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Taxonomy and systematics

Tree and tree-like species of Mexico: Apocynaceae, Cactaceae, Ebenaceae, Fagaceae, and Sapotaceae

Especies arbóreas y arborescentes de México: Apocynaceae, Cactaceae, Ebenaceae, Fagaceae y Sapotaceae

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Abstract

Trees or tree-like plants are defined here broadly as perennial, self-supporting plants with a total height of at least 5 m, without considering ascending leaves or inflorescences, and with 1 or several erect stems with a diameter of at least 10 cm. In this third contribution of the taxonomic compilation of Mexico's native tree species, 271 species are presented: 27 in the family Apocynaceae (26% endemic), 63 in the Cactaceae (79%), 17 in the Ebenaceae (35%), 123 in the Fagaceae (60%), and 41 in the Sapotaceae (22%). Several cactus genera are endemic to Mexico, notably *Neobuxbaumia* with 10 species and heights up to 22 m. The oak genus *Quercus* with 122 species is the most species-rich genus of Mexican trees. Several species are reported to reach heights of 60 m (*Aspidosperma desmanthum*, *Quercus benthamii*, *Q. corrugata*, and *Manilkara chicle*). All species are listed in an appendix, including the original publication, references of taxonomic revisions, in some cases synonyms, existence of subspecies or varieties, maximum height in Mexico, and the indication if the species is endemic to Mexico.

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Keywords: Biodiversity; Flora; Trees

Resumen

Las plantas arbóreas o arborescentes se definen en este trabajo en un sentido amplio como plantas perennes que se pueden sostener por sí solas, con una altura total de al menos 5 m, sin considerar hojas o inflorescencias ascendentes y con 1 o varios tallos erectos de un diámetro de al menos 10 cm. En esta tercera contribución de la recopilación de las especies arbóreas nativas de México, se presentan 271 especies: 27 de la familia Apocynaceae (26% endémicas), 63 de Cactaceae (79%), 17 de Ebenaceae (35%), 123 de Fagaceae (60%) y 41 de Sapotaceae (22%). Algunos géneros de Cactaceae son endémicos en México, notablemente *Neobuxbaumia* con 10 especies y alturas de hasta 22 m. Con 122 especies, *Quercus* es el género arbóreo más diverso en especies de México. Algunas especies se registran con alturas de hasta 60 m (*Aspidosperma desmanthum*, *Quercus benthamii*, *Q. corrugata* y *Manilkara chicle*). Todas las especies se enlistan en un apéndice que incluye el nombre científico, los datos

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de su publicación original, referencias de revisiones taxonómicas, en algunos casos sinónimos, la existencia de subespecies o variedades, la altura máxima en México y la indicación de si la especie es endémica de México.

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Palabras clave: Biodiversidad; Flora; Árboles

Introduction

In Ricker and Hernández (2010), and slightly extended in Ricker, Hernández, Sousa, and Ochoterena (2013), trees or tree-like plants were defined broadly as perennial, self-supporting plants with a total height of at least 5 m, without ascending leaves or inflorescences, and with 1 or several erect stems with a diameter of at least 10 cm, measured at 1.3 m above the ground level, or measured above buttresses if these are present. A tree or tree-like species contains individuals with tree characteristics at least somewhere in its geographic range, but not necessarily everywhere. After discussing the tree definition and emphasizing the need for an updated taxonomic list of Mexico's tree species, Ricker and Hernández (2010) presented 170 species of gymnosperms, monocotyledons, and tree ferns. In Ricker et al. (2013) the work was continued with 619 species in the species-rich plant families Asteraceae, Leguminosae, and Rubiaceae. The Leguminosae, with 449 tree species in its 3 subfamilies, is the most diverse tree-species family in Mexico. In the current paper, the work is continued with 5 plant families: Apocynaceae, Cactaceae, Ebenaceae, Fagaceae, and Sapotaceae.

Materials and methods

The list of species is presented in an appendix that provides the scientific names of the tree species, as defined in Ricker et al. (2013), with original publication, references of recent taxonomic revisions, in some cases synonyms, existence of subspecies or varieties, maximum height in Mexico, and the indication if the species is endemic to Mexico. Only species native to Mexico were included in the appendix.

A taxonomic description of the families treated here can be found in Heywood, Brummitt, Culham, and Seberg (2007). The Apocynaceae, Ebenaceae, and Sapotaceae were revised in the “Flora Mesoamericana” series, which includes in Mexico the states of Tabasco, Chiapas, Campeche, Quintana Roo, and Yucatán (Davidse, Sousa, Knapp, Chiang, & Barrie, 2009). The Sapotaceae were revised by Pennington (1990) already in a “Flora Neotropica” volume, which includes all of Mexico. Furthermore, a checklist of Mexican species was published for the Apocynaceae by Juárez-Jaimes, Alvarado-Cárdenas, and Villaseñor (2007), and for the Fagaceae by Valencia (2004). For the cactus family, the taxonomic framework of Anderson (2001), and Hunt (2006a, 2006b, 2016) is adopted. In addition to compiling the tree species for each family, different taxonomic viewpoints had to be considered and synthesized for a number of species; for example, the species of *Stemmadenia* were synonymized with *Tabernaemontana* (Alvarado-Cárdenas & Juárez, 2012; Simões, Endress, & Conti, 2010), and *Cascabela*

was recognized as a genus different from *Thevetia* (Alvarado-Cárdenas & Ochoterena, 2007; Alvarado-Cárdenas & Soto, 2014:163).

For any species with doubts, the specimens in the National Herbarium of Mexico (MEXU) were checked for growth form, height, and trunk diameter. In some cases, the endemism status in the herbarium was also verified, if it was not clear from the literature. The heights reported in the appendix refer to those maximum heights reached by the species somewhere in Mexico. Exceptional height values for Mexico are given in parenthesis. Endemism refers to the species distribution being restricted to Mexico, as far as currently known.

Most herbarium specimens contain growth form and height in their labels, but generally trunk diameters are not given. This made it sometimes necessary to infer trunk diameters allometrically from height. For example, if a specimen was given with 4 m height and 6 cm trunk diameter, and another specimen was given with 8 m without information on trunk diameter, linear extrapolation indicates that it could have a diameter of around 12 cm ($8 \times 6/4$), though this is only a rough approximation. Furthermore, a tree of 10 m or more can generally be assumed to reach a minimum trunk diameter of 10 cm, unless contrary information is given. Where doubts remained about the trunk diameter reaching at least 10 cm, the species was not included. Four oak species are known only from the original descriptions and without height information: *Quercus edwardsiae* C. H. Muller, *Quercus ghiesbreghtii* M. Martens et H. G. Galeotti, *Quercus ignasiensis* C. H. Muller, and *Quercus rekonis* W. Trelease. As there also exist small (non-tree) species of Mexican oaks, these 4 species were not included. Taxonomic literature for the recognized species names is cited in the appendix. The authors of species names and original publications were verified in Tropicos (www.tropicos.org). Synonyms are mentioned here only in cases when they reflect diverging opinions among different taxonomic specialists. For mentioned synonyms, species' author names are not given here, but can be found for example in Tropicos.

Results

The results for 271 species in 29 genera are detailed in the appendix, and summarized in Table 1. Of the 271 species, 45% pertain to the Fagaceae, followed by 23% in the Cactaceae, 15% in the Sapotaceae, 10% in the Apocynaceae, and 6% in the Ebenaceae. The genus with most tree species is *Quercus* (122 species, Fagaceae), followed by *Sideroxylon* (24, Sapotaceae), *Diospyros* (17, Ebenaceae), and *Stenocereus* (14, Cactaceae).

There are species endemic to Mexico in all 5 families. The endemism rate is 54% for all species combined (146/271),

Table 1

Summary of the data in Appendix.

Family	Species	Endemic species	Tallest species	Genera	Endemic genera	Genera with most tree species
Apocynaceae	27	7 (26%)	<i>Aspidosperma desmanthum</i> (60 m)	7	None	<i>Tabernaemontana</i> (9 species)
Cactaceae	63	50 (79%)	<i>Pachycereus pringlei</i> (25 m), <i>Neobuxbaumia mezcalensis</i> (22 m)	14	<i>Cephalocereus</i> , <i>Isolatocereus</i> , <i>(Lophocereus)^a</i> <i>Neobuxbaumia</i> <i>Polaskia</i>	<i>Stenocereus</i> (14), <i>Opuntia</i> (12)
Ebenaceae	17	6 (35%)	<i>Diospyros nigra</i> (35 m)	1	None	<i>Diospyros</i> (17)
Fagaceae	123	74 (60%)	<i>Quercus benthamii</i> , <i>Q. corrugata</i> , <i>Q. cortesii</i> , <i>Q. skinneri</i> (all 60 m)	2	None	<i>Quercus</i> (122)
Sapotaceae	41	9 (22%)	<i>Manilkara chicle</i> (60 m)	5	None	<i>Sideroxylon</i> (24)
Total of all families	271	146 (54%)		29	4 (5)	

^a *Lophocereus schottii* slightly crosses the border into Arizona (USA).

with particularly high rates in the Cactaceae (79%) and the Fagaceae (i.e., *Quercus*: 60%). Notably, there are 4 endemic genera, all found in the Cactaceae (*Cephalocereus*, *Isolatocereus*, *Neobuxbaumia*, and *Polaskia*); a fifth cactus genus (*Lophocereus*) crosses slightly the border with the United States into Arizona. The most species-rich genus of these 5 is *Neobuxbaumia* with 9 species. With heights up to 22 m, it is also among the cactus genera with the tallest individuals, together with *Pachycereus* (Table 1). The tallest trees (60 m) are found in the species *Aspidosperma desmanthum* (Apocynaceae), *Quercus benthamii*, *Q. corrugata*, *Q. cortesii*, and *Q. skinneri* (Fagaceae), as well as in *Manilkara chicle* (Sapotaceae). *Quercus corrugata* is reported to reach a trunk diameter of up to 4 m (le Hardy de Beaulieu, Lamant, Timacheff, Jablonski, & Spoelberch, 2006). An arborescent cactus species of impressive size is *Pachycereus weberi*, with individuals up to 15 m high and 2 m in stem diameter (Hernández, 2006).

Discussion

There is a great need from scientists, foresters, naturalists, and conservationists for an updated checklist of tree species for Mexico. While the exact number of all Mexican tree species that reach at least 5 m height and 10 cm trunk diameter is unknown, the 271 species reported here represent probably close to 10% (see discussion in Ricker & Hernández, 2010). For the 5 plant families treated, the reported diversity corresponds to the total Mexican diversity, trees and non-trees, as follows.

Apocynaceae: the 27 Mexican tree species in the appendix represent only 7% of the reported 385 Mexican species in the Apocynaceae (Juárez-Jaimes et al., 2007). Despite the fact that the family does not include a high proportion of tree species, the members of this family represent some of the typical tree elements in tropical forests (Juárez-Jaimes et al., 2007; Rzedowski & Rzedowski, 1998, 2013). Furthermore, *Aspidosperma desmanthum* is one of the tallest tree species in Mexico.

Cactaceae: there are 560 Mexican species of Cactaceae (Hernández & Gómez-Hinostrosa, 2011), so the 63 tree-like

species reported here represent 11% of the total number of Mexican Cactaceae. Remarkable is the high rate of endemism among tree-like cactus species (79%), which is similar to the endemism rate of 78% of all Mexican members of the family (Hernández & Godínez, 1994).

Ebenaceae: the persimmon family has 19 *Diospyros* species in Mexico, of which 2 (*D. intricata* and *D. reinae*) are not trees according to our definition, so that the number of tree species is 89% of the total number of Mexican Ebenaceae. The genus adapts to a variety of habitats; while *D. juruensis* is generally a rare species of tropical wet forests from Mexico to Brazil (Wallnöfer, 2012), *D. texana* extends from Mexico into Texas, being in some areas a highly dominant scrub species (Wallnöfer, 2011).

Fagaceae: while there is only 1 species of *Fagus* (beech) in Mexico, out of 10 species worldwide (Govaerts & Frodin, 1998:142), we report 122 *Quercus* species. The 123 tree species represent 76% of the 162 species in the Mexican Fagaceae (Govaerts & Frodin, 1998; Valencia, 2004).

Sapotaceae: the 41 reported tree species represent 95% of the 43 Mexican species; Pennington (1990) reports that in addition only *Sideroxylon eriocarpum* and *S. verruculosum* grow as shrubs smaller than 5 m in height. The family is typically found in lowland wet forests.

The oak diversity in Mexico is remarkable. Govaerts and Frodin (1998:201) report 531 *Quercus* species worldwide, of which about 30% are found in Mexico. The distribution of the oak species in Mexico is discussed in Nixon (1993) and Valencia (2004). The genus is found throughout Mexico at elevations from sea level up to 3,650 m (*Q. laurina* in the state of Hidalgo); the states of Oaxaca and Jalisco are particularly diverse in oak species. With 122 species representing trees, *Quercus* is clearly the most species-rich genus of all Mexican trees, followed by *Lonchocarpus* (Leguminosae Papilionoideae) with 67 species (Ricker et al., 2013). The only hybrid species is *Quercus × dysophylla*. In addition, the endemism rate of 60% for the Mexican oak tree species is also notably high.

Appendix. Tree species are listed with original publication, references of taxonomic revisions, in some cases synonyms, existence of subspecies or varieties, maximum height in Mexico, and indication if endemic to Mexico.

Apocynaceae

Aspidosperma desmanthum G. Bentham ex J. Müller Argoviensis, *Flora Brasiliensis*, 6(1): 51. 1860. (Potgieter, 2009: 669). *Aspidosperma cruentum* is considered a synonym. 30–50 (~60) m. The non-Mexican *Aspidosperma spruceanum* has been confused with this species.

Aspidosperma megalocarpon J. Müller Argoviensis, *Linnaea* 30(4): 400. 1860. (Diego-Pérez, 2004: 13–15; Gentry, 2001: 119; Parker, 2008: 55; Pennington & Sarukhán, 2005: 448–449; Potgieter, 2009: 669–670). Two subspecies, 1 in Mexico (Marcondes-Ferreira, 1991). 45 m.

Cameraria latifolia C. Linnaeus, *Species plantarum* 1: 210. 1753. (Parker, 2008: 55; Zarucchi, 2009b: 671). 12 m.

Cascabela balsensis L. O. Alvarado et J. C. Soto, *Phytotaxa* 177(3): 163–170. 2014. 5 m. Endemic.

Cascabela gaumeri (W. B. Hemsley) H. Lippold, *Feddes Repertorium* 91(1–2): 53. 1980. (Gentry, 2001: 120; as *Thevetia gaumeri* in Diego-Pérez, 2004: 98; Parker, 2008: 63; Zarucchi, 2009d: 701). 6 (~12) m.

Cascabela ovata (A. J. Cavanilles) H. Lippold, *Feddes Repertorium* 91(1–2): 53. 1980. (Gentry, 2001: 120; González-Rocha & Cerros-Tlatilpa, 2015: 28–31; as *Thevetia ovata* in Alvarado-Cárdenas, 2004: 43–45; Diego-Pérez, 2004: 98–102; Parker, 2008: 639; Zarucchi, 2009d: 701). *Thevetia plumeriifolia* is considered a synonym. 10 m.

Cascabela pinifolia (P. C. Standley & J. A. Steyermark) L.O. Alvarado et H. Ochoterena, *Annals of the Missouri Botanical Garden* 94(2): 320. 2007. (As *Thevetia pinifolia* in Diego-Pérez, 2004: 103–105). *Thevetia peruviana* var. *pinifolia* is considered a synonym. 7 m. Endemic.

Cascabela thevetia (C. Linneaus) H. Lippold, *Feddes Repertorium* 91(1–2): 52. 1980. (Gentry, 2001: 120; as *Thevetia peruviana* in Alvarado-Cárdenas, 2004: 45–47; Diego-Pérez, 2004: 102–103; Parker, 2008: 63; Rzedowski & Calderón-de Rzedowski, 1998: 50–52; Zarucchi, 2009d: 701). 8 (~12) m.

Cascabela thevetioides (K. S. Kunth) H. Lippold, *Feddes Repertorium* 91(1–2): 53. 1980. (González-Rocha & Cerros-Tlatilpa, 2015: 30–34; as *Thevetia thevetioides* in Alvarado-Cárdenas, 2004: 47–49; Diego-Pérez, 2004: 105–107; Rzedowski & Calderón-de Rzedowski, 1998: 52–55). 10 m. Endemic.

Plumeria obtusa C. Linnaeus, *Species plantarum* 1: 210. 1753. (Parker, 2008: 57; Zarucchi, 2009c: 687). 10 (~20) m.

Plumeria rubra C. Linnaeus, *Species plantarum* 1: 209. 1753. (Alvarado-Cárdenas, 2004: 28–31; Diego-Pérez, 2004: 56–60; Felger, Johnson, & Wilson, 2001: 63–64; Gentry, 2001: 127; González-Rocha & Cerros-Tlatilpa, 2015: 46–50; Parker, 2008: 58; Pennington & Sarukhán, 2005: 450–451; Rzedowski & Calderón-de Rzedowski, 1998: 30–33; Zarucchi, 2009c: 688). 20 m.

Tabernaemontana alba P. Miller, *The Gardeners Dictionary*, 8th Edition no. 2. 1768. (Gentry, 2001: 131–132; Leeuwenberg, 1994: 230–236; Morales, 2009b: 698; Parker, 2008: 61; Rzedowski & Calderón-de Rzedowski, 1998: 41–43). 8 (~15) m.

Tabernaemontana amygdalifolia N. J. von Jacquin, *Enumeratio systematica plantarum quas in insulis caribaeis* 14. 1760. (Diego-Pérez, 2004: 82–85; Gentry, 2001: 132; Morales, 2009b: 698; Parker, 2008: 61). 18 m.

Tabernaemontana arborea J. N. Rose, *Botanical Gazette* 18(6): 206. 1893. (Gentry, 2001: 132; Leeuwenberg, 1994: 253–258; Morales, 2009b: 698–699; Parker, 2008: 62). 25 m.

Tabernaemontana donnell-smithii J. N. Rose, *Botanical Gazette* 18(6): 206–207. 1893. (As *Stemmadenia donnell-smithii* in Diego-Pérez, 2004: 73–74; Gentry, 2001: 130; Leeuwenberg, 1994: 405–409; Morales & Méndez, 2005: 352, 663, 665; Morales, 2009a: 696; Parker, 2008: 60; Pennington & Sarukhán, 2005: 452–453). 30 m.

Tabernaemontana ebracteata (R. E. Woodson) A. O. Simões et M. E. Endress, *Taxon* 59: 787. 2010. (As *Stemmadenia ebracteata* in Morales & Méndez, 2005: 352–353). 6 m.

Tabernaemontana glabra (G. Bentham) A.O. Simões et M.E. Endress, *Journal of the Botanical Research Institute of Texas* 10(1): 31. 2016. (As *Tabernaemontana odontadeniiflora* in Simões et al., 2010: 790; Alvarado-Cárdenas & Juárez-Jaimes, 2012: 335–336; González-Rocha & Cerros-Tlatilpa, 2015: 55–59; as *Stemmadenia obovata* in Diego-Pérez, 2004: 76–80; Gentry, 2001: 131; Leeuwenberg, 1994: 423–428; Morales & Méndez, 2005: 356–357, 367; Parker, 2008: 60; as *Stemmadenia pubescens* in Morales, 2009a: 697). 5 (~10) m.

Tabernaemontana hannaë (M. Méndez et J. F. Morales) A. O. Simões et M. E. Endress *Taxon* 59: 787. 2010. (As *Stemmadenia hannaë* in Morales & Méndez, 2005: 354). 6 m.

Tabernaemontana litoralis K. S. Kunth, *Nova genera et species plantarum* (editio quarta) 3: 228. 1818[1819]. (As *Stemmadenia litoralis* in Gentry, 2001: 130; Leeuwenberg, 1994: 415–418; Morales, 2009a: 697; Morales & Méndez, 2005: 355–356, 665–366; Parker, 2008: 60; as *Stemmadenia macrophylla* in Diego-Pérez, 2004: 74–76). *Stemmadenia galeottiana* is also considered a synonym. 25 m.

Tabernaemontana tomentosa (J. M. Greenman) A.O. Simões et M.E. Endress, *Taxon* 59(3): 788. 2010. (González-Rocha & Cerros-Tlatilpa, 2015: 59–61; as *Stemmadenia palmeri* in Felger et al., 2001: 64–65; Parker, 2008: 61; as *Stemmadenia tomentosa* in Diego-Pérez, 2004: 80–82; Leeuwenberg, 1994: 432–435; Morales & Méndez, 2005: 360). 12 m. Endemic.

Tondzia longifolia (A. P. de Candolle) F. Markgraf, *Repertorium specierum novarum regni vegetabilis* 20(561/576): 112. 1924. (González-Rocha & Cerros-Tlatilpa, 2015: 63–64; as *Alstonia longifolia* in Parker, 2008: 54; Zarucchi, 2009a: 667; as *Alstonia pittieri* in Alvarado-Cárdenas, 2004: 5; Gentry, 2001: 118). *Alstonia macrantha* is also considered a synonym. 20 m.

Vallesia antillana R. E. Woodson, *Annals of the Missouri Botanical Garden* 24(1): 13. 1937. (Zarucchi, 2009e: 702). 8 m.

Vallesia aurantiaca (M. Martens et H. G. Galeotti) J. F. Morales, *Novon* 8(3): 263. 1998. (Diego-Pérez, 2004: 112–113; Parker, 2008: 64; Zarucchi, 2009e: 702). 10 (~20) m.

Vallesia glabra (A. J. Cavanilles) J. H. Link, *Enumeratio plantarum horti regii berolinensis Altera* 1: 207. 1821. (Alvarado-Cárdenas, 2004: 49–52; Diego-Pérez, 2004: 113–114; Felger et al., 2001: 66; Rzedowski & Calderón-de Rzedowski, 1998: 55–58). 8 m.

Vallesia laciniatia Brandegee, *Proceedings of the California Academy of Sciences, Series 2*, 2: 182. 1889. (Felger et al., 2001: 66). *Vallesia brandegei* and *V. conzattii* are considered synonyms. 5 m. Endemic.

Vallesia sinaloensis E. Meyen ex J.F. Morales, *Novon* 8(3): 263. 1998. 7 m. Endemic.

Vallesia spectabilis E. Meyen ex J.F. Morales, *Novon* 8(3): 263. 1998. 7 m. Endemic.

Cactaceae

Carnegiea gigantea (G. Engelmann) N. L. Britton et J. N. Rose, *Journal of the New York Botanical Garden* 9(107): 188. 1908. (Anderson, 2001: 138; Gibson, 2003b: 185–186; Hunt, 2006a: 36–37; Hunt, 2006b: 34–35). 16 m.

- Cephalocereus apicicephalium* E. Y. Dawson, *Allan Hancock Foundation Publications: Occasional Papers 1*: 10–12. 1948. (As *Cephalocereus totolapensis* in Anderson, 2001: 140–141). 8 m. Endemic.
- Cephalocereus columnata-trajani* (W. F. Karwinsky ex L. K. G. Pfeiffer) K. M. Schumann, *Gesamtbeschreibung der Kakteen* 198. 1897. (Anderson, 2001: 139–140; Arias, Gama, Guzmán, & Vázquez, 2012: 13–17; Hunt, 2006a: 37; Hunt, 2006b: 40). 10 m. Endemic.
- Cephalocereus senilis* (A. H. Haworth) L. K. G. Pfeiffer, *Allgemeine Gartenzeitung* 6: 142. 1838. (Anderson, 2001: 140; Hunt, 2006a: 37; Hunt, 2006b: 40). 15 m. Endemic.
- Cylindropuntia cholla* (F. A. C. Weber) F. M. Knuth, *Kaktus–ABC* 125. 1935. (Anderson, 2001: 207; Hunt, 2006a: 71). 5 m. Endemic.
- Escontria chiotilla* (F. A. C. Weber) J. N. Rose, *Contributions from the United States National Herbarium* 10: 126. 1906. (Anderson, 2001: 314–315; Arias et al., 2012: 40–43; Hunt, 2006a: 115; Hunt, 2006b: 41). 7 m. Endemic.
- Isolatocereus dumortieri* (M. J. Scheidweiler) C. Backeberg, *Cactaceae, Jahrbuch der Deutschen Kakteen–Gesellschaft* 2: 47. 1941. (Anderson, 2001: 382; as *Stenocereus dumortieri* in Arias et al., 2012: 176–178; Hunt, 2006a: 265–266; Hunt, 2006b: 44). 15 m. Endemic.
- Lophocereus marginatus* (A. P. de Candolle) S. Arias et T. Terrazas, *Systematic Botany* 34(1): 82. 2009. (Arias et al., 2012: 68–71; as *Pachycereus marginatus* in Anderson, 2001: 534; Gibson, 2003a: 184; Hunt, 2006a: 216; Hunt, 2006b: 28–29). 7 m. Widely cultivated in Mexico.
- Lophocereus schottii* (G. Engelmann) N. L. Britton et J. N. Rose, *Contributions from the United States National Herbarium* 12(10): 427. 1909. (As *Pachycereus schottii* in Anderson, 2001: 536–537; Felger et al., 2001: 106–107; Hunt, 2006a: 217; Hunt, 2006b: 32–33). 7 m. Outside of Mexico known from a few collections in Arizona (USA).
- Myrtillocactus geometrizans* (C. F. Martius) M. Console, *Bollettino delle Orto Botanico e Giardino Coloniale di Palermo* 1: 10. 1897. (Anderson, 2001: 473–474; Arias et al., 2012: 126–128, 130; Hunt, 2006a: 192; Hunt, 2006b: 42). 7 m. Endemic.
- Myrtillocactus schenckii* (J. A. Purpus) N. L. Britton et J. N. Rose, *Contributions from the United States National Herbarium* 12(10): 427. 1909. (Anderson, 2001: 475; Arias et al., 2012: 128–131; Bravo, 1978: 705–706; Hunt, 2006a: 192; Hunt, 2006b: 42). 5 m. Endemic.
- Neobuxbaumia euphorbioides* (A. H. Haworth) F. Buxbaum, *Las Cactáceas de México* 1: 658. 1978. (Anderson, 2001: 476; Hunt, 2006a: 192–193; Hunt, 2006b: 35). 5 m. Endemic.
- Neobuxbaumia macrocephala* (F. A. C. Weber) E. Y. Dawson, *Cactus and Succulent Journal* 24: 173. 1952. (Anderson, 2001: 477; Arias et al., 2012: 132–134, 138; Hunt, 2006a: 193; Hunt, 2006b: 35). 15 m. Endemic.
- Neobuxbaumia mezcalensis* (H. Bravo) C. Backeberg, *Beiträge zur Sukkulantenkunde und –pflege* 3. 1941. (Anderson, 2001: 477; Arias et al., 2012: 134–136, 138; Hunt, 2006a: 193; Hunt, 2006b: 37). 16 (–22) m. Endemic.
- Neobuxbaumia multiareolata* (E. Y. Dawson) H. Bravo, L. Scheinvar et H. Sánchez, *Cactáceas y Suculentas Mexicanas* 17: 120. 1972. (Anderson, 2001: 477–478). *Neobuxbaumia mezcalensis* is considered a synonym (Hunt, 2006a). 12 m. Endemic.
- Neobuxbaumia polylopha* (A. P. de Candolle) C. Backeberg, *Blätter für Kakteenforschung* 6. 1938. (Anderson, 2001: 478; Hunt, 2006a: 193; Hunt, 2006b: 36). 15 m. Endemic.
- Neobuxbaumia sanchez-mejoradae* A. Lau, *Cactáceas y Suculentas Mexicanas* 39(1): 3. 1994. (Hunt, 2006a: 193; Hunt, 2006b: 36; as *Neobuxbaumia laui* in Anderson, 2001: 476–477). 12 m. Endemic.
- Neobuxbaumia scoparia* (H. Poselger) C. Backeberg, *Beiträge zur Sukkulantenkunde und –pflege* 3. 1941. (Anderson, 2001: 478–479; Hunt, 2006a: 193; Hunt, 2006b: 37). 12 m. Endemic.
- Neobuxbaumia squamulosa* L. Scheinvar et H. Sánchez, *Cactáceas y Suculentas Mexicanas* 35(1): 13. 1990. (Anderson, 2001: 479; Hunt, 2006a: 193; Hunt, 2006b: 38). 10 m. Endemic.
- Neobuxbaumia tetetzo* (F. A. C. Weber) C. Backeberg, *Blätter für Kakteenforschung* 6. 1938. (Anderson, 2001: 479; Arias et al., 2012: 136–140; Hunt, 2006a: 193; Hunt, 2006b: 38). 15 m. Endemic.
- Opuntia auberi* L. K. Pfeiffer, *Allgemeine Gartenzeitung* 8(36): 282. 1840. (Anderson, 2001: 487; Arias et al., 2012: 194–197; Hernández, Gómez-Hinostrosa, Bárcenas, Puent, & Reyes-Agüero, 2014: 195). 8 m. Endemic.
- Opuntia excelsa* H. Sánchez, *Cactus and Succulent Journal* 17(3): 67. 1972. (Anderson, 2001: 498; Bravo, 1978: 274–276; Hernández et al., 2014: 197). 12 m. Endemic.
- Opuntia ficus-indica* (C. Linnaeus) P. Miller, *The Gardeners Dictionary* (8th edition). 1768. (Anderson, 2001: 498–499; Hernández et al., 2014: 197; Hunt, 2006a: 202; Hunt, 2006b: 508; Parker, 2008: 130; Pinkava, 2003: 142). 7 m. Cultivated or even naturalized worldwide for its “tuna” or “prickly pear” fruits, as well as the “nopales” or “cactus pads”.
- Opuntia hyptiacantha* F. A. C. Weber, *Dictionnaire d'Horticulture* 894. 1898. (Anderson, 2001: 502; Arias et al., 2012: 202–204; Hernández et al., 2014: 198; Hunt, 2006a: 204; Hunt, 2006b: 509). 5 m. Endemic.
- Opuntia inaperta* (A. Schott ex D. Griffiths) D.R. Hunt, *Cactaceae Consensus Initiatives* 4: 5. 1997. (Anderson, 2001: 502; as *Nopalea inaperta* in Hernández et al., 2014: 198; Hunt, 2006a: 195; Hunt, 2006b: 487). 7 m. Endemic.
- Opuntia karwinskiana* J. F. Salm-Dyck, *Cacteae in Horto Dyckensi Cultae* 1849: 239–240. 1850. (Anderson, 2001: 503; Hernández et al., 2014: 198). 7 m. Endemic.
- Opuntia leucotricha* A. P. de Candolle, *Mémoires du Muséum d'Histoire Naturelle* 17: 119. 1828. (Anderson, 2001: 505; Bravo, 1978: 312–314; Hernández et al., 2014: 198; Hunt, 2006a: 205; Hunt, 2006b: 510). 5 m. Endemic.
- Opuntia lutea* (J. N. Rose) D. R. Hunt, *Cactaceae Consensus Initiatives* 4: 6. 1997. (Anderson, 2001: 505; Solomon, 2001: 515; as *Nopalea lutea* in Bravo, 1978: 347; Hernández et al., 2014: 198). 5 m.
- Opuntia megacantha* J. F. Salm-Dyck, *Hortus Dyckensis ou Catalogue des Plantes* 363. 1834. (Anderson, 2001: 507; Bravo, 1978: 328–330; Hernández et al., 2014: 198). 5 m. Endemic.
- Opuntia pilifera* F. A. C. Weber, *Dictionnaire d'Horticulture* 894. 1898. (Anderson, 2001: 511; Arias et al., 2012: 209–212; Bravo, 1978: 315–317; Hernández et al., 2014: 199; Hunt, 2006a: 208; Hunt, 2006b: 511). 5 m. Endemic.
- Opuntia streptacantha* C. Lemaire, *Cactearum Genera Nova Speciesque Novae* 62. 1839. (Anderson, 2001: 520; Bravo, 1978: 327–328; Hernández et al., 2014: 200; Hunt, 2006a: 211; Hunt, 2006b: 512). 5 m. Endemic.
- Opuntia tomentosa* J. F. Salm, *Observationes Botanicae in Horto Dyckensi* 3: 8. 1822. (Anderson, 2001: 523; Arias et al., 2012: 219–220, 222–223; Hernández et al., 2014: 200; Hunt, 2006a: 212). 6 m.
- Pachycereus fulviceps* (C. Lemaire) D. Hunt, *Bradleya* 9: 89. 1991. (Anderson, 2001: 532–533; Hunt, 2006a: 216; Hunt, 2006b: 33; as *Pseudomitrocereus fulviceps* in Arias et al., 2012: 163–167). 12 (–20) m. Endemic.
- Pachycereus gaumeri* N. L. Britton et J. N. Rose, *The Cactaceae: Descriptions and Illustrations of Plants of the Cactus Family* 2: 71. 1920. (Anderson, 2001: 533; Hunt, 2006a: 216; Hunt, 2006b: 27). 8 m. Endemic.

- Pachycereus grandis* J. N. Rose, *Contributions from the United States National Herbarium* 12(10): 421. 1909. ([Anderson, 2001](#): 533; [Arias et al., 2012](#): 144–145, 147; [Hunt, 2006a](#): 216; [Hunt, 2006b](#): 29). 15 m. Endemic.
- Pachycereus hollianus* (F. A. C. Weber) F. Buxbaum, *Botanische Studien* 12: 19. 1961. ([Anderson, 2001](#): 534; [Hunt, 2006a](#): 216; [Hunt, 2006b](#): 28; as *Lemaireocereus hollianus* in [Arias et al., 2012](#): 64–67, 69). 5 m. Endemic.
- Pachycereus militaris* (N. Audot) D. Hunt, *Bradleya* 5: 93. 1987. ([Anderson, 2001](#): 534–535; [Hunt, 2006a](#): 216; [Hunt, 2006b](#): 32). 6 m. Endemic.
- Pachycereus pecten-aboriginum* (G. Engelmann) N. L. Britton et J. N. Rose, *Contributions from the United States National Herbarium* 12(10): 422. 1909. ([Anderson, 2001](#): 535–536; [Felger et al., 2001](#): 114; [Hunt, 2006a](#): 217; [Hunt, 2006b](#): 29–30). 15 m. Endemic.
- Pachycereus pringlei* (S. Watson) N. L. Britton et J. N. Rose, *Contributions from the United States National Herbarium* 12(10): 422. 1909. ([Anderson, 2001](#): 536; [Felger et al., 2001](#): 114–120; [Hunt, 2006a](#): 217; [Hunt, 2006b](#): 30–31). 25 m. Endemic.
- Pachycereus tepamo* S. Gama et S. Arias, *Novon* 8(4): 359. 1998. ([Hunt, 2006a](#): 217; [Hunt, 2006b](#): 31). 10 m. Endemic.
- Pachycereus weberi* (J. M. Coulter) C. Backeberg, *Die Cactaceae* 4: 2154. 1960. ([Anderson, 2001](#): 537–538; [Arias et al., 2012](#): 145–149; [Hunt, 2006a](#): 217; [Hunt, 2006b](#): 31). 15 m (and up to 2 m in diameter). Endemic.
- Pereskia lychnidiflora* A. P. de Candolle, *Mémoires du Muséum d'Histoire Naturelle* 17: 75. 1828. ([Anderson, 2001](#): 569–570; [Hunt, 2006a](#): 230; [Hunt, 2006b](#): 452; [Parker, 2008](#): 131; [Pennington & Sarukhán, 2005](#): 402–403; [Solomon, 2001](#): 517). 15 m.
- Pilosocereus alensis* (F. A. C. Weber) R. S. Byles et G. D. Rowley, *Cactus and Succulent Journal of Great Britain* 19: 66. 1957. ([Anderson, 2001](#): 575; [Felger et al., 2001](#): 120; [Hunt, 2006a](#): 234; [Hunt, 2006b](#): 144). 6 m. Endemic.
- Pilosocereus chrysacanthus* (F. A. C. Weber) R. S. Byles et G. D. Rowley, *Cactus and Succulent Journal of Great Britain* 19(3): 66. 1957. ([Anderson, 2001](#): 578; [Arias et al., 2012](#): 154–156, 161; [Hunt, 2006a](#): 235; [Hunt, 2006b](#): 144). 6 m. Endemic.
- Pilosocereus leucocephalus* (H. Poselger) R. S. Byles et G. D. Rowley, *Cactus and Succulent Journal of Great Britain* 19(3): 67. 1957. ([Anderson, 2001](#): 582; [Hunt, 2006a](#): 238; [Hunt, 2006b](#): 146). 6 m.
- Pilosocereus quadricentralis* E. Y. Dawson, *Die Cactaceae* 4: 2437. 1960. ([Anderson, 2001](#): 586; [Hunt, 2006a](#): 239; [Hunt, 2006b](#): 148). 5 m. Endemic.
- Pilosocereus royenii* (C. Linnaeus) R. S. Byles et G. D. Rowley, *Cactus and Succulent Journal of Great Britain* 19(3): 67. 1957. ([Anderson, 2001](#): 586–587; [Hunt, 2006a](#): 239–240; [Hunt, 2006b](#): 148). 8 m.
- Polaskia chende* (R. R. Gosselin) A. Gibson et K. E. Horak, *Annals of the Missouri Botanical Garden* 65(4): 1006. 1978[1979]. ([Anderson, 2001](#): 588–589; [Arias et al., 2012](#): 157–161; [Hunt, 2006a](#): 241; [Hunt, 2006b](#): 43). 7 m. Endemic.
- Polaskia chichipe* (R. R. Gosselin) C. Backeberg, *Blätter für Sukkulentenkunde* 1: 4. 1949. ([Anderson, 2001](#): 589; [Arias et al., 2012](#): 160–162; [Hunt, 2006a](#): 241; [Hunt, 2006b](#): 43). 5 m (and up to 1 m in diameter). Endemic.
- Stenocereus chacalapensis* (H. Bravo et T. B. MacDougall) F. Buxbaum, *Botanische Studien* 12: 100. 1961. ([Anderson, 2001](#): 642–643; [Hunt, 2006a](#): 265; [Hunt, 2006b](#): 46). 15 m. Endemic.
- Stenocereus chrysocarpus* H. Sánchez, *Cactáceas y Suculentas Mexicanas* 17(4): 95. 1972. ([Anderson, 2001](#): 643; [Hunt, 2006a](#): 265; [Hunt, 2006b](#): 46). 9 m. Endemic.
- Stenocereus eichlamii* (N. L. Britton et J. N. Rose) F. Buxbaum, *Las Cactáceas de México* 1: 585. 1978. ([Anderson, 2001](#): 643–644; [Parker, 2008](#): 132; [Solomon, 2001](#): 519). 6 m.
- Stenocereus fricci* H. Sánchez, *Cactáceas y Suculentas Mexicanas* 18(4): 89. 1973. ([Anderson, 2001](#): 644–645; [Hunt, 2006a](#): 266; [Hunt, 2006b](#): 47). 7 m. Endemic.
- Stenocereus griseus* (A. H. Haworth) F. Buxbaum, *Botanische Studien* 12: 100. 1961. ([Anderson, 2001](#): 645; [Hunt, 2006a](#): 266; [Hunt, 2006b](#): 48). 9 m. Unclear if native in Mexico or naturalized.
- Stenocereus laevigatus* (J. F. Salm) F. Buxbaum, *Botanische Studien* 12: 100. 1961. ([Anderson, 2001](#): 646). 7 m. Endemic.
- Stenocereus martinezii* (J. González) H. Bravo, *Cactáceas y Suculentas Mexicanas* 17(4): 119. 1972. ([Anderson, 2001](#): 646; [Hunt, 2006a](#): 266; [Hunt, 2006b](#): 50). 5 m. Endemic.
- Stenocereus montanus* (N. L. Britton et J. N. Rose) F. Buxbaum, *Botanische Studien* 12: 101. 1961. ([Anderson, 2001](#): 646–647; [Felger et al., 2001](#): 121–123; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 50). 7 (–12) m.
- Stenocereus pruinosus* (C. F. Otto ex L. K. Pfeiffer) F. Buxbaum, *Botanische Studien* 12: 101. 1961. ([Anderson, 2001](#): 647; [Arias et al., 2012](#): 178–181, 185; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 49). 5 m. Endemic.
- Stenocereus queretaroensis* (F. A. C. Weber) F. Buxbaum, *Botanische Studien* 12: 101. 1961. ([Anderson, 2001](#): 647; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 51). 6 m. Endemic.
- Stenocereus quevedonis* (J. González) H. Bravo, *Cactáceas y Suculentas Mexicanas* 17(4): 119. 1972. ([Anderson, 2001](#): 647; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 51). 5 m. Endemic.
- Stenocereus thurberi* (G. Engelmann) F. Buxbaum, *Botanische Studien* 12: 101. 1961. ([Anderson, 2001](#): 648; [Felger et al., 2001](#): 123–125; [Gibson, 2003c](#): 187–188; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 50). Two subspecies, both in Mexico ([Hunt, 2006a](#)). 10 m.
- Stenocereus treleasei* (F. K. Vaupel) C. Backeberg, *Cactus and Succulent Journal* 23: 120. 1951. ([Anderson, 2001](#): 649; [Arias et al., 2012](#): 184–186; [Hunt, 2006a](#): 267; [Hunt, 2006b](#): 44). 7 m. Endemic.
- Stenocereus zopilensis* H. Arreola et T. Terrazas, *Brittonia* 56(1): 96. 2004. 5 m. Endemic.
- Ebenaceae**
- Diospyros alisu* B. Wallnöfer, *Annalen des Naturhistorischen Museums in Wien, Serie B* 106: 237. 2005. 20 m. Endemic.
- Diospyros anisandra* S. F. Blake, *Proceedings of the Biological Society of Washington* 34: 44. 1921. ([Parker, 2008](#): 241; [Wallnöfer, 2010](#): 102–113; [Whitefoord & Knapp, 2009](#): 612). 12 m.
- Diospyros bumelioides* P. C. Standley, *Tropical Woods* 18: 31. 1929. ([Parker, 2008](#): 241; [Wallnöfer, 2010](#): 113–120; [Whitefoord & Knapp, 2009](#): 613). 12 m.
- Diospyros californica* (T. S. Brandegee) I. M. Johnston, *Proceedings of the California Academy of Sciences (Series 4)* 12: 1124. 1924. ([Wallnöfer, 2016](#): 80–85). Two varieties, both in Mexico (distinguished already by P. C. Standley). 9 m. Endemic.
- Diospyros connattii* P. C. Standley, *Journal of the Washington Academy of Sciences* 12(17): 399. 1922. ([González, 2010](#): 217; [Wallnöfer, 2007](#): 233–245; [Whitefoord & Knapp, 2009](#): 613–614; as *Diospyros riojae* in [Carranza-González, 2000](#): 5–7; [Pacheco, 1981](#): 14–16). According to [Wallnöfer \(2007\)](#), *Diospyros gomeziorum*, *D. pergamentacea*, *D. riojae*, and *D. tuxtlanensis* are considered synonyms. 20 (–30) m.
- Diospyros johnstoniana* P. C. Standley et J. A. Steyermark, *Publications of the Field Museum of Natural History, Botanical Series* 22(3): 165. 1940. ([Parker, 2008](#): 241; [Whitefoord & Knapp, 2009](#): 615; [Wallnöfer, 2009](#): 181–187; as *Diospyros xolocotzii* in [Carranza-González, 2000](#): 7–9). According to [Wallnöfer \(2009\)](#), *Diospyros xolocotzii* is considered a synonym. 8 m.
- Diospyros juruensis* A. C. Smith, *Brittonia* 2(2): 163. 1936. ([Wallnöfer, 2012](#): 224–240; as *Diospyros campechiana* in [Pacheco, 1981](#): 4–7; [Parker, 2008](#): 241; [Whitefoord & Knapp, 2009](#)). Five subspecies, 1 in Mexico ([Wallnöfer, 2012](#)). 20 m.

Diospyros nigra (J. F. Gmelin) G. S. Perrottet, Catalogue raisonné des Plantes Introduites dans les Colonies françaises de Bourbon et de Cayenne 25: 1824. (As *Diospyros digyna* in Pacheco, 1981: 7–11; Parker, 2008: 241; Pennington & Sarukhán, 2005: 446–447; Pool, 2001a: 815–816; Whitefoord & Knapp, 2009: 614). According to Turner (2013), the widely used name *Diospyros digyna* is considered a synonym. The species has also been confused with *Diospyros ebenaster*, a synonym of *D. ebenum* from Sri Lanka, known for its fine jet-black ebony wood (Wallnöfer, 2014). 35 m. The species has been introduced to countries outside its Mexican and Central American range for its edible “black sapote” fruits.

Diospyros oaxacana P. C. Standley, Contributions from the United States National Herbarium 20(6): 194. 1919. (Pacheco, 1981: 11–14; Wallnöfer, 2009: 187–192). *Diospyros torresii* is considered a synonym (Wallnöfer, 2009). 10 m. Endemic.

Diospyros palmeri A. Eastwood, Proceedings of the American Academy of Arts and Sciences 44(21): 604. 1909. (Carranza-González, 2000: 3–4; Wallnöfer, 2010: 120–127). 10 m. Endemic.

Diospyros rekoi P. C. Standley, Journal of the Washington Academy of Sciences 17(20): 527. 1927. (Wallnöfer, 2009: 193–198). 20 m. This name does not replace *Maba rekoi*, which belongs to *Diospyros salicifolia* in a wide sense.

Diospyros salicifolia F. A. von Humboldt et A. J. Bonpland ex C. L. von Willdenow, Species Plantarum. Editio quarta 4(2): 1112. 1806. (Parker, 2008: 241; Whitefoord & Knapp, 2009: 615–616; as *Diospyros verae[-]crucis* in Pacheco, 1981: 16–21; as *Diospyros acapulcensis* in González, 2010: 216–217). *Diospyros aequoris*, *D. albens*, *D. nicaraguensis*, *D. spectabilis*, and *D. yucatanensis* are also considered synonyms. The species is very variable, and is treated here in a wide sense. Provance, García-Ruiz, and Sanders (2008) divided *Diospyros salicifolia* sensu lato into 4 different species and many subspecies. 25 m.

Diospyros sonorae P. C. Standley, Contributions from the United States National Herbarium 18(3): 120. 1916. (Felger et al., 2001: 142–143; Wallnöfer, 2016: 96–103). *Diospyros sinaloensis* is a synonym. 20 m. Endemic.

Diospyros sphaerantha P. C. Standley, Contributions from the United States National Herbarium 18(3): 111. 1916. (Wallnöfer, 2016: 104–110). *Diospyros rosei* is a synonym. 9 m. Endemic.

Diospyros tetrasperma O. Swartz, Nova Genera et Species Plantarum seu Prodromus 62: 1788. (Parker, 2008: 242; Wallnöfer, 2011: 182–197; Whitefoord & Knapp, 2009: 616). 17 m.

Diospyros texana G. H. Scheele, Linnaea 22(2):145. 1849. (Eckenwalder, 2009: 249; Wallnöfer, 2010: 128–131; Wallnöfer, 2011: 197–213). 10 (–15) m.

Diospyros yatesiana P. C. Standley ex C. L. Lundell, Publications of the Carnegie Institution of Washington 436(12): 281, 317. 1934. (Parker, 2008: 242; Wallnöfer, 2009: 198–208; Whitefoord & Knapp, 2009: 616). 22 m.

Fagaceae

Fagus grandifolia J. F. Ehrhart, Beiträge zur Naturkunde 3: 22–23. 1788. Two subspecies, 1 in Mexico (Govaerts & Frodin, 1998: 144). 30 m.

Quercus acatenangensis W. Trelease, Memoirs of the National Academy of Sciences 20: 163. 1924. (le Hardÿ de Beaulieu et al., 2006: 370–371; Parker, 2008: 297–298). 25 m.

Quercus acherdophylla W. Trelease, Memoirs of the National Academy of Sciences 20: 183. 1924. (le Hardÿ de Beaulieu et al., 2006: 372–373; Valencia, 2005: 88; Vázquez, 2000: 9–10). 25 m. Endemic.

Quercus acutifolia L. Née, Anales de Ciencias Naturales 3: 267. 1801. (González-Villarreal, 1986: 27–30; le Hardÿ de Beaulieu et al., 2006: 374–377; McVaugh, 1974: 15–17; Parker, 2008: 298; Romero-Rangel, 2006: 6–11; Valencia, Gómez-Cárdenes, & Becerra-Luna, 2002: 39–42; Valencia, 2005: 89; Valencia, Flores-Franco, & Jiménez-Ramírez, 2015; Vázquez, 2000: 10–11; as *Quercus conspersa* in González-Villarreal, 1986: 57–60; Romero-Rangel, Rojas-Zenteno, & Rubio-Licona, 2014: 27–29; Romero-Rangel, Rojas-Zenteno, & Rubio-Licona, 2015: 158–159). *Quercus vexans* is also considered a synonym. 35 m.

Quercus affinis M. J. Scheidweiler, L'Horticulteur belge 4: 321. 1837. (le Hardÿ de Beaulieu et al., 2006: 378–381; Romero-Rangel et al., 2014: 9–12; Romero-Rangel et al., 2015: 139–140; Sabás-Rosales, 2006, 2011: 46–52; Valencia, 2005: 89–90). 30 m. Endemic.

Quercus agrifolia L. Née, Anales de Ciencias Naturales 3: 271–272. 1801. (Jensen, 1997: 452; le Hardÿ de Beaulieu et al., 2006: 172–178). 30 m.

Quercus albocincta W. Trelease, Memoirs of the National Academy of Sciences 20:193. 1924. (Felger et al., 2001: 214–215; Romero-Rangel, 2006: 11–14; Romero-Rangel et al., 2015: 142–143). 15 m. Endemic.

Quercus araiifolia W. Trelease, Memoirs of the National Academy of Sciences 20: 74. 1924. (Sabás-Rosales, 2006, 2011: 53–58; as *Quercus ariaefolia* in Romero-Rangel et al., 2014: 12–15, and Romero-Rangel et al., 2015: 143–144). 30 m. Endemic.

Quercus aristata W. J. Hooker et G. A. Arnott, The Botany of Captain Beechey's Voyage 444. 1841. (González-Villarreal, 1986: 31–34; le Hardÿ de Beaulieu et al., 2006: 382–383; McVaugh, 1974: 17–19; Romero-Rangel et al., 2015: 144–145). 15 m. Endemic.

Quercus arizonica C. S. Sargent, Garden & Forest 8: 89. 1895. (Felger et al., 2001: 215–217; le Hardÿ de Beaulieu et al., 2006: 180–183; Nixon & Muller, 1997: 499; Romero-Rangel et al., 2015: 146–147; Villarreal, Encina, & Carranza, 2008: 1242–1244). 18 m.

Quercus benthamii A. P. de Candolle, Prodromus systematis naturalis regni vegetabilis 16(2): 29. 1864. (Breedlove, 2001: 1078; le Hardÿ de Beaulieu et al., 2006: 384–385; Morales, 2010: 778; Parker, 2008: 298; Romero-Rangel et al., 2015: 147–148; Valencia, 2005: 90–91). 30 (–60) m.

Quercus brandegeei E. A. Goldman, Contributions from the United States National Herbarium 16: 321. 1916. (As *Quercus brandegeei* in Romero-Rangel et al., 2015: 148–150). 10 m. Endemic.

Quercus canbyi W. Trelease, Memoirs of the National Academy of Sciences 20: 188. 1924. (Romero-Rangel, 2006: 16–20; Romero-Rangel et al., 2015: 151–152; Sabás-Rosales, 2006, 2011: 59–65; Villarreal et al., 2008: 1243–1244). *Quercus cupreata* and *Q. graciliramis* are considered synonyms. 15 m. Endemic.

Quercus candicans L. Née, Anales de Ciencias Naturales 3: 277. 1801. (González-Villarreal, 1986: 35–39; le Hardÿ de Beaulieu et al., 2006: 390–392; McVaugh, 1974: 19–21; Parker, 2008: 299; Romero-Rangel et al., 2014: 15–18; Romero-Rangel et al., 2015: 153–154; Sabás-Rosales, 2006, 2011: 66–71; Valencia et al., 2002: 43–46; Valencia, 2005: 91). 30 m.

Quercus carmenensis C. H. Muller, American Midland Naturalist 18: 847. 1937. (Nixon & Muller, 1997: 488–489; Villarreal et al., 2008: 1243–1245). 12 m.

Quercus castanea L. Née, Anales de Ciencias Naturales 3: 276. 1801. (González-Villarreal, 1986: 40–47; le Hardÿ de Beaulieu et al., 2006: 393–397;

McVaugh, 1974: 21–23; Romero-Rangel et al., 2014: 19–27; Romero-Rangel et al., 2015: 154–155; Sabás-Rosales, 2006, 2011: 72–77; Valencia et al., 2002: 47–50; Vázquez, 2000: 11–13; as *Quercus tristis* in Parker, 2008: 306). *Quercus tepoxuchilensis* is also considered a synonym. 18 m.

Quercus chartacea W. Trelease, Memoirs of the National Academy of Sciences 20: 61. 1924. 8 m. Endemic.

Quercus chihuahuensis W. Trelease, Memoirs of the National Academy of Sciences 20: 85. 1924. (Felger et al., 2001: 217; González-Villarreal, 1986: 48–51; le Hardÿ de Beaulieu et al., 2006: 400–401; McVaugh, 1974: 23–25; Nixon & Muller, 1997: 501–502; Romero-Rangel et al., 2015: 157–158; Sabás-Rosales, 2006, 2011: 78–83). 10 (–20) m.

Quercus chrysolepis F. M. Liebmam, Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider 1854: 173. 1854. (Felger et al., 2001: 217; le Hardÿ de Beaulieu et al., 2006: 192–197; Manos, 1997: 469). 13 m (25 m in the U.S.).

Quercus coahuilensis K. C. Nixon et C. H. Muller, Brittonia 45: 150. 1993. (le Hardÿ de Beaulieu et al., 2006: 402–403; Villarreal et al., 2008: 1244–1246). 8 m. Endemic.

Quercus coffeicolor W. Trelease, Memoirs of the National Academy of Sciences 20: 137. 1924. (As *Quercus praineana* in González-Villarreal, 1986: 168–171; le Hardÿ de Beaulieu et al., 2006: 408–409; McVaugh, 1974: 71–73; as *Q. prainiana* in Romero-Rangel et al., 2015: 243–244). 12 m. Endemic.

- Quercus convallata* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 88. 1924. (González-Villarreal, 1986: 61–64; McVaugh, 1974: 62–63; Romero-Rangel et al., 2015: 159–160). 15 m. Endemic.
- Quercus conzattii* W. Trelease, *Proceedings of the American Philosophical Society* 60: 33. 1921. (Romero-Rangel et al., 2015: 161–162; Vázquez & Nixon, 2013: 211–213). 10 (–17) m. Endemic.
- Quercus cornelius-mulleri* K. C. Nixon et K. P. Steele, *Madroño* 28(4): 210. 1981. (le Hardy de Beaulieu et al., 2006: 198–199; Nixon & Muller, 1997: 492). 3 (–7) m.
- Quercus corrugata* W. J. Hooker, *Icones plantarum* 5: 403. 1842. (le Hardy de Beaulieu et al., 2006: 418–420; Morales, 2010: 778–779; Valencia et al., 2002: 55–56). 35 (–60) m.
- Quercus cortesii* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 175. 1854. (Breedlove, 2001: 1079; Morales, 2010: 779; Parker, 2008: 300). *Quercus brenesii* is considered a synonym. 25 (–60) m.
- Quercus crassifolia* A. J. Bonpland, *Plantae aequinoctiales* 2: 49. 1801. (González-Villarreal, 1986: 65–69; le Hardy de Beaulieu et al., 2006: 424–427; McVaugh, 1974: 28–30; Romero-Rangel et al., 2014: 29–32; Romero-Rangel et al., 2015: 165–166; Sabás-Rosales, 2006, 2011: 84–90; Valencia et al., 2002: 57–60; Valencia, 2005: 92; Vázquez, 2000: 13–14; Vázquez & Nixon, 2013: 213–215; as *Quercus brachystachys* in Parker, 2008: 298–299). *Quercus chicamolensis*, *Q. felipensis*, and *Q. miguelitensis* are also considered synonyms. 15 (–25) m.
- Quercus crassipes* A. J. Bonpland, *Plantae aequinoctiales* 2: 37. 1801. (González-Villarreal, 1986: 70–74; le Hardy de Beaulieu et al., 2006: 430–433; McVaugh, 1974: 30–32; Romero-Rangel et al., 2014: 32–37; Romero-Rangel et al., 2015: 166–168; Sabás-Rosales, 2006, 2011: 91–96; Vázquez, 2000: 14–15). *Quercus cuajimalpana* and *Q. obovalifolia* are considered synonyms. 20 m. Endemic.
- Quercus crispifolia* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 147, pl. 286. 1924. (Parker, 2008: 300; Valencia et al., 2002: 61–62; Valencia, 2005: 92–93). 25 m.
- Quercus crispipilis* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 184. 1924. (le Hardy de Beaulieu et al., 2006: 434–435; Parker, 2008: 300; Romero-Rangel et al., 2015: 168–169; Valencia, 2005: 93). *Quercus skutchii* is considered a synonym. 23 m.
- Quercus cuatensis* L. M. González, *Brittonia* 55(1): 49. 2003. (le Hardy de Beaulieu et al., 2006: 436–437). 10 (–15) m. Endemic.
- Quercus delgadoana* S. Valencia-A., K. C. Nixon et L. M. Kelly, *Novon* 21(2): 274. 2011. *Quercus delgadoana* has been separated from *Quercus eugeniifolia*, so that the latter does not exist in Mexico anymore. 25 m. Endemic.
- Quercus deserticola* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 79. 1924. (González-Villarreal, 1986: 78–81; le Hardy de Beaulieu et al., 2006: 446–449; McVaugh, 1974: 33–35; Romero-Rangel et al., 2014: 37–40; Romero-Rangel et al., 2015: 170–171; Sabás-Rosales, 2006, 2011: 97–102; Vázquez, 2000: 15–17). 10 m. Endemic.
- Quercus devia* E. A. Goldman, *Contributions from the United States National Herbarium* 16: 322. 1916. 18 m. Endemic.
- Quercus diversifolia* L. Née, *Anales de Ciencias Naturales* 3: 270. 1801. 15 m. Endemic.
- Quercus duratifolia* C. H. Muller, *Miscellaneous Publications of the Bureau of Plant Industry (U. S. Department of Agriculture)* 477: 25. 1942. 10 m. Endemic.
- Quercus durifolia* K. O. von Seemen, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 29(1): 95. 1900. (Felger et al., 2001: 218; le Hardy de Beaulieu et al., 2006: 450–453). *Quercus flocculenta* is considered a synonym. 15 (–25) m. Endemic.
- Quercus × dysophylla* G. Bentham, *Plantas hartwegianas imprimis mexicanas* 55: 1840. (le Hardy de Beaulieu et al., 2006: 454–455; Romero-Rangel et al., 2014: 41–44; Sabás-Rosales, 2006, 2011: 103–108; Vázquez, 2000: 17–18; Vázquez & Nixon, 2013: 215–216). There is evidence that this species is a hybrid between *Quercus crassifolia* and *Q. crassipes* (Tovar-Sánchez & Oyama, 2004). *Quercus esperanzae* and *Q. hahnii* are considered synonyms. 10 (–20) m. Endemic.
- Quercus eduardii* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 121. 1924. (González-Villarreal, 1986: 82–86; le Hardy de Beaulieu et al., 2006: 456–459; McVaugh, 1974: 35–37; Romero-Rangel et al., 2014: 44–48; Romero-Rangel et al., 2015: 176–177; Sabás-Rosales, 2006, 2011: 109–116; Valencia, 2005: 94). 20 m. Endemic.
- Quercus elliptica* L. Née, *Anales de Ciencias Naturales* 3 (9): 278. 1801. (Breedlove, 2001: 1079–1080; González-Villarreal, 1986: 87–91; le Hardy de Beaulieu et al., 2006: 460–463; McVaugh, 1974: 37–38; Parker, 2008: 301; Romero-Rangel et al., 2015: 178–179; Sabás-Rosales, 2006, 2011: 117–122; Valencia et al., 2002: 63–66; Valencia, 2005: 94–95). *Quercus hondurensis*, *Q. nectandrina*, and *Q. pubinervis* are considered synonyms. 25 m.
- Quercus emoryi* J. Torrey, *Notes of a Military Reconnaissance* 15(1): 9. 1848. (Felger et al., 2001: 218–220; González-Villarreal, 1986: 217; Jensen, 1997: 453; le Hardy de Beaulieu et al., 2006: 210–213; Romero-Rangel et al., 2015: 179–180; Sabás-Rosales, 2006, 2011: 123–128; Valencia, 2005: 95; Villarreal et al., 2008: 1246, 1248). 20 m.
- Quercus engelmannii* E. L. Greene, *Illustrations of West American Oaks* 1: 33. 1889. (le Hardy de Beaulieu et al., 2006: 214–216; Nixon & Muller, 1997: 500). 15 m.
- Quercus fulva* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 183. 1854. (González-Villarreal, 1986: 96–98; le Hardy de Beaulieu et al., 2006: 472–473; McVaugh, 1974: 41–43; Romero-Rangel et al., 2015: 185–187; Vázquez & Nixon, 2013: 216–218; Villarreal et al., 2008: 1246–1248). 15 m. Endemic.
- Quercus furfuracea* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 189. 1854. (Romero-Rangel, 2006: 27–29; Romero-Rangel et al., 2015: 187–188; Sabás-Rosales, 2006, 2011: 129–134). 15 m. Endemic.
- Quercus fusiformis* J. K. Small, *Bulletin of the Torrey Botanical Club* 28(6): 357. 1901. (le Hardy de Beaulieu et al., 2006: 217–219; Nixon & Muller, 1997: 505–506; Romero-Rangel et al., 2015: 188–190; Villarreal et al., 2008: 1247–1249). 25 m.
- Quercus gambelii* T. Nuttall, *Journal of the Academy of Natural Sciences of Philadelphia* 1(2): 179. 1848. (Felger et al., 2001: 220–221; le Hardy de Beaulieu et al., 2006: 220–222; Nixon & Muller, 1997: 486–487; Romero-Rangel et al., 2015: 190–191; Villarreal et al., 2008: 1248–1250). 20 m.
- Quercus gentryi* C. H. Muller, *American Midland Naturalist* 27(2): 474. 1942. (González-Villarreal, 1986: 99–103; le Hardy de Beaulieu et al., 2006: 477–479; McVaugh, 1974: 43–45; Romero-Rangel et al., 2014: 51–53; Romero-Rangel et al., 2015: 191–192; Valencia, 2005: 96). 15 m. Endemic.
- Quercus germana* D. F. von Schlechtendal et L. K. von Chamisso, *Linnaea* 5: 78. 1830. (le Hardy de Beaulieu et al., 2006: 480–482; Romero-Rangel et al., 2014: 53–56; Romero-Rangel et al., 2015: 193–194; Sabás-Rosales, 2006, 2011: 140–145; as *Quercus excelsa* in McVaugh, 1974: 39–40). *Quercus galeottii* and *Q. substenocarpa* are also considered synonyms. 45 m. Endemic.
- Quercus glabrescens* G. Bentham, *Plantas hartwegianas imprimis mexicanas* 56: 348. 1840. (le Hardy de Beaulieu et al., 2006: 483–487; Romero-Rangel et al., 2014: 57–58; Romero-Rangel et al., 2015: 194–195; Vázquez, 2000: 19–20). 40 m. Endemic.
- Quercus glaucescens* A. J. Bonpland, *Plantae aequinoctiales* 2: 29. 1809. (González-Villarreal, 1986: 104–107; le Hardy de Beaulieu et al., 2006: 488–489; McVaugh, 1974: 45–47; Romero-Rangel et al., 2014: 58–61; Romero-Rangel et al., 2015: 195–196; Valencia et al., 2002: 67–70). *Quercus nigrirhachis* and *Q. synthetic* are considered synonyms. 20 m. Endemic.

Quercus glaucooides M. Martens et H. G. Galeotti, *Bulletin de l'Academie Royale des Sciences et Belles-lettres de Bruxelles* 10(1): 209. 1843. (le Hardy de Beaulieu et al., 2006: 490–493; Nixon & Muller, 1992: 65–68; Romero-Rangel et al., 2014: 61–64; Romero-Rangel et al., 2015: 196–197; Valencia et al., 2002: 71–75; Vázquez, 2000: 20–22). *Quercus cancellata* and *Q. mixteca* are considered synonyms. 15 m. *Quercus laceyi* was separated from this species by Nixon and Muller (1992), making *Q. glaucooides* endemic.

Quercus grahamii G. Bentham, *Plantas hartwegianas imprimis mexicanas* 57: 1840. (Valencia et al., 2015). 20 m. Endemic.

Quercus gravesii G. B. Sudworth, *Check List Forest Trees U.S.* 86. 1927. (Jensen, 1997: 455; le Hardy de Beaulieu et al., 2006: 233–236; Villarreal et al., 2008: 1250–1251, 1253). 13 m.

Quercus greggii (A. P. de Candolle) W. Trelease, *Contributions from the United States National Herbarium* 23(2):185. 1922. (le Hardy de Beaulieu et al., 2006: 494–496; Romero-Rangel et al., 2014: 64–67; Romero-Rangel et al., 2015: 198–199; Sabás-Rosales, 2006, 2011: 146–151; Vázquez, 2000: 22–23; Villarreal et al., 2008: 1251–1253). 12 m. Endemic.

Quercus grisea F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 171. 1854. (Felger et al., 2001: 221; González-Villarreal, 1986: 112–115; le Hardy de Beaulieu et al., 2006: 237–239; McVaugh, 1974: 48–50; Nixon & Muller, 1997: 501; Romero-Rangel et al., 2014: 67–70; Romero-Rangel et al., 2015: 199–200; Sabás-Rosales, 2006, 2011: 152–159; Villarreal et al., 2008: 1252–1254). 12 (~20) m.

Quercus hintonii E. F. Warburg, *Bulletin of Miscellaneous Information Kew* 91. 1939. (le Hardy de Beaulieu et al., 2006: 500–502; Romero-Rangel et al., 2015: 200–202; Vázquez & Nixon, 2013: 218–220). 15 m. Endemic.

Quercus hirtifolia M. L. Vázquez, *Brittonia* 56(2): 137. 2004. (Valencia, 2005: 96). 12 m. Endemic.

Quercus hypoleucoides A. Camus, *Bulletin du Muséum d'Histoire Naturelle* (série 2) 4: 124. 1932. (Felger et al., 2001: 221; Jensen, 1997: 454; le Hardy de Beaulieu et al., 2006: 244–248; Romero-Rangel et al., 2015: 202–203; Villarreal et al., 2008: 1255, 1257). 10 (~30) m.

Quercus hypoxantha W. Trelease, *Memoirs of the National Academy of Sciences* 20: 170. 1924. (le Hardy de Beaulieu et al., 2006: 508–510; Romero-Rangel et al., 2015: 203–205; Sabás-Rosales, 2006, 2011: 160–165; Villarreal et al., 2008: 1255–1257). 4 (~7) m. Endemic.

Quercus ilicis L. M. González, *Brittonia* 55(1): 49–60. 2003. (le Hardy de Beaulieu et al., 2006: 511–515). 15 (~25) m. Endemic.

Quercus insignis M. Martens et H. G. Galeotti, *Bulletin de l'Academie Royale des Sciences et Belles-lettres de Bruxelles* 10(1): 219. 1843. (Breedlove, 2001: 1080; Morales, 2010: 780; Valencia et al., 2002: 75–78; as *Quercus oocarpa* in McVaugh, 1974: 63–64). 25 (~50) m.

Quercus jonesii W. Trelease, *Memoirs of the National Academy of Sciences* 20: 136. 1924. (As *Quercus coccobifolia* in Felger et al., 2001: 217; González, 1986: 52–56; le Hardy de Beaulieu et al., 2006: 404–407; McVaugh, 1974: 25–26; Romero-Rangel et al., 2014: 71–74; Romero-Rangel et al., 2015: 209–210; Sabás-Rosales, 2006, 2011: 166–171). *Quercus aerea* is also considered a synonym. 18 m. Endemic.

Quercus knoblochii C. H. Muller, *American Midland Naturalist* 27: 475. 1942. (Felger et al., 2001: 221). Felger et al. (2001) mention that this species is a hybrid between *Quercus jonesii* (they use the name *Q. coccobifolia*) and *Q. viminea*, but we could not find a reference with details about this issue. 8 m. Endemic.

Quercus laceyi J. K. Small, *Bulletin of the Torrey Botanical Club* 28(6): 358. 1901. (le Hardy de Beaulieu et al., 2006: 256–259; Nixon & Muller, 1992: 61–65; Nixon & Muller, 1997: 483; Romero-Rangel et al., 2015: 210–211; Villarreal et al., 2008: 1259–1261). 10 m.

Quercus laeta F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 179. 1854. (González-Villarreal, 1986: 119–124; le Hardy de Beaulieu et al., 2006: 524–527; McVaugh, 1974: 50–53; Romero-Rangel et al., 2014: 74–79; Romero-Rangel et al., 2015: 211–213; Sabás-Rosales, 2006, 2011: 172–181; Villarreal et al., 2008: 1261). *Quercus centralis*, *Q. clivicola*, *Q. prinopsis*, and *Q. transmontana* are considered synonyms. 10 (~15) m. Endemic.

Quercus lancifolia D. F. von Schlechtendal et L. K. von Chamisso, *Linnaea* 5: 78. 1830. (Breedlove, 2001: 1080–1081; Parker, 2008: 301–302; as *Quercus excelsa* in González-Villarreal, 1986: 92–95; le Hardy de Beaulieu et al., 2006: 528–530; Sabás-Rosales, 2006, 2011: 182–187; as *Q. pilarius* in Romero-Rangel et al., 2015: 236–237). *Quercus boqueronae*, *Q. leiophylla*, and *Q. toxicodendrifolia* are considered synonyms. 35 m.

Quercus laurina A. J. Bonpland, *Plantae aequinoctiales* 2: 32. 1809. (González-Villarreal, 1986: 125–129; le Hardy de Beaulieu et al., 2006: 532–535; McVaugh, 1974: 53–55; Parker, 2008: 302; Romero-Rangel et al., 2014: 79–85; Romero-Rangel et al., 2015: 213–214; Valencia et al., 2002: 79–82; Valencia, 2005: 97; Vázquez, 2000: 23–24). *Quercus bourgaei*, *Q. caeruleocarpa*, *Q. chrysophylla*, *Q. floccosa*, *Q. orizabae*, *Q. treleaseana*, and *Q. tridens* are considered synonyms. 40 m.

Quercus laxa F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 181. 1854. (Romero-Rangel et al., 2014: 85–87; Romero-Rangel et al., 2015: 215–216). 10 m. Endemic.

Quercus liebmannii A. S. Oersted ex W. Trelease, *Memoirs of the National Academy of Sciences* 20: 66. 1924. (le Hardy de Beaulieu et al., 2006: 536–537; Valencia et al., 2002: 83–85). *Quercus poculifer* is considered a synonym. 15 m. Endemic.

Quercus macdougallii M. Martínez, *Anales del Instituto de Biología de la Universidad Nacional Autónoma de México* 34: 147. 1963[1964]. (Romero-Rangel et al., 2015: 216–217). 25 m. Endemic.

Quercus magnoliifolia L. Née, *Anales de Ciencias Naturales* 3: 268. 1801. (González-Villarreal, 1986: 130–136; le Hardy de Beaulieu et al., 2006: 540–544; McVaugh, 1974: 55–57; Romero-Rangel et al., 2014: 87–90; Romero-Rangel et al., 2015: 217–218; Sabás-Rosales, 2006, 2011: 188–193; Valencia et al., 2002: 86–89; Vázquez, 2000: 24–26). *Quercus rubescens* is considered a synonym. 25 m. Endemic.

Quercus martinezii C. H. Muller, *Anales del Instituto de Biología de la Universidad Nacional Autónoma de México* 24: 274. 1953. (González-Villarreal, 1986: 137–140; le Hardy de Beaulieu et al., 2006: 545–548; McVaugh, 1974: 57–59; Romero-Rangel et al., 2014: 90–92; Romero-Rangel et al., 2015: 219–220; Valencia et al., 2002: 90–93). 30 m. Endemic.

Quercus mcvaughii R. W. Spellenberg (also spelled incorrectly *Q. macvaughii*), *American Journal of Botany*, 79(10): 1200. 1992. (Felger et al., 2001: 221–222; Romero-Rangel et al., 2015: 220–221; Sabás-Rosales, 2006, 2011: 194–199; Vázquez & Nixon, 2013: 220–221). 25 m. Endemic.

Quercus meavei S. Valencia-A., J. L. Sabás et O. J. Soto, *Phytotaxa* 269(2): 121. 2016. 30 m. Endemic.

Quercus mexicana A. J. Bonpland, *Plantae aequinoctiales* 2: 35. 82. 1809. *Quercus pubilensis* and *Q. rugulosa* are considered synonyms. (le Hardy de Beaulieu et al., 2006: 549–551; Romero-Rangel et al., 2014: 92–96; Romero-Rangel et al., 2015: 222–223; Sabás-Rosales, 2006, 2011: 200–207; Valencia, 2005: 97–98; Vázquez, 2000: 26–27; Villarreal et al., 2008: 1261–1262). 25 m. Endemic.

Quercus monterreyensis W. Trelease, *Bulletin of the Torrey Botanical Club* 63: 151. 1936. 15 m. Endemic.

Quercus muehlenbergii G. Engelmann (the original spelling was *Q. mühlenbergii*, but both spellings are legitimate), *Transactions of the Academy of Science of St. Louis* 3(25): 391. 1877. (le Hardy de Beaulieu et al., 2006: 102–107; Nixon & Muller, 1997: 477–478; Villarreal et al., 2008: 1263–1265). 30 m.

Quercus mulleri M. Martínez, *Anales del Instituto de Biología de la Universidad Nacional Autónoma de México* 24(1): 51. 1953. (Romero-Rangel et al., 2015: 226–227; Valencia, 2005: 98). 15 m. Endemic.

Quercus nixoniana S. Valencia-A. et L. Lozada, *Novon* 13(2): 261. 2003. (le Hardy de Beaulieu et al., 2006: 556–558; Valencia, 2005: 98). 25 m. Endemic.

Quercus oblongifolia J. Torrey, *Report of an Expedition down to the Zuni and Colorado Rivers* 173: 19. 1853. (Felger et al., 2001: 222; le Hardy de Beaulieu et al., 2006: 559–561; Nixon & Muller, 1997: 499–500; Romero-Rangel et al., 2015: 227–229; Villarreal et al., 2008: 1264–1265). 10 (~22) m.

- Quercus obtusata* A. J. Bonpland, *Plantae aequinoctiales* 2(10): 26. 1809. (González-Villarreal, 1986: 145–150; le Hardy de Beaulieu et al., 2006: 562–565; McVaugh, 1974: 60–62; Romero-Rangel et al., 2014: 100–109; Romero-Rangel et al., 2015: 229–230; Sabás-Rosales, 2006, 2011: 208–215; Valencia et al., 2002: 94–97; Vázquez, 2000: 28–29). 25 m. Endemic.
- Quercus oleoides* D. F. von Schlechtendal et L. K. von Chamisso, *Linnaea* 5: 79. 1830. (Breedlove, 2001: 1081–1082; le Hardy de Beaulieu et al., 2006: 566–568; Morales, 2010: 780–781; Parker, 2008: 302–303; Pennington & Sarukhán, 2005: 126–127; Romero-Rangel et al., 2014: 109–111; Romero-Rangel et al., 2015: 231–232; Sabás-Rosales, 2006, 2011: 216–221). 30 m.
- Quercus palmeri* G. Engelmann, *Geological Survey of California, Botany* 2: 97. 1880. (le Hardy de Beaulieu et al., 2006: 274–275; Manos, 1997: 469–470). 3 (–8) m.
- Quercus paxtalensis* C. H. Muller, *Miscellaneous Publication of the Bureau of Plant Industry* (U. S. Department of Agriculture) 477: 75. 1942. 20 m.
- Quercus peduncularis* L. Née, *Anales de Ciencias Naturales* 3: 270. 1801. (González-Villarreal, 1986: 151–155; le Hardy de Beaulieu et al., 2006: 572–575; McVaugh, 1974: 65–66; Romero-Rangel et al., 2014: 111–113; Romero-Rangel et al., 2015: 234–235; Valencia et al., 2002: 98–101). *Quercus martensiana* and *Q. pilicaulis* are considered synonyms. 15 (–20) m.
- Quercus peninsularis* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 124. 1924. (le Hardy de Beaulieu et al., 2006: 576–577). 10 m. Endemic.
- Quercus perpallida* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 91. 1924. (Felger et al., 2001: 222–223). 16 m. Endemic.
- Quercus pinnatifervulosa* C. H. Muller, *Journal of the Arnold Arboretum* 17: 171. 1936. (le Hardy de Beaulieu et al., 2006: 578–579; Romero-Rangel et al., 2014: 113–115; Sabás-Rosales, 2006, 2011: 229–235; Romero-Rangel et al., 2015: 237–238; Valencia, 2005: 99). 20 (–40) m. Endemic.
- Quercus planipocula* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 136. 1924. (González-Villarreal, 1986: 156–159; le Hardy de Beaulieu et al., 2006: 580–582; McVaugh, 1974: 66–68; Romero-Rangel et al., 2015: 238–239; Valencia et al., 2002: 102–105; Vázquez & Nixon, 2013: 221–222). 20 m. Endemic.
- Quercus polymorpha* D. F. von Schlechtendal et L. K. von Chamisso, *Linnaea* 5: 78. 1830. (le Hardy de Beaulieu et al., 2006: 583–586; Nixon & Muller, 1997: 477; Parker, 2008: 304; Romero-Rangel et al., 2014: 116–120; Romero-Rangel et al., 2015: 240–241; Sabás-Rosales, 2006, 2011: 236–243; Vázquez, 2000: 29–30; Villarreal et al., 2008: 1265–1266). 20 (–30) m.
- Quercus potosina* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 84. 1924. (González-Villarreal, 1986: 160–163; le Hardy de Beaulieu et al., 2006: 588–589; McVaugh, 1974: 68–70; Romero-Rangel et al., 2014: 120–123; Romero-Rangel et al., 2015: 241–242; Sabás-Rosales, 2006, 2011: 244–252; Villarreal et al., 2008: 1265–1267). *Quercus jaralensis* is considered a synonym. 7 (–12) m. Endemic.
- Quercus praeco* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 88. 1924. (González-Villarreal, 1986: 164–167; le Hardy de Beaulieu et al., 2006: 590–591; McVaugh, 1974: 70–71; Sabás-Rosales, 2006, 2011: 253–257). 7 m. Endemic.
- Quercus pringlei* K. O. von Seemen, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 29(1): 96. 1900. (le Hardy de Beaulieu et al., 2006: 592–595; Romero-Rangel et al., 2014: 123–126; Romero-Rangel et al., 2015: 244–245; Sabás-Rosales, 2006, 2011: 258–263; Villarreal et al., 2008: 1267–1268, 1270). 4 (–10) m. Endemic.
- Quercus purulhana* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 63. 1924. (Breedlove, 2001: 1082; Parker, 2008: 304). 6–20 (–25) m.
- Quercus radiata* W. Trelease, *Proceedings of the American Philosophical Society* 60: 33. 1921. (Vázquez & Nixon, 2013: 222–223). 9 m. Endemic.
- Quercus resinosa* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 182. 1854. (González-Villarreal, 1986: 172–177; le Hardy de Beaulieu et al., 2006: 598–601; McVaugh, 1974: 73–75; Romero-Rangel et al., 2014: 131–134; Romero-Rangel et al., 2015: 248–249; Sabás-Rosales, 2006, 2011: 269–275; Valencia et al., 2002: 106–109). 12 (–17) m. Endemic.
- Quercus rubramenta* W. Trelease, *Repertorium specierum novarum regni vegetabilis* 33: 318. 1934. (le Hardy de Beaulieu et al., 2006: 602–603; Valencia et al., 2002: 110–113; Valencia, 2005: 100). 40 m. Endemic.
- Quercus rugosa* L. Née, *Anales de Ciencias Naturales* 3(9): 275. 1801. (González-Villarreal, 1986: 178–182; le Hardy de Beaulieu et al., 2006: 604–607; McVaugh, 1974: 75–77; Nixon & Muller, 1997: 496; Parker, 2008: 304; Romero-Rangel et al., 2014: 135–141; Romero-Rangel et al., 2015: 250–251; Sabás-Rosales, 2006, 2011: 276–281; Valencia et al., 2002: 114–117; Vázquez, 2000: 30–31; Villarreal et al., 2008: 1269–1271). *Quercus innuncupata*, *Q. purpusii*, and *Q. uhdeana* are considered synonyms. 35 m.
- Quercus rysophylla* C. A. Weatherby (also spelled incorrectly *Q. rhyphylla*), *Proceedings of the American Academy of Arts and Sciences* 45(17): 423. 1910. (le Hardy de Beaulieu et al., 2006: 608–611; Romero-Rangel et al., 2014: 141–143; Romero-Rangel et al., 2015: 251–252; Sabás-Rosales, 2006, 2011: 282–286). 30 m. Endemic.
- Quercus salicifolia* L. Née, *Anales de Ciencias Naturales* 3: 265. 1801. (González-Villarreal, 1986: 183–188; McVaugh, 1974: 77–80; Romero-Rangel et al., 2014: 143–146; Romero-Rangel et al., 2015: 253–254; Valencia et al., 2002: 118–120). The species has been confused in Central America with *Quercus eugeniifolia* and *Q. seemannii*, both of which do not exist in Mexico. 20 (–35) m. Endemic.
- Quercus saltillensis* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 183. 1924. (le Hardy de Beaulieu et al., 2006: 614–617; Valencia, 2005: 100; Villarreal et al., 2008: 1270–1272). 5 m. Endemic.
- Quercus sapotifolia* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 185. 1854. (Breedlove, 2001: 1082–1083; le Hardy de Beaulieu et al., 2006: 618–620; Morales, 2010: 781; Sabás-Rosales, 2006, 2011: 287–292; Valencia, 2005: 100–101). *Quercus bumeloides*, *Q. perseifolia*, and *Q. totulensis* are considered synonyms. 15 (–35) m.
- Quercus sartorii* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 177. 1854. (le Hardy de Beaulieu et al., 2006: 621–623; Sabás-Rosales, 2006, 2011: 293–300; Valencia et al., 2002: 121–123; Vázquez, 2000: 31–32). *Quercus huitamalcana*, *Q. runcinatifolia*, and *Q. tenuiloba* are also considered synonyms. 30 m. Endemic.
- Quercus scytophylla* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 180. 1854. (Felger et al., 2001: 223; González-Villarreal, 1986: 189–193; le Hardy de Beaulieu et al., 2006: 624–627; McVaugh, 1974: 80–81; Romero-Rangel et al., 2014: 146–148; Romero-Rangel et al., 2015: 254–255; Valencia et al., 2002: 124–127). 20 m. Endemic.
- Quercus segoviensis* F. M. Liebmamn, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 186. 1854. (Breedlove, 2001: 1083; Parker, 2008: 305; Romero-Rangel et al., 2015: 257–258). 20 (–30) m.
- Quercus sideroxyla* A. J. Bonpland, *Plantae aequinoctiales* 2: 39. 1809. (Felger et al., 2001: 223; González-Villarreal, 1986: 194–196; le Hardy de Beaulieu et al., 2006: 632–635; McVaugh, 1974: 82–83; Romero-Rangel et al., 2014: 149–152; Romero-Rangel et al., 2015: 258–259; Sabás-Rosales, 2006, 2011: 308–312; Villarreal et al., 2008: 1272–1273, 1275). 20 m. Endemic.
- Quercus sinuata* T. Walter, *Flora Caroliniana* 235. 1788. (le Hardy de Beaulieu et al., 2006: 148–152; Nixon & Muller, 1997: 497–498; Villarreal et al., 2008: 1273–1275). Two varieties, 1 in Mexico (Nixon & Muller, 1997). 20 m.
- Quercus skinneri* G. Bentham, *Plantas hartwegianas imprimis mexicanas* 90. 1842. (le Hardy de Beaulieu et al., 2006: 636–637; Parker, 2008: 306; Romero-Rangel, 2006: 29–33; Romero-Rangel et al., 2015: 260–261). 60 m.

- Quercus splendens* L. Née, *Anales de Ciencias Naturales* 3: 275. 1801. (González-Villarreal, 1986: 197–200; le Hardy de Beaulieu et al., 2006: 638–641; McVaugh, 1974: 83–85; Romero-Rangel et al., 2015: 261–262; Valencia et al., 2002: 128–130; Vázquez, 2000: 33–35). 20 m. Endemic.
- Quercus subspathulata* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 56. 1924. (Felger et al., 2001: 223–225; González-Villarreal, 1986: 201–204; le Hardy de Beaulieu et al., 2006: 645–647; McVaugh, 1974: 85–86; Romero-Rangel et al., 2014: 152–154; Romero-Rangel et al., 2015: 262–263; Valencia et al., 2002: 131–134). *Quercus pallidofolia* is considered a synonym. 25 m. Endemic.
- Quercus tarahumara* R. Spellenberg, Bacon et Breedlove, *Madroño* 42: 28. 1995. (Felger et al., 2001: 225–226; le Hardy de Beaulieu et al., 2006: 648–649; Romero-Rangel et al., 2015: 263–264; Vázquez & Nixon, 2013: 223–225). 12 m. Endemic.
- Quercus tomentella* G. Engelmann, *Transactions of the Academy of Science of St. Louis* 3: 393. 1877. (le Hardy de Beaulieu et al., 2006: 290–293; Manos, 1997: 470–471; Romero-Rangel et al., 2015: 266–267). 20 m.
- Quercus trinitatis* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 144. 1924. (As *Quercus ocoteifolia* in Valencia, 2005: 99). *Quercus zempoaltepecana* is also considered a synonym. 30 m.
- Quercus tuberculata* F. M. Liebmann, *Oversigt over det kongelige danske videnskabernes selskabs forhandlinger og dets medlemmers arbeider* 1854: 181. 1854. (Felger et al., 2001: 226; le Hardy de Beaulieu et al., 2006: 650–652; McVaugh, 1974: 86–88; Romero-Rangel et al., 2014: 154–157; Romero-Rangel et al., 2015: 269–270; Villarreal et al., 2008: 1274–1276). 15 m. Endemic.
- Quercus tuitensis* L. M. González, *Brittonia* 55(1): 42. 2003. (le Hardy de Beaulieu et al., 2006: 653–655). 15 m. Endemic.
- Quercus turbinella* E. L. Greene, *Illustrations of West American Oaks* 1: 37. 1889. (le Hardy de Beaulieu et al., 2006: 296–298; Nixon & Muller, 1997: 492–493; Romero-Rangel et al., 2015: 270–272). 10 m.
- Quercus urbanii* W. Trelease, *Proceedings of the American Philosophical Society* 60: 32. 1921. (González-Villarreal, 1986: 205–208; le Hardy de Beaulieu et al., 2006: 656–663; McVaugh, 1974: 88–90; Romero-Rangel et al., 2015: 272–273; Valencia et al., 2002: 135–138; Vázquez, 2000: 35–36; Vázquez & Nixon, 2013: 225–226). 20 m. Endemic.
- Quercus uxoris* R. McVaugh, *Contributions from the University of Michigan Herbarium* 9: 513. 1972. (González-Villarreal, 1986: 209–212; le Hardy de Beaulieu et al., 2006: 664–666; McVaugh, 1974: 90–91; Romero-Rangel, 2006: 33–36; Romero-Rangel et al., 2015: 274–275; Valencia et al., 2002: 139–142). 30 m. Endemic.
- Quercus vaseyana* S. B. Buckley, *Bulletin of the Torrey Botanical Club* 10(8): 91. 1883. (le Hardy de Beaulieu et al., 2006: 302–304; Nixon & Muller, 1997: 496). 10 (–15) m.
- Quercus vicentensis* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 59. 1924. (Parker, 2008: 306). 50 m.
- Quercus viminea* W. Trelease, *Memoirs of the National Academy of Sciences* 20: 123. 1924. (Felger et al., 2001: 226; González-Villarreal, 1986: 213–216; Jensen, 1997: 453–454; le Hardy de Beaulieu et al., 2006: 667–669; McVaugh, 1974: 91–92; Romero-Rangel et al., 2014: 157–159; Romero-Rangel et al., 2015: 275–276; Sabás-Rosales, 2006, 2011: 328–333; Valencia, 2005: 102). 20 m.
- Quercus wislizeni* A. L. de Candolle, *Prodromus systematis naturalis regni vegetabilis* 16(2[1]): 67. 1864. (Jensen, 1997: 452; le Hardy de Beaulieu et al., 2006: 306–308). Two varieties, both in Mexico (Govaerts & Frodin, 1998: 321). 25 m.
- Quercus xalapensis* A. J. Bonpland, *Plantae aequinoctiales* 2: 24. 1809. (le Hardy de Beaulieu et al., 2006: 670–671; Romero-Rangel, 2006: 36–43; Romero-Rangel et al., 2015: 276–278; Sabás-Rosales, 2006, 2011: 334–341; Romero-Rangel et al., 2014: 159–163). Breedlove (2001: 1084) and Parker (2008: 306) report this species in Central America, apparently due to confusion with *Quercus skinneri*. 30 m. Endemic.

Sapotaceae

- Chrysophyllum cainito* L. Linnaeus, *Species plantarum* 1: 192. 1753. (Parker, 2008: 839; Pennington, 1990: 542, 552–555; Pennington, Monro, Thornton-Wood, & Knapp, 2009: 608; Pool, 2001b: 2335). The species might be native only in the Greater Antilles (Pennington, 1990), but is naturalized and widely cultivated in Mexico (if not native). 30 m.
- Chrysophyllum mexicanum* T. S. Brandegee, *Contributions from the United States National Herbarium* 23(4): 1114. 1924. (Carranza-González, 2005: 3–6; Parker, 2008: 839; Pennington, 1990: 542, 554–557; Pennington & Sarukhán, 2005: 434–435; Pennington et al., 2009: 608–609; Pool, 2001b: 2336). 20 (–50) m.
- Chrysophyllum venezuelanense* (J. B. Pierre) T. D. Pennington, *Flora Neotropica* 52: 607. 1990. (Parker, 2008: 839; Pennington et al., 2009: 607; Pool, 2001b: 2336–2337). 25 m (40 m in South America).
- Manilkara chicle* (H. F. Pittier) C. L. Gilly, *Tropical Woods* 73: 14. 1943. (Parker, 2008: 840; Pennington, 1990: 68, 70–73; Pennington et al., 2009: 573–574; Pool, 2001b: 2338). 60 m.
- Manilkara zapota* (C. Linnaeus) P. van Royen, *Blumea* 7(2): 410. 1953. (Newman, 2008: 2–4, 6; Parker, 2008: 841; Pennington, 1990: 56, 64–69; Pennington & Sarukhán, 2005: 436–437; Pennington et al., 2009: 573; Pool, 2001b: 2339; Wunderlin & Whetstone, 2009a: 235). 40 m.
- Micropholis melinoniana* J. B. Pierre, *Notes Botaniques: Sapotacées* 2: 40. 1891. (Parker, 2008: 842; Pennington, 1990: 193–195, 206, 209; Pennington et al., 2009: 585; Pool, 2001b: 2339). 40 m.
- Pouteria amygdalina* (P. C. Standley) C. Baehni, *Candollea* 9: 360. 1942. 25 m. (Parker, 2008: 843; Pennington, 1990: 511, 516–517; Pennington et al., 2009: 600). The literature does not report this species in Mexico, but collections from the state of Campeche are in MEXU. 35 m.
- Pouteria belizensis* (P. C. Standley) A. J. Cronquist, *Lloydia* 9(5): 267. 1946. (Parker, 2008: 843; Pennington, 1990: 241, 257–259; Pennington et al., 2009: 602; Pool, 2001b: 2342). 20 m.
- Pouteria campechiana* (K. S. Kunth) C. Baehni, *Candollea* 9: 398. 1942. (Carranza-González, 2005: 7–9; Parker, 2008: 843; Pennington, 1990: 380–383, 386; Pennington & Sarukhán, 2005: 438–439; Pennington et al., 2009: 600–601; Pool, 2001b: 2343–2344; Wunderlin & Whetstone, 2009b: 245). 20 (–30) m.
- Pouteria durlandii* (P. C. Standley) C. Baehni, *Candollea* 9: 422. 1942. (Parker, 2008: 844; Pennington, 1990: 318, 323–326, 330, 332; Pennington et al., 2009: 604; Pool, 2001b: 2344). Two subspecies, 1 in Mexico (Pennington, 1990). 25 m.
- Pouteria glomerata* (F. A. Miquel) L. A. Radlkofer, *Sitzungsberichte der Mathematisch-Physikalischen Klasse der K. B. Akademie der Wissenschaften zu München* 12(3): 333. 1882. (Carranza-González, 2005: 9–12; Parker, 2008: 844; Pennington, 1990: 417–423; Pennington et al., 2009: 589–590; Pool, 2001b: 2346). Two subspecies, 1 in Mexico (Pennington, 1990: 68). 30 m.
- Pouteria reticulata* (H. G. Engler) P. J. Eyma, *Recueil des Travaux Botaniques Néerlandais* 33: 183. 1936. (Parker, 2008: 845; Pennington, 1990: 295–301; Pennington & Sarukhán, 2005: 440–441; Pennington et al., 2009: 603; Pool, 2001b: 2347). Two subspecies, 1 in Mexico (Pennington, 1990). 40 m.
- Pouteria rhynchocarpa* T. D. Pennington, *Flora Neotropica* 52: 517. 1990. 25 m. Endemic.
- Pouteria sapota* (N. J. von Jacquin) H. E. Moore et W. T. Stearn, *Taxon* 16(5): 383. 1967. (Parker, 2008: 845; Pennington, 1990: 493–497, 499; Pennington & Sarukhán, 2005: 442–443; Pennington et al., 2009: 596–597; Pool, 2001b: 2347–2348). 30 (–50) m. The species has been introduced to countries outside its central-American range for its edible “mamey sapote” fruits.
- Pouteria squamosa* A. J. Cronquist, *Lloydia* 9(4): 283. 1946. (Parker, 2008: 846; Pennington, 1990: 430, 436, 449; Pennington et al., 2009: 591). 12 m.

Pouteria torta (C. F. von Martius) L. A. Radlkofer, *Sitzungsberichte der Mathematisch-Physikalischen Klasse der K. B. Akademie der Wissenschaften zu München* 12(3): 333. 1882. (Parker, 2008: 846; Pennington, 1990: 481–488; Pennington et al., 2009: 594; Pool, 2001b: 2348–2349). Four subspecies, 2 in Mexico (Pennington, 1990). 35 m.

Pouteria viridis (H. F. Pittier) A. J. Cronquist, *Lloydia* 9(4): 290. 1946. (Parker, 2008: 847; Pennington, 1990: 497–500; Pennington et al., 2009: 597–598; Pool, 2001b: 2349). 30 m.

Sideroxylon altamiranoi (J. N. Rose et P. C. Standley) T. D. Pennington, *Flora Neotropica*, 52: 167. 1990. (Carranza-González, 2005: 14–15, 17). 10 m. Endemic.

Sideroxylon americanum (P. Miller) T. D. Pennington, *Flora Neotropica* 52: 118. 1990. (Carranza-González, 2005: 577). 10 m.

Sideroxylon capiri (A. P. de Candolle) H. F. Pittier, *Contributions from the United States National Herbarium* 13(12): 462. 1912. (Carranza-González, 2005: 15–17; Newman, 2008: 7–9; Parker, 2008: 848; Pennington, 1990: 155–160; Pennington et al., 2009: 581–582; Pool, 2001b: 2351–2352). Two subspecies, both in Mexico (Pennington, 1990). 35 m.

Sideroxylon cartilagineum (A. J. Cronquist) T. D. Pennington, *Flora Neotropica* 52: 108. 1990. (Carranza-González, 2005: 18–19). 15 m. Endemic.

Sideroxylon celastrinum (K. S. Kunth) T. D. Pennington, *Flora Neotropica* 52: 123. 1990. (Elisens & Jones, 2009: 238–239; Parker, 2008: 848; Pennington et al., 2009: 577–578; Pool, 2001b: 2352). 12 m.

Sideroxylon contrerasii (C. L. Lundell) T. D. Pennington, *Flora Neotropica* 52: 135. 1990. (Carranza-González, 2005: 19–22; Parker, 2008: 848; Pennington et al., 2009: 578–579; Pool, 2001b: 2352). 40 m.

Sideroxylon durifolium (P. C. Standley) T. D. Pennington, *Flora Neotropica* 52: 152. 1990. (Parker, 2008: 848; Pennington, 1990: 150, 152; Pennington et al., 2009: 580). 6 m.

Sideroxylon eucoriaceum (C. L. Lundell) T. D. Pennington, *Flora Neotropica* 52: 143. 1990. (Parker, 2008: 848; Pennington et al., 2009: 579). 25 m.

Sideroxylon excavatum T. D. Pennington, *Flora Neotropica* 52: 154. 1990. 12 m. Endemic.

Sideroxylon floribundum A. H. Grisebach, *Flora of the British West Indian Islands*, p. 399. 1861. (Parker, 2008: 849; Pennington, 1990: 156, 160–162; Pennington et al., 2009: 582). Two subspecies, 1 in Mexico (Pennington, 1990). 25 m.

Sideroxylon foetidissimum N. J. von Jacquin, *Enumeratio systematica plantarum quas in insulis caribaeis* 15. 1760. (Elisens & Jones, 2009: 239; Parker, 2008: 849; Pennington, 1990: 156, 160, 162–165; Pennington et al., 2009: 582–583). Two subspecies, 1 in Mexico (Pennington, 1990). 40 m.

Sideroxylon lanuginosum A. Michaux, *Flora boreali–Americana* 1: 122. 1803. (Elisens & Jones, 2009: 239–240; Felger et al., 2001: 308–309; Pennington, 1990: 144, 166, 168–169). Three subspecies, 1 in Mexico (Pennington, 1990). 15 m.

Sideroxylon leucophyllum S. Watson, *Proceedings of the American Academy of Arts and Sciences*, 24: 59. 1889. (Pennington, 1990: 156, 165–167). 10 m. Endemic.

Sideroxylon obtusifolium (J. J. Roemer et J. A. Schultes) T. D. Pennington, *Flora Neotropica* 52: 113. 1990. (Newman, 2008: 9–12; Parker, 2008: 850; Pennington et al., 2009: 576–577; Pool, 2001b: 2352–2353). Two subspecies, 1 in Mexico (Pennington, 1990). 15 m.

Sideroxylon occidentale (W. B. Hemsley) T. D. Pennington, *Flora Neotropica* 52: 125. 1990. (Felger et al., 2001: 309–310). 16 m. Endemic.

Sideroxylon palmeri (J. N. Rose) T. D. Pennington, *Flora Neotropica* 52: 104. 1990. (Carranza-González, 2005: 22–24; Newman, 2008: 12–14; Pennington et al., 2009: 575–576). 25 m. Endemic.

Sideroxylon peninsulare (T. S. Brandegee) T. D. Pennington, *Flora Neotropica* 52: 105. 1990. 5 m. Endemic.

Sideroxylon persimile (W. B. Hemsley) T. D. Pennington, *Flora Neotropica* 52: 100. 1990. (Felger et al., 2001: 310–311; Parker, 2008: 850; Pennington & Sarukhán, 2005: 444–445; Pennington et al., 2009: 575; Pool, 2001b: 2353). Two subspecies, both in Mexico (Pennington, 1990). 20 (–30) m.

Sideroxylon portoricense I. Urban, *Symbolae Antillanae seu Fundamenta Floraes Indiae Occidentalis* 5: 134. 1904. (Parker, 2008: 850; Pennington, 1990: 139–144, 70–73; Pennington et al., 2009: 579; Pool, 2001b: 2353–2354). Two subspecies, 1 in Mexico (Pennington, 1990). 40 m.

Sideroxylon salicifolium (C. Linnaeus) J. B. Lamarck, *Tableau encyclopédique et méthodique des trois règnes de la nature: Botanique* 2(2): 42. 1794. (Elisens & Jones, 2009: 243; Newman, 2008: 14–16; Parker, 2008: 850; Pennington, 1990: 144, 149–152; Pennington et al., 2009: 580). 25 m.

Sideroxylon socorrense (T. S. Brandegee) T. D. Pennington, *Flora Neotropica* 52: 107. 1990. 25 m. Endemic.

Sideroxylon stenospermum (P. C. Standley) T. D. Pennington, *Flora Neotropica* 52: 109. 1990. (Parker, 2008: 851; Pennington et al., 2009: 576; Pool, 2001b: 2354). 25 m.

Sideroxylon stevensonii (P. C. Standley) P. C. Standley et J. A. Steyermark, *Publications of the Field Museum of Natural History, Botanical Series* 23(2): 68. 1944. (Parker, 2008: 851; Pennington, 1990 [homonym]: 131–134, 144; Pennington et al., 2009: 578). 45 m.

Sideroxylon tepicense T. D. Pennington, *Flora Neotropica* 52: 159. 1990. (Felger et al., 2001: 311; Parker, 2008: 851; Pennington et al., 2009: 582). 25 m.

References

- Alvarado-Cárdenas, L. O. (2004). Apocynaceae. *Flora del Valle de Tehuacán–Cuicatlán*, 38, 1–57.
- Alvarado-Cárdenas, L. O., & Juárez-Jaimes, V. (2012). Una especie nueva de *Tabernaemontana* L. (Apocynaceae; Rauvolfioideae) para México, probablemente extinta en su hábitat. *Revista Mexicana de Biodiversidad*, 83, 334–340.
- Alvarado-Cárdenas, L. O., & Ochoterena, H. (2007). A phylogenetic analysis of the *Cascabela-Thevetia* species complex (Plumerieae, Apocynaceae) based on morphology. *Annals of the Missouri Botanical Garden*, 94, 298–323.
- Alvarado-Cárdenas, L. O., & Soto-Núñez, J. C. (2014). A new species of *Cascabela* (Apocynaceae; Rauvolfioideae, Plumerieae) from Michoacán, Mexico. *Phytotaxa*, 177, 163–170.
- Anderson, E. (2001). *The Cactus family*. Portland: Timber Press.
- Arias, S., Gama, S., Guzmán, U., & Vázquez, B. (2012). Cactaceae. *Flora del Valle de Tehuacán–Cuicatlán*, 95, 1–235.
- Bravo, H. (1978). *Las cactáceas de México* (Vol. 1). Ciudad de México: Universidad Nacional Autónoma de México.
- Breedlove, D. (2001). Fagaceae. *Flora de Nicaragua – Monographs in Systematic Botany from the Missouri Botanical Garden*, 85, 945–1910.
- Carranza-González, E. (2000). Ebenaceae. *Flora del Bajío y de Regiones Adyacentes*, 83, 1–9.
- Carranza-González, E. (2005). Sapotaceae. *Flora del Bajío y de Regiones Adyacentes*, 132, 1–28.
- Davidse, G., Sousa, S. M., Knapp, S., Chiang, F., & Barrie, F. R. (2009). Cucurbitaceae a Polemoniaceae. *Flora Mesoamericana*, 4, 1–855.
- Diego-Pérez, N. (2004). Apocynaceae. *Flora de Guerrero*, 20, 1–117.
- Eckenwalder, J. E. (2009). Ebenaceae. *Flora of North America*, 8, 247–250.
- Elisens, W. J., & Jones, J. M. (2009). Sideroxylon. *Flora of North America*, 8, 236–244.
- Felger, R. S., Johnson, M. B., & Wilson, M. F. (2001). *The Trees of Sonora*. Mexico, New York: Oxford University Press.
- Gentry, A. H. (2001). Apocynaceae. *Flora de Nicaragua – Monographs in Systematic Botany from the Missouri Botanical Garden*, 85, 116–132.
- Gibson, A. C. (2003a). Pachycereus. *Flora of North America*, 4, 182–184.
- Gibson, A. C. (2003b). Carnegiea. *Flora of North America*, 4, 184–186.
- Gibson, A. C. (2003c). Stenocereus. *Flora of North America*, 4, 186–188.

- González-Villarreal, L. M. (1986). *Contribución al conocimiento del género Quercus (Fagaceae) en el estado de Jalisco* (Colección Flora de Jalisco). Guadalajara, Mexico: Instituto de Botánica, Universidad de Guadalajara.
- González, J. (2010). Ebenaceae. *Manual de Plantas de Costa Rica 5 – Monographs in Systematic Botany from the Missouri Botanical Garden*, 119, 215–219.
- González-Rocha, E., & Cerros-Tlatilpa, R. (2015). La familia Apocynaceae (Apocynoideae y Rauvolfioideae) en el estado de Morelos, México. *Acta Botanica Mexicana*, 110, 21–70.
- Govaerts, R., & Frodin, D. G. (1998). *World checklist and bibliography of Fagales (Betulaceae, Corylaceae, Fagaceae and Ticodendraceae)*. Kew, Richmond: The Royal Botanic Gardens.
- Hernández, H. M. (2006). *La vida en los desiertos mexicanos* (La ciencia para todos 213). Ciudad de México: Fondo de Cultura Económica.
- Hernández, H. M., & Godínez, A. (1994). Contribución al conocimiento de las cactáceas mexicanas amenazadas. *Acta Botanica Mexicana*, 26, 33–52.
- Hernández, H. M., & Gómez-Hinostrosa, C. (2011). Mapping the cacti of Mexico. *Succulent Plant Research*, 7, 1–128.
- Hernández, H. M., Gómez-Hinostrosa, C., Bárcenas, R. T., Puente, R., & Reyes-Agüero, J. A. (2014). A checklist of the subfamily Opuntioideae (Cactaceae) from North and Central America. *Succulent Plant Research*, 8, 185–200.
- Heywood, V. H., Brummitt, R. K., Culham, A., & Seberg, O. (2007). *Flowering plant families of the world*. Buffalo: Firefly Books.
- Hunt, D. (compiler). (2006a). *The New Cactus Lexicon* (Text). Milborne Port, England: DH Books.
- Hunt, D. (compiler). (2006b). *The New Cactus Lexicon* (Atlas of Illustrations). Milborne Port, England: DH Books.
- Hunt, D. (compiler). (2016). *CITES Cactaceae checklist* (3rd edition). Kew: Royal Botanic Gardens, Kew.
- Jensen, R. J. (1997). *Quercus sect. Lobatae*. *Flora of North America*, 3, 447–468.
- Juárez-Jaimes, V., Alvarado-Cárdenas, L. O., & Villaseñor, J. L. (2007). La familia Apocynaceae sensu lato en México: diversidad y distribución. *Revista Mexicana de Biodiversidad*, 78, 459–482.
- Leeuwenberg, A. J. M. (1994). *A Revision of Tabernaemontana (Volume 2): the new world species and Stemmadenia*. Kew: The Royal Botanic Gardens.
- le Hardy de Beaulieu, A., Lamant, T., Timacheff, M., Jablonski, E., & de Spoelberch, P. (2006). *Guide illustré des Chênes (Tome 2)*. Paris: Editions du 8ème.
- Marcondes-Ferreira, W. (1991). Novos taxa para o gênero *Aspidosperma* Mart. nom. cons. (Apocynaceae). *Revista Brasileira de Botânica*, 14, 127–132.
- Manos, P. S. (1997). *Quercus* sect. *Protobalanus*. *Flora of North America*, 3, 468–471.
- McVaugh, R. (1974). *Flora Novo-Galicianae (Fagaceae). Contributions from the University of Michigan Herbarium*, 12, 1–93.
- Morales, J. F. (2009a). *Stemmadenia*. *Flora Mesoamericana*, 4, 695–698.
- Morales, J. F. (2009b). *Tabernaemontana*. *Flora Mesoamericana*, 4, 698–700.
- Morales, J. F. (2010). Fagaceae. *Manual de Plantas de Costa Rica 5 – Monographs in Systematic Botany from the Missouri Botanical Garden*, 119, 776–781.
- Morales, J. F., & Méndez, M. (2005). Estudios en las Apocynaceae neotropicales XXII: nuevos realineamientos taxonómicos en el género *Stemmadenia* (Apocynaceae, Rauvolfioideae, Tabernaemontaneae). *Candollea*, 60, 345–371.
- Newman, M. F. (2008). Sapotaceae. *Flora del Valle de Tehuacán-Cuicatlán*, 57, 1–20.
- Nixon, K. C. (1993). The genus *Quercus* in Mexico. In T. P. Ramamoorthy, R. Bye, A. Lot, & J. Fa (Eds.), *Biological diversity of Mexico: origins and distribution* (pp. 447–458). New York: Oxford University Press.
- Nixon, K. C., & Muller, C. H. (1992). The taxonomic resurrection of *Quercus laceyi* Small (Fagaceae). *SIDA. Contributions to Botany*, 15, 57–69.
- Nixon, K. C., & Muller, C. H. (1997). *Quercus* sect. *Quercus*. *Flora of North America*, 3, 471–506.
- Pacheco, L. (1981). Ebenaceae. *Flora de Veracruz*, 16, 1–21.
- Parker, T. (2008). *Trees of Guatemala*. Austin: The Tree Press.
- Pennington, T. D. (1990). Sapotaceae. *Flora Neotropica*, 52, 1–770.
- Pennington, T. D., & Sarukhán, J. (2005). *Árboles tropicales de México: manual para la identificación de las principales especies*. Ciudad de México: Universidad Nacional Autónoma de México and Fondo de Cultura Económica.
- Pennington, T. D., Monroe, A. K., Thornton-Wood, S. P., & Knapp, S. (2009). Sapotaceae. *Flora Mesoamericana*, 4, 571–610.
- Pinkava, D. J. (2003). *Opuntia. Flora of North America*, 4, 123–148.
- Pool, A. (2001a). Ebenaceae. *Flora de Nicaragua – Monographs in Systematic Botany from the Missouri Botanical Garden*, 85, 815–816.
- Pool, A. (2001b). Sapotaceae. *Flora de Nicaragua – Monographs in Systematic Botany from the Missouri Botanical Garden*, 85, 1911–2666.
- Potgieter, K. (2009). *Aspidosperma*. *Flora Mesoamericana*, 4, 668–671.
- Provance, M. C., García-Ruiz, I., & Sanders, A. C. (2008). The *Diospyros salicifolia* complex (Ebenaceae) in Mesoamerica. *Journal of the Botanical Research Institute of Texas*, 2, 1009–1100.
- Ricker, M., & Hernández, H. M. (2010). Tree and tree-like species of Mexico: gymnosperms, monocotyledons, and tree ferns. *Revista Mexicana de Biodiversidad*, 81, 27–38.
- Ricker, M., Hernández, H. M., Sousa, M., & Ochoterena, H. (2013). Tree and tree-like species of Mexico: Asteraceae, Leguminosae, and Rubiaceae. *Revista Mexicana de Biodiversidad*, 84, 439–470.
- Romero-Rangel, S. (2006). Revisión taxonómica del complejo Acutifoliae de *Quercus* (Fagaceae) con énfasis en su representación en México. *Acta Botanica Mexicana*, 76, 1–45.
- Romero-Rangel, S., Rojas-Zenteno, E. C., & Rubio-Licona, L. E. (2014). Fagaceae. *Flora del Bajío y de Regiones Adyacentes*, 181, 1–167.
- Romero-Rangel, S., Rojas-Zenteno, E. C., & Rubio-Licona, L. E. (2015). Encinos de México (*Quercus*, Fagaceae). Ciudad de México: Universidad Nacional Autónoma de México.
- Rzedowski, J., & Calderón-de Rzedowski, G. (1998). Apocynaceae. *Flora del Bajío y de Regiones Adyacentes*, 70, 1–64.
- Rzedowski, J., & Calderón-de Rzedowski, G. (2013). Datos para la apreciación de la flora fanerógámica del bosque tropical caducifolio de México. *Acta Botanica Mexicana*, 102, 1–23.
- Sabás-Rosales, J. L. (2011). *Taxonomía, diversidad y distribución de los encinos (*Quercus* spp.) del estado de San Luis Potosí*. México Master's Thesis. Aguascalientes, México: Centro de Ciencias Agropecuarias, Universidad Autónoma de Aguascalientes.
- Simões, A. O., Endress, M. E., & Conti, E. (2010). Systematics and character evolution of Tabernaemontaneae (Apocynaceae, Rauvolfioideae) based on molecular and morphological evidence. *Taxon*, 59, 772–790.
- Solomon, J. C. (2001). Cactaceae. *Flora de Nicaragua – Monographs in Systematic Botany from the Missouri Botanical Garden*, 85, 509–519.
- Tovar-Sánchez, E., & Oyama, K. (2004). Natural hybridization and hybrid zones between *Quercus crassifolia* and *Quercus crassipes* (Fagaceae) in Mexico: morphological and molecular evidence. *American Journal of Botany*, 91, 1352–1363.
- Turner, I. M. (2013). Robinson a century on: the nomenclatural relevance of Roxburgh's Hortus Bengalensis. *Taxon*, 62, 152–172.
- Valencia, S. (2004). Diversidad del género *Quercus* (Fagaceae) en México. *Boletín de la Sociedad Botánica de México*, 75, 33–53.
- Valencia, S. (2005). *Análisis filogenético de la serie Lanceolatae Trel. del género Quercus*. Fagaceae Doctoral Thesis. Ciudad de México: Facultad de Ciencias, Universidad Nacional Autónoma de México.
- Valencia, S., Flores-Franco, G., & Jiménez-Ramírez, J. (2015). A nomenclatural revision of *Quercus acutifolia*, *Q. conspersa* and *Q. grahamii* (*Lobatae*, Fagaceae). *Phytotaxa*, 218, 289–294.
- Valencia, S., Gómez-Cárdenas, M., & Becerra-Luna, F. (2002). *Catálogo de encinos del estado de Guerrero*, México. Ciudad de México: Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias.
- Vázquez, M. L. (2000). Fagaceae. *Flora del Valle de Tehuacán-Cuicatlán*, 28, 1–39.
- Vázquez, M. L., & Nixon, K. C. (2013). Taxonomy of *Quercus crassifolia* (Fagaceae) and morphologically similar species in Mexico. *Brittonia*, 65, 208–227.
- Villarreal, J. A., Encina, J. A., & Carranza, M. A. (2008). Los encinos (*Quercus*: Fagaceae) de Coahuila, México. *Journal of the Botanical Research Institute of Texas*, 2, 1235–1278.
- Wallnöfer, B. (2007). A revision of neotropical *Diospyros* (Ebenaceae): part 1. *Annalen des Naturhistorischen Museums in Wien*, B, 108, 207–247.
- Wallnöfer, B. (2009). A revision of neotropical *Diospyros* (Ebenaceae): part 2. *Annalen des Naturhistorischen Museums in Wien*, B, 110, 173–211.

- Wallnöfer, B. (2010). A revision of neotropical *Diospyros* (Ebenaceae): part 3. *Annalen des Naturhistorischen Museums in Wien, B*, 111, 101–133.
- Wallnöfer, B. (2011). A revision of neotropical *Diospyros* (Ebenaceae): part 4. *Annalen des Naturhistorischen Museums in Wien, B*, 112, 181–220.
- Wallnöfer, B. (2012). A revision of neotropical *Diospyros* (Ebenaceae): part 5. *Annalen des Naturhistorischen Museums in Wien, B*, 113, 223–252.
- Wallnöfer, B. (2014). A revision of neotropical *Diospyros* (Ebenaceae): part 7. *Annalen des Naturhistorischen Museums in Wien, B*, 116, 153–179.
- Wallnöfer, B. (2016). A revision of neotropical *Diospyros* (Ebenaceae): part 9. *Annalen des Naturhistorischen Museums in Wien, B*, 118, 79–114.
- Whitefoord, C., & Knapp, S. (2009). Ebenaceae. *Flora Mesoamericana*, 4, 611–616.
- Wunderlin, R. P., & Whetstone, R. D. (2009a). *Manilkara*. *Flora of North America*, 8, 234–236.
- Wunderlin, R. P., & Whetstone, R. D. (2009b). *Pouteria*. *Flora of North America*, 8, 244–245.
- Zarucchi, J. L. (2009a). *Alstonia*. *Flora Mesoamericana*, 4, 667.
- Zarucchi, J. L. (2009b). *Cameraria*. *Flora Mesoamericana*, 4, 671.
- Zarucchi, J. L. (2009c). *Plumeria*. *Flora Mesoamericana*, 4, 687–688.
- Zarucchi, J. L. (2009d). *Thevetia*. *Flora Mesoamericana*, 4, 700–701.
- Zarucchi, J. L. (2009e). *Vallesia*. *Flora Mesoamericana*, 4, 702.