

## LIANAS OF MEXICO

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**Abstract:** Through an exhaustive literature review, field exploration and revision of herbaria, the presence of 861 native species of lianas in Mexico is documented, pertaining to 250 genera and 59 families. A total of 25.9 % ( $n = 224$ ) of the species and three genera are endemic to Mexico. The 15 most diverse families account for 80.1 % of the species and 85.7 % of endemics. The 18 richest genera comprise 38.1 % ( $n = 328$ ) of the species and approximately 50 % of the endemic. Chiapas is the state with the greatest diversity because it includes 65.4 % of the total species, whereas Oaxaca is the richest state in terms of endemism (49.6 %). Regardless of their area, the most diverse states are also notable for their endemism. The lianas found in only one state encompassed 16.5 and 26 % of the total number of species and endemics, respectively. Among the five recognized biomes in Mexico, the tropical humid forest and the tropical seasonally dry forest stand out for their number of species ( $n = 692$ , 80.3 %) and number of endemics ( $n = 134$ , 59.8 %), respectively. At the level of vegetation type, the tropical deciduous forest ranks first in both attributes. The number of lianas species decreased significantly with altitude. Our results demonstrate the importance of the contribution of lianas to the richness and endemism of Mexican flora and justify the development of initiatives to ensure their long-term conservation.

**Key words:** altitudinal gradients, biomes, diversity, endemism, vegetation types.

**Resumen:** Por medio de una exhaustiva revisión bibliográfica, trabajo de campo y la revisión de ejemplares de herbario, se documenta la presencia de 861 especies de lianas nativas, incluidas en 250 géneros y 59 familias. El 25.9 % ( $n = 224$ ) de las especies y tres géneros son endémicos de México. Las 15 familias más diversas concentran el 80.1 % del total de especies y el 85.7 % de las endémicas. Los 18 géneros con mayor riqueza concentran 38.1 % ( $n = 328$ ) de las especies de lianas y cerca del 50 % de las endémicas. A nivel de estados, Chiapas es el más sobresaliente, ya que registró el 65.4 % del total de especies, mientras que Oaxaca lo fue para las endémicas (49.6 %). Los estados muestran una alta congruencia entre la riqueza de especies y grado de endemismo, atributos que no se explican por el área que éstos presentan. Las lianas restringidas a un solo estado representaron el 16.5 y 26 % del número total de especies y endémicas, respectivamente. Entre los cinco biomas reconocidos para México, el bosque tropical húmedo destacó por su número de especies ( $n = 692$ , 80.3 %), mientras que el bosque tropical estacionalmente seco hace lo propio para las endémicas ( $n = 134$ , 59.8 %). Por tipo de vegetación, la primera posición para ambos atributos es para el bosque tropical caducifolio. El número de especies de lianas decreció significativamente con la altitud. Los resultados del presente estudio demuestran que la contribución de las lianas a la riqueza y endemismo de la flora de México es relevante, lo cual justifica iniciativas particulares que permitan asegurar su conservación a largo plazo.

**Palabras clave:** biomas, diversidad, endemismo, gradientes de altitud, tipos de vegetación.

The climbing habit has evolved on many occasions in plants and has been detected in at least 133 families of Angiosperms (Gentry, 1991a; Schnitzer and Bongers, 2002; Gallagher and Leishman, 2012). The independent evolution of this habit in so many lineages could be explained because climber species invest fewer resources in the development of their stems compared to erect plants, enabling this group

to direct these resources toward other important functions, such as growth or water capture (Schnitzer *et al.*, 2005; Wyka *et al.*, 2013). Lianas play an important role in the taxonomic and functional diversity in tropical forests, especially during early succession stages, as well as interaction with a high number of pollinators and frugivores (Gentry 1982, 1991a, b; Solórzano *et al.*, 2002; Schnitzer and Bongers,

2002; Letcher and Chazdon, 2012). For example, the complete floristic inventories of particular locations demonstrate that this growth form can account for between 8 and 24 % of the woody species (Gentry and Dodson, 1987; Ibarra-Manríquez and Sinaca, 1995; Meave *et al.*, 2008). Inventories in plots of 0.1 ha have revealed that an average of 18 % of stems with DBH (diameter at breast height)  $\geq 2.5$  cm belong to lianas (Gentry, 1991a) and in similar censuses in Mexican tropical dry forests are absent or may represent up to 25 % of the species present, with an average of  $10.4 \pm \text{S.D. } 7.1$  (Lott *et al.*, 1987; Trejo and Dirzo, 2002; Pineda-García *et al.*, 2007; Martínez-Cruz *et al.*, 2013).

Due mainly to the magnitude of Mexican floristic diversity, which is estimated to be at least 22,000 species of Angiosperms (Rzedowski, 1991a; Espejo-Serna *et al.*, 2004a; Villaseñor and Ortiz, 2014), the species richness of all of the present growth forms is not equally known. Undoubtedly, the trees and the epiphytes are those that are best characterized because these are the subjects of relatively recent floristic publications (*e.g.* Ibarra-Manríquez *et al.*, 1995; Espejo-Serna *et al.*, 2004b; Hågsater *et al.*, 2005; Cué-Bär *et al.*, 2006a; Padilla-Velarde *et al.*, 2006; Soto-Arenas *et al.*, 2007; González-Espinosa *et al.*, 2011; Ricker *et al.*, 2013). However, no such compendia exist for the lianas.

An important source of information to know the richness of lianas are the regional floristic projects [*e.g.* Flora del Bajío y de Regiones Adyacentes (Rzedowski and Calderón, 1993; Calderón *et al.*, 2004), Flora de Veracruz (Pérez-Cueto, 1995; Ortega and Ortega, 1997) or Flora del Valle de Tehuacán-Cuicatlán (Juárez-Jaimes and Lozada, 2003; Alvarado-Cárdenas, 2004)], local floristic inventories (*e.g.* Ibarra-Manríquez and Sinaca, 1995, 1996a, b; Lott, 2002; Meave *et al.*, 2008) and checklist available to Mexico for some families with many lianas representatives (Borhidi, 2006; Juárez-Jaimes *et al.*, 2007; Anderson, 2013).

Specimens that are deposited within herbaria also are another key tool to know diversity of Mexican lianas, although a critical taxonomic review of the material is required. Nonetheless, this task is generally difficult to implement for several reasons: (i) lianas are underrepresented in herbaria because of collection difficulty, (ii) specimens often lack structures that are critical for accurate identification, (iii) collections, in many cases, are not revised by specialists, and (iv) there is a scarcity or absence of monographs of several climber families or genera.

On the other hand, estimates of the taxonomic richness of Mexican lianas differ because Rzedowski (1991a) suggested that there are 60 genera and 300 species, while Ibarra-Manríquez *et al.* (2015) indicated 214 and 754 taxa in these two taxonomic categories, respectively. The difference between these figures is due, among other factors, to the concept of the liana that is held by each of these authors, as well as the sparse floristic knowledge that exists regarding this growth form, which difficult its inventory. To accurately estimate

the contribution of lianas to floristic diversity in Mexico, our fundamental objective is to list the species of lianas in this country, indicating the states, vegetation types, and altitudinal intervals in which they are found, as well as the species that restrict their geographic distribution to Mexico (endemic species).

### Study area

Mexico has a land area of close to two million km<sup>2</sup>. The country has been subject to complex geological changes throughout its history (Ferrusquía-Villafranca, 1993) that have caused the topography, with the exception of the Yucatán peninsula, to be dominated by mountains. Rzedowski (1978) states that only 35 % of the country is below 500 m asl, while more than half is above 1,000 m altitude, with the highest peaks found along the length of the Trans-Mexican Volcanic Belt, where the volcano Pico de Orizaba (Citlaltépetl) stands at 5,636 m elevation. Such a heterogeneous landscape, along with the position of the country astride the Tropic of Cancer, have produced a broad range of climates and vegetation types, including practically all of those that are recognized worldwide (Rzedowski 1978, 1991a). According to the Köppen classification, the climates that affect the greatest territorial area are (Kottek *et al.*, 2006): A (tropical wet, with the mean temperature in the coldest month greater than 18 °C), B (dry, with a mean temperature in the coldest month greater or less than 18 °C and a mean annual temperature between 18 and 22 °C), C (temperate wet, with a mean temperature in the coldest month between -3 and 18 °C and in the hottest month greater than 10 °C) and, in very reduced areas and high altitude locations of the volcanoes of central Mexico, E (cold, with a mean temperature in the hottest month less than 10 °C). Rzedowski (1978) recognized four biogeographic regions (Pacific North American, Montane Mesoamerican, Xerophytic Mexican and Caribbean) that include 17 provinces. The number of recognized vegetation types range from ten (Rzedowski, 1978) to 32 (Miranda and Hernández-X., 1963). These publications describe the physiognomic characteristics and principal floristic components of these plant communities, as well as the climates and soil types in which they are found. In global terms, floristic affinities are more meridional than boreal, and, according to the fossil evidence, their origin goes back to at least the Cenozoic era, some 65 million years ago (Rzedowski, 1991a, b).

### Materials and methods

There is no accurate definition by which to categorize liana species; however, they are generally described as climbing plants with woody stems that cannot remain upright autonomously once they have germinated in the soil (Gentry, 1991a; Bongers *et al.*, 2002). Unfortunately, these basic at-

tributes are not known for many species. For example, the designation of a plant as woody is not simple because this characteristic may be presented in individuals with very thin stems (*i.e.*  $\leq 1$  mm diameter) or only toward the base of stems. This information is rarely included in floristic publications that report climber species or in their descriptions of herbarium specimens and is even often neglected in taxonomic descriptions. The need of information is even more acute for germination in the soil, which is the main characteristic by which to separate lianas from woody climbing hemiepiphytes because the latter only germinate on the trunks or branches of trees (Gentry, 1991a). Another aspect that is difficult to evaluate is whether the plants are erect or require support for growth because this can vary with the age of the plants or in different vegetation types. An example of this situation is *Salacia cordata* (Miers) Mennega (Celastraceae), which is a liana that we can find in the upper canopy in the tropical evergreen forest but when young, is as small erect tree that grows up to a height of 3 m in the Los Tuxtlas Tropical Biological Station in Veracruz. At this same site grows the liana *Celtis iguanaea* (Jacq.) Sarg. (Cannabaceae), which in the tropical deciduous forest of the Chamela-Cuixmala region in Jalisco, can exhibit the liana habit or may grow as a shrub.

To assign a native species as liana (naturalized species were excluded), we considered: (1) the floristic-taxonomic literature (Appendix 1) and specimens that were deposited in herbaria (IEB, MEXU, MO, and XAL) where the species is described as a liana or woody climber, even if this condition is only presented towards the stem base, and (2) field observations in different parts of the country examining climbing species to evaluate the degree of woodiness (Figure 1) and to collect specimens with flowers and/or fruits in order to identify correctly the species (Figure 2 and 3). Consequently, the list also includes: (i) species that exhibit a growth habit that is similar to that of the lianas but do not germinate in the soil (hemiepiphytes), (ii) those that have a highly lignified atactostele (monocots, members of the families Arecaceae and Smilacaceae) or (iii) scandent shrubs with climbing branches that are greater than 5 m in length. Therefore, one or more of the following three growth forms were assigned to the species (Appendix 2): liana (including monocots), hemiepiphytes, and scandent shrubs. The identification of the specimens in the herbaria was verified by specialists or by the authors using monographs.

The altitude, vegetation type, and geographical distribution were obtained from the examined literature and herbarium specimens. Endemic species were those lianas only found in Mexico, whereas microendemics were identified such those species that are recorded in only one state of the country. Vegetation types and biomes were assigned according to the classifications of Rzedowski (1978) and Villaseñor and Ortiz (2014), respectively. In states with greater taxonomic richness, an analysis was conducted to

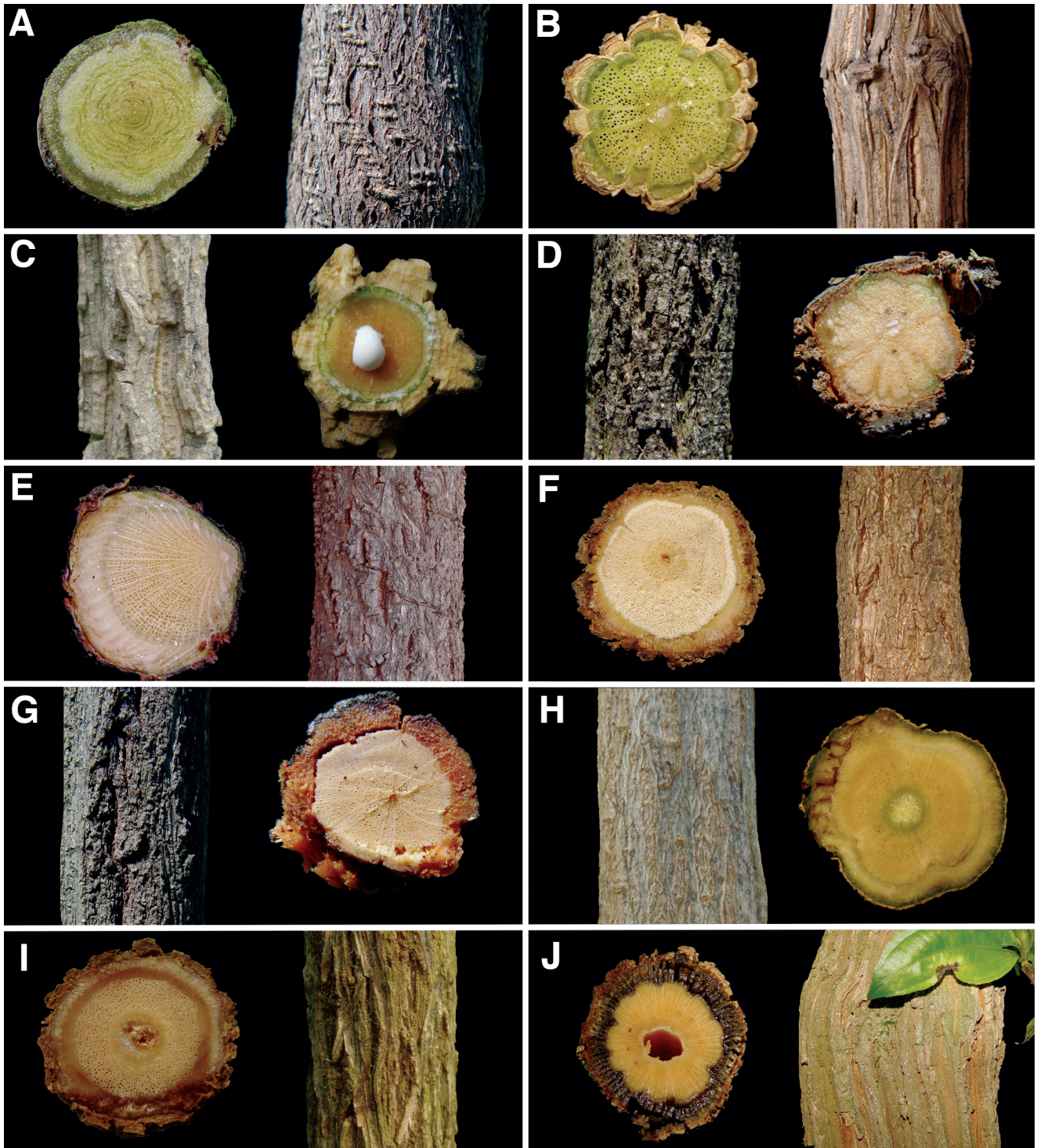
determine whether the size of their territory could be a factor that explains this attribute. For this analysis, a weighted ratio was obtained between the number of families, genera, and species (total, endemics and microendemics) and the  $\log_{10}$  of the area of each state. This value approaches the average richness of a given taxon in an area of 10 km<sup>2</sup> (Rejmánek, 1996). The authors of the species and the publication in which they were described were recorded from the consulted literature (Appendix 1) and/or the database Tropicos (Tropicos, 2014).

## Results

**Taxonomic richness.** Mexican native lianas are included in 59 families, 250 genera, and 861 species (Appendix 2). Among the three growth form categories that were recognized in this study, the lianas were the most important ( $n = 789$  species), followed by the scandent shrubs ( $n = 246$ ) and the hemiepiphytes ( $n = 26$ ). A total of 15 families contributed differentially to the taxonomic richness of lianas because account for 70.4 % of the genera, 80.1 % of the total number of species, 85.7 % of the endemics and 84.2 % of the microendemics (Table 1). Apocynaceae dominated these four groups, followed by Fabaceae, except for the microendemic species, where second place was taken by Asteraceae. In contrast, 15 families were each represented by one species (Appendix 2).

**Table 1.** Number of genera and species for the most diverse families of lianas in Mexico.

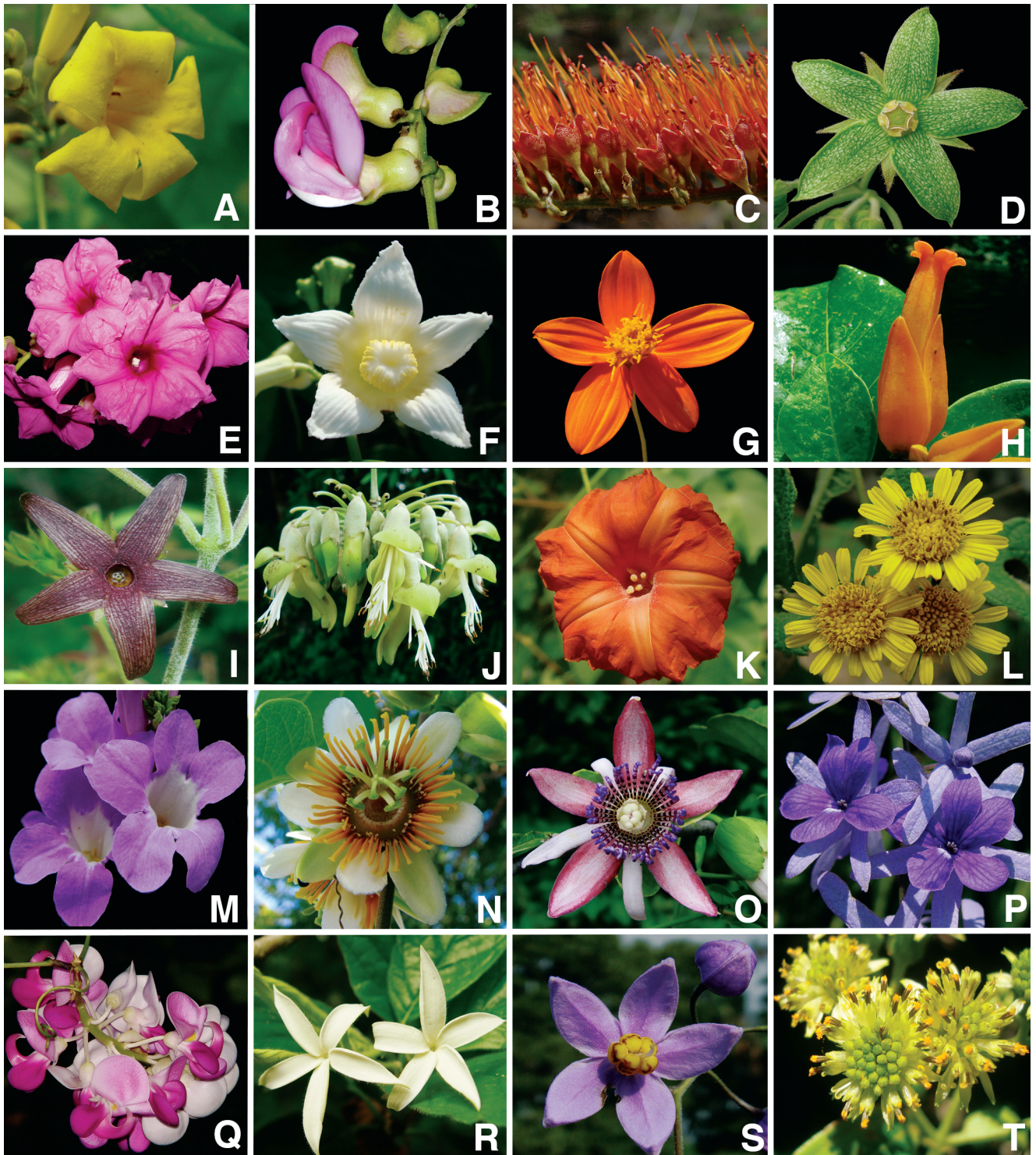
| Family            | Genera (%) | Species (%) |            |               |
|-------------------|------------|-------------|------------|---------------|
|                   |            | Total       | Endemics   | Microendemics |
| Apocynaceae       | 32 (12.8)  | 158 (18.3)  | 71 (31.7)  | 17 (29.8)     |
| Fabaceae          | 26 (10.4)  | 94 (10.9)   | 24 (10.7)  | 4 (7.0)       |
| Convolvulaceae    | 12 (4.8)   | 67 (7.8)    | 18 (8.0)   | 4 (7.0)       |
| Asteraceae        | 23 (9.2)   | 61 (7.1)    | 19 (8.5)   | 8 (14.0)      |
| Malpighiaceae     | 14 (5.6)   | 57 (6.6)    | 17 (7.6)   | 6 (10.5)      |
| Sapindaceae       | 6 (2.4)    | 48 (5.6)    | 9 (4.0)    | 7 (12.3)      |
| Bignoniaceae      | 17 (6.8)   | 41 (4.8)    | 1 (0.4)    | 0 (0.0)       |
| Solanaceae        | 6 (2.4)    | 35 (4.1)    | 9 (4.0)    | 1 (1.8)       |
| Passifloraceae    | 1 (0.4)    | 27 (3.1)    | 3 (1.3)    | 0 (0.0)       |
| Vitaceae          | 5 (2.0)    | 26 (3.0)    | 2 (0.9)    | 1 (1.8)       |
| Rubiaceae         | 10 (4.0)   | 21 (2.4)    | 5 (2.2)    | 1 (1.8)       |
| Aristolochiaceae  | 1 (0.4)    | 18 (2.1)    | 7 (3.1)    | 5 (8.8)       |
| Menispermaceae    | 6 (2.4)    | 13 (1.5)    | 1 (0.4)    | 0 (0.0)       |
| Celastraceae      | 8 (3.2)    | 12 (1.4)    | 1 (0.4)    | 0 (0.0)       |
| Cucurbitaceae     | 9 (3.6)    | 12 (1.4)    | 5 (2.2)    | 0 (0.0)       |
| Subtotal          | 176 (70.4) | 690 (80.1)  | 192 (85.7) | 48 (84.2)     |
| Other 43 families | 74 (29.6)  | 171 (19.9)  | 32 (14.3)  | 9 (15.8)      |



**Figure 1.** Liana stems and their cross-section in species registered in the present study. A) *Canavalia villosa*, B) *Clematis dioica*, C) *Matelea crenata*, D) *Nissolia microptera*, E) *Parthenocissus quinquefolia*, F) *Passiflora subpeltata*, G) *Serjania racemosa*, H) *Solanum dulcamaroides*, I) *Trichostigma octandrum*, and J) *Tuxtla pittieri*.

The 18 genera with the greatest richness account for 38.1 % of the species (Table 2), with slightly higher percentages of endemic and microendemic taxa (45.1 % and 50.9 %, respectively). The reduced dominance of the most speciose

genera compared to that documented for the families occurs because approximately half of genera present only one species ( $n = 114$ ). The genus with the greatest number of species ( $n = 43$ ) is *Ipomoea* (Convolvulaceae), whereas *Ser-*



**Figure 2.** Flowers of liana species included in the present study. A) *Adenocalymma inundatum*, B) *Canavalia villosa*, C) *Combretum farinosum*, D) *Gonolobus grandiflorus*, E) *Ipomoea phillomega*, F) *Hanburia mexicana*, G) *Hidalgoo ternata*, H) *Juanulloa mexicana*, I) *Matelea crenata*, J) *Mucuna argyrophylla*, K) *Operculina pteripes*, L) *Otopappus epaleaceus*, M) *Paragonia pyramidata*, N) *Passiflora holosericea*, O) *P. ambigua*, P) *Petrea volubilis*, Q) *Ramirezella strobilophora*, R) *Randia retroflexa*, S) *Solanum dulcamaroides*, and T) *Tuxtla pittieri*.

**Table 2.** Number of species and family for the most diverse genera of lianas in Mexico.

| Genera              | Family           | Total      | Species (%) |               |
|---------------------|------------------|------------|-------------|---------------|
|                     |                  |            | Endemics    | Microendemics |
| <i>Ipomoea</i>      | Convolvulaceae   | 43 (5.0)   | 12 (5.4)    | 2 (3.5)       |
| <i>Serjania</i>     | Sapindaceae      | 33 (3.8)   | 8 (3.6)     | 6 (10.5)      |
| <i>Passiflora</i>   | Passifloraceae   | 27 (3.1)   | 3 (1.3)     | 0 (0.0)       |
| <i>Marsdenia</i>    | Apocynaceae      | 25 (3.0)   | 13 (5.8)    | 3 (5.3)       |
| <i>Matelea</i>      | Apocynaceae      | 23 (2.7)   | 11 (5.0)    | 2 (3.5)       |
| <i>Solanum</i>      | Solanaceae       | 20 (2.3)   | 6 (2.7)     | 1 (1.8)       |
| <i>Aristolochia</i> | Aristolochiaceae | 18 (2.1)   | 7 (3.0)     | 5 (8.8)       |
| <i>Gonolobus</i>    | Apocynaceae      | 18 (2.1)   | 6 (2.7)     | 1 (1.8)       |
| <i>Metastelma</i>   | Apocynaceae      | 18 (2.1)   | 10 (4.5)    | 2 (3.5)       |
| <i>Cissus</i>       | Vitaceae         | 13 (1.5)   | 1 (0.5)     | 0 (0.0)       |
| <i>Dictyanthus</i>  | Apocynaceae      | 13 (1.5)   | 10 (4.5)    | 3 (5.3)       |
| <i>Mandevilla</i>   | Apocynaceae      | 12 (1.4)   | 5 (2.2)     | 1 (1.8)       |
| <i>Otopappus</i>    | Asteraceae       | 12 (1.4)   | 7 (3.1)     | 2 (3.5)       |
| <i>Clematis</i>     | Ranunculaceae    | 11 (1.3)   | 2 (0.9)     | 0 (0.0)       |
| <i>Smilax</i>       | Smilacaceae      | 11 (1.3)   | 0 (0.0)     | 0 (0.0)       |
| <i>Fridericia</i>   | Bignoniaceae     | 11 (1.3)   | 0 (0.0)     | 0 (0.0)       |
| <i>Mikania</i>      | Asteraceae       | 10 (1.2)   | 1 (0.4)     | 1 (1.8)       |
| <i>Paullinia</i>    | Sapindaceae      | 10 (1.2)   | 0 (0.0)     | 0 (0.0)       |
| Subtotal            |                  | 328 (38.1) | 101 (45.1)  | 29 (50.9)     |
| Other 231 genera    |                  | 533 (61.9) | 123 (54.9)  | 28 (49.1)     |

*janía* (Sapindaceae) and *Passiflora* (Passifloraceae) have 33 and 27 species (Table 2); the first place in the endemic species is *Marsdenia* (Apocynaceae), followed by *Ipomoea* and *Matelea* (Apocynaceae). Finally, standing out in terms of microendemic species are *Serjania* and *Aristolochia* (Aristolochiaceae), with six and five species, respectively.

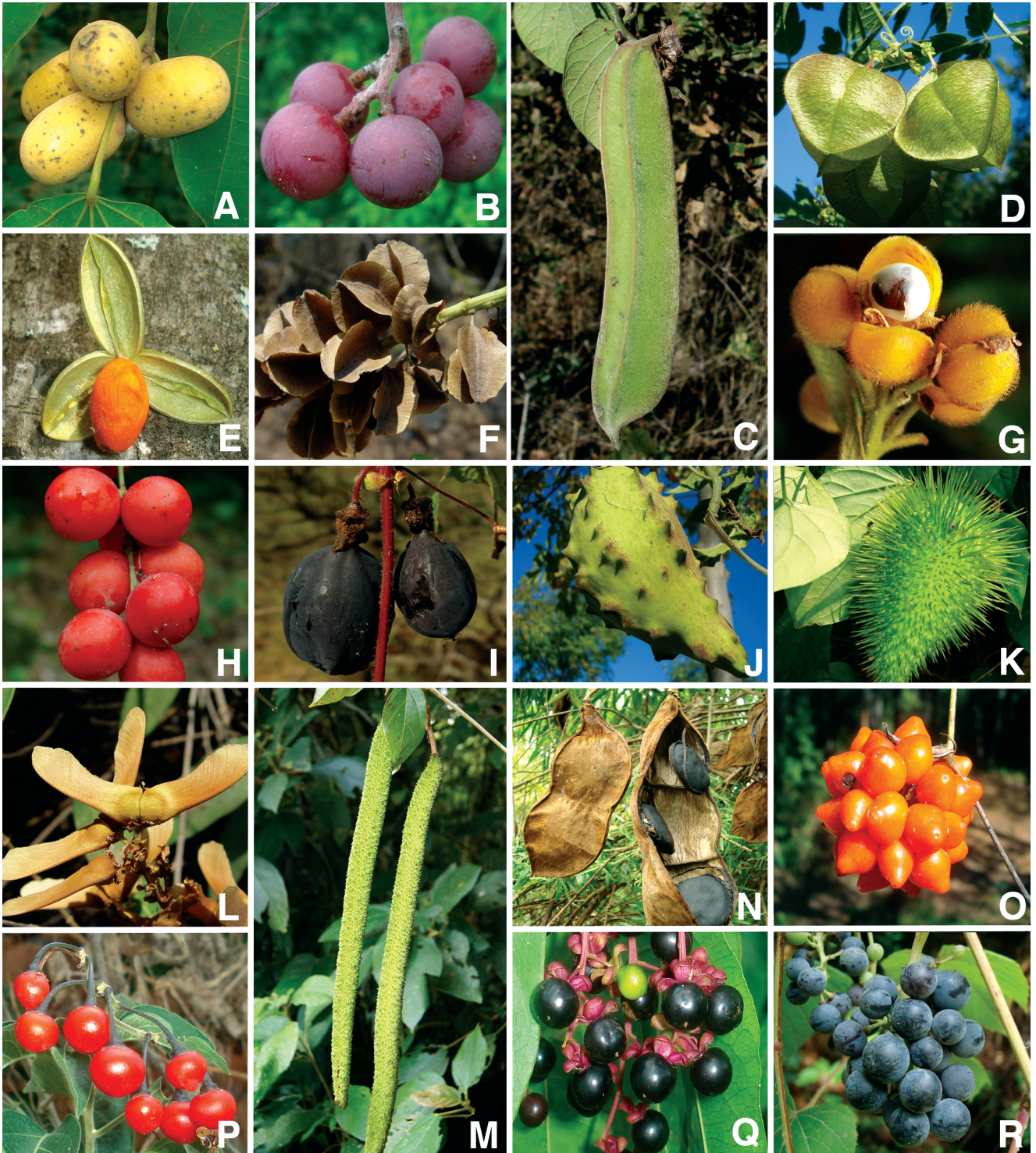
**Geographic distribution.** A total of 25.9 % ( $n = 224$ ) of the recorded species of lianas are endemic to Mexico, while only three genera (1.2 %) are included in this category (*Balsas* J. Jiménez-Ram. & K. Vega, Sapindaceae; *Peponopsis* Naudin, Cucurbitaceae; and *Thoreauea* J.K. Williams, Apocynaceae). Of whole sample of Mexican lianas, 57 species were recorded as microendemic (Table 3, Appendix 2), including those that were assigned to two endemic genera (*Balsas guerrerensis* Cruz-Durán & K. Vega restricted to Guerrero, *Thoreauea aberrans* J.F. Morales to Veracruz, *T. guerrerensis* Diego & Lozada-Pérez to Guerrero and *T. paneroi* J.K. Williams to Oaxaca).

Chiapas is highlighted at the state level (Table 3) because almost all of the families are recorded within its area ( $n = 57$ , 97 %), as well as 85.2 % ( $n = 213$ ) of the genera, and 65.2 % ( $n = 562$ ) of species. In these categories, Oaxaca presents very similar figures and therefore normally follows Chiapas in hierarchical order. In general, Veracruz occupies third place for these attributes of taxonomic richness, with the exception of the microendemic species, where second place is shared with Chiapas. Oaxaca encompass the greatest number of endemic species, with close to half of the total

found in Mexico ( $n = 111$ ), followed by Jalisco, Guerrero, and Michoacán, the percentages of which range from 34.8 to 39.7 %. Unexpectedly, the differences in area among the seven states that were cited in this section did not affect the position they occupy in these comparisons of diversity because the ratio values between the richness of taxa and the  $\log_{10}$  of the area of each state follow the same pattern as described above using the number of species (Table 3).

The frequency with which the lianas have been recorded in the 32 states of Mexico indicate that 142 (16.5 %) and 109 (12.6 %) species are found in only one and two states, respectively (Table 4). Of the total species, 60.3 % have been found in up to five states, and only 18 (2 %) exist in more than 20 states. The most widely distributed species are *Cardiospermum halicacabum* L. (Sapindaceae,  $n = 31$  states), *Toxicodendron radicans* (L.) Kuntze (Anacardiaceae,  $n = 27$ ), and *Canavalia villosa* Benth. (Fabaceae,  $n = 26$ ). Restriction at state level is more noteworthy in the 224 endemic species because 40.6 % are found in one or two states, and 29 % ( $n = 65$  species) do not occupy more than five states (Table 4). The endemic lianas with the greatest geographic distribution are *Lonicera pilosa* (Kunth) Willd. ex Kunth (Caprifoliaceae;  $n = 21$  states), followed by *Funistrum pannosum* Schltr. (Apocynaceae), and *Nissolia microptera* Poir. (Fabaceae), both found in 19 states.

**Biomes, vegetation types and altitude.** The richness of lianas species is dissimilar among the five recognized biomes of Mexico (Table 5) because the tropical humid forest clearly is



**Figure 3.** Fruits of liana species reported to Mexico. A) *Abuta panamensis*, B) *Ampelocissus acapulcensis*, C) *Canavalia villosa*, D) *Cardiospermum halicacabum*, E) *Celastrus pringlei*, F) *Combretum farinosum*, G) *Davilla kunthii*, H) *Disciphania calocarpa*, I) *Passiflora exsudans*, J) *Gonolobus chloranthus*, K) *Hanburia mexicana*, L) *Heteropterys laurifolia*, M) *Mansoa verrucifera*, N) *Mucuna argyrophylla*, O) *Smilax pringlei*, P) *Solanum dulcamaroides*, Q) *Trichostigma octandrum*, and R) *Vitis tilifolia*.

**Table 3.** Families, genera and species of lianas per state in Mexico. Taxonomically more diverse states are highlighted in bold and the ratio between the number of each taxon and the log base10 of the area of each state is shown in parentheses. Surface of states highlighted in bold is: Chiapas, 73,311 km<sup>2</sup>; Guerrero, 63,596 km<sup>2</sup>; Jalisco, 78,588 km<sup>2</sup>; Michoacán, 58,599 km<sup>2</sup>; Oaxaca, 93,757 km<sup>2</sup>; Tabasco, 24,731 km<sup>2</sup>; Veracruz, 71,826 km<sup>2</sup>.

| States              | Families         | Genera            | Species            |                   |                 |
|---------------------|------------------|-------------------|--------------------|-------------------|-----------------|
|                     |                  |                   | Total              | Endemics          | Microendemics   |
| Aguascalientes      | 9                | 13                | 14                 | 6                 | 0               |
| Baja California     | 10               | 11                | 13                 | 3                 | 0               |
| Baja California Sur | 16               | 24                | 34                 | 15                | 2               |
| Campeche            | 36               | 115               | 216                | 8                 | 0               |
| <b>Chiapas</b>      | <b>57 (11.7)</b> | <b>213 (43.8)</b> | <b>562 (115.5)</b> | <b>38 (7.8)</b>   | <b>10 (2.1)</b> |
| Chihuahua           | 18               | 32                | 42                 | 12                | 0               |
| Coahuila            | 12               | 23                | 31                 | 9                 | 0               |
| Colima              | 36               | 97                | 158                | 43                | 1               |
| Distrito Federal    | 15               | 24                | 34                 | 15                | 0               |
| Durango             | 21               | 34                | 48                 | 15                | 0               |
| Guanajuato          | 19               | 38                | 53                 | 22                | 0               |
| <b>Guerrero</b>     | <b>41 (8.5)</b>  | <b>133 (27.7)</b> | <b>305 (63.5)</b>  | <b>88 (18.3)</b>  | <b>5 (1.0)</b>  |
| Hidalgo             | 35               | 78                | 134                | 31                | 0               |
| <b>Jalisco</b>      | <b>41 (8.4)</b>  | <b>133 (27.2)</b> | <b>292 (59.6)</b>  | <b>89 (18.2)</b>  | <b>6 (1.2)</b>  |
| México              | 31               | 88                | 157                | 48                | 1               |
| <b>Michoacán</b>    | <b>41 (8.6)</b>  | <b>115 (24.1)</b> | <b>255 (53.5)</b>  | <b>78 (16.4)</b>  | <b>2 (0.4)</b>  |
| Morelos             | 32               | 81                | 137                | 33                | 0               |
| Nayarit             | 35               | 97                | 162                | 39                | 2               |
| Nuevo León          | 19               | 40                | 56                 | 15                | 0               |
| <b>Oaxaca</b>       | <b>56 (11.3)</b> | <b>210 (42.2)</b> | <b>541 (108.8)</b> | <b>111 (22.3)</b> | <b>12 (2.4)</b> |
| Puebla              | 34               | 92                | 179                | 57                | 2               |
| Querétaro           | 33               | 77                | 134                | 5                 | 0               |
| Quintana Roo        | 34               | 106               | 198                | 32                | 0               |
| San Luis Potosí     | 32               | 79                | 133                | 48                | 1               |
| Sinaloa             | 33               | 86                | 149                | 28                | 0               |
| Sonora              | 25               | 47                | 70                 | 31                | 1               |
| <b>Tabasco</b>      | <b>41 (9.3)</b>  | <b>133 (30.3)</b> | <b>265 (60.3)</b>  | <b>4 (0.9)</b>    | <b>1 (0.2)</b>  |
| Tamaulipas          | 33               | 76                | 130                | 18                | 1               |
| Tlaxcala            | 7                | 8                 | 8                  | 3                 | 0               |
| <b>Veracruz</b>     | <b>51 (10.5)</b> | <b>190 (39.1)</b> | <b>449 (92.5)</b>  | <b>57 (11.7)</b>  | <b>10 (2.1)</b> |
| Yucatán             | 35               | 97                | 169                | 6                 | 0               |
| Zacatecas           | 11               | 21                | 30                 | 7                 | 0               |

the most important, hosting 692 species (80.3 %), followed by tropical seasonally dry forest, temperate forest, humid mountain forest and xerophytic scrubland. Regarding the endemic species, the position of the latter two biomes in terms of total species is not altered; however, the top two places are changed because the tropical seasonally dry forest becomes of highest importance ( $n = 134$  species, 59.8 %), whereas second and third position was taken by temperate forest and tropical humid forest, respectively. The values of richness differ significantly among the biomes, both for the total number of species ( $\chi^2 = 531.16$ , d.f. 4,  $P = 0.001$ ) and the number of endemic species ( $\chi^2 = 80.55$ , d.f. 4,  $P = 0.001$ ).

When species richness is evaluated by vegetation type, the tropical dry forest occupies first place, both for the total number of species (52.1 %) and for that of the endemic

species (55.8 %); another similarity between both sets of species is the reduced importance of mangrove, savanna and thorn forest (Table 5). Second place in terms of the total number of species is occupied by the tropical evergreen forest (44.3 %), while for the endemic species this position is held by the oak forest (24.6 %). The nine vegetation types also showed difference for all lianas species ( $\chi^2 = 836.92$ , d.f. 8,  $P = 0.001$ ) and by their number of endemics ( $\chi^2 = 194.15$ , d.f. 8,  $P = 0.001$ ).

Species of lianas are negatively correlated with altitude, with a higher concentration found at lower elevations (Table 6), particularly below 1,500 m elevation, with a statistically significant correlation, both for the total number of species ( $R = -0.98$ ,  $P = 0.001$ ) and for endemic species ( $R = -0.904$ ,  $P = 0.001$ ).



**Table 4.** Frequency distribution of the number of states occupied by liana species in Mexico.

| Number of states per species | Total of species (endemics) | Number of states per species | Total of species (endemics) |
|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 1                            | 142 (57)                    | 15                           | 12 (2)                      |
| 2                            | 109 (34)                    | 16                           | 9 (1)                       |
| 3                            | 124 (36)                    | 17                           | 7 (1)                       |
| 4                            | 80 (14)                     | 18                           | 11 (1)                      |
| 5                            | 65 (18)                     | 19                           | 10 (2)                      |
| 6                            | 54 (14)                     | 20                           | 9 (0)                       |
| 7                            | 51 (11)                     | 21                           | 4 (1)                       |
| 8                            | 35 (6)                      | 22                           | 5 (0)                       |
| 9                            | 25 (3)                      | 23                           | 4 (0)                       |
| 10                           | 25 (6)                      | 24                           | 1 (0)                       |
| 11                           | 35 (11)                     | 25                           | 1 (0)                       |
| 12                           | 18 (2)                      | 26                           | 1 (0)                       |
| 13                           | 9 (2)                       | 27                           | 1 (0)                       |
| 14                           | 14 (2)                      | 31                           | 1 (0)                       |

## Discussion

**Taxonomic richness.** Fifteen families with the greatest taxonomic diversity include 81 % of the species (Table 1). This figure differs from that documented by Gentry (1991a), who found that 26 families of the Neotropics contained 85 % of

**Table 5.** Liana species per biome (in bold and cursives) and vegetation types recognized in Mexico. Humid mountain forest biome and xerophytic scrubland biome include only one vegetation type named as the same.

| Biome and Vegetation                  | Species           |                   |
|---------------------------------------|-------------------|-------------------|
|                                       | Total (%)         | Endemics (%)      |
| <b>Humid mountain forest</b>          | <b>260 (30.2)</b> | <b>47 (21.0)</b>  |
| <b>Temperate forest</b>               | <b>361 (42.0)</b> | <b>112 (50.1)</b> |
| <i>Quercus</i> forest                 | 168 (19.5)        | 55 (24.6)         |
| <i>Pinus-Quercus</i> forest           | 128 (15.0)        | 36 (16.1)         |
| Coniferous forest                     | 65 (7.5)          | 21 (9.4)          |
| <b>Tropical seasonally dry forest</b> | <b>472 (54.8)</b> | <b>134 (59.8)</b> |
| Tropical dry forest                   | 449 (52.1)        | 125 (55.8)        |
| Thorn forest                          | 23 (2.7)          | 9 (4.0)           |
| <b>Tropical humid forest</b>          | <b>692 (80.3)</b> | <b>74 (33.1)</b>  |
| Tropical evergreen forest             | 382 (44.3)        | 23 (10.3)         |
| Tropical semi evergreen forest        | 310 (36.0)        | 51 (22.8)         |
| <b>Xerophytic scrubland</b>           | <b>98 (11.4)</b>  | <b>41 (18.3)</b>  |
| <b>Other vegetation types</b>         |                   |                   |
| Riparian forest                       | 144 (16.7)        | 23 (10.3)         |
| Mangrove                              | 31 (3.6)          | 2 (0.9)           |
| Savanna                               | 25 (2.9)          | 3 (1.3)           |
| Secondary vegetation                  | 309 (35.8)        | 42 (18.8)         |

**Table 6.** Relationship between elevation (m asl) and number of liana species in Mexico.

| Altitudinal range | Species    |              |
|-------------------|------------|--------------|
|                   | Total (%)  | Endemics (%) |
| 0-500             | 596 (69.1) | 111 (49.6)   |
| 501-1,000         | 521 (60.4) | 106 (47.3)   |
| 1,001-1,500       | 441 (51.2) | 113 (50.4)   |
| 1,501-2,000       | 300 (34.8) | 99 (44.2)    |
| 2,001-2,500       | 154 (17.9) | 51 (22.8)    |
| 2,501-3,000       | 73 (8.5)   | 19 (8.5)     |
| 3,001-3,500       | 9 (1.0)    | 3 (1.3)      |
| 3,501-4,000       | 2 (0.2)    | 1 (0.4)      |

the species that exhibit a scandent habit. Likewise, there is no coincidence at the level of the entire Mexican flora because the most speciose 15 families include 55 % of the total species (Villaseñor, 2003). Families with more species for Mexico as documented by this last author and for the lianas in the present study indicate a marginal similarity because these groups only share Asteraceae, Fabaceae, Rubiaceae, and Solanaceae, although a subsequent modification of the data of Villaseñor (2003) by Juárez-Jaimes *et al.* (2007) also incorporated Apocynaceae *s.l.* within the most diverse Mexican families (position 14). These data suggest that the specialization of climbers has centered in particular family lineages (*e.g.*, Apocynaceae, Convolvulaceae, Malpighiaceae, or Passifloraceae). In addition, it is important to consider that in Apocynaceae and Malpighiaceae, the climbing habit is more frequent compared to other growth forms, such as the trees or shrubs (Juárez-Jaimes *et al.*, 2007; Anderson, 2013).

Considering that the 20 most diverse genera in Mexico include 15 % of the species (Villaseñor, 2004), our results are important given that the 18 more diverse liana genera comprise 38.1 % ( $n = 328$ ) of the species (Table 2), despite the fact that the proportion of liana genera with only one species is greater (50 %) than that of the entire flora ( $n = 988$ ; 37 %). The role of *Ipomoea* is of the greatest importance, and it is no surprise that it is cited as the second most speciose genus among the Neotropical climbing plants (Gentry, 1991a). If the genera of Table 1 are compared with those of the entire Mexican flora (Villaseñor, 2004), only *Solanum* and *Ipomoea* are found, occupying the ninth and tenth positions, respectively.

**Geographic distribution.** For endemic liana genera, our results are comparable with those of Rzedowski (1991a), who calculated an endemism of  $\pm 1$  %, which is much lower than that obtained for the entire Mexican flora (8 %) by Villaseñor (2004). However, the value of 25.9 % of endemism for liana species is practically half of the percentage that was recently

obtained for the whole country (Villaseñor and Ortiz, 2014) but is much closer to that estimated by these authors for the climbers (38 %) or for the vines or woody climbers (15 %) by Rzedowski (1991a). The causes of this important value of endemism may be found in the role that plant communities (e.g., the tropical deciduous forest) or biomes (e.g., the tropical montane humid forest) have played as “ecological islands”, as well as the influence of the climate and edaphic substrate in the life cycle and evolution of plants in Mexico (Rzedowski, 1991a, b).

Another aspect to highlight is that the families and genera that are most notable for their richness of lianas play similar roles in their contribution to endemic and microendemic species (Tables 1, 2). The trend for families is explained, in part, by the fact that some of these families are among the most speciose in Mexico, while also presenting noteworthy levels of endemism (Rzedowski, 1991a; Villaseñor, 2003; Juárez-Jaimes *et al.*, 2007): Apocynaceae 47 %, Asteraceae 65.9–66 %, Fabaceae 52–60 %, and Rubiaceae 49 %. A similar explanation can be applied to *Ipomoea* because it is the tenth most diverse genus in the country (Villaseñor, 2004). An important point to note is the contribution of Apocynaceae, with six genera (Table 2), which present a notable level of restriction within the Mexican territory (Juárez-Jaimes *et al.*, 2007): *Dictyanthus* (87 %), *Gonolobus* (49 %), *Mandevilla* (47 %), *Marsdenia* (53 %), *Matelea* (60 %), and *Metastelma* (52 %).

The richness, number of endemics and of the microendemic species that were detected among the lianas of Mexico indicate a very clear inequality among the Mexican states; this relationship is maintained for the seven most important states, regardless of their different sizes (Table 3). One factor that explains these relationships, both for the total number of liana species and for the endemic species, is the proximity of the states (Ibarra-Manríquez *et al.*, 2015). Consequently, the floristic importance at the national level of the states of Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, and Veracruz is ratified by our results, which support similar conclusions by studies that were conducted on different groups of plants (e.g., Villaseñor *et al.*, 1998; Espejo-Serna *et al.*, 2004a; Juárez-Jaimes *et al.*, 2007; Alcántar-Mejía *et al.*, 2012) or the entire flora (Rzedowski, 1991a, b; Villaseñor, 2003; Villaseñor and Ortiz, 2014).

The lianas found in only one state (Table 4) present much lower values for the total number of species (16.5 %) and endemic species (26 %) than those obtained by Villaseñor (2003) for the entire Mexican flora, with 33 % ( $n = 8,228$  of 24,626 species), and 43 % ( $n = 5,566$  of 12,900), respectively. However, a direct comparison cannot be made because the figures that were presented by this author include sub-specific categories. In addition, as indicated by Villaseñor (2003), these results must be treated with caution as they may be affected by collection bias, thus highlighting the need for a future floristic study that is directed towards a

more exact characterization of the geographic distribution of these rare species.

*Biomes, vegetation types and altitude.* At the level of biomes, the tropical forests have proved to be the most important for liana species, a global pattern that has been indicated in previous studies (Gentry, 1982, 1991a, b; Schnitzer and Bongers, 2002; Schnitzer, 2005). The role of the tropical humid forest is particularly remarkable for its number of species, while the tropical seasonally dry forest stands out for its endemics (Table 5). Contrasting results are seen at the level of the entire flora of Mexico (Villaseñor and Ortiz, 2014) because the temperate forest has the greatest importance both at the level of total richness and of endemic species; in fact, in this latter group of taxa, the tropical humid forest is the least important. These data affirm the significance of conducting particular biogeographic studies for the different growth forms present in Mexico because some can present patterns that are discordant with those that are obtained for the entire flora.

In terms of the hosted liana species, the vegetation types that are recognized in Mexico are of uneven importance (Table 5). In this sense, it is notable that first place for the total number of species and of endemic species is occupied by the tropical deciduous forest, ratifying the ecological and floristic importance of this vegetation type at the global (Olson and Dinerstein, 2002), continental (Lott and Atkinson, 2006) and national scales (e.g., Trejo and Dirzo, 2002; Cúebär *et al.*, 2006a, b; Juárez-Jaimes *et al.*, 2007; Rzedowski and Calderón de Rzedowski, 2013). The importance of the oak forest for endemic liana species was not expected because this vegetation type had been considered important for other growth forms, especially herbaceous plants (e.g., Rzedowski, 1978).

However, our results agree with those of Gentry (1991a), Bhattarai and Vetaas (2003) and Jiménez-Castillo *et al.* (2007) in terms of the negative relationship between the richness of lianas and the altitude. Additional evidence is found in Jiménez-Castillo *et al.* (2007), who analyzed the data for the lianas in a gradient of tropical vegetation in Mexico and detected the same statistically significant trend. One factor that may explain this result is the sensitivity of lianas to temperatures below the freezing point, which affect their vascular system and impede an efficient transport of water from the root to the crown (Gentry, 1991b; Schnitzer and Bongers, 2002; Schnitzer, 2005). However, the sensitivity of lianas to this factor must be explored in greater detail because other factors that change with altitude could also affect these plants; for example, the total annual precipitation, the seasonality of precipitation or the relative humidity of the air. This last factor has a direct effect on the hydric balance of the plants and the energy availability (Schnitzer and Bongers, 2002; Schnitzer, 2005). Furthermore, it should be considered that lianas in Mexico are by no means scarce

in temperate forests (Table 5), justifying the future investigation of the influence of frost and other climatic factors on liana physiology and ecology.

## Conclusions

Mexican lianas present patterns of diversity and distribution that must be considered when defining strategies that are directed toward their conservation. The coincidence in the richness, endemism and microendemic taxa at the state level is of particular value, highlighting the relevance of these attributes in the states of Chiapas, Oaxaca, Guerrero, Jalisco and Michoacán (Table 3), where the establishment of Protected Areas is a urgent priority; the same conclusion can be invoked if we analyze the patterns of richness and endemism for the whole flora (Villaseñor, 2003; Villaseñor and Ortíz, 2014). These reserves should have the consent of the different social and political stakeholders that are involved, as well as financial income to guarantee their long-term functioning. From the results that were obtained for the lianas, it is clear that these reserves must include important areas of tropical and temperate forest within the vegetation types that are under protection, especially the tropical deciduous forest, tropical montane cloud forest and oak forest. The high beta diversity that is exhibited by lianas is concordant with that exhibited by the flora (Villaseñor, 2003; Pérez-García *et al.*, 2005; Trejo, 2005) and fauna (Rodríguez *et al.*, 2003; Flores-Villela *et al.*, 2005), and their complementarity should be considered during these conservation exercises, especially in terms of the endemic species.

The data from the present study indicate that lianas play a fundamental role in the taxonomic diversity of the flora of Mexico, which is one of the greatest worldwide. Botanical exploration is an important task that must still be completed, particularly for those biological groups underrepresented in plant inventories and collections mainly by the difficulties inherent in their biological form, such as lianas, in which many species represent microendemics, that are currently being discovered and named (*e.g.* Cuevas-Guzmán and Núñez-López, 2015; Linares, 2015). However, Ibarra-Manríquez *et al.* (2015) indicated that the conservation status of lianas in Mexico is of concern. For this reason, it is hoped that our contribution can promote the development of studies that further the knowledge of the biogeography, ecology and systematic of the lianas in this country, providing broader information with which to prioritize efforts to ensure the future conservation of lianas in the ecosystems that they occupy.

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**Appendix 2.** List of liana species of Mexico. For each family, the number of genera and species is shown in parentheses, separated by a slash. For each species we mentioned species name and their author, original publication, growth form, geographical distribution in Mexico (states) and a continental scale (Africa, America [Antilles, Middle America, South America, United States of America] and Asia), vegetation where species was found and its altitudinal range. **Abbreviations: 1) Growth form:** He (hemiepiphyte), Li (liana), Sc (scandent shrub); **2) Geographical distribution:** USA (United States of America), MEX (Mexico), Ags (Aguascalientes), BC (Baja California), BCS (Baja California Sur), Cam (Campeche), Chis (Chiapas), Chih (Chihuahua), Coa (Coahuila), Col (Colima), DF (Distrito Federal), Dgo (Durango), Gto (Guanajuato), Gro (Guerrero), Hgo (Hidalgo), Jal (Jalisco), Mex (México), Mich (Michoacán), Mor (Morelos), Nay (Nayarit), NL (Nuevo León), Oax (Oaxaca), Pue (Puebla), Qro (Querétaro), QR (Quintana Roo), SLP (San Luis Potosí), Sin (Sinaloa), Son (Sonora), Tab (Tabasco), Tam (Tamaulipas), Tla (Tlaxcala), Ver (Veracruz), Yuc (Yucatán), Zac (Zacatecas), ANT (Antilles), MA (Middle America), Bel (Belize), CR (Costa Rica), ES (El Salvador), Gua (Guatemala), Hon (Honduras), Nic (Nicaragua), Pan (Panama), SA (South America), AF (Africa), AS (Asia); **3) Vegetation types:** CF (coniferous forest), HMF (humid mountain forest), MG (mangrove), PQF (*Pinus-Quercus* forest), QF (*Quercus* forest), RF (riparian forest), SAV (Savanna), SV (Secondary vegetation), TDF (tropical dry forest), TEF (tropical evergreen forest), TF (thorn forest), TSEF (tropical semi evergreen forest), XS (xerophytic scrubland); **4) NA.:** without available data.

### Acanthaceae (1/2)

*Mendoncia guatemalensis* Standl. & Steyererm. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(5): 245. 1947. Li. MEX (Chis, Oax, Ver), MA (Gua, Hon). TEF. 60-1,100 m.  
*M. retusa* Turrill. Bull. Misc. Inform. Kew 1919(10): 423. 1919. Li. MEX (Chis, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 0-1,010 m.

### Amaranthaceae (4/6)

*Chamissoa altissima* (Jacq.) Kunth var. *altissima*. Nov. Gen. Sp. (quarto ed.) 2(7): 197, t. 125. 1817[1818]. Li, Sc. MEX (Cam, Chis, Col, Hgo, Jal, Mich, Nay, Oax, Pue, Qro, Sin, SLP, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), ANT, SA. HMF, SV, TDF, TEF, TSEF. 160-1,120 m.  
*Hebanthe grandiflora* (Hook.) Borsch & Pedersen. Sendtnera 4: 20. 1997. Li. MEX (Chis, Oax), MA (Bel, CR, Hon, Nic), SA. TEF. 280-300 m.  
*Iresine nigra* Uline & W.L. Bray. Bot. Gaz. 21(5): 350. 1896. Sc. MEX (Cam, Chis, Gro, Nay, Oax, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). PQF, SV, TDF, TSEF. 95-1,180 m.  
*I. palmeri* (S. Watson) Standl. J. Wash. Acad. Sci. 5(11): 395. 1915. Li. USA, MEX (Hgo, NL, SLP, Tam, Ver). PQF, TEF. 20-2,200 m.  
*I. rzedowskii* Zumaya, Flores Oliv. & Borsch. Syst. Bot. 38(2): 435-438, f. 1-2. 3a, 4. 2013. Li. MEX (Chih, Dgo, Gto, Gro, Jal, Mich, Nay, Oax, Pue, Qro, Sin). PQF, TDF, SV, XS. 1,145-2,500 m.  
*Pleuropetalum pleiogyneum* (Kuntze) Standl. J. Wash. Acad. Sci. 13(16): 369. 1923. Sc. MEX (Oax), MA (CR, Nic, Pan), SA. PQF. NA.

### Anacardiaceae (3/3)

*Attilaea abalak* E. Martínez & Ramos. Acta Bot. Hung. 49(3-4): 354-356, f. 1. 2007. Li, Sc. MEX (Cam, QR), MA (Gua). SV, TDF, TEF, TSEF. 40-276 m.  
*Rhus terebinthifolia* Schltldl. & Cham. Linnaea 5: 600-601. 1830. Sc. MEX (Chis, Dgo, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, SLP, Sin, Son, Tam, Ver, Zac), MA (CR, ES, Gua, Hon). HMF, QF, TSEF, XS. 750-1,900 m.  
*Toxicodendron radicans* (L.) Kuntze. Revis. Gen. Pl. 1: 153. 1891. Li, Sc. USA, MEX (Ags, BC, BCS, Chis, Chih, Coa, Col, DF, Dgo, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, SLP, Sin, Son, Tam, Ver, Zac), MA (Gua), AS. BC, HMF, QF, RF. 300-2,700 m.

### Apocynaceae (32/158)

*Cynanchum ligulatum* (Benth.) Woodson. Ann. Missouri Bot. Gard. 28(2): 210. 1941. Li. USA, MEX (Ags, Chih, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Sin, Son, Zac). QF, SV, TDF, XS. 7-2,020 m.  
*Dictyanthus aeneus* Woodson. Amer. J. Bot. 22(7): 691-692, t. 1, f. 4a. 1935. Li. MEX (Cam, Yuc). TDF, XS. 0-10 m.  
*D. altatensis* (Brandege) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Jal, Sin, Son). SV, TDF, XS. 0-750 m.  
*D. asper* (Mill.) W.D. Stevens. Novon 9(4): 564. 1999. Li. MEX (Chis, Col, Jal, Mex, Mich, Oax, Ver), MA (ES, Gua, Hon, Nic). SV, TDF. 300 m.  
*D. eximius* (W.D. Stevens) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Chis). CF, TDF. 700-900 m.  
*D. hamatus* (W.D. Stevens) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Gro, Oax). SV, TDF, TSEF. 80-200 m.  
*D. lautus* (W.D. Stevens) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Col). TDF. 200-300 m.  
*D. parviflorus* Hemsl. Biol. Cent.-Amer. Bot. 2(11): 329. 1882. Li. MEX (Chis, Gro, Mex, Mich, Mor, Oax, Pue, Ver), MA (ES, Gua). PQF, TDF. 800-2,600 m.  
*D. pavonii* Decne. Prodr. 8: 605. 1844. Li. MEX (Chis, Col, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Sin). PQF, QF, SV, TDF. 600-2,500 m.



## Appendix 2. Continuation.

- D. sepicola* (W.D. Stevens) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Jal, Nay, Sin, Son). TDF. 20-30 m.
- D. suffruticosus* (W.D. Stevens) W.D. Stevens. Novon 10(3): 243. 2000. Li. MEX (Oax). TDF, XS. 50-100 m.
- D. tigrinus* Conz. & Standl. Contr. U.S. Natl. Herb. 23(4): 1183-1184. 1924. Li. MEX (Chis, Oax, Ver). QF, TEF. 60-1,220 m.
- D. tuberosus* B.L. Rob. Proc. Amer. Acad. Arts 27: 180-181. 1893. Li. MEX (Jal, Son, Zac). PQF, SV, TDF. 500-1,600 m.
- D. yucatanensis* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 8(1): 37. 1930. Li. MEX (Cam, QR, Yuc). SV, TDF, TSEF. 0-200 m.
- Echites turbinatus* Woodson. Ann. Missouri Bot. Gard. 21(4): 615-616. 1934. Li. MEX (Chis), MA (CR, Hon, Pan). HMF, SV. 1,500-1,800 m.
- E. tuxtensis* Standl. Contr. U.S. Natl. Herb. 23: 1164. 1924. Li. Sc. MEX (Cam, Chis, Oax, Qro, QR, SLP, Tab, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon). QF, SV, TDF, TEF. 110-1,100 m.
- E. umbellatus* Jacq. Enum. Syst. Pl. 13: 1790. Li. USA, MEX (Cam, QR, Tab, Ver, Yuc), ANT, MA (Bel, Gua, Hon), SA. SV, TDF, TSEF. 0-200 m.
- E. woodsonianus* Monach. Bull. Torrey Bot. Club. 86: 245, f. 1. 1959. Li. MEX (Gro, Jal, Mich, Oax, QR), MA (CR, Gua, Hon, Nic). RF, SV, TDF, TSEF. 170-450 m.
- E. yucatanensis* Millsp. ex Standl. Publ. Field Columbian Mus. Bot. Ser. 8(1): 35. 1930. Li. MEX (Cam, Col, Gro, Jal, Mich, QR, Yuc), MA (Bel, ES, Gua, Hon, Nic). TDF, TEF, TSEF. 0-1,200 m.
- Fernaldia asperoglottis* Woodson. Ann. Missouri Bot. Gard. 26(2): 96-97. 1939. Li. MEX (Gro, Mex, Mich). SV, TDF. 200-1,350 m.
- F. pandurata* (A. DC.) Woodson. Ann. Missouri Bot. Gard. 19: 48. 1932. Li. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Nay, Oax, Pue, Qro, QR, SLP, Tam, Ver, Yuc), MA (CR, ES, Gua, Hon, Nic). HMF, MG, QF, RF, SV, TDF, TSEF. 10-900 m.
- Fischeria scandens* DC. Cat. Pl. Horti Monsp. 112-113. 1813. Li. MEX (Chis, Oax, Pue, Tab, Ver), ANT, MA (Bel, Gua, Hon, Nic, Pan), SA. TEF. 0-1,350 m.
- Forsteronia acouci* (Aubl.) A. DC. Prodr. 8: 439. 1844. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Pan), SA. SV, TEF. 100-400 m.
- F. myriantha* Donn. Sm. Bot. Gaz. 27 (6): 435. 1899. Li. MEX (Chis, Gro, Oax, Pue, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF. 0-1,250 m.
- F. spicata* (Jacq.) G. Mey. Prim. Fl. Esseq. 135. 1818. Li. Sc. MEX (Chis, Gro, Jal, Nay, Oax, Ver), ANT, MA (CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TSEF. 250-275 m.
- Funastrum elegans* (Decne.) Schltr. Repert. Spec. Nov. Regni Veg. 13: 284. 1914. Li. MEX (Col, DF, Gro, Hgo, Jal, Mex, Mich, Oax, Pue, Qro, SLP, Tla, Ver). QF, SV, TDF. 1,500-2,400 m.
- F. pannosum* Schltr. Repert. Spec. Nov. Regni Veg. 13(363/367): 286. 1914. Li. MEX (BC, BCS, Chis, Chih, Dgo, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, SLP, Sin, Son, Tam). TDF, XS. 150-1,800 m.
- Gonolobus barbatus* Kunth. Nov. Gen. Sp. (quarto ed.) 3: 209, t. 239. 1818[1819]. Li. MEX (Cam, Chis, Jal, Mor, Oax, QR, Tab, Ver, Yuc), MA (CR, ES, Gua, Hon, Nic). RF, SV, TDF, TEF, TSEF. 0-1,000 m.
- G. breedlovei* L.O. Williams. Fieldiana, Bot. 32(4): 44-45. 1968. Li. MEX (Chis). PQF, TEF. 1,000-1,400 m.
- G. chiapensis* (Brandegee) Woodson. Ann. Missouri Bot. Gard. 28: 242. 1941. Li. MEX (Chis), MA (Gua). HMF, TEF. 1,325-1,800 m.
- G. chloranthus* Schltdl. Linnaea 8(5): 520-521. 1834. Li. MEX (Gro, Hgo, Jal, Mich, Pue, Qro, SLP, Ver). HMF, QF, SV. 1,000-2,170 m.
- G. cteniophorus* (S.F. Blake) Woodson. Ann. Missouri Bot. Gard. 28: 243. 1941. Li. MEX (Cam, Chis, QR, Tab, Ver, Yuc), MA (Bel, Gua, Hon). TDF, TEF, TSEF. 0-350 m.
- G. cuajayote* W.D. Stevens. Novon 15(1): 228-230, f. 5. 2005. Li. MEX (Chis), MA (ES, Gua, Nic). HMF, TEF. 150-900 m.
- G. erianthus* Decne. Prodr. 8: 592. 1844. Li. MEX (Chis, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, SLP, Tam, Ver), MA (Gua, Hon, Nic). HMF, TDF. 300-1,500 m.
- G. fraternus* Schltdl. Linnaea 8(5): 521. 1833[1834]. Li. MEX (Cam, Chis, Gro, Hgo, Mich, Oax, Pue, Qro, SLP, Tab, Tam, Ver), MA (Bel, Gua). PQF, TDF, TEF. 30-1,900 m.
- G. grandiflorus* (Cav.) R. Br. ex Schult. Syst. Veg. 6: 61. 1820. Li. MEX (DF, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Pue, Qro, Ver, Zac). CF, RF, TDF, XS. 1,800-2,000 m.
- G. incerianus* W.D. Stevens & Montiel. Novon 14(3): 350-353. 2004. Li. MEX (Chis, Oax, Ver), MA (ES, Gua, Hon, Nic). HMF, PQF. 1,300-2,700 m.
- G. leianthus* Donn. Sm. Bot. Gaz. 48: 296. 1909. Li. MEX (Cam, Chis, Tab), MA (Bel, Gua, Hon, Nic). HMF, SV, TEF. 40-1,250 m.
- G. nemorosus* Decne. Prodr. 8: 596. 1844. Li. MEX (Oax, Pue). QF, TDF, XS. 960-1,800 m.
- G. niger* (Cav.) R. Br. ex Schult. Syst. Veg. 6: 61. 1820. Li. MEX (Chis, Hgo, Oax, Qro, SLP, Tab, Tam, Ver), MA (Gua). RF, HMF, PQF, TEF. 0-1,700 m.
- G. pectinatus* Brandegee. Univ. Calif. Publ. Bot. 3(8): 387. 1909. Li. MEX (Gro, Mex, Mich, Mor, Oax, Pue). RF, TDF. 700-1,100 m.
- G. spiranthus* Juárez-Jaimes, W.D. Stevens & Lozada-Pérez. Novon 19(4): 479-481, f. 1. 2009. Li. MEX (Gro, Jal, Mex, Mich, Oax). SV, TSEF. 220-1,500 m.

## Appendix 2. Continuation.

- G. stenanthus* (Standl.) Woodson. Ann. Missouri Bot. Gard. 28: 243. 1941. Li. MEX (Cam, QR, Tab, Yuc), MA (Bel, Hon). TDF, TSEF. 0-200 m.
- G. stenosepalus* (Donn. Sm.) Woodson. Ann. Missouri Bot. Gard. 28: 243. 1941. Li. MEX (Chis), MA (Gua, Hon). CF, HMF. 1,800-2,700 m.
- G. uniflorus* Kunth. Nov. Gen. Sp. (quarto ed.) 3: 207, t. 238. 1818[1819]. Li. MEX (Chis, Col, DF, Mex, Mich, Mor, Oax, Pue), MA (Bel, ES, Gua, Hon). HMF, QF, XS. 1,300-2,600 m.
- Laubertia contorta* (M. Martens & Galeotti) Woodson. N. Amer. Fl. 29(2): 187-188. 1938. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, SLP, Sin). SV, TDF, TEF, TSEF. 50-2,050 m.
- Macroscepis diademata* (Ker Gawl.) W.D. Stevens. Phytologia 53(6): 405. 1983. Li. MEX (Cam, Chis, Oax, QR, Ver, Yuc), MA (Gua). CF, RF, SV, TDF, TEF, TSEF. 10-1,000 m.
- M. pleistantha* Donn. Sm. Bot. Gaz. 20(12): 543-544. 1895. Li. MEX (Chis), MA (CR, ES, Gua, Hon, Nic). HMF, TDF, TEF, TSEF. 600-1,000 m.
- Mandevilla acutiloba* (A. DC.) Woodson. Ann. Missouri Bot. Gard. 19(1): 54. 1932. Li. MEX (Chis, Gro, Oax), MA (ES, Gua, Hon). PQF, TDF. 1,000-2,240 m.
- M. andrieuxii* (Müll. Arg.) Hemsl. Biol. Cent.-Amer. Bot. 2(10): 316. 1881. Li. MEX (Col, Jal, Mich, Oax). TDF, TSEF. 0-900 m.
- M. convolvulacea* (A. DC.) Hemsl. Biol. Cent.-Amer. Bot. 2(10): 316. 1881. Li. MEX (Oax, Pue). QF, TDF, XS. 1,400-1,950 m.
- M. hirsuta* (Rich.) K. Schum. Nat. Pflanzenfam. 4(2): 171. 1895. Li. MEX (Chis, Oax, Tab), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SAV, SV, TEF. 30-250 m.
- M. holosericea* (Sessé & Moc.) J.K. Williams. Sida 18(1): 237. 1998. Li. MEX (Ags, Chis, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, Sin). QF, SV, TDF, XS. 0-2,300 m.
- M. karwinskii* (Müll. Arg.) Hemsl. Biol. Centr. Amer. Bot. 2: 316. 1881. Sc. MEX (Coa, Gto, Gro, Hgo, Mex, NL, Qro, SLP, Tam, Ver). HMF, QF, TDF, XS. 250-2,200 m.
- M. oaxacana* (A. DC.) Hemsl. Biol. Cent.-Amer. Bot. 2(10): 316. 1881. Li. MEX (Oax). PQF, QF, SV. 1,650-1,880 m.
- M. subsagittata* (Ruiz & Pav.) Woodson. Ann. Missouri Bot. Gard. 19(1): 69-70. 1932. Li. MEX (Cam, Chis, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. PQF, QF, RF, SV, TDF, TSEF. 10-1,200 m.
- M. subsessilis* (A. DC.) Woodson. Ann. Missouri Bot. Gard. 19(1): 59. 1932. Li. MEX (Chis, Gro, Jal, Mich, Oax, SLP), MA (ES, Gua). RF, SV, TDF, XS. 700-1,600 m.
- M. torosa* (Jacq.) Woodson. Ann. Missouri Bot. Gard. 19(1): 64-65. 1932. Li. MEX (Cam, Chis, Hgo, NL, QR, Qro, SLP, Tam, Ver, Yuc), ANT. QF, SV, TDF, TSEF. 2-1,950 m.
- M. tubiflora* (M. Martens & Galeotti) Woodson. Ann. Missouri Bot. Gard. 19(1): 52. 1932. Li. MEX (Chis, Gro, Mich, Oax, Tab, Ver, Yuc), MA (ES, Gua, Hon, Nic). CF, HMF, SV, TDF, TSEF, XS. 400-1,700 m.
- M. villosa* (Miers) Woodson. Ann. Missouri Bot. Gard. 19(1): 70. 1932. Li. MEX (Chis), MA (CR, ES, Gua, Hon, Nic, Pan), SA. SAV, TDF. 640-800 m.
- Marsdenia astephanoides* (A. Gray) Woodson. Ann. Missouri Bot. Gard. 28: 244. 1944. Li. MEX (Col, Gro, Jal, Mich, Nay, Oax, Sin). SV, TDF. 50-1,100 m.
- M. bourgaeana* (Baill.) W. Rothe. Bot. Jahrb. Syst. 53: 408. 1915. Li. MEX (Chis, Mor, Oax, Ver), MA (Gua, Hon), SA, AS. HMF, TDF. 820-1,480 m.
- M. callosa* Juárez-Jaimes & W.D. Stevens. Novon 7: 253-255. 1997. Li. MEX (Gro, Jal, Mich, Oax). SV, TDF, TSEF, XS. 0-1,100 m.
- M. coulteri* Hemsl. Biol. Cent.-Amer. Bot. 2(11): 336-337. 1882. Li. MEX (Cam, Chis, Coa, Gto, Hgo, Jal, NL, Oax, Pue, QR, Sin, Son, Ver, Yuc). TDF, TSEF, XS. 1,000-1,600 m.
- M. cuixmalensis* Juárez-Jaimes & L.O. Alvarado-Cárdenas. Candollea 65(1): 64. 2010. Li. MEX (Jal). TDF. 5-300 m.
- M. edulis* S. Watson. Proc. Amer. Acad. Arts 24: 61. 1889. Li. MEX (Chih, Sin, Son). TDF. 50-835 m.
- M. gallardoae* Lozada. Novon 10(2): 128-131, f. 1. 2000. Li. MEX (Chis, Oax). RF, TDF. 0-800 m.
- M. gualanensis* Donn. Sm. Bot. Gaz. 49: 456-457. 1910. Li. MEX (Chis, Jal, Oax, Yuc), MA (CR, ES, Gua, Hon, Nic). SV, TDF. 0-1,080 m.
- M. hiriartiana* Juárez-Jaimes & W.D. Stevens. Novon 15(4): 552-554, f. 1. 2005. Li. MEX (Chis, QR), MA (Gua, Hon). TEF. 5-620 m.
- M. lanata* (Paul G. Wilson) W.D. Stevens. SouthW. Naturalist 21(3): 406. 1976. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Sin, Ver), MA (ES, Gua, Hon). TDF, TSEF. 10-1,500 m.
- M. laxiflora* Donn. Sm. Bot. Gaz. 40(1): 7-8. 1905. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, ES, Gua, Hon). HMF, TEF. 0-1,200 m.
- M. macrophylla* (Humb. & Bonpl. ex Schult.) E. Fourn. Fl. Bras. 6(4): 321. 1885. Li. MEX (Chis, Mich, QR, Tab, Tam, Ver, Yuc), ANT, MA (CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TEF, TSEF. 0-3 m.
- M. mayana* Lundell. Contr. Univ. Michigan Herb. 4: 23-24. 1940. Li. MEX (Chis, Gro, Jal, Nay, QR, Yuc), MA (Bel, Gua, Hon). RF, SV, TDF. 30-1,400 m.

## Appendix 2. Continuation.

- M. mexicana* Decne. Prodr. 8: 617. 1844. Li. MEX (Chis, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Ver), MA (Gua). CF, PQF, SV, TDF. 100-2,200 m.
- M. parvifolia* Brandege. Zoë 5: 235-236. 1908. Li. MEX (Pue). TDF, XS. 1550-1,700 m.
- M. popoluca* Juárez-Jaimes & A. Campos V. Anales Inst. Biol. Univ. Nac. Autón. México, Bot. 74(1): 74-78, f. 1-2. 2003. Li. MEX (Tab, Ver). TEF. 20-200 m.
- M. pringlei* S. Watson. Proc. Amer. Acad. Arts 25: 158. 1890. Sc. MEX (NL, Qro, SLP, Tam). HMF, QF. 900-1,300 m.
- M. propinqua* Hemsl. Biol. Cent.-Amer. Bot. 2(11): 337. 1882. Li. MEX (Chis, Col, Gro, Hgo, Mich, Nay, NL, Oax, Pue, QR, Tab, Tam, Ver, Yuc), MA (Bel, Gua, Hon). QF, SV, TDF, TEF, TSEF. 5-1,600 m.
- M. rzedowskiana* Juárez-Jaimes & W.D. Stevens. Novon 5(4): 337-339. 1995. Li. MEX (Oax, Pue, Ver). HMF, SV. 1,400-2,120 m.
- M. steyermarkii* Woodson. Ann. Missouri Bot. Gard. 28(3): 285. 1941. Li. MEX (Chis), MA (Gua). HMF. 2,585 m.
- M. tholiformis* Juárez-Jaimes & L.O. Alvarado-Cárdenas. Candollea 65(1): 64-67, fig. 2. 2010. Li. MEX (Nay). TSEF. NA.
- M. trivirgulata* Bartlett. Proc. Amer. Acad. Arts 44: 632. 1909. Li. MEX (Chis, Col, Gro, Jal, Mex, Oax, Sin), MA (CR, ES, Gua, Hon, Nic, Pan). SV, TDF, TEF, TSEF. 30-830 m.
- M. tubularis* L.O. Williams. Fieldiana, Bot. 32(4): 51-52. 1968. Li. MEX (Chis, Mex, Oax). HMF, TDF. 1,000-1,100 m.
- M. veronicae* W.D. Stevens. Novon 10(3): 246, 248-249. 2000. Li. MEX (Chis, Oax), MA (CR, ES, Gua, Hon, Nic). TDF. 370-740 m.
- M. zimapanica* Hemsl. Biol. Cent.-Amer. Bot. 2(11): 338. 1882. Li. MEX (Chis, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro). SV, TDF, TSEF, XS. 200-2,400 m.
- Matelea belizensis* (Lundell & Standl.) Woodson. Ann. Missouri Bot. Gard. 28: 232. 1941. Li. MEX (QR), MA (Bel). SV, TSEF. 700-900 m.
- M. campechiana* (Standl.) Woodson. Ann. Missouri Bot. Gard. 28: 234. 1941. Li. MEX (Cam, Chis, QR, Yuc), MA (Bel, Gua). SAV, TDF, TEF, TSEF. 0-1,500 m.
- M. caudata* (A. Gray) Woodson. Ann. Missouri Bot. Gard. 28: 233. 1941. Li. MEX (BCS, Chih, Son). TDF, XS. 160-740 m.
- M. chrysantha* (Greenm.) Woodson. Ann. Missouri Bot. Gard. 28: 222. 1941. Li. MEX (DF, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Qro, Tla). HMF, PQF, QF, XS. 1,060-3,000 m.
- M. crassifolia* Woodson. Ann. Missouri Bot. Gard. 28: 236. 1941. Li. MEX (Cam, QR, Yuc), MA (Bel). TDF, TSEF. 0-200 m.
- M. crenata* (Vail) Woodson. Ann. Missouri Bot. Gard. 28: 233. 1941. Li. MEX (Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, SLP, Sin). CF, QF, TDF, TSEF, XS. 1,900-2,250 m.
- M. cyclophylla* (Standl.) Woodson. Ann. Missouri Bot. Gard. 28: 233. 1941. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Oax, Pue, Sin, Ver). TDF, TSEF. 210-1,480 m.
- M. emmartinezii* W.D. Stevens. Novon 15(4): 607-609, f. 3. 2005. Li. MEX (Chis). TDF, TEF. 800-900 m.
- M. fulvida* (F. Ballard) W.D. Stevens. Novon 9(4): 564. 1999. Li. MEX (Chis), MA (Bel, CR, Gua, Hon, Nic). TEF. 220-300 m.
- M. gonoloboides* (B.L. Rob. & Greenm.) Woodson. Ann. Missouri Bot. Gard. 28: 222. 1941. Li. MEX (Chis, Mex, Oax), MA (Gua, Hon). PQF, QF, TF. 200-1,800 m.
- M. inconspicua* (Brandegee) Woodson. Ann. Missouri Bot. Gard. 28: 222. 1941. Li. MEX (Oax, Pue, Ver). QF, SV, TF, XS. 1,900-2,850 m.
- M. magallanesii* E.J. Lott. Phytologia 73: 277-280. 1992. Li. MEX (Jal). TDF. 50-250 m.
- M. magnifolia* (Pittier) Woodson. Ann. Missouri Bot. Gard. 28: 225. 1941. Li. MEX (Chis, Oax, Pue, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). HMF, TEF. 70-1,200 m.
- M. micrantha* L.O. Williams. Fieldiana, Bot. 32(12): 184. 1970. Li. MEX (Cam, Chis), MA (Bel, Gua, Hon). SV, TDF, TEF. 120-430 m.
- M. ocellata* W.D. Stevens. Novon 10(3): 252, 254. 2000. Li. MEX (Mich, Oax), MA (Nic). HMF, TDF, TSEF. 60-1,100 m.
- M. picturata* (Hemsl.) Woodson. Ann. Missouri Bot. Gard. 28: 233. 1941. Li. MEX (Chis, Qro), MA (Gua, Pan). HMF. 1,200-2,000 m.
- M. pueblensis* (Brandegee) Woodson. Ann. Missouri Bot. Gard. 28: 223. 1941. Li. MEX (Oax, Pue). TDF. 800-940 m.
- M. purpusii* (Brandegee) Woodson. Ann. Missouri Bot. Gard. 28: 223. 1941. Li. MEX (Gro, Oax, Pue). CF, XS. 2,100-2,300 m.
- M. pusilliflora* L.O. Williams. Fieldiana, Bot. 32(4): 55-56. 1968. Li. MEX (Cam, Chis), MA (Bel, Gua, Hon). TEF, TSEF. 180-240 m.
- M. reticulata* (Engelm. ex A. Gray) Woodson. Ann. Missouri Bot. Gard. 28: 234. 1941. Li. MEX (Gro, Mex, Mor, Nay, Oax, Pue, Ver). CF, QF, XS. 1,850-2,300 m.
- M. steyermarkii* Woodson. Ann. Missouri Bot. Gard. 28: 278-279. 1941. Li. MEX (Chis), MA (Gua). HMF. 1,700-3,900 m.
- M. sugillata* W.D. Stevens. Novon 10(3): 252-256. 2000. Li. MEX (Oax, Qro, Ver), MA (Nic). HMF. 650-1,000 m.
- M. velutina* (Schtdl.) Woodson. Ann. Missouri Bot. Gard. 28: 234. 1941. Li. MEX (Cam, Gto, Hgo, Pue, Qro, QR, SLP, Tab, Tam, Ver). HMF, SV, TDF, TSEF. 0-30 m.
- Mesechites trifidus* (Jacq.) Müll. Arg. Fl. Bras. 6(1): 151-152. 1860. Li. MEX (Cam, Chis, Gro, Oax, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, XS. 90-850 m.

## Appendix 2. Continuation.

- Metalepis peraffinis* (Woodson) Morillo. *Ernstia*, n.s. 1(2): 55. 1991. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Nic, Pan), SA. HMF, QF, TEF. 20-2,000 m.
- Metastelma arizonicum* A. Gray subsp. *arizonicum*. Proc. Amer. Acad. Arts 19: 85. 1883. Li. USA, MEX (Son). XS. 10-1,000 m.
- M. arizonicum* A. Gray subsp. *chiapense* (A. Gray) Liede & Meve. Ann. Missouri Bot. Gard. 91(1): 42-43, f. 2a-f, 3. 2004. Li. MEX (Chis, Oax, Pue), MA (Bel, ES, Gua, Hon). CF, HMF, PQF. 915-2,250 m.
- M. brachymischum* W.D. Stevens. Novon 15(4): 623-625, f. 2. 2005. Li. MEX (Chis). TEF. 1,250-1,350 m.
- M. californicum* Benth. subsp. *californicum*. Bot. Voy. Sulphur 33-34, pl. 18. 1844. Li. MEX (BCS, Col, Nay, SLP, Sin, Son). XS. 0-100 m.
- M. cuneatum* Brandegee. Zoë 5: 216. 1905. Li. MEX (Sin, Son). XS. 0-25 m.
- M. lanceolatum* Schltr. Li. MEX (Chis, DF, Gro, Hgo, Jal, Mex, Mor, Oax, Pue, SLP, Yuc). TDF, XS. 1,000-2,200 m.
- M. latifolium* Rose. Contr. U.S. Natl. Herb. 1: 106. 1891. Li. MEX (Chih, Sin, Son). TDF. 250-1,200 m.
- M. longicoronatum* (L.O. Williams) Liede. Novon 7(1): 42. 1997. Li. MEX (Chis). PQF, TSEF. 1,300-1,700 m.
- M. mexicanum* (Brandegee) Fishbein & R.A. Levin. Madroño 44(3): 270. 1997. Li. USA, MEX (Sin, Son). PQF, TDF. 900-1,550 m.
- M. minutiflorum* Wiggins. Contr. Dudley Herb. 3: 71. 1940. Li. MEX (BCS, Son). XS. 200-500 m.
- M. miserum* (L.O. Williams) W.D. Stevens. Phytologia 64(5): 335. 1988. Li. MEX (Chis), MA (Gua, Hon). HMF, PQF. 700-2,800 m.
- M. palmeri* S. Watson. Proc. Amer. Acad. Arts 18: 115. 1883. Li. USA, MEX (Chis, Coa, Gro, NL, Oax, Pue, Tam, Yuc), MA (Gua). TDF, XS. 500-2,540 m.
- M. pringlei* A. Gray. Proc. Amer. Acad. Arts 21: 396-397. 1886. Li. USA, MEX (Chih, Coa, Dgo, NL, SLP, Tam, Zac). CF, XS. 500-2,300 m.
- M. pubescens* (Greenm.) W.D. Stevens. Phytologia 53(6): 405. 1983. Li. MEX (DF, Mex, Mich, Mor, Pue). TDF. 1,600-2,650 m.
- M. schaffneri* A. Gray. Proc. Amer. Acad. Arts 21: 396. 1886. Li. MEX (BCS, Dgo, Gro, Jal, Mor, Nay, Oax, Pue, SLP, Sin, Son). TDF, TF. 500-2,900 m.
- M. schlechtendalii* Decne. var. *arenicola* Liede & Meve. Ann. Missouri Bot. Gard. 91(1): 77, f. 22d, 23. 2004. Li. MEX (Sin, Son). XS. 30-400 m.
- M. schlechtendalii* Decne. var. *schlechtendalii*. Prodr. 8: 513. 1844. Li. MEX (Cam, Chis, Mor, Oax, Pue, QR, Tab, Ver, Yuc), MA (Bel, ES, Gua, Hon, Nic). MG, PQF, SV, TDF, TSEF, XS. 0-2,200 m.
- M. schlechtendalii* Decne. var. *trichophyllum* (L.O. Williams) Liede & Meve. Ann. Missouri Bot. Gard. 91(1): 77-78, f. 22a-f, 23. 2004. Li. MEX (Cam, Chis, Oax), MA (ES, Gua, Hon, Nic). PQF, TDF. 200-2,100 m.
- M. sepium* (Decne.) W.D. Stevens. Phytologia 64(5): 335. 1988. Li. MEX (Hgo, Oax), MA (Gua). NA.
- M. stenomeres* (Standl. & Steyer.) W.D. Stevens. Phytologia 64(5): 335. 1988. Li. MEX (Oax), MA (Bel, Gua). CF. 250-300 m.
- M. turneri* Liede & Meve. Ann. Missouri Bot. Gard. 91(1): 80-82, f. 15, 25a-f. 2004. Li. MEX (NL, SLP, Tam). XS. 400-2,000 m.
- Microdactylon cordatum* Brandegee. Zoë 5(11): 252-253. 1908. Li. MEX (Oax, Pue). XS. 1800-2060 m.
- Odontadenia macrantha* (Willd. ex Roem. & Schult.) Markgr. Fl. Suriname 4(1): 461-462. 1937. Li. MEX (Chis, Oax), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, SAV, TDF, TEF. 300 m.
- Orthosia cynanchoides* W.D. Stevens. Novon 15(4): 633-635, f. 7. 2005. Li. MEX (Chis). HMF. 2,800 m.
- O. glaberrima* (Woodson) W.D. Stevens. Novon 15(4): 635. 2005. Li. MEX (Chis), MA (CR, ES, Gua, Nic, Pan). HMF, PQF, TEF. 700-2,500 m.
- Oxypetalum cordifolium* (Vent.) Schltr. Symb. Antill. 1(2): 269. 1899. Li. MEX (Chis, Hgo, Jal, Oax, Qro, QR, SLP, Ver), ANT, MA (CR, Gua, Hon, Pan), SA. HMF. 40-2,000 m.
- Pentalinon andrieuxii* (Müll. Arg.) B.F. Hansen & Wunderlin. Taxon 35(1): 168. 1986. Li. USA, MEX (Cam, Chis, Gro, Hgo, Mor, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, ES, Gua, Hon, Nic). QF, SAV, SV, TDF, TSEF. 10-1,550 m.
- Pinochia monteverdensis* (J.F. Morales) M.E. Endress & B.F. Hansen. Edinburgh J. Bot. 64(2): 272. 2007. Li. MEX (Oax), MA (CR, Gua). HMF, TEF. NA.
- P. peninsularis* (Woodson) M.E. Endress & B.F. Hansen. Edinburgh J. Bot. 64(2): 272. 2007. Li. MEX (Cam, Tab), MA (Bel, Gua, Pan). TEF, TSEF. NA.
- Polystemma guatemalense* (Schltr.) W.D. Stevens. Novon 15(4): 618. 2005. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue), MA (CR, ES, Gua, Hon, Nic). CF, SV, TDF. 1,000-1,320 m.
- P. mirandae* Lozada-Pérez. Novon 20(4): 429-431, f. 1. 2010. Li. MEX (Gro, Oax, Pue). SV, TDF. 1,000-1,300 m.
- P. viridiflorum* Decne. Prodr. 8: 602-603. 1844. Li. MEX (Chis, Mich, Oax, Ver), MA (Gua, Hon, Nic). SV, TDF, TSEF. 80-1,585 m.
- Prestonia clandestina* J.F. Morales. Novon 7(1): 60. 1997. Li. MEX (Chis, Ver). SAV, SV, TEF. 100-900 m.
- P. longifolia* (Sessé & Moc.) J.F. Morales. Novon 6(3): 287. 1996. Li. MEX (Chis, Tab, Ver), MA (Bel, CR, ES, Gua, Nic, Pan), SA. SV, TEF, XS. 28-820 m.
- P. mexicana* A. DC. Prodr. 8: 429. 1844. Li. MEX (Cam, Chis, Col, Gto, Gro, Jal, Mich, Mor, Nay, Oax, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, RF, TDF, TEF, TSEF, XS. 10-1,280 m.

**Appendix 2.** Continuation.

- P. portobellensis* (Beurl.) Woodson. Ann. Missouri Bot. Gard. 18(4): 553-554. 1931. Li. MEX (Chis, Hgo, Qro, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, XS. 0-600 m.
- P. speciosa* Donn. Sm. Bot. Gaz. 27(6): 435. 1899. Li. MEX (Chis, Oax), MA (ES, Gua, Hon, Nic). CF, HMF, SV. 2,010 m.
- Prosthecidiscus guatemalensis* Donn. Sm. Bot. Gaz. 25(3): 150, t. 12. 1898. Li. MEX (Chis, Gro, Jal, Oax, Ver), MA (CR, ES, Gua, Hon, Nic). TDF. 30-1,000 m.
- Rhabdadenia biflora* (Jacq.) Müll. Arg. Fl. Bras. 6(1): 175. 1860. Li. USA, MEX (Cam, Chis, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. MG, TDF, TSEF. 25 m.
- Sarcostemma bilobum* Hook. & Arn. Bot. Beechey Voy. 438. 1841. Li. MEX (Cam, Chis, Col, Jal, Mex, Mich, Mor, Oax, Pue, QR, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF, XS. 660-900 m.
- S. clausum* (Jacq.) Schult. Syst. Veg. (ed. 15 bis) 6: 114-115. 1820. Li. USA, MEX (BCS, Cam, Chis, Chih, Col, Gro, Jal, Mich, Nay, Oax, QR, Sin, Son, Tab, Tam, Ver, Yuc, Zac), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. MG, SV, TDF. 0-1,200 m.
- Tassadia obovata* Decne. Prodr. 8: 579-580. 1844. Li. MEX (Chis, Oax, Ver), ANT, MA (Bel, CR, Nic, Pan), SA. TEF. 10-1,500 m.
- Telminostelma foetidum* (Cav.) Fontella & E.A. Schwarz. Bol. Mus. Bot. Munic. 45: 6. 1981. Li. MEX (Chis, DF, Gto, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Qro). TDF, XS. 200-2,330 m.
- Thenardia chiapensis* J.K. Williams. Brittonia 47(4): 403-407, f. 1-3. 1995. Li. MEX (Chis, Gro, Oax), MA (Hon). CF, PQF, RF. 910-1,700 m.
- T. floribunda* Kunth. Nov. Gen. Sp. (quarto ed.) 3: 210-211, pl. 240. 1818[1819]. Li. MEX (Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax). HMF, QF. 1,200-1,900 m.
- T. galeottiana* Baill. Bull. Mens. Soc. Linn. Paris 2: 819. 1890. Li, Sc. MEX (Chis, Gro, Oax). HMF, PQF, SV, TDF. 1,070-1,690 m.
- Thoreauea aberrans* J.F. Morales. Brittonia 57(3): 260-262, f. 1-2. 2005. Li. MEX (Ver). TEF. 1,350 m.
- T. guerrensis* Diego & Lozada-Pérez. Novon 16(3): 332-334, f. 1. 2006. Li. MEX (Gro). HMF, PQF, QF. 1,800-2,650 m.
- T. paneroi* J.K. Williams. Lundellia 5: 47-57, f. 1-2. 2002. Li. MEX (Oax). HMF, PQF. 2,400-2,600 m.
- Tintinnabularia gratissima* J.F. Morales. Novon 6(4): 392-394, f. 1. 1996. Li. MEX (Ver). SV, TEF. 1,400-1,600 m.
- T. mortonii* Woodson. Ann. Missouri Bot. Gard. 23(2): 389-391, t. 7. 1936. Li. MEX (Chis, Oax), MA (Gua). HMF, SV, TEF. 600-2,600 m.

**Areaceae (1/1)**

- Desmoncus orthacanthos* Mart. Hist. Nat. Palm. 2(3): 87, t. 69, 98. 1824. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, TEF, TSEF. 150-200 m.

**Aristolochiaceae (1/18)**

- Aristolochia anguicida* Jacq. Enum. Syst. Pl. 30. 1760. Li. MEX (Chis, Mich, Oax, Yuc), ANT, MA (CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF. 0-1,000 m.
- A. asclepiadifolia* Brandegee. Univ. Calif. Publ. Bot. 6(8): 178. 1915. Li, Sc. MEX (Ver). QF, RF, TDF, TSEF. 100-1,000 m.
- A. bullata* Pfeifer. Ann. Missouri Bot. Gard. 53(2): 134-135, f. 8. 1966. Li. MEX (Gro, Ver), MA (Gua). TDF. 25-100 m.
- A. cardiantha* Pfeifer. Taxon. Rev. Pentandrous Sp. Aristolochia 21, f. 3. 1970. Li. MEX (Gro). TDF. 500 m.
- A. carterae* Pfeifer. Ann. Missouri Bot. Gard. 53(2): 178-179, f. 52. 1966. Li. MEX (Jal, Nay). RF, TSEF. 0-30 m.
- A. chiapensis* J.F. Ortega & R.V. Ortega. Acta Bot. Mex. 44: 2-4, f. 1. 1998. Li. MEX (Chis). TEF. 100-350 m.
- A. glossa* Pfeifer. Ann. Missouri Bot. Gard. 53(2): 180-181, f. 54. 1966. Li. MEX (Mich). RF, TDF, TSEF. 300-1,000 m.
- A. grandiflora* Sw. Prodr. 126. 1788. Li. MEX (Chis, Oax, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, RF, TEF. 0-1,500 m.
- A. inflata* Kunth. Nov. Gen. Sp. (quarto ed.) 2: 145-146, t. 111. 1817. Li. MEX (Chis, Gro), MA (CR, Gua, Hon, Nic, Pan), SA. TDF, TSEF. 0-1,500 m.
- A. leuconeura* Linden. Belgique Hort. 8: 165. 1858. Li. USA, MEX (Ver), MA (Bel, CR, Hon, Pan), SA. TEF. 0-1,000 m.
- A. malacophylla* Standl. Proc. Biol. Soc. Wash. 33(12): 65-66. 1920. Li, Sc. MEX (Chis, Col, Jal, Mich), MA (Gua, Hon). PQF. 1,500-1,800 m.
- A. maxima* Jacq. Enum. Syst. Pl. 30. 1760. Li. USA, MEX (Cam, Chis, Tab, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 0-1,200 m.
- A. odoratissima* L. Sp. Pl. (ed. 2) 2: 1362. 1763. Li. MEX (Chis, Jal, Mich, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 500-750 m.
- A. ovalifolia* Duch. Ann. Sci. Nat. Bot. sér. 4, 2: 50-51. 1854. Li. MEX (Chis, Oax, Tab, Ver, Yuc), MA (Bel). RF, SV, TEF. 0-500 m.
- A. paracleta* Pfeifer. Ann. Missouri Bot. Gard. 53(2): 135-136, f. 9. 1966. Li. MEX (Chis), MA (Gua). NA.
- A. pilosa* Kunth. Nov. Gen. Sp. (quarto ed.) 2: 146-147, t. 113. 1817. Li. MEX (Chis, Gro, Mich, Mor, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF. 10-50 m.
- A. taliscana* Hook. & Arn. Bot. Beechey Voy. 309. 1841[1838]. Li. MEX (Col, Jal, Mich, Nay, Sin). RF, TDF. 700-900 m.
- A. veracruzana* J.F. Ortega. Biótica 12: 209. 1987. Li. MEX (Ver). QF, RF, SV, TEF. 150-650 m.

## Appendix 2. Continuation.

**Asteraceae (23/61)**

- Archibaccharis albescens* (J.D. Jacks.) G.L. Nesom. *Phytologia* 65(2): 124. 1988. Li. MEX (Oax). PQF, QF. 1,900-2,900 m.
- A. flexilis* (S.F. Blake) S.F. Blake. *J. Wash. Acad. Sci.* 17(3): 60. 1927. Li. MEX (Chis), MA (CR, ES, Gua, Nic). CF, HMF, SV, TEF. 500-3,000 m.
- A. hirtella* (DC.) Heering. *Jahrb. Hamburg. Wiss. Anst.* 21: Beih. 3: 41. 1904. Li. MEX (Chis, DF, Gro, Hgo, Mex, Mich, Mor, Oax), MA (ES). CF, HMF, PQF, QF. 600-3,200 m.
- A. salmeoides* (S.F. Blake) S.F. Blake. *J. Wash. Acad. Sci.* 17(3): 61. 1927. Li. MEX (Chis, Oax, Ver), MA (Gua). 1,300-1,900 m.
- A. schiedeana* (Benth.) J.D. Jacks. *Phytologia* 28(3): 297. 1974. Li, Sc. MEX (Chis, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, SLP, Ver), MA (CR, ES, Gua, Hon, Pan). HMF, PQF, QF, TEF. 600-2,600 m.
- A. taeniotricha* (S.F. Blake) G.L. Nesom. *Phytologia* 65(2): 125. 1988. Li. MEX (Chis), MA (ES, Gua). HMF, PQF. 900-3,000 m.
- A. veracruzana* G.L. Nesom. *Phytologia* 65(2): 127-128. 1988. Li, Sc. MEX (Ver). HMF, QF. 1,700-2,260 m.
- Baccharis trinervis* Pers. *Syn. Pl.* 2: 423. 1807. Sc. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mich, Mor, Nay, Oax, Pue, QR, Qro, SLP, Tab, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, SV, TEF, TSEF. 14-1,990 m.
- Bidens holwayi* Sherff & S.F. Blake. *Bot. Gaz.* 64: 39. 1917. Li. MEX (Chis), MA (Gua). 2,700 m.
- B. reptans* (L.) G. Don var. *urbanii* (Greenm.) O.E. Schulz. *Hort. Brit. (ed. 3)* 360. 1839. Li, Sc. MEX (Cam, Col, Gro, Jal, Mich, Oax, QR, Sin, Ver, Yuc), ANT, MA (Bel, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TSEF. 0-1,650 m.
- Calea jamaicensis* (L.) L. *Sp. Pl. (ed. 2)* 2: 1179. 1763. Li, Sc. MEX (Cam, Chis, Nay, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan). SV, TDF, TEF, TSEF. 20-500 m.
- Chromolaena odorata* (L.) R.M. King & H. Rob. *Phytologia* 20(3): 204. 1970. Sc. USA, MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mich, Nay, NL, Oax, QR, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, TDF. 800-1,700 m.
- Critonia billbergiana* (Beurl.) R.M. King & H. Rob. *Phytologia* 22(1): 48. 1971. Li. MEX (Ver), MA (Bel, CR, Gua, Nic, Pan), SA. TEF. 160 m.
- C. campechensis* (B.L. Rob.) R.M. King & H. Rob. *Phytologia* 22(1): 48. 1971. Li. MEX (Cam, QR, Yuc), MA (Bel, Gua). TSEF. 200-230 m.
- C. yashanalensis* (Whittem.) R.M. King & H. Rob. *Phytologia* 69(2): 89. 1990. Sc. MEX (Chis). HMF, TEF. 1,800-2,460 m.
- Critoniopsis pugana* (S.B. Jones & Stutts) H. Rob. *Proc. Biol. Soc. Wash.* 106(3): 620. 1993. Li, Sc. MEX (Jal). HMF, PQF. 1,500-2,000 m.
- Hidalgia ternata* La Llave. *Nov. Veg. Descr.* 1: 15. 1824. Li. MEX (Chis, Oax, Pue, Tab, Ver), MA (CR, Gua, Pan), SA. HMF, PQF, TEF. 150-1,900 m.
- Jungia ferruginea* L. f. *Suppl. Pl.* 390. 1781[1782]. Li, Sc. MEX (Chis), MA (CR, ES, Gua, Pan), SA. CF, HMF. 1,400-3,100 m.
- Lepidaploa canescens* (Kunth) Cass. var. *canescens*. *Proc. Biol. Soc. Wash.* 103(2): 483. 1990. Sc. MEX (Chis, Col, Gro, Hgo, Jal, Nay, Oax, QR, Tab, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. CF, HMF, PQF, SV, TDF. 0-2,500 m.
- L. tortuosa* (L.) H. Rob. *Proc. Biol. Soc. Wash.* 103(2): 495. 1990. Sc. MEX (Chis, Hgo, Oax, Pue, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). CF, PQF, SV, TDF. 5-1,900 m.
- Mikania cordifolia* (L. f.) Willd. *Sp. Pl.* 3(3): 1746. 1803. Li. USA, MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mex, Mich, Nay, Oax, Pue, Qro, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, TEF, TSEF. 0-1,000 m.
- M. globosa* J.M. Coulter. *Enum. Pl. Guatem.* 4: 77. 1895. Li. MEX (Chis), MA (Gua). HMF, TEF. 1,500-2,000 m.
- M. gonzalezii* B.L. Rob. & Greenm. *Proc. Boston Soc. Nat. Hist.* 29: 107. 1899. Li. MEX (Chis, Oax, Tab, Ver), MA (CR, Gua, Nic, Pan), SA. HMF. 945-2,100 m.
- M. guaco* Bonpl. *Pl. Aequinoct.* 2(13): 84, t. 105. 1809[1811]. Li. MEX (Chis, Oax, Tam, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TEF. NA.
- M. hookeriana* DC. *Prodr.* 5: 195. 1836. Li, Sc. MEX (Chis, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 150-2,800 m.
- M. leiostachya* Benth. *Pl. Hartw.* 201. 1845. Li, Sc. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF. 152-470 m.
- M. micrantha* Kunth. *Nov. Gen. Sp. (folio ed.)* 4: 105. 1820[1818]. Li, Sc. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mich, Nay, NL, Oax, Pue, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Bel, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, TSEF. 10-2,600 m.
- M. neei* W.C. Holmes. *Phytologia* 58: 165. 1985. Li. MEX (Ver). TEF. 400 m.
- M. tonduzii* B.L. Rob. *Proc. Boston Soc. Nat. Hist.* 31: 256. 1904. Li. MEX (Chis, Gro, Oax, Ver), MA (CR, Nic, Pan). HMF, TEF. 470-1,070 m.
- M. vitifolia* DC. *Prodr.* 5: 202. 1836. Li. MEX (Chis, Oax, Ver), MA (CR, Nic), SA. TEF. 100-480 m.
- Neohintonia monantha* (Sch. Bip.) R.M. King & H. Rob. *Phytologia* 22: 144. 1971. Sc. MEX (Col, Dgo, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Son). HMF, QF, RF, TDF, TSEF. 60-1,700 m.
- Neomirandea araliifolia* (Less.) R.M. King & H. Rob. *Phytologia* 19(5): 307. 1970. He. MEX (Chis, Jal, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Pan), SA. HMF, QF. 1,600-1,850 m.

## Appendix 2. Continuation.

- Oteiza scandens* Panero, Villaseñor & Medina. Contr. Univ. Michigan Herb. 19: 171-193. 1993. Li, Sc. MEX (Oax). HMF. 2,500-2,900 m.
- Otopappus acuminatus* S. Watson. Proc. Amer. Acad. Arts 26: 140-141. 1891. Li, Sc. MEX (Jal). QF, TDF. 1,200-1,700 m.
- O. brevipes* B.L. Rob. Proc. Amer. Acad. Arts 44(21): 621-622. 1909. Li, Sc. MEX (Chis), MA (ES, Gua, Hon, Nic). HMF, PQF. 712-2,100 m.
- O. curviflorus* (R. Br.) Hemsl. Biol. Cent.-Amer. Bot. 2(8): 191. 1881. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic). SV, TEF. 20-1,300 m.
- O. epaleaceus* Hemsl. Biol. Cent.-Amer. Bot. 2(8): 191. 1881. Li, Sc. MEX (Gro, Mex, Mich, Mor, Oax, Pue). QF, TDF, TSEF. 25-1,950 m.
- O. guatemalensis* (Urb.) R.L. Hartm. & Stuessy. Syst. Bot. 8(2): 206. 1983. Li, Sc. MEX (Cam, Chis, QR, Yuc), MA (Bel, Gua). RF, TDF, TSEF. 0-300 m.
- O. koelzii* McVaugh. Contr. Univ. Michigan Herb. 9(4): 425, f. 32. 1972. Li, Sc. MEX (Col, Jal, Mich). TDF, TSEF. 50-600 m.
- O. mexicanus* (Rzed.) H. Rob. Wrightia 6(3): 44. 1979. Li. MEX (Gro, Oax). 800-840 m.
- O. microcephalus* S.F. Blake. J. Bot. 53: 232. 1915. Li, Sc. MEX (Col, Gro, Jal, Mich, Nay, Oax). TDF, TSEF. 0-1,000 m.
- O. robustus* Hemsl. Biol. Cent.-Amer. Bot. 2(8): 191-192, t. 49. 1881. Li, Sc. MEX (Ver). TDF. 1,000 m.
- O. scaber* S.F. Blake. Contr. U.S. Natl. Herb. 22(8): 636-637. 1924. Li, Sc. MEX (Cam, Chis, QR), MA (Bel, Gua). PQF, TDF. 100-1,400 m.
- O. tequilanus* (A. Gray) B.L. Rob. Proc. Amer. Acad. Arts 44: 622. 1909. Li, Sc. MEX (Col, Gro, Jal, Mich, Nay, Sin). PQF, QF, RF, TDF, TSEF. 0-3,700 m.
- O. verbesinoides* Benth. Hooker's Icon. Pl. 12: 47-48, t. 1153. 1876[1873]. Li, Sc. MEX (Chis, Oax, Ver), MA (Bel, CR, ES, Gua, Hon, Nic). HMF, QF, TEF. 20-2,400 m.
- Pentacalia wilburii* H. Rob. Phytologia 40(1): 44-45, unnumbered figs. pg 49, 50. 1978. Li. MEX (Chis, Oax, Pue), MA (CR, Gua). HMF, PQF, QF. 550-2,600 m.
- Perymenlopsis ovalifolia* (A. Gray) H. Rob. Phytologia 40: 496. 1978. Sc. MEX (Hgo, Oax, Pue, Qro, SLP, Tam, Ver). HMF, QF, SV, TDF. 800-1,850 m.
- Piptocarpha poeppigiana* (DC.) Baker. Fl. Bras. 6(2): 131. 1873. Li, Sc. MEX (Chis, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 15-2,000 m.
- Pseudogynoxys chenopodioides* (Kunth) Cabrera. Brittonia 7(2): 56. 1950. Li. MEX (Cam, Chis, Hgo, Oax, Qro, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, MG, SV, TDF, TEF, TSEF. 500-1,000 m.
- P. haenkei* (DC.) Cabrera. Brittonia 7(2): 54. 1950. Li. MEX (Chis, Hgo, Oax), MA (ES, Gua, Hon, Nic). HMF, TDF, TEF, TF, TSEF. 180-2,100 m.
- Salmea scandens* (L.) DC. Cat. Pl. Horti Monsp. 141. 1813. Li, Sc. MEX (Chis, Gro, Hgo, Mex, Qro, SLP, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, SV, TSEF. 150-2,600 m.
- Sinclairia broomeae* H. Rob. Phytologia 33(4): 287. 1976. Li. MEX (Gro, Jal). TDF. NA.
- S. caducifolia* (B.L. Rob. & Bartlett) Rydb. N. Amer. Fl. 34(4): 299. 1927. Li, Sc. MEX (Gro, Jal). TDF, TSEF. NA.
- S. deamii* (B.L. Rob. & Bartlett) Rydb. N. Amer. Fl. 34(4): 299. 1927. Li, Sc. MEX (Cam, Chis, Tab), MA (Bel, ES, Gua, Hon). TDF, TEF. 100-1,200 m.
- S. deppeana* (Less.) Rydb. N. Amer. Fl. 34(4): 300. 1927. Li, Sc. MEX (Hgo, Oax). HMF, PQF, TSEF. 1,430-1,800 m.
- S. discolor* Hook. & Arn. Bot. Beechey Voy. (10): 433. 1841. Sc. MEX (Chis, Oax, Pue, Ver), MA (Bel, CR, ES, Gua, Hon, Nic). CF, HMF, SV. 170-2,700 m.
- S. hypochlora* (S.F. Blake) Rydb. N. Amer. Fl. 34(4): 301. 1927. Sc. MEX (Chis), MA (Gua). 500-1,000 m.
- S. polyantha* (Klatt) Rydb. N. Amer. Fl. 34(4): 299. 1927. Li, Sc. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 0-1,800 m.
- S. sublobata* (B.L. Rob.) Rydb. N. Amer. Fl. 34(4): 297. 1927. Sc. MEX (Chis, Oax), MA (ES, Gua, Hon, Nic). PQF, TDF. 950 m.
- Tuxtla pittieri* (Greenm.) Villaseñor & Strother. Syst. Bot. 14(4): 537. 1989. Li. MEX (Ver), MA (CR). TEF. 200-280 m.
- Zexmenia serrata* La Llave. Nov. Veg. Descr. 1: 13. 1824. Sc. MEX (Chis, Oax, Tab, Ver), MA (Bel, Gua, Hon). PQF, SV, TEF, TSEF. 10-1,990 m.

**Bignoniaceae (16/41)**

- Adenocalymma inudatum* Mart. ex DC. Prodr. 9: 201. 1845. Li. MEX (Cam, Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Sin, Tab, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, TSEF. 0-1,330 m.
- A. sousae* A.H. Gentry. Fl. Veracruz 24: 22. 1982. Li. MEX (Tab, Ver). MG. 0-5 m.
- Amphilophium buccinatorium* (DC.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 401. 2014. Li. MEX (Chis, Jal, Mor), MA (Gua). HMF. 1,700-2,400 m.

## Appendix 2. Continuation.

- A. crucigerum* (L.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venezuela 270. 2008. Li. MEX (Cam, Chis, Col, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic), SA. QF, RF, SV, TDF, TEF, TSEF. 0-1,500 m.
- A. laxiflorum* (DC.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 405. 2014. Li. MEX (Chis, Gto, Gro, Jal, Oax, Pue, Ver), MA (Nic). HMF, QF, TDF, TSEF, XS. 1,100-2,050 m.
- A. paniculatum* (L.) Kunth Nov. Gen. Sp. (quarto ed.) 3: 149. 1818[1819]. Li. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. CF, HMF, QF, RF, SV, TDF, TEF, TSEF. 0-2,200 m.
- Anemopaegma chrysanthum* Dugand. Caldasia 4(19): 307-309. 1947. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Hon, Nic, Pan), SA. RF, TDF, TEF, TSEF. 0-1150 m.
- A. chrysoleucum* (Kunth) Sandwith. Lilloa 3: 459-460. 1938. Li. MEX (Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, SV, TEF. 0-500 m.
- A. puberulum* (Seibert) Miranda. Anales Inst. Biol. Univ. Nac. México 24(1): 93-94. 1953. Li. MEX (Chis, Oax, Ver), MA (CR, ES, Gua, Hon, Pan), SA. TDF. 0-1,492 m.
- Bignonia aequinoctialis* L. Sp. Pl. 2: 623. 1753. Li. MEX (Chis, Col, Gro, Jal, Mich, Nay, Oax, Sin, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. CF, SV, TDF, TEF, TSEF. 0-1,600 m.
- B. binata* Thunb. Pl. Bras. 3: 35. 1821. Li. MEX (Cam, Chis, Gro, Jal, Oax, QR, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. MG, TDF, TEF, TSEF. 0-670 m.
- B. diversifolia* Kunth. Nov. Gen. Sp. (quarto ed.) 3: 133-134. 1818. Li. MEX (Cam, Chis, Gro, Jal, Mich, Oax, QR, Tab, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 50-1,000 m.
- B. hyacinthina* (Standl.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 272. 2008. Li. MEX (Chis, Oax, Ver), MA (Bel, Gua, Nic, Pan), SA. TEF. 100-300 m.
- B. neoheterophylla* L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 420. 2014. Li. MEX (Cam, Chis, Gro, Jal, Nay, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, SV, TDF, TEF. 0-833 m.
- B. potosina* (K. Schum. & Loes.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 421. 2014. Li. MEX (Cam, Chis, Oax, Pue, Qro, QR, SLP, Tab, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic). RF, SV, TDF, TSEF. 0-450 m.
- Callichlamys latifolia* (Rich.) K. Schum. Nat. Pflanzenfam. 4(3b): 223. 1894. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TDF, TEF. 0-200 m.
- Cuspidaria inaequalis* (DC. ex Splitg.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 272. 2008. Li. MEX (Cam, Chis, Tab, Ver), MA (Bel), SA. MG, TEF. 100-200 m.
- Dolichandra quadrivalvis* (Jacq.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 273. 2008. Li. MEX (Chis, Col, Gro, Hgo, Jal, Oax, Pue, Qro, QR, SLP, Tam, Ver, Yuc), MA (CR, ES, Gua, Hon, Nic), SA. RF, SV, TDF, TEF, TSEF. 0-1,400 m.
- D. uncatata* (Andrews) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 273. 2008. Li. MEX (QR, Tab, Ver), MA (Bel, Gua, Hon, Nic, Pan), SA. RF, TEF. 0-100 m.
- D. unguis-cati* (L.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 273. 2008. Li. MEX (BCS, Cam, Chis, Gto, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, SV, TDF, TEF, TSEF. 0-1,850 m.
- Fridericia candicans* (Rich.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 433. 2014. Li. MEX (Oax, Ver), MA (Bel, CR, Hon, Pan), SA. TEF, TSEF. 5-900 m.
- F. chica* (Bonpl.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 434. 2014. Li. MEX (Chis, Oax, Ver), MA (Bel, ES, Gua, Nic, Pan), SA. TDF, TEF. 5-900 m.
- F. dichotoma* (Jacq.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 436-437. 2014. Li. MEX (Chis, Col, Gro, Jal, Mex, Oax, Ver), MA (Bel, CR, Nic, Pan), SA. TDF, TEF, TSEF. 0-850 m.
- F. floribunda* (Kunth) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 438. 2014. Li. MEX (Cam, Chis, Oax, QR, Yuc), MA (Bel, Gua, Hon). RF, TDF, TEF, TSEF, XS. 0-70 m.
- F. florida* (DC.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 438. 2014. Li. MEX (Oax, Ver), MA (Bel, CR, Nic, Pan), SA. TEF, TSEF. 20-340 m.
- F. mollissima* (Kunth) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 440. 2014. Li. Sc. MEX (Chis, Gro, Mich, Oax), MA (ES, Gua, Nic, Pan), SA. MG, TDF. 50-1,000 m.
- F. patellifera* (Schltdl.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 442. 2014. Li. MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, QR, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SAV, SV, TDF, TEF, TSEF. 0-1,270 m.
- F. podopogon* (DC.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 443. 2014. Li. MEX (Cam, Chis, QR, Yuc), MA (Bel). TDF, TEF, TSEF. 10-275 m.
- F. pubescens* (L.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 443-444. 2014. Li. MEX (Cam, Chis, Pue, Qro, QR, SLP, Tab, Tam, Ver, Yuc), MA (Bel, CR, Gua, Pan), SA. QF, TDF, TEF, TSEF. 100-1,300 m.



**Appendix 2.** Continuation.

- F. schumanniana* (Loes.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 444. 2014. Li. MEX (Cam, Chis, Oax, QR, Ver), MA (Bel, CR, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 20-350 m.
- F. viscida* (Donn. Sm.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 446-447. 2014. Li. MEX (Chis, Col, Gro, Jal, Mor, Oax), MA (Bel, Gua, Nic). RF, TDF, TSEF. 10-1,350 m.
- Lundia puberula* Pittier. Contr. U.S. Natl. Herb. 18(6): 258. 1917. Li. MEX (Cam, Oax, Ver), MA (Bel, CR, Nic, Pan), SA. TEF. 0-50 m.
- Mansoa hymenaea* (DC.) A.H. Gentry. Ann. Missouri Bot. Gard. 66(4): 782. 1979[1980]. Li. MEX (Cam, Chis, Gro, Nay, Oax, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Nic, Pan), SA. RF, TDF, TSEF. 0-1,000 m.
- M. verrucifera* (Schltdl.) A.H. Gentry. Ann. Missouri Bot. Gard. 63(1): 62. 1976. Li. MEX (Cam, Chis, Gro, Oax, QR, Tab, Ver, Yuc), MA (CR, Hon, Nic, Pan), SA. RF, TDF, TEF, TSEF. 100-1,100 m.
- Martinella obovata* (Kunth) Bureau & K. Schum. Fl. Bras. 8(2): 161. 1896. Li. MEX (Oax, Tab), MA (Bel, CR, Gua, Hon, Pan), SA. TEF. 350- m.
- Paragonia pyramidata* (Rich.) Bureau var. *pyramidata*. Kongel. Danske Vidensk. Selsk. Skr. Naturvidensk. Math. Afd. ser. 6, 6(3): 422. 1892. Li. MEX (Cam, Chis, Col, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF. 0-1,100 m.
- Stizophyllum riparium* (Kunth) Sandwith. Lilloa 3: 462. 1938. Li. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), MA (Bel, CR, ES, Gua, Pan), SA. RF, SV, TDF, TEF, TSEF. 0-1,100 m.
- Tanaecium caudiculatum* (Standl.) L.G. Lohmann. Ann. Missouri Bot. Gard. 99(3): 464. 2014. Li. MEX (Oax, Ver), MA (Bel, Gua). SV, TEF. 100-150 m.
- T. tetragonolobum* (Jacq.) L.G. Lohmann. Nuevo Cat. Fl. Vasc. Venez. 274. 2008. Li. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), MA (Bel, Nic, Pan), SA. TEF, TSEF. 0-150 m.
- Tynanthus guatemalensis* Donn. Sm. Bot. Gaz. 18(1): 6. 1893. Li. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), MA (Bel, Gua). SV, TEF, TSEF. 100-350 m.
- Xylophragma seemannianum* (Kuntze) Sandwith. Kew Bull. 8(4): 469-470. 1953[1954]. Li. MEX (Cam, Chis, Col, Jal, Mich, Oax, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 100-1,100 m.

**Boraginaceae (3/9)**

- Cordia spinescens* L. Mant. Pl. 2: 206. 1771. Sc. MEX (Chis, Col, Gro, Hgo, Jal, Mich, Nay, Oax, Sin, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, QF, SV, TEF, TSEF. 3-1,900 m.
- Rochefortia lundellii* Camp. Contr. Univ. Michigan Herb. 7: 47-48. 1942. Li. Sc. MEX (Cam, Chis, QR, Ver), MA (Bel, CR, Gua, Hon). PQF, SV, TDF, TEF. 50-900 m.
- Tournefortia bicolor* Sw. Prodr. 40. 1788. Li. Sc. MEX (Chis, Gro, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, MG, TEF. 0-1,700 m.
- T. cuspidata* Kunth. Li. Sc. MEX (Oax, Ver), MA (Nic), SA. RF, TEF. 0-1,500 m.
- T. hirsutissima* L. Sp. Pl. 1: 140. 1753. Sc. USA, MEX (Cam, Chis, Col, Dgo, Gro, Hgo, Jal, Mich, Nay, Oax, Pue, QR, SLP, Sin, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF, TSEF. 0-2,600 m.
- T. maculata* Jacq. Enum. Syst. Pl. 14. 1760. Li. MEX (Cam, Chis, Jal, Oax, QR, SLP, Sin, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. TEF. 200-1,400 m.
- T. pedicellata* D. Nash. Fl. Veracruz 18. 1981. Li. Sc. MEX (Pue, Qro, Ver). TEF. 0-350 m.
- T. umbellata* Kunth. Nov. Gen. Sp. (quarto ed.) 3: 79, t. 202. 1818. Sc. MEX (Cam, Chis, Gro, Oax, Tab, Yuc), MA (Bel, Gua, Hon, Nic). SV, TDF, TEF, TSEF. 20-480 m.
- T. volubilis* L. Sp. Pl. 1: 140. 1753. Sc. USA, MEX (BCS, Cam, Chis, Col, Gro, Hgo, Jal, Mex, Mich, Oax, Pue, QR, SLP, Sin, Son, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF. 0-1,800 m.

**Cactaceae (2/9)**

- Epiphyllum anguliger* (Lem.) G. Don. Encycl. Pl. (new ed., 1855) 1380. 1855. He. MEX (Gro, Hgo, Jal, Mex, Mich, Nay, Oax). QF, TSEF. 100-2,200 m.
- E. pumilum* (Vaupel) Britton & Rose. Contr. U.S. Natl. Herb. 16: 258 (1913). He. MEX (Chis, Oax, Tab, Ver), MA (Gua). HMF, SV, TEF, TSEF. 100-1,300 m.
- Selenicereus coniflorus* (Weing.) Britton & Rose. Contr. U.S. Natl. Herb. 12(10): 430. 1909. USA, MEX (Chis, Oax, Tab, Ver). XS. 250 m.
- S. donkelaarii* (Salm-Dyck) Britton & Rose. Cactaceae 2: 200, f. 276. 1920. Li. MEX (Cam, QR, Tab, Yuc), MA (Bel). MG, SAV, SV, TDF, TSEF. 0-100 m.
- S. hamatus* (Scheidw.) Britton & Rose. Contr. U.S. Natl. Herb. 12(10): 430. 1909. Li. MEX (Oax, Ver). CF. NA.
- S. hondurensis* (K.Schum.) Britton & Rose. Contr. U.S. Natl. Herb. 12(10): 430. 1909. Li. MEX (Chis), MA (Gua, Hon). TEF. NA.
- S. murrillii* Britton & Rose. Cactaceae 2: 206-207, f. 285c-d. 1920. Li. MEX (Col, Jal). NA.

**Appendix 2.** Continuation.

*S. pteranthus* (Link & Otto) Britton & Rose. Contr. U.S. Natl. Herb. 12(10): 431. 1909. He. MEX (Cam, Chis, Tab, Ver), ANT, MA (Pan). TEF, TSEF. 0-500 m.

*S. tricae* D.R. Hunt. Bradleya 7: 91, 89-90, f. 1A-C. 1989. Li. MEX (Chis), MA (Bel). TEF. NA.

**Cannabaceae (1/1)**

*Celtis iguanaea* (Jacq.) Sarg. Silva 7: 64. 1895. Li, Sc. USA, MEX (Cam, Chis, Chih, Gto, Gro, Hgo, Jal, Mich, Mor, Oax, Pue, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, RF, TDF, TEF, TSEF. 0-1,500 m.

**Capparaceae (1/1)**

*Cynophalla flexuosa* (L.) J. Presl. Prir. Rostlin 2: 275. 1825. Sc. USA, MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, QR, Sin, Son, Tam, Yuc), ANT, MA (CR, ES, Nic, Pan), SA. TDF. 0-250 m.

**Caprifoliaceae (2/2)**

*Lonicera pilosa* (Kunth) Spreng. Nov. Gen. Sp. (quarto ed.) 3: 427. 1818. Sc. MEX (Ags, Chis, Chih, Coa, DF, Dgo, Gto, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Qro, SLP, Sin, Son, Tam, Zac). CF, HMF, PQF, QF. 1,400-3,000 m.

*Valeriana subincisa* Benth. Pl. Hartw. 39. 1840. Li. MEX (Chis, Coa, Hgo, NL, Oax, Pue, Qro, SLP, Tam, Ver), MA (Gua). CF, HMF, QF. 1,250-2,800 m.

**Celastraceae (8/12)**

*Celastrus pringlei* Rose. Contr. U.S. Natl. Herb. 5(4): 195. 1899. Li. MEX (Chis, Col, Dgo, Gro, Jal, Mex, Mich, Mor, Oax, SLP, Ver). HMF, QF. 2,000-2,600 m.

*C. vulcanicolus* Donn. Sm. Bot. Gaz. 61(5): 373. 1916. Li, Sc. MEX (Chis, Oax, Ver), MA (Gua, Hon, Nic). HMF, TEF. 620-2,800 m.

*Cheiloclinium belizense* (Standl.) A.C. Sm. Brittonia 3(3): 540. 1940. Li, Sc. MEX (Chis), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. NA.

*Cuervea kappleriana* (Miq.) A.C. Sm. Brittonia 3(3): 399-401. 1940. Li, Sc. MEX (Tab, Ver), MA (CR, Hon, Pan), SA. TEF, TSEF. 110-150 m.

*Elachyptera floribunda* (Benth.) A.C. Sm. Bot. Voy. Sulphur 78. 1844. Li, Sc. MEX (Chis, QR, Ver), MA (Gua, Hon, Pan), SA. MG, RF. 8-100 m.

*Hippocratea volubilis* L. Sp. Pl. 2: 1191. 1753. Li, Sc. USA, MEX (Cam, Chis, Gro, Jal, Mex, Mor, Oax, Sin, Tab, Tam, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, MG, RF, SV, TDF, TEF. 0-1,000 m.

*Pristimera caribaea* (Urb.) A.C. Sm. Brittonia 3(3): 378-380. 1940. Li. MEX (Ver), ANT. TEF. 160-400 m.

*P. celastroides* (Kunth) A.C. Sm. Brittonia 3(3): 371. 1940. Li, Sc. MEX (Cam, Chis, Col, Dgo, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc, Zac), MA (Bel, ES, Gua, Hon, Nic), SA. HMF, RF, TDF, TEF, TSEF. 0-1,300 m.

*Salacia cordata* (Miers) Mennega. Novon 2(3): 232. 1992. Li, Sc. MEX (Chis, Oax, Tab, Ver), MA (CR, Nic, Pan), SA. HMF, TEF. 100-1,750 m.

*S. impressifolia* (Miers) A.C. Sm. Bull. Torrey Bot. Club 66(4): 247. 1939. Li, Sc. MEX (Oax, Tab, Ver), MA (Hon, Nic, Pan), SA. TEF. 0-75 m.

*Semialarium mexicanum* (Miers) Mennega. Proc. Kon. Ned. Akad. Wetensch. C 91(3): 316. 1988. Li, Sc. MEX (Cam, Chis, Dgo, Gro, Jal, Mex, Mich, Mor, Oax, QR, Tab, Yuc), MA (Nic, Pan), SA. RF, TDF, TEF, TSEF, XS. 0-800 m.

**Combretaceae (1/7)**

*Combretum argenteum* Bertol. Novi Comment. Acad. Sci. Inst. Bononiensis 4: 412. 1840. Li, Sc. MEX (Cam, Chis, Gro, Oax, Ver, Yuc), MA (ES, Gua, Hon, Nic), SA. SV, TDF, TSEF. 0-1,300 m.

*C. decandrum* Jacq. Enum. Syst. Pl. 19. 1760. Li, Sc. MEX (Chis, Gro, Jal, Nay, Oax, Tab), ANT, MA (CR, ES, Gua, Nic, Pan), SA. RF, SV, TDF, TSEF. 0-1,300 m.

*C. farinosum* Kunth. Nov. Gen. Sp. (folio ed.) 6: 87. 1823. Li, Sc. MEX (Cam, Chis, Col, Dgo, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, SLP, Sin, Tab, Tam, Ver, Yuc), MA (CR, ES, Gua, Hon, Nic), SA. RF, TDF, TF. 0-2,000 m.

*C. fruticosum* (Loefl.) Stuntz. U.S.D.A. Bur. Pl. Industr. Invent. Seeds 31: 86-87. 1914. Li, Sc. USA, MEX (Cam, Chis, Chih, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Sin, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, TSEF. 0-1,500 m.

*C. igneiflorum* Rendón & R. Delgad. Novon 21(4): 483-485, f. 1. 2011. Li, Sc. MEX (Col, Jal, Oax). TDF. 0-360 m.

*C. laxum* Jacq. Enum. Syst. Pl. 19. 1760. Li, Sc. MEX (Cam, Chis, Col, Gro, Jal, Mich, Mor, Nay, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, TDF, TEF, TSEF, MG. 0-1,000 m.

*C. rovirosae* Exell. J. Linn. Soc. Bot. 55(356): 134-135, f. 5e. 1953. Li, Sc. MEX (Cam, Chis, Oax, Tab, Ver), MA (Bel, Gua, Hon, Nic, Pan). RF, SV, TDF. 0-800 m.

## Appendix 2. Continuation.

**Connaraceae (3/8)**

- Cnestidium rufescens* Planch. Linnaea 23: 440. 1,850. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF. 0-1,100 m.
- Connarus lentiginosus* Brandegee. Univ. Calif. Publ. Bot. 6(8): 186. 1915. Li, Sc. MEX (Chis), MA (CR, Gua, Nic, Pan). TEF. 0-1,800 m.
- C. schultesii* Standl. Bot. Mus. Leaflet. 9: 173. 1941. Li. MEX (Chis, Oax, Ver). SAV, TEF, TSEF. 100-700 m.
- C. stenophyllus* Standl. & L.O. Williams ex A. Molina. Li, Sc. MEX (Chis, Gro, Oax). HMF, PQF, SV. 400-1,300 m.
- Rourea glabra* Kunth. Nova Genera & Species Plantarum (quarto ed.) 7: 41-42. 1824. Li, Sc. MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, QF, RF, SV, TDF, TEF, TSEF. 0-800 m.
- R. schippii* Standl. Publ. Carnegie Inst. Wash. 461:58. 1935. Li, Sc. MEX (Chis, Tab, Ver), MA (Bel, CR, Gua, Hon). TEF. 0-1,400 m.
- R. suerrensii* Donn. Sm. Bot. Gaz. 23(1): 5-6. 1897. Li, Sc. MEX (Tab), MA (CR, Hon, Nic, Pan). TEF. NA.
- R. vulcanicola* Forero. Caldasia 29(1): 19. 2007. Li. MEX (Ver). QF, TEF. 1,300-1,400 m.

**Convolvulaceae (12/67)**

- Bonamia mexicana* J.A. McDonald. Biótica 12(3): 221-224, f. 3. 1987. Li, Sc. MEX (Jal), MA (CR, ES). TDF, TSEF. 300 m.
- B. sulphurea* (Brandegee) Myint & D.B. Ward. Phytologia 17(3): 178. 1968. Li, Sc. MEX (Cam, Chis, Gro, Jal, Ver), MA (Gua, Hon, Nic, Pan), SA. SV, TDF. 300-675 m.
- Calycobolus nutans* (Moc. & Sessé ex Choisy) D.F. Austin. Ann. Missouri Bot. Gard. 58(2): 244. 1971[1972]. Li, Sc. MEX (Col, Gro, Mex, Mich, Mor, Oax, Pue). SV, TDF, TF. 150-1,650 m.
- Convolvulus nodiflorus* Desr. Encycl. 3: 557. 1789[1792]. Li. MEX (Cam, Chis, Gro, Jal, Mich, Oax, QR, SLP, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic), SA. QF, SV, TDF, TEF, TSEF. 0-1,500 m.
- Ipomoea ampullacea* Fernald. Proc. Amer. Acad. Arts 33(5): 89. 1897. Li. MEX (Col, Gro, Jal, Mex, Mich, Sin). TDF, TSEF. 150-1,350 m.
- I. isomeris* B.L. Rob. & Bartlett. Proc. Amer. Acad. Arts 43(2): 57. 1907. Li. MEX (Cam, Chis, QR, Tab, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 0-500 m.
- I. aurantiaca* L.O. Williams. Fieldiana, Bot. 32(12): 187. 1970. Li. MEX (Chis), MA (CR, Gua, Nic). SV, TDF. 500-1,000 m.
- I. batatoides* Choisy. Mém. Soc. Phys. Genève 8(1): 58-59. 1838[1837]. Li. MEX (Chis, Jal, Oax, Qro, Ver), MA (Bel, CR, ES, Hon, Nic, Pan), SA. HMF, QF, SV, TEF, TSEF. 0-2,000 m.
- I. bernoulliana* Peter. Nat. Pflanzenfam. IV(3a): 30. 1897[1891]. Li. MEX (Chis), MA (CR, Gua, Hon, Nic). TDF. 300-1,400 m.
- I. bombycina* (Choisy) Benth. & Hook. f. Gen. Pl. 2: 873. 1876. Li. MEX (Gro, Jal). TDF. 0-300 m.
- I. bracteata* Cav. Icon. 5: 51, t. 477. 1799. Li. MEX (BCS, Chih, Col, Dgo, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Sin, Son, Ver). QF, TDF, TF, TSEF. 0-1,700 m.
- I. carnea* Jacq. subsp. *carnea*. Enum. Syst. Pl. 13. 1760. Li, Sc. MEX (Cam, Chis, QR, Tab, Ver, Yuc), MA (Bel, Nic), SA. MG, XS. 0-800 m.
- I. conzattii* Greenm. Publ. Field Columb. Mus. Bot. Ser. 2(6): 258. 1907. Li. MEX (Mor, Oax, Ver). TDF, XS. 1,500-2,170 m.
- I. crinicalyx* S. Moore. Trans. Linn. Soc. London, Bot. 4(3): 402, t. 27, f. 1. 1895. Li. MEX (Cam, Chis, Mich, QR, Yuc), MA (Bel, Gua, Nic), SA. SV, TDF, TSEF. 0-1,000 m.
- I. cuprinacoma* E. Carranza & J.A. McDonald. Lundellia 4: 151-156. 2004. Li. MEX (Gro, Jal, Mich). TDF. 1,000-2,000 m.
- I. dumosa* (Benth.) L.O. Williams. Fieldiana, Bot. 32(12): 190. 1970. Li. MEX (Chis, Dgo, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Qro, SLP, Sin, Ver), MA (CR, ES, Gua, Hon, Nic, Pan). HMF, PQF, QF, TDF, TEF. 1,800-2,300 m.
- I. elongata* Choisy. Prodr. 9: 355. 1845. Li. MEX (Gro, Mex, Mich, Mor, Oax, Pue, Qro), MA (Gua). PQF, QF, TDF. 1,500-2,000 m.
- I. fissifolia* (McPherson) Eckenw. Brittonia 41(1): 79. 1989. Li. MEX (Mich). 1400-1450 m.
- I. funis* Schltld. & Cham. var. *langlassei* (House) O'Donell. Lilloa 29: 41. 1959. Li. MEX (Gto, Gro, Mex, Mich, Pue, Ver). CF, PQF, QF. 2,000-2,300 m.
- I. jalapa* (L.) Pursh. Fl. Amer. Sept. 146-147. 1814. Li. MEX (Cam, Gto, Hgo, Jal, Qro, QR, SLP, Tam, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic), SA. QF, TDF, TSEF. 24-1,350 m.
- I. leucotricha* Donn. Sm. Bot. Gaz. 23(1): 10-11. 1897. Li. MEX (Chis), MA (CR, Gua, Nic). HMF, TEF. NA.
- I. lindenii* M. Martens & Galeotti. Bull. Acad. Roy. Sci. Bruxelles 12(2): 264. 1845. Li. MEX (Cam, Chis, Gro, Jal, Mex, Mich, Oax, Pue, Qro, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, RF, TDF, TF, TSEF. 0-1,600 m.
- I. lottiae* J.A. McDonald. Biótica 12(3): 219-221, f. 2. 1987. Li. MEX (Gro, Jal, Mich). TDF, TSEF. 100-300 m.
- I. microsepala* Benth. Bot. Voy. Sulphur 136. 1844[1845]. Li. MEX (Col, Dgo, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Ver), MA (Gua). CF, QF, SV, TDF, TEF. 10-1,600 m.
- I. neei* (Spreng.) O'Donell. Lilloa 29: 69. 1959. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Tab, Ver), MA (CR, ES, Gua, Hon, Nic, Pan). HMF, QF, TDF, TEF, TSEF. 140-1,500 m.

## Appendix 2. Continuation.

- I. nil* (L.) Roth. Catal. Bot. 1: 36. 1797. Li. MEX (Chis, Gro, Jal, Mich, Oax, SLP, Tam, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF. 0-600 m.
- I. orizabensis* (G. Pelletan) Ledeb. ex Steud. var. *novogaliciana* J.A. McDonald. Nomencl. Bot. (ed. 2) 818. 1841. Li. MEX (Mex, Mich). PQF. 1,700-2,150 m.
- I. orizabensis* G. Pelletan) Ledeb. ex Steud. var. *orizabensis*. Nomencl. Bot. (ed. 2) 818. 1841. Li. MEX (Chis, Chih, Coa, DF, Dgo, Gto, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, SLP, Sin, Tab, Tam, Tla, Ver, Zac), MA (Gua). CF, HMF, PQF, QF, SV, TDF, TEF. 850-2,750 m.
- I. pedicellaris* Benth. Bot. Voy. Sulphur 135. 1845. Li. MEX (Chis, Chih, Col, Dgo, Gro, Hgo, Jal, Mich, Mor, Nay, Oax, Pue, Qro, SLP, Sin, Son, Tab, Tam, Ver), MA (ES, Gua, Hon). QF, RF, TDF, TF, TSEF, XS. 10-1,300 m.
- I. philomega* (Vell.) House. Ann. New York Acad. Sci. 18(6): 246. 1908. Li. MEX (Hgo, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, RF, SV, TEF. 100-150 m.
- I. populina* House. Ann. New York Acad. Sci. 18(6): 226. 1908. Li. MEX (Chis, Gro, Oax), MA (Gua, Hon, Nic). SV, TDF, TSEF. 15-1,200 m.
- I. praecana* House. Ann. New York Acad. Sci. 18: 227. 1908. Li. MEX (Chis, Col, Gro, Mex, Mich, Mor, Oax, QR), MA (Gua, Hon, Nic). QF, TDF. 150-1300 m.
- I. pruinosa* McPherson. Contr. Univ. Michigan Herb. 14: 88. 1980. Li. MEX (Gro, Mich). TDF. 400-1,200 m.
- I. pseudoracemosa* McPherson. Contr. Univ. Michigan Herb. 14: 88. 1980. Li. MEX (Jal, Mich, Nay). TDF. 900-1,400 m.
- I. reticulata* O'Donell. Lilloa 26: 389-391, t. 15. 1953. Li. MEX (Chis, Qro, Tam, Ver), MA (CR, Gua, Hon), SA. HMF, QF, TDF, TEF. 150-1,200 m.
- I. robinsonii* House. Ann. New York Acad. Sci. 18(6): 257. 1908. Li. MEX (Oax). TDF, XS. 830-1,150 m.
- I. sagittata* Poir. Voy. Barbarie 2: 122-123. 1789. Li. USA, MEX (Cam, Chis, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (Bel, Gua). SV, TDF. 5-300 m.
- I. santillanii* O'Donell. Anales Inst. Biol. Univ. Nac. México 12: 93. 1941. Li. MEX (Chis, Col, Gro, Mex, Mich, Oax, Ver), MA (CR, ES, Gua, Nic). CF, PQF, SV, TDF, TEF, TSEF. 200-2,200 m.
- I. seducta* House. Ann. New York Acad. Sci. 18(6): 241. 1908. Li. MEX (Chis, Gro, Jal, Mich, Oax, Sin, Tab), MA (Gua). HMF, QF, TDF, TEF. 600-1,800 m.
- I. sepacuitensis* Donn. Sm. Bot. Gaz. 56(1): 59. 1913. Li. MEX (Chis, QR), MA (Bel, Gua). HMF, TEF. 0-125 m.
- I. spectata* J.A. McDonald. Harvard Pap. Bot. 4: 49. 1993. Li. MEX (Jal, Mich). PQF. 1,100-1,600 m.
- I. squamosa* Choisy. Prodr. 9: 376-377. 1845. Li. Sc. MEX (Cam, Chis, Gro, Mor, Pue, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. TDF. 0-300 m.
- I. steerei* (Standl.) L.O. Williams. Fieldiana, Bot. 32(12): 195, f. 2. 1970. Li. MEX (Cam, QR, Yuc), MA (Gua, Hon). SV, TDF, TSEF. 0-500 m.
- I. suaveolens* (M. Martens & Galeotti) Hemsl. Biol. Cent.-Amer. Bot. 2(11): 394. 1882. Li. MEX (Chis, Gto, Gro, Hgo, Mex, Mich, Nay, Oax, Qro, Sin, Ver), MA (CR, ES, Gua). QF, TDF, XS. 0-15,00 m.
- I. suffulta* (Kunth) G. Don. Gen. Hist. 4: 276. 1838. Li. MEX (Chis, Gro, Jal, Mex, Mich, Nay, Oax), MA (Gua). PQF, SAV, TDF. 1,000-1,800 m.
- I. tiliacea* (Willd.) Choisy. Prodr. 9: 375. 1845. Li. MEX (Cam, Chis, Gro, Mich, Oax, QR, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF. 0-550 m.
- I. urbinei* House. Muhlenbergia 3(3): 41, t. 2, f. b. 1907. Li. MEX (Col, Gro, Mich, Pue). QF, TDF. 1,200-1,700 m.
- I. violacea* L. Sp. Pl. 1: 161. 1753. Li. USA, MEX (Cam, Dgo, Jal, QR, Yuc), ANT, MA (Bel, Pan), SA, AS. TDF. 0-1,000 m.
- Iseia luxurians* (Moric.) O'Donell. Bol. Soc. Argent. Bot. 5(1-2): 77. 1953. Li. MEX (Yuc), ANT, MA (CR, Hon, Nic, Pan), SA. TEF. NA.
- Itzaea sericea* (Standl.) Standl. & Steyererm. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(2): 83. 1944. Li. Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic). SV, TEF, TSEF. 100-150 m.
- Jacquemontia abutiloides* Benth. Bot. Voy. Sulphur 34-35. 1844. Li. Sc. MEX (BC, BCS, Son). RF, TDF, XS. 0-490 m.
- J.confusa* Meisn. Fl. Bras. 7: 294, t. 106, f. 2. 1869. Li. MEX (Cam, Chis, Oax), MA (Bel, Hon, Nic), SA. SV, TSEF. 170-250 m.
- J. havanensis* (Jacq.) Urb. Symb. Antill. 3: 342. 1902. Li. USA, MEX (QR, Yuc), ANT, MA (Bel). TDF, TSEF. 5 m.
- J. mexicana* (Loes.) Standl. & Steyererm. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(2): 84. 1944. Li. MEX (Chis, Oax), MA (CR, ES, Gua, Nic). SV, TDF. 95-260 m.
- J. oaxacana* (Meisn.) Hallier f. Bot. Jahrb. Syst. 16(4-5): 543. 1893. Li. MEX (BCS, Cam, Oax, SLP, Tam, Ver). SV, TDF, TSEF. 10-500 m.
- J. pentanthos* (Jacq.) G. Don. Gen. Hist. 4: 283. 1838. Li. USA, MEX (Cam, Chis, Chih, Col, Dgo, Gto, Gro, Jal, Mich, NL, Oax, Pue, Qro, QR, SLP, Sin, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, SAV, SV, TDF, TSEF. 0-1,500 m.
- Maripa nicaraguensis* Hemsl. Biol. Cent.-Amer. Bot. 2(11): 382. 1882. Li. MEX (Chis), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TEF. 120-200 m.
- Merremia aurea* (Kellogg) O'Donell. Lilloa 6: 494. 1941. Li. MEX (BCS). TDF. 0-370 m.

**Appendix 2.** Continuation.

- M. cielensis* J.A. McDonald. Syst. Bot. 33: 552. 2008. Li. MEX (Tam). HMF, TDF. 900 m.
- M. discoidesperma* (Donn. Sm.) O'Donell. Lilloa 6(2): 495-496. 1941. Li. MEX (Chis, Ver), ANT, MA (CR, Gua, Nic, Pan). HMF, SV, TEF. 0-200 m.
- M. dissecta* (Jacq.) Hallier f. Bot. Jahrb. Syst. 16(4-5): 552. 1893. Li. USA, MEX (BC, BCS, Cam, Chis, Coa, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, TF, TSEF. 0-1,300 m.
- M. palmeri* (Hallier) Hallier f. Jahrb. Hamburg. Wiss. Anst. Beih. 3: 38. 1899. Li. MEX (Gro, Jal, Mich, Oax, Sin, Son). TDF, TSEF. 14-400 m.
- M. tuberosa* (L.) Rendle. Fl. Trop. Afr. 4(2): 104. 1906[1905]. Li. USA, MEX (Cam, Chis, Gro, Hgo, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SV, TDF, TEF, TSEF. 10-400 m.
- M. umbellata* (L.) Hallier f. Bot. Jahrb. Syst. 16(4-5): 552. 1893. Li. USA, MEX (Cam, Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF. 7-1,200 m.
- Odonellia hirtiflora* (M. Martens & Galeotti) K.R. Robertson. Brittonia 34(4): 418-421. 1982. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Nic, Pan), SA. SAV, SV, TEF. 50-150 m.
- Operculina pinnatifida* (Kunth) O'Donell. Lilloa 23: 432-435, t. 4-5. 1950. Li. USA, MEX (Cam, Chis, Coa, Col, Gro, Hgo, Jal, Mex, Mich, Mor, NL, Oax, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Gua). SV, TF, RF, TDF, TSEF. 10-1,200 m.
- O. pteripes* (G. Don) O'Donell. Lilloa 23: 435-437, t. 6. 1950. Li. MEX (Cam, Chis, Chih, Col, DF, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Sin, Son), MA (CR, ES, Gua, Hon, Nic, Pan), SA. MG, QF, SV, TDF, TF. 240-1,250 m.
- Turbina corymbosa* (L.) Raf. Fl. Tellur. 4: 81. 1836 [1838]. Li. Sc. USA, MEX (Cam, Chis, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, SV, TDF, TEF, TSEF. 0-1,300 m.

**Cucurbitaceae (9/12)**

- Cionosicyos macranthus* (Pittier) C. Jeffrey. Kew Bull. 25(2): 200-201. 1971. Li. MEX (Cam, Chis, Mor, Oax, Pue, Tab, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan). SV, TEF. 0-150 m.
- Cionosicyos* sp. Li. MEX (Ver), MA (Gua). TEF. 200-300 m.
- Dieterlea fusiformis* E.J. Lott. Brittonia 38(4): 407-410, f. 1. 1986. Li. MEX (Col, Jal, Mich, Sin, Son). TDF. 0-800 m.
- D. maxima* (Lira & Kearns) McVaugh. Fl. Novo-Galiciana 3: 551. 2001. Li. MEX (Gro, Jal, Mich, Nay, Sin). SV, TDF. 150-1,850 m.
- Doyerea emetocathartica* Grosourdy. Méd. Bot. Criollo 1(2): 338-339. 1864. Li. MEX (Cam, Chis, Col, Gro, Jal, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic), SA. SV, TDF, TSEF. 0-1,000 m.
- Gurania makoyana* (Lem.) Cogn. Diagn. Cucurb. Nouv. 1: 17. 1876. Li. MEX (Chis, Tab), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF. 270-1,500 m.
- Hanburia mexicana* Seem. Bonplandia (Hanover) 6(15): 293. 1858. Li. MEX (Hgo, Oax, Pue, Ver). HMF, RF, TSEF. 450-1,800 m.
- Peponopsis adhaerens* Naudin. Ann. Sci. Nat. Bot. sér. 4, 12: 89. 1860. Li. MEX (Hgo, Oax, Pue, Qro, SLP, Ver). HMF, PQF, TSEF. 50-1,600 m.
- Psiguria triphylla* (Miq.) C. Jeffrey. Kew Bull. 33(2): 353. 1978. Li. MEX (Chis, Dgo, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, TEF, TSEF. 100-1,200 m.
- P. warszewiczii* (Hook. f.) Wunderlin. Phytologia 38(3): 219. 1978. Li. MEX (Chis), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, SV, TEF. 180-700 m.
- Sechium edule* (Jacq.) Sw. subsp. *sylvestre* Lira & J. Castrejon. Acta Bot. Mex. 49: 57. 1999. Li. MEX (Oax, Pue, Qro, Ver). RF, TDF, TF. 1,100-1,200 m.
- Sicydium schiedeanum* Schltdl. Linnaea 7: 388. 1832. Li. MEX (Chis, Oax, Pue, Ver), MA (CR, ES, Gua, Nic), SA. SV, TDF, TEF. 100-2,000 m.

**Dichapetalaceae (1/1)**

- Dichapetalum donnell-smithii* Engl. var. *chiapasense* (Standl.) Prance. Fl. Neotrop. 10: 28. 1972. Li, Sc. MEX (Chis, Qro, QR, Ver), MA (Bel, Gua, Hon, Pan). HMF, TEF. 0-1,400 m.
- D. donnell-smithii* Engl. var. *donnell-smithii*. Bot. Jahrb. Syst. 23: 144. 1896. Li, Sc. MEX (Chis, Jal, Oax, QR, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Pan), SA. HMF, TEF. 0-1,800 m.

**Dilleniaceae (3/5)**

- Davilla kunthii* A. St.-Hil. Pl. Usuel. Bras. sub t. 22. 1824[1825]. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. MG, QF, SAV, TEF. 0-500 m.
- D. nitida* (Vahl) Kubitzki. Mitt. Bot. Staatssamml. München 9: 95-99. 1971. Li, Sc. MEX (Chis, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 0-250 m.

**Appendix 2.** Continuation.

*Doliocarpus dentatus* (Aubl.) Standl. J. Wash. Acad. 15(13): 286. 1925. Li, Sc. MEX (Cam, Chis, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. MG, QF, RF, TEF, TSEF. 0-720 m.

*Tetracera portobellensis* Beurl. Kongl. Vetensk. Acad. Handl. 40: 113-114. 1854[1856]. Li. MEX (Chis, Gro, Jal, Mich, Nay), MA (CR, Nic, Pan), SA. RF, TEF. 50-310 m.

*T. volubilis* L. subsp. *volubilis*. Sp. Pl. 1: 533. 1753. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. MG, QF, SV, TDF, TEF. 0-900 m.

**Dioscoreaceae (1/1)**

*Dioscorea mexicana* Scheiew. Hort. Belge 4: 99, t. 76. 1837. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Oax, Pue, SLP, Tab, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan). PQF, QF, TDF. 0-2,000 m.

**Euphorbiaceae (5/7)**

*Bia cordata* (Baill.) G.L.Webster. Contr. Univ. Michigan Herb. 25: 237. 2007. Li. MEX (Oax, Tab, Ver), MA (CR, Nic). TEF. 100-300 m.

*Dalechampia scandens* L. Sp. Pl. 2: 1054. 1753. Li. MEX (BCS, Cam, Chis, Gro, Jal, Mich, Oax, QR, Tab, Ver, Zac), MA (Bel, CR, ES, Gua, Pan), SA. TDF, TSEF. 5-1,400 m.

*Dalembertia populifolia* Baill. Étude Euphorb. 346, pl. 5, f. 11-15. 1858. Li. MEX (Col, Gro, Jal, Mex, Mich, Nay, Oax, Son). QF, SV, TDF. 350-1,740 m.

*Manihot chlorosticta* Standl. & Goldman. Contr. U.S. Natl. Herb. 13(10): 375. 1911. Li, Sc. MEX (Gro, Jal, Mich, Oax, Sin). TDF. 0-10 m.

*Plukenetia carabiasiae* J. Jiménez Ram. Anales Inst. Biol. Univ. Nac. Autón. México. Bot. 64(2): 55-58, f. 1. 1993. Li. MEX (Oax). HMF, TEF. 650 m.

*P. stipellata* L.J. Gillespie. Syst. Bot. 18(4): 588, f. 3-6, 9. 1993. Li. MEX (Chis, Oax, Tab, Ver), MA (CR, Gua, Nic, Pan). HMF, SV, TEF. 150-1,300 m.

*P. volubilis* L. Sp. Pl. 2: 1192. 1753. Li. MEX (Chis, Tab, Ver), MA (CR, Hon, Pan), SA. SV, TEF. 80-300 m.

**Fabaceae (26/94)**

*Acacia gaumeri* S.F. Blake. Proc. Biol. Soc. Wash. 34: 44. 1921. Sc. MEX (Cam, QR, Yuc), MA (Gua). MG, TDF. 200 m.

*A. hayesii* Benth. Trans. Linn. Soc. London 30(3): 524. 1875. Li, Sc. MEX (Cam, Chis, Gro, Oax, Tab, Ver), MA (CR, Gua, Hon, Pan), SA. TEF, TSEF. 0-200 m.

*A. riparia* Kunth var. *riparia*. Nov. Gen. Sp. (folio ed.) 6: 218. 1824. Sc. MEX (Chis, Col, Gro, Jal, Mich, Mor, Nay, Oax, Pue, QR, SLP, Sin, Ver, Yuc), ANT, MA (CR, ES, Pan), SA. RF, SV, TDF. 0-1,400 m.

*A. riparia* Kunth var. *tucumanensis* (Griseb.) Griseb. Abh. Königl. Ges. Wiss. Göttingen 24: 121. 1879. Sc. MEX (SLP), MA (ES, Gua), SA. SV, TDF, TEF, TSEF. 20-750 m.

*A. tenuifolia* (L.) Willd. Sp. Pl. Editio quarta 4(2): 1091. 1806. Li, Sc. MEX (Chis, Oax), MA (CR, ES, Hon, Pan), SA. TDF. 190-830 m.

*Adenopodia gymnantha* Brenan. Kew Bull. 41(1): 87-90, f. 3. 1986. Li. MEX (Col, Gro, Jal, Mich, Nay). TDF, TSEF. 0-550 m.

*A. oaxacana* M. Sousa. Kew Bull. 41(1): 85-87, f. 2. 1986. Li, Sc. MEX (Oax). RF, TDF, TSEF. 20-190 m.

*A. patens* (Hook. & Arn.) J.R. Dixon ex Brenan. Kew Bull. 41(1): 80. 1986. Li, Sc. MEX (Chis, Col, Gro, Jal, Mich, Nay, Oax), MA (ES, Gua, Hon, Nic). RF, TDF. 0-500 m.

*Barbieria pinnata* (Pers.) Baill. Hist. Pl. 2: 263. 1870. Li. MEX (Chis, Oax), ANT, MA (Bel, CR, Gua, Pan), SA. TSEF. 150 m.

*Bauhinia glabra* Jacq. Enum. Syst. Pl. 20. 1760. Li. MEX (Chis, Oax, Tab), ANT, MA (Bel, CR, Hon, Nic, Pan), SA. SV, TEF. 30-800 m.

*B. guianensis* Aubl. Hist. Pl. Guiane 1: 377-378, pl. 145. 1775. Li. MEX (Oax, Tab), ANT, MA (Bel, CR, Hon, Nic, Pan), SA. TEF. NA.

*B. herrerae* (Britton & Rose) Standl. & Steyerl. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(1): 10. 1943. Li, Sc. MEX (Cam, Chis, Mex, Mor, Nay, Oax, QR, Tab, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic). TEF, TSEF. 0-360 m.

*B. microstachya* (Raddi) J.F. Macbr. Contr. Gray Herb. 59: 22. 1919. Li. MEX (Chis), MA (Bel, Gua, Pan), SA. TEF, TSEF. 180-340 m.

*Caesalpinia globulorum* Bakh. f. & P. Royen. Blumea 12(1): 62. 1963. Li. MEX (Chis, Pue), ANT, SA. TEF. 160-600 m.

*Calopogonium caeruleum* (Benth.) C. Wright. Anales Acad. Ci. Med. Habana 5: 337. 1868[1869]. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax, SLP, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Hon, Pan), SA. RF, SV, TDF, TEF, TSEF. 0-1,800 m.

*Canavalia acuminata* Rose. Contr. U.S. Natl. Herb. (9): 322. 1895. Li. MEX (Col, Gro, Jal, Mich, Nay, Oax, Sin). TDF, TSEF. 0-1,100 m.

*C. brasiliensis* Mart. ex Benth. Comm. Legum. Gen. 71. 1837. Li. USA, MEX (Cam, Chis, Gro, Jal, Mich, Nay, Oax, QR, Sin, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SAV, SV, TDF, TSEF. 50-1,000 m.

## Appendix 2. Continuation.

- C. dura* J.D. Sauer. Brittonia 16(2): 129-130, f. 8. 1964. Li, Sc. MEX (Chis, Gro). CF, HMF. 1,500-2,000 m.
- C. glabra* (M. Martens & Galeotti) J.D. Sauer. Brittonia 16(2): 130. 1964. Li. MEX (Chis, Mor, Oax, Pue, Tab, Ver), MA (Gua, Hon, Pan), SA. HMF, SV, TDF, TEF, TSEF. 200-1,500 m.
- C. hirsutissima* J.D. Sauer. Brittonia 16(2): 136, f. 11. 1964. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Oax, Pue, Ver), MA (ES, Gua). HMF, QF. 750-2,000 m.
- C. oxyphylla* Standl. & L.O. Williams. Ceiba 3(3): 201-202. 1953. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF. 100-2,000 m.
- C. villosa* Benth. Comm. Legum. Gen. 71. 1837. Li. MEX (Cam, Chis, Coa, Col, DF, Dgo, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Zac), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, QF, RF, SV, TDF, XS. 450-2,200 m.
- Centrosema macrocarpum* Benth. Ann. Nat. Hist. 3: 436. 1839. Li, Sc. MEX (Oax, Tab), ANT, MA (Bel, CR, Hon, Nic, Pan), SA. CF, TEF. 100-900 m.
- C. plumieri* (Turpin ex Pers.) Benth. Comm. Legum. Gen. 54. 1837. Li. MEX (Cam, Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, SV, TDF, TSEF. 0-1,750 m.
- C. pubescens* Benth. Comm. Legum. Gen. 55. 1837. Li. MEX (Chis, Col, Gro, Hgo, Jal, Mex, Mich, Nay, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. AS. CF, HMF, RF, SV, TSEF. 100-1,300 m.
- C. virginianum* (L.) Benth. Comm. Legum. Gen. 56. 1837. Li. USA, MEX (Cam, Chis, Gro, Jal, Mor, Nay, NL, Oax, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. CF, QF, RF, SV, TDF, TEF. 10-30 m.
- Clitoria mexicana* Link. Enum. Hort. Berol. Alt. 2: 235. 1822. Li. MEX (Chis, Gro, Jal, Mex, Mich, Oax, Tam, Ver), MA (Gua, Hon, Nic). PQF, QF. 650-2,250 m.
- Dalbergia brownei* (Jacq.) Schinz. Bull. Herb. Boissier 6(9): 731. 1898. Sc. USA, MEX (Oax, Tab), ANT, MA (CR, ES, Hon, Nic, Pan), SA. MG, TDF, TEF. 25 m.
- D. ecastaphyllum* (L.) Taub. Nat. Pflanzenfam. 3(3): 335. 1894. Sc. USA, MEX (Tab), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. AF. MG. 0-25 m.
- D. glabra* (Mill.) Standl. var. *glabra*. Publ. Field Mus. Nat. Hist. Bot. Ser. 8(1): 15. 1930. Sc. MEX (Cam, Chis, Oax, QR, Tab), MA (Bel, CR, ES, Gua, Hon). SAV, TEF, TSEF. 0-1,170 m.
- Desmodium infractum* DC. Prodr. 2: 330. 1825. Li. MEX (Chis, Gro, Jal, Mich, Nay, Oax, Tab, Ver), MA (Bel, CR, ES, Gua, Nic, Pan), SA. TDF, TSEF. 0-700 m.
- D. macrodesmum* (S.F. Blake) Standl. & Steyerl. Fieldiana, Bot. 24(5): 230. 1946. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, Gua, Hon, Pan). HMF, SV, TDF, TEF. 220-1,100 m.
- Dioclea guianensis* Benth. Comm. Legum. Gen. 70. 1837. Li, Sc. MEX (Chis), ANT, MA (Bel, CR, Hon, Pan), SA. SV. 100-200 m.
- D. holtiana* Pittier ex R.H. Maxwell. Ann. Missouri Bot. Gard. 77(3): 584-585. 1990. Li, Sc. MEX (Chis), MA (Bel, CR, Nic, Pan), SA. NA.
- D. reflexa* Hook. f. Niger Fl. 306-307. 1849. Li. MEX (Chis, Tab), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. AF. NA.
- D. virgata* (Rich.) Amshoff. Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 52: 69. 1939. Li. MEX (Tab), MA (Bel, Gua, Hon, Nic, Pan), SA. QF. 40 m.
- D. wilsonii* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 4(8): 310-311. 1929. Li, Sc. MEX (Chis, QR, Tab), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF. 80-300 m.
- Entada gigas* (L.) Fawc. & Rendle. Fl. Jamaica 4: 124. 1920. Li. MEX (Oax, Tab, Ver), ANT, MA (Bel, CR, Hon, Nic, Pan), SA. AF. RF, TEF. NA.
- E. polystachya* (L.) DC. Prodr. 2: 425. 1825. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Tab), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. RF, SAV, TDF, TSEF. 0-550 m.
- Galactia acapulcensis* Rose. Contr. U.S. Natl. Herb. 5(3): 137. 1897. Li. MEX (BCS, Chis, Col, Gro, Jal, Mex, Mor, Nay, Oax, Sin), MA (Gua, Hon). TDF. 0-500 m.
- G. brachystachys* Benth. Comm. Legum. Gen. 63. 1837. Li. MEX (Coa, Dgo, Gto, Gro, Hgo, Jal, NL, Oax, Pue, Qro, SLP). HMF, PQF, TDF, XS. 750-2,000 m.
- G. striata* (Jacq.) Urb. Symb. Antill. 2(2): 320. 1900. Li. MEX (Cam, Chis, Chih, Jal, Mex, NL, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. PQF, SAV, SV, TDF, XS. 700-1,290 m.
- G. viridiflora* (Rose) Standl. Contr. U.S. Natl. Herb. 23(2): 502. 1922. Li, Sc. MEX (Col, Gro, Mex, Mich, Mor, Oax, Pue). TDF. 300-500 m.
- Machaerium cirrhiferum* Pittier. Contr. U.S. Natl. Herb. 20(12): 472. 1922. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), MA (Bel, CR, Hon, Nic, Pan), SA. TEF, TSEF. 120-360 m.
- M. cobanense* Donn. Sm. Bot. Gaz. 44(2): 108-109. 1907. Li, Sc. MEX (Chis, Oax, Ver), MA (CR, Gua, Nic), SA. HMF, PQF, TEF. 120-2,000 m.
- M. falciforme* Rudd. Phytologia 24(2): 125. 1972. Li, Sc. MEX (Cam, Chis, Tab, Ver), MA (Bel, Gua, Hon, Nic). RF, TEF. 0-200 m.

## Appendix 2. Continuation.

- M. floribundum* Benth. var. *floribundum*. J. Proc. Linn. Soc. Bot. 4 (Suppl.): 68. 1860. Li, Sc. MEX (Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Pan), SA. QF, SV, TEF. 120-800 m.
- M. isadelphum* (E. Mey.) Amshoff. Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 52: 53. 1939. Li, Sc. MEX (Chis, Mex, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, ES, Hon, Nic, Pan), SA. QF, SAV, SV, TEF, TSEF. 0-475 m.
- M. kegelii* Meisn. Linnaea 21: 257-258. 1848. Li, Sc. MEX (Cam, Chis, Jal, Oax, Tab), MA (Bel, CR, ES, Hon, Nic, Pan), SA. RF, TEF, TSEF. 0-500 m.
- M. lunatum* (L.) Ducke. Arch. Jard. Bot. Rio de Janeiro 4: 310. 1925. Sc. MEX (Tab), ANT, MA (Bel, CR, Nic, Pan), SA. NA.
- M. salvadorensis* (Donn. Sm.) Rudd. Phytologia 22(1): 56. 1971. Li, Sc. MEX (Chis, Coa, Col, Gro, Jal, Mich, Nay, Oax, Ver), MA (Bel, CR, ES, Gua, Pan), SA. RF, TDF, TSEF. 20-850 m.
- M. seemanii* Benth. ex Seem. Bot. Voy. Herald 110. 1853. Li, Sc. MEX (Cam, Chis, QR, Tab), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. PQF, TEF. 40-1,170 m.
- Mimosa albidula* Humb. & Bonpl. ex Willd. Sp. Pl. 4(2): 1030. 1806. Li, Sc. MEX (Cam, Chis, Col, DF, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, Sin, SLP, Tab, Tam, Ver, Yuc, Zac), MA (Bel, CR, Gua, ES, Hon, Nic, Pan), SA. CF, PQF, QF, SV, TDF, TSEF. 10-2,170 m.
- M. ervendbergii* A. Gray. Proc. Amer. Acad. Arts 5: 178-179. 1862. Li. MEX (Chis, Jal, Oax, Pue, Tab, Ver), MA (Bel, CR, Gua, Nic). TDF, TEF, TSEF. 10-900 m.
- M. hondurana* Britton. N. Amer. Fl. 23(3): 169. 1928. Li. MEX (Chis), MA (Bel, ES, Gua, Hon, Nic). HMF, SV, TEF. 500-1,000 m.
- M. sinaloensis* Britton & Rose. N. Amer. Fl. 23(3): 163. 1928. Li. MEX (Sin). 0-200 m.
- M. watsonii* B.L. Rob. Proc. Amer. Acad. Arts 36(26): 473-474. 1901. Li. MEX (Chis, Gro, Oax, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic). PQF, QF, RF, SV, TDF, TEF. 30-1,250 m.
- Mucuna argyrophylla* Standl. Contr. U.S. Natl. Herb. 23(2): 504. 1922. Li. MEX (Chis, Oax, Pue, SLP, Tab, Ver), MA (Bel, ES, Gua, Hon, Nic). HMF, SV, TEF. 40-1,000 m.
- M. holtonii* (Kuntze) Moldenke. Phytologia 1(1): 7. 1933. Li. MEX (Chis), MA (Bel, CR, ES, Nic, Pan), SA. RF, SV, TEF. 30-1,160 m.
- M. jarocho* T.M. Moura, Mansano, Gereau & A.M.G. Azevedo. Phytotaxa 89(1): 44-46, f. 1A-J. 2013. Li. MEX (Ver). 1,300-1,550 m.
- M. pruriens* (L.) DC. var. *pruriens*. Prodr. 2: 405. 1825. Li. MEX (Cam, QR, Ver), AS. SV, TDF. NA.
- M. sloanei* Fawc. & Rendle. J. Bot. 55(650): 36. 1917. Li. MEX (Chis, Gro, Jal, Mich, Oax, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. AF, TEF, TSEF. 0-600 m.
- Nissolia fruticosa* Jacq. var. *fruticosa*. Enum. Syst. Pl. 27. 1760. Li. MEX (Cam, Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic), SA. QF, RF, SV, TDF, TSEF, XS. 0-2,150 m.
- N. gentryi* Rudd. Acta Bot. Mex. 15: 26. 1991. Li. MEX (Sin, Son). TDF. 570-760 m.
- N. laxior* (B.L. Rob.) Rose. Contr. U.S. Natl. Herb. 5(4): 162. 1899. Li. MEX (Col, Gro, Jal, Mex, Mich, Nay, Oax, Qro). QF, TDF, TSEF. 800-1,320 m.
- N. leiogyne* Sandwith. Bull. Misc. Inform. Kew 1937(5): 302-303. 1937. Li. MEX (Col, Gro, Jal, Mich, Sin). TDF, TSEF. 0-1,100 m.
- N. microptera* Poir. Encycl. Suppl. 4(1): 98-99. 1816. Li. MEX (Ags, Cam, Chis, Chih, Col, Dgo, Gto, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, Sin, Son, Zac). CF, QF, RF, SV, TDF, XS. 300-2,000 m.
- N. platycarpa* Benth. Fl. Bras. 15(1A): 77. 1859. Li. MEX (Coa, Gro, Hgo, NL, Oax, Pue, Qro, SLP, Sin, Son, Tam, Ver). CF, QF, XS. 270-2,000 m.
- N. pringlei* Rose. Contr. U.S. Natl. Herb. 5(4): 159-160, f. 20. 1899. Li. MEX (Chih, Coa, Dgo, Gto, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Qro, SLP, Sin, Zac). QF, XS. 1,500-2,320 m.
- N. ruddiae* R. Cruz & M. Sousa. Acta Bot. Mex. 68: 66-70, f. 1. 2004. Li. MEX (Gro, Mor, Pue). TDF. 650-1,420 m.
- Oxyrhynchus trinervius* (Donn. Sm.) Rudd. Phytologia 15(5): 291. 1967. Li. MEX (Chis, Ver), MA (Bel, CR, Gua, Nic), SA. SAV, SV, TEF. 10-560 m.
- Phaseolus albescens* McVaugh ex R. Delgad. & A. Delgado. Sida 18(3): 638-646, f. 1-5. 1999. Li. MEX (Jal, Mich). PQF. 1,640-1,788 m.
- P. lunatus* L. Sp. Pl. 2: 724. 1753. Li. MEX (BCS, Cam, Chis, Col, DF, Gro, Jal, Mex, Mich, Mor, Nay, Oax, QR, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA, AF, AS. HMF, SV, TDF, TSEF. 0-1,578 m.
- P. maculatus* Scheele subsp. *ritensis* (M.E. Jones) Freytag. Sida Bot. Misc. 23: 257-260, f. 95, 97. 2002. Li. USA, MEX (Ags, Chih, Coa, Dgo, Gto, Hgo, Jal, Nay, Pue, Qro, SLP, Sin, Son, Tla, Zac). PQF, QF, TDF. 600-2,000 m.
- P. pedicellatus* Benth. Comm. Legum. Gen. 73. 1837. Li. MEX (BCS, Coa, Col, DF, Gto, Gro, Hgo, Jal, Mex, Mor, NL, Pue, Qro, SLP, Sin, Tam, Ver). CF, PQF, QF. 1780-2,700 m.
- P. rotundatus* Freytag & Debouck. Sida Bot. Misc. 23: 132-134, f. 44, 46. 2002. Li. MEX (Jal, Oax). SV, TDF. 1,490-1,730 m.
- Piptadenia flava* (Spreng. ex DC.) Benth. Trans. Linn. Soc. London 30(3): 371. 1875. Sc. MEX (Chis, Col, Gro, Jal, Mich, Mor, Oax), ANT, MA (CR, ES, Gua, Hon, Pan), SA. SV, TDF, TSEF. 0-300 m.
- Ramirezella calcoma* Ochot.-Booth & A. Delgado. Anales Inst. Biol. Univ. Nac. Autón. México, Bot. 65(1): 8-11, f. 1. 1994. Li. MEX (Mex). QF. 860-1,610 m.



**Appendix 2.** Continuation.

- R. crassa* (McVaugh) Ochot.-Booth & A. Delgado. *Anales Inst. Biol. Univ. Nac. Autón. México, Bot.* 65(1): 16. 1994. Li. MEX (Jal, Mich, Nay, Sin). QF, RF, TSEF. 200-1,500 m.
- R. lozanii* (Rose) Piper. *Contr. U.S. Natl. Herb.* 22(9): 669. 1926. Li. MEX (Col, Gro, Jal, Mich, Nay). HMF, PQF. 1,000-1,800 m.
- R. strobilophora* (B.L. Rob.) Rose var. *buseri* (Micheli) Maréchal, Mascherpa & Stainier. *Taxon* 27(2-3): 199. 1978. Li. MEX (Chis, Chih, Col, Gro, Jal, Mex, Mich, Oax), MA (ES, Nic). HMF, QF, RF, TSEF. 0-1,800 m.
- R. strobilophora* (B.L. Rob.) Rose var. *strobilophora*. *Contr. U.S. Natl. Herb.* 8(1): 44. 1903. Li. MEX (Ags, Chis, Chih, Gro, Jal, Mich, Oax). RF, TDF. 1,300-1,800 m.
- Rhynchosia discolor* M. Martens & Galeotti. *Bull. Acad. Roy. Sci. Bruxelles* 10(2): 199. 1843. Li. MEX (Chis, Chih, Dgo, Gro, Jal, Mex, Mich, Mor, Oax, Sin, Son, Zac), MA (Bel, ES, Gua). HMF, PQF, QF, TDF. 650-2,000 m.
- R. erythrinoides* Schldl. & Cham. *Linnaea* 5: 587. 1830. Li. MEX (Chis, Oax, Pue, Ver), ANT, MA (CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 250-980 m.
- R. longercemosa* M. Martens & Galeotti. *Bull. Acad. Roy. Sci. Bruxelles* 10(2): 198-199. 1843. Li. MEX (Cam, Chis, Hgo, Jal, NL, Oax, Pue, Qro, QR, SLP, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). SV, TDF, TSEF. 0-2,040 m.
- R. macrocarpa* Benth. *Pl. Hartw.* 11. 1839. Li. MEX (Ags, Chih, Dgo, Gto, Hgo, Jal, Mich, SLP, Sin, Son, Zac). CF, PQF, QF, SV, XS. 1,750-2,500 m.
- R. precatoria* (Humb. & Bonpl. ex Willd.) DC. *Prodr.* 2: 385. 1825. Li. MEX (BC, Chis, Chih, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, SLP, Sin, Son, Ver), MA (CR, Nic), SA. SV, TDF, TSEF. 0-1,800 m.
- R. reticulata* (Sw.) DC. var. *reticulata*. *Prodr.* 2: 385. 1825. Li. MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, QR, SLP, Tab, Ver, Yuc), ANT, MA (CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TSEF. 90-1,000 m.
- R. swartzii* (Vail) Urb. *Repert. Spec. Nov. Regni Veg.* 15: 320. 1918. Li. USA, MEX (Cam, QR, Yuc), ANT, MA (Bel). TDF, TEF, TSEF. 11-270 m.
- R. tarphantha* Standl. *Publ. Field Mus. Nat. Hist. Bot. Ser.* 4(8): 214-215. 1929. Li. MEX (Gro, Jal, Oax). PQF, RF. 450-2,000 m.
- R. yucatanensis* Grear. *Mem. New York Bot. Gard.* 31(1): 103-105, f. 27. 1978. Li. MEX (Cam, QR, Yuc), MA (Gua). SV, TSEF. 128-750 m.
- Senna peralteana* (Kunth) H.S. Irwin & Barneby. *Mem. New York Bot. Gard.* 35: 597. 1982. Li, Sc. MEX (Cam, Chis, Gro, Oax, QR, Ver, Yuc), MA (Bel, Gua). RF, SV, TEF, TSEF. 100-670 m.
- S. quinquangulata* (Rich.) H.S. Irwin & Barneby var. *quinquangulata*. *Mem. New York Bot. Gard.* 35: 153. 1982. Li, Sc. MEX (Col, Dgo, Gro, Jal, Mich, Nay, Oax, Sin, Tab, Ver), ANT, MA (Bel, CR, Gua, Nic, Pan), SA. CF, PQF, QF, RF, SV, TDF. 0-1,200 m.
- S. undulata* (Benth.) H.S. Irwin & Barneby. *Mem. New York Bot. Gard.* 35: 157. 1982. Sc. MEX (Cam, Chis, Nay, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF, TSEF. 0-980 m.
- Sphinga platyloba* (Bertero ex DC.) Barneby & J.W. Grimes. *Mem. New York Bot. Gard.* 74(1): 164. 1996. Li, Sc. MEX (Cam, Chis, Jal, Oax, QR, Tab, Yuc), ANT, MA (Bel, CR, Gua, Nic), SA. TDF, TEF. 0-1,170 m.
- Vigna speciosa* (Kunth) Verdc. *Kew Bull.* 24(3): 552. 1970. Li. MEX (Chis, Gro, Jal, Mich, Nay, Oax, SLP, Sin, Son, Tab, Tam, Ver), MA (Bel, CR), SA. RF, SV, TDF. 0-1,400 m.

**Gelsemiaceae (1/1)**

- Gelsemium sempervirens* (L.) J. St.-Hil. *Expos. Fam. Nat.* 1(2): 338-340. 1805. Li. MEX (Chis, Gro, Jal, Mich, Nay, Oax, SLP, Sin, Son, Tab, Tam, Ver), MA (Bel, CR), SA. RF, SV, TDF. 0-1,400 m.

**Gesneriaceae (1/2)**

- Drymonia multiflora* (Oerst. ex Hansth.) Wiehler. *Phytologia* 27(5): 325. 1973. He. MEX (Oax), MA (CR, Nic, Pan). HMF, TEF. 1,000-1,780 m.
- D. serrulata* (Jacq.) Mart. *Nov. Gen. Sp. Pl.* 3: 192. 1832. He. MEX (Chis, Col, Jal, Nay, Oax), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, TEF, TSEF. 400-1,350 m.

**Hernandiaceae (1/1)**

- Sparattanthelium amazonum* Mart. *Flora* 24(2, Beibl. 2): 42. 1841. Li, Sc. MEX (Chis, Oax, Tab, Ver, Yuc), MA (CR, Gua, Hon, Nic, Pan), SA. TEF. 0-545 m.

**Hydrangeaceae (2/5)**

- Hydrangea albostellata* Samain, Najarro & E. Martínez. *Phytotaxa* 162(4): 183, f. 1-4. 2014. Li. MEX (Chis), MA (CR, ES, Gua, Hon, Nic). HMF, PQF. 1,400-2,520 m.
- H. nebulicola* Nevling & Gómez Pompa. *J. Arnold. Arbor.* 49: 231. 1968. Li. MEX (Qro, Ver). HMF, TEF. 950-1,600 m.
- H. steyermarkii* Standl. *Publ. Field Mus. Nat. Hist. Bot. Ser.* 22(4): 233. 1940. He. MEX (Chis), MA (CR, Gua, Hon, Nic, Pan). HMF, TEF. 900-1,700 m.

**Appendix 2.** Continuation.

*Philadelphus coulteri* S. Watson. Proc. Amer. Acad. 22: 472. 1887. Sc. MEX (Gto, Hgo, Qro, SLP, Tam). CF, HMF, QF, SV. 1,000-2,300 m.

*P. mexicanus* Schltld. Linnaea 13: 418-419. 1839. Sc. USA, MEX (Chis, DF, Gro, Hgo, Mex, Mich, Mor, Oax, Pue, Qro, Ver), MA (ES, Gua, Hon). CF, HMF, PQF, QF. 1,700-2,800 m.

**Lamiaceae (3/7)**

*Aegiphila deppeana* Steud. Nomencl. Bot. (ed. 2) 1: 29. 1840. Sc. MEX (Chis, Oax, Tab, Ver), MA (CR, Gua, Nic, Pan), SA. RF, SAV, SV, TDF, TEF, TSEF. 0-1,000 m.

*A. elata* Sw. Prodr. 31. 1788. Sc. MEX (Chis, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, SV, TEF. 0-500 m.

*A. falcata* Donn. Sm. Bot. Gaz. 18: 7 (1893). Sc. MEX (Chis), MA (CR, Gua, Nic, Pan). RF, SV, TEF, TSEF. 168 m.

*A. panamensis* Moldenke. Trop. Woods 25: 14-16. 1931. Sc. MEX (Chis), MA (CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF. NA.

*Salvia disjuncta* Fernald. Proc. Amer. Acad. Arts 35(25): 533. 1900. Sc. MEX (Chis, Mor, Oax), MA (Gua, Nic). HMF, PQF. 1,720-3,000 m.

*S. gesneriflora* Lindl. & Paxton. Flow. Gard. 2: 49, t. 47. 1851. Sc. MEX (DF, Gto, Jal, Mex, Mich, Mor, SLP). CF, HMF, PQF, QF. 2,000-3,300 m.

*Volkameria ligustrina* Jacq. Collectanea 118-119, t. 5, f. 1. 1796[1797]. Sc. MEX (Ver), MA (Bel, Nic, Pan). MG, SV, TDF, TEF, TSEF. 0-600 m.

**Loganiaceae (1/4)**

*Strychnos brachistantha* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 12: 412-413. 1936. Li, Sc. MEX (Cam, Chis, Jal, Pue, QR, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan). HMF, SV, TEF, TSEF. 25-600 m.

*S. panamensis* Seem. Bot. Voy. Herald 166. 1854. Li. MEX (Cam, Chis, Gro, Jal, Nay, Oax, QR, Sin, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 50-500 m.

*S. panurensis* Sprague & Sandwith. Bull. Misc. Inform. Kew 1927(3): 132-133. 1927. Li, Sc. MEX (Ver), MA (Bel, CR, Gua, Pan), SA. HMF, TEF. 750-900 m.

*S. peckii* B.L. Rob. Proc. Amer. Acad. Arts 49(8): 504. 1913. Li, Sc. MEX (Chis), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 200 m.

**Malpighiaceae (14/57)**

*Adelphia hiraeta* (Gaertn.) W.R. Anderson. Novon 16(2): 171. 2006. Li. MEX (Chis, Tab), ANT, MA (Bel, CR, Gua), SA. TEF. 30-500 m.

*Banisteriopsis elegans* (Triana & Planch.) Sandwith. J. Arnold Arbor. 24(2): 222. 1943. Li. MEX (Chis), MA (CR, Gua, Hon, Nic, Pan), SA. TDF. 1,000-1,500 m.

*B. muricata* (Cav.) Cuatrec. Webbia 8: 503. 1958. Li, Sc. MEX (Chis, Oax), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. CF, PQF, TDF, TEF, TSEF. 350-1,100 m.

*Bronwenia acapulcensis* (Rose) W.R. Anderson & C. Davis. Contr. Univ. Michigan Herb. 25: 141. 2007. Li, Sc. MEX (Chis, Gro, Oax), MA (CR, ES, Gua, Hon, Nic, Pan), SA. RF, TDF. NA.

*B. cornifolia* (Kunth) W.R. Anderson & C. Davis. Contr. Univ. Michigan Herb. 25: 142-143. 2007. Li, Sc. MEX (Chis, Mex, Oax, QR, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic), SA. SAV, TDF, TEF, TSEF. 80-1,100 m.

*Callaeum chiapense* (Lundell) D.M. Johnson. Syst. Bot. 11(2): 346. 1986. Li. MEX (Chis). 2,100-2,700 m.

*C. clavipetalum* D.M. Johnson. Syst. Bot. 11(2): 347, f. 1i, 4. 1986. Li, Sc. MEX (Oax). NA.

*C. coactum* D.M. Johnson. Syst. Bot. 11(2): 342-343, f. 2e, 3. 1986. Li, Sc. MEX (Gro, Mex, Mich, Pue). QF, TDF, TF. 500-1,750 m.

*C. johnsonii* W.R. Anderson. Acta Bot. Mex. 74: 180-182, f. 1. 2006. Li, Sc. MEX (Pue). TDF. NA.

*C. macropterum* (Moc. & Sessé ex DC.) D.M. Johnson. Syst. Bot. 11(2): 340. 1986. Li, Sc. USA, MEX (Ags, BCS, Chih, Col, Gro, Jal, Mich, Nay, NL, Oax, Sin, Son). SV, TDF, XS. 50-1,950 m.

*C. malpighioides* (Turcz.) D.M. Johnson. Syst. Bot. 11(2): 344-345. 1986. Li. MEX (Chis, Col, Gro, Oax, Ver), MA (Bel, Gua). HMF, QF, TDF, TEF, TSEF, XS. 0-1,400 m.

*C. septentrionale* (A. Juss.) D.M. Johnson. Syst. Bot. 11(2): 343. 1986. Li, Sc. MEX (Hgo, NL, Oax, Qro, SLP, Tam). PQF, TDF, TEF, TF. 85-2,000 m.

*Carolus sinemariensis* (Aublet) W.R. Anderson. Novon 16(2): 188. 2006. Li, Sc. MEX (Chis, Jal, Nay, QR), ANT, MA (CR, Nic), SA. TDF, TEF, XS. 830 m.

*Christianella mesoamericana* (W.R. Anderson) W.R. Anderson. Novon 16(2): 191. 2006. Li. MEX (Chis), MA (CR, Gua, Pan). NA.

*Cottsia californica* (Benth.) W.R. Anderson & C. Davis. Contr. Univ. Michigan Herb. 25: 161. 2007. Li. MEX (BCS, Son). TDF, XS. 0-400 m.

*C. gracilis* (A. Gray) W.R. Anderson & C. Davis. Smithsonian Contr. Knowl. 3(5): 37. 1852. Li. USA, MEX (BC, Chih, Dgo, NL, Son). XS. 200-1,300 m.

## Appendix 2. Continuation.

- Gaudichaudia albida* Schltdl. & Cham. Linnaea 5: 217. 1830. Li. MEX (Cam, Chis, Gro, Jal, Mich, Mor, Nay, Oax, Ver, Yuc), MA (ES, Gua, Hon, Nic), SA. QF, RF, TDF, XS. 180-1,700 m.
- G. cycloptera* (DC.) W.R. Anderson. Contr. Univ. Michigan Herb. 16: 69. 1987. Li. MEX (Col, Jal, Mich, Oax). HMF, QF. 360-1,400 m.
- G. diandra* Chodat. Veg. Parag. 203. 1917. Li. MEX (Gro, Oax). TDF. NA.
- G. mcvaughii* W.R. Anderson. Contr. Univ. Michigan Herb. 16: 72-75, f. 7A-G. 1987. Li. MEX (Col, Gro, Jal, Oax, Ver). TDF. 0-800 m.
- Heteropterys brachiata* (L.) DC. Prodr. 1: 591. 1824. Sc. MEX (Cam, Chis, Gro, Hgo, Jal, Mich, Mor, Oax, QR, Tab, Yuc), MA (Bel, ES, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF, TSEF. 3-1,300 m.
- H. cotinifolia* A. Juss. Ann. Sci. Nat. Bot. sér. 2, 13: 274. 1840. Li. MEX (Chis, Gro, Jal, Mich, Nay, Oax, Sin). RF, TDF. 25-1,000 m.
- H. laurifolia* (L.) A. Juss. Ann. Sci. Nat. Bot. sér. 2, 13: 276. 1840. Li, Sc. MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Oax, QR, Tab, Ver), ANT, MA (CR, ES, Hon, Nic, Pan), SA. RF, TDF, TEF, TSEF. 660-1,050 m.
- H. lindeniana* A. Juss. Arch. Mus. Hist. Nat. 3: 457. 1843. Li, Sc. MEX (QR, Tab, Yuc), MA (Bel, Gua, Nic). SAV, SV, TDF, TSEF. 0-140 m.
- H. macrostachya* A. Juss. Ann. Sci. Nat. Bot. sér. 2, 13: 275. 1840. Li, Sc. MEX (Chis, Oax), ANT, MA (Bel, CR, Nic, Pan), SA. TEF, TSEF. 160-300 m.
- H. palmeri* Rose. Contr. U.S. Natl. Herb. 1(9): 311, f. 2. 1895. Li. MEX (Col, Gro, Jal, Oax, Sin, Son). SAV, TDF, TF. 0-500 m.
- H. panamensis* Cuatrec. & Croat. Ann. Missouri Bot. Gard. 67(4): 887, f. 6. 1980[1981]. Li, Sc. MEX (Chis), MA (CR, Nic, Pan). TEF, TSEF. NA.
- Hiraea barclayana* Benth. Bot. Voy. Sulphur 75. 1844. Li, Sc. MEX (Gro, Oax), MA (Nic). RF, TSEF. NA.
- H. fagifolia* (DC.) A. Juss. Ann. Sci. Nat. Bot. sér. 2, 13: 258. 1840. Li, Sc. MEX (Chis, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 10-890 m.
- H. obovata* Huber. Bol. Mus. Paraense Hist. Nat. Ethnogr. 3(4): 424-425. 1902. Li. MEX (Oax, QR, Tab, Ver, Yuc), MA (Bel, ES, Gua, Pan). TEF, TSEF. 3-200 m.
- H. quapara* (Aubl.) Sprague. J. Bot. 62(733): 22. 1924. Li. MEX (Tab, Ver), MA (Bel, Gua, Pan), SA. NA.
- H. reclinata* Jacq. Enum. Syst. Pl. 21. 1760. Li, Sc. MEX (Cam, Chis, Jal, Oax), ANT, MA (Bel, CR, ES, Nic, Pan), SA. CF, HMF, RF, TDF, TEF, TSEF. 500-1,000 m.
- H. smilacina* Standl. Contr. Arnold Arbor. 5: 87, t. 13. 1933. Li. MEX (Oax, Ver), MA (Bel, CR, Hon, Pan), SA. SV, TEF. 100-520 m.
- Mascagnia polycarpa* Brandege. Univ. Calif. Publ. Bot. 10(8): 409. 1924. MEX (Cam, Chis, Oax, Ver), MA (Bel, Gua). TEF, TSEF. 160-200 m.
- M. sepium* (A. Juss.) Griseb. Fl. Bras. 12(1): 96. 1858. Li. MEX (Oax). RF. 120-1,000 m.
- M. tomentosa* C.E. Anderson. Brittonia 53(3): 411-413, f. 2. 2001. Li. MEX (Chis, Oax, Ver), MA (ES, Gua, Hon, Nic). TDF. 0-19,00 m.
- M. vacciniifolia* Nied. Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 11. 1908. Li. MEX (Chis, Mor, Oax, Ver), MA (Bel, CR, Gua, Hon). SV, TEF. 50-1,250 m.
- Psychopterys dipholiphylla* (Small) W.R. Anderson & S. Corso. Contr. Univ. Michigan Herb. 25: 118. 2007. Li, Sc. MEX (Gro, Jal, Mex, Mor, Oax, Pue). QF, TDF. 570-2,000 m.
- P. mcvaughii* W.R. Anderson & S. Corso. Contr. Univ. Michigan Herb. 25: 121-122. 2007. Li. MEX (Jal). HMF. 1,250 m.
- P. multiflora* (Nied.) W.R. Anderson & S. Corso. Contr. Univ. Michigan Herb. 25: 122. 2007. Li, Sc. MEX (Chis, Oax), MA (Gua). TDF. 550-1,200 m.
- P. ornata* W.R. Anderson & S. Corso. Contr. Univ. Michigan Herb. 25: 125-127, fig. 6. 2007. Li. MEX (Chis). HMF. 1,300 m.
- P. rivularis* (C.V. Morton & Standl.) W.R. Anderson & S. Corso. Contr. Univ. Michigan Herb. 25: 132. 2007. Li, Sc. MEX (Chis, QR, Ver), MA (Bel, Gua). TEF. 0-660 m.
- Stigmaphyllon bannisterioides* (L.) C.E. Anderson. Taxon 41(2): 328. 1992. Li, Sc. MEX (Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TEF. 5-20 m.
- S. dichotomum* (L.) Griseb. Linnaea 13: 207-208. 1839. Li. MEX (Chis, Oax, SLP, Tab, Ver), MA (Bel, CR, ES, Gua, Pan), SA. SV, TDF, TSEF. 160-700 m.
- S. ellipticum* (Kunth) A. Juss. Ann. Sci. Nat. Bot. sér. 2, 13: 290. 1840. Li. MEX (Cam, Chis, Oax, QR, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. PQF, SV, TDF, TEF, TF, TSEF. 10-50 m.
- S. lindenianum* A. Juss. Arch. Mus. Hist. Nat. 3: 362-363. 1843. Li. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. MG, RF, SV, TDF, TEF, TSEF. 10 m.
- S. pseudopuberum* Nied. Malpigh. Amer. 2: 28. 1912. Li. MEX (Chis, Oax, Tab), MA (Bel, Gua). HMF, PQF. 960-3,200 m.
- S. retusum* Griseb. Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 1853(1-2): 45. 1854. Li. MEX (Chis, Hgo, Oax, Pue, Qro, SLP, Ver), MA (Bel, CR, ES, Gua, Hon, Nic). RF, SV, TEF, XS. 10-760 m.
- S. selerianum* Nied. Stigmatoph. 1900(2): 7. 1900. Li. MEX (Chis, Oax). TDF, TEF. 550-1,500 m.

**Appendix 2.** Continuation.

- Tetrapterys arcana* C.V. Morton. Publ. Carnegie Inst. Wash. 461: 132. 1936. Li, Sc. MEX (Cam, Chis, Oax), MA (Bel, ES, Gua, Hon, Nic). TDF, TSEF. 90-190 m.
- T. discolor* (G. Mey.) DC. Prodr. 1: 587. 1824. Li, Sc. MEX (Chis, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. RF, TDF, TEF. 100-200 m.
- T. goudotiana* Triana & Planch. Ann. Sci. Nat., Bot., sér. 4, 18: 333. 1862. Li. MEX (Chis), MA (Bel, CR, Pan), SA. NA.
- T. heterophylla* (Griseb.) W.R. Anderson. Contr. Univ. Michigan Herb. 20: 35. 1995. Li. MEX (Chis, Oax, Ver), MA (ES, Gua). RF, TDF, TSEF. 150-1,000 m.
- T. mexicana* Hook. & Arn. Bot. Beechey Voy. 281. 1841[1838]. Li. MEX (Col, Gro, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Sin). TDF, TSEF. 930-1,630 m.
- T. schiedeana* Schltdl. & Cham. Linnaea 5(2): 218. 1830. Li, Sc. MEX (Cam, Chis, Hgo, Oax, QR, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan). HMF, TDF, TEF, TSEF, XS. 0-1,600 m.
- T. seleriana* Nied. Bot. Jahrb. Syst. 36(3): 18. 1905. Li. MEX (Cam, Oax, Tab, Yuc), MA (Bel, Gua). SAV, SV, TDF, TEF, TSEF. 10-900 m.
- T. tinifolia* Triana & Planch. Ann. Sci. Nat. Bot. sér. 4, 18: 336. 1862. Li, Sc. MEX (Chis, Ver), MA (CR, Nic, Pan), SA. RF, SV, TEF. 60-630 m.

**Malvaceae (2/4)**

- Byttneria aculeata* (Jacq.) Jacq. Select. Stirp. Amer. Hist. 76-77. 1763. Li, Sc. MEX (Cam, Chis, Chih, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, RF, SV, TDF, TEF, TSEF. 0-1,400 m.
- B. catalpifolia* Jacq. subsp. *catalpifolia*. Pl. Rar. Hort. Schoenbr. 1: 21-22, t. 46. 1797. Li. MEX (Chis, Gro, Jal, Mich, Nay, Oax, Ver, Yuc), ANT, MA (Bel, CR, Gua, Nic, Pan), SA. RF, TDF, TEF, TSEF. 0-1,100 m.
- B. fluvialis* Fryxell & Guadarrama. Brittonia 53(1): 59-61, f. 1. 2001. Li. MEX (Tab). NA.
- Hibiscus uncinellus* DC. Prodr. 1: 449. 1824. Li, Sc. MEX (Chis, Gro, Jal, Nay, Oax, Pue, Sin, Tab, Ver), MA (Gua). HMF, PQF, SV, TDF, TEF. 100-1,700 m.

**Marcgraviaceae (3/8)**

- Marcgravia brownei* (Triana & Planch.) Krug & Urb. Symb. Antill. 1: 367. 1899. He. MEX (Chis), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, QF, SV. 800-1,700 m.
- M. mexicana* Gilg. Bot. Jahrb. Syst. 25(Beibl. 60): 26. 1898. He. MEX (Chis, Oax, Ver), MA (CR, Hon, Nic, Pan). HMF, RF, TEF. 50-950 m.
- M. nepenthoides* Seem. J. Bot. 8: 245. 1870. He. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Nic, Pan), SA. TEF. 0-350 m.
- M. pittieri* Gilg. Bot. Jahrb. Syst. 42: 124. 1908. He. MEX (Oax), MA (CR, Gua, Nic, Pan). TEF. 200 m.
- M. stonei* Utley. Brenesia 9: 52-53, f. 1. 1976. Li. MEX (Chis, Oax, Ver). HMF. 1,300-1,800 m.
- Ruyschia enervia* Lundell. Phytologia 1(7): 245-246. 1937. He, Li. MEX (Chis, Ver), MA (Bel, CR, Gua, Hon). HMF, TEF. 650-800 m.
- Souroubea exauriculata* Delpino. Atti Soc. Ital. Sci. Nat. 12: 180, 200. 1869. Sc, He. MEX (Chis, Oax, Tab, Ver), MA (Bel, Gua, Hon, Nic). HMF, TEF, TSEF. 400-1,000 m.
- S. loczyi* (V.A. Richt.) de Roon subsp. *loczyi*. Acta Bot. Neerl. 15(3): 587. 1967. Sc, He. MEX (Cam, Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Pan). SV, TDF, TEF. 0-2,400 m.

**Melastomataceae (1/1)**

- Adelobotrys adscendens* (Sw.) Triana. J. Bot. 5: 210. 1867. He, Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TEF. 120-475 m.

**Menispermaceae (6/13)**

- Abuta chiapasensis* Krukoff & Barneby. Mem. New York Bot. Gard. 20(2): 23-24. 1970. Li. MEX (Chis), MA (Gua). TEF, TSEF. 120-1,450 m.
- A. panamensis* (Standl.) Krukoff & Barneby. Mem. New York Bot. Gard. 20(2): 22-23. 1970. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TEF. 50-950 m.
- A. steyermarkii* (Standl.) Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(4): 156. 1944. Li, Sc. MEX (Chis, Oax), MA (Bel, CR, Gua, Nic). HMF. 455-1,260 m.
- Cissampelos grandifolia* Triana & Planch. Ann. Sci. Nat. Bot. sér. 4, 17: 44. 1862. Li. MEX (Cam, Chis, Gro, Mich, Pue, SLP, Tab, Tam, Ver), ANT, MA (CR, Gua, Hon, Nic, Pan), SA. HMF, TDF, TEF. 150-1,650 m.

## Appendix 2. Continuation.

- C. pareira* L. Sp. Pl. 2: 1031-1032. 1753. Li. USA, MEX (Cam, Chis, Col, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Son, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA, AF, AS. HMF, SV, TDF, TEF, TSEF. 0-1,500 m.
- C. tropaeolifolia* DC. Syst. Nat. 1: 532-533. 1818[1817]. Li. MEX (Chis, Gro, Hgo, Oax, QR, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, RF, SV, TEF. 70-1,170 m.
- Cocculus diversifolius* DC. Syst. Nat. 1: 523-524. 1818[1817]. Li. USA, MEX (BCS, Chih, Coa, Col, Gto, Gro, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, SLP, Sin, Son, Tam, Ver). RF, SV, TDF, TEF, XS. 15-2,000 m.
- Disciphania calocarpa* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 4(8): 305. 1929. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic). HMF, SV, TEF, TSEF. 100-1,700 m.
- D. cardiophylla* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 22(1): 20. 1940. Li. MEX (Ver), (Pan). HMF, PQF. 2,000-2,200 m.
- D. mexicana* Bullock. Bull. Misc. Inform. Kew 1936: 388. 1936. Li. MEX (Jal, Mex, Mich, Nay, Sin). TDF. 0-1,300 m.
- D. spadicea* Barneby. Mem. New York Bot. Gard. 20(2): 143. 1970. Li. MEX (Jal, Oax), MA (CR, ES, Nic). TDF, TSEF. 540-1,300 m.
- Menispermum canadense* L. Sp. Pl. 1: 340. 1753. Li. USA, MEX (NL, Qro). QF. 1,450-1,725 m.
- Odontocarya mexicana* Barneby. Anales Inst. Biol. Univ. Nac. México 54(1): 153-155. 1983[1987]. Li. MEX (Chis, Gro, Ver), MA (CR, Pan), SA. HMF, TDF, TEF. 150-1,100 m.

**Nyctaginaceae (3/5)**

- Grajalesia fasciculata* (Standl.) Miranda. Bol. Soc. Bot. México 29: 34. 1965. Sc. MEX (Oax), MA (Nic). HMF, RF, TDF, XS. 30-580 m.
- Pisonia aculeata* L. var. *aculeata*. Sp. Pl. 2: 1026. 1753. Li. Sc. USA, MEX (Cam, Chis, Chih, Col, Dgo, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA, AF, AS. RF, SV, TDF, TEF, TSEF. 0-2,500 m.
- P. capitata* (S. Watson) Standl. Contr. U.S. Natl. Herb. 13(11): 388. 1911. Sc. MEX (Chis, Mich, Nay, Sin, Son). TDF, TSEF. 275-600 m.
- P. macranthocarpa* (Donn. Sm.) Donn. Sm. Bot. Gaz. 20(7): 293. 1895. Li. Sc. MEX (Chis, Jal), ANT, MA (CR, ES, Gua, Hon), SA. TDF. 140-1,350 m.
- Pisoniella arborescens* (Lag. & Rodr.) Standl. Contr. U.S. Natl. Herb. 13(11): 385. 1911. Li. Sc. MEX (DF, Gto, Hgo, Jal, Mex, Mich, Oax, Qro, Ver). SV, TDF, XS. 900-2,400 m.

**Passifloraceae (1/27)**

- Passiflora adenopoda* DC. Prodr. 3: 330. 1828. Li. MEX (Chis, Hgo, Mex, Oax, Pue, Qro, Tam, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA, AS. HMF, TEF. 800-1,350 m.
- P. ambigua* Hemsl. Bot. Mag. 128: t. 7822. 1902. Li. MEX (Chis, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TEF. 60-950 m.
- P. bicornis* Houst. ex Mill. Gard. Dict. (ed. 8) 13. 1768. Li. MEX (Cam, Chis, Oax, Yuc), MA (CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF. 0-250 m.
- P. biflora* Lam. Encycl. 3(1): 36. 1789. Li. MEX (Cam, Chis, Gro, Hgo, Jal, Mich, Nay, Oax, QR, SLP, Sin, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Nic, Pan), SA. HMF, MG, TDF, TEF. 0-2,400 m.
- P. bryonioides* Kunth. Nov. Gen. Sp. (quarto ed.) 2: 140-141. 1817. Li. USA, MEX (Chis, Chih, Dgo, Gto, Hgo, Jal, Mex, Mich, Nay, Oax, Pue, Qro, SLP, Son, Tam, Zac). PQF, QF, SV, TDF, XS. 1,600-2,100 m.
- P. capsularis* L. Sp. Pl. 2: 957. 1753. Li. MEX (Hgo, Jal, Oax, Pue, QR, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, TDF. 1,400 m.
- P. coriacea* Juss. Ann. Mus. Natl. Hist. Nat. 6: 109, t. 39, f. 2. 1805. Li. MEX (Cam, Chis, Col, Jal, Mex, Mich, Nay, Oax, QR, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). HMF, SV, TDF, TEF, TSEF. 0-1,900 m.
- P. exsudans* Zucc. Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 2: 342. 1837. Li. MEX (Ags, Coa, DF, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, NL, Oax, Pue, Qro, SLP, Tam, Tla, Ver). PQF, QF, XS. 1,800-2,700 m.
- P. hahnii* (E. Fourn.) Mast. Trans. Linn. Soc. London 27: 638. 1871. Li. MEX (Chis, Gro, Oax, Tab, Ver), MA (Bel, CR, Gua, Hon, Pan), SA. HMF, TEF, TSEF. 130-2,300 m.
- P. helleri* Peyr. Linnaea 30(1): 54-55. 1859. Li. MEX (Chis, Oax, Pue, Tab, Ver), MA (Bel, CR, Gua, Nic). HMF, TEF, TSEF. 25-1,500 m.
- P. holosericea* L. Sp. Pl. 2: 958. 1753. Li. MEX (Chis, Col, Gro, Jal, Mich, Nay, Oax, Sin, Ver), ANT, MA (CR, ES, Gua, Hon, Nic), SA. SV, TDF, TSEF. 0-700 m.
- P. jorullensis* Kunth. Nov. Gen. Sp. (quarto ed.) 2: 133. 1817. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax), MA (ES). HMF, QF. 900-2,000 m.
- P. juliana* J.M. MacDougal. Novon 2(4): 358, f. 1. 1992. Li. MEX (Col, Jal, Mich). SV, TDF. 20-800 m.

**Appendix 2.** Continuation.

- P. mexicana* Juss. Ann. Mus. Natl. Hist. Nat. 6: 108-109, pl. 38, f. 2. 1805. Li. USA, MEX (Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax, Pue, Sin, Son, Ver). MG, SV, TDF. 0-2,000 m.
- P. nelsonii* Mast. & Rose. Contr. U.S. Natl. Herb. 5: 142, t. 17. 1897. Li. MEX (Chis, Ver), MA (CR, Gua, Nic, Pan). HMF. 700-1,500 m.
- P. obovata* Killip. Publ. Carnegie Inst. Wash. 461(13): 308-309, t. 1. 1936. Li. MEX (Oax, QR), MA (Bel, CR, Gua, Hon). 1,140-1,300 m.
- P. oerstedii* Mast. Fl. Bras. 13(1): 562. 1872. Li. MEX (Chis, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, TDF. 280-1,370 m.
- P. pavonis* Mast. J. Bot. 21: 35. 1883. Li. MEX (Chis, Gro, Jal, Mex, Mich, Mor, Oax), MA (Gua). HMF, PQF, QF, SV. 1,800-2,713 m.
- P. porphyretica* Mast. Bot. Gaz. 20: 538, t. 36. 1895. Li. MEX (Chis, Col, Gro, Jal, Mich, Nay, Oax, Sin, Son), MA (Gua, Pan). QF, TDF. 100-1,500 m.
- P. serratifolia* L. Sp. Pl. 2: 955. 1753. Li. MEX (Cam, Chis, Oax, Pue, Qro, QR, SLP, Tab, Tam, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic). QF, TDF, TEF. 5-900 m.
- P. sexflora* Juss. Ann. Mus. Natl. Hist. Nat. 6: 110-111, pl. 37, f. 1. 1805. Li. MEX (Chis, Oax, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. CF, HMF, QF, TEF. 470-2,700 m.
- P. sicyoides* Schltld. & Cham. Linnaea 5: 88. 1830. Li. MEX (Chis, Hgo, Mich, Nay, NL, Oax, Pue, Qro, Ver), MA (Gua), SA. HMF, PQF. 2,000 m.
- P. standleyi* Killip. J. Wash. Acad. Sci. 14: 110. 1924. Li. MEX (Chis), MA (CR, ES, Gua, Hon, Nic). HMF, PQF, SV. 1,200-1,400 m.
- P. suberosa* L. Sp. Pl. 2: 958. 1753. Li. USA, MEX (Ags, Cam, Chis, Chih, Coa, Col, Dgo, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, QR, SLP, Sin, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, SV, TDF, TF, TSEF, XS. 10-2,330 m.
- P. subpeltata* Ortega. Nov. Pl. Descr. Dec. 6: 78. 1798. Li. MEX (Chis, DF, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, SLP, Ver, Zac.), ANT, MA (Gua, Pan), SA. HMF, PQF, QF, SV, TDF, XS. 1,000-2,300 m.
- P. xiikzodz* J.M. MacDougal subsp. *xiikzodz*. Novon 2(4): 361, f. 2-4. 1992. Li. MEX (Cam, QR, Yuc), MA (Bel, Gua). TEF, TSEF. 30-400 m.
- P. yucatanensis* Killip. Publ. Field Mus. Nat. Hist., Bot. Ser. 8: 26. 1930. Li. MEX (Cam, QR, Yuc). SV, TSEF. 9-150 m.

**Phytolaccaceae (2/2)**

- Agdestis clematidea* Moc. & Sessé ex DC. Syst. Nat. 1: 543. 1818[1817]. Li. USA, MEX (Chis, Col, Hgo, Jal, Nay, NL, Oax, Pue, Qro, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (CR, Gua, Hon, Nic). QF, RF, SV, TDF, TSEF. 30-1,200 m.
- Trichostigma octandrum* (L.) H. Walter. Pflanzenr. IV. 83(Heft 39): 109. 1909. Li, Sc. USA, MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Oax, Pue, Qro, Sin, Tab, Tam, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF, TSEF. 50-1,000 m.

**Piperaceae (1/2)**

- Piper silvivagum* C. DC. Prim. Fl. Costaric. 2(3): 242-243. 1899. Li, Sc. MEX (Mor), MA (CR, Nic, Pan), SA. NA.
- P. xanthostachyum* C. DC. Prim. Fl. Costaric. 2(3): 261-262. 1899. He. MEX (Chis, Oax), MA (ES, Gua, Hon, Nic, Pan), SA. NA.

**Plantaginaceae (1/1)**

- Russelia contrerasii* B.L. Turner. Phytologia 81(5): 335-338, f. 2-3. 1996. Li, Sc. MEX (Chis), MA (Gua). HMF, TDF. 400-1,200 m.

**Polemoniaceae (1/9)**

- Cobaea baurita* Standl. Contr. U.S. Natl. Herb. 17(5): 457. 1914. Li. MEX (Chis, Oax, Ver). CF, HMF, QF. 700-3,500 m.
- C. lutea* D. Don. Edinburgh Philos. J. 10: 112. 1824. Li. MEX (Chis, Col, Gro, Jal), MA (CR, ES, Gua, Hon), SA. HMF, TDF. 430-1,850 m.
- C. minor* M. Martens & Galeotti. Bull. Acad. Roy. Sci. Bruxelles 12(2): 276. 1845. Li. MEX (Ver), MA (CR, Pan). HMF, PQF. 2,000-3,000 m.
- C. pachysepala* Standl. Contr. U.S. Natl. Herb. 17(5): 456, pl. 29. 1914. Li. MEX (Chis), MA (Gua). HMF. 2,000-3,000 m.
- C. paneroi* Prather. Brittonia 48(1): 116-117, f. 2. 1996. Li. MEX (Hgo, Mor, Pue). HMF, PQF, SV. 1,200-1,700 m.
- C. pringlei* (House) Standl. Contr. U.S. Natl. Herb. 17(5): 457. 1914. Li. MEX (Gto, NL, Qro, SLP, Tam). HMF, PQF, QF. 1,800-2,500 m.
- C. scandens* Cav. Icon. 1: 11, pl. 16-17. 1791[1791]. Li. MEX (Chis, Gro, Hgo, Mex, Mich, Mor, Oax, Pue, Ver), ANT, MA (CR, Gua, Hon, Pan), SA. HMF, PQF, QF, SV, TEF, TSEF. 0-2,500 m.
- C. skutchii* I.M. Johnst. J. Arnold Arbor. 19(2): 128. 1938. Li. MEX (Chis), MA (Gua). HMF. 1,200-1,800 m.
- C. stipularis* Benth. Pl. Hartw. 45. 1840. Li. MEX (Hgo, Oax, Qro, Ver). HMF, QF. 1,450-2,300 m.

## Appendix 2. Continuation.

**Polygalaceae (3/4)**

- Bredemeyera lucida* (Benth.) Klotzsch ex Hassk. Ann. Mus. Bot. Lugduno-Batavi 1(6): 189-190. 1864. Sc. MEX (Cam, Chis, Oax), ANT, MA (Bel, ES, Gua, Hon, Nic, Pan), SA. QF, RF, SAV, TEF. 120-300 m.
- Podopterus cordifolius* Rose & Standl. Proc. Biol. Soc. Wash. 33: 66. 1920. Li, Sc. MEX (Col, Jal, Oax). TDF, TSEF. 0-160 m.
- Securidaca diversifolia* (L.) S.F. Blake. Contr. U.S. Natl. Herb. 23(3): 594. 1923. Li, Sc. MEX (Cam, Chis, Jal, Mich, Oax, QR, Tab), ANT, MA (Bel, Gua, Hon, Nic, Pan), SA. PQF, TEF, TSEF. 0-1,990 m.
- S. sylvestris* Schltldl. Linnaea 14: 381-382. 1840. Li, Sc. MEX (Chis, Mich, Oax), MA (Bel, CR, Gua, Hon, Nic, Pan). TDF. 50-1,810 m.

**Polygonaceae (2/4)**

- Antigonon flavescens* S. Watson. Proc. Amer. Acad. Arts 22: 446-447. 1887. Li. MEX (Chis, Col, Gro, Jal, Mich, Oax, Qro, SLP, Sin, Ver), MA (Gua). RF, SV, TDF, XS. 300-1,950 m.
- A. guatimalense* Meisn. Prodr. 14: 184. 1856. Li. MEX (Chis), MA (CR, ES, Gua, Nic, Pan). 250 m.
- A. leptopus* Hook. & Arn. Bot. Beechey Voy. 308-309, t. 69. 1841[1838]. Li. MEX (BC, BCS, Cam, Chis, Chih, Dgo, Gro, Hgo, Jal, Mor, Nay, NL, Oax, Qro, Sin, Son, Tab, Tam, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan). PQF, SV, TDF. 0-900 m.
- Muehlenbeckia tamnifolia* (Kunth) Meisn. Pl. Vasc. Gen. 2: 227. 1840[1841]. Li. MEX (Chis, Gro, Mor, Oax, Ver), MA (CR, ES, Gua, Hon, Pan), SA. HMF, PQF. 1,300-3,090 m.

**Ranunculaceae (1/11)**

- Clematis acapulcensis* Hook. & Arn. Bot. Beechey Voy. 410. 1841[1840]. Li. MEX (Chis, Col, DF, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, SLP, Sin, Tam, Ver), MA (CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, QF, TDF, TSEF. 0-1,800 m.
- C. caleoides* Standl. & Steyerl. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(2): 52-53. 1944. Li. MEX (Chis), MA (Gua). HMF, PQF. 1,600-3,000 m.
- C. coahuilensis* D.J. Keil. Bull. Torrey Bot. Club 104: 10. 1977. Li. MEX (Coa, Dgo, NL, SLP). 1,000-1,600 m.
- C. dioica* L. Syst. Nat. (ed. 10) 2: 1084. 1759. Li, Sc. USA, MEX (Cam, Chis, Col, DF, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, QR, Tab, Tam, Ver, Yuc, Zac), ANT, MA (Bel, CR, ES, Gua, Hon, Pan), SA. CF, HMF, PQF, QF, RF, SV, TDF, TEF, TSEF, XS. 0-2,900 m.
- C. drummondii* Torr. & A. Gray. Fl. N. Amer. 1(1): 9. 1838. Li. USA, MEX (Ags, BCS, Chih, Coa, Dgo, NL, Oax, Pue, Qro, SLP, Sin, Son, Tam, Zac). PQF, TDF, XS. 990-1,900 m.
- C. grahamii* Benth. Pl. Hartw. 5. 1839. Li. MEX (Hgo, Mich, NL, Pue, SLP, Tam, Ver). PQF. 1,450-2,800 m.
- C. grossa* Benth. Pl. Hartw. 33-34. 1840. Li. MEX (Cam, Chis, DF, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, SLP, Tam, Ver), MA (CR, ES, Gua, Hon, Nic, Pan). HMF, SV, TDF. 900-3,000 m.
- C. ligusticifolia* Nutt. Fl. N. Amer. 1(1): 9. 1838. Li. USA, MEX (BC, BCS, Chih, Coa). 80-1,215 m.
- C. pauciflora* Nutt. Fl. N. Amer. 1(1): 9. 1838. Li. USA, MEX (BC, BCS). XS. 190-1125 m.
- C. polygama* Jacq. Enum. Syst. Pl. 24. 1760. Li. MEX (Cam, Chis, Hgo, Mor, Oax, Pue, QR, SLP, Tab, Tam, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan). HMF, SV, TDF, TEF. 0-2,270 m.
- C. rhodocarpa* Rose. Contr. U.S. Natl. Herb. 10(3): 95. 1906. Li. MEX (Chis, Chih, Col, DF, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Pue, Qro, Sin, Tam, Ver, Zac), ANT, MA (Gua, Hon). HMF, PQF, QF, SV, TDF. 1,200-3,000 m.

**Rhamnaceae (2/7)**

- Gouania konzattii* Greenm. Publ. Field Columb. Mus., Bot. Ser. 2(6): 257. 1907. Li. MEX (Mex, Nay, Oax, Pue, Tla), MA (Gua). HMF, QF, TDF. 400-2,200 m.
- G. eurycarpa* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 4(8): 315. 1929. Li, Sc. MEX (Cam, Chis, Oax, QR, Yuc), MA (Bel, CR, Gua, Hon). MG, SV, TDF, TEF, TSEF. 200 m.
- G. lupuloides* (L.) Urb. Symb. Antill. 4(3): 378. 1910. Li, Sc. USA, MEX (Cam, Chis, Chih, Col, Gro, Hgo, Jal, Mor, Nay, Oax, Qro, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (CR, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF, TSEF. 0-1,400 m.
- G. polygama* (Jacq.) Urb. Symb. Antill. 4(3): 378-379. 1910. Li, Sc. MEX (Cam, Chis, Col, Jal, Nay, Oax, Qro, QR, SLP, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. QF, RF, SV, TDF, TEF, TSEF. 100-1,500 m.
- G. rosei* Wiggins. Contr. Dudley Herb. 4(2): 20. 1950. Li. MEX (BCS, Chih, Col, Gro, Jal, Nay, Oax, Sin, Son). TDF, TSEF. 40-1,100 m.
- G. stipularis* DC. Prodr. 2: 39. 1825. Li, Sc. MEX (Chis, Gro, Jal, Oax, Ver, Yuc). RF, SV, TDF, TEF, TSEF. 250-1,185 m.
- Sageretia elegans* (Kunth) Brongn. Mém. Fam. Rhamnées 53. 1826. Sc. MEX (Cam, Chis, Gro, Jal, Mex, Mich, Oax, Pue, Qro, QR, Sin, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic), SA. PQF, QF, TDF, TEF. 20-1,725 m.

**Appendix 2.** Continuation.**Rosaceae (1/4)**

- Rubus adenotrichos* Schldtl. Linnaea 13: 267-268. 1839. Sc. MEX (Chis, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Pue, Ver), MA (CR, Gua, Hon, Nic, Pan), SA. CF, HMF, QF, SV. 2,100-2,800 m.
- R. fagifolius* Schldtl. & Cham. Linnaea 5: 571. 1830. Sc. MEX (Chis, Oax, Ver), MA (Bel, ES, Gua, Hon). HMF, QF, SV, TEF. 930-2,700 m.
- R. phillyrophyllus* Rydb. N. Amer. Fl. 22(5): 451. 1913. Sc. MEX (Hgo, Oax, Pue, Qro, Ver). HMF, QF, SV. 1,350-1,800 m.
- R. sapidus* Schldtl. Linnaea 13: 269. 1839. Sc. MEX (Chis, Hgo, Mich, Oax, Pue, Qro, Ver), MA (Gua, Hon, Nic). CF, HMF, QF, RF, SV. 1,200-2,050 m.

**Rubiaceae (10/21)**

- Chiococca alba* (L.) Hitchc. Rep. (Annual) Missouri Bot. Gard. 4: 94. 1893. Li, Sc. USA, MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, MG, SV, TDF, TEF, TSEF. 0-1,500 m.
- C. belizensis* Lundell. Amer. Midl. Naturalist 29(2): 492. 1943. Li, Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF, TSEF. 0-1,500 m.
- C. coriacea* M. Martens & Galeotti. Bull. Acad. Roy. Sci. Bruxelles 11(1): 231. 1844. Sc. MEX (Cam, QR, Tam, Ver). MG. 0-10 m.
- C. phaenostemon* Schldtl. Linnaea 9: 594-595. 1835. Sc. MEX (Chis, Gro, Oax, Ver), MA (CR, Gua, Hon, Nic). HMF, TSEF. 900-2,000 m.
- C. rubriflora* Lundell. Wrightia 5(1): 7. 1972. Li, Sc. MEX (Chis), MA (Gua). TEF. 80-160 m.
- C. semipilosa* Standl. & Steyerem. Publ. Field Mus. Nat. Hist. Bot. Ser. 22(4): 279. 1940. Li, Sc. MEX (Tam), MA (CR, ES, Gua, Hon, Nic). TDF. NA.
- Coutarea hexandra* (Jacq.) K. Schum. Fl. Bras. 6(6): 196-197. 1889. Li. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. TDF, TSEF. 3-1,000 m.
- Didymaea floribunda* Rzed. Bol. Soc. Bot. México 44: 73-75, f. 1983. Li. MEX (DF, Gro, Jal, Mex, Mich, Oax, Ver). HMF, PQF, QF, SV. 1,800-2,750 m.
- Guettarda tikalana* Lundell. Wrightia 2(2): 63. 1960. Sc. MEX (Chis, Ver), MA (Bel, Gua). TEF, TSEF. 150-600 m.
- Hintonia octomera* (Hemsl.) Bullock. Icon. Pl. 33(4): 6-7, sub t. 3295. 1935. Sc. MEX (Cam, QR, Yuc), MA (Gua). TDF, TSEF. 2-250 m.
- Morinda royoc* L. Sp. Pl. 1: 176. 1753. Sc. USA, MEX (Cam, Chis, QR, Tab, Yuc), ANT, MA (Bel, Gua, Hon, Nic, Pan), SA. SV, TDF, TSEF. 2-350 m.
- Paederia ciliata* (Bartl. ex DC.) Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 22(5): 386. 1940. Li. MEX (Col, DF, Gro, Mex, Mich, Mor, Oax, Pue). TDF, TF, TSEF. 800-2,010 m.
- Randia armata* (Sw.) DC. Prodr. 4: 387. 1830. Sc. MEX (Chis, Jal, Oax, QR, Tab), ANT, MA (CR, ES, Gua, Hon, Nic, Pan), SA. TDF, TSEF. 7-1,500 m.
- R. cinerea* (Fernald) Standl. Contr. U.S. Natl. Herb. 20(6): 201. 1919. Sc. MEX (Chis, Gro, Mich, Oax), MA (Gua, Hon). TDF. 200-1,080 m.
- R. guerrensis* Lorence & Rodr. Acosta. Biótica 11(3): 195-199, f. 1. 1986. Li, Sc. MEX (Gro). RF, TDF, TSEF, XS. 0-1,700 m.
- R. longiloba* Hemsl. Biol. Cent.-Amer. Bot. 4: 101. 1887. Sc. MEX (Cam, QR, Yuc), MA (Gua). TDF, TSEF. 0-300 m.
- R. retroflexa* Lorence & M. Nee. Brittonia 39(3): 371-375, f. 1-2. 1987. Li, Sc. MEX (Chis, Oax, Ver), MA (Bel, CR, Pan). HMF, TEF. 150-850 m.
- R. tetraacantha* (Cav.) DC. Prodr. 4: 387. 1830. Li, Sc. MEX (Chis, Col, Dgo, Gro, Jal, Mich, Nay, Oax, Pue, Sin, Ver). CF, HMF, RF, TDF, TSEF. 0-1,700 m.
- R. vazquezii* Lorence & Dwyer. Bol. Soc. Bot. México 47: 46-48, f. 3. 1987. Li. MEX (Chis, Oax, Ver), MA (CR, Gua, Hon, Pan). HMF, TEF, TSEF. 30-900 m.
- Rogiera edwardsii* (Standl.) Borhidi. Acta Bot. Hung. 43(1-2): 44. 2001. Sc. MEX (Chis, Oax), (Hon). CF, HMF, PQF. 900 m.
- Sabicea panamensis* Wernham. Monogr. Sabicea 30. 1914. Li, Sc. MEX (), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. NA.
- S. villosa* Willd. ex Roem. & Schult. Syst. Veg. 5: 265. 1819. Li. MEX (Chis, Mex, Tab), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TEF. NA.

**Rutaceae (1/1)**

- Zanthoxylum foliolosum* Donn. Sm. Bot. Gaz. 18(2): 1. 1893. Li, Sc. MEX (Chis, Hgo), MA (ES, Gua, Hon, Nic). HMF, PQF, TEF, XS. 560-2,800 m.

**Sapindaceae (6/48)**

- Balsas guerrensis* Cruz Durán & K. Vega. Novon 21(2):199. 2011. Li. MEX (Gro). QF, TDF. 1,420-1,555 m.
- Cardiospermum grandiflorum* Sw. Prodr. 64. 1788. Li. USA, MEX (Cam, Chis, Hgo, Mex, Mich, Oax, Tab, Ver, Zac), ANT, MA (Bel, CR, Gua, Hon, Pan), SA, AF. SV, TDF, XS. 0-1,720 m.



## Appendix 2. Continuation.

- C. halicacabum* L. Sp. Pl. 1: 366-367. 1753. Li. MEX (BC, BCS, Cam, Chis, Chih, Coa, Col, DF, Dgo, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, QR, SLP, Sin, Son, Tab, Tam, Tla, Ver, Yuc, Zac), ANT, MA (Gua, Hon), SA, AF, AS. PQF, QF, RF, SAV, SV, TDF, TE, TSEF, XS. 680-2,250 m.
- Paullinia clavifera* Schltldl. Linnaea 10: 239-240. 1836. Li. MEX (Cam, Chis, Jal, Nay, Oax, QR, Ver), MA (Bel, ES, Gua, Hon, Nic), SA. TEF, TSEF. 0-1,700 m.
- P. costaricensis* Radlk. Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 16(1): 157. 1886. Li. MEX (Chis, Col, Oax, QR, Tab, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan). HMF, SV, TDF, TEF. 2-1,000 m.
- P. costata* Schltldl. & Cham. Linnaea 5(2): 216-217. 1830. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, Gua, Nic, Pan), SA. SV, TEF. 60-1,000 m.
- P. cururu* L. Sp. Pl. 1: 365-366. 1753. Li. MEX (Cam, Chis, Gro, Jal, Mich, Oax, QR), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. CF, HMF, RF, SV, TDF, TEF, TSEF. 5-20 m.
- P. fuscescens* Kunth var. *fuscescens*. Nov. Gen. Sp. 5: 120. 1821. Li. MEX (Cam, Chis, Col, Jal, Mor, Oax, QR, Ver), ANT, MA (Bel, ES, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF. 750-1,050 m.
- P. fuscescens* Kunth var. *glabrata* Croat. Ann. Missouri Bot. Gard. 63(3): 480. 1976[1977]. Li. MEX (Cam, Jal, Ver), MA (Nic, Pan), SA. TDF, TEF, TSEF. 4-1,600 m.
- P. pinnata* L. Sp. Pl. 1: 366. 1753. Li. MEX (Cam, Chis, Oax, QR, Tab, Yuc), ANT, MA (Bel, ES, Gua, Hon, Pan), SA, AF. SV, TDF, TEF, TSEF. 20 m.
- P. sessiliflora* Radlk. Contr. U.S. Natl. Herb. 1: 317. 1895. Li. MEX (Col, Jal, Mich, Oax, QR), MA (Nic, Pan). SV, TEF, TSEF. 700-1,350 m.
- P. tomentosa* Jacq. Enum. Syst. Pl. 37. 1760. Li, Sc. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Qro, QR, Sin, Tam, Ver, Yuc), MA (Bel, Gua, Hon). HMF, QF, SV, TDF, TSEF. 250-1,400 m.
- P. turbacensis* Kunth. Nov. Gen. Sp. (quarto ed.) 5: 114. 1821. Li. MEX (Chis), MA (CR, Gua, Hon, Nic, Pan), SA. TEF. 800-1,000 m.
- P. venosa* Radlk. Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 19: 114, 230. 1896. Li. MEX (Ver), ANT, SA. SV, TEF. 160-220 m.
- Serjania acuta* Triana & Planch. Ann. Sci. Nat. Bot. sér. 4, 18: 349. 1862. Li. MEX (Chis), MA (CR, Nic, Pan), SA. SV, TSEF. 1,290 m.
- S. adiantoides* Radlk. Publ. Field Columb. Mus. Bot. Ser. 1(4): 403. 1898. Li. MEX (Cam, Chis, QR, Yuc), MA (Bel, Gua). SV, TDF, TEF, TSEF. 6-1,500 m.
- S. atrolineata* C. Wright. Anales Acad. Ci. Med. Habana 5: 292-293. 1868. Li. MEX (Chis, Gro, Nay, Oax, QR, Sin, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TDF, TEF, TSEF. 35-1,450 m.
- S. brachycarpa* A. Gray ex Radlk. Monogr. Serjania 259. 1875. Li. USA, MEX (Jal, Mich, NL, SLP, Tam, Ver). SV, TDF. 20-400 m.
- S. brachylopha* Radlk. Contr. U.S. Natl. Herb. 1(9): 367-368. 1895. Li. MEX (Jal). TDF. 100 m.
- S. cambessedeanana* Schltldl. & Cham. Linnaea 5: 214. 1830. Li. MEX (Hgo, Oax, Qro, SLP, Ver), MA (Gua). QF, TDF, TSEF. 700-800 m.
- S. caracasana* (Jacq.) Willd. Sp. Pl. 2(1): 465. 1799. Li. MEX (Chis, Oax, QR), ANT, MA (Bel, CR, ES, Gua, Hon, Nic), SA. HMF, RF, TSEF. 20-1,700 m.
- S. cardiospermoides* Schltldl. & Cham. var. *cardiospermoides*. Linnaea 6: 418. 1831. Li. MEX (Chis, Gro, Oax, Qro, SLP, Ver), MA (CR, ES, Gua, Hon, Nic). HMF, QF, TDF, TSEF. 250-1,300 m.
- S. cardiospermoides* Schltldl. & Cham. var. *subjubata* (Radlk.) Acev.-Rodr. Mem. New York Bot. Gard. 67: 71. 1993. Li. MEX (Chis), MA (Gua). PQF, TDF, TEF, TSEF. 0-2,700 m.
- S. flaviflora* Radk. Bull. Herb. Boissier, sér. 2, 3: 211. 1903. Li. MEX (Col, Jal, Mich, Oax, Ver). PQF, TDF, TSEF. 1,068-2,140 m.
- S. goniocarpa* Radlk. Monogr. Serjania 309-310. 1875. Li. MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mich, Oax, QR, Tab, Ver, Yuc), MA (Bel, Gua, Hon). PQF, SV, TDF, TEF, XS. 5-2,030 m.
- S. grosii* Schltldl. Linnaea 18: 42 [printed on page as 58]. 1844. Li. MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, Tab, Ver, Yuc), MA (Bel, Gua, Hon, Nic). SV, TDF, TSEF. 18-1,800 m.
- S. lobulata* Standl. & Steyerl. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(1): 14. 1943. Li. MEX (Chis, Mich, Nay, Oax, Pue), MA (CR, Gua, Hon, Nic). SV, TDF, TSEF. 185-2,100 m.
- S. lundellii* Croat. Phytologia 33(3): 170. 1976. Li. MEX (Cam, Chis, Gro, Jal), MA (Bel, Gua). TDF, TEF, XS. 200-1,300 m.
- S. macrocarpa* Standl. & Steyerl. Publ. Field Mus. Nat. Hist. Bot. Ser. 23(1): 15. 1943. Li. MEX (Chis, Gro, Mich, Oax, Tab), MA (Bel, CR, Gua, Hon, Nic). SV, TEF. 150-700 m.
- S. mexicana* (L.) Willd. Sp. Pl. 2: 465. 1799. Li. MEX (Chis, Jal, Mex, Mich, QR, Tab, Ver, Zac), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, SV, TEF. 940-1,040 m.
- S. oaxacana* Standl. Contr. U.S. Natl. Herb. 23(3): 695. 1923. Li. MEX (Oax). NA.
- S. palmeri* S. Watson. Proc. Amer. Acad. Arts 24: 45. 1889. Li. MEX (Son). TDF, XS. 85-405 m.
- S. paniculata* Kunth. Nov. Gen. Sp. (quarto ed.) 5: 86. 1821. Li. MEX (Cam, Chis), MA (CR, Nic, Pan), SA. TDF, TEF. 300-900 m.
- S. paucidentata* DC. Prodr. 1: 603. 1824. Li. MEX (Chis, Oax, Ver), ANT, MA (Bel, CR, Nic, Pan), SA. TEF. 130-825 m.

**Appendix 2.** Continuation.

- S. plicata* Radlk. Contr. U.S. Natl. Herb. 23(3): 695. 1923. Li. MEX (Ver). TEF. 150 m.  
*S. psilophylla* Radlk. Bot. Gaz. 16(6): 191-192. 1891. Li. MEX (Chis, Jal, Oax), MA (Gua). CF, HMF, TEF. 1,700-1,950 m.  
*S. pterarthra* Standl. Publ. Carnegie Inst. Wash. 461(4): 70. 1935. Li. MEX (Cam, Chis, QR, Tab), MA (Bel, Gua). TDF, TEF. 5-114 m.  
*S. punctata* Radlk. ex Donn. Sm. Bot. Gaz. 20(7): 281. 1895. Li. MEX (Chis, Nay, Ver), MA (Gua, Hon). QF, TDF, TEF, TSEF. 60-2,600 m.  
*S. racemosa* Schumach. Skr. Naturhist.-Selsk. 3(2): 127, t. 12, f. 3. 1794. Li, Sc. MEX (Cam, Chis, Gto, Gro, Jal, Mex, Mich, Mor, NL, Oax, Pue, Qro, QR, SLP, Sin, Tam, Ver, Yuc, Zac), MA (CR, Gua, Hon, Nic). HMF, QF, SV, TDF, TEF, XS. 550-2,400 m.  
*S. rachiptera* Radlk. Bot. Gaz. 16(6): 192. 1891. Li. MEX (Cam, Chis), MA (ES, Gua, Hon, Nic). HMF, TSEF. 160-1,450 m.  
*S. rekoii* Standl. Contr. U.S. Natl. Herb. 23(3): 696. 1923. Li. MEX (Oax, Ver). TEF. 60 m.  
*S. rhombea* Radlk. Monogr. Serjania 324-326. 1875. Li. MEX (Chis, Tab), MA (CR, Hon, Nic, Pan), SA. TEF. 120-350 m.  
*S. rhytidococca* Acev.-Rodr. Brittonia 49: 500. 1997. Li. MEX (Gro). TDF. 900 m.  
*S. schiedeana* Schldtl. Linnaea 18: 44. 1844. Li. MEX (Ags, Gro, Jal, Mex, Mich, Mor, Oax, Zac), MA (Nic). SV, TDF. 10-1,500 m.  
*S. subtriplinervis* Radlk. Monogr. Serjania 273. 1875. Li. MEX (Oax). NA.  
*S. trifoliolata* Radlk. Contr. U.S. Natl. Herb. 1(9): 317. 1895. Li. MEX (Gro, Mex, Sin), MA (ES, Hon, Pan). 265-1,500 m.  
*S. triquetra* Radlk. Monogr. Serjania 305-309. 1875. Li. MEX (Cam, Chis, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, QR, Sin, Tab, Ver, Yuc, Zac), MA (CR, ES, Gua, Hon, Nic), SA. QF, SV, TDF, XS. 1,800-1,830 m.  
*S. yucatanensis* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 8(1): 21. 1930. Li. MEX (Cam, Chis, QR, Yuc), MA (Bel, Gua). SV, TDF, TSEF. 5-20 m.  
*Thinouia tomocarpa* Standl. Publ. Field Mus. Nat. Hist., Bot. Ser. 12: 411. 1936. Li. MEX (Cam, Chis, QR, Ver), MA (Bel, Gua, Hon, Pan), SA. SV, TEF, TSEF. 120-280 m.  
*Urvillea ulmacea* Kunth. Nov. Gen. Sp. (quarto ed.) 5: 106, pl. 440. 1821. Li, Sc. USA, MEX (Cam, Chis, Col, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, RF, SV, TDF, TEF, TF, TSEF, XS. 10-1,820 m.

**Schisandraceae (1/1)**

- Schisandra glabra* (Brickell) Rehder. J. Arnold Arbor. 25(1): 131. 1944. Li. USA, MEX (BCS, Hgo). HMF. 1600 m.

**Schlegeliaceae (1/2)**

- Schlegelia nicaraguensis* Standl. Trop. Woods 16: 44. 1928. He. MEX (Ver), MA (CR, Nic, Pan). HMF, TEF. 0-800 m.  
*S. parviflora* (Oerst.) Monach. Phytologia 3(3): 103. 1949. He. MEX (Oax, Ver), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. SV, TEF. 130-250 m.

**Siparunaceae (1/1)**

- Siparuna gesnerioides* (Kunth) A. DC. Prodr. 16(2.2): 646. 1868. Li, Sc. MEX (Chis, Gro, Oax, Ver), MA (CR, Pan), SA. CF, HMF, TEF. 250-1,600 m.

**Smilacaceae (1/11)**

- Smilax aristolochiifolia* Mill. Gard. Dict. (ed. 8) 7. 1768. Li, Sc. MEX (Cam, Chis, Hgo, Mich, Oax, Pue, Qro, SLP, Tab, Tam, Ver, Yuc), MA (Bel, CR, Gua). HMF, TSEF. 300-1,400 m.  
*S. bona-nox* L. Sp. Pl. 2: 1030. 1753. Li, Sc. USA, MEX (Chis, Coa, Hgo, NL, Oax, Qro, SLP, Tam, Ver), ANT. HMF, PQF, QF, RF. 1,100-2,000 m.  
*S. domingensis* Willd. Sp. Pl. 4(2): 783. 1806. Li, Sc. USA, MEX (Cam, Chis, Col, Gro, Hgo, Jal, Mich, Nay, NL, Oax, Pue, Qro, Tab, Tam, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan). HMF, PQF, QF, RF, TDF, TEF, TSEF. 70-2,000 m.  
*S. glauca* Walter. Fl. Carol. 245. 1788. Li, Sc. USA, MEX (Chis, Hgo, Oax, Pue, Qro, SLP, Tam, Ver). CF, HMF, QF. 1,200-1,700 m.  
*S. mollis* Humb. & Bonpl. ex Willd. Sp. Pl. 4: 785. 1806. Li, Sc. MEX (Cam, Chis, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. CF, HMF, MG, PQF, QF, SV, TDF, TEF, TSEF. 5-2,500 m.  
*S. moranensis* M. Martens & Galeotti. Bull. Acad. Roy. Sci. Bruxelles 9(2): 389. 1842. Li. MEX (Chis, Coa, Col, DF, Dgo, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, NL, Oax, Pue, Qro, SLP, Sin, Son, Tam, Tla, Ver), MA (ES, Gua, Hon, Nic). CF, HMF, PQF, QF, SV, TSEF. 1,000-3,100 m.  
*S. ornata* Lem. Ill. Hort. 12: t. 439. 1865. Li. MEX (Chis, Col, Oax, Tab), MA (Bel, Gua, Hon, Nic). CF, HMF, TEF. NA.  
*S. spinosa* Mill. Gard. Dict. (ed. 8) 8. 1768. Li, Sc. MEX (Cam, Chis, Col, Gro, Jal, Mich, Nay, Oax, Pue, Qro, QR, Sin, Tab, Tam, Ver, Yuc), MA (Bel, CR, ES, Gua, Hon, Nic, Pan). RF, SV, TDF, TEF, TSEF. 250-1,900 m.  
*S. subpubescens* A. DC. Monogr. Phan. 1: 69. 1878. Li. MEX (Cam, Chis, Gro, Mex, Mich, Oax, Pue, Tab, Ver), MA (CR, ES, Gua, Hon, Nic, Pan). HMF, PQF, QF, TEF. 750-2600 m.

## Appendix 2. Continuation.

- S. tomentosa* Kunth. Nov. Gen. Sp. (quarto ed.) 1: 272. 1815[1816]. Li. MEX (Hgo, Tab), SA. HMF. NA.
- S. velutina* Killip & C.V. Morton. Publ. Carnegie Inst. Wash. 461(12): 283. 1936. Li. MEX (Chis, Oax, Tab), MA (Bel, CR, Gua, Hon, Nic). RF, TEF, TSEF. 360-1,770 m.
- Solanaceae (6/35)**
- Cestrum scandens* Vahl. Eclog. Amer. 1: 24-25. 1797. Li. MEX (Chis, Oax, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF. 30-260 m.
- Juanulloa mexicana* (Schltdl.) Miers. Ann. Mag. Nat. Hist. ser. 2 4: 188-189. 1849. Sc, He. MEX (Chis, Oax, Tab, Ver), MA (CR, ES, Gua, Hon, Pan), SA. TDF, TEF, TSEF. 0-755 m.
- Lycianthes anomala* Bitter. Lycianthes 514-515. 1919. Sc, He. MEX (Oax, Ver), MA (Nic). TEF, TSEF. 800-1,100 m.
- L. armentalis* J.L. Gentry. Phytologia 26(4): 269-270. 1973. Sc. MEX (Cam, Chis, Oax, QR, Tab, Ver, Yuc), MA (Bel, Gua, Hon). SV, TDF, TSEF. 102-764 m.
- L. chiapensis* (Brandegee) Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 11(5): 173. 1936. Li, Sc. MEX (Chis, Ver), MA (Gua, Nic). HMF, TDF. 700-2,730 m.
- L. hypoleuca* Standl. Trop. Woods 9: 12. 1927. Sc. MEX (Cam, Chis, QR), MA (Bel, Gua, Hon). SV, TDF, TEF, TSEF. 172-1,160 m.
- L. lenta* (Cav.) Bitter. Lycianthes 364-366. 1919. Li, Sc. MEX (Cam, Chis, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic), SA. SV, TDF, TEF, TSEF. 0-300 m.
- L. purpusii* (Brandegee) Bitter. Lycianthes 382-385, 299-300, f. 2, 4. 1919. Li. MEX (Chis, Oax, Tab, Ver), MA (Bel, Gua, Hon). SV, TEF, TSEF. 100-1,200 m.
- L. sideroxyloides* (Schltdl.) Bitter. Lycianthes 403-405. 1919. Li. MEX (Cam, Chis, Oax, QR, Ver), MA (Bel, Hon). QF, TDF. 750-1,300 m.
- Solandra grandiflora* Sw. Kongl. Vetensk. Acad. Nya Handl. 8: 303-306, t. 11. 1787. Ar, He, Li. MEX (Chis, Gro, Jal, Oax, Tab, Ver), ANT, MA (CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF. 450-2,700 m.
- S. guerrerensis* Martinez. Anales Inst. Biol. Univ. Nac. Aut6n. M6xico, Bot. 37: 101. 1967. Ar, He, Li. MEX (DF, Gro, Hgo, Mex, Mich, Mor, Oax, Ver). CF, HMF, QF. 500-2400 m.
- S. guttata* D. Don. Edwards's Bot. Reg. 18: pl. 1551. 1832. He, Li. MEX (DF, Dgo, Gro, Hgo, Jal, Mex, Mich, Mor, NL, Oax, Qro, Sin, Tam, Ver, Zac). HMF, PQF, QF, TDF, TSEF. 1,250-2,800 m.
- S. maxima* (Sess6 & Moc.) P.S. Green. Bot. Mag. 176(3): t. 506. 1967. Ar, He, Li. MEX (Chis, Col, Gro, Hgo, Jal, Mex, Mich, Mor, Oax, Pue, Qro, Sin, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, PQF, TDF, TEF, TSEF. 100-2,300 m.
- S. nizandensis* Matuda. Anales Inst. Biol. Univ. Nac. M6xico 43(1): 60, f. 8. 1972[1974]. Sc, He. MEX (Chis, Jal, Mich, Oax), MA (Gua, Hon). PQF, RF, TDF, XS. 0-3,000 m.
- Solanum aculeolatum* M. Martens & Galeotti. Bull. Acad. Roy. Sci. Bruxelles 12(1): 143. 1845. Li. MEX (Chis, Gro, Oax), MA (Gua). TDF. 0-1,100 m.
- S. adhaerens* Willd. ex Roem. & Schult. Syst. Veg. 4: 669. 1819. Li. MEX (Cam, Chis, Ver), MA (Bel, Gua, Nic, Pan), SA. SV, TEF, TSEF. 0-400 m.
- S. appendiculatum* Dunal. Solan. Syn. 5. 1816. Li. MEX (Chis, DF, Gro, Hgo, Jal, Mex, Mich, Oax, Qro, Tam, Ver), MA (Gua, Hon, Nic, Pan). HMF, PQF, QF, TEF. 1,200-2,800 m.
- S. aturense* Dunal. Solan. Syn. 32. 1816. Li, Sc. MEX (Chis, Oax, Ver), MA (Bel, Gua, Nic, Pan), SA. SV, TEF. 120-1,200 m.
- S. cobanense* J.L. Gentry. Phytologia 26(4): 276. 1973. Li. MEX (Chis), MA (Gua, Hon, Nic). HMF. 900-2,550 m.
- S. dulcamaroides* Dunal. Encycl. Suppl. 3: 751. 1814. Li. MEX (Chis, Gto, Jal, Mich, Oax, Ver), MA (Gua, Nic), SA. HMF, QF, TDF, TEF, TSEF. 300-2,100 m.
- S. guamuchilense* Cast.-Campos & Rzed. Acta Bot. Mex. 27: 33-37. 1994. Li. MEX (Nay). TSEF. 300 m.
- S. hamatile* Brandegee. Univ. Calif. Publ. Bot. 6(8): 192. 1915. Li. MEX (Gro, Oax, Pue). TDF. 10-1400 m.
- S. ionidium* Bitter. Repert. Spec. Nov. Regni Veg. 11: 484-485. 1913. Li. MEX (DF, Gro, Oax, Pue, Ver). CF, PQF. 2,300-2,900 m.
- S. jamaicense* Mill. Gard. Dict. (ed. 8) 17. 1768. Li, Sc. USA, MEX (Chis, Gro, Oax, Tab, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. QF, SAV, SV, TEF, TSEF. 90-920 m.
- S. lanceifolium* Jacq. Icon. Pl. Rar. 2(1): pl. 329. 1788. Li, Sc. MEX (Cam, Chis, Col, Oax, SLP, Tab, Tam, Ver), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. TDF, TEF, TSEF. 0-50 m.
- S. refractum* Hook. & Arn. Bot. Beechey Voy. 304. 1841[1838]. Li. MEX (Col, Gro, Jal, Mich, Oax). SV, TDF, TSEF. 200-1,290 m.
- S. seaforthianum* Andrews. Bot. Repos. 8: pl. 504. 1808. Li. MEX (Chis, Oax, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA, AF. HMF, TDF, TEF. 0-1300 m.
- S. skutchii* Correll. Contr. Texas Res. Found. Bot. Stud. 1(1): 4-6, t. 1. 1950. Li. MEX (Hgo, Mich, Oax, Qro, Ver), MA (Gua, Hon, Nic). HMF, PQF, TEF. 900-1,300 m.
- S. sousae* S. Knapp. PLoS ONE 5(5): e10502, [6, 7-8; fig. 5]. 2010. Li. MEX (Oax, Pue). HMF. 1,600-1,900 m.
- S. suaveolens* Kunth & C.D. Bouch6. Sp. Nov. Hort. Berol. 1848 14. 1848 [1849]. Li. MEX (Chis, Oax, SLP, Ver), MA (Bel, CR, Gua, Hon), SA. PQF, SV, TEF. 650-900 m.

**Appendix 2.** Continuation.

- S. subvelutinum* Rydb. Bull. Torrey Bot. Club 51: 175. 1924. Li. MEX (Dgo, Sin). CF. 800-2,440 m.  
*S. tacanense* Lundell. Amer. Midl. Naturalist 29(2): 490-491. 1943. Li. MEX (Chis), MA (Gua). 2,100 m.  
*S. tampicense* Dunal. Prodr. 13(1): 284. 1852. Li, Sc. USA, MEX (Gro, Oax, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua). MG, SV. 0-50 m.  
*S. wendlandii* Hook. f. Bot. Mag. 113: t. 6914. 1887. Li. MEX (Chis, Oax, Tab, Ver), MA (CR, Gua, Hon, Nic, Pan), SA. SV, TDF, TEF. 100-850 m.  
*Witheringia stellata* (Greenm.) Hunz. Kurtziana 5: 129. 1969. Sc. MEX (Hgo, Oax, Ver). HMF, PQF. 1,525-2,300 m.

**Stegnospermataceae (1/3)**

- Stegnosperma cubense* A. Rich. Hist. Fís. Cuba, Bot. 10: 309. 1845. Sc. MEX (BC, Chis, Col, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Ver), ANT, MA (CR, ES, Gua, Nic). TDF. 0-400 m.  
*S. halimifolium* Benth. Bot. Voy. Sulphur 17, t.12. 1844. Sc. MEX (BC, BCS, Col, Jal, Mex, Mich, Nay, Oax, Son). TDF, XS. 0-480 m.  
*S. watsonii* D.J. Rogers. Ann. Missouri Bot. Gard. 36:475. 1949. Sc. MEX (Sin, Son). TDF. 0-320 m.

**Trigoniaceae (1/2)**

- Trigonia eriosperma* (Lam.) Fromm & E. Santos subsp. *membranacea* (A.C. Sm.) Lleras. Fl. Neotrop. 19: 47. 1978. Li, Sc. MEX (Cam, Chis, Oax), MA (Bel, CR, Gua, Nic, Pan), SA. TEF, TSEF. 70-400 m.  
*T. rugosa* Benth. Bot. Voy. Sulphur 74. 1844. Li, Sc. MEX (Chis), MA (CR, ES, Gua, Hon, Nic, Pan), SA. TEF, TSEF, XS. 100-500 m.

**Urticaceae (1/3)**

- Urera killipiana* Standl. & Steyerl. Fieldiana, Bot. 24(3): 427. 1952. Li, Sc. MEX (Chis, Hgo, Oax, Qro, Tab, Ver), MA (ES, Gua). HMF, RF, SV. 900-3,000 m.  
*U. lianoides* A.K. Monro & Al. Rodr. Ann. Missouri Bot. Gard. 96(2): 278-281, f. 2A-F. 2009. Li, Sc. MEX (Chis, Ver), MA (CR, Gua, Hon, Nic, Pan), SA. HMF, SV, TEF. 0-2,500 m.  
*U. simplex* Wedd. Prodr. 16(1): 90. 1869. Li, Sc. MEX (Chis, Tab, Ver), ANT, MA (CR, Nic, Pan), SA. HMF, SV, TEF. 0-2,500 m.

**Verbenaceae (1/1)**

- Petrea volubilis* L. Sp. Pl. 2: 626. 1753. Li, Sc. MEX (Cam, Chis, Coa, Gro, Hgo, Mich, Mor, Oax, Pue, Qro, QR, SLP, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, RF, SV, TDF, TEF, TSEF. 0-1,800 m.

**Violaceae (1/1)**

- Corynostylis arborea* (L.) S.F. Blake. Contr. U.S. Natl. Herb. 23(3): 837. 1923. Li. MEX (Chis, Gro, Oax, QR, Tab, Ver, Yuc), MA (Bel, CR, Gua, Hon, Nic, Pan), SA. MG, RF, TEF. 0-20 m.

**Vitaceae (5/26)**

- Ampelocissus acapulcensis* (Kunth) Planch. Monogr. Phan. 5: 403-404. 1887. Li. MEX (Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Sin), MA (ES, Gua). QF, SV, TDF, TSEF. 30-2,000 m.  
*A. erdvendbergiana* Planch. Vigne Amér. Vitic. Eur. 9(3): 94-95. 1885. 1887. Li. MEX (Chis, Oax, Pue, Qro, SLP, Tab, Tam, Ver, Yuc), MA (ES, Gua). QF, TDF, TSEF. 14-1,600 m.  
*A. mesoamericana* Lombardi. Novon 15(4): 566. 2005. Li. MEX (Chis, Ver), MA (ES, Gua, Hon). TDF, TEF, TSEF. 60-1,350 m.  
*Ampelopsis denudata* Planch. Monogr. Phan. 5: 619. 1887. Li, Sc. MEX (Chis, Gro, Jal, Mex, Mich, Nay, Oax, Sin, Son, Ver), MA (Gua). SV, TDF, TEF. 60-1,400 m.  
*Cissus alata* Jacq. Select. Stirp. Amer. Hist. 23, pl. 182, f. 10. 1763. Li. MEX (Cam, Chis, Gro, Jal, Mor, Oax, Qro, QR, Tab, Ver, Yuc), ANT, MA (Bel, CR, Gua, Hon, Nic, Pan), SA. HMF, PQF, RF, SV, TDF, TEF, XS. 5-50 m.  
*C. biformifolia* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 4(8): 225-226. 1929. Li. MEX (Chis, Col, Mor, Oax, Tab, Ver), MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. SV, TEF, TSEF. 10-1,550 m.  
*C. cacuminis* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 17(4): 375. 1938. Li. MEX (Chis, Gro, QR, Tab), MA (Bel, CR, Gua, Hon, Nic). CF, HMF, TEF. 1,000-1,900 m.  
*C. cucurbitina* Standl. Contr. U.S. Natl. Herb. 23(3): 732. 1923. Li. MEX (Gro, Jal, Mex, Mor, Nay, Oax, Sin), MA (ES, Nic). QF, SV, TDF, TSEF. 100-1,550 m.  
*C. erosa* Rich. Actes Soc. Hist. Nat. Paris 1: 106. 1792. Li, Sc. MEX (Chis, Oax, QR, Tab, Ver), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. HMF, QF, TEF, TSEF. 37-2,356 m.  
*C. gossypifolia* Standl. Publ. Field Mus. Nat. Hist. Bot. Ser. 8(1): 23. 1930. Li. MEX (Cam, Chis, Gro, Oax, QR, Tab, Ver, Yuc), MA (Bel, CR, Gua, Nic), SA. SV, TDF, TEF, TSEF. 0-327 m.  
*C. mexicana* DC. Prodr. 1: 631. 1824. Li. MEX (BCS, Nay, Sin, Son). TDF. 110-825 m.

## Appendix 2. Continuation.

- C. microcarpa* Vahl. *Ecl. Amer.* 1: 16. 1796[1797]. Li. MEX (Ags, Cam, Chis, Col, Gro, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, QR, SLP, Sin, Tab, Tam, Ver, Yuc), ANT, MA (Bel, CR, ES, Gua, Hon, Nic, Pan), SA. QF, SV, TDF, TEF, TSEF. 0-1,150 m.
- C. ulmifolia* (Baker) Planch. *Monogr. Phan.* 5(2): 552. 1887. Li. MEX (Tab, Ver), MA (Be, CR, Gua, Hon, Pan), SA. 0-1,200 m.
- C. tiliacea* Kunth. *Nov. Gen. Sp.* (quarto ed.) 5: 222-223. 1821[1822]. Li, Sc. MEX (DF, Gto, Gro, Hgo, Jal, Mex, Mich, Mor, Nay, Oax, Pue, Qro, Son, Ver), MA (Nic). QF, SV, TDF, TF, XS. 0-2,400 m.
- C. trianae* Planch. *Monogr. Phan.* 5: 555-556. 1887. Li. MEX (Chis, Gro, Oax), MA (CR, ES, Gua, Hon, Nic, Pan), SA. HMF, TDF, TF. 1,700-2,400 m.
- C. trifoliata* (L.) L. *Syst. Nat.* (ed. 10) 2: 897. 1759. Li. USA, MEX (BCS, Cam, Chih, Coa, Col, Dgo, Gto, Gro, Jal, Mich, NL, Oax, Pue, Qro, QR, SLP, Sin, Son, Tam, Ver, Yuc), ANT, MA (Nic), SA. TDF, TSEF, XS. 550-1,000 m.
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