



## The vascular flora and floristic relationships of the Sierra de La Giganta in Baja California Sur, Mexico

### La flora vascular y las relaciones florísticas de la sierra de La Giganta de Baja California Sur, México

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**Abstract.** The Sierra de La Giganta is a semi-arid region in the southern part of the Baja California peninsula of Mexico. Traditionally, this area has been excluded as a sector of the Sonoran Desert and has been more often lumped with the dry-tropical Cape Region of southern Baja California peninsula, but this classical concept of the vegetation has not previously been analyzed using formal documentation. In the middle of the last century, Annetta Carter, a botanist from the University of California, began explorations in the Sierra de La Giganta that lasted 24 years, she collected 1 550 specimens and described several new species from this area, but she never published an integrated study of the flora. Our objectives, having developed extensive collections in the same area over the past years, are to provide a comprehensive species list and description of the vegetation of this mountain range. We found a flora of 729 taxa, poorly represented in tree life-forms (3.1%), a moderate level (4.4%) of endemism, and the dominance of plants in the sampling plots is composed mainly for legume trees and shrubs. Additionally, using a biogeographical approach, we compare our list with other known lists of plants from 5 areas, 3 in the Cape Region, 1 in the Sonoran Desert, and other in the thornscrub area of NW Mexico. We conclude that the La Giganta flora has a mixed composition, primarily made up of plants shared with the lowlands of the southern Cape Region, but also share an important proportion of the flora with the desert mountains of the central peninsula and some with the Sonoran desertscrub of mainland Mexico. Consequently we support that the La Giganta flora is part of a floristic continuum along the volcanic mountains of the southern peninsula that eventually could be considered a new eco-region in the same peninsular land.

Key words: Sonoran desert, floristic comparison, subtropical vegetation.

**Resumen.** La sierra de La Giganta se localiza en el estado de Baja California Sur, México, en una región semi-árida. Tradicionalmente, esta superficie se ha excluido de la sectorización del desierto sonorense y se ha relacionado más con las comunidades del trópico seco de la región del cabo del extremo sur peninsular, pero tal idea no ha sido documentada con formalidad. Hacia la mitad del siglo XX, Annetta Carter, botánica de la Universidad de California, inició exploraciones en la sierra de La Giganta por espacio de 24 años, colectó unos 1 550 números y ayudó a describir varias especies en el área, pero nunca publicó un estudio integral de la flora. Habiéndose colectado intensivamente en el área en los últimos años, nuestro objetivo es proporcionar una lista florística y una descripción de la vegetación de dicha serranía. La flora consiste de 729 taxones, en los cuales las formas de vida arbóreas son las menos representadas (3.1%), el endemismo es de nivel moderado (4.4%), y la dominancia de plantas en parcelas de muestreo señala que los árboles y arbustos de la familia Fabaceae son los más importantes. Adicionalmente, dentro de un enfoque biogeográfico, esta flora se compara con otras 5 conocidas; 3 de la Región del Cabo, 1 del Desierto Sonorense y 1 más del matorral espinoso del NO de México. Se concluye que la flora de la sierra de La Giganta tiene una composición mixta; primeramente, de plantas compartidas con el matorral de la región del cabo, pero también con numerosos taxones de la flora de las montañas desérticas del centro de la península, y en menor grado con el matorral desértico del sur de Sonora. Los resultados son congruentes con la idea sobre la existencia de un gradiente florístico que discurre a través de las montañas volcánicas en la mitad sur de la península, que bien puede considerarse como una nueva ecoregión para la península de Baja California.

Palabras clave: desierto sonorense, comparación florística, vegetación subtropical.

## Introduction

The south-central portion of the arid Baja California peninsula is one of the driest areas on the entire peninsula related to large scale climatic factors. This area has been considered within the biogeographic region called the Sonoran Desert that occupies about 70-75% of the peninsula (Shreve and Wiggins, 1964).

The narrow peninsula extends over 1 500 km in a NW-SE direction, the longest peninsula in the New World. Within this area, there are several environmental gradients including the dry tropical climatic zone to the desert zone, and the cold California Current of the eastern Pacific Ocean to the extreme dry heat of the mainland. These gradients are significant in controlling the small scale assemblages of plants, larger plant associations, and plant communities, such as coastal sage scrub, chaparral, and isolated montane coniferous woodlands (Delgadillo, 1998, 2004). The east coast of the peninsula, on the Gulf of California, is distinctly hotter and more arid than the Pacific side. Also, the nearly continuous string of mountain ranges running the length of the peninsula act as an important corridor for plant assemblages, allowing plants of northern origin to settle at higher mountain elevations. Shady sites on north-facing slopes support mesic plants and higher plant density and diversity, not usually present on south-facing slopes (Zedler, 1981). These slope and aspect features interact with other well known environmental elements, such as superficial geology, soil type, availability of soil water, solar radiation, and air temperature to control plant distributions and vegetation types. (Halvorson and Patten, 1974; McAuliffe, 1994).

The result is a collage of plant assemblages of xeric affinity that create the arid peninsular landscape. Except for the chaparral, coniferous woodland, and dry tropical forest plant communities, the remaining xeric peninsular communities are difficult to differentiate from each other. On meridional peninsula territory, the Cape Region and Sierra de La Giganta are considered "a separated part" of the desert (Shreve and Wiggins, 1964; Wiggins, 1960, 1980). The Cape Region has received some floristic and vegetation studies (Brandege, 1891; León de la Luz and Domínguez, 1989; Lenz, 1992; León de la Luz and Coria Benet, 1993; León de la Luz et al., 1999; and Breceda, 2005), but the Sierra de La Giganta remains as an undocumented area.

Floristic inventories continue to be valuable tools for research, conservation, and management (Palmer et al., 1995). During the last few decades, an annual rate of about 60 new plant taxa have been discovered and described in the area of North America (Ertter, 2000). Inventories are crucial for research in biogeography because they

fill gaps in the distribution and migration of taxa at all levels. Also, floristic inventories contribute to species conservation, both in locating populations of rare or previously undescribed species and bringing this attention to conservation organizations. The lack of floristic knowledge can jeopardize the long-term persistence of sensitive species. Finally, floristic inventories aid resource managers in locating populations of sensitive species and documenting the presence of exotic and nuisance species (Barkley, 2000).

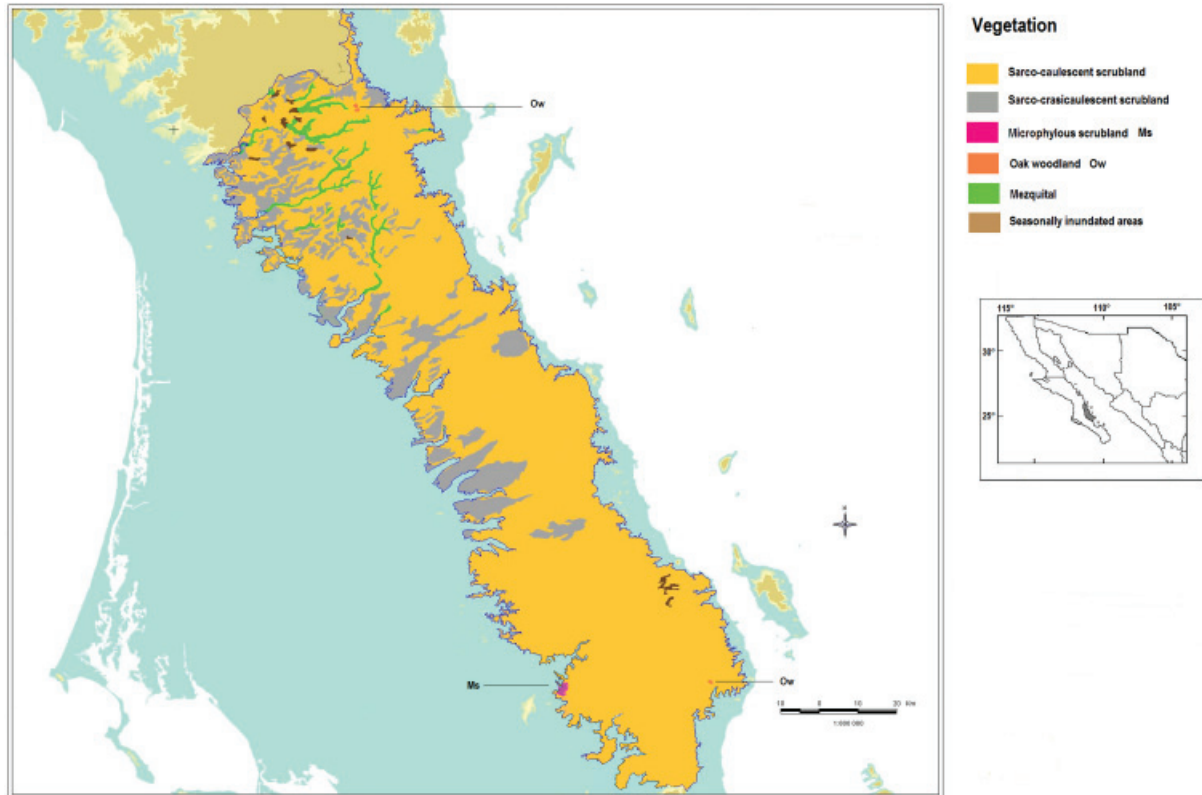
In late 1950, Annetta M. Carter (1907-1991), a brave botanist at the University of California at Berkeley, began exploring the Sierra de La Giganta with at least 1 visit each year until 1974. She collected 1550 collecting numbers and helped to describe nearly 20 new species in this area. However, she did not publish an integrated study of the flora. Before her death, the first author received from Miss Carter a notebook with annotations on all of her collections and determinations during her life work as a botanist. We dedicate this manuscript to Annetta Carter as a tribute to her work and her encouragement to the first author.

Since 1996 we have compiled detailed collections in the Sierra de La Giganta, as well as leading a binational, multidisciplinary expedition to the area in 2003 (San Diego Natural History Museum, 2003). Our primary objectives have been: (1) to fill in the gaps of floristic data for this area in our herbaria at the San Diego Natural History Museum (SD) and the Centro de Investigaciones Biológicas del Noroeste (HCIB), and (2) provide resource managers, non-governmental organizations, and Mexican environmental authorities a comprehensive species list and description of the vegetation for this area. Another important goal for this study has been to discuss the relationship of the flora of the Sierra de La Giganta to the floras of the Sonoran Desert, the Cape Region and the adjacent Sierra de La Laguna.

## Materials and methods

The Sierra de La Giganta is located in a segment of the continuum of ranges that run longitudinally through the peninsula. The limits of this range are not exact, but in this study we delineate the area from the northern foothills of Cerro Giganta (1 660 m elevation, 26°06' N, 111°35' W) to the southern foothills of Cerro Cabeza del Mechudo (1 120 m, 24°47' N, 110°43' W). Altitudinally, we consider the sierra to include only those areas above the elevation of the 200 m contour line (Fig. 1). The entire study area is within the municipalities of La Paz, Comondú and Loreto in the state of Baja California Sur. The range has a surface area of 7 369 km<sup>2</sup>, based on the GIS image analysis.

The sierra extends in a direct SE-NW line for almost



**Figure 1.** Geographical location of the Sierra de La Giganta in the Baja California Peninsula, NW Mexico. North limit is the Cerro Giganta foothills, and the south limit the Cerro Cabeza del Mechudo foothills. The Sierra territory includes only those areas above the elevation of the 200 m contour line between those limits; thus, the range has a surface area of 7 369 km<sup>2</sup>. Most of the territory is covered by the sarcocaulous scrubland, other plant communities and associations are indicated in the legend.

150 km. Over most of this distance, the range is situated close to the Gulf of California; the distance from the coast to the peaks is only a few kilometers, resulting in a steep escarpment on its eastern slope and a western slope that has a relatively shallow gradient to the Pacific Ocean. On the western side, a reticulated fluvial system has formed. Here, the geological conditions have created many seeps and springs that support wetlands that have been described as pools, waterholes, or oases (Grismer and McGuire, 1993, León de la Luz et al., 2006). These locations are the main centers of settlement for the few thousand local inhabitants (rancheros) dedicated to cattle and goat breeding and manufacturing charcoal from mesquite trees. In a few locations, closed mountain valleys become temporary ponds and small lakes after erratic summer and winter rainfall events.

The range is formed from repeated layers of volcanic rocks and clastic sandstones and conglomerates of a geologic complex known as the Comondu Formation, laid down during the Miocene (12 - 16 mya; Hausback, 1984). On the slopes dominated by sandstones, soils are

superficial, and sandy and rocky in texture. Only in the arroyo bends are conditions suitable for accumulating sedimentary soils relatively deep and silty and loamy in texture.

The Sierra de La Giganta is undergoing active erosion. The first cause, other than the steep gradient of the terrain on its eastern escarpment, is undoubtedly the arid conditions and weakly consolidated sandstones. Some locations have relatively level mesas and small plateaus and show far less erosion. Colluviums collect at the base of steep slopes and is eventually washed downstream by the erratic rainfall events, mainly from hurricanes. The occasional torrents that rush down the mountain canyons can dramatically change the landscape in the canyons and the lower gradient arroyos.

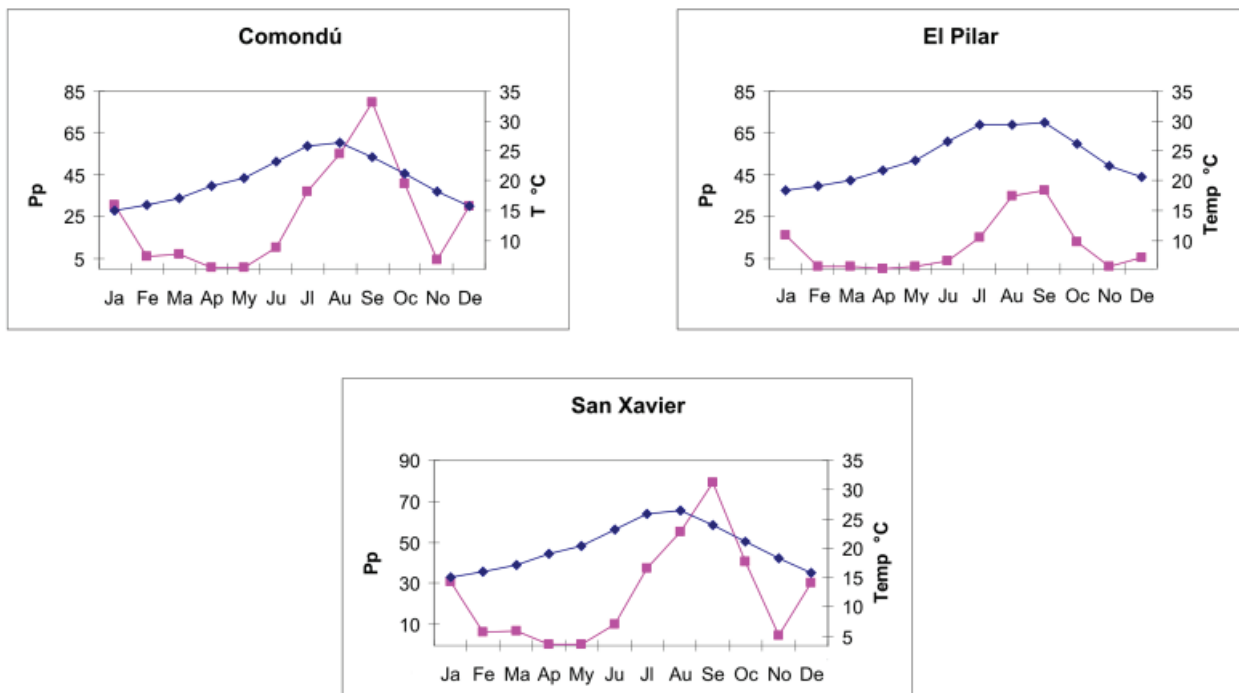
On the west side of the sierra, some arroyos wander for more than 100 km, discharging large amounts of silt along the coast into lagoons or the shoreline. Xero-riparian wetlands appear sporadically along the western drainage channels. Extensive sedimentary alluvial plains on the western flanks of the mountains are commonly covered by

desert pavement, an exposed pebble and rock surface that may cover up to 100% of a local surface. These pavements are formed by sheet erosion of finer soil particles after heavy rains or when the sand and silt are blown away, creating what is called a surface of deflation.

At the lower and middle elevations, the climate is BWh according García (1973); i. e., Köppen's hot desert climate, a dry and hot regime, with most of its rainfall during the summer *ca.* (90%). Mision San Xavier (420 m; 25°51' N, 111°32' W), the highest weather station in the range, receives about 300 mm of rainfall annually. Hastings and Turner (1965) place this range in the transition between the subtropical monsoonal rainfall type characteristic of the southern half of the peninsula, and that of the winter cyclonic rainfall regime, characteristic of the Pacific coast at the northern Baja California peninsula and adjacent southern California (the Csa regime, Köppen's hot Mediterranean climate). When either or both air mass systems are weak, the Sierra de La Giganta does not receive rainfall, a condition that can last for several years. Since the range is located at the boundary of the 2 climatic systems, such drought conditions are rather common. The mean annual temperatures vary between 19 and 22 °C, based on records from several local weather stations.

Air temperatures over 40 °C are common in summer, but some light frost can be present during the early morning in winter. Figure 2 shows 2 climographs, a standard display of average monthly rainfall (in mm) and temperature (in °C) of 2 locations in the region.

Since 1996, the authors have explored several locations in the sierra and neighboring areas. Field trips were mainly during September to December, after the summer rainy season because fall and winter months are better for finding most plant species in acceptable phenological conditions for collection, particularly annuals and other forms that bloom after rains. A few, notably woody legumes and columnar cacti that bloom during the spring and summer, were collected in other seasons. The primary herbarium specimens are deposited in the San Diego Natural History Museum (SD) and Centro de Investigaciones Biológicas del Noroeste (HCIB) herbaria. Some duplicates were exchanged with the University of Arizona Herbarium (ARIZ). The primary sources for identification and nomenclature were Wiggins (1980) and Shreve and Wiggins (1964), but many additional floristic sources have also been consulted (Bravo, 1978; Bravo and Sanchez-Mejorada, 1991a, 1991b; Gentry, 1978; Gould and Moran, 1981; McVaugh, 1984, 1987; Hickman et al.,



**Figure 2.** Climatic diagrams (monthly rainfall Pp and Temperature °C) of three locations at the Sierra de La Giganta, Baja California Sur, Mexico. Locations are: El Pilar 24°29'N, 111°00'W, 30m. San Xavier 25°51'N, 111°35'W, 710 m. Comondú 26°02'N, 111°49'W, 415 m.

1993; Turner et al., 1995; Martin et al., 1998; Felger, 2000; Van Devender et al., 2000).

Within the designated boundary of the Sierra de La Giganta, about 70-80 km of dirt roads gives access to various areas by 2 and 4-wheel drive vehicles. Most of our specimens were collected along these roads in at least 28 different sites. Two important sites at the ends of the sierra, Cerro Cabeza del Mechudo (1 120 m) and Cerro Giganta (1 660 m), were reached only after several hours of difficult hiking and by riding mules.

To assess the vegetation structure of the sierra, band transects (10 × 100 m = 1 000 m<sup>2</sup>) were sampled at 3 sites. These sites were considered because the range where the species-area curve levels off was between 800 from 1200 m<sup>2</sup> for this kind of vegetation (León de la Luz et al., 2000). Sampling consisted of measuring height and 2 diameters of the canopy of each perennial plant (woody or herbaceous stem) taller than 0.25 m. From these field data, we calculated, for each species at each site, mean height, mean canopy cover, and density of plants of each species. Each species was classified into one of the life forms, according to its growth habit: trees, shrubs, perennial herbs, or succulents. A general ranking table was made for each site, which considered relative values for mean height, mean individual density, and mean canopy coverage. A coefficient of importance (IC) was calculated for each species as the mean of the sum of relative values of the 3 variables.

**Floristic comparisons.** We evaluated the floristic affinity of the Sierra de La Giganta with 5 other well documented areas. This evaluation of the floristic composition is performed at the level of species and infraspecies, inclusively. The known floras that were compared include 2 in the Sierra de La Laguna Biosphere Reserve, the oak-pine and the oak woodlands and the dry tropical forest (León de la Luz and Domínguez, 1989; León de la Luz and Coria Benet, 1993), the Cape Region sarcocaulous scrubland (León de la Luz et al., 1999), the recently explored Sierra San Francisco (a voucher-based checklist from J. Rebman pers. comm. 2006), and finally the arid-subtropical thorn forest in southern Sonora (Friedman, 1996). For the comparisons, we used the coefficient suggested by Preston (1962), which was also used by Rzedowski (1973) to analyze the biogeographical relationships of the Mexican dry regions. This coefficient is recommended over others because it fits better when lists includes dissimilar numbers of plant taxa (in part, a result of areas of different size). The coefficient of similarity is obtained by:

$$T = (A^{1/0.27} + B^{1/0.27})^{0.27}$$

where *A* and *B* are the numbers of taxa of the 2 floristic lists to be analyzed, and *T* is the theoretical number of species

represented in both samples, if *A* and *B* were members of the same flora. For the same theoretical conditions, the number of taxa common to *A* and *B* are:

$$K = A + B - T$$

and the coefficient of similarity between *A* and *B*, expressed in percentage is:

$$CS = (L / K)$$

where *L* is the real number of taxa common to *A* and *B*.

Analyses were paired only between the Sierra de La Giganta and the another 5 lists. Figure 3 shows the locations to compare. In the Cape Region, oak/pine woodlands embraces 321 taxa and represent about 425 km<sup>2</sup>, dry tropical forest is composed by 501 taxa in about 2 533 km<sup>2</sup>, and the sarcocaulous scrubland reports 453 taxa in 5 423 km<sup>2</sup>. The Sierra San Francisco is represented by 405 taxa in around 800 km<sup>2</sup>, the thornscub of the Río Mayo plains is composed by 481 taxa in 712 km<sup>2</sup>, and finally the Sierra de La Giganta covers 7 369 km<sup>2</sup>.

Additionally, using an absence-presence data matrix of the 6 compared floras, a classification technique was applied to evaluate how the common set of plants among the 6 locations is related to form hierarchical groups, this procedure permits a better integration of the whole data than the former matrix of similarity. Then, using the MVSP program (Kovach, 2006), a phenogram based on the former similitude matrix was generated by UPGMA (unweighted pair-group using arithmetic averages) as a



**Figure 3.** Locations of documented floras in northwestern Mexico used for comparing species composition by the coefficient of similarity proposed by Preston (1962). SSon = Southern Sonora, SSF = Sierra San Francisco, SG = Sierra de La Giganta. In the Cape Region, SCS = sarcocaulous scrubland, TDF = tropical deciduous forest, and W = oak-pine and oak woodlands. Approximate areas are cited in the text.



clustering method, the Bray-Curtis distance is used as the measure of dissimilarity between sites.

## Results

*The flora.* Table 1a synthesizes the main taxonomic groups represented by the 729 plant taxa of the Sierra de La Giganta according to the geographical limits mentioned earlier. The flora is composed by 19 taxa of ferns, 600 dicots, and 110 monocots. The bulk of the flora is in 10 families, Asteraceae (92 taxa), Fabaceae (60), Euphorbiaceae (48), Malvaceae (35), Convolvulaceae (27), Poaceae (26), Solanaceae (23), Cyperaceae (19), Cactaceae (19), and Nyctaginaceae (16) that contain half of the species and infraspecies taxa. *Euphorbia s.l.* is the most diverse genus, with 26 taxa (species and infraspecies, included in this genus are members recognized in the subgenera *Agaloma*, *Chamaesyce* and *Poinsettia*). Other diverse genera are *Cuscuta* (9 species), *Cyperus* (9), *Boerhavia* (8), *Ipomoea* (8), *Acacia* (7), *Sphaeralcea* (7), *Ambrosia* (7), *Bouteloua* (6), and *Physalis* (6). In general terms, family, genus, and species diversity are in accordance with those reported for dry-tropics lists in Central and South America (see Gentry, 1995). As in other dry-tropical areas in Mexico, Fabaceae, Asteraceae, Poaceae, and Euphorbiaceae dominate over most other families; v. gr., in the Pacific coast in Jalisco (Lott, 1993) and locations in southwestern Sonora bordering with the desert (Friedman, 1996; Martin et al., 1998; Van Devender, 2000).

The flora is composed of 8 different life forms (see Table 1b). Herbaceous plants, both perennial (Ph, 196 spp.) and annuals (An, 207 spp.), represent 55% of all species. Trees are poorly represented (Tr, 23 spp.), but shrubby forms are significant (Sh, 129 spp.). Hydrophytes (Hf, 62 spp.) include true aquatics and plants growing in moist soils, found mostly in the oases scattered in the sierra foothills (León de la Luz et al., 2006). Succulents (Sc, 50 spp.) include all members of the Agavaceae, Bromeliaceae, Cactaceae, Crassulaceae, and Portulacaceae, and some semi-succulents of the families Anacardiaceae, Burseraceae, Euphorbiaceae, and Apocynaceae. Parasites (Pa, 14 spp.) are dodder (*Cuscuta*) and mistletoe (*Psittacanthus* and *Phoradendron*). Vines (Vi, 49 spp.) belong to several families, such as Polygonaceae, Convolvulaceae, Ranunculaceae, Apocynaceae (Asclepiadaceae), and others.

The attached Appendix 1 contains a complete list of the flora as it is currently known. It is organized into ferns and fern allies, and the flowering plants according to the Angiosperm Phylogeny Group (2003), APG II, system of classification in denoting major groups and most families.

**Table 1.** a) Composition in major taxonomic groups of the 729 plant taxa (species and infraspecies) compiled for the Sierra de La Giganta flora. b) Life form distribution for the same flora: *Tr* = trees, *Sh* = shrubs, *Ph* = perennial herbs, *Ha* = annuals, *Hf* = hydrophytes, *Pa* = parasites, *Sc* = succulents, and *Vi* = vines

	families	genera	species	infraspecies
Ferns	4	10	14	5
Dicots	76*	296*	492*	108
Monocots	17	53	95	15
<b>TOTAL</b>	<b>97</b>	<b>359</b>	<b>600</b>	<b>129</b>

\*includes: Saururaceae, *Anemopsis californica*.

	<i>Tr</i>	<i>Sh</i>	<i>Ph</i>	<i>An</i>	<i>Hf</i>	<i>Pa</i>	<i>Sc</i>	<i>Vi</i>
	23	128	196	207	62	14	50	49

The species of La Giganta occur in 3 major taxonomic groups in the APG II system: Magnoliids (including the Saururaceae of the order Piperales), Eudicots, and Monocots. Families in each group are arranged in alphabetical order, and then by genus, species, and infraspecies. After the author's name, we include, in some cases, inside brackets [ ] a common synonym for these taxa especially as it relates to nomenclatural changes from Wiggins (1980). For all entries, we include after the scientific name and author a code of 2 letters in bold for the life form, according to table 1b. If appropriate, we include the designation "NW," indicating that the taxon was not reported in the Wiggins (1980) work on the Baja California flora (the main floristic reference for this region). We include the collector(s) last name and collection number(s) of the voucher specimens in alphabetical and numerical order. Finally, if available, a vernacular name recognized in the study area for the taxon is included.

*Plant communities.* Vegetation on most of the peninsula is designated as sarcocaulous scrubland (Spanish: *matorral sarcocaulo*) according to the official Mexican chart of vegetation (SPP, 1980). This vegetation is a subtype of the well-recognized desert or xerophyllous scrubland (Spanish: *matorral xerófilo*), a generic name for the vegetation of arid and semi-arid regions in Mexico. Rzedowski (1978, 1979) proposed that the former could be either a xero-morphic variant of the tropical dry-forest (Spanish: *selva baja caducifolia*) or the peninsular expression of the transition between the dry-tropical

vegetation and the desert, i. e., the thornscrub, thorn forest (Spanish: *bosque espinoso*) or Sinaloan deciduous forest (Brown et al., 1994) that represent such transition in the northwestern portion of mainland Mexico, along the coastal plains of northern Sinaloa and southern Sonora. Figure 1 shows the distribution of the Sierra de La Giganta vegetation sub-types or plant associations.

The sarcocaulous scrubland dominates an extensive surface of the Sierra de La Giganta on stony and rocky slopes. It covers approximately 83.6% of the total surface. Physiognomically, this vegetation is characterized by legume trees, such as the endemic “palo fierro” *Prosopis palmeri* S. Wats. Some other common legume trees are *Lysiloma candidum* Brandege, *Acacia brandegeana* I.M. Jhtn., *Mimosa distachya* Cav., and *Parkinsonia microphylla* Torr. Also, by succulent plants (mostly cacti) and semi-succulent plants, such as *Jatropha cinerea* (Ortega) Muell.-Arg., *J. cuneata* Wigg. et Rollins, *Fouquieria diguetii* (van Tieghem) I.M. Jhtn., and *Bursera microphylla* A. Gray.

The sarco-crasicaulescent scrubland (Spanish: *matorral sarco-crasicaule*) occupies 14.3% of the sierra, typically the low slopes and foothills, where soils are deeper than on the steeper slopes. Species composition is basically the same as in the sarcocaulous scrubland, but cacti tend to be dominants, including the massive “cardón” (*Pachycereus pringlei* (S. Wats.) Britt. et Rose), that is physiognomically important because of its great size and volume, which tower over the other plants on the plains, forming extensive plant communities called “cardonales.” Other important cacti on this landscape are the “clavellinas” *Cylindropuntia alcahes* (F. A. C. Weber) F. M. Knuth var. *alcahes* and *C. ciribe* (Engelmann) F. M. Knuth whose populations apparently has been promoted by the selective grazing of cattle followed by dispersion of joints that develop vegetatively new plants. The “pitahaya dulce” *Stenocereus thurberi* (Engelm.) Gibson et Horak var. *thurberi*, and the “pitahaya agria” *S. gummosus* (Engelm.) Gibson et Horak, as well as the “garambullo” *Lophocereus schottii* (Engelm.) Britt. et Rose var. *schottii*. The creosote bush or “gobernadora” *Larrea divaricata* Cav. subsp. *tridentata* (Sessé et Moc.) Felger et Lowe, also grows in this community.

A plant association called mezquital is dominated by the “mezquite” *Prosopis articulata* S. Wats. which grows along the margins of arroyos. Such conditions are more common outside the limits of the sierra, toward the coastal plains along Bahía Magdalena on the Pacific coast. This association within our arbitrary boundaries of the sierra is small (1.6%) because it usually occurs at lower elevations. Mezquital associations follow arroyos on the vegetation maps, but they are not continuous. The density of trees is quite variable, sometimes dense, but sparse in other

areas. This plant association is ecologically important as evergreen patches of vegetation on the landscape since the fauna intensively use the trees as refuges, nesting sites, and feeding areas. Some other species in this plant association are “otatave” *Vallesia glabra* (Cav.) Link, “chicura” *Ambrosia ambrosioides* (Cav.) Payne and “vinorama” *Acacia farnesiana* (L.) Willd., although this last seems to be introduced and dispersed by cattle that concentrate in suitable places for forage and shade. It is common to find seedlings in the cattle dung. Along the waterways, there are occasional small oases (León de la Luz et al., 2006) with standing water, characterized by palm groves of “palma” *Washingtonia robusta* Wendl and “dátil” *Phoenix dactylifera* L.

The microphyllous scrubland desert (Spanish: *matorral desértico micrófilo*) is rarely found in the sierra (0.03% of the area). It is characterized by plants with very small leaves (less than 2.25 cm<sup>2</sup> on surface), having leaves for only a short season each year. Some are thorny or spinescent plants (*Acacia*, *Mimosa*, *Lycium*), others are unarmed (*Ruellia*, *Larrea*, *Ambrosia*, *Aeschynomene*). These plants also occur in the dominant sarcocaulous scrubland, but with low density. This vegetation is more common on sandy and deeper soils of alluvial fans on the western slopes of the sierra.

The oak woodland (Spanish: *encinar*) occupies a very small area, less than 0.01% of the range surface. It occupies mountain tops of La Giganta and Cabeza del Mechudo. It is an atypical formation with sparse cover of the small oaks *Quercus tuberculata* Liebmann, a species well represented at higher elevations in the Cape Region, northern Sierra Madre Occidental, and southern Arizona on the mainland. Associated species include *Nolina palmeri* S. Wats. var. *brandegeei* Trel., *Pachycormus discolor* (Benth.) Coville var. *discolor*, *Arracacia brandegeei* Coulter et Rose, and *Viguiera* spp., as well as small plants that typically require lower temperatures and radiation and higher humidity, such as *Dudleya* spp. and *Oxalis* spp.

Finally, there are sparse and small areas, around the 0.4% of the surface, that are irregularly and seasonally inundated (Spanish: *áreas temporalmente inundables*). After heavy rains, they are flooded for months because they are the low-lying lands with internal drainage, forming flats of deep, silty soils, where the water percolates slowly or evaporates, increasing salinity in the top soil. When flooded, a succession of hydrophytes prospers, which species appear depends on several conditions, such as depth of water, season, and level of soil humidity. Common hydrophytes include *Potamogeton illinoensis* Morong, *Samolus ebracteatus* Kunth, *Echinodorus berteroi* (Sprengel) Fassett, and several forbs (*Cyperus* and *Juncus*). During the dry seasons, some semi-halophytic species are

common, including *Heliotropium curassavicum* L. and the “cardo” *Argemone* spp., which is particularly abundant at times.

*Quantitative dominant plants.* To determine the common and characteristic plants in the landscape in a quantitative way, 3 sample plots in dissimilar situations were made in the sarcocaulous scrubland, the major plant community in the sierra. Table 2 provides a hierarchical list of the plants sampled in each plot. We obtained an index, the coefficient of importance (CI) that is the average of the relative values of the recorded variables; namely, the total number of individuals in each species (TNI), the average height (H avg.), and the average canopy cover (C.C. avg.) for each species (Kent and Coker, 1995). For each site, a short description of the site is provided.

In Table 2 it is possible observe that in the most elevated locations (El Bosque, 550 m), the perennial herb *Euphorbia magdalenae* Benth. was the most important plant according the criteria cited above; also important were the semi-arborescent “palo Adán” *Fouquieria diguetii* (van Thieghem) I.M. Johnston, and another perennial herb *Aeschynomene nivea* Brandegee. Note that in this particular point coefficient of importance (CI) varies gradually in the species. The remaining 2 locations represent areas of similar altitude above sea level (480 m and 460 m, respectively); in both cases, the endemic tree *Prosopis palmeri* S. Wats. is one of the most dominant plants, as well as other trees such *F. diguetii* and *Lysiloma candidum*. Note that more species were recorded in these 2 last sampling plots than in the former; also, a small group of species concentrate the higher importance values (CI), a typical dominance distribution for this type of plant community (see Friedman, 1996; León de la Luz et al., 2000).

As in other dry-tropical areas of Central and South America (Gentry, 1995), leguminous woody species tend to be dominants at these 3 sites in La Giganta; v. gr. for the 5 species with the highest CI scores at each plot, 2 to 4 woody legumes are present at each site. Canopy cover ranges from 128 m<sup>2</sup> to 412 m<sup>2</sup>. Then, the soil coverage is low (~12 to 41%) for the 1 000 m<sup>2</sup> at each site.

*Regions of floristic affinity.* The paired comparison between the 5 regional floras and plants of the Sierra de La Giganta according to the Preston coefficient of similarity is shown in Table 3. Our hypothesis is that we expect the highest floristic similarity to be with neighboring areas rather than distantly separated ones, although factors such as elevation may play an important role in modifying this conceptual relationship. From the similarity matrix using Preston coefficient (Table 3), we find a very slight difference between the Sierra de La Giganta flora and that of the sarcocaulous scrubland of the Cape Region

(6.105) and the Sierra San Francisco flora (6.135), although this does not necessarily imply that the same species are shared among these 3 floras. A notable level of similitude is displayed with the subtropical vegetation of the Cape mountains (TDF, 4.687) than with the arid-subtropical thorn forest of SW Sonora (3.968); and finally, the lowest similitude is with the oak-pine woodlands of the Cape mountains (1.873), in spite the fact that these areas are barely separated by 140 km by the Cape lowlands, although this area is the most contrasting environmentally.

These results suggest, in part, a floristic continuum along the mountainous areas of the Baja California peninsula, and also allow us to consider the mixed composition in plant species of La Giganta flora, firstly with the southern neighbor, the Cape Region lowlands (in turn, with dry-tropical and xeric features), and later with locations of the northern arid mountains. Moreover, the rate of endemism in our La Giganta checklist is 2.7% (20/ 729) for the endemics restricted within our geographical limits, or 4.4% (32/ 729) including an additional set of semi-endemics. This represents a moderate level, but also provide a slight level of uniqueness for this flora.

The relatively low floristic affinity between La Giganta and southern Sonora reflect the role of the Gulf of California as an effective barrier for plants between the mainland and the peninsula because La Giganta and the Río Mayo plains are separated by only 200 km. Nevertheless, at the generic level, the similitude between both areas is highly significant; i.e. La Giganta flora (729 taxa) has 224 close relatives (different species in common genera) with the southern Sonora flora (481 taxa). This implies that both vegetation types could be physiognomically similar, selecting for similar functional types, but taxonomically not necessarily alike because of their allopatric development. Meanwhile, dissimilarity in the 5 peninsular floras is attributed more to changes in non-related species along the floristic gradient.

The phenogram (Fig. 4), which schematically integrates the floristic content among the 6 floras, displays a better relationship between La Giganta and the Cape lowlands, and this node (0.51) is related in turn with that of the Sierra San Francisco (0.56), result in accordance with the Preston coefficient matrix (Table 3). The following node, in turn, is related to the tropical deciduous forest in the Cape mountains (0.66), next with the southern Sonora floristic list (0.68); and the last with the Cape woodlands communities (0.88). In general terms, the floristic relationship analysis, both Preston matrix and phenogram, display almost the same pattern.



**Table 2.** Hierarchical list according to an importance coefficient (I C) of the plants sampled in plots of 1500 m<sup>2</sup> (10 × 150 m) at 3 locations in La Sierra de la Giganta. *TNI*: total number of individuals; *H. avg.*: average of the height of the plants in each species; *C. C. avg.*: canopy cover average of the individuals in each species

<i>Species</i>	<i>TNI</i>	<i>H. avg. m</i>	<i>C. C. avg. m<sup>2</sup></i>	<i>CI</i>
El Bosque (foothill, elevation 550 m, slope 5-7°, exposure SE, stony soil)				
<i>Euphorbia magdalenae</i> Ph	82	0.4	0.3	13.21
<i>Fouquieria diguetii</i> Tr	19	1.5	4.9	11.13
<i>Aeschynomene nivea</i> Ph	44	1.4	1.1	10.77
<i>Jatropha cuneata</i> Sc	33	1.1	2.5	9.86
<i>Lysiloma candidum</i> Tr	2	1.9	4.7	9.37
<i>Bursera epinnata</i> Tr	5	1.9	4.2	9.31
<i>Parkinsonia microphyllum</i> Tr	7	1.5	4.2	8.67
<i>Bursera microphylla</i> Tr	10	1.1	3.6	7.59
<i>Olneya teosota</i> Tr	9	1.3	2.8	7.11
<i>Stenocereus gummosus</i> Sc	12	1.1	2.4	6.69
<i>Lophocereus schottii</i> var. <i>schottii</i> Sc	5	1.2	2.8	6.29
San Xavier (foothill, elevation 480 m, slope 4-6°, exposure NE, stony soil)				
<i>Fouquieria diguetii</i> Tr	4	2.6	6.3	9.33
<i>Prosopis palmeri</i> Tr	5	2.7	5.1	8.65
<i>Larrea divaricata</i> Sh	17	1.7	3.2	8.34
<i>Lysiloma candidum</i> Tr	2	3.8	3.7	8.19
<i>Euphorbia magdalenae</i> Ph	26	0.2	1.5	6.96
<i>Sebastiania biloculare</i> Tr	1	2.5	4.3	6.89
<i>Jatropha cinerea</i> Sc	15	1.6	2.1	6.87
<i>Cylindropuntia cholla</i> Sc	17	1.3	1.2	6.17
<i>Cercidium microphyllum</i> Tr	6	1.7	2.3	5.28
<i>Krameria grayi</i> Ph	23	0.1	0.2	5.11
<i>Jatropha cuneata</i> Sc	12	1.2	1.3	5.08
<i>Pachycereus pringlei</i> Sc	8	1.6	1.6	4.98
<i>Atamisquea emarginata</i> Sh	2	1.5	2.8	4.61
<i>Condalia globosa</i> Sh	11	0.6	0.6	3.55
<i>Stenocereus thurberi</i> Sc	4	1.7	0.5	3.34
<i>Stenocereus gummosus</i> Sc	3	0.9	1.7	3.16
<i>Caesalpinia californica</i> Sh	1	1.1	1.1	2.48
<i>Ferocactus rectispinus</i> Sc	2	0.4	0.1	0.99
Santa Martha (tableland, elevation 460 m, slope 5-8°, exposure NW, sandy soil)				
<i>Prosopis palmeri</i> Tr	7	3.1	4.3	14.05
<i>Jatropha cinerea</i> Sc	8	2.9	3.2	10.46
<i>Olneya teosota</i> Tr	3	1.9	2.6	8.50
<i>Lysiloma candidum</i> Tr	5	2.5	2.4	7.84
<i>Mimosa distachya</i> Sh	5	1.8	2.1	6.86
<i>Lophocereus schottii</i> Sc	10	1.5	1.8	5.88
<i>Fouquieria diguetii</i> Tr	4	1.8	1.8	5.88
<i>Ruellia californica</i> Sh	6	0.8	1.7	5.56
<i>Bursera microphylla</i> Tr	5	1.6	1.6	5.23
<i>Adelia virgata</i> Sh	6	1.6	1.5	4.90
<i>Cordia curassavica</i> Sh	7	0.9	1.4	4.58
<i>Pachycereus pringlei</i> Sc	3	2.6	1.2	3.92
<i>Jatropha cuneata</i> Sc	10	1.3	1.1	3.59
<i>Cylindropuntia cholla</i> Sc	12	1.4	1.1	3.59
<i>Phaulothamnus spinescens</i> Sh	2	1.5	1.1	3.59
<i>Bernardia viridis</i> Sh	3	0.3	0.6	1.96

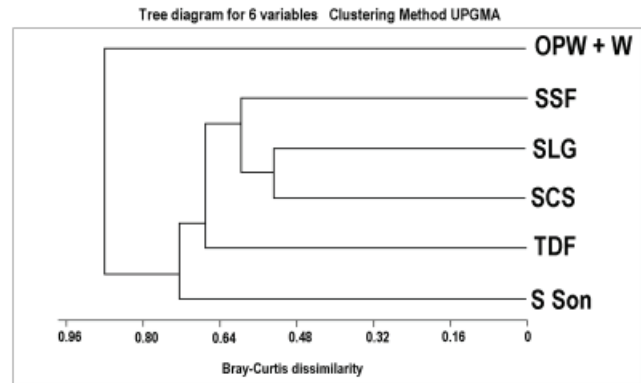
**Table 3.** Similarity index (bold) using the Preston Coefficient between the Sierra de La Giganta flora (SG) and 5 regional floras of northwestern México. Areas in the Baja California peninsula are communities located in the southern Cape Region: the oak-pine and oak woodlands (*OPW + OW*), tropical deciduous forest (*TDF*), sarcocaulous scrubland (*SCS*), and the middle peninsular Sierra de San Francisco (*SSF*). The area in southern Sonora is the plain of the Río Mayo region (*S Son*). See Fig. 2 for geographical location. Numbers in parentheses are the common taxa between the paired floras

	<i>Regional flora</i>				
	<i>OPW + OW</i>	<i>TDF</i>	<i>SCS</i>	<i>SSF</i>	<i>S Son</i>
SG	<b>1.873</b> (76)	<b>4.687</b> (228)	<b>6.105</b> (278)	<b>6.135</b> (265)	<b>3.968</b> (188)

## Discussion

The flora of the Sierra de La Giganta has 729 species and infraspecies, which indicates a moderate level of species richness for this study area of 7 369 km<sup>2</sup>. This level of diversity surpasses the number of species found in other natural areas of the peninsula, such as the Sierra de La Laguna, where the woodlands contain 272 taxa (León de la Luz and Domínguez, 1989; León de la Luz and Coria Benet, 1993) and tropical dry forest that contain 520 taxa (León de la Luz et al., 1999). It is also richer than the El Vizcaíno Biosphere Reserve with 496 taxa (León de la Luz et al., 1995) and just a bit more diverse than the “Valle de Los Cirios Flora and Fauna Protected Area”, located north of the Vizcaíno Reserve, with 723 taxa (unpublished data). Nevertheless, this level of diversity value is low when compared to similar communities on the mainland of Mexico. For example, in the Yécora area in the eastern Sonora pine-oak and oak woodlands, Van Devender et al. (2000) found 740 taxa in 21 km<sup>2</sup> of tropical deciduous forest along the Río Cuchujaqui in southwestern Sonora, Mexico.

The dry tropical vegetation of the Cape Region is about one-third the size of the Sierra de La Giganta and El Vizcaíno Biosphere Reserve is almost 3 times larger. In these cases, there is no linear arithmetic ratio between the size of the geographic area and the number of species present. Valle de Los Cirios has almost the same number of species, but it is ~3.5 times larger than the La Giganta region. These diversity values imply that the La Giganta flora is not as rich as the dry tropical area of the Cape



**Figure 4.** Unweighted pair-group method using arithmetic averages (UPGMA) phenogram based upon absence-presence data for several known floras in the Baja California peninsula and southern Sonora, México. Names of the floras are: SLG = Sierra de La Giganta, SSF = Sierra San Francisco, S Son= río Mayo plains of southern Sonora, OPW + W = oak-pine and oak woodlands, TDF = tropical deciduous forest, and SCS = lowland sarcocaulous scrubland. See Fig. 3 for areas location.

Region, nor as sparse as many areas in the Sonoran Desert areas.

The vegetation landscape of the Sierra de La Giganta is dominated by scattered trees and shrubs of relatively low diversity, which provide a low cover to the rocky soil. Most of the life forms are herbaceous and appear only after heavy rains (Table 1). Vines and climbing species are moderately common in the area. Hydrophytes are only found in the small and scattered oases. Succulents are physiognomically dominant on the western flanks.

Endemism is moderate, with 22 endemics and 12 semi-endemics, suggesting a grade of singularity in plant composition. In recent years, 2 species were described: *Amyris carterae* Rebman et Chiang and *Marsdenia carterae* Stevens et Juárez-Jaimés.

The similarity matrix in Table 3 (using the Preston coefficient) show the paired results between La Giganta flora and 5 other floras. This comparison helps to show the mixed composition of La Giganta. This flora is primarily made up of plants from both the dry tropical and the xeric environments, cluster analysis (Fig. 4) schematically demonstrated such statement. A plant community on mainland Mexico that is physiognomically similar to the peninsular dry tropical environment did not show a significant floristic relationship with La Giganta at the species and infraspecies level, but undoubtedly does at the genus level because of the disjoint development of the dry tropical vegetation in these areas during the Holocene.

In relation to neighboring areas, the La Giganta region tends to exhibit its own characteristic landscape

dominated by leguminous trees, where the endemic “palo fierro” (*Prosopis palmeri*) is an important and dominant component of the plains, foothills, and slopes. “Palo blanco” (*Lysiloma candidum*) is another omnipresent tree species in almost all of the La Giganta habitats and this species is practically an endemic to the southern half of the Baja California peninsula. The dominant vegetation, with low canopy cover, is also an important regional landscape feature, primarily related to scarce rainfall and shallow soils because very rocky substrates are the most prevalent type in the region. In fact, the distribution of *P. palmeri* and our delimitation of the sierra shown in Fig. 1, fits together very closely.

From our floristic analysis, the Sierra La Giganta and, by extension, several northern ranges (Guadalupe and San Francisco), could be considered an additional unit in the Sonoran Desert subdivision, as a new floristic province or subflora. The soil, orography, floristic, plant spatial arrangement, landscape physiognomy, and rate of endemism are enough features to considerate it as a new region in future proposals of eco-regionalization of peninsular desert territory.

Alternatively, this precipitous mountain range could be also considered a segment of the large transition between the subtropical, or dry-tropic vegetation, Cape Region and the desert plant communities of the northern peninsula; i.e. the peninsular version that, in mainland northwestern Mexico, is represented mainly by the Sinaloan thornscrub and other communities where the thorny and scrub component prevails, even though this is richer in plant species.

The primary activity of the rural population in the Sierra de La Giganta is extensive ranching of cattle and goats for meat to outside markets, but especially collecting milk for making cheese. Cattle grazing has been present in this area for at least the last 3 centuries. It is difficult to evaluate how these old livestock practices impacted plant composition and structure. According to several older ranchers, modification of the vegetation is noticeable after a few years, when rainfall is absent and some plants die from a combination of overgrazing and dry soils. Yet, they speak of new plant species reappearing after the rainfalls. Thus, animal grazing alone is not the primary cause of land degradation in this region. Loss of topsoil is also caused by cattle, goats, and horses disturbing the topsoil structure, which makes the coarse particles susceptible to erosion from runoff after heavy rains. Anthropogenic erosion, particularly detrimental on steeper slopes, is occurring in most areas of the range.

In the last 3 decades, manufacturing charcoal from “mesquite” (*Prosopis palmeri* and *P. articulata*) has been increasing. As a result, the tallest *P. palmeri* mesquites

have dramatically declined in numbers (León de la Luz et al., 2005). “Mesquite” is an important extractive resource for the locals because the hardness of the wood, a consequence of slow growth (sp. gr. 1.28 g/cm<sup>3</sup>) makes superior charcoal. Based on the number of growth rings in the stem, we estimate that a tree with a 25-cm breast diameter could well exceed 200 years; some of the oldest trees have a basal diameter approaching 80 cm; these could be considered almost millennium plants. On old ranches, fences and corrals were built of mesquite, which endures termite attack and weathering. *Prosopis articulata* is now the main source for charcoal in the area, and urgent regulation from the Mexican environmental authorities is needed to prevent further depletion.

No conservation area has been decreed by Mexican authorities for the Sierra de La Giganta, although some conservation groups have considered protecting the oases because they appear to be highly vulnerable ecosystems. Most impacts on the oases are a consequence of unregulated water use by local ranchers and invasion of exotic plant and animal species. Oases attract many local and migrating animals. The plants (see hydrophytes, Table 1) represent only a fraction (8.4%) of the total diversity of the sierran flora, but considering the very low surface area occupied, their importance is magnified. Arguments for conservation, besides those already mentioned, include the runoff collected in the basins that percolate to the water table in the lowlands, the beauty of the sea and desert unimpacted mountains, and fostering bighorn sheep (*Ovis canadensis* Shaw subsp. *weemsii* Goldman). Bighorn sheep could be valuable trophies for hunters, as well as keystone or umbrella species used for designing and protecting wilderness areas in the higher parts of the Sierra de La Giganta, particularly on the peaks of Cabeza del Mechudo and La Giganta.

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**Appendix 1.** Floristic checklist for the flowering plants of the Sierra de La Giganta, Baja California Sur, Mexico, according to the Angiosperm Phylogeny Group (APGII) system of classification. Asterisk (\*) before name denotes that thse taxon is strictly endemic for the range, (\*\*) denotes is semi-endemic

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**Regnum Vegetabile**  
**Lycophytes [=Lycopods]**

**Selaginellaceae**

*Selaginella arizonica* Maxon **Ph.** R. Domínguez 2721.

*Selaginella bigelovii* Underw. **Ph.** A. Carter 5332, 5764; J. L. León 10524; J. Rebman 9803; R. Moran 18954.

**Leptosporangiate Ferns**

**Marsiliaceae**

*Marsilea vestita* Hooker et Grev. [*M. fourmieri*] **Hf.** A. Carter 4318, 4856, 5934; J. L. León; M. Domínguez 179, 2487.

**Pteridaceae**

*Adiantum capillus-veneris* L. **Hf.** R. Domínguez 2719.

*Adiantum concinnum* H. B. Willd. **Hf.** M. Domínguez 2343.

*Argyrochosma peninsularis* (Maxon et Weath.) Windham [*Notholaena p.*] **Ph.** R. Moran 18956.

*Astrolepis sinuata* (Lag. ex Swartz) D. M. Benthham et Windham subsp. *sinuata*. [*Cheilanthes s.*] **Ph.** A. Carter 3997<sup>a</sup>, 5513, 5743; J. L. León 10495; M. Domínguez 3348, 3373 ; R. Moran 18950; J. Rebman 7656.

*Bommeria hispida* (Kuhn) Underw. **Ph.** J. L León 10172.

*Cheilanthes bonariensis* (Willd.) Proctor [*Notholaena aurea*] **Ph.** A. Carter 5343.

- Cheilanthes brandegeei* D.C. Eaton. **Ph.** R. Moran 18934.  
*Cheilanthes incana* Presl. **Ph.** J. L. León 10516, 10586.  
*Cheilanthes myriophylla* Desv. **Hf.** A. Carter 2044.  
*Cheilanthes peninsularis* Maxon. **Ph.** A. Carter 5507; J. Rebman 7655, 7671, 9738.  
*Cheilanthes wrightii* Hook. **Ph.** A. Carter 5762; M. Domínguez 3346.  
*Notholaena lemmonii* D. C. Eaton var. *lemmonii*. **Ph.** A. Carter 4244, 4244, 5722, 5751; R. Domínguez 2730; R. Moran 18901.  
*Notholaena californica* D. C. Eaton subsp. *californica* **Ph.** J. Rebman 7671  
*Notholaena californica* D. C. Eaton subsp. *leucophylla* Windham **Ph.** (NW) J. Rebman 7581.  
*Pellaea ternifolia* (Cav.) Link subsp. *ternifolia* **Ph.** J. L. León 10544; R. Moran 18911. Helecho peyote.

### **Thelypteridaceae**

- Thelypteris puberula* (Baker) Morton var. *sonorensis* A. R. Smith **Hf.** A. Carter 5491; R. Moran 18194. Hierba del golpe.

### **Seed Plants**

#### **Angiosperms: Magnoliids-Piperales**

### **Saururaceae**

- Anemopsis californica* (Nutt.) Hook et Arn. **Hf.** A. Carter 4277, 5215; M. Domínguez 2489; R. Domínguez 1986. Yerba del manso.

#### **Angiosperms: Eudicots**

### **Acanthaceae**

- Carlowrightia arizonica* A. Gray **Sh.** A. Carter 3918, 4023, 4071; J. Rebman 9813.  
*Carlowrightia pectinata* T. S. Brandegee **Ph.** A. Carter 4371, 5052, 5313.  
*Dicliptera resupinata* (Vahl.) Juss. [incl. *D. formosa*] **An.** A. Carter 3940, 5112; J. L. León 8056, 9891; R. Domínguez 2005, 2871; R. Moran 18209, 18977.  
*Elytraria imbricata* (Vahl) Pers. **Ph.** A. Carter 4685, 4725, 4930; J. L. León 9899; M. Domínguez 1725, 2953, 2961; R. Domínguez 1419, 2107, 2577, 2723, 2763. Cordoncillo  
*Holographis virgata* (Harv. ex Benth. et Hook. f.) T. F. Daniel subsp. *glandulifera* (Leonard et C. V. Morton) T. F. Daniel var. *glandulifera* [*Berginia* v. var. *g.*] **Sh.** A. Carter 1315, 2625, 3430, 3829a, 4502, 4548, 5724; J. L. León 9905, 9923; M. Domínguez 196, 3120, 3381; R. Moran 18945.  
*Holographis virgata* (Harv. ex Benth. et Hook. f.) T. F. Daniel subsp. *glandulifera* (Leonard et C. V. Morton) T. F. Daniel var. *palmeri* (Rose) T. F. Daniel [*Berginia* *p.*] **Sh.** A. Carter 3819, 4001, 4215, 4574, 5106, 5131, 5420; M. Domínguez 3671.  
*Justicia californica* (Benth.) D. Gibson [*Beloperone* *c.*] **Sh.** A. Carter 4899, 5425, Nicle. 5727, 5792; J. L. León 4345, 10338, 10488; M. Domínguez 2423, 337, 3613.  
*Justicia hians* (T. S. Brandegee) T. S. Brandegee **Sh.** A. Carter 4164.  
*Justicia insolita* T. S. Brandegee subsp. *insolita*. **Sh.** A. Carter 3827, 3916, 5711; J. L. León 8052, 10598; M. Domínguez 300, 3569; R. Domínguez 1082; J. Rebman 7708.  
*Justicia palmeri* Rose **Sh.** A. Carter 3818, 3819, 3912, 3953, 4182, 4249, 4400, 4650, 4744, 4889, 5006, 5091, 5189, 5442, 5498, 5770; J. L. León 7617, 9889, 9896, 9917, 10369, 10599; J. Rebman 9778; M. Domínguez 3353, 3580, 3628; R. Domínguez 2770, 2883. Chupa rosa  
*Justicia spicigera* (Schlecht.) Bailey [*Jacobinia* *s.*] **Ph.** A. Carter 5644.  
*Ruellia californica* (Rose) I. M. Johnston subsp. *californica*. **Sh.** A. Carter 3897, 4136, 4212, 4245, 4259, 4421, 4461<sup>a</sup>, 4479, 4506, 4846, 4847; J. L. León 7616, 9930, 10367; M. Domínguez 192.  
*Ruellia californica* (Rose) I. M. Johnston subsp. *peninsularis* (Rose) T. F. Daniel [*R. p.*] **Sh.** A. Carter 3766, 4169, 4193, 4202, 4316, 4399, 4784, 4828, 4888, 4938, 5421, 5810; J. L. León 9354, 10619; J. Rebman 7726; M. Domínguez 2802, 3126, 3670; R. Moran 18871. Rama Parda, Chamizo  
*Siphonoglossa longiflora* (Torr.) A. Gray **Ph.** M. Domínguez 3668  
*Tetramerium fruticosum* T. S. Brandegee **Ph.** A. Carter 3832, 3899, 3919, 4073, 4748, 4913, 4914, 5168; J. L. León

9906; M. Domínguez 2342, 3110, 3572, 3666.

*Tetramerium nervosum* Nees in Benth. **Ph.** A. Carter 5324; M. Domínguez 202.

#### **Achatocarpaceae**

*Phaulothamnus spinescens* A. Gray **Sh.** A. Carter 4151, 4704; R. Domínguez 1434.

#### **Aizoaceae**

*Trianthema portulacastrum* L. **An.** A. Carter 4603, 4706<sup>a</sup>, 4957, 4959, 5634; J. L. León, 8030; J. Rebman 7636; M. Domínguez 1394; R. Domínguez 2070. Verdolaga de Cochi

#### **Amaranthaceae [incl. Chenopodiaceae]**

*Amaranthus caudatus* L. **An.** (NW) R. Domínguez 2004. Quelite

*Amaranthus fimbriatus* (Torr.) Benth. **An.** A. Carter 4588, 4700; R. Domínguez 2551. Quelite

*Amaranthus lepturus* S. F. Blake **An.** A. Carter 4973, 5518. Quelite

*Amaranthus palmeri* S. Wats. **An.** A. Carter 4507, 5306, 5547; J. L. León 8025, 9845, Quelite 9929, 10353, 10608; R. Moran 18976; R. Domínguez 1301, 2077, 2811.

*Amaranthus pringlei* S. Wats. **An.** A. Carter 4472, 4477. Quelite

*Amaranthus venulosus* S. Wats. **An.** J. Rebman 7670; J. L. León 10531; M. Domínguez 3116. Quelite

*Amaranthus watsonii* Standley **An.** A. Carter 4587<sup>a</sup>, 4587<sup>b</sup>, 5434; J. Rebman 7641. Quelite

*Atriplex barclayana* (Benth.) D. Dietr. subsp. *barclayana* **Ph.** A. Carter 4895, 4896, 5610<sup>a</sup>; J. L. León 10027, 10502; M. Domínguez 3624; R. Domínguez 1812. R. Moran 18933; J. Rebman 9826. Saladillo

*Atriplex magdalenae* T. S. Brandegees **An.** R. Domínguez 1811.

*Atriplex rosea* L. **Ph.** J. L. León 4333.

*Celosia floribunda* A. Gray **Sh.** J. Rebman 5713, 9798; R. Domínguez 1424, 2163; M. Domínguez 3365. Bledo

*Chenopodium murale* L. **An.** R. Domínguez 2807; J. Rebman 9714, 9797. Chuale

*Dysphania ambrosioides* (L.) Mosyakin et Clemants [*Chenopodium a.*] **An.** R. Domínguez 1309. Epazote

*Gomphrena sonora* Torr. **Ph.** A. Carter 4996, 5298; J. L. León 10547; R. Moran 18997.

*Iresine alternifolia* S. Wats. [*Dicraurus a.*] **Sh.** A. Carter 3804, 3913, 4216, 4354, 4492, 4801; J. L. León 7635, 9881, 10207; J. Rebman 9807; M. Domínguez 189, 3612, 3665; R. Domínguez 1420, 2561, 2854; R. Moran 18937.

*Iresine angustifolia* Euphrasén **Sh.** A. Carter 3947, 4351, 4741; J. Rebman 5708; M. Domínguez 3564; R. Moran 18973.

*Salsola tragus* L. [misapp. *S. kali* var. *tenuifolia*] **An.** R. Domínguez 1055.

#### **Anacardiaceae**

*Cyrtocarpa edulis* (T. S. Brandegees) Standley **Sc.** A. Carter 4787, 5423; R. Moran 18996. Ciruelo cimarrón

*Malosma laurina* (Nutt.) Abrams [*Rhus l.*] **Sh.** A. Carter 3794, 3999, 4815, 5038, 5138; J. L. León 10494; M. Domínguez 3633. Lentisco

*Pachycormus discolor* (Benth.) Coville var. *discolor* **Sc.** A. Carter 3805, 4099; J. L. León 10484; M. Domínguez 3467, 3639; R. Moran 18938. Copalquín

*Pachycormus discolor* (Benth.) Coville var. *pubescens* (S. Wats.) H. S. Gentry **Sc.** A. Carter 5142, 5476. Copalquín

*Rhus kearneyi* Barkley subsp. *virginum* Moran **Sh.** (NW) A. Carter 5270 5358

*Toxicodendron radicans* (L.) Gillis subsp. *divaricatum* (Greene) Gillis [*Rhus r.*] **Vi.** A. Carter 4697; R. Moran 18198. Yedra

#### **Apiaceae (Umbelliferae)**

*Arracacia brandegeei* Coulter et Rose. **Ph.** A. Carter 3931, 4221, 4372, 4639; J. L. León 1074; R. Moran 18886. Chuchupate

*Daucus pusillus* Michx. **Ph.** A. Carter 4012

*Eryngium nasturtifolium* Juss. ex Delaroché **Ph.** M. Domínguez 3404; R. Domínguez 1288.

#### **Apocynaceae [incl. Asclepiadaceae]**

*Asclepias albicans* S. Wats. **Sc.** J. L. León 7822; R. Moran 18979; J. Rebman 9741. Jumete

*Asclepias subulata* Decné **Sc.** A. Carter 4579, 4579<sup>a</sup>, 4723; J. L. León 9818. Jumete  
*Cryptostegia grandiflora* (Roxb.) R. Br. **Vi.** A. Carter 5665. Clavel de España  
*Cynanchum palmeri* (S. Wats.) S. F. Blake **Vi.** J. L. León 8032; J. Rebman 9765.  
*Macrosiphonia hesperia* I. M. Johnston **Sh.** A. Carter 3948, 4343, 4346, 4679, 4734, 4803, 4838, 4879, 4908, 5101, 5362, 5495, 5874; J. L. León 7647; R. Moran 18190, 18916, 18991; J. Rebman 7713.  
 \**Marsdenia carterae* W. D. Stevens et Juárez-Jaime **Sc.** (NW) J. L. León 10557; J. Rebman 5705, 7570, 9698, 9828; R. Moran 18990.  
*Matelea cordifolia* (A. Gray) Woodson. **Vi.** A. Carter 4601; J. L. León 9795, 10301; J. Rebman 3578, 7565, 7576, 7654; R. Moran 18949. Talayote  
*Matelea fruticosa* (Brandegee) Woodson. **Vi.** J. Rebman 7626. Talayote  
*Matelea parvifolia* (Torr.) Woodson. **Vi.** M. Domínguez 3046. Talayote  
*Matelea pringlei* (A. Gray) Woodson. **Vi.** M. Domínguez 3048. Talayote chino  
*Metastelma californica* Benth. **Vi.** M. Domínguez 3562, 3368.  
*Metastelma pringlei* A. Gray **Vi.** J. Rebman 7693, 9693  
*Sarcostemma cynanchoides* Decne. subsp. *hartwegii* (Vail) R. Holm. **Vi.** M. Domínguez 3454.  
*Vallesia glabra* (Cav.) Link **Sh.** A. Carter s/n; J. L. León 9894, 10220 Otatave  
*Vallesia laciniata* T. S. Brandegee **Sh.** A. Carter 3823, 3954, 4669; M. Domínguez 3142.

### **Araliaceae**

*Aralia scopulorum* T. S. Brandegee **Tr.** A. Carter 3816, 3893, 3994, 4165, 4242, 4393, 4565, 4814, 5354, 5443, 5522; J. L. León 10168, 10515; M. Domínguez 3127, 3363; R. Moran 18199, 18966; J. Rebman 9712. Saucó

### **Aristolochiaceae**

*Aristolochia watsonii* Woot. et Standl. [*A. porphyrophylla*, *A. brevipes*] **Ph.** A. Carter 3868, 4349; M. Domínguez 201, 1729; R. Domínguez 2545, 2795; R. Moran 18849; J. Rebman 7582. Hierba del indio

### **Asteraceae (Compositae)**

*Acourtia palmeri* (S. Wats.) Reveal et King [*Perezia p.*] **Ph.** A. Carter 3885, 3946, 4352, 4408, 5139; M. Domínguez 3355.  
*Acourtia pinetorum* (T. S. Brandegee) Reveal et King [*Perezia p.*] **Ph.** A. Carter 4497, 5428; J. L. León 10176; R. Moran 18912; J. Rebman 9827.  
*Ageratina viscosissima* (Rolfe) King et H. Robinson [*Eupatorium purpusii*] **Ph.** A. Carter 3923, 5465; R. Domínguez 2713.  
 \*\**Alvordia glomerata* T. S. Brandegee var. *glomerata* **Ph.** A. Carter 3815, 3943, 4032, 4228, 4405, 4458, 4467, 4483, 4493, 4676, 4676<sup>a</sup>, 4756, 4805, 4892, 5450, 5740; J. L. León 10315, 10517; M. Domínguez 195, 3640; R. Moran 18851, 18935.  
 \**Amauria carterae* Powell. **Ph.** A. Carter 5439; J. L. León 10481; R. Moran 18844, 18897, 18969.  
*Amauria rotundifolia* Benth. **An.** A. Carter 4235, 4518; M. Domínguez 3588.  
*Ambrosia acuminata* (T. S. Brandegee) Payne. **Sh.** R. Domínguez 967; J. Rebman 5129, 5156.  
*Ambrosia ambrosioides* (Cav.) Payne. **Sh.** A. Carter 3799, 4024; M. Domínguez 3360. Chicura  
*Ambrosia bryantii* (Curran) Payne. **Sh.** R. Domínguez 1060. Alfilerillo  
*Ambrosia camphorata* (E. Greene) Payne. **Sh.** A. Carter 3841, 4137a, 4198; J. L. León 4338; M. Domínguez 3636, 10623; R. Domínguez 1808, 2729; J. Rebman 9719.  
*Ambrosia carduacea* (E. Greene) Payne. **Sh.** A. Carter 3857, 4643, 4802, 5501; R. Moran 18203  
*Ambrosia confertiflora* DC. **Ph.** A. Carter 4137 4312; R. Domínguez 1437; J. Rebman Istafiate 9785.  
*Ambrosia divaricata* (T. S. Brandegee) Payne. **Ph.** A. Carter 3869 4203; R. Domínguez 1084.  
*Ambrosia magdalenae* (T. S. Brandegee) Payne. **Ph.** M. Domínguez 3113; R. Domínguez 1077.  
*Ambrosia monogyra* (A. Gray) Strother et. B. G. Baldwin [*Hymenoclea m.*] **Sh.** J. L. León 10360; R. Domínguez 1284. Romerillo  
 \**Archibaccharis peninsularis* S. F. Blake **Ph.** A. Carter 3996, 4355, 4761, 5087, 5183, 5334, 5367<sup>a</sup>, 5527.  
*Artemisia ludoviciana* Nutt. **Sh.** A. Carter 5523.  
*Aster subulatus* Michx. var. *ligulatus* Shinn. [*A. exilis*] **Sh.** A. Carter 5645; M. Domínguez 1122.



- Baccharis salicifolia* (Ruíz Lopez et. Pavón) Pers. [*B. glutinosa*] **Sh.** A. Carter 4279; J. L. León 8016, 9810; R. Moran 18207. Guatamote
- Baccharis sarathroides* A.Gray **Sh.** A. Carter 4749, 5427; M. Domínguez 2282 ; R. Moran 19000. Escoba Amarga
- Bebbia atriplicifolia* (A. Gray) E. Greene [*B. juncea* var. *a.*] **Ph.** A. Carter 4007, 4776, 5440; M. Domínguez 3118. Apan
- Bebbia juncea* (Benth.) E. Greene var. *juncea* **Ph.** A. Carter 4006, 4038; J. L. León 8031, 9926; R. Domínguez 2799.
- Bebbia juncea* (Benth.) E. Greene var. *aspera* E. Greene **Sh.** R. Domínguez 2145, 2479.
- Bidens leptcephala* Sherff. **An.** A. Carter 5002, 5175, 5305.
- Bidens pilosa* L. var. *pilosa*. **An.** A. Carter 3872.
- Boeberastrum anthemidifolia* (Benth.) Rydb. [*Dyssodia a.*] **Ph.** R. Domínguez 1068.
- Brickellia brandegeei* B. L. Robinson [*B. macromeria*] **Ph.** A. Carter 4401; M. Domínguez 1711, 2945, 3686; R. Moran 18984; J. Rebman 9792, 9795.
- Brickellia coulteri* A. Gray var. *coulteri* **Ph.** A. Carter 3909, 3956, 4294, 5786.
- Brickellia glabrata* (Rose) B. L. Robinson. **Ph.** A. Carter 3878, 4083, 4473, 5218<sup>a</sup>, 5218<sup>b</sup>; J. L. León 8042, 10339; J. Rebman 3576; M. Domínguez 2494, 2759, 2969, 3431; R. Domínguez 2858; R. Moran 18986.
- Brickellia hastata* Benth. **Sh.** R. Domínguez 2572.
- \**Brickellia megaphylla* M. E. Jones. **Ph.** A. Carter 3884, 4118, 4357, 4457, 4635, 4666, 4898, 5164; J. Rebman 7716, 9617; R. Moran 18967.
- Brickellia peninsularis* T. S. Brandegee **Ph.** A. Carter 4076, 4695, 5443, 5463, 5872; R. Moran 18889.
- Chloracantha spinosa* (Benth.) G. Nesom var. *spinisissima* (Brandege) Sundberg [*Aster spinosus*] **Hf.** (NW) A. Carter 5386; J. L. León 9809; J. Rebman 7083; R. Domínguez 1993. Buena mujer
- Coreocarpus dissectus* S. F. Blake **An.** A. Carter 3877, 4234, 4344, 4800, 5335, 5477, 5731; J. L. León 10202; M. Domínguez 3423; R. Domínguez 2548; R. Moran 18210, 18953, 18993.
- Coreocarpus parthenioides* Benth. var. *parthenioides*. **An.** A. Carter 3792, 4188, 4858, 5054, 5161, 5372, 5510, 5748; J. L. León 9903, 10373, 10607; J. Rebman 3427, 7653; M. Domínguez 3382; R. Domínguez 2143, 2747, 2812, 2885. Aceitilla blanca
- Coreocarpus parthenioides* Benth. var. *heterocarpus* (A. Gray) S. F. Blake **An.** A. Carter 4471; J. L. León 8038, 10542; R. Moran 18854. Aceitilla amarilla
- Eclipta prostrata* (L.) L. [*E. alba*] **An.** A. Carter 5932; M. Domínguez 3675; R. Domínguez 1302; J. Rebman 9726, 9784.
- Encelia farinosa* A. Gray var. *phenicodonta* (S. F. Blake) I. M. Johnston. **Ph.** A. Carter 4019, 4205, 4767, 5437; J. L. León 8032, 10231, 10362; M. Domínguez 3574, 3466; R. Moran 18930. Incienso
- Encelia farinosa* A. Gray var. *radians* T. S. Brandegee ex S. F. Blake **Ph.** A. Carter 5723. Incienso
- Encelia palmeri* Vasey et Rose **Sh.** M. Domínguez 3695; R. Domínguez 1078, 1299, 2141.
- Eupatorium peninsulare* T. S. Brandegee var. *peninsulare* **Ph.** A. Carter 3808, 3831, 4002, 4281, 4289, 4739, 5478; J. L. León 9919, 10501, 10553; R. Moran 18995.
- Filago californica* Nutt. **An.** A. Carter 5136.
- Flaveria trinervia* (Spreng) C. Mohr **An.** A. Carter 5648.
- Gamochaeta* cf. *stagnalis* (I. M. Johnston) Anderberg **An.** M. Domínguez 3336, 3689.
- Gnaphalium palustre* Nutt. **An.** A. Carter 4029, 4173, 5761; M. Domínguez 1707.
- Heliopsis parviflora* A. Gray var. *rubra* (Fish.) Wigg. **Ph.** A. Carter 3706, 3833, 4022, 4745, 4911, 5123, 5430, 5540; J. L. León 4336, 4982, 10208, 10492, 10610; J. Rebman 7653; M. Domínguez 2968, 3557, 3452; R. Moran 18957.
- Heterosperma pinnatum* Cav. **An.** (NW) A. Carter 5338.
- \*\**Heterosperma xantii* A. Gray var. *xantii* **An.** A. Carter 4774, 5433, 5660; J. L. León 10325, 10534; J. Rebman 3464, 7685, 9832; M. Domínguez 3060, 3596; R. Moran 18885.
- \**Hofmeisteria anomalochaeta* (R. M. King) B. L. Turner [*Carterothamnus a.*] **Ph.** A. Carter 4812, 5452, 5475, 5716; J. L. León 10512; J. Rebman 3456; M. Domínguez 2674; R. Moran 18843.
- Hofmeisteria fasciculata* (Benth.) Walp. var. *fasciculata*. **An.** A. Carter 5474; M. Domínguez 3420, 3590.
- Hofmeisteria fasciculata* (Benth.) Walp. var. *pubescens* (S. Wats.) B. L. Robinson. **Ph.** A. Carter 3874; J. L. León 7616, 10204; M. Domínguez 2337; R. Domínguez 1141.
- Hofmeisteria fasciculata* (Benth.) Walp. var. *xantii* A.Gray **Ph.** J. L. León 10365; M. Domínguez 2691; R. Domínguez 1421.

- Lactuca serriola* L. **An.** M. Domínguez 3505, J. Rebman 9665.
- Machaeranthera pinnatifida* (Hook) Shinnery var. *incisifolia* (I. M. Johnston) Turner et Hartman [*Haplopappus spinulosus* subsp. *i.*] **Ph.** J. L. León 10497; J. Rebman 7575, 9753; M. Domínguez 3423.
- Machaeranthera pinnatifida* (Hook) Shinnery var. *scabrella* (E. Greene) Turner et Hartman [*Haplopappus spinulosus* subsp. *s.*] **Ph.** A. Carter 5651; J. L. León 10370; J. Rebman 3455; 9696; M. Domínguez 3424, 3611, R. Moran 18846, 18896.
- Malacothrix xantii* A. Gray **Ph.** A. Carter 3783, 3905, 4384, 5436, 5813, 5719; M. Domínguez 3376, 3471 ; J. Rebman 9791.
- Melampodium cupulatum* A. Gray **An.** A. Carter 4880, 4964, 5055, 5314, 5534, 5613; J. L. León 10376; M. Domínguez 2800, 2964.
- Parthenice mollis* A. Gray var. *peninsularis* Sauck **An.** A. Carter 3767, 5050, 5789; J. L. León 10343; M. Domínguez 2686, 3457; R. Domínguez 1057.
- Pectis cylindrica* (Fernald) Rydb. **An.** A. Carter 5275.
- Pectis multiseta* Benth. var. *ambigua* (Fernald) Keil **An.** A. Carter 5794.
- Pectis linifolia* L. var. *linifolia* **An.** A. Carter 5283 M. Domínguez 2929.
- Pectis papposa* Harvey et A. Gray var. *papposa* **An.** A. Carter 4584, 5379<sup>a</sup>, 5395, 5395<sup>a</sup>; J. L. León 4592; J. Rebman 3372, 3529.
- Pectis rusbyi* E. Greene ex A. Gray [*P. palmeri*] **An.** A. Carter 4861, 4990, 5053 5379<sup>b</sup>, 5543; J. L. León 4337, 8026, 10351; J. Rebman 3573; 7646; R. Domínguez 2209, 2739, 2774, 2891; R. Moran 18874, 19013.
- Pectis vollmeri* Wigg. **An.** A. Carter 4591, 4893, 5250; J. L. León 4987; M. Domínguez 1139, 2862, 2938; R. Domínguez 2067, 2079; R. Moran 18220.
- Perityle aurea* Rose. **An.** J. L. León 9898, 10227; M. Domínguez 3502, 3589; R. Manzanilla Amarilla Domínguez 2746, 2888, 2892
- Perityle californica* Benth. **An.** A. Carter 3789, 3840, 3998, 4171, 4417, 4519, 5418, 5816, 5772; J. L. León 8017; M. Domínguez 2952, 3335, 3623, 3649, 3684, 3694; R. Domínguez 1805; R. Moran 18855, 19002; J. Rebman 9806. Manzanilla amarilla
- Perityle emoryi* Torr. **An.** J. L. León 10317; R. Domínguez 1317. Manzanilla blanca
- Perityle incompta* T. S. Brandege **An.** J. L. León 10229; M. Domínguez 2688, 3616; R. Domínguez 1307.
- \**Perityle lobata* (Rydb.) I. M. Johnston **An.** A. Carter 3811, 3867, 3911, 4199, 5717, 5732; J. L. León 10194, 10510; M. Domínguez 3132, 3566, 3658; R. Domínguez 2778; R. Moran 18847, 18913, 18963; J. Rebman 9692, 9710, 9787.
- \**Pleurocoronis gentryi* (Wigg.) R. M. King [*Hofmeisteria* g.] **Ph.** A. Carter 3910, 4080, 4207, 4236, 4247, 4602, 4890, 5361, 5387, 5601; J. Rebman 5698, 7568, 7672 ; R. Moran 18200.
- Pleurocoronis laphamioides* (Rose) R. M. King et H. Rob. var. *pauciseta* (I. M. Johnston) R. M. King [*Hofmeisteria* l. var. *p.*] **Ph.** A. Carter 4470; M. Domínguez 2673, 2761, 3456.
- Pluchea salicifolia* (Mill.) Blake [*P. adnata*] **Hf.** A. Carter 4556.
- Pluchea odorata* (L.) Cass. **Hf.** A. Carter 4897; R. Moran 18192.
- Porophyllum crassifolium* S. Wats. **An.** A. Carter 5431; J. Rebman 7080; M. Domínguez 2752; R. Moran 18899. Hierba del venado.
- Porophyllum gracile* Benth. **Ph.** A. Carter 3876, 4213, 5295, 5454, 5808; J. L. León 7650, 10291; M. Domínguez 3583; R. Moran 18919. Hierba del venado.
- Porophyllum macrocephalum* DC. **An.** A. Carter 4496, 5045, 5076, 5085, 5109, 5272. Hierba del venado
- Pseudoconyza viscosa* (Mill.) D'Arcy **An.** R. Domínguez 1428.
- Pseudognaphalium bioletti* Anderberg [*Gnaphalium bicolor*] **An.** A. Carter 4232, 5465; J. L. León 10498; J. Rebman 9824.
- Pseudognaphalium oxyphyllum* (DC.) Kirp. [*Gnaphalium o.*] **An.** M. Domínguez 2680.
- Pseudognaphalium stramineum* (Kunth) Anderberg [*G. stramineum*, *G. chilense*, *G. chilense* var. *confertiflorum*, *G. gossypinum*, *G. lagoponoides*, *G. proximum*, *G. sulphurescens*] **An.** A. Carter 3969, 4074.
- Sonchus oleraceus* L. **An.** A. Carter 3925, 3966; R. Domínguez 2716.
- \**Trichocoronis wrightii* A. Gray var. *wigginsii* R. M. King et Robinson **Hf.** J. L. León 10104
- Trixis californica* Kell. **Ph.** A. Carter 3850, 3896, 4200, 4237, 4398, 5426; J. L. León 10215; M. Domínguez 2682.
- Trixis peninsularis* S. F. Blake **Ph.** M. Domínguez 3128.
- \**Verbesina oligocephala* I. M. Johnston. **Ph.** A. Carter 3705, 4079, 4345, 4356, 4456, 4632, 4811, 5876; J. L. León

10212, 10543; J. Rebman 5707, 9821; M. Domínguez 3422, 3648; R. Moran 18898, 18895.

\*\**Verbesina peninsularis* S. F. Blake **Ph.** A. Carter 3851, 4373, 4499, 4619, 4855, 4877, 5311; J. L. León 7622, 10179.

\**Viguiera carterae* E. Schill. **Sh.** (NW) A. Carter. 5041, 5140.

*Viguiera chenopodina* E. Greene [*V. deltoidea* var. *c.*] **Sh.** A. Carter 4186, 4251, 4503, 5809; J. L. León 7649; R. Domínguez 1083, 2583; J. Rebman 7668.

*Viguiera deltoidea* A. Gray [*V. d.* var. *tastensis*] **Sh.** J. L. León 8029, 10489; M. Domínguez 2754; R. Moran 18929. Tacote chino.

*Viguiera purissima* T. S. Brandegee **Sh.** A. Carter 4162, 4307, 5068, 5111, 5141; M. Domínguez 3638; J. Rebman 9800.

*Viguiera triangularis* M. E. Jones **Sh.** A. Carter 3825, 3949, 4179, 4463, 4677, 4691, 4780, 5125, 5754, 5758; J. L. León 10026, 10341.

*Xanthium strumarium* L. **Hf.** M. Domínguez 2933. Huizapolon.

*Xylothamnia diffusa* (Benth.) G. L. Nesom [*Haplopappus sonorensis*, *Ericameria diffusa*] **Sh.** A. Carter 4138; J. L. León 10257; R. Domínguez 2581; R. Moran 19024. Hierba del pasmo.

### **Bignoniaceae**

*Tecoma stans* (L.) Juss. **Sh.** A. Carter 4645, 5078; J. L. León 9879, 10197, 10514; J. Rebman 5695; M. Domínguez 2757, 3656; R. Moran 18959; R. Domínguez 2569. Palo de arco.

### **Bixaceae (Cochlospermaceae)**

*Amoreuxia palmatifida* Sessé et Mociño ex DC. **Ph.** A. Carter 4966, 18873 ; R. Domínguez 2068, 2423 ; J. Rebman 7689. Saya.

### **Boraginaceae [incl. Cordiaceae, Ehretiaceae, Heliotropaceae, Hydrophyllaceae]**

*Bourreria sonora* S. Wats. **Tr.** J. L. León 10295; J. Rebman 7580; R. Moran 18214.

*Cordia curassavica* (Jacq.) Roem. et Schult. [*C. brevispicata*] **Sh.** A. Carter 4021, 4140, 4148, 4498, 4832, 5084; J. L. León 4343, 9886, 9801, 10511, 10603; M. Domínguez 3549; R. Domínguez 1425, 2779, 2834, 5502; R. Moran 18866; J. Rebman 7692. Manzanita roja.

*Cryptantha echinosepala* J. F. Macbr. **An.** A. Carter 3777, 3894, 5720, 5806, 5726; J. L. León 9837; M. Domínguez 3109, 3341, 3470; R. Domínguez 1315, 2371, 2768, 2813; R. Moran 18888, 18955; J. Rebman 9691, 9811.

*Cryptantha grayi* (Vasey et Rose) MacBr. var. *cryptochaeta* (Macbr.) I. M. Johnston **An.** A. Carter 3778, 3839, 4018, 4189, 4418, 5725; R. Domínguez 2737.

*Cryptantha grayi* (Vasey et Rose) MacBr. var. *nesiotica* I. M. Johnston **An.** R. Domínguez 2755, 2802.

*Cryptantha micrantha* (Torr.) I. M. Johnston var. *micrantha* [*Eremocarya m.*] **An.** M. Domínguez 3465

*Eucrypta chrysanthemifolia* (Benth.) E. Greene var. *bipinnatifida* L. C. Constance. **An.** A. Carter 3773, 3997, 4194; M. Domínguez 190; R. Domínguez 2735.

*Eucrypta micrantha* (Torr.) Heller. **An.** M. Domínguez 190, 3333.

*Heliotropium angiospermum* Murr. **Ph.** M. Domínguez 2679, 3834, 3402; R. Domínguez 1286, 1998, 2120.

*Heliotropium curassavicum* L. **Ph.** J. Rebman 7648; M. Domínguez 1285, 1431, 1745, 2119. Hierba del sapo

*Heliotropium fruticosum* L. **Ph.** (NW) A. Carter 4960, 5046, 5572.

*Heliotropium procumbens* Mill. **Hf.** A. Carter 4313, 4322; J. Rebman 5712, 9817; R. Domínguez 2810.

*Heliotropium wigginsii* I. M. Johnston **An.** A. Carter 4711, 4978, 5630; R. Domínguez 2090; J. Rebman 7793.

*Nama coulteri* A. Gray **An.** A. Carter 3793, 3979, 5782; M. Domínguez 168, 3344; R. Domínguez 2750, 2819, 2896.

*Nama stenocarpum* A. Gray **An.** A. Carter 4321.

*Nama jamaicensis* L. **An.** (NW) M. Domínguez 3103.

*Pectocarya linearis* DC. subsp. *ferocula* I. M. Johnston **An.** R. Domínguez 1069, 2722.

*Phacelia distans* Benth. **An.** J. L. León 10102.

*Phacelia scariosa* T. S. Brandegee **An.** A. Carter 3703; J. Rebman 5709, 9695; M. Domínguez 2486, 2966, 3065, 3124, 3340, 3553, 3674; R. Domínguez 1048, 2765, 2815, 2838; R. Moran 18931.

*Tiquilia cuspidata* (I. M. Johnston) A. Richardson [*Coldenia c.*] **Ph.** A. Carter 5802.

*Tournefortia hartwegiana* Steudel **Sh.** A. Carter 4100. Manzanita de gallina.

*Tournefortia volubilis* L. **Ph.** M. Domínguez 3458; R. Domínguez 2008.

**Brassicaceae (Cruciferae)**

- Descurainia incisa* (A. Gray) Britton subsp. *incisa* [*D. richardsonii* subsp. *i.*] **An.** M. Domínguez 166.
- Descurainia pinnata* (S. Wats.) Britt. subsp. *glabra* (Woot. et Stand.) Detling. **An.** A. Carter 3775, 4013, 4178, 5133, 5133<sup>b</sup>; M. Domínguez 3337; R. Domínguez 2733.
- Draba cuneifolia* Nutt. ex Torr. et A. Gray var. *integrifolia* S. Wats. **An.** M. Domínguez 3338.
- Dryopetalon palmeri* (S. Wats.) O. E. Schulz. **An.** A. Carter 3875, 4515, 5811; J. L. León 10335; R. Moran 18925.
- Dryopetalon purpureum* Rollins. **An.** J. L. León 4972; M. Domínguez 2675, 2683, 2971, 3064, 3601; R. Domínguez 1080, 2773.
- Dryopetalon similis* (S. Wats.) O. E. Schulz. **An.** (NW) R. Domínguez 1319.
- Lepidium lasiocarpum* Torr. et A. Gray var. *lasiocarpum* **An.** J. L. León 4986; M. Domínguez 3115. Pamita.
- Lepidium lasiocarpum* Nutt. var. *latifolium* Hitchc. **An.** A. Carter 3781, 3908, 4176, 5135, 5739; J. Pérez 1455; M. Domínguez 2484, 3374; R. Domínguez 2820; R. Moran 18887; J. Rebman 9707, 9808. Pamita.
- Lyrocarpa coulteri* Hook. et Harv. ex Harv. var. *apiculata* Rollins. **Ph.** A. Carter 3974, 4059, 4586; J. Rebman 3462, 7694; M. Domínguez 2684, 3038, 3463.
- Lyrocarpa coulteri* Hook et Harv. var. *coulteri*. **An.** J. L. León 10221
- Lyrocarpa xantii* T. S. Brandegees **An.** M. Domínguez 2967, 3112, 3622, 3691; R. Domínguez 2898.
- Rorippa palustris* (L.) Besser var. *hispida* (Desv.) Rydb. [*R. islandica* var. *h.*] **Hf.** R. Domínguez 1313 ; J. L. León 8049.
- Sibara pectinata* (E. Greene) E. Greene **An.** R. Domínguez 1071.
- Sisymbrium irio* L. **An.** M. Domínguez 3367; R. Domínguez 2806.

**Buddlejaceae (Loganiaceae)**

- Buddleja corrugata* M. E. Jones subsp. *corrugata*. **Sh.** (NW) A. Carter 4570, 4675, 5086, 5145, 5171, 5330, 5661, 5721; M. Domínguez 3584, 2421; R. Domínguez 1143<sup>a</sup>; R. Moran 18936.

**Burseraceae**

- Bursera epinnata* (Rose) Engler. **Sc.** A. Carter 4114, 4716, 4830, 4847, 5191; J. L. León 9904; M. Domínguez 1142, 3650; R. Domínguez 2414, 2865, 2576; R. Moran 18941. Copal.
- Bursera hindsiana* (Benth.) Engler. **Sc.** A. Carter 4284; M. Domínguez 1126, 3635; R. Domínguez 2413; J. Rebman 9689. Copal.
- Bursera laxiflora* S. Wats. **Sc.** (NW) A. Carter 4132, 4180, 4975, 5127, 5197, 5327; R. Domínguez 1393. Copalquín.
- Bursera microphylla* A. Gray **Sc.** A. Carter 3909, 4035, 4113, 4143, 4144, 4511, 4511<sup>a</sup>, 4512, 4567, 4578, 5192, 5193, 5488; J. Rebman 9775.
- Bursera odorata* T. S. Brandegees **Sc.** A. Carter 3961, 4036, 4069, 4112, 4141, 4509, 4510, 4626, 4716<sup>a</sup>, 4719, 4790, 5095, 5096, 5154, 5194; J. L. León 10025, 10519; R. Domínguez 2864; R. Moran 18862. Torote blanco.

**Cactaceae**

- Cochemia posegeri* (Hildmann) Britt. et Rose **Sc.** R. Domínguez 964, 3456.
- Cylindropuntia alcahes* (F. A. C. Weber) F. M. Knuth var. *alcahes* **Sc.** J. L. León 7650. Clavellina.
- \*\**Cylindropuntia alcahes* (F. A. C. Weber) F. M. Knuth var. nov. **Sc.** J. L. León 10087; J. Rebman 1404; R. Domínguez 2785. Clavellina.
- Cylindropuntia cholla* (F. A. C. Weber) F. M. Knuth. **Sc.** J. L. León 7319, 7665, 9284. Choya pelona.
- Cylindropuntia ciribe* (Engelmann) F. M. Knuth. **Sc.** R. Domínguez 2666. Clavellina.
- Echinocereus brandegeei* (J. Coulter) Schumann **Sc.** M. Domínguez 1953.
- Ferocactus peninsulæ* (Engelm. ex F. A. C. Weber) Britt. et Rose var. *peninsulæ* **Sc.** A. Carter 5211. Biznaga.
- Ferocactus peninsulæ* (Engelm. ex Weber) Britt. et Rose var. *townsendianus* (Britt. et Rose) N. P. Taylor. **Sc.** J. L. León 7664, 10242. Biznaga.
- Ferocactus rectispinus* (Engelm.) Britt. et Rose [*F. emoryi* var. *r.*] **Sc.** A. Carter 5209, 5506 ; J. L. León 10545. Biznaga.
- Lophocereus schottii* (Engelm.) Britt. et Rose. var. *schottii* **Sc.** M. Domínguez 2488. Garambullo.



*Lophocereus schottii* (Engelm.) Britt. et Rose var. *schottii* f. *spiralis* A. Carter **Sc.** A. Carter 4868; J. L. León 10088.  
*Mammillaria dioica* K. Brandegee **Sc.** J. L. León 10185 Viejito.  
*Myrtillocactus cochal* (Orcutt) Britt. et Rose **Sc.** A. Carter 4395. Frutilla.  
*Opuntia tapona* Engelm. **Sc.** J. Rebman 5128, 5716. Nopal de tuna blanca.  
*Pachycereus pringlei* (S. Wats.) Britt. et Rose **Sc.** J. L. León 6296 Cardón pelón  
*Peniocereus johnstonii* Britt. et Rose. **Sc.** J. L. León 7641, 9907; J. Rebman 7709, 9727.  
*Peniocereus striatus* (T. S. Brandegee) Buxbaum [*Wilcoxia* s.] **Sc.** A. Carter 4905; J. L. León 7640, 10560; J. Rebman 9728; M. Domínguez 3464. Rajamatraca  
*Stenocereus gummosus* (Engelm.) Gibson et Horak [*Machaerocereus* g.] **Sc.** A. Carter 5529. Pitahaya agria  
*Stenocereus thurberi* (Engelm.) Gibson et Horak var. *thurberi* [*Lemaireocereus* t.] **Sc.** J. L. León 3256. Pitahaya dulce.

### Campanulaceae

*Lobelia laxiflora* Kunth var. *angustifolia* A. DC. **Ph.** A. Carter 3938, 4696, 5242.

### Capparaceae (Capparidaceae)

*Cleome lutea* Hook. **An.** J. L. León 8027; M. Domínguez 1723.  
*Cleome tenuis* S. Wats. subsp. *tenuis* **Ph.** A. Carter 4962, 5247, 5631; J. L. León 10093; M. Domínguez 2807, 2958; R. Domínguez 2108, 2117.  
*Cleome jonesii* (J. F. Macbride) Tidestrom. **Ph.** R. Domínguez 2065.  
*Cleome viscosa* L. **An.** J. Rebman 5714  
*Forchammeria watsonii* Rose **Tr.** A. Carter 4095, 4873, 4942, 5414; R. Moran 18202, 19021. Palo san Juan.

### Caryophyllaceae

*Achyronychia cooperi* Torr. et A. Gray **Ph.** R. Domínguez 1079, 1088.  
*Drymaria arenarioides* Willd. var. *peninsularis* (Blake) J. Duke **An.** A. Carter 5457, 5658; R. Moran 18895.  
*Drymaria debilis* T. S. Brandegee **Ph.** A. Carter 3812, 4093, 4338, 4514, 4658, 4799, 5718; J. L. León 9880, 10538; M. Domínguez 3667; R. Domínguez 2836; R. Moran 18894, 19016.  
*Drymaria glandulosa* Bartl. **An.** A. Carter 3774, 3907, 4208, 5162, 5349, 5461; J. L. León 10195, 10356; M. Domínguez 3406, 3679; R. Domínguez 2761; J. Rebman 9737.  
*Drymaria holosteoides* Benth. var. *holosteoides*. **An.** J. Rebman 3521  
*Drymaria holosteoides* var. *crassifolia* (Benth.) J. Duke **An.** J. L. León 10332; M. Domínguez 3597.  
*Drymaria viscosa* S. Wats. **An.** M. Domínguez 3066; R. Domínguez 2851.  
*Silene laciniata* Cav. subsp. *brandegeei* Hitchc. et Maguire **Ph.** A. Carter 5328.

### Convolvulaceae [incl. Cuscutaceae]

*Calonyction tastense* (Brandegee) House **Vi.** R. Domínguez 2856. Hierba de la hormiga.  
*Calystegia macrostegia* (E. Greene) Brummitt subsp. *longiloba* (Abrams) Brummitt [*Convolvulus aridus* subsp. *longilobus*] **Ph.** M. Domínguez 2701.  
*Cuscuta californica* Choisy var. *californica*. **Pa.** J. L. León 10290. Tripa de aura  
*Cuscuta californica* Choisy var. *papillosa* Yuncker. **Pa.** J. L. León 10292. Tripa de aura  
*Cuscuta pentagona* Engelm. [*C. campestris*] Yuncker **Pa.** M. Domínguez 3672. Tripa de aura  
*Cuscuta leptantha* Engelm. **Pa.** A. Carter 4067, 4526; J. L. León 10167. Tripa de aura  
*Cuscuta macrocephala* Schaff. et Yuncker **Pa.** A. Carter 3810, 4488, 5728; R. Moran 18962. *Cuscuta odontolepis* Engelm. **Pa.** M. Domínguez 3472, 3507, 3552, 3609. Tripa de aura  
*Cuscuta polyanthemom* Schaff. ex Yuncker. **Pa.** (NW) J. L. León 4973. Tripa de aura.  
*Cuscuta tuberculata* T. S. Brandegee **Pa.** A. Carter 4592, 4825, 4981, 5080; J. Rebman 7638, 9779; M. Domínguez 1724, 2864. Tripa de aura.  
*Cuscuta umbellata* H. B. K. **Pa.** J. Rebman 3371 Tripa de aura  
*Evolvulus alsinoides* L. var. *angustifolius* Torr. [*E. a.* var. *acapulcensis*] **Ph.** A. Carter 4017, 4860, 4917, 5021; J. L. León 7648, 8036, 10580; M. Domínguez 186, 1141, 3429; R. Domínguez 2103, 2725, 2772, 2818, 2821; J. Rebman 7684, 9723.

*Evolvulus sericeus* Sw. **An.** R. Domínguez 2103

*Ipomoea costellata* Torr. **Vi.** A. Carter 5019, 5347, 5536; J. L. León 9807, 10378; M. Domínguez 191, 2849, 3620; R. Domínguez 2091, 2100. Trompillo.

*Ipomoea cristulata* H. Hallier. **Vi.** (NW) A. Carter 4652, 4755, 4986, 5538; J. L. León 9842, 10297, 10595; J. Rebman 7657; M. Domínguez 3390. Trompillo.

*Ipomoea hederacea* (L.) Jacq. **Vi.** A. Carter 4985, 5159, 5530; J. L. León 4336. Trompillo.

*Ipomoea hirsutula* Jacq. **Vi.** (NW) R. Moran 18870; J. L. León 9355, 9826, 10349, 10377. J. Rebman 7690, 9786. Trompillo.

*Ipomoea jicama* T. S. Brandegee **Vi.** A. Carter 4501<sup>a</sup>, 5007, 5494, 5620; R. Domínguez 1053, 2092; J. Rebman 7682. Jicama

*Ipomoea nil* (L.) Roth. **Vi.** A. Carter 5254. Trompillo

*Ipomoea purpurea* (L.) Lam. **Vi.** A. Carter 5647. Trompillo

*Ipomoea ternifolia* Cav. var. *leptotoma* (Torr.) J. A. McDonald [*I. leptotoma*] **Vi.** A. Carter 4477<sup>a</sup>, 4710, 4969; J. L. León 10378, 10594; M. Domínguez 1135; J. Rebman 7687, 9718.

*Jacquemontia abutiloides* Benth. var. *abutiloides* **Ph.** A. Carter 3887, 4184, 4227; J. L. León 9916; J. Rebman 7675, 9709; M. Domínguez 3662; R. Domínguez 2418 ; R. Moran 18213.

*Jacquemontia abutiloides* Benth. var. *eastwoodiana* (I. M. Johnston) Wigg. **Ph.** A. Carter 4782; J. L. León 10188, 10529, 10589; M. Domínguez 1397, 3383; R. Domínguez 1408, 2771; R. Moran 18857.

*Jacquemontia agrestis* (Choisy) Meissner **Vi.** (NW) A. Carter 4839, 4997, 5082, 5207, 5291, 5535, 5632 ; R. Domínguez 1137, 2736.

*Jacquemontia pentantha* (Jacq.) Don. **Vi.** (NW) J. L. León 10562; M. Domínguez 3460.

*Merremia aurea* (Kell.) O'Donnell. **Vi.** A. Carter 4732, 5509; J. L. León 10320; J. Rebman 3450; M. Domínguez 1389; R. Domínguez 2105. Yuca

*Merremia dissecta* (Jacq.) Hallier. **Vi.** (NW) M. Domínguez 3499.

### Crassulaceae

*Dudleya nubigena* (Brandegee) Britt. et Rose subsp. *nubigena* **Sc.** (NW) A. Carter 5429; J. L. León 10558 ; R. Moran 18842, 18922 ; J. Rebman 9815. Siempreviva

*Dudleya rubens* (Brandegee) Britt. et Rose. **Sc.** A. Carter 3813, 3998, 4387; J. L. León 10181. Siempreviva

*Sedum alamosanum* S. Wats. **Sc.** A. Carter 5329.

### Cucurbitaceae

*Brandegea bigelovii* (S. Wats.) Cogn. **Vi.** R. Domínguez 1799.

*Cucurbita cordata* S. Wats. T. M. Domínguez 173. Calabacilla amarga

*Cucurbita cylindrata* L. H. Bailey. **Vi.** (NW) A. Carter 4081, 4627.

*Echinopepon cirrhopedunculatus* Rose **Vi.** (NW) J. Rebman 9681

*Echinopepon minimus* (Kell.) S. Wats. **Vi.** A. Carter 4500; J. L. León 9844, 9910, 10299, 10493; J. Rebman 5697, 7679; M. Domínguez 2336, 3358, 3575; R. Domínguez 2884; R. Moran 18942.

*Echinopepon peninsularis* H. S. Gentry **Vi.** A. Carter 3941, 4257, 4909; J. L. León 10359; J. Rebman 3519.

*Ibervillea sonora* (S. Wats.) E. Greene var. *peninsularis* (I. M. Johnston) Wigg. **Vi.** A. Carter 4785, 4797, 5253, 5281; J. Rebman 7585; M. Domínguez 1387; R. Domínguez 2158; R. Moran 18926. Melón de coyote

*Vaseyanthus brandegei* (Cogn.) Rose **Vi.** A. Carter 3855, 5817.

### Elatinaceae

*Bergia texana* (Hook.) Seub. ex Walp. **Hf.** M. Domínguez 3734.

### Euphorbiaceae

*Acalypha aliena* T. S. Brandegee **An.** A. Carter 4958, 4961, 4968; M. Domínguez 2799; R. Domínguez 1426, 2106, 2121, 2876.

*Acalypha californica* Benth. **Sh.** A. Carter 3900, 3955, 4085, 4644, 4694, 5003, 5516; J. Rebman 3453, 7084, 7704, 7695, 9809; M. Domínguez 2493, 3626; R. Domínguez 1407, 2074, 2889.

*Acalypha comoduana* Millsp. **Sh.** A. Carter 3951, 4092, 4221, 4290, 4487, 4609, 4609<sup>a</sup>, 4634, 4763, 4833, 4910,

- 5088, 5312, 5356, 5492, 5515, 5745; M. Domínguez 1393, 3661; J. L. León 10487; R. Domínguez 2556; R. Moran 18905.
- Acalypha subviscida* S. Wats. **Sh.** J. Rebman 9694, 9816.
- Adelia virgata* T. S. Brandegees **Sh.** A. Carter 3834, 4468, 4577, 4630, 5316; R. Domínguez 2165, 2543; R. Moran 18939. Pimientilla
- Bernardia viridis* Millsp. [*B. mexicana*] **Sh.** A. Carter 3809, 4404, 4668, 4742, 4836, 5034, 5119, 5496; M. Domínguez 206, 3578, 3669; R. Moran 18909; J. Rebman 7677. Candelilla
- Cnidioscolus palmeri* (S. Wats.) Rose. **Ph.** A. Carter 4569; J. Rebman 3457; M. Domínguez 3646. Caribe, Mala mujer.
- Croton caboensis* Croizat **Sh.** A. Carter 4834, 4849, 5606; M. Domínguez 3053; R. Domínguez 2544; R. Moran 18212.
- Croton magdalenae* Millsp. **Sh.** A. Carter 3886, 4004, 4406, 4486, 5044, 5500; J. L. León 10541, 10613; J. Rebman 3574, 9684; M. Domínguez 2857, 3052, 3651, 3663; R. Domínguez 2557, 2762; R. Moran 18890.
- Croton sonora* Torr. **Sh.** (NW) A. Carter 4480, 4963, 5035, 5059, 5307; M. Domínguez 1136, 2853, 3369
- Ditaxis brandegeei* (Millsp.) Rose et Stand. var. *brandegeei* [*Argythamnia b.* var. *b.*] **Sh.** A. Carter 5392; R. Domínguez 1061; J. Rebman 3460, 7572; M. Domínguez 1392; R. Domínguez 1067, 1747, 2580.
- Ditaxis lanceolata* (Benth.) Pax et K. Hoffm. **Ph.** A. Carter 4030; M. Domínguez 3579, 3627; R. Domínguez 1410; J. Rebman 7727.
- Ditaxis neomexicana* (Muell.-Arg.) Heller. **Ph.** M. Domínguez 2942, 2852, 3644; R. Domínguez 2873.
- Ditaxis serrata* (Torr.) Heller [*Argythamnia serrata*] **Ph.** A. Carter 3870, 4826; M. Domínguez 2803; R. Moran 19015.
- Euphorbia abramsiana* L. C. Wheeler. **An.** M. Domínguez 2749, 2804. Golondrina
- Euphorbia albomarginata* Torr. et. A. Gray **Ph.** R. Domínguez 2808. Golondrina
- Euphorbia arizonica* Engelm. **An.** A. Carter 3785, 3969, 4912; J. Rebman 9802. Golondrina.
- Euphorbia bartolomaei* E. Greene **Ph.** R. Domínguez 2084, 2777. Golondrina.
- Euphorbia californica* Benth. var. *californica* **Sc.** A. Carter 3795, 4166, 4280, 4311; J. L. León 10578; R. Domínguez 2157, 2162, 2828, 2833. Liga.
- Euphorbia capitellata* I. M. Johnston **Ph.** A. Carter 3784, 4027, 4508, 4714, 4987, 5208, 5288; R. Domínguez 2080, 2757, 2824, 2742; M. Domínguez 1140; J. Rebman 7731, 9722. Golondrina.
- \**Euphorbia chamberlini* I. M. Johnston **Ph.** (NW) I. M. Johnston 4136
- Euphorbia ceroderma* I. M. Johnston **Sc.** A. Carter 4736, 4872, 4928, 4928<sup>a</sup>.
- \**Euphorbia chersonesa* Huft **An.** (NW) J. L. León 10617; J. Rebman 7676, 9788, 9831; R. Moran 18927.
- Euphorbia dentosa* I. M. Johnston **An.** J. Rebman 9780; M. Domínguez 1713.
- Euphorbia eriantha* Benth. **Ph.** A. Carter 5656; M. Domínguez 3606.; R. Domínguez 2135, 2782; R. Moran 18998; J. Rebman 7702.
- Euphorbia heterophylla* L. **An.** A. Carter 4967, 5341, 5539; M. Domínguez 2859.
- Euphorbia hyssopifolia* L. **Ph.** A. Carter 5204, 5293, 5550.
- Euphorbia magdalenae* Benth. **Ph.** A. Carter 4088, 4727; M. Domínguez 2751. Golondrinón.
- Euphorbia melanadenia* Torr. **An.** A. Carter 3788, 3838, 4014. Golondrina.
- Euphorbia micromera* Boiss. **An.** M. Domínguez 3388; R. Domínguez R. Domínguez 1801, 1992, 2104, 2131, 2823. Golondrina.
- Euphorbia misera* Benth. **Sc.** A. Carter 4402, 4810, 5105, 5755; J. L. León 10525; J. Rebman 7659, 9690.
- Euphorbia pediculifera* Engelm. var. *pediculifera*. **An.** A. Carter 3786, 4301, 4729, 5573; R. Domínguez 2133, 2142; M. Domínguez 2750, 2861, 2951; R. Moran 18965, 19001. Golondrina.
- Euphorbia petrina* S. Wats. **An.** A. Carter 3779<sup>a</sup>.
- Euphorbia polycarpa* Benth. var. *polycarpa* **An.** A. Carter 3787, 3968, 4302, 4419, 4589, 4731, 4932, 5763, 5571; J. L. León 10579; M. Domínguez 1128; R. Moran 18869. Golondrina.
- \**Euphorbia pumicicola* Huft **An.** (NW) J. Rebman 7725, 9720.
- Euphorbia setiloba* Engelm. ex Torr. **An.** A. Carter 3779<sup>b</sup>; R. Domínguez 2082, 2089. Golondrina.
- Euphorbia serpens* H. B. K. **An.** A. Carter 4317, 4420, 4730, 4916; M. Domínguez 2805, 3356; R. Domínguez 1291, 1416, 2132. Golondrina.
- Euphorbia tomentulosa* S. Wats. **Ph.** A. Carter 4167, 4474, 4728, 4793, 4794, 5032, 5371, 5399, 5533, 5760; J. L. León 10520; M. Domínguez 3634; R. Moran 18974; J. Rebman 7681.
- Euphorbia trachysperma* Engelm. **An.** A. Carter 5315, 5614; M. Domínguez 2806; J. Rebman 9789.

*Euphorbia xanti* Engelm. **Sc.** A. Carter 3822, 3932, 3952, 4098, 4246, 5757, 5774; M. Domínguez 3334, 3378; R. Domínguez 1571, 2886; R. Moran 18868.

*Jatropha cinerea* (Ortega) Muell.-Arg. **Sc.** A. Carter 4416, 4610, 4870, 4871; R. Domínguez 2161. Lomboy blanco.

*Jatropha cuneata* Wigg. et Rollins **Sc.** A. Carter 4605; J. L. León 10526; R. Domínguez 1742, 2159. Maticora.

*Jatropha vernicosa* T. S. Brandegee **Sc.** A. Carter 3817, 4631, 4751, 5037, 5422; J. L. León 10621; J. Rebman 7660; R. Domínguez 2578, 2855; R. Moran 18975. Lomboy rojo.

*Manihot angustiloba* (Torrey) Muell.-Arg. **Vi.** A. Carter 5126, 5627; M. Domínguez 1137, 2854.

*Pedilanthus macrocarpus* Benth. **Sc.** R. Moran 18948. Gallito.

*Sebastiania bilocularis* S. Wats. [*Sapium b.*] **Tr.** R. Domínguez 2570. Hierba de flecha.

\**Tragia carterae* Urtecho. **Vi.** (NW) A. Carter 4003, J. Rebman 7579; R. Domínguez 2902.

*Tragia moranii* Urtecho. **Ph.** A. Carter 3882, 3901, 4003, 4201, 4490, 4974; M. Domínguez 3119.

### Fabaceae (Leguminosae)

*Acacia brandegeana* I. M. Johnston. **Sh.** A. Carter 3770, 4190, 4524, 4525, 4933, 4934, 5793; R. Domínguez 2784; M. Domínguez 193. Huizache.

*Acacia constricta* Benth. **Sh.** A. Carter 4820; J. L. León 8039.

*Acacia farnesiana* (L.) Willd. **Sh.** A. Carter 3819, 4580; J. L. León 4594; R. Domínguez 1400, 1809. Vinorama.

*Acacia goldmanii* (Britt. et Rose) Wigg. **Sh.** A. Carter 3924, 3945, 3959, 4122, 4124, 4624, 4633, 4806, 4835, 4886, 4965, 4989, 5022, 5048, 5057, 5058, 5122, 5225, 5268, 5499; J. Rebman 7678; R. Moran 18204. Garabatilla.

\*\**Acacia kelloggiana* Carter et Rudd. **Sh.** (NW) A. Carter 5152, 5170, 5176, 5611, 5612. Garabatilla de espina negra.

*Acacia mcmurphyi* Wiggins **Sh.** A. Carter 4310, 4460. Day.

*Acacia peninsularis* (Britt. et Rose) Standley **Sh.** A. Carter 3975, 4375, 4529, 4867. 4950; J. L. León 10191, 10225. Teso.

*Aeschynomene nivea* T. S. Brandegee **Sh.** A. Carter 4255, 5157, 5274; J. L. León 10196, 10321; J. Rebman 3461; R. Domínguez 2422, 2560; R. Moran 18853.

*Brongniartia peninsularis* Rose. **Sh.** A. Carter 4817.

*Caesalpinia arenosa* Wiggins. **Sh.** A. Carter 4921, 4998, 5654; J. L. León 8056; M. Domínguez 3598; R. Domínguez 2075, 2137. Palo Estaca.

*Caesalpinia pannosa* T. S. Brandegee **Sh.** J. L. León 10346; R. Domínguez 1401. Palo Estaca.

*Caesalpinia placida* T. S. Brandegee **Sh.** A. Carter 4071, 4709; J. L. León 4329, 10302; M. Domínguez 3058. Palo Estaca.

*Calliandra californica* Benth. **Sh.** A. Carter 3814, 3917, 4033, 4097, 4126, 4130, 4187, 4407, 4636, 4292, 4779, 5121; J. L. León 9815, 10326, 10500, 10590; M. Domínguez 3375R. Domínguez 2136, 2783; J. Rebman 7680. Tabardillo.

*Calliandra peninsularis* Rose [*C. brandegeei*] **Sh.** J. L. León 9918; R. Domínguez 2863. Tabardillo.

*Chamaecrista nictitans* (L.) Moench subsp. *nictitans* var. *mensalis* (Greenman) Irwin et Barneby [*C. leptadenia*] **An.** A. Carter 4827, 5100, 5160, 5297; J. L. León 10612; R. Moran 18882; J. Rebman 7674.

*Coursetia caribaea* (Jacq.) Lavin var. *caribaea* [*Benthamantha brandegeei*, *Cracca aletes*] **Ph.** A. Carter 4291, 4482, 4874, 5008, 5318; M. Domínguez 2341; R. Domínguez 2859.

*Dalea bicolor* H. et B. ex Willd. var. *orcuttiana* Barneby [*D. megalostachya*] **Ph.** A. Carter 4183, 4396, 4807, 4891, 5033, 5351, 5455, 5512, 5734, 5742, 5818; J. L. León 9884, 10174, 10527; M. Domínguez 2678; R. Domínguez 2797; R. Moran 18891; J. Rebman 9781.

*Dalea mollis* Benth. **Ph.** M. Domínguez 3608; R. Domínguez 2128; J. Rebman 9774.

*Dalea purpusii* T. S. Brandegee **An.** A. Carter 4211, 5190, 5710.

*Desmanthus bicornutus* S. Wats. **An.** (NW) A. Carter 5009, 5069, 5373; J. Rebman 7691.

*Desmanthus covillei* (Britt. et Rose) Wigg. ex Turner **Sh.** A. Carter 4475, 5202, 5626; J. L. León 9353.

*Desmanthus fruticosus* Rose. **Sh.** A. Carter 4150, 4599, 4721, 5081; J. L. León 7629, 7629, 10528; R. Domínguez 1435, 2421; R. Moran 18978.

*Desmodium procumbens* (Mill.) A.S. Hitch. var. *exiguum* (A. Gray) Schubert. **An.** A. Carter 4485, 4618, 4768, 5056, 5151, 5292, 5545; J. L. León 7651, 9828, 10588, 10624; R. Domínguez 2078, 2109, 2550, 2850, 2897; R. Moran 18861.

*Desmodium scopulorum* S. Wats. **Ph.** (NW) A. Carter 5555.

*Ebenopsis confinis* (Stand.) Barneby et Grimes [*Pithecellobium c.*] **Sh.** A. Carter 4224; J. L. León 7637. Palo fierro.



- Errazurizia megacarpa* (S. Wats) I. M. Johnston. **Ph.** M. Domínguez 1735.
- Erythrina flabelliformis* Kearney. **Tr.** A. Carter 4561. Chilicote, Colorín.
- Indigofera suffruticosa* Mill. **Sh.** M. Domínguez 3582. Platanillo.
- Lupinus sparsiflorus* Benth. var. *insignitus* C. P. Smith. **An.** A. Carter 5803, J. L. León 10218.
- Lupinus succulentus* Koch var. *brandegeei* C.P. Smith. **An.** J. Rebman 9833
- Lysiloma candidum* T. S. Brandegee **Tr.** A. Carter 3957<sup>a</sup>, 4147, 4598, 4735; J. L. León 10199; R. Domínguez 2575; R. Moran 18983. Palo blanco.
- Lysiloma divaricatum* (Jacq.) J. F. McBryde **Tr.** A. Carter 3883, 4131, 4662, 5129, 5326, 5553. Mauto.
- Macropitilium atropurpureum* (Sessé et Mociño ex DC.) Urban [*Phaseolus a.*] **Vi.** A. Carter 5077, 5300; J. L. León 10596 ; R. Moran 18918.
- Marina evanescens* (Brandegee) Barneby [*Petalostemon e.*] **Ph.** A. Carter 3785<sup>a</sup>, 3858, 4476; M. Domínguez 2858, 2957, 3430, 3645; R. Domínguez 2759, 2816; J. Rebman 9793.
- Marina parryi* (Torr. et A. Gray) Barneby [*Dalea p.*] **An.** A. Carter 4454, 4665, 5663, 5738; M. Domínguez 3603, 3642; J. L. León 9927, 10187, 10296, 10342, 10476; R. Domínguez 2796; R. Moran 18858.
- Marina vetula* (T. S. Brandegee) Barneby [*Dalea v.*] **An.** A. Carter 3920, 4037, 4464, 4757, 4783, 5203, 5337, 5663a, 5737, 5807; J. L. León 4325, 8008, 9806; J. Rebman 7663, 9740; M. Domínguez 187, 1727, 2850, 2954, 2956, 2962, 3676; R. Domínguez 2748, 2796, 2822; R. Moran 18859
- Mimosa distachya* Cavanilles var. *distachya* [*Mimosa brandegeei*, *Mimosa purpurascens*] **Sh.** A. Carter 3798, 3944, 3971, 4015, 4225, 4227, 4528, 4594, 4607, 4733, 4766, 4850, 4864, 4865, 5079, 5153, 5201, 5412; J. L. León 4344, 9368, 9883, 10322, 10592; M. Domínguez 1144, 2801; R. Domínguez 2417, 2760, 2832; R. Moran 18982, 19018, 19025. J. Rebman 7623; R. Domínguez 2574 Uña de gato.
- Mimosa margaritae* Rose **Sh.** M. Domínguez 1736; R. Domínguez 2571; R. Moran 18994.
- Olneya tesota* A. Gray **Tr.** A. Carter 4583, 5148. Palo fierro
- Parkinsonia aculeata* L. [*Cercidium a.*] **Sh.** A. Carter 4324, 4413, 4555. Junco
- Parkinsonia florida* (Benth. ex A. Gray) S. Wats. subsp. *peninsulae* (Rose) Carter. [*Cercidium f.*] **Tr.** A. Carter 3765<sup>a</sup> · 4016, 4134, 4410, 4414, 4573, 4819, 4821, 4842, 4843, 4854, 4866, 4929, 4937, 4941, 4943, 5636, 5618, 5842, 5791. Palo verde
- Parkinsonia microphylla* Torr. [*Cercidium m.*] **Tr.** A. Carter 4068, 4110, 4415, 4531, 4535<sup>a</sup>, 5638, 5600, 5609, 5843; J. L. León 7628, 7628; R. Moran 19020. Dipúa.
- Parkinsonia praecox* (Ruiz et Pavón) Harms. [*Cercidium p.*] **Tr.** A. Carter 4146, 4306, 4412, 4533, 5200, 5619. Palo brea.
- Parkinsonia x sonora* Rose et I. M. Johnston. [*Cercidium x s.*] **Tr.** A. Carter 3862, 4145, 4409, 4411, 4554, 4818, 4844, 4936, 5143, 5198, 5212, 5482, 5637, 5608, 5615, 5841.
- Phaseolus filiformis* Benth. **Vi.** A. Carter 3828, 4792, 5020, 5072; J. L. León 8010, 9924, 10309, 10347, 10600; M. Domínguez 1145, 2949, 3462, 3637; R. Domínguez 1064, 2154; R. Moran 18863.
- Prosopis articulata* S. Wats. **Tr.** A. Carter 3976, 4135<sup>b</sup>, 4754, 4924, 4925, 5639, 5616; J. L. León 10224. Mezquite.
- \*\*Prosopis palmeri** S. Wats. **Tr.** A. Carter 4034, 4139, 4275, 4816, 4935, 5280; J. L. León 4339, 7618, 8019, 10364. Palo fierro.
- Rhynchosia minima* (L.) DC. **Vi.** A. Carter 5776; J. L. León 10565; M. Domínguez 2855, 3619; R. Moran 18872.
- Rhynchosia pyramidalis* (Lamb.) Urbán. **Vi.** A. Carter 3933, 4560, 4560<sup>a</sup>, 4683, 5090; M. Domínguez 3362. Ojo de pajarito.
- Senna atomaria* (L.) Irwin et Barneby. **Tr.** (NW) R. Domínguez 2164. Palo zorrillo.
- Senna confinis* (E. Greene) Irwin et Barneby [*Cassia c.*] **An.** J. Rebman 7624; J. L. León 10294, M. Domínguez 2756, 3687. Hojasen.
- Senna covesii* A. Gray [*Cassia c.*] **Ph.** J. L. León 10331, 4335, 8013, 9817; M. Domínguez 3435; R. Domínguez 1411, 2147, 2781. Hojasen.
- Senna polyantha* (Colladon) Irwin et Barneby [*Cassia goldmanii*] **Sh.** A. Carter 4121, 4553, 4571, 4621, 5098; M. Domínguez 1146, 3364; R. Domínguez 2546, 2565.
- Sphinctospermum constrictum* (S. Wats.) Rose **An.** A. Carter 5222; M. Domínguez 1720, 2338; R. Domínguez 1418.
- Tephrosia palmeri* S. Wats. **Ph.** A. Carter 4596; J. Rebman 3579; M. Domínguez 3432.
- Tephrosia vicioides* Schltdt. [*T. tenella*] **Ph.** A. Carter 3981, 5040, 5071, 5318<sup>a</sup>, 5432, 5662; M. Domínguez 2340, 3621.

*Vicia ludoviciana* Nutt. var. *ludoviciana* [*V. exigua* var. *exigua*] **Ph.** R. Domínguez 1803.

*Zapoteca formosa* (Kunth) H. Hern. subsp. *rosei* (Wigg.) H. Hern. [*Calliandra r.*] **Sh.** A. Carter 4628, 4994, 5010, 5049.

### Fagaceae

*Quercus tuberculata* Liebmann **Tr.** A. Carter 3891, 4228, 4389, 4566, 4640, 5364, 5471; J. L. León 10175; M. Domínguez 2820. Encino roble.

### Fouquieriaceae

*Fouquieria diguetii* (van Thieghem) I. M. Johnston **Sh.** A. Carter 3835, 4185, 4789, 4907; J. L. León 10549. Palo Adán.

### Garryaceae

*Garrya salicifolia* Eastw. **Sh.** A. Carter 5360.

### Gentianaceae

*Centaurium capense* Broome **Hf.** A. Carter 4065.

*Eustoma exaltatum* (L.) Griseb. **Hf.** M. Domínguez 2424; R. Domínguez 1289; R. Moran 19023.

### Krameriaceae

*Krameria erecta* Schultes [*K. parvifolia* var. *p.*] **Ph.** A. Carter 3826, 4824, 5380; J. L. León 4977; R. Domínguez 1409, 2098, 2148, 2753. Mezquitillo.

*Krameria grayi* Rose et Painter. **Sh.** M. Domínguez 3427. Mezquitillo

*Krameria paucifolia* Rose. **Sh.** J. Rebman 3366; R. Domínguez 1054, 20 99. Mezquitillo.

### Lamiaceae (Labiatae)

\**Hyptis anitae* Epling et Jativa **Sh.** (NW) A. Carter 4692.

*Hyptis emoryi* Torr. **Sh.** A. Carter 3796, 4078, 4250, 4931, 5066, 5771; J. L. León 4981, 10186, 10201; M. Domínguez 3043; R. Moran 18992. Salvia.

*Hyptis laniflora* Benth. **Sh.** A. Carter 4466, 5104; J. L. León 9937, 10209; R. Domínguez 1574. Salvia.

\*\**Salvia marci* Epling **Ph.** A. Carter 4649, 4673, 5528.

*Salvia misella* H. B. K. **An.** A. Carter 5294; J. L. León 9356, 9831; M. Domínguez 1721, 2959, 3577.

*Salvia similis* T. S. Brandegees **An.** A. Carter 4956, 5031; J. L. León 4342, 9909, 10483; R. Moran 18848; J. Rebman 7666, 9825.

*Satureja brownei* (Sw.) Briq. **Ph.** (NW) A. Carter 4161; J. L. León 10103; M. Domínguez 3130, 3137, 3403.

*Stachys coccinea* Jacq. **An.** A. Carter 4090, 4231, 5604; J. L. León 7660, 10532, 10550; M. Domínguez 344; R. Moran 18964; J. Rebman 9686.

### Loasaceae

*Eucnide aurea* (A. Gray) Thompson et Ernst. **Ph.** A. Carter 3704, 3863, 3879, 3962, 4102; J. L. León 9908; M. Domínguez 197, 3391, 3568, 3654.

*Eucnide cordata* (Kell.) Kell. et Curran. **Ph.** A. Carter 4278; J. L. León 9922, 10219, 10371; M. Domínguez 2430, 3653; R. Domínguez 2794.

\*\**Eucnide tenella* (I. M. Johnston) Thompson et Ernst. **An.** J. L. León 10379, 10508; J. Rebman 5711, 9685, 9818; M. Domínguez 3563, 3591; R. Moran 18845, 18923, 19017.

*Mentzelia adhaerens* Benth. **An.** A. Carter 4239; J. L. León 7645, 10319, 10330; R. Domínguez 2776; R. Moran 18943. Pega-pega, Pegarropa

*Mentzelia aspera* L. **An.** A. Carter 4517, 5117, 5167, 5310, 5366; M. Domínguez 1722, 2944; R. Domínguez 2562; J. Rebman 9682. Pega-pega, Pegarropa

*Petalonyx linearis* E. Greene **Ph.** J. L. León 7621.

**Loranthaceae**

*Psittacanthus sonora* (S. Wats.) Kuijt [*Phrygillanthus s.*] **Pa.** A. Carter 3881; J. L. León 10522; R. Moran 18883. Toji.

**Lythraceae**

*Ammania coccinea* Rottb. **An.** A. Carter 5931; J. L. León 9803, 10383, 10566; M. Domínguez 1706, 2934; R. Domínguez 1304; J. Rebman 9725.

*Lythrum bryantii* T. S. Brandegees **An.** A. Carter 4168; M. Domínguez 3400; R. Domínguez 1804.

*Lythrum acinifolium* (DC.) Kohene **Hf.** J. L. León 10105, 10568.

**Malpighiaceae**

*Callaeum macropterum* (DC.) D. M. Johnson. [*Mascagnia m.*] **Vi.** A. Carter 4523; J. L. León 7636; J. Rebman 3577; R. Domínguez 982. Gallineta.

*Galphimia angustifolia* Benth. [*G. brasiliensis* subsp. *a.*] **Vi.** A. Carter 3769, 4590, 5602; J. L. León 7625, 9825, 10313; J. Rebman 3454, 7061, 7586; M. Domínguez 2346, 3047; R. Domínguez 2116.

*Janusia californica* Benth. **Vi.** A. Carter 3847, 4195, 4876, 506; J. L. León 10217, 10303, 10486, 10589; J. Rebman 3459, 7705; M. Domínguez 1398, 3428; R. Domínguez 2554; R. Moran 18946.

*Janusia gracilis* A. Gray **Vi.** A. Carter 4798; R. Domínguez 1412.

*Malpighia diversifolia* T.S. Brandegees **Sh.** J. Rebman 7571. Manzanita amarilla.

**Malvaceae [incl. Sterculiaceae]**

*Abutilon californicum* Benth. **An.** A. Carter 4808, 4920; J. L. León 10287; J. Rebman 7643; R. Domínguez 2002.

*Abutilon dugesii* S. Wats. **An.** A. Carter 3797, 3890, 4091, 5134, 5659; J. L. León 10473; M. Domínguez 3351, 3693, 3461.

*Abutilon incanum* (Link) Sweet **Ph.** A. Carter 3802, 3889, 4016, 4192, 4295, 4481, 4809, 5051, 5378; J. Rebman 7573, 7665; R. Domínguez 1056, 2001 ; R. Moran 18881.

*Abutilon palmeri* A. Gray **Ph.** A. Carter 4066, 4901, 5747.

*Abutilon xantii* A. Gray [*A. carterae*] **Ph.** A. Carter 4077, 4091, 4258, 5177.

*Anoda crenatiflora* C. G. Ortega **An.** J. L. León 10601; M. Domínguez 2965, 3114, 3350; R. Domínguez 2715, 2564.

*Anoda palmata* Fryxell **An.** (NW) A. Carter 4325, 5389; M. Domínguez 3559.

*Anoda pentaschista* A. Gray **An.** A. Carter 5067, 5290, 5352, 5532; J. L. León 10597; M. Domínguez 1127, 2847; R. Domínguez 2153, 2585; R. Moran 18864; J. Rebman 7722.

*Ayenia compacta* Rose. **Ph.** A. Carter 3836, 4177, 4197, 4225, 4804, 4976, 5551, 5768; J. L. León 10289, 10569; J. Rebman 3575; M. Domínguez 188, 3576; R. Domínguez 1422, 2552, 2780, 2835, 2860; R. Moran 18875.

*Ayenia jaliscana* S. Wats. **Sh.** (NW) A. Carter 4875, 4995, 5150, 5375, 5873; R. Domínguez 2857.

*Ayenia peninsularis* T. S. Brandegees **Ph.** J. Rebman 7574.

*Ayenia pusilla* L. **Ph.** M. Domínguez 3371.

*Gossypium davidsonii* Kellogg [*G. klotzschianum* var. *d.*] **Sh.** A. Carter 4738, 4848, 4904, 5128, 5358. J. L. León 10518; J. Rebman 7717. Algodon cimarrón.

*Gossypium harknessii* T. S. Brandegees **Ph.** A. Carter 4530, 4593. Algodon cimarrón.

*Herissantia crispa* (L.) Brizicky **An.** A. Carter 4296, 5012, 5750, 5759<sup>a</sup>; J. L. León 8053, 10304; M. Domínguez 2483, 3384, 3586; R. Domínguez 1999, 2144; R. Moran 18218; J. Rebman 7707.

*Hibiscus biseptus* S. Wats. **Ph.** A. Carter 3922, 4005, 4954; M. Domínguez 2947, 3585; R. Domínguez 1427; R. Moran 18951; J. Rebman 7729.

*Hibiscus denudatus* Benth. **Ph.** A. Carter 5805; J. L. León 4974, 7626; M. Domínguez 1733, 3615.

*Hibiscus ribifolius* A. Gray **Ph.** A. Carter 3935, 3970, 4243, 5469; J. L. León 10533, 10583; M. Domínguez 3354; J. Rebman 7569; 7661; R. Moran 19011.

*Horsfordia alata* (S. Wats.) A. Gray **Ph.** A. Carter 4063, 4597; J. L. León 10348; J. Rebman 9771.

*Horsfordia rotundifolia* S. Wats. **Ph.** M. Domínguez 3558; J. Rebman 7686, 9717.

*Kosteletzkya depressa* (L.) O. Blanchard **Hf.** (NW) M. Domínguez 1125<sup>a</sup>.

*Malvastrum bicuspidatum* (S. Wats.) Rose var. *bicuspidatum*. **Ph.** (NW) A. Carter 4191, 5120.

- Melochia tomentosa* L. var. *tomentosa* **Ph.** A. Carter 4089, 4638, 4829; J. L. León 8018, 10198; J. Rebman 7588; R. Domínguez 2097, 2210, 2573, 2882; R. Moran 8206. Malva rosa.
- Sida abutifolia* Miller. **An.** (NW) A. Carter 3837, 5155, 5158; M. Domínguez 2809, 3117, 3551.
- Sida neomexicana* A. Gray **Ph.** (NW) J. Rebman 9713.
- Sida procumbens* Swartz. **Ph.** (NW) A. Carter 5790.
- Sida rhombifolia* L. **Ph.** A. Carter 3871.
- Sida xantii* A. Gray **An.** A. Carter 3765, 3888, 3957, 4919, 5004, 5039, 5286, 5352<sup>a</sup>, 5749; J. L. León 10521; J. Rebman 7673; R. Domínguez 2870; R. Moran 18856, 18915.
- Sphaeralcea ambigua* A. Gray var. *ambigua* (Munz et I. M. Johnston) Kearney. **Ph.** M. Domínguez 2003, 2676, 3659; R. Domínguez 2837.
- Sphaeralcea ambigua* A. Gray var. *rosacea* (Munz et I. M. Johnston) Kearney. **Ph.** J. L. León 10530; M. Domínguez 2677, 3389, 3396.
- Sphaeralcea axillaris* S. Wats. var. *axillaris*. **Ph.** M. Domínguez 2687
- Sphaeralcea axillaris* S. Wats. var. *violacea* (Rose) Wigg. **An.** A. Carter 4026, 5804; M. Domínguez 3629, 3647.
- Sphaeralcea coulteri* (S. Wats.) A. Gray var. *coulteri* **An.** A. Carter 5417, 5773; M. Domínguez 3434.
- Sphaeralcea coulteri* (S. Wats.) A. Gray var. *margaritae* (Brandege) Kearney **An.** R. Domínguez 1318, 2803.
- Sphaeralcea hainesii* T. S. Brandege **An.** A. Carter 3892, 5107, 5812; M. Domínguez 3451.

#### **Martyniaceae [= Pedaliaceae]**

- Proboscidea althaeifolia* (Benth.) Decné. **Ph.** A. Carter 5363; J. L. León 4998; M. Domínguez 1390; R. Domínguez 2867. Espuela del diablo.
- Proboscidea parviflora* (Woot.) Woot. et Standley subsp. *gracillima* (Hevly) Bretting [*P. g.*]. **An.** A. Carter 4478, 4993, 5289, 5628; M. Domínguez 1130, 2808; J. Rebman 7688. Espuela del diablo.

#### **Molluginaceae**

- Glinus lotoides* L. **An.** (NW) R. Domínguez 1308.
- Glinus radiatus* (R. et P.) Rohrb. **An.** A. Carter 4314; M. Domínguez 1709, 2478, 3393.
- Mollugo cerviana* (L.) Ser. **An.** A. Carter 5023, 5285, 5635; M. Domínguez 2863; J. Rebman 3373, 7631, 7652.
- Mollugo verticillata* L. **An.** A. Carter 4851, 5664; J. L. León 9888, 10538; J. Rebman 7081; M. Domínguez 1705, 2869, 3618; R. Moran 18876; J. Rebman 9730.

#### **Moraceae**

- Ficus petiolaris* Benth. var. *palmeri* S. Wats. [F. *palmeri*] **Tr.** A. Carter 3849, 4999; M. Domínguez 2492, 2765; R. Domínguez 1404; R. Moran 18960; J. Rebman 7696.

#### **Myrsinaceae**

- Anagallis minimus* (L.) Krause [*Centunculus m.*] **Hf.** M. Domínguez 506.

#### **Nyctaginaceae**

- Allionia incarnata* L. **Ph.** A. Carter 4705<sup>a</sup>; J. L. León 4332, 8040, 10329; J. Rebman 7628; M. Domínguez 3040, 2867.
- Boerhavia coccinea* Mill. **Ph.** J. L. León 8012, 10022; R. Domínguez 2868.
- Boerhavia coulteri* (Hook f.) S. Wats. **An.** A. Carter 4707.
- Boerhavia erecta* L. **An.** J. L. León 10574
- Boerhavia intermedia* M. E. Jones **An.** A. Carter 4705, 4712, 4713, 4786, 4983, 5542, 5621<sup>a</sup>; J. L. León 10268; J. Rebman 7618; M. Domínguez 1133, 1391, 2848; R. Domínguez 2088, 2155, 2584, 2872, 2899; R. Moran 18205.
- Boerhavia maculata* Standl. **Ph.** J. L. León 9824
- Boerhavia spicata* Choisy **Ph.** J. Rebman 3368.
- Boerhavia triquetra* S. Wats. **An.** A. Carter 4859, 5308, 5504; R. Moran 18860.
- Boerhavia xantii* S. Wats. **An.** A. Carter 4708; J. L. León 9823; J. Rebman 7644.
- Commicarpus brandegeei* Standley **Sh.** A. Carter 4689, 4831, 5368; R. Domínguez 2566.
- Commicarpus scandens* (L.) Standley **Sh.** A. Carter 3915, 3952<sup>a</sup>, 4028; J. L. León 7655, 10336; M. Domínguez 1132, 3056; R. Domínguez 2007.



*Mirabilis laevis* (Benth.) Curran var. *villosa* (Kellogg) Spellensb. [*M. bigelovii* var. *b.*] **Ph.** A. Carter 5449; J. L. León 10205.

*Mirabilis oblongifolia* (A. Gray) Heimerl. **Ph.** (NW) A. Carter 5188, 5345; R. Moran 18908.

*Mirabilis tenuiloba* S.Wats. **Ph.** M. Domínguez 3425.

*Pisonia capitata* (S. Wats.) Standley **Tr.** (NW) A. Carter 3852.

*Pisonia flavescens* Standley. **Tr.** A. Carter 3983, 4101, 4256; R. Domínguez 2558.

### **Olaceaceae**

*Schoepfia californica* T. S. Brandegee **Tr.** A. Carter 3977, 4062, 4086, 4111, 4270, 4341, 5137; J. L. León 9895; R. Domínguez 2010. Iguajil.

*Ximenia parviflora* Benth. var. *glauca* DeFelipps. **Sh.** (NW) A. Carter 3973, 4469, 4532, 4534, 4535, 4702; R. Domínguez 2166

### **Oleaceae**

*Forestiera pubescens* Nutt. [*F. neomexicana*] **Sh.** A. Carter 4746.

*Forestiera phyllyreoides* (Benth.) Torr. [*F. shrevei*] **Sh.** A. Carter 3820, 3869, 3950, 3958, 4075, 4120, 4340<sup>a</sup>, 4576, 4670, 4672, 5441; J. L. León 10513.

### **Onagraceae**

*Ludwigia octovalvis* (Jacq.) Raven **Hf.** R. Domínguez 465.

*Lopezia clavata* T. S. Brandegee **An.** A. Carter 3791, 4501, 4651, 5149, 5182, 5355, 5815; J. L. León 9843, 10178, 10480; M. Domínguez 3357, 3652; R. Domínguez 2852; R. Moran 18884; J. Rebman 9687.

### **Orobanchaceae** [incl. some **Scrophulariaceae** s.l.]

*Castilleja bryantii* T. S. Brandegee **Pa.** A. Carter 3906, 4253, 5459, 5473, 5814, 5767; J. L. León 10372; M. Domínguez 3345, 3625, 3664; R. Moran 18903; J. Rebman 9830.

*Orobanche cooperi* (A. Gray) A. Heller [*O. ludoviciana* var. *c.*] **Pa.** A. Carter 3873, 4001; M. Domínguez 3607. Flor de tierra.

### **Oxalidaceae**

*Oxalis alpina* (Rose) Kunth **Ph.** (NW) A. Carter 4771. Agrito.

*Oxalis drummondii* A.Gray **Ph.** (NW) A. Carter 4653; J. L. León 10499, 10610; R. Moran 18940. Agrito.

*Oxalis amplifolia* (Trel.) Kunth **Ph.** J. Rebman 7667. Agrito.

### **Papavaraceae**

*Argemone gracilentia* E. Greene **An.** A. Carter 4020; J. L. León 10593, 10707; M. Domínguez 3366. Cardo.

*Argemone ochroleuca* Sweet [*A. mexicana*] **An.** J. L. León 4341, 10706; J. Rebman 7073. Cardo.

### **Passifloraceae**

*Passiflora arida* (Mast. et Rose) Killip var. *arida* **Vi.** A. Carter 4857; M. Domínguez 3570; R. Domínguez 1140. Sandillita.

*Passiflora foetida* L. var. *longipedunculata* Killip **Vi.** A. Carter 5011, 5217; J. L. León 7821, 10192, 10293, 10485; J. Rebman 5704. Sandillita.

*Passiflora palmeri* Rose **Vi.** A. Carter 4939; M. Domínguez 2753; R. Domínguez 1579. Sandillita.

### **Phrymaceae** [incl. some **Scrophulariaceae** s.l.]

*Mimulus dentilobus* Rob. et Fern. **Hf.** A. Carter 3930, 3943<sup>a</sup>, 3963<sup>a</sup>, 4241; M. Domínguez 2334; R. Domínguez 2718.

*Mimulus floribundus* Dougl. ex. Lindl. **Hf.** F. Chisaki 1305, 1309, M. Domínguez 3399, 3448, 3681.

*Mimulus glabratus* Kunth **Hf.** M. Domínguez 3688.

*Mimulus guttatus* Fisch. ex DC. **Hf.** A. Carter 3929, 4377<sup>a</sup>.

### **Phyllanthaceae**

*Andrachne microphylla* (Lam.) Baill. [*A. ciliato-glandulosa*] **An.** M. Domínguez 3123; R. Domínguez 1049.

*Phyllanthus brandegeei* Millsp. **Ph.** (NW) M. Domínguez 1134.

*Phyllanthus galeottianus* Baillon **Sh.** J. Rebman 7077

### Phytolaccaceae

*Rivina humilis* L. **Ph.** A. Carter 5166, 5309, 5383; J. L. León 7658. Coralito.

*Stegnosperma halimifolium* Benth. **Sh.** A. Carter 3854, 4283, 5844; J. L. León 10314, 10361; M. Domínguez 3061, 3361; R. Domínguez 1748; J. Rebman 7714. Amole.

### Plantaginaceae [incl. some Scrophulariaceae s.l.]

*Antirrhinum costatum* Wigg. **An.** A. Carter 4031.

*Antirrhinum cyathiferum* Benth. **An.** M. Domínguez 2485; R. Domínguez 1050, 2138, 2208, 2878; J. Rebman 7719, 9742.

*Antirrhinum nuttallianum* Benth. subsp. *subsessile* (A.Gray) D. Thompson. **An.** A. Carter 3843, 4174; J. L. León 8014, 9805, 9851, 10334; M. Domínguez 2811, 2936, 3037, 3343, 3560, 3605; R. Domínguez 2727.

*Antirrhinum watsonii* Vasey et Rose. [*A. kingii* var. *w.*] **An.** A. Carter 3842, 4172, 5729, 5735, 5744; R. Domínguez; J. Rebman 9814.

*Bacopa monnieri* (L.) S. Wats. **Hf.** A. Carter 3830, 5560; M. Domínguez 2431; R. Domínguez 1990; J. Rebman 9743.

*Conobea intermedia* A. Gray **Ph.** M. Domínguez 1694; R. Domínguez 2076, 2211.

*Conobea polystachya* Buist. **Ph.** J. L. León 4983, 8015; J. Rebman 5696, 9729, 9794; M. Domínguez 3565.

*Galvezia juncea* (Benth.) Ball var. *juncea*. **Sh.** A. Carter 4752.

*Galvezia juncea* (Benth.) Ball var. *pubescens* (Brandegee) I. M. Johnston. **Sh.** A. Carter 4674, 4894.

*Galvezia rupicola* T. S. Brandegee **Sh.** A. Carter 4894<sup>a</sup>.

*Mecardonia exilis* (T. S. Brandegee) Pennell. **Ph.** M. Domínguez 1712; R. Domínguez 1807.

*Mecardonia procumbens* (Mill.) Small [*M. vandellioides*] **An.** M. Domínguez 198.

*Plantago major* L. **An.** R. Domínguez 1997.

*Russelia grandidentata* Carlson. **Ph.** R. Moran 18971; J. Rebman 9823. Canutillo.

*Russelia retrorsa* E. Greene f. *nudicostata* Carlson. **Ph.** A. Carter 4219. Canutillo.

*Stemodia durantifolia* (L.) Swartz. **Ph.** A. Carter 4105, 4254, 4376, 5558; J. L. León 8044; M. Domínguez 3678; R. Domínguez 1290, 1433.

### Plumbaginaceae

*Plumbago zeylandica* L. [*P. scandens*] **Ph.** A. Carter 3780, 5462, J. L. León 8037, 9911.

### Polygalaceae

*Polygala apopetala* T. S. Brandegee **Sh.** A. Carter 4217, 5043, 5357; J. Rebman 7085.

*Polygala magdalenae* T. S. Brandegee **An.** A. Carter 4374, 5102, 5210, 5348; J. Rebman 7074, 7697; R. Domínguez 2093.

### Polygonaceae

*Antigonon leptopus* Hook at Arn. **Vi.** A. Carter 4568, 4686, 4949, 5388; J. L. León 7619, 9816; M. Domínguez 2930; R. Domínguez 2096. San Miguel.

*Rumex inconspicuus* Rech. f. **An.** J. Rebman 9721

*Rumex maritimus* L. **An.** (NW) R. Domínguez 1311.

### Portulacaceae

*Portulaca suffrutescens* Engelm. **Sc.** A. Carter 4863, 5026, 5186, 5299.

*Portulaca umbraticola* Kunth. subsp. *lanceolata* (Engelm.) Matthews et Kentron **Sc.** A. Carter 4823, 4988, 5296, 5549; R. Domínguez 2071 ; J. Rebman 9724.

*Talinum paniculatum* (Jacq.) Gaertn. **Sc.** A. Carter 4648, 4668<sup>a</sup>, 4740, 5030, 5508; J. Rebman 7662, 9810; M. Domínguez 2827. Peonilla.

### Ranunculaceae

*Clematis pauciflora* Nutt **Ph.** A. Carter 4681. Barba de Chivo.

*Thalictrum peninsulare* Rose **Ph.** A. Carter 4664, 5169, 5333, 5524.

**Resedaceae**

*Oligomeris linifolia* (Vahl) J. F. Macbr. **An.** J. L. León 10098; R. Domínguez 1052, 1072, 1300, 2769.

**Rhamnaceae**

*Colubrina californica* I. M. Johnston. **Sh.** A. Carter 4903.

*Colubrina viridis* M. E. Jones. **Sh.** A. Carter 5607; J. L. León 10324; R. Domínguez 2542. Palo colorado.

*Condalia brandegeei* I. M. Johnston. **Sh.** A. Carter 3995.

*Condalia globosa* I. M. Johnston var. *globosa*. **Sh.** A. Carter 3772, 5144; J. L. León 10222; M. Domínguez 2764. Palo negrito, Sarampion.

*Karwinskia humboldtiana* (Roem. et Sch.) Zucc. **Sh.** A. Carter 4223, 4276; J. L. León 10489; J. Rebman 7086, 7715, 9683; M. Domínguez 2425, 3556; R. Domínguez 2786. Cacachila.

*Sageretia wrightii* S. Wats. **Sh.** (NW) A. Carter 4575, 4680.

*Ziziphus obtusifolia* Torr. var. *canescens* (A. Gray) I. M. Johnston [*Condalia lycioides* var. *c.*] **Sh.** A. Carter 4953, 5480.

**Rosaceae**

*Prunus ilicifolia* Walp. **Tr.** A. Carter 4557, 4562, 5174, 5525.

**Rubiaceae**

*Diodia teres* Walt. var. *angustata* A. Gray **An.** A. Carter 5025.

\**Galium carterae* Dempster **Ph.** A. Carter 4656, 5552.

\**Galium mechudoense* Dempster **Ph.** R. Moran 18852, 18988; J. Rebman 9822.

\*\**Galium moranii* Dempster subsp. *moranii* **Ph.** A. Carter 4659, 5163, 5172, 5331, 5526.

*Hedyotis asperuloides* (Benth.) W. H. Lewis var. *asperuloides* [*Houstonia a.*] **An.** J. L. León 7278.

*Hedyotis brevipes* (Rose) W. H. Lewis [*Houstonia b.*] **Ph.** A. Carter 4064, 4084, 4455, 4600<sup>a</sup>, 4778, 4881, 5187<sup>a</sup>, 5265; J. L. León 4996, 9914, 10024, 10286, 10375, 10506, 10615; J. Rebman 7587, 9812; M. Domínguez 2335, 2681, 3050, 3469, 3554, 3660; R. Moran 18217, 18924, 19004.

*Hedyotis gracilentia* (I. M. Johnston) W. H. Lewis [*Houstonia g.*] **Ph.** R. Domínguez 1994.

*Randia armata* (Swartz) DC. **Sh.** J. L. León 7624; R. Domínguez 1423, 2567; J. Rebman 9715.

*Randia capitata* DC. [*R. megacarpa*] Brandegee **Sh.** A. Carter 3934, 4209, 4391, 4841, 5419, 5625; J. L. León 9921, 10536, 10614; R. Moran 18907. Papache.

**Rutaceae**

\**Amyris carterae* Rebman et Chiang **Sh.** A. Carter 3982<sup>a</sup>, 4129, 4558, 4558<sup>a</sup>, 4657, 5005, 5424; J. L. León 10556; R. Moran 18917, 19008<sup>a</sup>.

*Esenbeckia flava* T. S. Brandegee **Tr.** A. Carter 5423<sup>a</sup>, 5435; J. L. León 10099, 10475. Palo amarillo.

\**Thamnosma trifoliata* I. M. Johnston **Ph.** J. Rebman

**Salicaceae**

*Populus brandegeei* Schneider [*P. monticola*] **Hf.** R. Moran 18195. Huerivo.

*Salix bonplandiana* H. B. K. **Hf.** A. Carter 3939, 4082, 5467; M. Domínguez 2432, 2685. Sauce.

*Salix gooddingii* Ball. **Hf.** A. Carter 5783. Sauce.

**Sapindaceae**

*Cardiospermum corindum* L. **Vi.** A. Carter 3921, 4667; J. L. León 7646, 10310, 10506; J. Rebman 3458; M. Domínguez 1143, 1396, 3581. Tronador.

*Cardiospermum spinosum* Radlk. **Sh.** A. Carter 4768, 5451, 5746; J. Rebman 7728, 9711. Tronador.

*Cardiospermum tortuosum* Benth. **Vi.** M. Domínguez 3643. Tronador.

*Dodonaea viscosa* Jacq. **Sh.** A. Carter 4094; J. L. León 10535; R. Moran 18193, 18920; R. Domínguez 1798. Guayabillo.

*Paullinia sonorensis* S. Wats. **Sh.** A. Carter 4233, 4308, 4772, 4882, 4885, 4992, 5060, 5116, 5184, 5514; R. Moran 18987.

*Serjania californica* Radlk. **Sh.** M. Domínguez 2856.

### Sapotaceae

*Sideroxylon occidentale* (Hemsl.) T. D. Penn. [*Bumelia o.*] **Tr.** A. Carter 3978, 4149, 4204; J. L. León 7623; M. Domínguez 3504. Bebelama.

### Simmondsiaceae

*Simmondsia chinensis* (Link) Schneider. **Sh.** A. Carter 4288, 5438; R. Domínguez 1743. Jojoba.

### Solanaceae

*Capsicum anuum* L. var. *glabriusculum* (Dunal) Heiser et Pickersgill [*C. a.* var. *minimum*] **Ph.** (NW) A. Carter 4902, 4921, 5365. Chilpítin, Chile piquín

*Datura discolor* Bernh. **An.** J. L. León 8009, 10312, 10357. Toloache.

*Datura wrightii* Regel. **An.** A. Carter 4315. Toloache.

*Lycium andersonii* A. Gray var. *pubescens* S. Wats. **Sh.** A. Carter 3965, 4238, 5411, 5987. Frutilla.

*Lycium berlandieri* Dunal **Sh.** R. Domínguez 2149.

*Lycium fremontii* A. Gray [*L. exsertum*] **Sh.** J. L. León 10577; J. Rebman 7640, 9773.

*Lycium megacarpum* Wigg. **Sh.** A. Carter 4181, 4722, 5777; R. Domínguez 1746; R. Moran 18961.

*Lycium pallidum* Miers. **Sh.** M. Domínguez 3696.

*Lycium torreyi* A. Gray **Sh.** J. Rebman 9777.

*Nicotiana clevelandii* A. Gray **An.** M. Domínguez 163; M. Domínguez 3392, 3433; R. Domínguez 2751.

*Nicotiana glauca* R. Graham **Sh.** M. Domínguez 2477. Levántate don Juan.

*Nicotiana obtusifolia* M. Martens et Galeotti [*N. trigonophylla*] **Ph.** A. Carter 3776, 4323, 4661, 4699; J. L. León 10344; M. Domínguez 3680, 2481; R. Domínguez 1296, 1403, 2825. Tabaquillo.

*Physalis acutifolia* (Miers) Sandw. **An.** A. Carter 4977; R. Domínguez 1402; J. Rebman 7724. Tomatillo.

*Physalis angulata* L. **An.** M. Domínguez 3359. Tomatillo.

*Physalis crassifolia* [*P. greenii*] **An.** A. Carter 5752; M. Domínguez 3125; R. Domínguez 2111, 2741, 2875, 2893. Tomatillo.

*Physalis glabra* Benth. **An.** J. L. León 9832; M. Domínguez 2931. Tomatillo.

*Physalis philadelphica* Lam. **An.** M. Domínguez 180. Tomatillo.

*Physalis pubescens* L. **An.** A. Carter 3963; J. L. León 10537, 10604; R. Domínguez 2814. Tomatillo.

*Petunia parviflora* Juss. **Hf.** J. L. León 10384; M. Domínguez 1708, 2482, 3401, 3683; R. Domínguez 1283, 1089.

*Solanum americanum* Miller. [*S. nodiflorum*] **Ph.** A. Carter 5466; R. Domínguez 2717.

*Solanum adscendens* Sendtn. [*S. deflexum*] **An.** (NW) A. Carter 4991, 5376, 5621; M. Domínguez 2970, 3571.

*Solanum hindsiianum* Benth. **Sh.** J. L. León 10337, 10591; M. Domínguez 3692; R. Domínguez 2420; J. Rebman 9799. Mariola.

*Solanum nigrescens* Mart. et Gal. var. *crassifolia*. **An.** (NW) R. Domínguez 2006. Hierba mora.

### Theophrastaceae

*Samolus ebracteatus* Kunth **Hf.** A. Carter 4753, 5785; J. Rebman 5706; M. Domínguez 2429, 3459; R. Domínguez 1430, 1988, 2712; R. Moran 19023.

### Ulmaceae

*Celtis pallida* Torr. **Sh.** A. Carter 3970, 3982, 4133, 4287, 4572, 4581, 4582, 4625, 4750, 4822, 5554; J. L. León 9885; M. Domínguez 182.

*Celtis reticulata* Torr. **Sh.** A. Carter 3856, 4286, 4303; R. Domínguez 2568; R. Moran 18211; J. Rebman 9699. Vainoro.

### Urticaceae

*Parietaria floridana* Nuttall **An.** A. Carter 3782, 4671, 5470, 5788; M. Domínguez 3339, 3555; R. Domínguez 1316, 2714, 3159; R. Moran 18914; J. Rebman 9700, 9796.



**Verbenaceae**

*Aloysia barbata* (T. S. Brandege) Moldenke **Sh.** A. Carter 3902, 4103; J. L. León 10477, 10616; M. Domínguez 3657; R. Moran 18952. Margarita.

*Burroughsia fastigiata* (T. S. Brandege) Moldenke. [*Lippia f.*] **Ph.** M. Domínguez 1730; R. Domínguez 1802; J. Rebman 3463.

*Citharexylum flabellifolium* S.Wats. **Sh.** R. Domínguez 1086.

\**Citharexylum roxanae* Moldenke **Sh.** A. Carter 4000, 4123, 4385, 4682, 5083, 5521; J. L. León 4598.

*Lantana hispida* Kunth [*L. velutina*] **Sh.** A. Carter 4008; M. Domínguez 3682. Confituria.

*Lippia alba* (Mill.) N. E. Brown. **Sh.** A. Carter 3864; J. L. León 10203; M. Domínguez 204, 2851, 3049; R. Domínguez 2146. Orégano de monte.

*Lippia palmeri* S. Wats. var. *palmeri* **Sh.** M. Domínguez 3614; J. L. León 9901. Orégano de monte.

*Lippia palmeri* S. Wats. var. *spicata* Rose. **Sh.** J. L. León 8054. Orégano de monte.

*Verbena menthifolia* Benth. var. *comoduensis* (Mold.) Mold. (NW) **An.** R. Domínguez 2000.

*Verbena gooddingii* Briq. [*Glandularia g.*] **An.** R. Domínguez 1063, 1806, 2749.

\*\**Verbena shrevei* Moldenke. **An.** J. L. León 10095; M. Domínguez 3121, 3397.

**Violaceae**

*Hybanthus fruticosus* (Benth.) I. M. Johnston **Ph.** A. Carter 4350, 5655; J. L. León 10374; M. Domínguez 3420; R. Domínguez 2880; R. Moran 19012.

*Hybanthus verticillatus* (C. G. Ortega) Baill. **An.** A. Carter 4887, 5733; J. L. León 10210; M. Domínguez 2755

**Viscaceae**

*Phoradendron californicum* Nutt. **Pa.** A. Carter 4163, 5124; J. L. León 9811, 10223, 10327; R. Domínguez 1996; J. Rebman 7937. Toji.

*Phoradendron diguetianum* van Tieghem **Pa.** A. Carter 3806, 4226, 4390, 5416. Toji.

**Vitaceae**

*Cissus trifoliata* (L.) L. **Vi.** A. Carter 4115, 4285, 4622.

*Cissus mexicanus* DC. [*C. mayoensis*] **Vi.** J. L. León 8051; R. Domínguez 2110.

*Vitis girdiana* Munson **Vi.** A. Carter 3936, 4096, 4252, 4282.

**Zygophyllaceae**

*Fagonia barclayana* (Benth.) Rydb. **Ph.** J. L. León 10316, 10328; J. Rebman 7699. M. Domínguez 3426; R. Moran 19019.

*Fagonia laevis* Standl. **Ph.** J. L. León 10226; M. Domínguez 3039, 3602; R. Domínguez 1047, 2072, 2102, 2758; R. Moran 18932, 19019.

*Fagonia palmeri* Vasey et Rose **Ph.** J. L. León 4995, 10300; M. Domínguez 2763, 3051.

*Fagonia villosa* D. M. Porter **Ph.** R. Moran 18932.

*Kallstroemia californica* (S. Wats.) Vail **An.** A. Carter 4852; J. L. León 7659; J. Rebman 3367, 7633; M. Domínguez 2866.

*Kallstroemia parviflora* Norton **An.** A. Carter 5633. Torito.

*Kallstroemia peninsularis* D. M. Porter **An.** J. L. León 9827; M. Domínguez 2865.

*Larrea divaricata* Cav. subsp. *tridentata* (Sessé et Moc.) Felger et Lowe **Sh.** A. Carter 4070; R. Domínguez 2140. Gobernadora.

*Tribulus terrestris* L. **An.** J. Rebman 7634; R. Domínguez 2101, 2805. Cuernitos.

**Angiosperms: Monocots****Agavaceae**

*Agave aurea* T. S. Brandege **Sc.** A. Carter 5132, 5484, 5485, 5779; J. L. León 10240, 10368, 10546; R. Domínguez 2667, 2866. Mezcal.

*Agave cerulata* Trel. subsp. *cerulata* **Sc.** (NW) R. Domínguez 1725. Mezcal.

\*\**Agave gigantensis* H. S. Gentry **Sc.** (NW) J. L. León 9912 Mezcal.

*Agave sobria* T. S. Brandegee subsp. *sobria* **Sc.** J. L. León 7642, 10239.

*Agave sobria* T. S. Brandegee subsp. *roseana* (Trel.) H. S. Gentry **Sc.** A. Carter 5483. Mezcal.

#### **Alismataceae**

*Echinodorus berteroi* (Sprengel) Forssett **Hf.** A. Carter 4320, 4642; J. L. León 8045

#### **Alliaceae**

*Nothoscordum bivalve* (L.) Benth. **Ph.** A. Carter 4009, 4687, 5042, 5092, 5346, 5493, 5544; J. L. León 10193, 10481, 10618.

#### **Amaryllidaceae**

*Behria tenuiflora* E. Greene **Ph.** J. L. León 10491; M. Domínguez 2972, 1388; R. Moran 18850, 18904, 18947, 18850; J. Rebman 9829.

*Zephyranthes arenicola* T. S. Brandegee **Ph.** A. Carter 4655, 4770, 5018, 5490.

#### **Araceae [incl. Lemnaceae]**

*Lemna minor* L. **Hf.** J. L. León 10106. Lentejilla.

#### **Arecaceae**

*Brahea brandegeei* (Purpus) H.E. Moore [*Erythea b.*] **Hf.** A. Carter 4104, 4348, 5472; J. L. León 10182; R. Domínguez 2559. Palmilla.

*Phoenix dactylifera* L. **Hf.** R. Domínguez 2801. Dátil.

*Washingtonia robusta* Wendl. **Hf.** J. L. León 3085. Palma.

#### **Bromeliaceae**

*Hechtia montana* T. S. Brandegee **Sc.** A. Carter 4248, 5503; M. Domínguez 3548; R. Domínguez 2555. Mezcalillo.

#### **Commelinaceae**

*Commelina diffusa* Burm. f **Ph.** R. Domínguez 2874. Quesadilla.

*Commelina erecta* L. [*C. e.* var. *crispa*, *C. e.* var. *angustifolia*] **Ph.** A. Carter 4495, 4654, 4717, 4773, 4984, 5181; J. L. León 10479, 10584; M. Domínguez 2835; R. Domínguez 2830, 2563; R. Moran 18208, 19009; J. Rebman 9708. Quesadilla.

*Gibasis venustula* (Kunth) D. R. Hunt. subsp. *peninsulae* D. R. Hunt [*G. heterophylla*] **Ph.** J. L. León 10548, 10581; J. Rebman 7087, 9804.

#### **Cyperaceae**

*Bulbostylis arcuata* Kral. **Hf.** (NW) R. Domínguez 2113.

*Cyperus articulatus* L. **Ph.** (NW) J. L. León 8046.

*Cyperus cuspidatus* H. B. K. **Hf.** (NW) J. L. León 9853; M. Domínguez 2960.

*Cyperus dioicus* I. M. Johnston. **Hf.** A. Carter 3926; R. Moran 18999.

*Cyperus esculentus* L. **Ph.** A. Carter 4955, 5342; J. L. León 9796, 10505, 10567; J. Rebman 7064, 7718, 9735; M. Domínguez 2948, 3617; R. Domínguez 2115.

*Cyperus leavigatus* L. **Hf.** A. Carter 4300, 5642.

*Cyperus perennis* (M. E. Jones) O'Neill **Hf.** A. Carter 4718, 5024, 5099; J. L. León 10380; M. Domínguez 2812, 3587; R. Domínguez 2086; R. Moran 18893.

*Cyperus semiochraceus* Boeckl. **Hf.** (NW) A. Carter 4309.

*Cyperus squarrosus* L. [*C. aristatus* var. *inflexus*] **An.** A. Carter 5382, 5393, 5568; J. Rebman 7069; M. Domínguez 1698, 3690; R. Domínguez 2114; R. Moran 18880.

*Cyperus surinamensis* Rottb. **Hf.** J. L. León 10382; M. Domínguez 2939.

*Eleocharis flavescens* (Poir.) Urban. **Hf.** (NW) M. Domínguez 2490.

*Eleocharis geniculata* (L.) R. et S. **Hf.** A. Carter 5460, 5557; J. L. León 8047, 9800, 10363, 10381; M. Domínguez

1703; R. Domínguez 1989. Junquillo.

*Eleocharis montevidensis* Kunth **Hf.** M. Domínguez 2426, 3677. Junquillo.

*Eleocharis parishii* Britt. **Hf.** A. Carter 3830<sup>a</sup>, 4377, 5559. Junquillo.

*Fuirena simplex* Vahl. **Hf.** A. Carter 4637, 5556, 5646; M. Domínguez 2428; R. Domínguez 1991.

*Lipocarpa micrantha* (Vahl) G. C. Tucker [*Hemicarpha m.*] **Hf.** M. Domínguez 2642, 2443.

*Schoenoplectus americanus* (Pers.) Schinz et R. Kelley [*Scirpus americanus* in part, *Scirpus olneyi* misapp.] **Hf.** A. Carter 5214, 5649, 5787.

*Schoenoplectus pungens* (Vahl) Palla [*Scirpus americanus* in part] **Hf.** R. Domínguez 1298; J. Rebman 9671.

*Schoenoplectus saximontanus* (Fern.) J. Raynal [*Scirpus s.*] **Hf.** (NW) A. Carter 5933; J. Rebman 9782.

### Hydrocharitaceae [incl. Najadaceae]

*Najas flexilis* (Willd.) Rostk. et Schmidt. **Hf.** (NW) M. Domínguez 1696, 3105.

*Najas guadalupensis* (Spreng) Haynes. **Hf.** A. Carter 5000<sup>a</sup>; R. Domínguez 1297.

*Najas marina* L. **Hf.** J. L. León 9931

### Juncaceae

*Juncus acutus* L. subsp. *leopoldii* (Parl.) Snog. **Hf.** M. Domínguez 1121. Espadín.

*Juncus arcticus* Willd. var. *mexicanus* (Roemer et Schultes) Balslev [*J. m.*] **Hf.** R. Domínguez 198.

### Nolinaceae

*Nolina palmeri* S. Wats. var. *brandegeei* Trel. **Sh.** A. Carter 5359; R. Moran 18882. Sotol.

### Poaceae (Gramineae)

*Aristida adscensionis* L. **An.** A. Carter 3846, 5114, 5756; J. L. León 7631, 7639, 9360, 9849, 9902, 10585; R.

Domínguez 1295, 1637, 1881, 1893, 2094, 2150, 2743, 2766, 2827, 2853, 2900; J. Rebman 7701. Zacate liebrero.

*Aristida ternipes* Cav. **Ph.** A. Carter 4688, 5224, 5273, 5320, 5322; J. L. León 9900, 10187; R. Domínguez 1882, 2879. Zacate quebrador.

*Arundo donax* L. **Hf.** J. L. León 10230; R. Domínguez 2798. Carrizo.

*Bothriochloa barbinodis* (Lag.) Herter **Ph.** J. L. León 10180; R. Moran 18196, 19010.

*Bouteloua annua* Swallen. **An.** J. Rebman 7620; R. Domínguez 2775. Navajita.

*Bouteloua aristidoides* (H. B. K.) Griseb. **An.** A. Carter 4612, 4788, 5205, 5278; J. L. León 7632, 9363, 9850, 10606; J. Rebman 3369, 7629; R. Domínguez 1636, 1880, 1891, 2095, 2124; R. Moran 19014. Zacate de Hormiga.

*Bouteloua barbata* Lag. var. *barbata* **An.** A. Carter 4060, 5277; J. L. León 9362, 10605; M. Domínguez 1737, 1738; R. Domínguez 1638, 1890. 2126.2201; R. Moran 18222; J. Rebman 7698. Navajita.

*Bouteloua curtipendula* (Michx.) Torr. **Ph.** J. L. León 10503; M. Domínguez 3054; R. Domínguez 1634, 2881. Zacate banderita.

*Bouteloua repens* (H. B. K.) Scribn. et Merr. **Ph.** M. Domínguez 1715; R. Domínguez 1669, 2207, 2724.

*Bouteloua reflexa* Swallen **Ph.** A. Carter 4230, 4513, 4629, 4796, 5062, 5206, 5319, 5519; J. L. León 9893; J. Rebman 7075, 7566; M. Domínguez 3370; R. Moran 18928.

*Brachiaria arizonica* (Scribn. et Merr.) S. F. Blake **An.** A. Carter 5219<sup>a</sup>, 5248; J. L. León 8033, 9358, 10305; J. Rebman 7658; M. Domínguez 1395; R. Domínguez 1632, 1879, 2205; R. Moran 18216.

*Brachiaria fasciculata* (Sw.) L. Parodi. **An.** A. Carter 4971, 5249, 5569; J. L. León 7633, 9834; J. Rebman 7627, 9688; R. Domínguez 2152, 2206.

*Cenchrus echinatus* L. **An.** R. Domínguez 1621. Zacate estrellita.

*Cenchrus incertus* M. A. Curtis **An.** J. Rebman 3370; R. Domínguez 1894, 2139. Zacate de huizapol.

*Cenchrus palmeri* Vasey **An.** J. L. León 4988, 9366; R. Domínguez 1635, 1878, 2125. Hizapol gordo.

*Chloris brandegei* (Vasey) Sw. **Ph.** A. Carter 5014, 5064, 5321; J. L. León 10504; M. Domínguez 2950, 3055; R. Domínguez 2826; J. Rebman 7710.

*Chloris chloridea* (Presl) Hitchc. **Ph.** J. Rebman 9736, 9783.

*Chloris virgata* Sw. **An.** A. Carter 5377; J. Rebman 3379; R. Domínguez 1620, 2123; J. Rebman 9790. Zacate pata de pollo.

*Cynodon dactylon* (L.) Pers. **Ph.** R. Domínguez 1987. Salado.

- Dactyloctenium aegyptium* (L.) Willd. **An.** A. Carter 5563; J. L. León 8035, 9364; R. Domínguez 1641, 1670, 1883, 1893. Zacate pata de pollo.
- Digitaria californica* (Benth.) Henr. **Ph.** A. Carter 4878, 5075, 5344; M. Domínguez 3347; J. Rebman 9819.
- Echinochloa colona* (L.) Link **An.** A. Carter 5561, 5566; J. L. León 8022, 9812; R. Domínguez 1629, 1310, 2112.
- Enneapogon desvauxii* Beauv. **Ph.** A. Carter 4884, 5063, 5185; J. L. León 8024; M. Domínguez 1702, 1718, 2480, 2767; R. Domínguez 1664, 1889, 2829; J. Rebman 7703.
- Eragrostis cilianensis* (All.) E. Mosher **An.** A. Carter 5276, 5562; J. L. León 9358, 9821, 9848, 10354, 10576; M. Domínguez 2810, 2937, 3387; R. Domínguez 1413, 1616, 1623, 1633, 1642, 1995, 2127, 2726, 2740, 2745, 2804; J. Rebman 7720.
- Eragrostis pectinacea* (Michx.) Ness **An.** A. Carter 5015, 5339; R. Domínguez 1293, 1625; M. Domínguez 3550; J. Rebman 7711, 9733.
- Eragrostis reptans* (Michx.) Nees **An.** A. Carter 4319; J. L. León 10563; M. Domínguez 3131, 3395; R. Domínguez 2809.
- Eriochloa acuminata* (Presl.) Kunth **An.** J. L. León 10540, 10552.
- Eriochloa aristata* Vasey **An.** R. Domínguez 1618, 1631, 1887, 1897.
- Eriochloa lemmonii* Vasey et Scribn. **An.** A. Carter 5369.
- Heteropogon contortus* (L.) Beauv. ex R. et S. **Ph.** A. Carter 5505; J. L. León 10211, 10509; J. Rebman 7622; M. Domínguez 1120, 3044; R. Domínguez 2831; R. Moran 18910.
- Heteropogon melanocarpus* (Ell.) Benth. **An.** R. Domínguez 2728.
- Hilaria belangeri* (Steud.) Nash. **Ph.** A. Carter 4170, 5029, 5213.
- Hilaria ciliata* (Scribn.) Nash. **Ph.** A. Carter 5113.
- Hilaria mutica* (Buckl.) Benth. **Ph.** A. Carter 5070.
- Lasiacis ruscifolia* (H. B. K.) Hitchc. **Ph.** A. Carter 5301; R. Moran 18223.
- Leptochloa dubia* (H. B. K.) Nees **Ph.** A. Carter 4781, 5028, 5317; J. L. León 4976, 10308, 10622; J. Rebman 7071, 7700; M. Domínguez 3062; R. Domínguez 1617, 1666, 2720.
- Leptochloa fascicularis* (Lam.) A. Gray **An.** M. Domínguez 1701, 3062; R. Domínguez 1622, 1624, 1627, 1892.
- Leptochloa mucronata* (Michx.) Kunth [*L. filiformis*] **An.** A. Carter 4585, 4972, 5073, 5221, 5279, 5564; J. L. León 9847, 10573, 10587, 10609; M. Domínguez 1700; R. Domínguez 1626, 2087, 2156, 2160, 2204 2738; R. Moran 18215; J. Rebman 7730.
- Leptochloa uninervia* (Presl.) Hitchc. et Chase. **An.** M. Domínguez 1726; R. Domínguez 1312.
- Leptochloa viscida* (Scribn.) Beal **An.** J. Rebman 7712, 9731.
- Muhlenbergia emersleyi* Vasey **Ph.** J. L. León 10185. Zacate cola de zorra.
- Muhlenbergia microsperma* (DC.) Kunth. **An.** A. Carter 4520, 4760, 5180, 5223, 5282, 5370, 5565, 5765; J. L. León 8023, 9361, 9846, 10551; M. Domínguez 167, 1717, 2766, 3380, 3546; R. Domínguez 1414, 1639, 1667, 2122, 2744, 2817, 2877, 2887, 2901; R. Moran 18900. Zacate finito.
- Muhlenbergia rigens* (Benth.) Hitchc. **Ph.** M. Domínguez 2946.
- Panicum alatum* Zuloaga et Morrone. **An.** R. Domínguez 1630, 1896, 2073, 2130, 2151, 2203.
- Panicum hirticaule* Presl. **An.** A. Carter 4726, 4970, 5016, 5074, 5115, 5353, 5374, 5511, 5548, 5574; J. L. León 9357, 10575; J. Rebman 7619, 9732, 9734.
- Paspalidium geminatum* (Forssk.) Stapf in Prain. **An.** M. Domínguez 2943, 3446; J. L. León 8050, 9808; R. Domínguez 1432.
- Paspalum distichum* L. **An.** M. Domínguez 1118; J. L. León 10554; R. Moran 19005.
- Pennisetum ciliare* (L.) Link [*Cenchrus c.*] **Ph.** A. Carter 5652; R. Domínguez 1888, 1895. Zacate buffel.
- Phragmites australis* (Cav.) Steud. **Hf.** M. Domínguez 1117. Carricillo.
- Setaria adhaerans* (Forssk.) Chiov. **An.** R. Domínguez 2734, 1303; J. Rebman 7723.
- Setaria grisebachii* E. Fourn. **An.** A. Carter 4759, 5179, 5340, 5567, 5653; R. Moran 18201.
- Setaria liebmannii* E. Fourn. **An.** A. Carter 4775, 4980, 5220, 5303; J. L. León 8034, 9833, 10572; J. Rebman 7070, 7642, 9739; R. Domínguez 1665, 1885, 2118, 2202. Zacate tempranero.
- Setaria macrostachya* H. B. K. **Ph.** A. Carter 3972, 4061, 4175, 5302, 5390, 18219.
- Setaria palmeri* Henr. **Ph.** J. Rebman 7567, 7706, 9766; R. Domínguez 1415, 1619, 1884.
- Tragus berteronianus* Schult. **An.** A. Carter 5284; R. Domínguez 1640.



**Potamogetonaceae [incl. Ruppiaceae]**

*Potamogeton illinoensis* Morong. **Hf.** A. Carter 4298, 4527, 5650, 5784; J. L. León 9936, 10082.

*Ruppia maritima* L. **Hf.** M. Domínguez 3729; R. Domínguez 1984.

*Stuckenia pectinatus* (L.) Borner [*Potamogeton p.*] **Hf.** M. Domínguez 3508

**Themidaceae**

*Dichelostemma capitatum* Alph. Wood [*D. pulchellum*] **Ph.** A. Carter 3895.

**Typhaceae**

*Typha domingensis* Pers. **Hf.** A. Carter 4299; J. L. León 7837; R. Domínguez 2800. Tule petatero.

**Zannichelliaceae**

*Zannichellia palustris* L. **Hf.** R. Domínguez 1314.

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