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## PLANTS OF THE TRES MARIAS ISLANDS, NAYARIT, MEXICO

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### GENERAL DESCRIPTION AND GEOLOGY

The Tres Marias islands consist of three major and one minor island lying about 105 km west of San Blas, Nayarit, México; between longitude 106°–108°W and latitude 21°–22°N (Fig. 1). Geologically they consist of pre-Oligocene crystalline basement rock (> 35.4 Ma); volcanic material (25–3 Ma); and marine sediments (13–5 Ma) (Fig. 2). The Tres Marias Ridge has been described as a long narrow mass of cratonic rock that separates the northern end of the Middle American Trench from the Protogulf Basin, that portion of the Gulf of California depression that subsided prior to 5 Ma (the Miocene Gulf of California) with the ridge presumably having its origin by being detached from the mainland México Jalisco Block during the opening of the Protogulf Basin. The aerial portion of the La Paz Block is now recognized as the Cape Region of Baja California Sur and is only about 52% of the basal area of the La Paz Block (Fenby and Gastil 1991).

María Madre (21.35°N, 106.4°W) is approximately 20 km long and 10 km across with an area of approximately 200 square kilometers. The highest point being 616 m above sea level.

María Magdalena Island lies about 11 km from María Madre and is about 16 km long and 10 km wide with an area of about 150 square kilometers. Its highest elevation is 450 m.

María Cleofas Island is located southeast of María Magdalena and information on its size and area is not available.

San Juanita Island, the smallest of the group, lies northwest of María Madre from which it is separated by a narrow channel and is about 5 km long and 3 km wide with an area of about 15 square kilometers. According to Gentry (1939) there are no known plant collections from the island.

### EARLY HISTORY OF THE ISLANDS

Although Diego Hurtado de Mendoza is generally given credit for discovering the Tres Marias islands on 27 July 1532, documents now show that Nuño de Guzmán had reached them on 25th of March of that year (Bojórquez 1937). In October, 1857, Vicente Alvarez de la Rosa requested the government to lease the islands to him, but instead they were granted to José López Uruga for "services rendered." On the 17th of

July, 1879, Uruga sold the islands to Manuel Carpena of San Blas for 45,000 silver pesos and after Carpena's death his widow, Gila Ancona Viuda de Carpena sold them to the government for 150,000 pesos. On the 22nd of May, 1905, President González Díaz ordered that the islands be made a federal penal colony and since that time access to the islands has been restricted. Although a part of the state of Nayarit, they are under the jurisdiction of the federal government.

The first naturalist to visit the islands, with funds provided by the Smithsonian Institution of Washington and the Boston Society of Natural History, was Colonel Andrew Jackson Grayson (1818–1869). Born in Louisiana, Grayson emigrated to California in 1845. The title "Colonel" was conferred upon him by fellow emigrants and alluded to the position he held in the wagon train organization. Moved by John James Audubon's recently published, *The Birds of America* (1827–1830), Grayson resolved to produce a similar work for birds of the Pacific Slope. Due to the artistic merit of his paintings Grayson did become known as the Audubon of the West. After some years of residence in California, Grayson resolved to go to México and there to study and paint the birds of that country. His first pioneering trip, made in 1857, took him to Tehuantepec, and the following year to San Blas, Manzanilla, and Cabo San Lucas. For numerous reasons, including financial, Grayson decided to make his home in México and in 1859 he and his wife moved to Mazatlán in the state of Sinaloa. In July of 1861, János Xántus, an eccentric Hungarian naturalist earlier employed by the United States Coastal Survey as a tidal observer at Cabo San Lucas called upon Grayson, and although Xántus had earlier attempted to discredit Grayson with Spencer F. Baird, then assistant secretary of the Smithsonian Institution in Washington, the two men became friends (Madden 1949). Grayson had great respect for Xántus as a naturalist but recognized his shortcomings, noting in particular the unreliability of many of his labels. In June, 1864, Baird, who was particularly interested in birds, wrote Grayson at Mazatlán asking whether he might be able to visit the Tres Marias islands, to which Grayson replied that after the rainy season he would attempt such a voyage; he also added that he hoped to visit Socorro Island. The following year Grayson made two trips to the islands, on

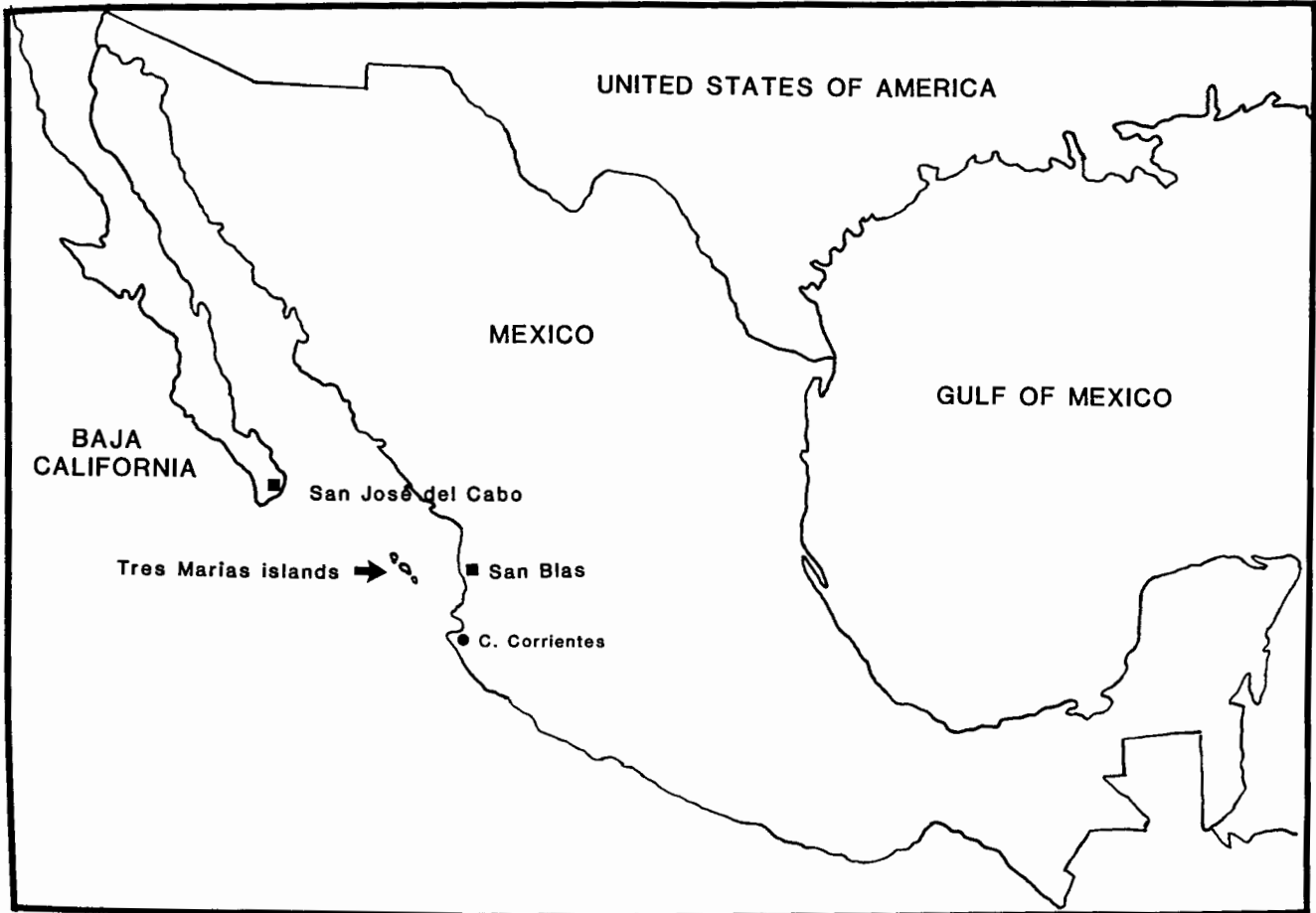


Fig. 1. Map of México showing location of Tres Marias islands.

the second visit spending about 1 month, all or most of the time, on María Madre Island. In May, 1867, Grayson visited Socorro Island where his party was stranded for a time by the breakup of their vessel. A rescue ship later landed them on María Madre Island where they remained 4 days. The party then continued on to San Blas and Mazatlán before leaving for San Francisco. While at Mazatlán, Grayson's only son was murdered. In October, 1867, Baird again wrote Grayson, this time about the possibility of making still another trip to the islands this time to obtain a full range of specimens of both the flora and fauna. That trip was never made. In August, 1869, during a visit to Isabel Island, a small island off the coast of Nayarit, Grayson contracted yellow fever and died at Mazatlán on August 17, 1869. According to reports, he was given the largest funeral in the history of the city (Stone 1986).

A the time of Grayson's first visit in January, 1865, the Tres Marias settlement contained about 25 families. Grayson described his first impression of María Madre by saying, "As the day advanced we gradually neared the Islands, and their magnificent forests were slowly unfolded to view, the ever green foliage extending to the water's edge and densely covering hill and vale."

He described María Madre as being about 15 miles in length, by 10 or 12 in width, and María Magdalena as being 12 miles in length and 9 or 10 in width, "... it is unoccupied and covered with a grand forest of fine timber. The immense cedar (*Cedrela odorata*) grows in great abundance on this island, not having been disturbed by the wood cutters." Of the cedar he wrote, "The stupendous cedar with its rough bark and pinnated leaves, its huge branches overgrown with curious orchids [*Oncidium* sp.], is king of the woods. . . . This tree makes the finest lumber in the world. . . . All these islands except Juanito, are covered with a dense forest from the water's edge to the top of the highest hills. . . . There is but little thorny underbrush, so characteristic of the Tierra Caliente [on the mainland]." Grayson noted the absence of palms, and commented on the fact that, "Here are hundreds of plants to interest the botanist, many of which I am certain are new." (see Grayson 1871; Lawrence 1871).

During the spring of 1897 the ornithologist, Edward William Nelson (1855–1934) of the United States Bureau of Biological Survey, together with the young zoologist, Edward Alphonso Goldman (1873–1946), visited the islands toward the end of the dry season.

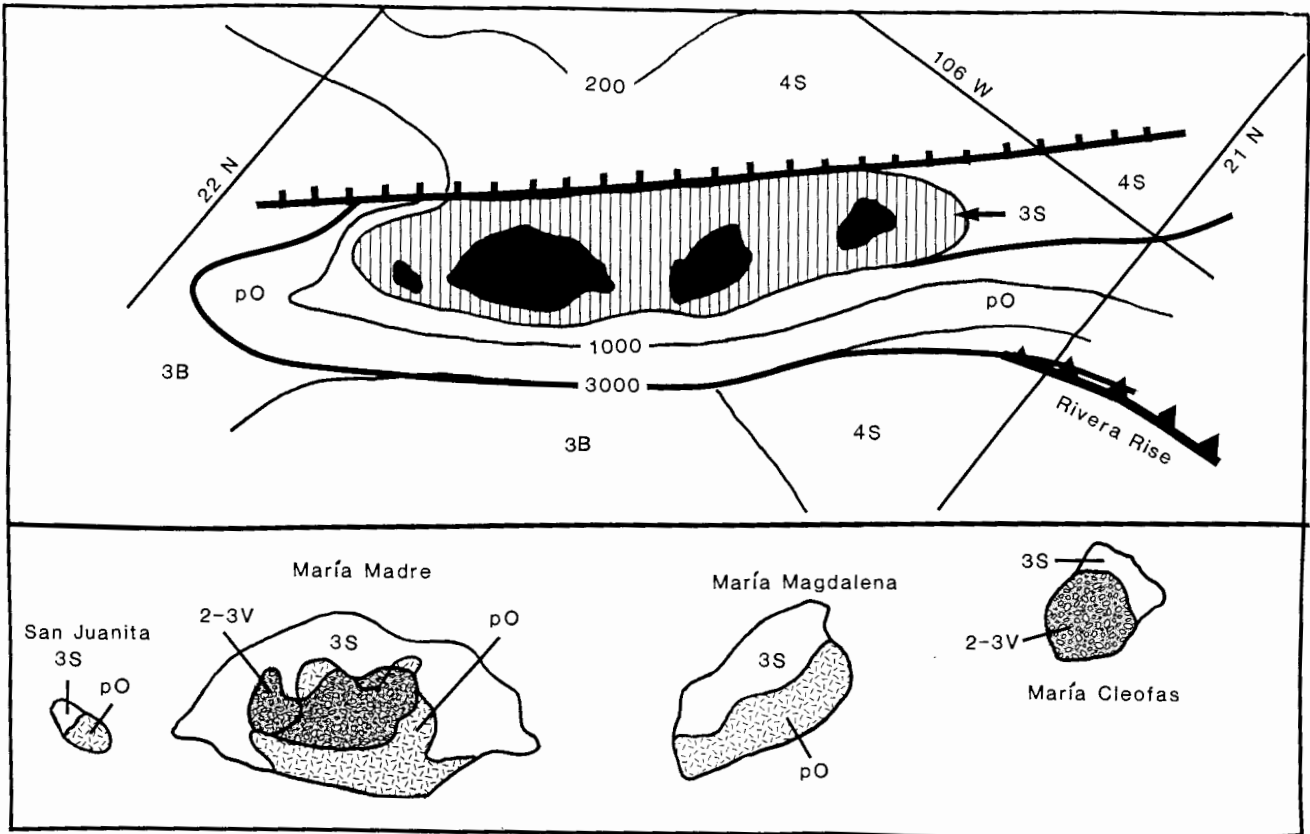


Fig. 2. **3B**, volcanic (Basalt), 13–5 Ma; **3S**, Marine sedimentary, 13–5 Ma; **4S**, Marine sedimentary, 5–0 Ma; **2–3V**, volcanic (Andesite-Rhyolite), 23–5 Ma; **pO**, pre-Oligocene crystalline basement rock, > 35.4 Ma. (After Fenby and Gastil, plate 10, 1991).

While at the port of San Blas making arrangements, a group from Socorro, New Mexico, consisting of Clarence Luther Herrick (1858–1904), zoologist, paleontologist, minister, and later president of the University of New Mexico, his son Harry, and T. S. Maltby, arrived at San Blas with similar plans, and the two parties made the trip together. Little is known about Maltby (sometimes F. S. Maltby on specimens), his small collection of plants was presented to US by Herrick (McVaugh 1972) and specimens are now at NMC, NY, and US (Knobloch 1983). The group reached María Madre on May 2, and between then and May 19 collected extensively. On the 20th they proceeded to San Juanito returning on the 23rd, and two days later visited María Magdalena where they remained for four days before going to María Cleofas where they remained two days. The parties returned to San Blas on June 1. Nelson’s plant collection, consisting of 136 species mostly collected on María Madre Island, was identified by J. M. Greenman, F. Lamson Scribner (grasses), and George E. Davenport (ferns), and the results were published in 1899 in *North American Fauna* number 14. The first set of Nelson’s collections is at US, but specimens are also at F and GH. It is worth noting that Nelson observed that by that time

(1897) the commercial supply of *Cedrela* was nearly exhausted.

In a footnote Nelson (1899) stated that “Mr. John [János] Xántus, who spent several years subsequent to 1859 on the west coast of Mexico was supposed to have visited the islands, on account of several specimens of birds which he sent to the Smithsonian Institution, labeled ‘Tres Marias Islands’.” In letters written from Cabo San Lucas and San Francisco, Xántus never made the claim that he had visited the islands, and the specimens he sent were acknowledged to have been obtained from sea captains and others (including his many lady friends) who may have been in error about their origin (Zwinger 1986).

No plant collecting was done on the Tres Marias islands after they became a penal colony in 1905 until January 1925 when officers of the California Academy of Sciences agreed that for the ensuing season desirable fieldwork could be done on the Revillagigedo islands (and the Tres Marias) and a formal request was made by Barton W. Evermann then director of the academy to the United States Navy for assistance. Curtis D. Wilbur, Secretary of the Navy, ordered that the minesweeper, *Ortolan*, be allocated for the expedition. Among the scientific personnel was an entomologist,

herpetologist, mammalogist, ornithologist and paleontologist. The botanist was Herbert Louis Mason, (1896–1994) professor of botany at Mills College, Oakland, California. Among the scientific representatives from México was Octavio Solis, director of the botanic garden at Chapultepec, D.F. and J. N. Rovirosa also of the botanic garden who collected a few specimens. The expedition itinerary called for the *Ortolan* to depart from the Mare Island Naval Yard on April 15, and after completion of the work at, and about, the Revillagigedo islands the vessel was to proceed to Mazatlán which would afford an opportunity for the scientists to visit the Tres Marias islands. The botanist received instructions from Alice Eastwood (1859–1953), curator of botany at the academy, to collect in sets of six, and to collect seeds for planting. A special request was made by Joseph Nelson Rose (1862–1928) associate curator of the United States National Herbarium to collect live specimens of every kind of cactus.

On May 13, 1925, the *Ortolan* reached the Tres Marias islands and anchored in front of the Mexican federal penitentiary on the east side off María Madre Island. Commenting on the calmness of the sea surrounding the islands, Hanna (1926) wrote “Unquestionably we had passed out of the region where northwest trade winds prevailed and were entering a new climatic zone which would be occupied by many different kinds of plants and animals . . .”. Anchoring on the east side of María Madre Island near the penitentiary they were cordially received by the authorities and provided with a house and support in the way of horses and guides. At the time the colony consisted of 281 prisoners, and according to Hanna, everything about the place looked exceedingly well kept. The following day the scientific party, together with a cook and mess boy, went ashore, and on the 15th the *Ortolan* left for San Diego for fuel, returning on the 23rd (Hanna 1926). According to Eastwood (1929), collections were made on María Madre and María Magdalena, as well as on Isabella Island, a small island off the coast of Nayarit and not a part of the Tres Marias group. Of the small San Juanito Island, Hanna noted that it was densely forested. Eastwood worked up all the specimens collected by the expedition except for those from the Tres Marias islands, “The collection on these islands was made at the end of the dry season and the specimens were very poor.” “Duplicates were sent to Paul C. Standley [F] . . . and were named by him.” According to Evermann (1928), during his stay on the Tres Marias islands Herbert Mason collected 120 numbers. His first set is at CAS, others sets, or partial sets, are at F, K, NY, UC, and US.

Until now all botanical collections on the Tres Marias islands had been made during the dry season. In 1925 the committee on research at Stanford Univer-

sity, and the Dudley Herbarium, ordered Roxana Judkins Stinchfield Ferris (1895–1978) to western México to collect. On the mainland gatherings were made in Sinaloa and Colima, and in Nayarit both on the mainland and on the Tres Marias islands. Ferris's visit to María Madre Island was between October 21st and 27th during which time she collected 185 species, of which 135 had not previously been reported. Ferris noted in particular the changes in the island that had occurred since Nelson's visit in 1897. She noted that with the large-scale cutting of the Spanish cedar, *Cedrela*, and with the development of extensive farm lands, weeds had increased in number and were spreading inland; and the slopes originally covered with evergreen forest were now covered with [thorn] scrub similar to that found around Mazatlán and on the coastal plain of western mainland México. The results of her collecting on María Madre Island were published in volume 1 of *Contributions from the Dudley Herbarium of Stanford University* (Ferris 1927; Gonzalez Ortega 1936). Included was one new genus and 10 new species. Ferris's collections are at DS, US, and other selected herbaria.

Two years later, Alice Eastwood (1929) published a paper in the *Proceedings of the California Academy of Sciences* entitled, “Studies in the flora of Lower California and adjacent islands.” Unaccountably, her “adjacent islands” did not include the familiar islands of the Gulf of California but rather referred to the more distant Cedrus and Guadalupe islands in the Pacific off the coast of the peninsula, and the Tres Marias islands located about 360 km southeast of the tip of the peninsula. The latter have never been considered as being associated with Baja California, and possess a tropical flora only remotely allied to the flora of Baja California. In this paper Eastwood included both Nelson's and Ferris's earlier published lists.

In 1937, Djed Bórquez [Ing. Juan de Dios Bojórquez], using vernacular names, published a list of 54 plants growing on the islands.

During 1939 members of the Allan Hancock Pacific Expedition aboard the *Velero III* reached María Magdalena Island on May 9, and Francis H. Elmore, botanist on the expedition, collected ten species (Gentry 1949). His collections are at USC and MICH. In an interesting aside, Gentry commented on the fact that “One of the most conspicuous dominants originally was Spanish cedar, *Cedrela*, which oddly enough, although still living upon the islands, has never been collected [by a botanist].”

In 1986, Frenaldo Chiang Cabrera of the Instituto de Biología, UNAM, collected on María Madre and María Magdalena islands between 12 November and 4 December. His collections are at MEXU. Others who have collected briefly on the islands in recent years include Alfonso Valiente Banuet and Oswaldo Téllez

V., both of the Instituto de Biología, UNAM and their collections are at MEXU.

CLIMATE

Grayson appears to have been the first to describe the climate of the islands which were, according to him, subhumid, tropical, maritime, and equable with a bimodal pattern of rainfall; rainy summers and dry winters and spring, but with their maritime position ameliorating the long dry season. Figure 3 shows the climates of San José de Cabo, María Madre Is., and San Blas according to the Köppen system as modified for México by García (1981). Figure 4 shows annual temperature and precipitation for three stations; San José del Cabo, María Madre Island, and San Blas, Nayarit. Although separated by relatively short distances, the contrast in climate between the three areas is significant and is reflected in the vegetation.

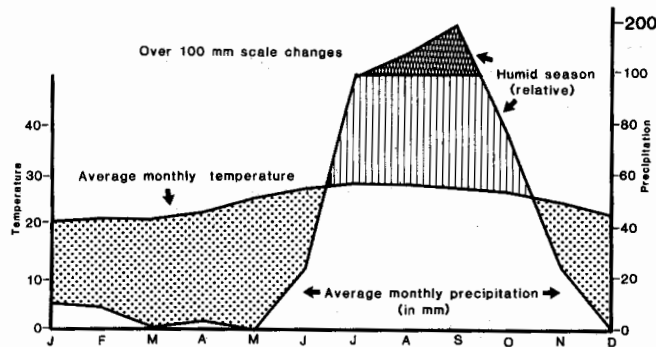
San José del Cabo	$BW(h^1)w(e)$
María Madre Is.	$BS_1(h^1)w(w)(e)$
San Blas	$Aw_2(w)(i^1)$

Fig. 3. Climate at three stations according to the Köppen system as modified for México by García (1981). BW, very acid climate;  $BS_1$ , semiarid climate; A, tropical rainy climate, average annual high temperature > 22 C. average annual temperature of the coldest month > 18 C, w(w), in arid and subarid climates with a precipitation/temperature ratio P/T of < 22.9, less than 5 % of the annual precipitation occurs during the winter;  $w_2(w)$ , in subhumid climates with a precipitation/temperature P/P ratio of > 55, less than 5 % of the annual precipitation is received during the winter; ( $h^1$ ), average annual temperature of the hottest month is over 22 C, and the coldest month over 18 C; (e), extreme climatic deviations possible; ( $i^1$ ) climate with small fluctuations.

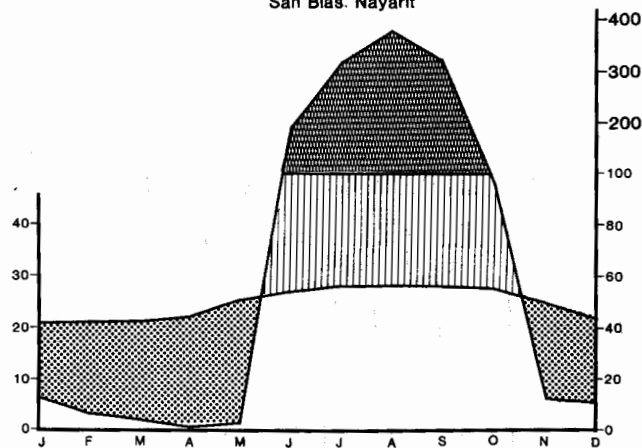
STATISTICS

In the following catalogue 398 taxa are accounted for, distributed in 80 families and 255 genera. The largest families are Euphorbiaceae with 37 taxa, and Poaceae with 34, followed by the Asteraceae with 23 taxa; 25 families are monotypic (32%), and 179 genera are monotypic (71%). Only 18 species are endemic to the islands (.047%). Due to the proximity of the Tres Marias islands to mainland México this might be expected. The family with the greatest percentage of endemics is the Rutaceae with eight species, four of them endemic, with four species belonging to the genus *Zanthoxylon*. No modern flora of Nayarit is available, but a comparison might be made with the flora of the Cape Region of Baja California Sur (Lenz 1992) where 71 species (18%) are common to both areas; if the widespread grasses are excluded the percentage is 14%.

Isla María Madre, Nayarit



San Blas, Nayarit



San José del Cabo

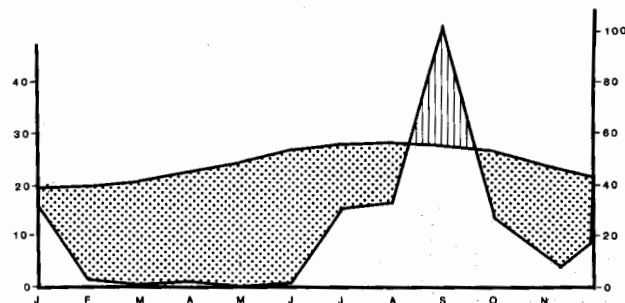


Fig. 4. Average annual rainfall and temperature for three stations, María Madre Is.; San Blas, Nayarit; and San José del Cabo. Source: García (1981).

In the following catalogue plant families follows Thorne (1992); herbarium abbreviations conform to those published in Index Herbariorum, 7th ed., *Reg. veg.* 106: 355-417. Abbreviation of authors' names is that of R. K. Brummitt and C. E. Powell, eds., *Authors of plant names*, 1992.

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In the preparation of this list I have received valuable assistance from the staff at the Herbario Nacional, Instituto de Biología, UNAM, and wish to express to them my sincerest appreciation for their help and hos-

pitality. I wish especially to thank José Luis Villaseñor Rios, Jefe; to Fernando Chiang Cabrera who graciously shared with me his notes on the islands; to technician Lupita Segura who kindly pulled specimens for me; and to Ismael Calzada who skillfully chauffeured me through the city traffic.

### Catalogue of Plants

(\* = endemic)

#### ADIANTACEAE

- Adiantum concinnum** Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson* 4273 (US).  
**Adiantum poiretii** Wikstr., María Madre Is., *Ferris* 5652 (DS).  
**Adiantum tenerum** Sw., María Madre Is., *E. W. Nelson* 4281 (US).  
**Adiantum trapezoides** Fée, María Madre Is., *Ferris* 5704 (DS); María Magdalena Is. *H. Mason* 1822 (CAS).  
**Ceropteris calomenalis** (L.) Under., María Madre Is., *E. W. Nelson* 4333 (US).  
**Coniogramme americana** Maxon, María Madre Is., *Ferris* 5712 (DS).  
**Pellaea seemanni** Hook., María Madre Is., *Ferris* 5706 (DS).  
**Pteris longifolia** L., María Madre Is., *E. W. Nelson* 4201 (US).

#### ASPLENIACEAE

- Aspidium trifoliatum* Swartz., *E. W. Nelson* 4280, = **Tectaria heraceifolia** (Willd.) Underw.  
**Aspidium patens** Sw., María Magdalena Is., *E. W. Nelson* 4316 (US).  
**Dryopteris karwinskyana** (Mett.) Kuntze, María Madre Is., *Ferris* 5711 (DS).  
**Tectaria heraceifolia** (Willd.) Underw., María Madre Is., *E. W. Nelson* 4280 (US).

#### ZAMIACEAE

- Zamia loddigesii* Miq. *E. W. Nelson* 4329 (US) = **Zamia paucijuga** Wieland.  
**Zamia paucijuga** Wieland, *E. W. Nelson* 4329 (US), María Cleofa Is.

#### AGAVACEAE

- Agave pacifica* Trel., *H. Mason* 1756 = **Agave rhodacantha** Trel.  
**Agave rhodacantha** Trel., María Madre Is., *Maltby* 126 (US), *E. W. Nelson* 4264 (US), *H. Mason* 1756 (CAS), *Solis* s.n. (MEXU).

#### ARACEAE

- ?**Philodendron polytomum** Schott., *Ferris* 6249 (DS), María Madre Is.

#### BROMELIACEAE

- Hechtia** sp., *H. Mason* 1755 (CAS).  
**Tillandsia balbisiana** Schult. f., María Madre Is., *H. Mason* 1722 (CAS).  
**Tillandsia circinnata** Schl., María Madre Is., *H. Mason* 1719, 1765 (CAS).  
**Tillandsia fasciculata** Swartz., María Madre Is., *Ferris* 5635 (DS), *H. Mason* 1764 (CAS).  
**Tillandsia juncea** Le Conte, María Madre Is., *H. Mason* 1723 (CAS).

#### COMMELINACEAE

- Commelina erecta** L., María Madre Is., *Ferris* 5685 (DS).  
*Commelina virginica* L., *Ferris* 5685. = **Commelina erecta** L.  
*Tinantia modesta* T.S. Brandege, *Ferris* 5703 = **Tradescantia pringlei** S. Wats.  
**Tinantia modesta** T.S. Brandege, María Madre Is., *Ferris* 5703 (DS, US).  
**Tradescantia pringlei** S. Wats., María Madre Is., *Ferris* 5703 (DS).

#### CYPERACEAE

- Cyperus brunneus** Schwartz., María Madre Is., *Ferris* 5678 (DS).  
**Cyperus cayennensis** (Lam.) Britton, María Madre Is., *Ferris* 5567, 5664 (DS).  
**Cyperus compressus** L., María Madre Is., *Ferris* 5650 (DS).  
**Cyperus incompletus** Link, María Madre Is., *E. W. Nelson* 4259 (US).  
**Cyperus ligularis** L., María Cleofa Is., *E. W. Nelson* 4330 (US).  
**Cyperus ottonis** Boeck., María Madre Is., *Ferris* 5737 (DS).  
**Cyperus tenerrimus** J. & C. Presl, María Madre Is., *Ferris* 5718 (DS).

#### ORCHIDACEAE

- Oncidium** sp., María Magdalena Is. *H. Mason* 1823 (CAS).

#### POACEAE

- Aristida ternipes** Cav., María Madre Is., *Ferris* 5724 (DS).  
**Arundo donax** L., María Cleofa Is., *E. W. Nelson* 4332 (US).  
**Bouteloua aristidoides** (Humb., Bonpl. & Knuth) Griseb., María Madre Is., *Ferris* 5753 (DS).  
**Cenchrus ciliaris** L., María Magdalena Is., *Chiang* 1070 (MEXU).  
**Cenchrus echinatus** L., María Madre Is., *Ferris* 5725 (DS).

- Chaetochloa grisebachii** (Fourn.) Scribn., María Madre Is., *Ferris 5574* (DS).
- Chaetochloa macrostachya** (Humb., Bonpl. & Knuth) Scribn. & Merr., María Madre Is., *Ferris 5755* (DS).
- Dactyloctenium aegyptium** (L.) Beauv., María Madre Is., *E. W. Nelson 4295, 4256*; María Magdalena Is., *E. W. Nelson 4317* (US).
- Eleusine indica** Gaertn., María Madre Is., *E. W. Nelson 4305* (US).
- Eragrostis ciliaris** (L.) Link, María Madre Is., *Ferris 5641* (DS); María Magdalena Is., *Chiang 1069* (MEXU).
- Jouvea pilosa** (Presl.) Scribn., María Madre Is., *Ferris 5587* (DS).
- Lasiacis divaricata** (L.) Hitchc., María Madre Is., *Ferris 5656* (DS).
- Lasiacis ruscifolia** (Knuth) Hitch. var. **ruscifolia**, María Magdalena Is., *H. Mason 1818* (CAS).
- Oplismenus burmanni** (Retz.) Beauv., María Madre Is., *Ferris 5674* (DS).
- Panicum brevifolium** L., María Madre Is., *E. W. Nelson 4257* (US).
- Panicum fasciculatum** Schwartz, María Madre Is., *Ferris 5675a* (DS).
- Panicum ramosum** L., María Madre Is., *Ferris 5675* (DS).
- Panicum trichoides** Schwartz, María Madre Is., *Ferris 5701, 5605* (DS); María Magdalena Is., *Chiang 1076* (MEXU).
- Pappophorum alopecuroideum** Vahl, María Madre Is., *Ferris 5616* (DS).
- Sporobolus argutus** (Nees) Kunth., María Madre Is., *Ferris 5615* (DS).
- Syntherisma sanguinalis** (L.) Dulac, María Madre Is., *Ferris 5642* (DS).
- Uniola pittieri** Hack., María Magdalena Is., *Chiang 1035* (MEXU).

## ACANTHACEAE

- Carlowrightia arizonica** A. Gray, María Magdalena Is., *Chiang 1073* (MEXU).
- Elytraria squamosa** (Jacq.) Lindau, *Ferris 5645* (DS), María Madre Is., *H. Mason s.n.* (CAS).
- \***Justicia nelsonii** (Greenm.) TYPE: *E. W. Nelson 4246* (US), María Madre Is., 3–25 May 1897.
- Justicia** sp., María Madre Is., *Ferris 5692* (DS).

## ACHATOCARPACEAE

- Phaulothamnus spinescens** A. Gray, María Madre Is., *Ferris 5564* (DS), *H. Mason 1741* (CAS); María Magdalena Is., *Chiang 1033* (MEXU).

## AIZOACEAE

- Trianthema portulacastrum** L., María Madre Is., *Ferris 5734* (DS).

## AMARANTHACEAE

- Achyranthes aspera** L., María Magdalena Is., *H. Mason 1814* (CAS).
- Amaranthus brandegeei** Stand., María Madre Is., *Ferris 5649* (DS).
- Amaranthus** sp., María Madre Is., *Ferris 5620* (DS).
- Celosia nitida** Vahl., María Madre Is., *Ferris 5648* (DS).
- Gomphrena sonora** Torr., María Madre Is., *Ferris 5606* (DS).
- Iresine interrupta** Benth., María Madre Is., *H. Mason 1812* (CAS), *E. W. Nelson 4234* (US), *Solis 13* (MEXU).

## APOCYNACEAE

- Macroscopus obovata** Humb., Bonpl. & Knuth, María Madre Is., *Ferris 5577* (DS).
- Macroscopus edulis** S. Wats., María Madre Is., *H. Mason 1792* (CAS).
- Macroscopus obovata** Humb., Bonpl. & Knuth, María Madre Is., *H. Mason 1701* (CAS).
- Plumeria acutifolia* Poir., *Ferris 5633* = **Plumeria rubra** L.
- Plumeria rubra** L., María Madre Is., *Ferris 5633* (DS).
- Prestonia mexicana** A. DC., María Madre Is., *Téllez 4129* (MEXU).
- Rauwolfia canescens* L., *H. Mason 1839* = **Rauwolfia tetraphylla** L.
- Rauwolfia tetraphylla** L., María Madre Is., *H. Mason 1839* (CAS, US), *Solis 89* (US).
- Tabernaemontana** aff. **chrysoarpa** Blake, María Magdalena Is., *Chiang 1086* (MEXU).
- Thevia ovata** (Cav.) A.D.C., María Madre Is., *Ferris 5684* (DS), *Téllez 4129* (MEXU); María Magdalena Is., *Chiang 1186* (MEXU).

## ARALIACEAE

- Gilbertia insularis* Rose, *E. W. Nelson 4282* = **Dendropanax insulare** (Rose) R.C. Schneid.
- \***Dendropanax insulare** (Rose) R.C. Schneid, María Madre Is., *E. W. Nelson 4282* (US).

## ARISTOLOCHIACEAE

- Aristolochia pardina* Duch., *E. W. Nelson 4304* = **Aristolochia taliscana** Hook. & Arn.
- Aristolochia taliscana** Hook. & Arn., María Madre Is., *Ferris 5685, 5686?* (DS), *H. Mason 1697, 1778* (CAS, F), *E. W. Nelson 4304* (US).



\**Aristolochia tresmariae* Ferris, TYPE: *Ferris* 5689 (DS #145723), María Madre Is., Oct. 21–27, 1925. ISOTYPES MO, GH, US), *H. Mason* 1788 (CAS, F, GH, US).

## ASTERACEAE

- Ambrosia maritima* L., María Madre Is., *Chiang* 982 (MEXU).  
*Baccharis glutinosa* Pers., María Madre Is., *E. W. Nelson* 4291 (US).  
*Bidens reptans* (L.) G. Don. var. *urbanii*, María Madre Is., *Chiang* 1117 (MEXU).  
*Calea urticifolia* (Mull.) DC., María Madre Is., *Téllez* 4149 (MEXU).  
*Conyza lyrata* Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson* 4290, 4312 (US).  
*Decachaeta haenkeana* DC., María Madre Is., *Ferris* 5716 (DS, MEXU).  
*Eupatorium collinum* DC., María Madre Is., *E. W. Nelson* 4199 (US).  
*Eupatorium quadrangulare* DC., María Madre Is., *Ferris* 5696 (DS), *Téllez* 4141 (MEXU).  
*Eupatorium* sp., *E. W. Nelson* 4225 (US).  
*Eupatorium* sp., *E. W. Nelson* 4244 (US).  
*Melampodium flaccidum* Benth., *Ferris* 5638 = *Melampodium divaricatum* (Rich.) DC.  
*Melampodium divaricatum* (Rich.) DC., María Madre Is., *Ferris* 5638 (DS).  
*Mikania cordifolia* Willd., María Madre Is., *E. W. Nelson* 4299 (US).  
*Montanoa rosei* Robins. & Greenm., María Madre Is., *Téllez* 4159 (MEXU).  
*Parthenium hysterophorus* L., María Madre Is., *E. W. Nelson* 4267 (US).  
*Pectis arenaria* Benth., María Madre Is., *Ferris* 5741 (DS); María Magdalena Is., *Chiang* 1034 (MEXU).  
*Pectis linifolia* L., María Madre Is., *Ferris* 5634 (DS).  
*Perityle microglossa* Benth. var. *microglossa*, María Madre Is., *E. W. Nelson* 4266 (US), *Téllez* 4146 (MEXU); María Magdalena Is., *Chiang* 1095 (MEXU), *Maltby* 175 (NY, US).  
*Pluchea odorata* Cass., María Madre Is., *H. Mason* 1773 (CAS, F, GH), *E. W. Nelson* 4181 (US).  
*Porophyllum nummularium* DC., María Madre Is., *E. W. Nelson* 4292 (US).  
*Porophyllum punctatum* (Mill.) Blake, María Magdalena Is., *Chiang* 1095 (MEXU), *H. Mason* 1797 (CAS).  
*Trixis pterocaulis* B.L. Rob. & Greenm., María Madre Is., *Chavez & Villamar* s.n. (MICH), *Ferris* 5593 (DS, GH, US), *Howell* 5593 (CAS, US), *Maltby* 48 (NY, US), *H. Mason* 1758 (CAS, GH, MICH, US), *E. W. Nelson* 4191 (GH, US), *Solis* 65 (US); María Cleofas Is., *E. W. Nelson* 4331 (US); María Magdalena Is., *Chiang* 1098 (MEXU).

*Trixis wrightii* B.L. Rob. & Greenm., *Ferris* 5593 = *Trixis pterocaulis* B.L. Rob. & Greenm.  
*Veronica canescens* Humb., Bonpl. & Knuth, María Madre Is., *Ferris* 5713 (DS).

## BATACEAE

*Batis maritima* L., María Magdalena Is., *E. W. Nelson* 4327 (US).

## BEGONIACEAE

*Begonia californica brevibracteata* Ferris var. nov. TYPE: *Ferris* 5708 = *Begonia palmeri* S. Wats.  
*Begonia palmeri* S. Wats., María Madre Is., *Ferris* 5708 (DS).

## BIGNONIACEAE

*Bignonia aequinoctialis* L., María Madre Is., *E. W. Nelson* 4301 (US); María Magdalena Is., *E. W. Nelson* 4324 (US).

## BOMBACACEAE

*Ceiba aesculifolia* (Humb., Bonpl. & Knuth) Britten & Baker, María Madre Is., *Ferris* 6260 (DS), *H. Mason* 1768 (CAS).

## BORAGINACEAE

- Cordia cana* Mart. & Gal., María Madre Is., *Ferris* 5629 (DS), *H. Mason* 1779 (CAS).  
 \**Cordia insularis* Greenman. TYPE: *E. W. Nelson* 4296 (US), María Madre Is., May 3–25, 1897.  
*Cordia sonorae* Rose, *E. W. Nelson* 4207 (US).  
*Cordia tinifolia* Willd., María Madre Is., *H. Mason* 1740 (CAS).  
*Heliotropium curassavicum* L., María Madre Is., *E. W. Nelson* 4313 (US).  
*Heliotropium indicum* L., María Madre Is., *H. Mason* 1715 (CAS), *E. W. Nelson* 4253 (US).  
*Heliotropium parviflorum* L., María Madre Is., *H. Mason* 1717 (CAS).  
*Heliotropium phyllostachyum* Torr., María Madre Is., *Ferris* 5750 (DS).  
*Tournefortia candida* Walp., María Madre Is., *E. W. Nelson* 4217, 4229 (US).  
*Tournefortia cymosa* L., María Madre Is., *E. W. Nelson* 4189 (US).  
*Tournefortia glabra* L., María Madre Is., *H. Mason* 1729 (CAS).  
*Tournefortia hirsutissima* L., María Madre Is., *H. Mason* 1781 (CAS).  
*Tournefortia velutina* Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson* 4209 (US).  
*Tournefortia volubilis* L., María Madre Is., *H. Mason* 1712 (CAS).

## BUDDLEJACEAE

**Buddleia sessiliflora** Humb., Bonpl. & Knuth, María Madre Is., *H. Mason 1780* (CAS).

## BURSERACEAE

**Bursera arborea** (Rose) Riley, María Magdalena Is., *Chiang 1067* (MEXU).

*Bursera gummifera* Jacq., *E. W. Nelson 4227* = **Bursera simaruba** Sarg.

**Bursera simaruba** Sarg., María Madre Is., *H. Mason 1767* (CAS), *E. W. Nelson 4227* (US).

## BUXACEAE

\***Buxus pubescens** Greenm. TYPE: *E. W. Nelson 4221* (US), María Madre Is., 25 May 1897; *Chiang 1131* (MEXU), *Ferris 5676* (DS), *H. Mason 1836* (CAS).

## CACATACEAE

**Cephalocereus purpusi** Britt. & Rose, María Madre Is., *Ferris 6266* (DS).

*Lemaireocereus* sp., María Madre Is., *Ferris 6267* = **Stenocereus** sp.

**Mammillaria** sp., María Madre Is., *Ferris 5748* (DS).

*Neomammillaria* sp., *Ferris 5748* = **Mammillaria** sp.

**Opuntia** sp., María Madre Is., *Ferris 5576* (DS), *E. W. Nelson 4263, 4286* (US).

**Pachycereus pecten-arboriginum** (Engelm.) Britt. & Rose, María Madre Is., *Ferris 5744* (DS).

**Selenicereus vagans** (K. Brandege) Britt. & Rose, María Madre Is., *Ferris 6251* (DS).

## CAPPARIDACEAE

**Capparis flexuosa** L., María Magdalena Is., *Chiang 981* (MEXU).

**Crataeva tapia** L., María Madre Is., *E. W. Nelson 4274* (US); María Magdalena Is., *Chiang 1027* (MEXU).

\***Forchammeria sessilifolia** Standl., TYPE: *E. W. Nelson 4239* (US), María Madre Is., *H. Mason 1734* (CAS).

## CELASTRACEAE

**Agonandra racemosa** (DC.) Standl., *H. Mason 1786, 1777* = **Schaefferia racemosa** DC.

**Elaeodentron trichotomum** (Turcz.) Lundell, María Magdalena Is., *Chiang 1024* (MEXU).

**Elaeodentron xylocarpum** (Turcz.) Lundell, María Magdalena Is., *Chiang 989* (MEXU).

**Hippocratea** sp., María Magdalena Is., *E. W. Nelson 4226* (US).

**Schaefferia racemosa** DC., María Madre Is., *H. Mason 1786, 1777* (CAS).

## COMBRETACEAE

**Conocarpus erectus** L., María Madre Is., *H. Mason 1785* (CAS), *E. W. Nelson 4220* (US).

## CONVOLVULACEAE

**Cuscuta macrocephala** Schaffner, María Madre Is., *Ferris 5561* (DS).

**Ipomoea bona-nox** L., María Madre Is., *E. W. Nelson 4269* (US).

**Ipomoea coccinea** L., María Madre Is., *Ferris 5658* (DS).

**Ipomoea hederacea** (L.) Jacq., María Madre Is., *Ferris 5644* (DS).

**Ipomoea hederifolia** L., María Madre Is., *Chiang 1151* (MEXU).

**Ipomoea minutiflora** House, María Madre Is., *Ferris 5639* (DS).

**Ipomoea pedicellaris** Benth., María Madre Is., *Ferris 5572* (DS).

**Ipomoea peduncularis** Bertol., María Madre Is., *E. W. Nelson 4235* (US).

**Ipomoea pes-caprae** (L.) Roth., María Madre Is., *Ferris 5746* (DS).

**Ipomoea pinnata** (Desv.) Boj., María Madre Is., *Ferris 6250* (DS).

**Ipomoea trilobata** L., María Madre Is., *Ferris 5597* (DS).

**Jacquemontia pentantha** (Jacq.) G. Don., María Madre Is., *Chiang 1124* (MEXU), *Ferris 5671* (DS), *E. W. Nelson 4251* (US).

*Jacquemontia violacea* (Vahl) Choisy, *E. W. Nelson 4251* = **Jacquemontia pentantha** (Jacq.) G. Don.

**Operculina alatipes** (Hook.) House, María Madre Is., *Ferris 5657* (DS).

*Quamoelit coccinea* (L.) Moench., *Ferris 5658* = **Ipomoea coccinea** L.

*Quamoelit pinnata* Hochst. ex Choisy in DC., *Ferris 6250* = **Ipomoea pinnata** (Desv.) Boj.

## CUCURBITACEAE

**Corallocarpus emetocatharticus** (Cogn.) Grosourdy, María Madre Is., *Ferris 5621* (DS), *H. Mason 1709* (CAS).

**Mormodica charantia** L., María Madre Is., *Chiang 1123* (MEXU).

**Polyclathra cucumerina** Bertol., María Madre Is., *Chiang 1195* (MEXU).

**Sicyos** sp., *Chiang 1149* (MEXU).

## ERYTHROXYLACEAE

**Erythroxylon mexicanum** Humb., Bonpl. & Knuth, María Madre Is., *Ferris 5732* (DS).

## EUPHORBIACEAE

- Acalphya setosa** A. Rich., María Madre Is., *Ferris* 5653 (DS).
- Acalypha** sp., María Madre Is., *E. W. Nelson* 4260 (US).
- \***Acalypha verbenacea** Standl. HOLOTYPE: *Ferris* 5669 (DS #145739, ISOTYPE US #1265992), María Madre Is., Oct. 23, 1925.
- \***Astrocasia peltata** Standl., HOLOTYPE: *Ferris* 5571 (DS #145704, ISOTYPE US #1265991), María Madre Is., Oct. 21, 1925; *E. W. Nelson* 4215 (US).
- Bernardia mexicana** (Hook. & Arn.) Muell., María Madre Is., *Ferris* 5627 (DS).
- Celaenodendron mexicanum** Standl., María Madre Is., *Ferris* 6261 (DS).
- Chamaesyce adenoptera** Small, María Madre Is., *Ferris* 5651 (DS).
- Chamaesyce hirta** (L.) Millsp., María Madre Is., *Ferris* 5626 (DS).
- Chamaesyce incerta** Millsp., María Magdalena Is., *H. Mason* 1800 (CAS).
- Croton ciliato-glandulosus** Ort., María Madre Is., *E. W. Nelson* 4218 (US).
- Croton fragilis** Kunth, María Madre Is., *Ferris* 5601 (DS).
- \***Croton roxannae** Croizat, TYPE: *Ferris* 5601 (A), María Madre Is.
- Croton volubilis** L., María Madre Is., *Ferris* 5655 (DS).
- Ditaxis lanceolata** (Benth.) Pax. & Hoffm., María Madre Is., *H. Mason* 1790 (CAS).
- Euphorbia adenoptera* Bertol., *Ferris* 5651 = **Chamaesyce adenoptera** Small.
- Euphorbia graminea** Jacq., María Madre Is., *Ferris* 5702 (DS).
- Euphorbia hirta* L., *Ferris* 5626 = **Chamaesyce hirta** (L.) Millsp.
- Euphorbia incerta* T.S. Brandegees, *H. Mason* 1800 = **Chamaesyce incerta** Millsp.
- Euphorbia nelsonii* Millsp., TYPE: *E. W. Nelson* 4294, not 4284 as published = **Euphorbia schlechten-dalii** Boiss.
- Euphorbia plicata** S. Wats., María Madre Is., *H. Mason* 1724 (CAS).
- Euphorbia schlechten-dalii** Boiss., María Madre Is., *Ferris* 5609 (DS), *E. W. Nelson* 4294 (US).
- Euphorbia** sp., María Madre Is., *Ferris* 5640 (DS).
- Euphorbia** sp., María Madre Is., *Ferris* 5672 (DS).
- Euphorbia** sp., María Madre Is., *E. W. Nelson* 4268 (US).
- Euphorbia** sp., María Madre Is., *E. W. Nelson* 4215 (US).
- Euphorbia subcaerulea tresmariae* Mills., *E. W. Nelson* 4298, 4202 = **Euphorbia tresmariae** (Millsp.) Standl.

- \***Euphorbia tresmariae** (Millsp.) Standl., TYPE: *E. W. Nelson* 4298? or 4202? (US), María Madre Is., May 3–25, 1897.
- Garcia nutans** Rohr., María Madre Is., *E. W. Nelson* 4228 (US).
- \***Gymnanthes insolita** Ferris, TYPE: *Ferris* 5695 (DS #145666), María Madre Is., Oct. 24, 1925.
- Hippomane mancinella** L., María Magdalena Is., *Chiang* 1023 (MEXU).
- Jatropha** sp., María Madre Is., *Ferris* 5710 (DS).
- Manihot carthaginensis** (Jacq.) Muell., María Madre Is., *Ferris* 5745 (DS).
- Pedilanthus* sp., *Ferris* 5700 = **Pedilanthus calcaratus** D.H.R. Schltd.
- Pedilanthus calcaratus** D.H.R. Schltd., María Madre Is., *Ferris* 5700 (DS).
- Phyllanthus adenodiscus** Muell., María Madre Is., *Ferris* 5697, 5575 (DS), *H. Mason* 1706 (CAS); María Magdalena Is., *Chiang* 1099 (MEXU).
- Phyllanthus micrandus** Muell., María Madre Is., *Ferris* 5647, 5569 (DS).
- Sapium pedicellatum** Huber, María Madre Is., *Ferris* 5663 (DS).
- Tragia pacifica** McVaugh., María Madre Is., *Ferris* 5655 (US).

## FABACEAE

- Acacia angustissima** (Mill.) Kuntze var. **angustissima**, María Madre Is., *Chiang* 1184 (MEXU), *Ferris* 5679, 5610 (DS); María Magdalena Is., *Chiang* 1068 (MEXU).
- Acacia cymbaspina** Sprague & Riley, María Madre Is., *Ferris* 5646 (DS).
- Acacia filicoides** (Cav.) Trel., María Madre Is., *Ferris* 5679, 5610 (DS).
- Acacia macrantha** Humb. & Bonpl. ex Willd., María Madre Is., *Chiang* 1194 (MEXU).
- Acacia pennatula** (S. & G.) Benth., María Madre Is., *H. Mason* 1840 (CAS).
- Acacia** sp., María Madre Is., *E. W. Nelson* 4188 (US).
- Acaciella ferrisiae* Britton & Rose = **Acacia angustissima** (Mill.) Kuntze var. **angustissima**.
- Albizzia occidentalis** T.S. Brandegees, María Madre Is., *Chiang* 977 (MEXU), *Ferris* 5727, 5592 (DS), *H. Mason* 1757 (CAS), *E. W. Nelson* 4252 (US); María Magdalena Is., *Chiang* 1153 (MEXU).
- \***Ateleia insularis** Standl., María Madre Is., TYPE: *E. W. Nelson* 4186 (US #345929), *Ferris* 5573, 5742 (DS), *Maltby* 73 (US), *H. Mason* 1843 (CAS), *Téllez* 1118, 1188, 4172 (MEXU).
- Bauhinia herrerae** (Britton & Rose) Standl. & Steyer-m., María Madre Is., *Téllez* 4144 (MEXU); María Magdalena Is., *Chiang* 1007 (MEXU).
- Bauhinia** sp., María Madre Is., *E. W. Nelson* 4300 (US).

- Caesalpinia bonduc** (L.) Roxb., María Magdalena Is., *Chiang 1022* (MEXU).
- Caesalpinia crista** L., María Magdalena Is., *H. Mason 1802* (CAS).
- Canavalia brasiliensis** Mart. ex Benth., María Madre Is., *Chiang 1114* (MEXU), *Ferris 5579* (DS), *E. W. Nelson 4190* (US), *Téllez 4160* (MEXU); María Magdalena Is., *Chiang 1019* (MEXU).
- Canavalia maritima** (Aubl.) Thouars, María Madre Is., *Ferris 5735* (DS), *H. Mason 1794* (CAS); María Magdalena Is., *Chiang 1104* (MEXU).
- Canavalia mexicana* Piper, *Ferris 5579* = **Canavalia brasiliensis** Mart. ex Benth.
- Canavalia rosea* (Swartz) DC., *Chiang 1104* = **Canavalia maritima** (Aubl.) Thouars.
- Cassia atomaria* L. = **Senna atomaria** (L.) Irwin & Barneby.
- Cassia biflora* L., *H. Mason 1762*, *E. W. Nelson 4194*, *4196* = **Senna pallida** (Vahl) Irwin & Barneby.
- Cassia emarginata* L., *H. Mason 1738* = **Senna bicapsularis** (L.) Roxburgh.
- Cassia occidentalis* L., *H. Mason 1718* = **Senna occidentalis** (L.) Link.
- Cassia emarginata* L., *E. W. Nelson 4192*, *4297* = **Senna candolleana** (Vogel) Irwin & Barneby is a Chilean sp. E.W. Nelson's nos. are not identified in Irwin & Barneby.
- Cassia tora* L. *Ferris 5631* = **Senna obtusifolia**.
- Chamaecrista nictitans** (L.) Moench ssp. **nictitans** var. **jaliscensis** (Greenm.) Irwin & Barney, María Madre Is., *Chiang 1162* (MEXU).
- Cracca arcuata* Rydb., *E. W. Nelson 4193* = **Tephrosia multifolia** Rose.
- Crotalaria lupulina** Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson 4248* (US).
- Crotalaria pumila** Ortega, María Madre Is., *Ferris 5668* (DS).
- Dalea carthagenensis** (Jacq.) McBride, María Magdalena Is., *Chiang 1059* (MEXU).
- Desmanthus virgatus** (L.) Willd., María Madre Is., *Chiang 1181* (MEXU); María Magdalena Is., *Chiang 1177* (MEXU).
- Desmodium procumbens** (Mill.) Hitch. var. **procumbens**, María Magdalena Is., *Chiang 1072* (MEXU).
- Desmodium scorpiuris** (Sw.) Devaux., María Madre Is., *Téllez 4158* (MEXU).
- Desmodium* sp., María Madre Is., *E. W. Nelson 4287* = ? **Meibomia procumbens** (Mill.) Britt., fide Standl. in Eastwood.
- Entadopsis polystachya** (L.) De Wit., María Madre Is., *Chiang 1179* (MEXU); María Magdalena Is., *Chiang 1102* (MEXU).
- Entrada polystachia** (L.) DC. *Ferris* (observed).
- Erythrina lanata* Rose = **Erythrina lanata** Rose ssp. **occidentalis** (Standl.) Krukoff & Barneby.
- Erythrina occidentalis* Standl., *Ferris 6252*, *H. Mason 1787* = **Erythrina lanata** Rose ssp. **occidentalis** (Standl.) Krukoff & Barneby.
- Erythrina lanata** Rose ssp. **occidentalis** (Standl.) Krukoff & Barneby, María Madre Is., *Chiang 1161* (MEXU), *Ferris 6252* (DS), *Maltby* (US), *E. W. Nelson 4303* (US), *Téllez 4140* (MEXU).
- Galactia striata** (Jacq.) Urb., María Magdalena Is., *H. Mason 1820* (CAS).
- Indigofera salmoniflora** Rose, María Madre Is., *Ferris 5654* (DS, MEXU); María Magdalena Is., *Chiang 1087* (MEXU).
- Indigofera suffruticosa** Mill., María Madre Is., *Chiang 1190* (MEXU).
- Leucaena leucocephala** (Lam.) De Wit., María Madre Is., *Chiang 1157* (MEXU).
- Lonchocarpus sericeus** (Poir.) DC. var. **palmeri** (Rose) M. Sousa., María Magdalena Is., *Chiang 998* (MEXU).
- Lonchocarpus** sp., María Madre Is., *E. W. Nelson 4310* (US).
- Lysiloma microphylla** Benth., María Madre Is., *Chiang 1146* (MEXU), *Ferris 5728*, *5659* (DS).
- Meibomia procumbens** (Mill.) Britton, María Madre Is., *Ferris 5603* (DS).
- Mimosa distachya** Cav. **distachya**, María Madre Is., *Chiang 1158* (MEXU), *Ferris 5563* (DS).
- Mimosa ferrisiae* Britton & Rose, María Madre Is., TYPE: *Ferris 5563* = **Mimosa distachya** Cav. **distachya**.
- Nissolia fruticosus** Jacq. var. **fruticosa**, *Ferris 5588* (DS, US).
- Phaseolus lunatus** L. var. **sylvester** Baudet, María Madre Is., *Chiang 1176* (MEXU).
- Phaseolus** sp., María Magdalena Is., *E. W. Nelson 4319* (US).
- Pithecellobium dulce** Benth., María Madre Is., *E. W. Nelson 4285* (US); María Madre Is., *Téllez 4157* (MEXU); María Magdalena Is., *Chiang 1111* (MEXU).
- Pithecellobium lanceolatum** (Willd.) Benth., María Madre Is., *Ferris 6255* (DS); María Magdalena Is., *E. W. Nelson 4314* (US).
- Pithecollobium leucospermum** T.S. Brandegee, María Madre Is., *Ferris 5625* (DS).
- Pithecollobium mangense** (Jacq.) McBride, María Madre Is., *Chiang 1180* (MEXU); María Magdalena Is., *Chiang 1003*, *1088* (MEXU).
- Pithecollobium tortum* Mart. *Ferris 5625* = **Pithecollobium leucospermum** T.S. Brandegee.
- Prosopis chilensis** (Molina) Stuntz, María Madre Is., *Ferris 5580* (DS), *H. Mason 1725* (CAS).
- Prosopis laevigata** (Humb. & Bonpl. ex Willd.) M.C. Johnston, María Magdalena Is., *Chiang 1061* (MEXU).
- Rhynchosia minima** DC., María Madre Is., *E. W. Nelson 4206* (F, GH, US).

- Rhynchosia precatoria** (Humb., Bonpl. & Knuth ex Willd.) DC., María Madre Is., *E. W. Nelson* 4179 (GH, US).
- Rhynchosia pyramidalis** (Lam.) Urb., María Magdalena Is., *H. Mason* 1819 (CAS).
- Senna alata** (L.) Irwin & Barneby, María Madre Is., *Chiang* 1139 (MEXU).
- Senna atomaria** (L.) Irwin & Barneby, María Madre Is., *Ferris* 5566 (MEXU), *Téllez* 4130 (MEXU); María Magdalena Is., *Chiang* 1000 (MEXU), *H. Mason* 1831 (CAS).
- Senna bicapsularis** (L.) Roxburgh, María Madre Is., *H. Mason* 1738 (CAS).
- Senna hirsuta** (L.) Irwin & Barneby, María Madre Is., *Chiang* 1126 (MEXU); María Magdalena Is., *Chiang* 1005 (MEXU).
- Senna obtusifolia** (L.) Irwin & Barneby, María Magdalena Is., *Chiang* 993 (MEXU).
- Senna occidentalis** (L.) Link, María Madre Is., *H. Mason* 1718 (CAS).
- Senna pallida** (Vahl) Irwin & Barneby, María Madre Is., *H. Mason* 1762 (CAS), *E. W. Nelson* 4194, 4196 (US); María Magdalena Is., *Chiang* 996 (MEXU).
- Tephrosia multifolia** Rose, *E. W. Nelson* 4193 (US), María Madre Is., *Chiang* 1113, 1201 (MEXU), *Téllez* 4131, 4142 (MEXU).

## FLACOURTIACEAE

- Casearia aculeata** Jacq., María Magdalena Is., *E. W. Nelson* 4326 (US).
- Casearia corymbosa** Humb., Bonpl. & Knuth, María Madre Is., *Ferris* 5590 (DS, US); *E. W. Nelson* 4270, 4308 (US).
- Casearia dolichophylla* Standl., *Ferris* 5590 = **Casearia corymbosa** Humb., Bonpl. & Knuth.
- Casearia obovata** Schlecht., María Madre Is., *Ferris* 6256 (DS).
- Myroxylon flexuosum* (Humb., Bonpl. & Knuth) Kuntze, *Ferris* 6262 = **Xylosma flexuosum** (Humb., Bonpl. & Knuth) Hemsley.
- Prockia crucis** L., María Madre Is., *Ferris* 5694 (DS, US), *Howell* 10410 (A, CAS, F, NY, US).
- Xylosma flexuosum** (Humb., Bonpl. & Knuth) Hemsley, María Madre Is., *Ferris* 6262 (DS).

## HERNANDIACEAE

- Hernandia guianensis** Aubl., María Madre Is., *Ferris* s.n. (DS).

## HIPPOCRATEACEAE

- Hippocratea** sp., María Madre Is., *E. W. Nelson* 4226 (US).

## LAMIACEAE

- Hyptis albida** Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson* 4223 (US).
- Hyptis emoryi** Torr., María Madre Is., *H. Mason* 1736 (CAS).
- \***Salvia aliena** Greene, TYPE: collector unknown (UC), María Madre Is., April 1877.
- Salvia hyptoides** Mart. & Gal., María Madre Is., *Ferris* 5705 (DS).
- Salvia mazatlanensis** Fernald, María Madre Is., *Ferris* 5636 (DS).
- Stacyhs coccinea** Jacq., María Madre Is., *E. W. Nelson* 4265 (US).

## LOASACEAE

- Mentzelia aspera** L., María Madre Is., *Chiang* 1154 (MEXU), *Ferris* 5660 (DS).
- Gronovia scandens** L., María Madre Is., *Chiang* 1152 (MEXU).

## MALPIGIACEAE

- Bunchosia palmeri** S. Wats., María Madre Is., *Ferris* 5565 (DS), *H. Mason* 1707 (CAS).
- Heteropteris floribunda** Humb., Bonpl. & Knuth, María Magdalena Is., *E. W. Nelson* 4323.

## MALVACEAE

- Abutilon abutiloides** (Jacq.) Garcke, María Madre Is., *Ferris* 5583 (DS).
- Abutilon dugesii** S. Wats., *H. Mason* 1771 (CAS).
- Abutilon haenkeanum** K. Presl, María Madre Is., *E. W. Nelson* 4203 (US), Maltby 98 (US).
- Abutilon lignosum* (Cav.) Don, *Ferris* 5583 = **Abutilon abutiloides** (Jacq.) Garcke.
- Abutilon reventum* S. Wats., *E. W. Nelson* 4203 = **Abutilon haenkeanum** K. Presl.
- Abutilon** sp., María Madre Is., *Ferris* 5665 (DS).
- Anoda acerifolia** Cav., María Madre Is., *Ferris* 5770 (DS).
- Hibiscus pernambucensis** Arruda, María Magdalena Is., Maltby 172 (US), *E. W. Nelson* 4328a (US).
- Hibiscus tiliaceus* L., *E. W. Nelson* 4328a = **Hibiscus pernambucensis** Arruda.
- Hibiscus tiliaceus** L., María Madre Is., *E. W. Nelson* 4328 (US).
- Malvastrum coromandelianum** (L.) Garcke, María Madre Is., *H. Mason* 1828 (CAS).
- Sida angustifolia* Lam., *Ferris* 5608 = **Sida acuta** Burman. f.
- Sida acuta** Burman f., María Madre Is., *Ferris* 5358, 5400, 5608 (DS).
- Wissadula hirsutiflora** (Presl) Rose, María Madre Is., *E. W. Nelson* 4250 (US).

## MARANTACEAE

**Calathea cyclophora** Baker, María Madre Is., *Ferris* 6263 (DS).

## MELIACEAE

**Cedrela odorata** L., María Madre Is., *Téllez* 4128 (MEXU); María Magdalena Is., *Chiang* 1089 (MEXU).

**Guarea glabra** Vahl, María Madre Is., *Chiang* 1134 (MEXU), *E. W. Nelson* 4220, 4230 (US); María Magdalena Is., *Chiang* 1016 (MEXU).

**Melia azedarach** L., María Madre Is., *Téllez* 4187 (MEXU).

**Trichilia americana** (Sessé & Moç.) Penington, María Magdalena Is., *Chiang* 1040 (MEXU).

**Trichilia hirta** L., María Madre Is., *Chiang* 1144 (MEXU), *Howell* 10514 fr. (A), *H. Mason* 1700, 1737 (CAS), *E. W. Nelson* 4214; María Magdalena Is., *Chiang* 1040 (MEXU).

**Trichilia spondioides** Swartz, *E. W. Nelson* 4214 = **Trichilia hirta** L.

## MENISPERACEAE

**Cissampelos pareira** L., María Madre Is., *Maltby* 151 (NY, US), *H. Mason* 1704, 1775 (CAS), *E. W. Nelson* 4262 (F).

## MORACEAE

**Ficus cotonifolia** Humb., Bonpl. & Knuth, María Madre Is., *Ferris* 5677 (DS).

**Ficus fasciculata** S. Wats., María Madre Is., *E. W. Nelson* 4182 (US).

**Ficus involuta** (Liebm.) Miquel, *Ferris* (DS) = **Ficus obtusifolia** Humb., Bonpl. & Knuth.

**Ficus maxima** P. Miller, María Madre Is., *Ferris* 5681 (DS).

**Ficus mexicana** Miquel, *Ferris* 5681 = **Ficus maxima** P. Miller.

**Ficus obtusifolia** Humb., Bonpl. & Knuth, *Ferris* (DS).

**Ficus padifolia** Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson* 4261 (US), fide Standl.

**Ficus petiolaris** (Liebm.) Miquel, María Madre Is., *Ferris* 5683 (DS).

**Ficus radulina** S. Wats., *E. W. Nelson* 4261 = **Ficus padifolia** Humb., Bonpl. & Knuth.

**Trophis racemosa** (L.) Urban, María Madre Is., *Chiang* 1135 (MEXU).

## MYRTACEAE

**Psidium sartorianum** (Berg.) Nied., María Magdalena Is., *Chiang* 992 (MEXU).

**Psidium** sp., María Madre Is., *E. W. Nelson* 4306 (US).

## NYCTAGINACEAE

**Abronia maritima** Nutt. ex S. Wats., María Magdalena Is., *H. Mason* 1795 (CAS), *Chiang* 982 (MEXU).

**Boerhaavia caribaea** Jacq., María Madre Is., *Ferris* 5607 (DS), *H. Mason* 1714 (CAS), *Rovirosa* s.n. (MEXU).

**Boerhaavia erecta** L., María Madre Is., *Ferris* 5604, 5719 (DS).

**Commicarpus scandens** (L.) Standl., María Madre Is., *Ferris* 5581 (DS), *H. Mason* 1703 (CAS).

**Neea** sp., María Magdalena Is., *Chiang* 1029c (MEXU).

**Pisonia aculeata** L., María Magdalena Is., *Chiang* 1042 (MEXU).

**Salpianthus purpurescens** (Cav. ex Lag.) Hook. & Arn., María Magdalena Is., *Chiang* 1150 (MEXU).

## OCHNACEAE

**Ochna** sp., María Madre Is., *E. W. Nelson* 4238 (US).

**Gomphia mexicana** Humb. & Bonpl., *Chiang* s.n.

## OLACACEAE

**Schoepfia schreberi** F.J. Gmelin, María Madre Is., *Chiang* 1090 (MEXU); María Magdalena Is., *Chiang* 976 (MEXU).

**Ximenia americana** L. var. **americana**, María Madre Is., *H. Mason* 1705, 1830 (CAS), *E. W. Nelson* 4224 (US).

## OXALIDACEAE

**Oxalis** sp., María Madre Is., *Ferris* 6818, 6819 (DS).

## PAPAVERACEAE

**Argemone ochroleuca** Sweet, María Magdalena Is., *H. Mason* 1713 (CAS, K).

## PASSIFLORACEAE

**Passiflora suberosa** L., María Madre Is., *Ferris* 5098? (DS).

**Passiflora holosericea** L., María Madre Is., *Ferris* 5586, 5739 (DS), *Maltby* 55 (NY, US), *E. W. Nelson* 4249 (F, GH, US), *H. Mason* 1711 (CAS, UC, US), *Howell* 10419 (US).

**Passiflora coriacea** Juss., *H. Mason* 1772 (CAS, US).

## PETIVERIACEAE

**Rivinia humilis** L., María Magdalena Is., *Chiang* 991 (MEXU).

## PHYTOLACACEAE

**Phytolacca octandra** L., María Madre Is., *H. Mason* 4293 (CAS), *E. W. Nelson* 4293 (US).

## PIPERACEAE

- Peperomia pellucida** (L.) Humb., Bonpl. & Knuth, María Madre Is., *Ferris* 5707 (DS).  
**Piper aduncum** L., María Madre Is., *E. W. Nelson* 4283 (US).

## PLUMBAGINACEAE

- Plumbago scandens** L., María Madre Is., *Ferris* 5661 (DS).

## POLYGONACEAE

- Antigon leptopus** Hook. & Arn., María Madre Is., *H. Mason* 1698 (CAS), *E. W. Nelson* 4204 (US).  
**Coccoloba leptostachya** Benth., María Magdalena Is., *E. W. Nelson* 4315 (US).  
**Coccoloba schieddeana** Lindau, María Magdalena Is., *Elmore* 1B3 (USC, MICH), *H. Mason* 1806 (CAS).

## PORTULACACEAE

- Portulaca oleracea** L., María Madre Is., *Ferris* 5754 (DS).  
**Talinum paniculatum** (Jacq.) Gaertn., María Madre Is., *Ferris* 5628 (DS).

## RHAMNACEAE

- Columbrina arborea* T.S. Brandege, *E. W. Nelson* 4213 = **Columbrina triflora** Brongn.  
**Columbrina triflora** Brongn., María Madre Is., *Chiang* 978, 1160 (MEXU). *E. W. Nelson* 4213 (US).  
**Gouania stipularis** DC., María Magdalena Is., *Chiang* 1070 (MEXU).  
**Karwinskia humboldtiana** (Roem. & Schult.) Zucc., María Madre Is., *Ferris* 5618 (DS).  
**Karwinskia latifolia** Standl., María Madre Is., *H. Mason* 1833 (CAS); María Magdalena Is., *Chiang* 1044 (MEXU).  
**Zizyphus amole** (Sessé & Moç.) M. C. Johnst., María Madre Is., *Ferris* 5585 (DS), *H. Mason* 1830 (CAS).  
*Zizyphus sonorensis* S. Wats. *Ferris* 5585, *H. Mason* 1830 = **Zizyphus amole** (Sessé & Moç.) M.C. Johnst.

## RHIZOPHORACEAE

- Rhizophora mangle** L., María Magdalena Is., *H. Mason* 1799 (CAS).

## RUBIACEAE

- Chiocca alba** (L.) Hitchc., María Madre Is., *Ferris* 5630, 5722 (DS); María Magdalena Is., *Chiang* 1046 (MEXU).  
**Coutarea pterosperma** (S. Wats.) Standl., María Ma-

dre Is., *Ferris* 5602 (DS); *H. Mason* 1726 (CAS), *E. W. Nelson* 4211 (US).

**Guettarda elliptica** Schartz., María Madre Is., *Ferris* 5723 (DS); María Magdalena Is., *Chiang* 1001 (MEXU).

**Hamelia versicolor** A. Gray, María Madre Is., *Chiang* 1132 (MEXU), *Ferris* 5578 (DS); María Magdalena Is., *Chiang* 1032 (MEXU).

**Hintonia latiflora** (Sessé & Moç.) Bullock, María Madre Is., *Chiang* 1164 (MEXU); María Magdalena Is., *Chiang* 1020 (MEXU).

**Mitracarpus schizangius** DC., María Magdalena Is., *Chiang* 1063 (MEXU).

*Portlandia pterosperma* S. Wats., *E. W. Nelson* 4211 = **Coutarea pterosperma** (S. Wats.) Standl.

**Randia** aff. **cinerea** (Fern.) Standl., María Magdalena Is., *Chiang* 1017 (MEXU).

**Randia induta** Standl., María Madre Is., *Téllez* 4173 (MEXU).

**Randia thurberi** S. Wats., María Madre Is., *Ferris* 5726 (DS); María Magdalena Is., *Chiang* 1058 (MEXU).

## RUTACEAE

**Amyris balsamifera** L., María Magdalena Is., *H. Mason* 1824 (CAS).

**Amyris** sp., María Madre Is., *E. W. Nelson* 4237 (US).

\***Esenbeckia nesiotica** Standl., HOLOTYPE: *Ferris* 5699 (DS #145714; ISOTYPE US #1265994), María Madre Is., Oct. 24, 1925, *Chiang* 1121 (MEXU); María Magdalena Is., *Chiang* 1041 (MEXU).

*Pilocarpus insularis* Rose, TYPE: *E. W. Nelson* 4307 = **Pilocarpus longipes** Rose.

**Pilocarpus longipes** Rose, María Madre Is., *E. W. Nelson* 4307 (US).

**Pilocarpus racemosus** Vahl., María Madre Is., *H. Mason* 1837 (CAS).

**Zanthoxylon culantrillo** Humb., Bonpl. & Knuth, María Madre Is., *Chiang* 1129 (MEXU).

\***Zanthoxylum ferrisiae** Standl., HOLOTYPE: *Ferris* 5690 (DS #145715; ISOTYPE US #1265993), María Madre Is., Oct. 24, 1925.

\***Zanthoxylon insularis** Rose, María Madre Is., TYPE: *E. W. Nelson* 4278 (US).

\***Zanthoxylon nelsoni** Rose, María Madre Is., TYPE: *E. W. Nelson* 4279 (US).

## SAPINDACEAE

**Cardiospermum corindum** L., María Magdalena Is., *E. W. Nelson* 4328 (US).

\***Matayba spondioides** Standl., María Madre Is., HOLOTYPE: *Ferris* 5721 (DS #145740; ISOTYPE US #1265995).

**Paullinia sessiliflora** Radl., María Madre Is., *H. Mason* 1730 (CAS), *E. W. Nelson* 4210 (US).

- Serjania mexicana** Willd., María Madre Is., *H. Mason 1809* (CAS) *E. W. Nelson 4231* (US).  
**Thouinia paucidentata** Radlk., María Madre Is., *Ferris 5617* (DS).  
**Thouinidium decandrum** (Humb. & Bonpl.) Radlk., María Madre Is., *Ferris 5743* (DS), *H. Mason 1832* (CAS).  
**Urvillea ulmacea** Humb., Bonpl. & Knuth, María Madre Is., *E. W. Nelson 4227* (US).

## SCROPHULARIACEAE

- Capraria biflora** L., María Madre Is., *H. Mason 1791* (CAS), *E. W. Nelson 4195* (US).  
*Russelia sarmentosa* Jacq. *E. W. Nelson 4289* = **Russelia tenuis** Lundell.  
**Russelia tenuis** Lundell, María Madre Is., *E. W. Nelson 4289* (US).  
**Russelia tetraptera** Blake, María Madre Is., *Ferris 5614* (DS).  
*Russelia verticillata* Humb., Bonpl. & Knuth, *Ferris 5614* = **Russelia tetraptera** Blake.

## SIMARBOUBACEAE

- Picramnia** sp., María Madre Is., *E. W. Nelson 4276* (US).  
**Reechia mexicana** Sessé & Moç., María Magdalena Is., *Chiang 1049* (MEXU).

## SOLANACEAE

- Bassovia donnell-smithii* J.M. Coulter, *E. W. Nelson 4232* = **Solanum donnell-smithii** J.M. Coulter.  
**Datura discolor** Bernh., María Madre Is., *E. W. Nelson 4197* (US).  
**Nicotiana trigonophylla** Dun, María Madre Is., *H. Mason 1694* (CAS, F, GH, K, NY, UC), *E. W. Nelson 4212* (US).  
**Physalis lagascae** Roem. & Schlecht., María Madre Is., *Ferris 5717* (DS).  
**Physalis nicandroides** Schlecht., María Madre Is., *Ferris 5582* (DS).  
**Physalis pubescens** L., María Madre Is., *E. W. Nelson 4255* (US).  
**Solanum bicolor** Willd., María Magdalena Is., *E. W. Nelson 4322* (US).  
*Solanum callicarpaefolium* Knuth & Bouché, *E. W. Nelson 4322* = **Solanum bicolor** Willd.  
**Solanum deflexum** Greenm., María Madre Is., *Ferris 5670* (DS).  
**Solanum donnell-smithii** Coulter, María Madre Is., *E. W. Nelson 4232* (US).  
**Solanum lanceaefolium** Jacq., María Madre Is., *E. W. Nelson 4240* (US).  
**Solanum nigrum** L., María Madre Is., *E. W. Nelson 4200* (US).

- Solanum refractum** Hook. & Arn., María Madre Is., *H. Mason 1732* (CAS).  
**Solanum** sp., María Magdalena Is., *H. Mason 1816* (CAS).  
**Solanum torvum** Swartz, María Madre Is., *H. Mason s.n.* (CAS), *E. W. Nelson 4185* (US).  
**Solanum verbascifolium** L., María Madre Is., *E. W. Nelson 4216* (US).

## STEGNOSPERMACEAE

- Stegnosperma cubense** A. Rich., María Madre Is., *Howell 10409* (CAS), *Maltby 45* (CAS), *H. Mason 1702* (CAS), *E. W. Nelson 4184* (US); María Magdalena Is., *Chiang 1050* (MEXU).  
*Stegnosperma halimifolia* Benth. *E. W. Nelson 4184* = **Stegnosperma cubense** A. Rich.

## STERCULIACEAE

- Guazuma tomentosa** Humb., Bonpl. & Knuth, María Magdalena Is., *E. W. Nelson 4325* (US).  
**Guazuma ulmifolia** Lam., *E. W. Nelson 4325* = **Guazuma tomentosa** Humb., Bonpl. & Knuth.  
**Helicteres baruensis** Jacq., María Madre Is., *Ferris 5693* (DS).  
**Melochia tomentosa** L., María Madre Is., *Ferris 5595* (DS), *H. Mason 1696* (CAS).  
**Melochia tomentosa** L. var. **frutescens** (Jacq.) DC., María Madre Is., *Maltby 57* (US).  
**Melochia tomentosa** L. var. **tomentosa**, María Madre Is., *E. W. Nelson 4205* (US).

## THEACEAE

- Ternstroemia maltbya** Rose, María Madre Is., TYPE: *T. S. Maltby 105*, May, 1897 (US), *E. W. Nelson 4242* (US).  
*Taonabo maltbyana* (Rose) Rose, *E. W. Nelson 4242* = **Ternstroemia maltbya** Rose.

## THEOPHRASTACEAE

- Jaquinia aurantiaca** Ait., María Madre Is., *Ferris 5698* (DS); María Magdalena Is., *Elmore 1B1* (USC, MICH), *H. Mason 1690* (CAS).

## TILIACEAE

- \***Carpodiptera mariarum** Standl., María Madre Is., HOLOTYPE: *J. T. Howell 10503* (F, ISOTYPE CAS), 26 July 1932.  
**Triumfeta semitriloba** Jacq., María Madre Is., *Ferris 5777, 5913, 6064?* (DS).

## ULMACEAE

- Celtis monoica** Hemsl., María Madre Is., *E. W. Nelson 4236* (US).



## URTICACEAE

**Myriocarpa longipes** Liebm., María Madre Is., *E. W. Nelson* 4275 (US).

## VERBENACEAE

**Aegiphila deppeana** Steud., María Madre Is., *E. W. Nelson* 4245 (fl.) (F, G, US); fr. (G, US), *Maltby* s.n. (US).

**Avicennia nitida** Jacq., María Magdalena Is., *Elmore* 1B2 (USC, MICH), *H. Mason* 1793 (CAS).

**Citharexylon affine** D. Don., María Madre Is., *E. W. Nelson* 4311 (US).

**Lantana camara** L., María Madre Is., *E. W. Nelson* 4187 (US).

*Lantana horrida* Humb., Bonpl. & Knuth, *E. W. Nelson* 4187 = **Lantana camara** L.

*Priva echinata* Juss., *Ferris* 5643 = **Priva lappulacea** (L.) Pers.

**Priva lappulacea** (L.) Pers., María Madre Is., *Ferris* 5643. (DS).

## VIOLACEAE

*Hybanthus riparius* (Humb., Bonpl. & Knuth) Standl., *Ferris* 5715 = **Hybanthus attenuatus** (Humb. & Bonpl.) G.K. Schulze.

**Hybanthus attenuatus** (Humb. & Bonpl.) G.K. Schulze, María Madre Is., *Ferris* 5715 (DS).

## VITACEAE

**Cissus sicyoides** L., María Madre Is., *E. W. Nelson* 4198 (US); María Magdalena Is., *Chiang* 1082 (MEXU).

## ZYGOPHYLLACEAE

**Guaiacum coulteri** A. Gray, María Madre Is., *Ferris* 5738, 5632 (DS); María Magdalena Is., *Chiang* 1038 (MEXU), *H. Mason* 1760 (CAS), *E. W. Nelson* 4180 (US).

**Kallstroemia parviflora** Norton, María Madre Is., *Chiang* 1155 (MEXU), *Ferris* s.n. (DS).

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