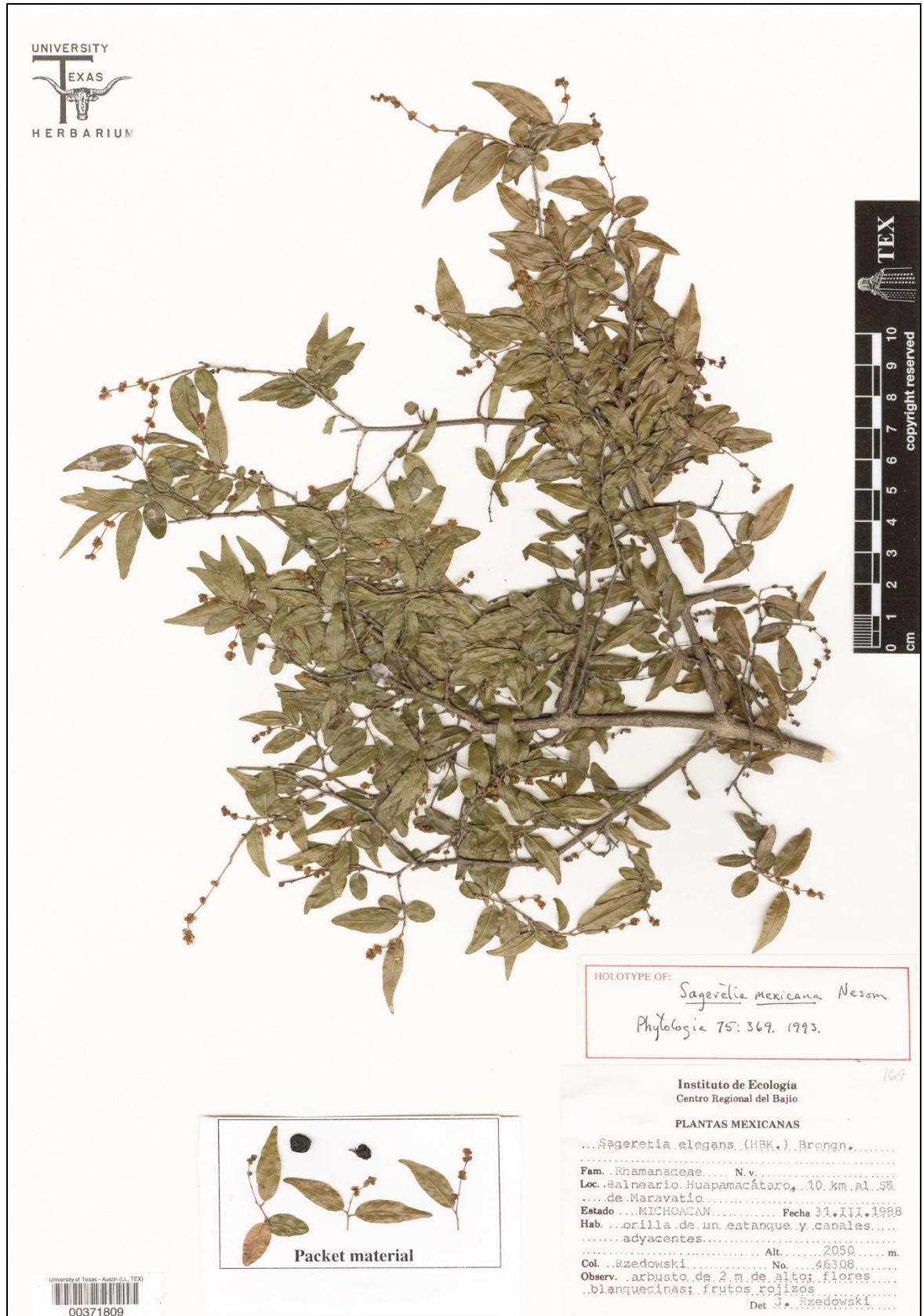


Figure 27. *Sageretia elegans*. Sinaloa, Rose 1744 (US).



Figure 28. *Sageretia elegans*. Querétaro, Servín 63 (MEXU).

Figure 29. *Sageretia spicata*. Edo. México, Sessé 812 (MA). Holotype.



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 cm  
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HOLOTYPE OF:  
*Sageretia mexicana* Nesom  
 Phytologia 75: 369. 1993.



Packet material

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 00371809

Instituto de Ecología  
 Centro Regional del Bajío 169  
 PLANTAS MEXICANAS  
 ... *Sageretia elegans* (HBK.) Brongn. ....  
 Fam. Rhamnaceae ..... N. v. ....  
 Loc. Balneario Huapamacátaro, 10 km. al SW  
 ..... de Maravatio  
 Estado MICHOACÁN ..... Fecha 31.III.1988  
 Hab. .... orilla de un estanque y canales ....  
 ..... adyacentes .....  
 ..... Alt. .... 2050 ..... m.  
 Col. Rzedowski ..... No. .... 46308  
 Observ. arbusto de 2 m de alto; flores  
 ..... blanquesinas; frutos rojizos  
 Det. J. Rzedowski

Figure 30. *Sageretia spicata*. Michoacan, Rzedowski 46308 (TEX). Holotype of *Sageretia mexicana*.



Figure 31. *Sageretia spicata*. Detail from holotype of *S. mexicana* (Fig. 30).





Figure 32. *Sageretia spicata*. Edo. Mexico, Hinton 7720 (US).



Figure 33. *Sageretia thea*. Walker Co., Texas, cultivated, *Stongard s.n.* (GH).



Figure 34. *Sageretia thea*. Brazoria Co., Texas, naturalized, Brown 12200 (NLU).



Figure 35. *Sageretia thea*. Riverside Co., California, cultivated, *Clarke s.n.* (COLO).



Figure 36. *Sageretia thea*. Riverside Co., California, cultivated, *Clarke s.n.* (UTEP).