

NEW DISTRIBUTION RECORDS FOR ACANTHACEAE IN MEXICO

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ABSTRACT

Geographic range extensions are documented and discussed for 30 species in 18 genera of Acanthaceae that occur in Mexico. Most of these are new state records; one (*Mendoncia lindavii*) is also reported as new to the country; four are significant range extensions within a state. Images of 19 of these species are provided.

RESUMEN

Ampliaciones de distribución geográfica se documentan y analizan para 30 especies en 18 géneros de Acanthaceae que ocurren en México. La mayoría de estos son nuevos registros estatales; uno (*Mendoncia lindavii*) también es reportado como nuevo en el país; y cuatro son extensiones importantes dentro de un estado. Se proporcionan las imágenes de 19 de estas especies.

Extensions of distributional ranges within Mexico are reported for 30 species in 18 genera of Acanthaceae, including both native and naturalized species. Initial occurrences for 26 species in one or more Mexican states are reported for the first time. One of these occurrences (*Mendoncia lindavii* in Chiapas) is also the first report of this species in Mexico. New distribution records are noted for the following states (numbers of species): Aguascalientes (5), Campeche (1), Chiapas (1), Durango (1), Guerrero (2), Hidalgo (4), México (1), Morelos (1), Nayarit (1), Oaxaca (2), Puebla (4), Tabasco (1), Tamaulipas (2), Tlaxcala (1), Veracruz (2), Zacatecas (1). In addition to the new distributional records for states, significant range extensions within a state are noted for four mostly rare, little-known, and/or geographically restricted species.

Documented knowledge of occurrence data for plants in Mexican states has become increasingly important for efforts to provide accurate biodiversity inventories for each state in that nation. New occurrence records of Acanthaceae noted here have resulted primarily from recent collecting activities in several states and my continuing studies in the many excellent local herbaria in Mexico. The value of focused collecting efforts in poorly explored regions was recently highlighted by inventory activities in the states of Baja California and Aguascalientes, resulting in range extensions for several taxa in each. Daniel (1997, 2013) recorded five species of Acanthaceae from Baja California, and a sixth species, *Avicennia germinans* (L.) L., also known from the state, is now treated in that family as well. Wehncke et al. (2012) and León de la Luz et al. (2016) added three species of Acanthaceae from explorations in the poorly explored Sierra de la Libertad region to flora of Baja California: *Dicliptera resupinata* (Vahl) Juss., *Justicia longii* Hilsenb., and *Tetramerium fruticosum* Brandege. This increased the known acanthaceous flora of that state by one-third. For Aguascalientes, Daniel (2013) recorded six species of Acanthaceae as occurring in that small state in central Mexico. Regalado G. et al. (1999) had recognized 14 species from the state in a publication unknown to me until 2014. Studies at HUAA in Aguascalientes permitted me to reassess many of the determinations in Regalado G. et al. (1999) and to add new records. As a result, 18 species, including several newly reported below, are now known from that state.

In this account of distribution records in Mexico, the Distrito Federal (DF) is treated as a state. For species not recently treated by me in a publication, the most recent state-wide (or major regional) summary of Acanthaceae, if available, was used as a reference against which potential new

records were compared. These major reference(s) by state are: Aguascalientes (García et al. 1999); Campeche (Durán et al. 2000; Gutiérrez B. 2000; Martínez et al. 2001), Chiapas (Daniel 1995), Durango (González E. et al. 1991), Guerrero (Fernández et al. 1998), Michoacán (Rodríguez J. and Espinosa G. 1995; Fernández et al. 1998), Morelos (Bonilla B. and Villaseñor R. 2003), Oaxaca

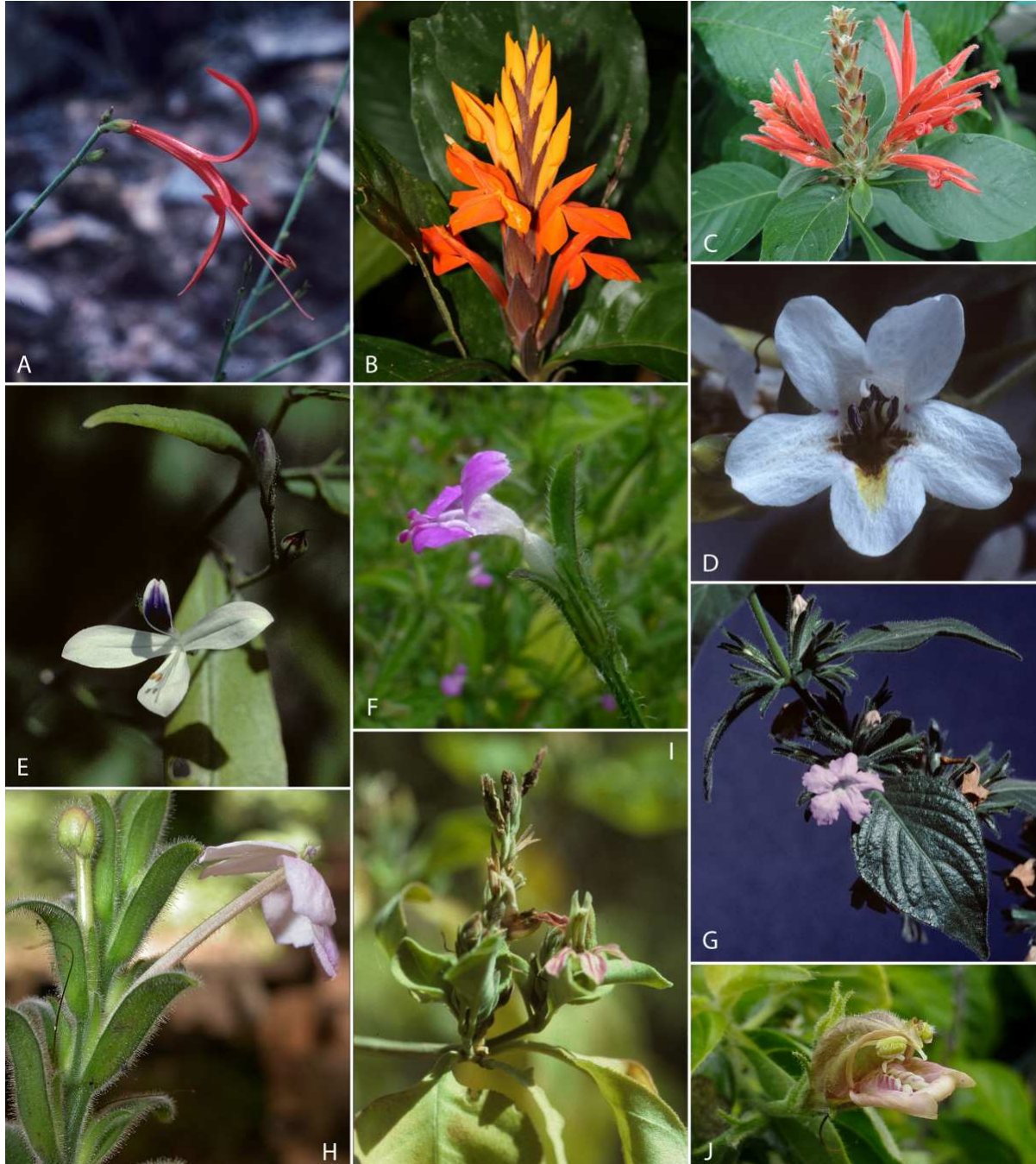


Figure 1. Photographs (by the author, except as noted) of flowers and inflorescences of Mexican Acanthaceae. A. *Anisacanthus junceus*. B. *Aphelandra aurantiaca*. C. *Aphelandra scabra*. D. *Bravaisia integerrima*. E. *Carlowrightia pectinata*. F. *Dicliptera peduncularis*. G. *Dyschoriste hirsutissima*. H. *Streblacanthus monospermus* (Daniel Solano photo; Instituto Nacional de Biodiversidad, Costa Rica, Creative Commons 3.0 License, <http://atta2.inbio.ac.cr/neoportal-web#>). I. *Holographis leticiana*. J. *Justicia salviiflora*.

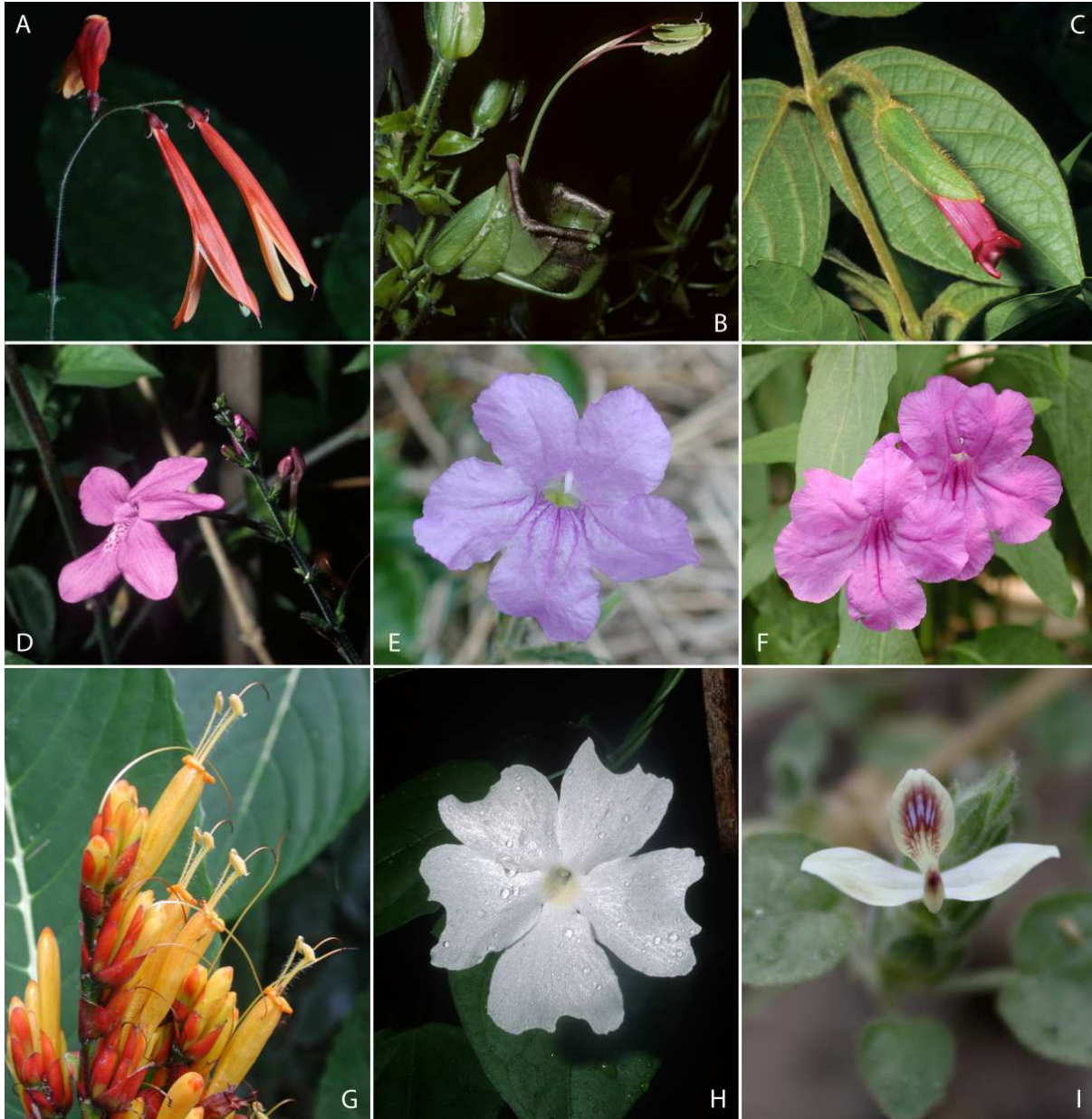


Figure 2. Photographs (by the author, except as noted) of flowers and inflorescences of Mexican Acanthaceae. A. *Justicia veracruzana* (photo by J. Amith, used with permission). B. *Louteridium mexicanum*. C. *Mendoncia lindavii*. D. *Pseuderanthemum cuspidatum*. E. *Ruellia ciliatiflora*. F. *Ruellia simplex*. G. *Sanchezia parvibracteata*. H. *Thunbergia fragrans*. I. *Tetramerium nemorum*.

(Acosta C. 2011), Puebla (Rodríguez A. et al. 2014), Tabasco (Cowan 1983; Pérez et al. 2005), and Veracruz (Sosa and Gómez-Pompa 1994). In addition to these studies, numerous local floras and my unpublished list of acanthaceous species for each state in Mexico were also consulted. A comprehensive taxonomic account of the ca. 400 species of Acanthaceae in Mexico is nearing completion. Until completed and published, new distribution records like those below, will be made available so that up-to-date occurrence data is accessible for statewide biodiversity inventories being prepared in Mexico. The following distribution records provide collection information, geographic ranges, and pertinent taxonomic notes.

ANISACANTHUS JUNCEUS (Torr.) Hemsl.

Durango: KM 151 carr. Cuencame–Gómez Palacio, veg. matorral xerófilo, 25 X 2004 (flr, frt), *R. Torres C. 16727B* (MEXU).

This collection is the first report of the species (Fig. 1A), endemic to the Chihuahuan Desert in Mexico, from Durango; it is otherwise known only from Chihuahua, Coahuila, and Zacatecas (Daniel & Henrickson 1982).

ANISACANTHUS PUMILUS (Dietr.) Nees

Aguascalientes: Mpio. Calvillo, extremo W de La Labor, matorral subtropical, 1750 m, 10 IV 1986 (flr), *G. García R. 2632* (HUAA); Mpio. Jesús María, Arroyo La Pachona, 3 km W del Garabato, 22°05'16" N, 102°21.4'41" W, matorral subinerme con nopalera, 1990 m, *G. Glez.-Adame 1277* (HUAA); Mpio. Asientos, Río San Gil, matorral subinerme, 1740 m, 11 IV 1984, *M. Siqueiros 2633* (HUAA).

Hidalgo: 7 km W de Tlahualipa (Cerro Xicuco), ladera de roca cristalina con vegetación de matorral crasicaule, 1900 m, 22 IV 1965 (flr, frt), *L. González Q. 2292* (DS).

The collections cited above are the initial reports for this species from Aguascalientes (occurring throughout the state) and Hidalgo (occurring in the north-central portion of the state). This Mexican endemic was previously known from Chihuahua, Guanajuato, Jalisco, Michoacán, Puebla, Querétaro, San Luis Potosí, and Zacatecas (Daniel & Acosta C. 2003).

APHELANDRA AURANTIACA (Scheidw.) Lindl.

Puebla: Mpio. San Juan Guichicobi, Ejido Mogone (9 km E de Sarabia), selva alta perennifolia, 07-XII-1974 (flr), *M. Vazquez T. 1462* (XAL).

This is the first report of this species for the state. *Aphelandra aurantiaca* (Fig. 1B) has been reported from the Mexican states of Chiapas, Oaxaca, Tabasco, and Veracruz (Daniel 1991). The species also occurs in Central America and South America.

APHELANDRA SCABRA (Vahl) Sm.

Puebla: Mpio. San Sebastián Tlacotepec, Río Matalapa–Puente de Tepetla, 18°26'46.1" N, 096°48'00.8" W, 123 m, vegetación riparia, 3-XII-2014 (flr), *L. Caamaño O. 6638* (HUAP-image!).

This is the first report of *Aphelandra scabra* (Fig. 1C) from Puebla. This widespread species of the American tropics has been reported previously from the following Mexican states: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Tamaulipas, Veracruz, and Yucatán (Daniel 1995). Outside of Mexico, the species occurs in all of the nations in Central America and in Colombia, Venezuela, Guyana, Suriname, and Brazil.

AVICENNIA BICOLOR Standl.

Chiapas: Mpio. Pijijiápan, Estero San José, 15°43'39.50" N, 093°29'50.20" W, 11 m, manglar con *A. germinans*, *Laguncularia racemosa*., 14 IV 2015 (flr), *S. Santamaría-Damián & E. Romero-Berny 1a* (MEXU), *1b* (MEXU).

This appears to be the second known collection of this species in Mexico. *Matuda 16353* (US), from a coastal region ca. 55 km northwest of the locale noted above first established the presence of this species in Mexico, although its occurrence in Chiapas sometimes has not been recognized (e.g., Breedlove 1986). These Chiapan collections represent the northernmost extent of the occurrence of the species, and are located about 430 km northwest of the nearest known locale in Central America (Ahuachapán, El Salvador). The species has not been reported from Guatemala, but

it undoubtedly occurs (or occurred) there (Daniel 2010). Outside of Mexico, *A. bicolor* occurs along the Pacific Coast from El Salvador to Panama.

BRAVAISIA INTEGERRIMA (Spreng.) Standl.

Nayarit: Mpio. Bahía de Banderas, Club de Golf Flamingos, cerca de Bucerías, [ca. 20°44'13.02" N, 105°18'21.46" W], 10 m, manglar, 18-III-2005 (flr), *M. Chazaro B. & R. Romero 8476* (XAL).

This report is the first of this predominantly coastal species in Nayarit, which represents its northernmost occurrence. Elsewhere in Mexico, *Bravaisia integerrima* (Fig. 1D) is known from Chiapas, Colima, Guerrero, Jalisco, Michoacán, Oaxaca, Tabasco, Veracruz, and possibly Yucatan (Daniel 1988a). South of Mexico, the species is known from Central America, northern South America, and Trinidad.

CARLOWRIGHTIA PECTINATA Brandege

Guerrero: Mpio. Olinala, 4 km N de Sta. Gertrudis, por el camino Olinala–Paplutla, 1300 m, bosque tropical caducifolio, 18 XI 1985 (flr, frt), *J. Contreras J. 1798* (HUAP-image!); Mpio. Atenango del Río, 2.73 km NW de Apanguito, 18°10'26.9" N, 099°09'44.7" W, 930 m, bosque tropical caducifolio, 23 XI 2003 (flr, frt), *R. Cruz & R. Garcia 5863* (FCME).

These collections represent the first report of *Carlowrightia pectinata* (Fig. 1E) from Guerrero. This Mexican endemic previously has been reported from the following states: Baja California Sur, Colima, Durango, México, Morelos, Oaxaca, Sinaloa, and Sonora (Daniel 1983, 1988b, 2005a, 2007). Daniel (1988b, 1997, 2004) noted various color forms of corollas in this species. Corollas of *Cruz & Garcia 5863* are 12 mm long and were noted to be white with dark purple markings on the upper lip; those of *Contreras J. 1798* were noted to be white.

DICLIPTERA PEDUNCULARIS Nees

Veracruz: Mpio. Maltrata, alrededores de Maltrata, 18°49' N, 097°17' W, 1700 m, pastizal, 8-IV-1983 (flr), *F. Vázquez B. 861* (XAL).

This is the first report of this, sometimes weedy, Mexican endemic (Fig. 1F) from Veracruz. It has previously been reported to occur in the following Mexican states: Aguascalientes, Distrito Federal, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Michoacán, Oaxaca, Puebla, Querétaro, and San Luis Potosí (Daniel 2009; Daniel & Acosta C. 2003; Valencia A. et al. 2011).

DYSCHORISTE HIRSUTISSIMA (Nees) Kuntze

Aguascalientes: Mpio. Calvillo, barranca de Presa de Los Serna, 21°49'13.3" N, 102°49'03.3" W, *G. García 5396* (HUAA); Mpio. Calvillo, Río Malpaso, *M. Siqueiros 2744* (HUAA).

These collections are the initial records of this species in Aguascalientes. *Dyschoriste hirsutissima* (Fig. 1G) is known from El Salvador and the following Mexican states: Chiapas, Chihuahua, Colima, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Nayarit, Oaxaca, Puebla, Sinaloa, Sonora, Veracruz, and Zacatecas (Daniel 2007).

DYSCHORISTE MICROPHYLLA (Cav.) Kuntze

Aguascalientes: Mpio. San Jose de Gracia, Reserva "Sierra Fria," 28.6 km N por carr. 45 de Aguascalientes, 10.8 km de la desviación hacia San Jose de Gracia entronque a Congoje, 24.1 km hacia Congoja en terracería, 2350 m, 5 VII 1983 (flr, frt), *C. Cowan 4026* (MEXU); Mpio. Jesús María, 26.7 km W de Aguascalientes, carr. a Calvillo, matorral xerófilo con *Quercus*, 13 Jun 1984 (flr), *H. Hernández et al. 239* (MEXU); Mpio. Calvillo, southern Sierra Fria, ca. 2 km W of La

Fragua, ca. 21°46.1' N, 102°48.5' W, 1700 m, tropical deciduous forest, 31 VII 2002 (flr, frt), *M. Provance* 5144 (CAS).

Tlaxcala: Mpio. Calpulalpan, carr. Texcoco–Apizaco, 15 km antes de Calpulalpan, 19°33'53.2" N, 098°40'19.6" W, 2770 m, orilla de campo, escasa, 6 VI 2001 (flr, frt), *H. Vibrans* 7260 (MEXU).

These are the first reports of this Mexican endemic from Aguascalientes and Tlaxcala. The species was previously known from the following Mexican states: Guanajuato, Hidalgo, México, Michoacán, Oaxaca, Puebla, Querétaro, and Zacatecas (Daniel & Acosta 2003). With its denser cauline and foliar trichomes, *Cowan* 4026 from Aguascalientes could with some justification be treated as *D. decumbens*. The distinctions between *D. decumbens* of northern Mexico and the southwestern United States and *D. microphylla* are in need of additional studies (cf. Daniel & Acosta 2003: 40–41). The identifications here are based on the key and information provided in the treatment of Acanthaceae for the *Flora del Bajío* (Daniel & Acosta 2003).

This represents the second known occurrence of a species of Acanthaceae in Tlaxcala (the other is *Ruellia lactea* Cav.), thus doubling the number of species recorded for that state. Perhaps Tlaxcala's relatively high elevation is one limiting factor preventing more occurrences of Acanthaceae, including such widespread and weedy species as *Elytraria imbricata* (Vahl) Pers., *Ruellia blechum* L., and *Tetramerium nervosum* Nees, which are generally encountered at elevations below 2000 meters. Based on their known occurrences at elevations above 2000 meters in Mexican pine forests, one might expect the following widespread species to be found in the state: *Justicia clinopodium* A. Gray ex Greenm., *J. pringlei* B.L. Rob., *Pseuderanthemum praecox* (Benth.) Leonard, *Ruellia hookeriana* (Nees) Hemsl. and *Stenandrium dulce* (Cav.) Nees.

HOLOGRAPHIS HINTONII (Leonard) T.F. Daniel

Guerrero: Mpio. Huitzoco de los Figueroa, 0.7 km NE de San Francisco Ozomatlán, [17°55'45.67" N, 099°19'20.58"W], 670 m, 30 III 1990 (flr), *A. Vargas* P. 287 (FCME).

This represents the second known collection from Guerrero for this little-collected Mexican endemic, and increases its distribution in the state some 140 km to the southeast and its known elevational range to 670 m (from 375 m). The species has also been collected in Michoacán (Daniel 2005a).

HOLOGRAPHIS LETICIANA T.F. Daniel

Oaxaca: Distr. Cuicatlán, Mpio. Cuicatlán, 13 km W de Cuicatlán sobre el antiguo camino a Santiago Quiotepec, 17°51'21" N, 096°58'43" W, 684 m, selva baja caducifolia, 18 XII 2000 (flr), *E. Martínez S. et al.* 33337 (MEXU); Distr. Huajuapán de León, Mpio. Zapoquila, Cerro Prieto, al NE de Membrillos, 18°02' N, 097°32' W, 2420 m, 2 XI 2001 (flr), *P. Tenorio L. & L. Kelly* 21437 (MEXU).

This Mexican endemic (Fig. 1I) was originally described from the tropical deciduous forests of southeastern Oaxaca in the vicinity of Tehuantepec (Daniel 1988c). It has since been documented from similar forests along that state's southern coast westward as far as 096°10'6.7"W in the Parque Nacional Huatulco (*Nava Z. et al.* 750 at MEXU). The collections noted above extend the range of this species ca. 265 km northwestward across the state to the Tehuacán–Cuicatlán Valley in northwestern Oaxaca. These collections describe the color of the corollas as either “lilas” or “rosas,” both of which terms have been applied to collections of *H. leticiana* from southeastern Oaxaca.

JUSTICIA KANAL T.F. Daniel

Tabasco: Parque Nacional de Agua Blanca, Macuspana, KM 64 carr. Villahermosa-Escárcega, 17°38' N, 092°30' W, 100–200 m, selva mediana-alta perennifolia de *Brosimum alicastrum* & *Dalium guianense*, 18 III 1988 (flr), *L. Ruiz P. et al. 8429* (=Calderón 24) (HUAA).

This is the first record for the occurrence of this species in Tabasco. It was previously known from the Mexican states of Chiapas and Veracruz, and it also occurs in Guatemala (Daniel 1995). The specimen cited above was previously identified as *J. aurea*, but it has the purplish corollas and other characters of *J. kanal* (Daniel 1995).

JUSTICIA SALVIIFLORA Kunth

Tamaulipas: Mpio. Ocampo, Ejido El Refugio [23°00'00" N, 099°20'58" W] en la Reserva de la Biosfera El Cielo, bosque mesófilo de montaña, 3 III 1993 (flr, frt), *J. Mora L. et al. 268* (XAL).

This is the first report of this Mexican endemic (Fig. 1J) in Tamaulipas, and a range extension of ca. 440 km northeast of its nearest occurrence in Zacatecas. The species has been previously reported from Chiapas, Chihuahua, Colima, Durango, Guerrero, Jalisco, México, Michoacán, Morelos, Nayarit, Oaxaca, Sinaloa, Sonora, and Zacatecas (Daniel 2007).

JUSTICIA VERACRUZANA T.F. Daniel

Hidalgo: Mpio. Tianguistengo, 5 km W de Tianguistengo, 1800 m, bosque perturbado de *Liquidambar*, pino, encino, 25 III 1981 (flr), *R. Hernández M. & D. Rodríguez B. 5616* (MEXU); Mpio. Tenango de Doria, camino de Tenango de Doria a El Cirio (peñascos), arroyo 4 km E de Tenango por camino, 1650 m, bosque mesófilo de montaña, 9 Nov 1985 (fl), *D. Lorence & R. Hernández M. 4912* (CAS); cerca de Tenango de Doria, encinar, 16 IX 1945 (flr), *F. Miranda 3724* (MEXU).

These collections represent the first reports of *Justicia veracruzana* in Hidalgo. Previously known as *Jacobinia paniculata* Oerst., it has been recorded from Puebla and Veracruz (Daniel 2002). Considerable variation was noted among specimens of this species from throughout its range in length of the calyx, color of the corolla, and in pubescence of the inflorescence and corolla. Calyx length varies from 3.8–5 mm (*Lorence & Hernández M. 4912*) to 5–18 mm (numerous specimens from Veracruz). Corollas are usually described as red or orangish (sometimes with some yellow coloration as well). Several specimens from Veracruz note yellow corollas. Because corollas of those specimens appear reddish on dried specimens, they are assumed to be red with some yellow coloration associated with the limb, as shown in Figure 2A. Glandular trichomes vary from present to absent on the inflorescence peduncle, rachis, bracteoles, calyx, and corolla.

LEPIDAGATHIS DANIELII R. Cruz D. & J. Jiménez R.

México: Palmar Chico [ca. 18°41'42" N, 100°21'42" W], 20 Jun 1952 (flr, frt), *L. Paray (E. Matuda) 2408* (ENCB).

This species was recently described from the basin of the Río Balsas in Guerrero (Cruz D. & Jiménez R. 2011). The collection noted above extends its range ca. 60 km to the northwest and into the state of México.

Six species of *Lepidagathis* are recognized as occurring in Mexico; these include four species previously treated in *Lophostachys* (Daniel 1993). These two genera are now treated as congeneric by Kameyama (2008), who indicated that the androecium of *Lepidagathis* consists of two or four fertile stamens with the anterior pair bithecous and the posterior pair monothealous, bithecous, or lacking thecae. The androecium of *L. danielii* was described as having the anterior pair of stamens

bitheous and the posterior pair monotheous (Cruz D. & Jiménez R. 2011). Examination of the holotype, three isotypes, and other collections from Guerrero reveal an androecium that is usually as described in the protologue, but that sometimes has two bitheous stamens and two staminodes. The collection noted above from the state of México has four bitheous stamens. Thus, this species exhibits all three androecial conditions noted by Kameyama (2008) for the genus.

LOUTERIDIUM MEXICANUM (Baill.) Standl.

Puebla: Mpio. San Sebastián Tlacotepec, 18°26'12" N, 096°50'31.8" W, cafetal con vegetación secundaria, 427 m, 3-XII-2014 (frt), *L. Caamaño O. 6602* (HUAP-image!).

This is the first report of *Louteridium mexicanum* (Fig. 2B) from Puebla. The species was previously known from the Mexican states of Chiapas, Oaxaca, Tabasco, and Veracruz and the department of Alta Verapaz in Guatemala (Daniel et al. 2012).

MENDONCIA LINDAVII Rusby

Chiapas: Mpio. Ocosingo, Ejido Chajul, [ca. 16°06'44.25" N, 090°55'17.26" W], 150 m, selva mediana subperennifolia, 13 IX 1992 (frt), *E. Martínez S. et al. 25386* (K).

This is the first record of this species in both the state of Chiapas (southeastern Lacandón region) and in Mexico. At this site, ca. 90 km northwest of its closest known occurrence in Guatemala (Cubilgüitz, Alta Verapaz, Guatemala), is the westernmost known occurrence of the species. *Mendoncia lindavii* has previously been documented from Belize, Guatemala, Honduras, Costa Rica, Panama, and South America (Daniel 2005b). *Mendoncia lindavii* (Fig. 2C) can be distinguished from the other two species known from Mexico (*M. guatemalensis* Standl. & Steyerl. and *M. retusa* Turrill) by its red corollas, lance-ovate bracteoles that are three to four times longer than wide, and pubescent drupes with the trichomes eglandular and 0.1–0.8 mm long. Daniel (2005b) provided a key to these three species.

PSEUDERANTHEMUM CUSPIDATUM (Nees) V.M. Baum

Hidalgo: Mpio. Tlanchinol, ca. 6.2 km NE de Tlanchinol, 21°01'40" N, 098°37'51" W, 1309 m, bosque mesófilo de montaña, 21 IX 1997 (frt), *O. Alcántara A. & R. Mayorga S. 3417* (FCME); Mpio. Tlanchinol, 2.5 km N de Tlanchinol, 21°00'40" N, 098°39'07" W, 1475 m, bosque mesófilo de montaña, 20 IX 1997 (frt), *R. Mayorga S. & O. Alcántara A. 897* (FCME).

This is the first report of *Pseuderanthemum cuspidatum* (Fig. 2D) from Hidalgo. *Alcántara A. & Mayorga S. 3417* represents the northernmost known occurrence of the species and an extension of some 240 km NW of its nearest occurrence in central Veracruz. The species has been reported previously from the Mexican states of Chiapas, Oaxaca, Puebla, and Veracruz (Daniel 1995). It also occurs in Central America and South America.

RUELLIA CILIATIFLORA Hook.

Hidalgo: Zimapán, *T. Coulter 1182* (TCD), *1184* (TCD), *1185* (TCD).

This appears to be the first report of this widespread species from Hidalgo. The species (Fig. 2E), usually under the synonym *Ruellia nudiflora* (Engelm. & A. Gray) Urb., has been previously reported from the following Mexican states: Baja California Sur, Campeche, Chiapas, Chihuahua, Coahuila, Colima, Durango, Morelos, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sinaloa, Sonora, Tabasco, Tamaulipas, Veracruz, and Yucatán (Daniel 2004). Its generalized geographic distribution is from the southern United States southward to Argentina (Daniel 2013a).

RUELLIA HOOKERIANA (Nees) Hemsl.

Aguascalientes: Mpio. Calvillo, intermontane valleys of W Aguascalientes, South Calvillo, along hwy. ca. 1.5 km E of La Mesa Grande turnoff, ca. 21°49.9' N, 102°43.2' W, 1700 m, disturbed areas of tropical scrub along road, 6 VII 1999 (flr), *M. Provanca* 1239 (UCR).

Puebla: Mpio. Jolalpan, Tecohuetzo, 1.5 km de Zacacuaatla, 1370 m, bosque de encino, 31-VIII-1985 (flr), *V. Salas S. & F. Ramos M. 260* (XAL).

Tamaulipas: vicinity of Tampico, 15 m, III-IV (flr, frt), *E. Palmer 215* (K).

These collections represent the first report of *Ruellia hookeriana* from Aguascalientes, Puebla, and Tamaulipas. *Salas S. & Ramos M. 260* from Puebla is somewhat unusual for the species by having the narrow proximal portion of the corolla's tube (22 mm long) slightly shorter than its throat (25 mm long). The species has been reported previously from the following Mexican states: Chiapas, Guanajuato, Guerrero, Jalisco, México, Michoacán, Morelos, Nayarit, Oaxaca, Querétaro, San Luis Potosí, Sinaloa, Veracruz, and Zacatecas. It also occurs in Belize, El Salvador, Guatemala, Honduras, and Nicaragua (Daniel 2007).

RUELLIA LACTEA Cav.

Zacatecas: N base of Sierra El Laurel, Rancho La Tarjea, 4.5 km SSE of La Higuera (along Hwy. 70), 21°41.9' N, 102°48.3' W, 1800 m, tropical deciduous forest, 13 VII 1999 (flr), *M. Provanca et al. 1446A* (RSA).

This is the first record of this species in Zacatecas. It has been reported previously from Guatemala and the following Mexican states: Aguascalientes, Chiapas, Chihuahua, Distrito Federal, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Oaxaca, Puebla, Querétaro, San Luis Potosí, and Tlaxcala (Daniel & Acosta 2003).

RUELLIA PUBERULA (Leonard) Tharp & F.A. Barkley

Guerrero: Distr. Coyuca, Pungarabato, 11-VII-1934 (flr), *G. Hinton et al. 6275* (K).

This species has apparently not been reported previously from Guerrero. The specimen noted above was annotated by E. C. Leonard as *Ruellia nudiflora* var. *puberula* Leonard but was not cited in his publication of that name (Leonard 1927). It also occurs in Guatemala, El Salvador, and in the Mexican states of Chiapas, Oaxaca, Puebla, and Veracruz (Leonard 1927; Daniel 1995).

RUELLIA SIMPLEX C. Wright

Aguascalientes: Mpio. Calvillo, Cañada Cebolletas, matorral subtropical, 1870 m, 30 VIII 1994, *N. Camarillo C. 36* (HUAA).

This is the first record of the often-cultivated species (Fig. 2F) in Aguascalientes. Because it was noted to occur in thornscrub, this plant might represent a naturalized occurrence because the native distribution of *Ruellia simplex* remains in question. *Camarillo C. 36* pertains to the broader-leaved form of the species (formerly, *R. malacosperma* Greenm.). Possible native or naturalized occurrences of *R. simplex*, including both narrow-leaved (formerly, *R. coerulea* Morong, *R. brittoniana* Leonard, or *R. tweediana* Griseb.) and broader-leaved forms, have been reported from the following Mexican states: Campeche, Chiapas, Guerrero, Hidalgo, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sinaloa, Sonora, Tabasco, Tamaulipas, Veracruz, Yucatán (Daniel 1995, 2005a, 2007, 2013b; Daniel & Acosta C. 2003; Durán et al. 2000; Leonard 1936). Outside of Mexico, the species has been reported from the United States (naturalized), Central America, South America, and the West Indies.

RUELLIA SPISSA Leonard

Morelos: Oaxtepec, 1450 m, 23 VII 1971 (flr, frt), *J. Vázquez 3303* (MEXU).

This collection was identified as *Ruellia pilosa* Pav. by Vázquez S. (1974). This likely refers to *R. pilosa* (Nees) Pav. ex Hemsl. (a later homonym of *R. pilosa* L. f.), and its lectotype pertains to *R. hookeriana* (Nees) Hemsl. *Ruellia spissa* has been reported previously from Guatemala and the following Mexican states: Chiapas, Durango, Guanajuato, Jalisco, México, and Michoacán (Daniel & Acosta 2003).

SANCHEZIA PARVIBRACTEATA Sprague & Hutch.

Oaxaca: Distr. Tehuantepec, Mpio. Santa María Guienagati, Puente, sobre terracería a Peña Blanca, a 2.7 km en LR (160°) de San Isidro Lachiguxe, 16°51'22.2" N, 095°17'23.5" W, 565 m, selva mediana subperennifolia, a orilla de río, con *Alchornea*, 6-II-2007 (flr), *K. Velasco G. et al. 1624* (MEXU, SERO).

Although likely native to South America, the native distribution of this often-cultivated species (Fig. 2G) is not known with certainty (Daniel 1995). *Velasco G. et al. 1624* was not attributed to cultivation and is apparently from a native habitat; thus, it appears to be the first report for *Sanchezia parvibracteata* being naturalized in Oaxaca. Other occurrences in Mexico from Chiapas and Jalisco were discussed by Daniel (1995, 2013b).

STREBLACANTHUS MONOSPERMUS Kuntze

Veracruz: Mpio. Hueyapan de Ocampo, Área de Conservación Santa Rosa Loma Larga, 18°15.164' N, 095°5.117' W, 403 m, selva alta perennifolia, 14 III 2012 (flr), *A. Campos V. et al. 7600* (MEXU).

Daniel (2001) reported this species from Mexico (Chimalapa region of eastern Oaxaca). The collection noted above extends the distribution of *Streblacanthus monospermus* (Fig. 1H) northward by about 155 km, and into the state of Veracruz. Based on morphology and molecular sequence data, this species, the type of the genus, has been shown to be only distantly related to other taxa formerly treated in *Streblacanthus* Kuntze. All other species of *Streblacanthus* are now treated in *Pachystachys* Nees (Côtés et al. in press). The phylogenetic placement of *S. monospermus* among Justiceae has yet to be fully resolved (Daniel et al. 2008).

TETRAMERIUM NEMORUM Brandegee

Oaxaca: 45 km SW of El Camarón on Mex. 190, open places along Río Pillete, 16°24'48" N, 095°48'28" W, 570 m, 29 XI 2003 (flr), *T. Yahara et al. 2856* (MEXU).

This is the first report of *Tetramerium nemorum* (Fig. 2I) in Oaxaca. It also occurs in Guatemala, El Salvador, Honduras, Nicaragua, and in the Mexican states of Chiapas, Veracruz, and Yucatán (Daniel 1995).

TETRAMERIUM TENUISSIMUM Rose

Oaxaca: Mpio. San Juan Bautista Cuicatlán, Santiago Quiotepec, acceso a la línea eléctrica Temascal II-Oaxaca Potencia, 17°52'41.7" N, 096°58'02.9" W, selva mediana subperennifolia, 18 XII 2004 (flr) *C. Cruz E. 2170* (MEXU); Mpio. San Juan Bautista Cuicatlán, San Juan Coyula, 0.5 km SW del mesquite, sobre el Río Santo Domingo, 17°56'04" N, 096°57'26.9" W, 18 I 2007 (flr), *L. Jiménez et al. 45* (MEXU).

Although this species is not new for Oaxaca, like *Holographis leticiana* (see above), it is newly reported from the Tehuacán-Cuicatlán Valley in the northwestern portion of the state, ca. 230

km from its previously reported occurrence in the Sierra Madre Sur along the Pacific Coast (Daniel 2013b). This species also occurs in El Salvador, Guatemala, and the following Mexican states: Campeche, Chiapas, Chihuahua, Colima, Guanajuato, Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, Sinaloa, Sonora, Veracruz, and Yucatán (Daniel 2004, 2012, 2013b); it is not known from Tamaulipas, as erroneously indicated by Daniel (2013b).

THUNBERGIA FRAGRANS Roxb.

Campeche: Mpio. Escárcega, Escárcega, 1-I-1966 (frt), *E. Hernández X. & J. Chavelas P. ES-644* (XAL).

This is the first report of *Thunbergia fragrans* (Fig. 2H) in Campeche. A native of India, the species is widely naturalized in the Neotropics, including Mexico (e.g., Chiapas, Hidalgo, Jalisco, Morelos, Nayarit, Oaxaca, Puebla, Querétaro, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, and Yucatán; Daniel 2007, 2013b). Although not noted as such, it is probable that this collection is from a cultivated plant. Whether currently cultivated or naturalized in Campeche, given its propensity to become established, *T. fragrans* is likely to become more widespread in the Yucatan Peninsula in the future.

ACKNOWLEDGEMENTS

I am grateful for the courtesies extended by the following herbaria: CAS, DS, ENCB, FCME, HUAA, HUAP, K, MEXU, RSA, SERO, TCD, UCR, and XAL. I thank photographers Daniel Solano and Jonathan Amith for making their photographs available and the following individuals for their generous assistance with various aspects of this study: J. Amith, F. Chiang, A. Coombes, R. Cruz D., J. Rebman, S. Salas, and M. Siqueiros D.

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