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THE VASCULAR EPIPHYTE FLORA OF EL TRIUNFO BIOSPHERE RESERVE, CHIAPAS, MÉXICO

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ABSTRACT. An analysis of the vascular epiphytes of El Triunfo Biosphere Reserve was made based on eight years of field work and herbarium data. Four hundred and sixty five species and infraspecies of vascular epiphytes from 131 genera and 31 families are listed. Approximately 9% were found to be true epiphytes, whereas 0.65% were accidental epiphytes. Orchidaceae was the most species-rich family, although the genera *Peperomia, Tillandsia*, and *Polypodium* were the most rich in epiphytes.

Key Words: epiphytes, Reserve, Triunfo, Chiapas

Floristic studies carried out in Mexico have generally been focused on the structure and composition of the vegetation of the different plant communities (Alcántara and Luna 2001; Martínez and Galindo-Leal 2002; Martínez-Cruz and Tellez-Valdes 2004; Mejia-Domínguez et al. 2004; Pérez-García et al. 2001; Salas-Morales et al. 2003; Sánchez-Rodríguez et al. 2003). Little attention has been given to the epiphytes that many of these communities include, even though these constitute nearly 10% of the world diversity of vascular flora (Kress 1986). This is due in part to difficulty accessing ephiphytic communities (Mitchell et al. 2002; Moffett 1993) and in part to taxonomic and nomenclatural problems that some families present, for example the Orchidaceae.

The study and knowledge of Mexican epiphytes is even less developed. Some of the work that has been carried out in Mexico has focused on: (1) the effects of forest fragmentation, anthropogenic disturbance, and habitat transformation (Cruz-Angón and Greenberg 2005; Hietz 2005; Hietz-Seifert et al. 1996; Solis-Montero et al. 2005; Wolf 2005); (2) community structure, diversity, and ecology (Castaño-Meneses et al. 2003; Hietz and Hietz-Seifert 1995a, 1995b; Winkler et al. 2005); (3) host preferences (Bernal et al. 2005; Mehltreter et al. 2005; Wolf and Flamenco 2003;

Zimmerman and Olmsted 1992); (4) population dynamics (Hietz 1997), distribution, conservation, and management (Castro-Hernández et al. 1999; García-Franco 1996; Olmsted and Gómez-Juárez 1996; Wolf and Konings 2001); (5) biological associations (Dejean et al. 1995); and (6) genetic variation (González-Astorga et al. 2004).

The El Triunfo Biosphere Reserve in the state of Chiapas, México, is a protected natural area located in the central part of the Sierra Madre of Chiapas physiographic region. It covers over 117,000 hectares (ha) and contains about seven of the ten registered vegetation types identified for Mexico by Rzedowski (1978). Notably, it contains the most extensive continuous evergreen cloud forest in the southern portion of Mexico (Pérez-Farrera 2004). In this last plant community, vascular epiphytes are well represented. Although some studies have been carried out on the vascular flora (Matuda 1950a, 1950b), in general, most research has instead been more narrowly focused, for example on the effects of anthropogenic disturbance on cycad populations (Pérez-Farrera et al. 2000; Pérez-Farrera and Vovides, 2004); the effect of coffee plantations on the bird communities (Tejeda-Cruz and Sutherland 2004; Tejeda-Cruz and Megchún-Guerrero 2004); structure and floristic composition of the area (Bachem and Rojas 1994; Williams 1991); distribution and ecology of palm and pteridophyte communities (López-Molina 2000; Pérez-Farrera et al. 2004); and richness and ecology of mammals, amphibians, and reptiles (Lira et al. 2004; Muñoz et al. 2004). In general, the epiphytes have been little studied (Long and Heath 1991; Pérez-Farrera and Miceli-Méndez 2004). Thus even though a preliminary record of about 2600 species of vascular plants exists for the Triunfo Biosphere reserve, a complete listing is still lacking. In particular, a more complete list of the vascular epiphyte flora is necessary as a basic contribution toward institutional management and conservation programs in this biosphere reserve.

MATERIAL AND METHODS

Study site. El Triunfo Biosphere Reserve [Reserva De La Biosfera El Triunfo (REBITRI)] is located in the central portion of the Sierra Madre of Chiapas, between latitudes 15°09′10″ and 15°57′02″N and longitudes 92°34′04″ and 93°12′42″W, including the municipalities of Pijijiapan, Mapastepec, Acacoyagua, Ángel

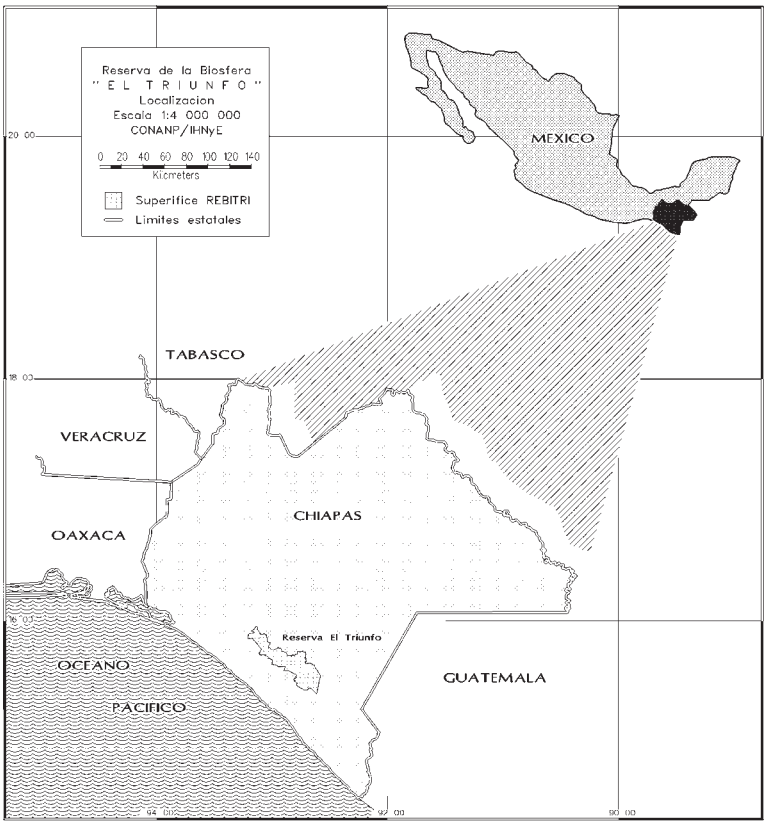

Figure 1. Geographic location of the El Triunfo Biosphere Reserve, Chiapas State, México.

Albino Corzo, La Concordia, Villa Corzo, and Siltepec. All these are within the economic regions of Sierra, Isthmus-Costa, and Soconusco of the State of Chiapas, Mexico [Figure 1; Instituto Nacional y Ecología-Secretaría de Medio Ambiente, Recursos Naturales y Pesca (INE-SEMARNAP) 1999].

The Reserve has a total area of 119,177.29 ha of which 93,458 ha correspond to the buffer zone, which includes about 43 ejidos (agricultural cooperatives), 162 private individuals, and one community. The remaining approximately 25,719 ha are federal land and are distributed in five polygons or nucleus zones: I. El Triunfo, II. Ovando, III. Quetzal or Cuxtepec, IV. El Venado, and V. La Angostura (INE-SEMARNAP 1999; REBITRI 1997).

The mean annual precipitation at the Reserve is about 2152 mm, and mean annual temperature is 21.2°C. The main climate types are warm humid, warm subhumid, semiwarm humid, and temperate humid, and the dry season extends from November to April. Geologically the region consists of granitic and metamorphic rocks of Precambrian and Paleozoic age. Soils from these sites are cambisol eutric, cambisol cromic, and acricol ortic that are highly susceptible to erosion (INE-SEMARNAP 1999).

Data collection. The information contained in this listing includes vascular epiphyte species that have been collected and observed in the field from 1998 through 2006 during the ''Floristic Inventory of the Triunfo Biosphere Reserve, Chiapas, Mexico'' project, conducted by staff members of the Eizi Matuda Herbarium (HEM) of the Biology School of the University of Sciences and Arts of Chiapas (UNICACH). The vegetation nomenclature follows Rzedowski (1978), with eight of his vegetation types sampled: BMM: montane cloud forest ''bosque mesófilo de montaña;'' BTP: tropical rain forest ''bosque tropical perennifolio;'' BQ: Oak forest ''bosque de *Quercus*;'' BTC: deciduous tropical forest ''bosque tropical caducifolio;'' BC: conifer forest ''bosque de coníferas;'' BTSC: subdeciduous tropical forest ''bosque tropical subcaducifolio;'' VS: secondary vegetation ''Vegetación secundaria;'' and CT: coffee plantation or ''Cafetal.'' Listed species range in altitude from 100 to 2650 meters on both sides (Pacific and Gulf of Mexico) of the Sierra Madre of Chiapas. However, the greatest collection effort was made in BMM because it is the most epiphyte-rich type in the REBITRI. Nevertheless, we emphasize that the sampling of the epiphyte flora was also carried out in the other vegetation types.

In addition to the Triunfo Biosphere Reserve inventory, we also studied collections in regional [Herbario Eizi Matuda (HEM), Institute of Natural History and Ecology (CHIP)], national (MEXU, XAL), and foreign herbaria (MO, CAS). The information was supplemented by other sources, such as plant identifications by specialists as well as the literature. The epiphytes were classified according to their association with host species (Kress 1986). The true epiphytes are those that germinate on the host species and complete their entire life cycle on them, with the host alone functioning as support, and where nutrients are obtained only through photosynthesis, humus accumulation, and components of the fog and rain. The primary hemiepiphytes germinate on the host

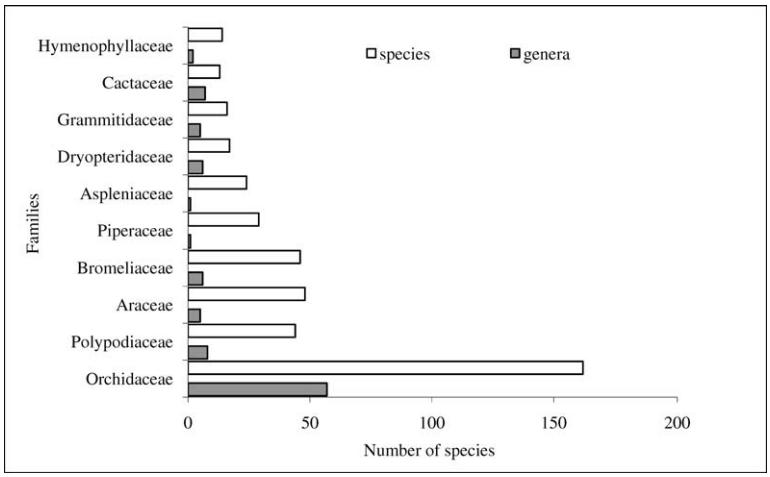

Figure 2. Major families in the vascular epiphyte flora in El Triunfo Biosphere Reserve, Chiapas State, México.

but their roots descend to obtain nutrients from the ground, and the secondary hemiepiphytes begin life rooted in earth near a phorophyte and become arboreal when attachment to the tree has been achieved and the vine's older stems and roots decay (Benzing 1990). The casual or facultative epiphytes are species that can grow as epiphytes or upon other substrates such as soil or rocks. The accidental epiphytes are those species that are generally terrestrial, but occur rarely as epiphytes.

RESULTS

A total of 1500 records were compiled representing 465 species and 18 infraspecies distributed among 131 genera in 31 families (Appendix). The Orchidaceae contained the most species, followed by the Polypodiaceae, Araceae, Bromeliaceae, and Piperaceae (Figure 2). The most species-rich genera were *Peperomia*, *Tillandsia*, *Asplenium*, *Epidendrum*, and *Polypodium* (Figure 3). The monocots were the most diverse taxonomic group in the Reserve (Table 1).

The majority of epiphyte species grew in "bosque mesófilo de montaña" (montane cloud forest, BMM; Figure 4). Most of the species recorded were true epiphytes, and only three were accidental

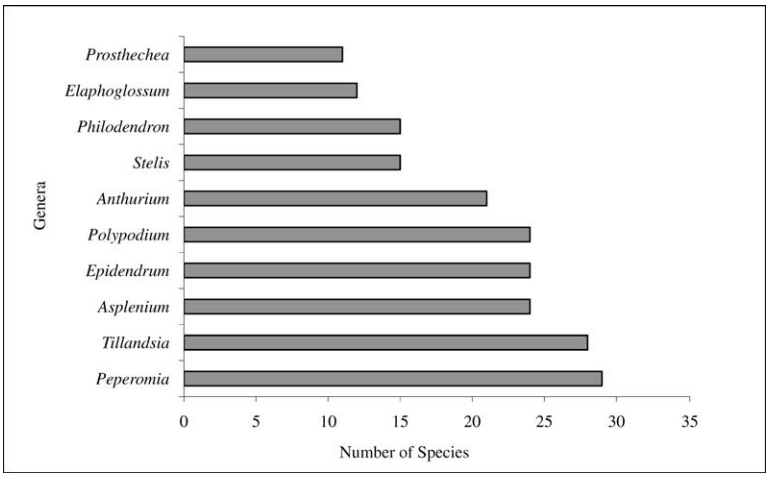

Figure 3. Major genera in the vascular epiphyte flora in the El Triunfo Biosphere Reserve, Chiapas State, México.

epiphytes (Figure 5). The number of true epiphyte species is due to the major representation of orchids, which are mainly wind dispersed. The accidental and casual epiphytes were very isolated cases in which the host structure offered sufficient substrate for establishment and growth.

DISCUSSION

The richness of epiphytes of the Triunfo includes 38.5% of the total epiphytes in Mexico, according to the national inventory of vascular epiphytes (Aguirre-León 1992), and 39.6% of the total number of epiphytes identified for the State of Chiapas (Wolf and

Table 1. Distribution of vascular epiphytes by taxonomic group in El Triunfo Biosphere Reserve, Chiapas State, México.

	Number of Taxa				
				Infraspecies	
Taxonomic Group	Families	Genera	Species	Subsp.	Var.
Monocotyledoneae	5	70	261	4	4
Dicotyledoneae	14	27	66	1	2
Pteridophytes and lycophytes	12	34	138	1	6
Total taxa	31	131	465	6	12

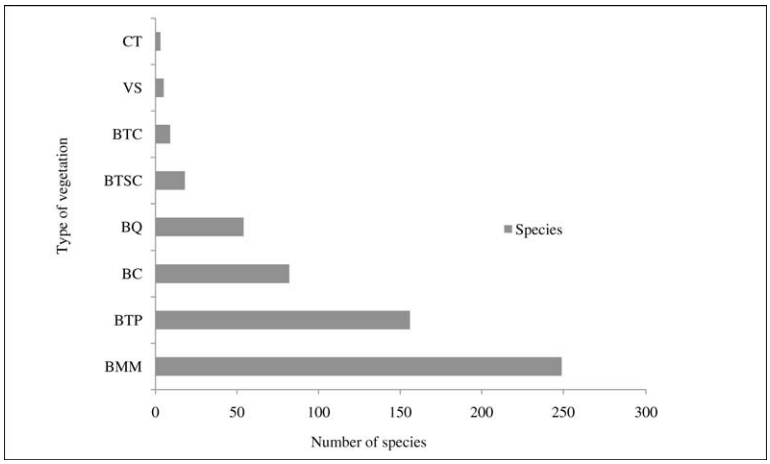

Figure 4. Richness of vascular epiphytes for each vegetation type in El Triunfo Biosphere Reserve, Chiapas State, México. BMM: bosque mesófilo de montaña; BTP: bosque tropical perennifolio; BC: bosque de coniferas; BQ: bosque de *Quercus*; BTSC: bosque tropical subcaducifolio; BTC: bosque tropical caducifolio; CT: Cafetal; VS: Vegetación secundaria.

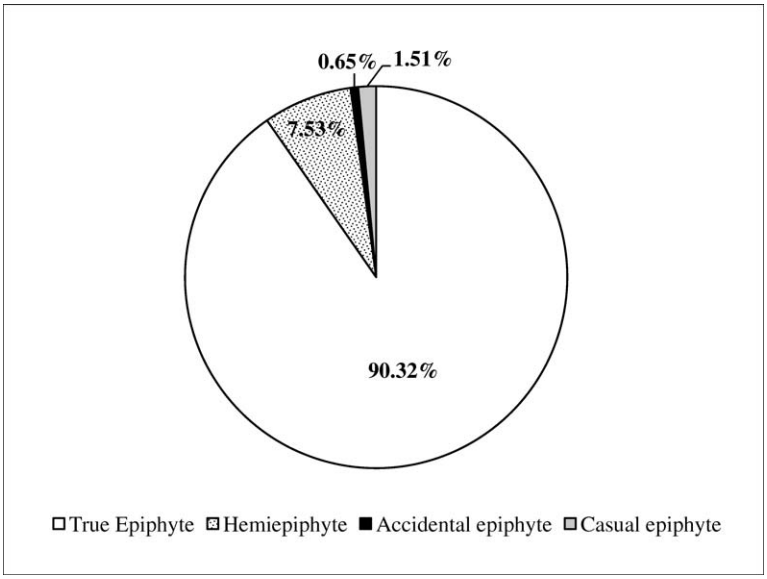

Figure 5. Classification of vascular epiphytes by habit (Kress 1986), in the Triunfo Biosphere Reserve, Chiapas State, México.

Flamenco 2003). Therefore, El Triunfo Reserve possesses a little less than half the number of epiphytic species found in Chiapas as well as Mexico (Aguirre-León 1992), more angiosperm epiphyte species than the Island of Cuba or other Mexican places such Uxpanapa and the Yucatan Peninsula, and somewhat fewer than the Lacandon forest (Table 2).

Several monocotyledonous families were especially well represented at El Triunfo. The Orchidaceae recorded for El Triunfo comprised 14.7% of the total orchids of Mexico (Hágsater et al. 2005), and around 28.5% of the total number of orchids known from Chiapas (Cabrera 1999; Wolf and Flamenco 2003). El Triunfo possessed around 13.5% of Bromeliaceae known from Mexico and 38% of the total species in Chiapas (Espejo-Serna et al. 2004). The most species rich genus was *Tillandsia*, with 14.5% of the total number of species of Mexico and 44.4% of the species in Chiapas (Espejo-Serna et al. 2004).The large number of *Tillandsia* species is probably due to Mexico being a very well-known center of radiation for the genus, which is adapted to the epiphytic habit (Benzing 1980, 2000). The Araceae of the Triunfo Reserve accounted for 60.7% of the species found in Chiapas (Pérez-Farrera 2005) and about 44.4% of those found in Mexico (Espejo and López 1993).

Among the dicots, the genus *Peperomia* was the most diverse group in the reserve. In this study we found 29 species representing 56.8% of species known for Chiapas (Breedlove 1986; Wolf and Flamenco 2003); unfortunately, there is no checklist for peperomias of Mexico. The Polypodiaceae was the richest fern family, with about 47.8% of the Mexican species and 58.6% of the Chiapan species (Mickel and Smith 2004).

Several taxa that were documented during the present study are considered globally rare and possibly imperiled (the conservation status of most of the species in the area is not well understood). We found *Schismocarpus matudae* (Loasaceae), a species considered to be rare by M. Weigend (Institut für Biologie, pers. comm.), possibly because it has seldom been collected and thus is poorly represented in herbaria. *Neomortonia nummularia* (Gesneriaceae) is also considered very rare (L. Skog, Smithsonian Institution, pers. comm.), know only from one previous, historical collection (by Matuda at Mt. Ovando). Two rare species of Orchidaceae were also recorded: *Lepanthes matudana* and *Epidendrum santaclarense*. *Gibsoniothamnus cornutus* (Scrophulariaceae) is another species

Table 2. Locality, elevation, site size, annual precipitation (Precip.), and number (No.) of species of neotropical epiphyte inventories (modified from Küper et al. 2004). *Also includes areas in Belize, Guatemala, and Tabasco; **only angiosperms without ferns and lycophytes.

Author	Country of Study	Site		Precip. (mm)	No. of spp.
		Elevation (m)	Size (ha)		
Bussmann (2001)	Ecuador, Podocarpus	1800–3150	146,280	3900	644
Krömer and Gradstein (2003)	Bolivia, Yungas of La Paz	500–2500	1	1500–2500	500
Martínez et al. (1994)	México, Lacandona forest*	60–2450	2,000,000	2250	488
Martínez-Melendez et al. **(this study)**	México, El Triunfo	100–2650	117,000	3000	465
Küper et al. (2004)	Ecuador, Otonga	1400–2200	1000	2600	456
Webster and Rhode (2001)	Ecuador, Maquipucuna	1100–2800	22,000	–	453
Zamora et al. as cited in Küper et al. 2004	Costa Rica, La Selva	30–200	1500	4000	391
Ingram et al. (1996)	Costa Rica, Monteverde	1525	20	2500	333
Hechavarría and Oviedo (2002)	Cuba	0–1974	1,109,220	1320	319**
Kleft et al. (2004)	Ecuador, Tiputini	220	650	3700	313
Küper et al. (2004)	Ecuador, Guajalito	1800–2200	400	2700	256
Ibisch (1996)	Bolivia, Sehuencas	2100–2300	–	5000	230
Nieder et al. (2000)	Venezuela, La Carbonera	2100–2300	368	1460	191
Valdivia (1977)	México, Uxpanapa	100–160	30,000	3500	153
Ibarra-Manríquez et al. (1997)	México, Tuxtla Reserve	200–1700	640	3500	150
Schmit-Neuerburg (2002)	Venezuela, Surumoni	100	–	2700	148
Hietz and Hietz-Seifert (1995a)	México, Veracruz	720–2370	0.52	2000	134
Olmsted and Gómez-Juárez (1996)	México, Yucatán peninsula	0–300	1,768,340	1500	101

that is rare and poorly known (R. Liesner, Missouri Botanical Garden, pers. comm.).

This study has also resulted in several new records for El Triunfo. In some cases these are also new records for Chiapas. The bromeliad *Werahuia nocturna*, a new record for the reserve and Chiapas, was previously collected only in Oaxaca and Veracruz in México, and in Costa Rica and Honduras in Mesoamerica (Espejo et al. 2005). Another bromeliad documented for the first time in the Reserve was *Tillandsia eizi* (Bachem and Rojas 1994; Long and Heath 1991; Matuda 1950a; Williams 1991). Two species of bromeliads endemic to Chiapas were also recorded: *Aechmea matudae* (Espejo-Serna et al. 2004; Utley 1994), which is known only from the remnant tropical forest of the Soconusco (Matuda 1952); and *Pitcarnia matudae*, which grows in the evergreen cloud forest of the Sierra Madre on the Pacific side of Soconusco, Chiapas (Espejo-Serna et al. 2004). The Araceae also provided several new records. *Monstera dubia* represents the first record for Chiapas, according to Breedlove (1986). *Syngonium steyermarkii* is the first record for the Triunfo Reserve and the second for Chiapas. *Anthurium sarukhanianum* grows in subdeciduous tropical forests of the Pacific seaboard of the Sierra Madre de Chiapas, and was found for the first time in the Triunfo Reserve and in Chiapas, by Croat and Pérez-Farrera (2000). This species previously had been recorded only in the Sierra Madre del Sur on the Pacific side of Guerrero (Croat 1986). Also, *A. cerrobaulense* is here reported for the first time in the Flora of the Triunfo Reserve. This species previously had been collected only in the Sepultura Biosphere Reserve of Chiapas, and in the State of Oaxaca (Croat 1983).

Unfortunately, there is not enough detailed distributional information on epiphytes in México to document areas of maximum species richness. However, El Triunfo Biosphere Reserve and the Lacandon forest (Montes Azules Biosphere Reserve) in Chiapas probably represent the largest protected areas of major epiphyte diversity in Mexico. For the El Triunfo Reserve, this is because it has the largest continuous preserved montane cloud forest in southern Mexico, with a great range in altitude and different vegetation communities. This richness is under serious threat because an estimated 485 and 593 ha of primary forest are deforested annually for agricultural expansion, cattle pasture, and coffee plantations in the Triunfo Reserve and Lacandon forest, repectively (Carranza and Molina 2003; March and Flamenco

1996). Thus, the long-term future of the diverse plant communities with their rich assemblages of epiphytes is still far from secure.

We suggest that greater efforts be made to explore reasonably intact plant communities in Mexico and to document their epiphytic diversity with voucher specimens for future floristic and taxonomic studies, for three reasons. First, epiphytes represent an important but often overlooked part of complete taxonomic and floristic inventories. Second, epiphyte taxa generally are poorly represented in herbarium collections and vegetation community listings. Third, knowledge of epiphyte diversity is essential to the planning and implementation of conservation actions. Furthermore, it will be necessary to conduct further ecological, demographic, and genetic studies of selected groups to explain the diversity, evolution, biogeography, and speciation processes in epiphytes.

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APPENDIX

ANNOTATED LIST OF VASCULAR EPIPHYTES IN EL TRIUNFO BIOSPHERE RESERVE, CHIAPAS STATE, MEXICO

Pteridophyte families are listed alphabetically; circumscription follows Mickel and Smith (2004). Angiosperm families follow Cronquist (1981); they are arranged alphabetically within monocots and dicots. Genera and species are arranged alphabetically within each family. Nomenclature for each species was revised according to the Tropicos database of the Missouri Botanical Garden (http://tropicos.org). For each species, habit is indicated (Ep = true epiphyte; He = hemiepiphyte; Ec = casual epiphyte; Ea = accidental epiphyte) and voucher specimen information is given. Collectors are abbreviated as follows: (ARA) A. Ríos-Alegría; (CAPB) C.A. Pérez-Bonifaz; (DEB) D.E. Breedlove; (DEB & ARS) D.E. Breedlove & A.R. Smith; (DS, RH, MH & AL) D. Sutton, R. Hampshire, M. Heath & A. Long; (EM) E. Matuda; (EMM) E. Moreno-Molina; (EMTZ, TAS & JM) E. Martínez, T. Alemán-Santillán & J. Morales; (EPE) E. Palacios-Espinosa; (EPE & TCC) E. Palacios-Espinosa & T. Cabrera-Cachón; (FEPC) F.E. Pérez-Castillo; (FEPC, MAOR & MAVM) F.E. Pérez Castillo, M.A.O. Rosales & M.A. Velazquez-Martínez; (FEPC & MAVM) F.E. Pérez-Castillo & M.A. Velazquez-Martínez; (FEPC, MAVM & MELM) F.E. Pérez-Castillo, M.A. Velazquez-Martínez & M.E. López-Molina; (FEPC, MAVM & RNMV) F.E. Pérez-Castillo, M.A. Velazquez-Martínez & R.N. Méndez-Velazquez; (FEPC & RNMV) F.E. Pérez-Castillo & R.N. Méndez-Velazquez; (FHN) F. Hernández N.; (FM) F. Miranda; (GCLH) G.C. López H.; (HGD) H. Gómez-Domínguez; (HRE) H. Reyes-Escobar; (JC) J. Castillo; (JC & FBT) J. Castillo & F. Bolom-Tom; (JCE) J. Cecil; (JCR) J. De la Cruz-Rodríguez; (JCZ, GC & GJ) J. Calzada, G. Cortéz & G. Juárez; (JLC) J. López C.; (JMM) J. Martínez-Meléndez; (JMT) J.M. Toral; (JRGA) José R. García A.; (MAOR) M.A.O. Rosales; (MAPF) M.A. Pérez-Farrera; (MAVM) M.A. Velazquez-Martinez; (MAVM & FEPC) M.A. Velazquez-Martinez & F.E. Pérez-Castillo; (MDRS) M.D. Reynoso S.; (MELM) M.E. López-Molina; (MH & AL) M. Heath & A. Long; (NMM) N. Martínez-Meléndez; (NRM & PF) N. Ramírez-Marcial & P.F. Quintana-Ascencio; (OFS) O. Farrera-Sarmiento; (OFS & FHN) O. Farrera-Sarmiento & F. Hernández Najarro; (ON) O. Nagel; (PJH) P.J. Hampshire; (RG) R. García; (RH, PS, ARG, MH & AL) R. Hampshire, P. Stafford, A. Reyes-García, M. Heath & A. Long; (RHJ) R. Hernández- Jonapá; (RMC) R. Martínez-Camilo; (RNMV, FEPC & MAOR) R.N. Méndez-Velazquez, F.E. Pérez-Castillo & M.A.O. Rosales; (RRS) R. Reynoso-Santos; (SMVM) S.M. Villalobos-Méndez; (TBC) T.B. Croat; (TCC) T. Cabrera-Cachón; (TMD) T. MacDougall; (UB & RR) U. Bachem & R. Rojas; (VAVA) V.A. Villatoro-Álvarez.

PTERIDOPHYTES

ASPLENIACEAE

Asplenium abscissum Willd. – Ep; *MAPF 531*, *1088* (HEM).

Asplenium achilleifolium (M. Martens & Galeotti) Liebm. – Ep; *MAPF 2569*; *RMC 24* (HEM).
Asplenium aethiopicum (Burm. f.) Bech. – Ep; *FHN 452* (CHIP); *MELM 564* (HEM); *UB & RR 515* (CHIP).
Asplenium auriculatum Sw. – Ep; *FEPC & MAVM 82* (HEM); *MAPF 1046*, *1138*, *1333* (HEM); *MELM 151*, *455* (HEM); *MH & AL 516*, *534* (MEXU); *RMC 101* (HEM).
Asplenium barbaense Hieron. – Ep; *MELM 56* (HEM).
Asplenium breedlovei A.R. Sm. – Ep; *RMC 263* (HEM).
Asplenium cuspidatum Lam. – Ep; *MAPF 880*, *1070*, *1129*, *2585* (HEM); *MELM 014* (HEM).
Asplenium cuspidatum Lam. var. *cuspidatum* – Ep; *MAPF 1058*, *1106*, *1186*, *1357*, *1380* (HEM); *MELM 1*, *100*, *233*, *296* (HEM).
Asplenium fragrans Sw. – Ep; *MH & AL 589* (MEXU).
Asplenium harpeodes Kunze – Ep; *MAPF 1051*, *1079*, *2566* (HEM).
Asplenium hoffmannii Hieron. – Ep; *FEPC 158* (HEM).
Asplenium laetum Sw. – Ep; *MAPF 1043* (HEM).
Asplenium lamprocaulon Fée – Ep; *MELM 12*, *24*, *70* (HEM).
Asplenium miradorense Liebm. – Ep; *MAPF 1161* (HEM).
Asplenium monanthes L. – Ep; *MAPF 1045* (HEM).
Asplenium palmeri Maxon – Ep; *MELM 28* (HEM).
Asplenium radicans L. – Ep; *MAPF 1087* (HEM).
Asplenium riparium Liebm. – Ep; *EM 221*(MEXU).
Asplenium serra Langsd. & Fisch. – Ep; *MAPF 197*, *877*, *982*, *1130*, *1337* (HEM); *MELM 107*, *188*, *197*, *312* (HEM); *RMC 84* (HEM).
Asplenium solmsii Baker *ex* Hemsl. – Ep; *MAPF 2161* (HEM).
Asplenium sphaerosporum A.R. Sm. – Ep; *RMC 109* (HEM).
Asplenium tenerrimum Mett. *ex* Kuhn – Ep; *MELM 465* (HEM).
Asplenium tuerckheimii Maxon – Ep; *MAPF 2584* (HEM).
Asplenium uniseriale Raddi – Ep; *EM 885* (HEM).

ATHYRIACEAE

Hemidictyum marginatum (L.) C. Presl. – Ep; *MELM 57* (HEM).

BLECHNACEAE

Blechnum ensiforme (Liebm.) C. Chr. – Ep; *MELM 279*, *407* (HEM).
Blechnum glandulosum Kaulf. *ex* Link – Ep; *RMC 35* (HEM).
Blechnum occidentale L. – Ep; *UB & RR 958* (CHIP).
Blechnum polypodioides Raddi – Ep; *MELM 257*; *VAVA 36* (HEM).

DRYOPTERIDACEAE

Arachniodes denticulata var. *formosa* Fée – Ep; *HGD 1324* (HEM).
Elaphoglossum affine (M. Martens & Galeotti) T. Moore – Ep; *RHJ 65* (HEM).
Elaphoglossum albomarginatum A.R. Sm. – Ep; *MAPF 1355* (HEM).
Elaphoglossum engelii (H. Karst.) H. Christ – Ep; *RRS 79* (HEM).
Elaphoglossum erinaceum (Fée) T. Moore – Ep; *MAPF 1054*, *1068*, *1104* (HEM).
Elaphoglossum latifolium (Sw.) J. Sm. – Ep; *FEPC 121* (HEM); *MAPF 538*, *542*, *962*, *990*, *1105*, *1686*, *2530* (HEM); *NMM 8* (HEM).

Elaphoglossum lonchophyllum (Fée) T. Moore – Ep; *MAPF 1083* (HEM).
Elaphoglossum muscosum (Sw.) T. Moore – Ep; *MAPF 1035*, *1386* (HEM).
Elaphoglossum paleaceum (Hook. & Grev.) Sledge – Ep; *MAPF 1580* (HEM).
Elaphoglossum peltatum (Sw.) Urb. – Ep; *EM 1859* (HEM); *FEPC 202* (HEM); *MAPF 1342* (HEM); *MELM 327*, *722* (HEM); *MH & AL 295* (MEXU); *NMM 26*, *38* (HEM); *RMC 260* (HEM).
Elaphoglossum piloselloides (C. Presl) T. Moore – Ep; *MAPF 1111* (HEM).
Elaphoglossum sartorii (Liebm.) Mickel – Ep; *HGD 864* (HEM).
Elaphoglossum setigerum (Sodiro) Diels – Ep; *RRS 80* (HEM).
Lastreopsis effusa subsp. *divergens* (Willd. *ex* Schkuhr) Tindale – Ep; *UB & RR 965* (CHIP).
Megalastrum pulverulentum (Poir.) A.R. Sm. & R.C. Moran – Ep; *UB & RR 974* (CHIP).
Nephrolepis pectinata (Willd.) Schott – Ep; *JMM 536* (HEM).
Tectaria mexicana (Fée) C.V. Morton – Ep; *RMC 200* (HEM); *UB & RR 970* (CHIP).

GRAMMITIDACEAE

Cochlidium jungens L.E. Bishop – Ep; *MAPF 1324* (HEM).
Cochlidium rostratum (Hook.) Maxon *ex* C. Chr. – Ep; *MAPF 1139* (HEM); *MH & AL 300* (MEXU).
Cochlidium serrulatum (Sw.) L.E. Bishop – Ep; *MAPF 512* (HEM); *MELM 573*, *723* (HEM).
Grammitis sp. – Ep; *MH & AL 299* (MEXU).
Melpomene anfractuosa (Kunze *ex* Klotzsch) A.R. Sm. & R.C. Moran – Ep; *MAPF 1036*, *1322* (HEM).
Melpomene firma (J. Sm.) A.R. Sm. & R.C. Moran – Ep; *MAPF 979*, *1052* (HEM).
Melpomene flabelliformis (Poir.) A.R. Sm. & R.C. Moran – Ep; *MAPF 1323* (HEM).
Melpomene moniliformis (Lag. *ex* Sw.) A.R. Sm. & R.C. Moran – Ep; *MAPF 1020* (HEM).
Melpomene pilosissima (M. Martens & Galeotti) A.R. Sm. & R.C. Moran – Ep; *MELM 18* (HEM).
Melpomene xiphopteroides (Liebm.) A.R. Sm. & R.C. Moran – Ep; *MAPF 871*, *1016*, *1112*, *1113*, *1164* (HEM); *MELM 129*, *298* (HEM).
Micropolypodium basiattenuatum (Jenman) A.R. Sm. – Ep; *MAPF 1002* (HEM).
Micropolypodium taenifolium (Jenman) A.R. Sm. – Ep; *RMC 105* (HEM).
Terpsichore asplenifolia (L.) A.R. Sm. – EP; *MAPF 1005*, *1027* (HEM).
Terpsichore cultrata (Bory *ex* Willd.) A.R. Sm. – Ep; *FEPC & MAVM 96* (HEM); *MAPF 981*, *1110*, *1305* (HEM); *MELM 95* (HEM).
Terpsichore delicatula (M. Martens & Galeotti) A.R. Sm. – Ep; *MELM 326* (HEM).
Terpsichore semihirsuta (Klotzsch) A.R. Sm. – Ep; *MAPF 999*, *1010*, *1017*, *1019*, *1325*, *1340* (HEM); *MELM 132* (HEM); *RMC 289* (HEM).

HYMENOPHYLLACEAE

Hymenophyllum crassipetiolatum Stolze – Ep; *MELM 133*, *300* (HEM).

Hymenophyllum ectocarpon Fée – Ep; *HGD 1024* (HEM).
Hymenophyllum fucoides (Sw.) Sw. – Ep; *MAPF 1012*, *1341* (HEM); *MELM 109* (HEM).
Hymenophyllum hirsutum (L.) Sw. – Ep; *EM 5233* (MEXU); *FEPC 198* (HEM); *MAPF 547*, *971*, *1000*, *1014*, *1085*, *1107* (HEM); *MELM 87*, *325*, *574* (HEM).
Hymenophyllum lanatum Fée – Ep; *FEPC 157* (HEM).
Hymenophyllum myriocarpum Hook. – Ep; *MAPF 1004*, *1399* (HEM).
Hymenophyllum polyanthos (Sw.) Sw. – Ep; *MAPF 546*, *969*, *1015*, *1049a*, *1137*, *1320* (HEM); *MELM 31*, *194*, *270*, *293*, *441*, *572-bis*, *724* (HEM).
Hymenophyllum tegularis (Desv.) Proctor & Lourteig – Ep; *DEB & ARS 22711* (MO).
Hymenophyllum trapezoidale Liebm. – Ep; *MAPF 991*, *993* (HEM); *MELM 92*, *118* (HEM); *NRM & PF 495* (CH).
Trichomanes capillaceum L. – Ep; *DS*, *RH*, *MH & AL 9624* (MEXU); *MELM 121* (HEM).
Trichomanes collariatum Bosch – Ep; *MELM 251* (HEM).
Trichomanes pyxidiferum L. – Ep; *MAPF 548*, *549* (HEM); *MELM 253*, *276* (HEM).
Trichomanes radicans Sw. – Ep; *EM 185*, *4898* (HEM); *FEPC 157*, *500* (HEM); *MAOR 79* (HEM); *MAPF 952*, *1080*, *1398* (HEM); *MELM 91*, *110*, *185*, *308* (HEM); *MH & AL 242* (MEXU).
Trichomanes reptans Sw. – Ep; *MAPF 550*, *724*, *1001* (HEM); *MELM 193*, *199*, *277*, *367*, *611*, *709* (HEM).

LINDSAEACEAE

Odontosoria schlechtendalii (C. Presl.) C. Chr. – Ep; *EM 223* (HEM).

LYCOPODIACEAE

Huperzia cuernavacensis (Underw. & F.E. Lloyd) Holub – Ep; *FEPC & MAVM 98* (HEM).
Huperzia orizabae (Underw. & F.E. Lloyd) Holub – Ep; *MAPF 1135* (HEM).
Huperzia pithyoides (Schltdl. & Cham.) Holub – Ep; *NMM 392* (HEM).
Huperzia pringlei (Underw. & F.E. Lloyd) Holub – Ep; *DEB & ARS 22774* (MO).

POLYPODIACEAE

Campyloneurum amphostenon (Kunze *ex* Klotzch) Fée – Ep; *MAPF 1329*, *1739* (HEM); *MELM 85* (HEM); *MH & AL 1224* (MEXU).
Campyloneurum angustifolium (Sw.) Fée – Ep; *FEPC 184* (HEM); *FHN 475* (CHIP); *MAPF 544*, *719* (HEM); *MELM 5*, *311*, *352*, *468*, *543*, *572*, *590* (HEM); *UB & RR 791* (CHIP).
Campyloneurum phyllitidis (L.) C. Presl. – Ep; *MELM 280* (HEM).
Campyloneurum repens (Aubl.) C. Presl. – Ep; *MAPF 846* (HEM).
Campyloneurum tenuipes Maxon – Ep; *MAPF 975*, *1154*, *1163*, *1189*, *1356*, *2598*, *2627* (HEM); *MELM 2*, *59*, *63*, *155* (HEM).
Campyloneurum xalapense Fée – Ep; *MH & AL 976* (MEXU).
Loxogramme mexicana (Fée) C. Chr. – Ep; *MAPF 1081*, *1102*, *1177*, *1339* (HEM); *MELM 105*, *307*, *413* (HEM); *RMC 116* (HEM).

Niphidium crassifolium (L.) Lellinger – Ep; *FHN 469* (CHIP); *MAPF 1328* (HEM); *MELM 546* (HEM).
Pecluma alfredii (Rosenst.) M.G. Price – Ep; *MAPF 972*, *1142*, *1172*, *1359* (HEM); *MELM 228* (HEM); *NMM 223* (HEM).
Pecluma atra (A.M. Evans) M.G. Price – Ep; *GCLH 69* (HEM).
Pecluma ferruginea (M. Martens & Galeotti) M.G. Price – Ep; *MELM 11* (HEM).
Pecluma hygrometrica (Splitg.) M.G. Price – Ep; *MAPF 949* (HEM).
Phlebodium areolatum (Humb. & Bonpl. *ex* Willd.) J. Sm. – Ep; *JMM 564* (HEM).
Phlebodium aureum (L.) J. Sm. – Ep; *RMC 83*, *102* (HEM).
Phlebodium pseudoaureum (Cav.) Lellinger – Ep; *FEPC & MAVM 102* (CHIP); *MAPF 1006*, *1091*, *1100* (HEM); *MELM 459* (HEM); *MH & AL 243* (MEXU); *UB & RR 773* (CHIP).
Pleopeltis angusta Humb. & Bonpl. *ex* Willd. – Ep; *EMTZ*, *TAS & JM 21632* (MO); *MAPF 1066*, *2570* (HEM); *MH & AL 234*, *1186* (MEXU); *RMC 37* (HEM); *UB & RR 742* (CHIP).
Pleopeltis astrolepis (Liebm.) E. Fourn. – Ep; *MAPF 519* (HEM); *MELM 7*, *310*, *471* (HEM); *MH & AL 1151* (MEXU).
Pleopeltis macrocarpa (Bory *ex* Willd.) Kaulf. – Ep; *MAPF 870*, *967*, *1021*, *1124*, *1310*, *1336* (HEM); *MELM 504* (HEM); *MH & AL 240* (MEXU).
Pleopeltis macrocarpa var. *trichophora* (Weath.) Pic. Serm. – Ep; *FEPC & MAVM 71* (HEM); *MELM 131*, *613* (HEM).
Polypodium alansmithii R.C. Moran – Ep; *MAPF 1346* (HEM); *MELM 263*, *408*, *612* (HEM).
Polypodium collinsii Maxon – Ep; *MAPF 524* (HEM).
Polypodium colysoides Maxon & Copel. – Ep; *MELM 364* (HEM).
Polypodium conterminans Liebm. – Ep; *MAPF 1149* (HEM); *MELM 108* (HEM).
Polypodium cryptocarpon Fée – Ep; *MAPF 1031*, *1131*, *1182*, *1311* (HEM); *MELM 466*, *544* (HEM); *UB & RR 748* (CHIP).
Polypodium dulce Poir. – Ep; *MAPF 1055*, *1315* (HEM); *MELM 154* (HEM).
Polypodium echinolepis Fée – Ep; *MAPF 1071*, *1101*, *1381* (HEM).
Polypodium falcaria Kunze – Ep; *HGD 1029* (HEM).
Polypodium fraternum Schltdl. & Cham. – Ep; *MAPF 1099* (HEM).
Polypodium fraxinifolium Jacq. – Ep; *MAPF 1314* (HEM).
Polypodium furfuraceum Schltdl. & Cham. – Ep; *MAPF 522* (HEM); *MELM 231* (HEM); *MH & AL 669* (MEXU); *RMC 257* (HEM).
Polypodium fuscopetiolatum A.R. Sm. – Ep; *MAPF 525*, *1179* (HEM); *MELM 102* (HEM).
Polypodium hartwegianum Hook. – Ep; *FEPC & MAVM 70* (HEM); *MELM 61* (HEM).
Polypodium lindenianum Kunze – Ep; *EM 237* (HEM); *MAPF 1134*, *1351*, *1390* (HEM); *MELM 275* (HEM); *MH & AL 238* (MEXU); *UB & RR 741* (CHIP).
Polypodium longepinnulatum E. Fourn. – Ep; *MELM 181* (HEM).
Polypodium loriceum L. – Ep; *FEPC 132* (HEM); *FEPC & MAVM 90* (HEM); *MAPF 523*, *1018* (HEM); *MELM 425* (HEM); *MH & AL 233*, *615* (MEXU); *RMC 471* (HEM).
Polypodium plesiosorum Kunze – Ep; *FEPC 173* (HEM); *MAPF 966* (HEM); *MELM 201*, *299*, *405*, *462* (HEM); *MH & AL 235* (MEXU); *NMM 3* (HEM).

Polypodium pleurosorum Kunze *ex* Mett. – Ep; *FEPC 194* (HEM); *MAPF 977*, *1003*, *1023*, *1350*, *1660* (HEM); *MELM 115* (HEM); *NMM 2* (HEM); *RMC 145* (HEM).
Polypodium polypodioides var. *aciculare* Weath. – Ep; *MELM 6*, *594* (HEM); *MH & AL 1154* (MEXU).
Polypodium polypodioides var. *michauxianum* Weath. – Ep; *MELM 19* (HEM).
Polypodium puberulum Schltdl. & Cham. – Ep; *MAPF 1354* (HEM).
Polypodium pyrrholepis (Fée) Maxon – Ep; *RMC 259* (HEM).
Polypodium sanctae-rosae (Maxon) C. Chr. – Ep; *MELM 73*, *250*, *324*, *364*, *593* (HEM).
Polypodium thyssanolepis A. Braun *ex* Klotzsch var. *thyssanolepis* – Ep; *MELM 10* (HEM).
Serpocaulon triseriale (Sw.) A.R. Sm. – Ep; *MAPF 521*, *947*, *948*, *950* (HEM); *MELM 547* (HEM); *TBC 78487* (MO).

PTERIDACEAE

Adiantopsis radiata (L.) Fée – Ep; *CAPB 101* (HEM).
Adiantum macrophyllum Sw. – Ep; *FHN 476* (CHIP); *MAPF 513* (HEM); *MELM 571* (HEM).
Adiantum tetraphyllum Humb. & Bonpl. *ex* Willd. – Ep; *MELM 168* (HEM); *UB & RR 971* (CHIP).
Adiantum wilesianum Hook. – Ep; *MELM 256* (HEM).
Eriosorus hirtus (Kunth) Copel. var. *hirtus* – Ep; *MELM 415* (HEM).
Pityrogramma calomelanos (L.) Link – Ep; *MAPF 1568* (HEM); *NMM 1519* (HEM); *RMC 949* (HEM).
Scoliosorus ensiformis (Hook.) T. Moore – Ep; *EM 214* (MEXU); *MAPF 994*, *998*, *1145*, *1347* (HEM); *MH & AL 302* (MEXU); *RMC 67* (HEM).
Vittaria costata Kunze – Ep; *MAPF 509*, *953* (HEM); *MELM 545* (HEM).
Vittaria graminifolia Kaulf. – Ep; *EM 215*, *884* (MEXU); *FEPC 116*, *196* (HEM); *MH & AL 743* (MEXU); *JCE 6* (CHIP); *MELM 309*, *366*, *561* (HEM); *MAPF 508*, *1136* (HEM).
Vittaria lineata (L.) Sm. – Ep; *MELM 411* (HEM).

THELYPTERIDACEAE

Thelypteris hatchii A.R. Sm. – Ep; *UB & RR 973* (CHIP).
Thelypteris hispidula (Decne.) C.F. Reed – Ep; *UB & RR 972* (CHIP).

WOODSIACEAE

Athyrium filix-femina (L.) Roth – Ea; *MAPF 2161* (HEM).

ANGIOSPERMS

MONOCOTYLEDONS

ARACEAE

Anthurium andicola Liebm. – Ep; *MELM 128* (HEM); *MH & AL 1274* (MEXU); *NMM 25* (HEM).

Anthurium cerrobaulense Matuda – Ep; *MAPF 222* (HEM); *MH & AL 690* (MEXU).
Anthurium chamulense Matuda – Ep; *MAPF 1677* (HEM).
Anthurium chiapasense Standl. – Ep; *DEB 46695*, *52087* (CAS); *FEPC & MAVM 56* (HEM); *MAPF 491*, *2694* (HEM); *MELM 334* (HEM); *OFS 543* (CHIP).
Anthurium chiapasense Standl. subsp. *chiapasense* – Ep; *DEB 67579* (CAS); *EM 1562* (MEXU); *FEPC 137*, *186* (HEM); *MAPF 1203*, *1290* (HEM); *MH & AL 688*, *879* (MEXU).
Anthurium flexile Schott – Ep; *RMC 352* (HEM).
Anthurium huixtlense Matuda – Ep; *FEPC 73* (HEM).
Anthurium lucens Standl. *ex* Yuncker – Ep; *MH & AL 263*, *590* (MEXU); *OFS 265* (CHIP); *TMD 337* (MEXU).
Anthurium microspadix Schott – Ep; *MH & AL 584* (MEXU).
Anthurium montanum Hemsl. – Ep; *EM 4212* (MO); *MAPF 959*, *2556* (HEM); *MH & AL 631*, *760*, *932* (MEXU); *NMM 128*, *248* (HEM); *RMC 352* (HEM).
Anthurium nakamurae Matuda – Ep; *DEB 31955*, *40413*, *55953*, *58231* (CAS); *MAPF 860* (HEM).
Anthurium ovandense Matuda – Ep; *TBC 78549* (MO).
Anthurium pentaphyllum var. *bombacifolium* (Schott) Madison – Ep; *EM 18720* (MEXU); *MAPF 852*, *925* (HEM); *TBC 47476* (MO).
Anthurium rzedowskii Croat – Ep; *DEB 31867* (CAS); *EM 19646*, *19649* (MEXU); *HGD 1027* (MO); *MAPF 1141* (HEM); *OFS 450* (CHIP).
Anthurium salvinii Hemsl. – Ep; *MAPF 1609* (HEM).
Anthurium sarukhanianum Croat & Haager – Ep; *MAPF 1606a* (HEM).
Anthurium scandens (Aubl.) Engl. – Ep; *GCLH 88* (HEM); *FEPC 201* (HEM); *JMM 1754* (HEM); *MAPF 2811* (HEM); *MH & AL 946* (MEXU); *NMM 246* (HEM); *RMC 88* (HEM).
Anthurium schlechtendalii Kunth subsp. *schlechtendalii* – Ep; *MH & AL 877* (MEXU); *OFS & FHN 339* (CHIP); *TBC 63352* (MO).
Anthurium schlechtendalii subsp. *jimenezii* (Matuda) Croat – Ep; *DEB 50763* (MO).
Anthurium titanium Standl. & Steyerm. – Ep; *FEPC & MAVM 23* (HEM); *MAPF 2616* (HEM); *VAVA 46* (HEM).
Anthurium verapazense Engl. – Ep; *MAPF 491-bis* (HEM).
Monstera acacoyaguensis Matuda – He; *MAPF 1187*, *1555*, *1556* (HEM); *RMC 516* (HEM).
Monstera acuminata K. Koch – He; *DEB 48618*, *56970* (CAS); *FM 6938* (MEXU); *TBC 47509*, *63338* (MO).
Monstera deliciosa Liebm. – He; *NMM 17* (HEM).
Monstera dubia (Kunth) Engl. & K. Krause – He; *EM 20953*, *20949* (MEXU); *GCLH 52* (HEM).
Monstera pertusa (Roxb.) Schott – He; *EM 2587* (MEXU).
Monstera siltepecana Matuda – He; *EM 18642*, *19657* (MEXU); *MAPF 2952* (HEM); *MH & AL 984* (MEXU); *NMM 131* (HEM); *OFS 456* (CHIP); *RMC 461* (HEM).
Philodendron advena Schott – He; *DEB 52073* (CAS); *FEPC 114*, *144*, *185*, *214* (HEM); *MAPF 1103* (HEM).
Philodendron anisotomum Schott – He; *DEB 40162*, *46700*, *56917*, *71160* (CAS); *MAPF 1202* (HEM); *TBC 63339* (MO).

Philodendron aurantiifolium subsp. *calderense* (K. Krause) Grayum – He; *GCLH 125* (HEM); *MAPF 1577* (HEM).
Philodendron escuintlense Matuda – He; *EM 17783* (MEXU); *TBC 63348* (MO).
Philodendron guttiferum Kunth – He; *MAPF 926* (HEM).
Philodendron hederaceum (Jacq.) Schott – He; *EM 18721* (MO).
Philodendron inaequilaterum Liebm. – He; *TBC 63341*, *63349* (MO).
Philodendron mexicanum Engl. – He; *MAPF 1572* (HEM); *NMM 233* (HEM).
Philodendron radiatum Schott var. *radiatum* – He; *TBC 47511*, *47523*, *63381*, *63382* (MO); *MAPF 930* (HEM); *DEB 63381* (CAS).
Philodendron radiatum var. *pseudoradiatum* (Matuda) Croat – He; *MAPF 479* (HEM).
Philodendron scandens K. Koch & Sello – He; *GCLH 170* (HEM); *MAPF 499* (HEM); *MH & AL 1087* (MEXU); *RMC 375* (HEM).
Philodendron seguine Schott – He; *EM 17967*, *18176* (MEXU).
Philodendron smithii Engl. – He; *TBC 43802* (MO).
Philodendron standleyi Grayum – He; *TBC 43893*, *78477* (MO).
Philodendron tripartitum (Jacq.) Schott – He; *FEPC 113*, *217* (HEM); *MAPF 497*, *910*, *1574*, *2168* (HEM); *MH & AL 1263* (MEXU); *RMC 490* (HEM); *SMVM 193* (HEM).
Rhodospatha wendlandii Schott – He; *EM 17782*, *17938*, *18157* (MEXU).
Syngonium angustatum Schott – He; *DEB 56959* (CAS, MO).
Syngonium neglectum Schott – He; *MAPF 1206*, *2500* (HEM).
Syngonium podophyllum Schott – He; *DEB 30680* (CAS); *FEPC 112* (HEM); *MH & AL 806* (MEXU); *RMC 408* (HEM).
Syngonium salvadorense Schott – He; *DEB 37771* (CAS); *EMM s.n.* (HEM); *MAPF 927*, *2169* (HEM).
Syngonium steyermarkii Croat – He; *MAPF 1167* (HEM).

ARECACEAE

Chamaedorea quezalteca Standl. & Steyerm. – Ea; *NMM 2127* (HEM).

BROMELIACEAE

Aechmea matudae L.B. Sm. – Ep; *EM 17308* (MEXU); *FEPC s.n.* (HEM).
Billbergia pallidiflora Liebm. – Ep; *NMM 2128* (HEM).
Catopsis berteroniana (Schult. & Schult. f.) Mez – Ep; *JMT 112* (CHIP); *NMM 1452* (HEM).
Catopsis hahnii Baker – Ep; *MH & AL 1275* (MEXU).
Catopsis morreniana Mez – Ep; *EM 3394* (MEXU); *HGD 1347* (HEM).
Catopsis nutans (Sw.) Griseb. – Ep; *DEB 38489*, *46751* (CAS); *GCLH 92* (MEXU); *HGD 1672* (MEXU); *MAPF 1615* (MEXU); *MH & AL 1039* (MEXU); *NMM 303* (HEM); *RMC 1130* (MEXU).
Catopsis sessiliflora (Ruíz & Pav.) Mez – Ep; *MAPF 487*, *2772* (HEM).
Catopsis subulata L.B. Sm. – Ep; *MAOR 13* (HEM).
Catopsis wangerinii Mez & Wercklé *ex* Mez – Ep; *MAPF 1396* (HEM); *RMC 438* (HEM).
Pitcairnia heterophylla (Lindl.) Beer – Ep; *JCR 211* (HEM); *MAPF 1558-bis* (HEM); *NMM 719* (HEM); *RMC 528* (HEM).
Pitcairnia imbricata (Brongn.) Regel – Ep; *GCLH 159* (HEM); *MAPF 488* (HEM).

Pitcairnia matudae L.B. Sm. – Ep; *EM 1854* (MEXU).
Pitcairnia saxicola L.B. Sm. – Ep; *EM 4226* (MO).
Pitcairnia tuerckheimii Donn. Sm. – Ep; *EM 5567* (MEXU).
Pitcairnia wendlandii Baker – Ep; *JRGA 151* (HEM); *MH & AL 925*, *1166* (MEXU).
Tillandsia argentea Griseb. – Ep; *MH & AL 1058* (MEXU); *UB & RR 793* (CHIP).
Tillandsia butzii Mez – Ep; *FEPC 140* (HEM); *MAPF 2540* (HEM); *MH & AL 1038*, *1252* (HEM, MEXU); *NMM 255* (HEM); *RMC 437*(HEM).
Tillandsia capitata var. *guzmanioides* L.B. Sm. – Ep; *EM 2308* (MEXU); *NMM 1800* (HEM).
Tillandsia caput-medusae E. Morren – Ep; *GCLH 177* (HEM); *SMVM 191* (HEM).
Tillandsia chlorophylla L.B. Sm. – Ep; *MH & AL 940*, *1232* (MEXU).
Tillandsia compressa Bertero *ex* Schult. & Schult. f. – Ep; *FEPC 11* (HEM); *MELM 585* (HEM); *MH & AL 1227* (MEXU).
Tillandsia concolor L.B. Sm. – Ep; *MELM 339* (HEM); *NMM 284*, *301* (HEM).
Tillandsia eizii L.B. Sm. – Ep; *HGD 1168*, *1256* (HEM).
Tillandsia fasciculata Sw. – Ep; *DEB 38472* (CAS); *MELM 342* (HEM); *NMM 121*, *256* (HEM); *RMC 383* (HEM).
Tillandsia flabellata Baker – Ep; *FEPC 177* (HEM); *FEPC*, *MAOR & MAVM 16* (HEM); *FEPC & MAVM 75* (HEM); *MAPF 2712* (HEM); *RMC 202*, *569* (HEM).
Tillandsia fuchsii W. Till – Ep; *FEPC & MAVM 58* (HEM); *MAPF 144* (HEM).
Tillandsia grandis Schltdl. – Ep; *MAPF 1592* (HEM); *RMC 439* (HEM).
Tillandsia guatemalensis L.B. Sm. – Ep; *DEB 55951a* (CAS); *GCLH 83* (HEM); *MAPF 1367* (HEM); *MELM 514* (HEM); *MH & AL 1233* (MEXU); *NMM 176* (HEM); *RRS 84* (HEM).
Tillandsia heterophylla E. Morren – Ep; *RMC 562* (HEM).
Tillandsia imperialis E. Morren *ex* Mez – Ep; *MAPF 2954* (HEM); *MH & AL 1155*, *1231* (MEXU).
Tillandsia ionantha Planch. – Ep; *FEPC 211* (HEM).
Tillandsia juncea (Ruiz & Pav.) Poir. – Ep; *FEPC 111*, *164* (HEM); *MAPF 2614* (HEM).
Tillandsia lampropoda L.B. Sm. – Ep; *GCLH 82* (HEM).
Tillandsia lautneri Ehlers – Ep; *NMM 178* (HEM).
Tillandsia polystachia (L.) L. – Ep; *EM 17381* (MEXU); *MAVM & FEPC 103* (HEM).
Tillandsia ponderosa L.B. Sm. – Ep; *FEPC 139* (HEM); *GCLH 29*, *100* (HEM).
Tillandsia punctulata Schltdl. & Cham. – Ep; *FEPC 123* (HEM); *GCLH 81* (HEM); *MH & AL 1229* (MEXU); *NMM 257* (HEM); *UB & RR 785* (CHIP).
Tillandsia schiedeana Steud. – Ep; *EM 17647* (MEXU); *FEPC 179* (HEM); *FEPC & MAVM 2* (HEM); *MAVM 106* (HEM); *NMM 370* (HEM).
Tillandsia seleriana Mez – Ep; *MAVM & FEPC 4*, *7* (HEM).
Tillandsia tricolor Schltdl. & Cham. – Ep; *FEPC 165* (HEM); *MH & AL 1230* (MEXU); *NMM 179* (HEM); *PJH 547* (MO).
Tillandsia usneoides (L.) L. – Ep; *FEPC 134* (HEM); *MAPF 2636* (HEM).
Tillandsia vicentina Standl. – Ep; *GCLH 104* (HEM); *NMM 180*, *181* (HEM).
Tillandsia viridiflora (Beer) Baker – Ep; *FEPC 129* (HEM).
Werauhia nocturna (Matuda) J.R. Grant – Ep; *HGD 1486* (HEM).
Werauhia pycnantha (L.B. Sm.) J.R. Grant – Ep; *EM 32634* (MEXU).
Werauhia werckleana (Mez) J.R. Grant – Ep; *MAPF 2558* (HEM).

LILIACEAE

Maianthemum amoenum (H.L. Wendl.) La Frankie – Ep; *RMC 333* (HEM); *MDRS 168* (HEM).
Maianthemum flexuosum (Bertol.) La Frankie – Ep; *NMM 1791* (HEM).
Maianthemum paniculatum (M. Martens & Galeotti) La Frankie – Ep; *NMM 1090* (HEM).
Maianthemum scilloideum (M. Martens & Galeotti) La Frankie – Ep; *HGD 909* (HEM).

ORCHIDACEAE

Acianthera breedlovei Soto Arenas, Solano & Salazar – Ep; *HRE 55* (HEM).
Acianthera circumplexa (Lindl.) Pridgeon & M.W. Chase – Ep; *HRE 67* (HEM).
Arpophyllum alpinum Lindl. – Ep; *JMT 43* (CHIP); *NMM 66*, *81*, *116* (HEM); *RRS 48* (HEM).
Arpophyllum giganteum Hartw. *ex* Lindl. – Ep; *FEPC 122*, *124-bis*, *502* (HEM); *MAVM & FEPC 81* (HEM); *MH & AL 4*, *542*, *633* (MEXU).
Arpophyllum medium Rchb. f. – Ep; *DEB 31917* (CAS); *FM 7041* (CAS); *HGD 837* (HEM); *JC & FBT 1126*, *1130* (CHIP); *JMM 1643* (HEM); *NMM 647* (HEM).
Barkeria obovata (C. Presl) Christenson – Ep; *EM 361* (CAS).
Brassavola cucullata (L.) R. Br. – Ep; *JC & FBT 1443*, *1486* (CHIP).
Brassia verrucosa Lindl. – Ep; *DEB 67620* (MO); *JC & FBT 1125* (CHIP); *MH & AL 1264* (MEXU); *NMM 403* (HEM).
Campylocentrum micranthum (Lindl.) Rolfe – Ep; *EM 2743*, *16833* (CAS).
Catasetum integerrimum Hook. – Ep; *DEB 37727* (CAS).
Chondrorhyncha lendyana Rchb. f. – Ep; *EM 6196* (MO).
Coelia macrostachya Lindl. – Ec; *JLC 52* (HEM); *JMM 708* (HEM).
Comparettia falcata Poepp. & Endl. – Ep; *NMM 78* (HEM).
Cuitlauzina pulchella (Bateman *ex* Lindl.) Dressler & N.H. Williams – Ep; *JC & FBT 1717* (CHIP).
Cycnoches egertonianum Bateman – Ep; *JC & FBT s.n.* (CHIP).
Cynoches ventricosum Bateman – Ep; *HRE 56* (HEM).
Dichaea glauca (Sw.) Lindl. – Ep; *JC & FBT 1727*, *1774* (CHIP); *NMM 405-bis* (HEM).
Dichaea graminoides (Sw.) Lindl. – Ep; *JC & FBT 1750*, *1803* (CHIP); *MH & AL 1358* (MEXU).
Dichaea muricatoides Hamer & Garay – Ep; *FEPC 213*, *503* (HEM); *FHN 194a* (CHIP); *JC & FBT 1128*, *1595*, *1730*, *1751*, *1775* (CHIP); *MAPF 1685* (HEM); *MH & AL 939* (MEXU).
Dichaea neglecta Schltr. – Ep; *TBC 47231* (MO).
Dichaea panamensis Lindl. – Ep; *MH & AL 975* (CAS).
Dichaea suaveolens Kraenzl. – Ep; *FEPC 117* (HEM); *NMM 16*, *17* (HEM).
Domingoa purpurea (Lindl.) Van den Berg & Soto Arenas – Ep; *JC & FBT 1794* (CHIP); *NMM 193* (HEM); *TCC 66* (CAS).
Elleanthus cynarocephalus (Rchb. f.) Rchb. f. – Ep; *FEPC 125* (HEM); *JC & FBT 1745*, *1771* (CHIP); *MAPF 958-bis* (HEM); *MELM 406* (HEM); *MH & AL 944* (MEXU); *NMM 85*, *117* (HEM).
Encyclia cordigera (Kunth) Dressler – Ep; *DEB 50721* (MO); *JC & FBT 1672*, *1673*, *1707* (CHIP).

Encyclia selligera (Bateman *ex* Lindl.) Schltr. – Ep; *JC & FBT 1769* (CHIP); *RG 295* (HEM).
Epidendrum cardiochilum L.O. Williams – Ep; *FHN 453* (CHIP).
Epidendrum cardiophorum Schltr. – Ep; *DEB 67365* (CAS); *JC & FBT 279*, *1365*, *1792* (CHIP); *TCC 61* (CHIP).
Epidendrum cerinum Schltr. – Ep; *JMM 807* (HEM).
Epidendrum chlorocorymbos Schltr. – Ep; *JC & FBT 1454* (CHIP); *MH & AL 1273* (MEXU).
Epidendrum ciliare L. – Ep; *EM 17951* (MEXU); *FEPC & MAVM 26*, *37* (HEM); *JC & FBT 1458* (CHIP).
Epidendrum clowesii Bateman *ex* Lindl. – Ep; *JC & FBT 1444* (CHIP); *MAPF 1703-bis* (HEM).
Epidendrum dixiorum Hágsater – Ep; *MH & AL 1353* (MEXU).
Epidendrum erectifolium Hágsater & L. Sánchez S. – Ep; *DEB 51215a* (CAS).
Epidendrum eximium L.O. Williams – Ep; *JC 869* (CHIP); *NMM 22* (HEM).
Epidendrum galeottianum A. Rich. & Galeotti – Ep; *EPE 1146* (CHIP).
Epidendrum laucheanum Rolfe – Ep; *JC & FBT 1742* (CHIP).
Epidendrum martinezii L. Sánchez S. & Carnevali – Ep; *JMM 992*, *1482* (HEM); *MDRS 311* (HEM); *NMM 1155* (HEM).
Epidendrum melistagum Hágsater – Ep; *FEPC*, *MAVM & RNMV 38* (HEM); *JC & FBT 1477* (CHIP); *MH & AL 1165* (MEXU); *NMM 84*, *102* (HEM).
Epidendrum mixtum Schltr. – Ep; *MH & AL 1280* (MEXU).
Epidendrum myrianthum Lindl. – Ep; *ARA 302* (HEM); *JLC 60* (HEM).
Epidendrum parkinsonianum Hook. – Ep; *JC & FBT 1451* (CHIP).
Epidendrum polyanthum Lindl. – Ep; *DEB 31860* (CAS); *MH & AL 219* (MEXU); *NMM 110* (HEM).
Epidendrum pseudoramosum Schltr. – Ep; *MH & AL 1352* (MEXU); *NMM 549* (HEM).
Epidendrum ramosum Jacq. – Ep; *FEPC 207*, *210-bis* (HEM); *FEPC & MAVM 52* (HEM); *HRE 42* (HEM).
Epidendrum repens Cogn. – Ep; *JC & FBT 1067* (CHIP).
Epidendrum santaclarense Ames – Ep; *NMM 79* (HEM).
Epidendrum tacanaense Hágsater, Soto Arenas & E. Santiago A. – Ep; *HGD 1239* (HEM).
Epidendrum trachythece Schltr. – Ep; *JC & FBT 1597* (CHIP); *MH & AL* 640, *1343* (MEXU).
Epidendrum verrucosum Sw. – Ep; *JC & FBT 1460*, *1780* (CHIP).
Erycina pusilla (L.) N.A. Williams & M.W. Chase – Ep; *EM 6086* (MEXU).
Gongora galeata (Lindl.) Rchb. f. – Ep; *DEB 51197* (CAS); *JC & FBT 1475* (CHIP); *NMM 350*, *404* (HEM).
Gongora tridentata Whitten – Ep; *JC & FBT 1448* (CHIP).
Guarianthe aurantiaca (Bateman *ex* Lindl.) Dressler & W.E. Higgins – Ep; *JC & FBT 23* (CHIP); *JMM 1736* (HEM); *NMM 192*, *207* (HEM).
Guarianthe skinneri (Bateman) Dressler & W.E. Higgins – Ep; *DEB 56900* (CAS); *FEPC 93*, *146* (HEM); *JC & FBT 1790* (CHIP); *MAPF 2191* (HEM); *NMM 191*, *225*, *342* (HEM); *UB & RR 353* (CHIP).
Ionopsis utricularioides (Sw.) Lindl. – Ep; *JC & FBT 1363* (CHIP).
Isochilus aurantiacus Hamer & Garay – Ep; *JC & FBT 1733* (CHIP); *NMM 60* (HEM); *TCC 296* (CHIP).

Isochilus carnosiflorus Lindl. – Ep; *NMM 17-bis*, *111* (HEM).
Isochilus latibracteatus A. Rich. & Galeotti – Ep; *FEPC & MAVM 65*, *94* (HEM); *JC & FBT 1479* (CHIP); *MAPF 486* (HEM).
Isochilus linearis (Jacq.) R. Br. – Ep; *MH & AL 296*, *965* (MEXU).
Jacquiniella cobanensis (Ames & Schltr.) Dressler – Ep; *JC 878* (CHIP); *JC & FBT 1132*, *1724*, *1732*, *1772* (CHIP); *MAPF 2953* (HEM); *NMM 80* (HEM); *RMC 454* (HEM).
Leochilus labiatus (Sw.) Kuntze – Ep; *EM 18675* (MEXU).
Leochilus oncidioides Knowles & Westc. – Ep; *EM 2034* (MEXU).
Lepanthes acuminata Schltr. – Ep; *JC & FBT 1068*, *1306* (CHIP).
Lepanthes matudana Salazar & Soto Arenas – Ep; *NMM 21a* (HEM).
Lepanthes oreocharis Schltr. – Ep; *NMM 21b* (HEM).
Lepanthes scopula Schltr. – Ep; *HRE 70* (HEM).
Lepanthes tenuiloba R.E. Schult. & M.O. Dillon – Ep; *NMM 65* (HEM).
Lockhartia oerstedii Rchb. f. – Ep; *DEB 67501* (CAS).
Lockhartia verrucosa Rchb. f. – Ep; *JC & FBT 1800* (CHIP).
Lycaste aromatica (Graham *ex* Hook.) Lindl. – Ep; *NMM 72* (HEM).
Lycaste cruenta Lindl. – Ep; *DEB 57011* (CAS); *JC & FBT 1480* (CHIP).
Lycaste deppei (G. Lodd.) Lindl. – Ep; *JCR 210* (HEM).
Macroclinium sp. – Ep; *CAPB 65* (HEM).
Maxillaria anceps Ames & C. Schweinf. – Ep; *NMM 120*, *259* (HEM).
Maxillaria cucullata Lindl. – Ep; *EM 19648* (MEXU); *EPE 1192* (CHIP); *JC & FBT 1134*, *1446*, *1749*, *1779* (CHIP); *JMT 44* (CHIP); *MH & AL 651*, *917* (MEXU).
Maxillaria densa Lindl. – Ep; *FEPC & MAVM 6*, *55* (HEM); *JC & FBT 820*, *996*, *1711*, *1737*, *1799* (CHIP); *RMC 224* (HEM).
Maxillaria elatior (Rchb. f.) Rchb. f. – Ep; *JC & FBT 1344* (CHIP).
Maxillaria hagsateriana Soto Arenas – Ep; *DEB 55954* (CAS); *JC & FBT 1447*, *1449*, *1734* (CHIP); *MH & AL 970*, *1301* (MEXU); *NMM 87*, *109* (HEM).
Maxillaria houtteana Rchb. f. – Ep; *JC & FBT 1753* (CHIP).
Maxillaria meleagris Lindl. – Ep; *NMM 12*, *13*, *49*, *59* (HEM).
Maxillaria ringens Rchb. f. – Ep; *EM 2520* (CAS); *ON 4407* (MO).
Maxillaria variabilis Bateman *ex* Lindl. – Ep; *DEB 71106* (CAS); *EM 4090* (MEXU); *FEPC & MAVM 82* (HEM); *JC & FBT 1136*, *1798* (CHIP); *NMM 91*, *113* (HEM); *RMC 519* (HEM).
Meiracyllium trinasutum Rchb. f. – Ep; *DEB 37726* (CAS); *FEPC 209* (HEM); *FHN 184* (CHIP); *NMM 349* (HEM).
Mormodes lineata Bateman *ex* Lindl. – Ep; *JC 868* (CHIP).
Mormodes nagelii L.O. Williams – Ep; *NMM 102* (HEM).
Mormolyca ringens (Lindl.) Schltr. – Ep; *DEB 48630* (CAS).
Nemaconia striata (Lindl.) Van den Berg, Salazar & Soto Arenas – Ep; *JC 873* (CHIP).
Nidema boothii (Lindl.) Schltr. – Ep; *DEB 67366* (CAS); *FEPC 208* (HEM); *JC & FBT 1758* (CHIP); *TCC 63* (CHIP).
Notylia barkeri Lindl. – Ep; *NMM 880* (MO).
Oncidium fasciculatum Hágsater – Ep; *FEPC 48* (HEM); *FEPC*, *MAVM & RNMV 48* (HEM); *FEPC & RNMV 43* (HEM); *JC & FBT 1328* (CHIP).
Oncidium laeve (Lindl.) Beer – Ep; *NMM 805* (HEM).
Oncidium leucochilum Bateman *ex* Lindl. – Ep; *DEB 51202* (CAS); *JC & FBT 1714* (CHIP).

Oncidium ochmatochilum Rchb. f. – Ep; *EM 6051* (MO); *JC & FBT 1384* (CHIP).
Oncidium ornithorhynchum Kunth – Ep; *EM 6134* (MO); *FEPC 187* (HEM).
Oncidium sphacelatum Lindl. – Ep; *JC & FBT 1140*, *1298*, *1713*, *1789* (CHIP); *NMM 118*, *206* (HEM).
Oncidium suttonii Bateman *ex* Lindl. – Ep; *JC & FBT 1104* (CHIP).
Ornithocephalus inflexus Lindl. – Ep; *DEB 71125* (MO); *JC & FBT 1336* (CHIP); *MH & AL 1069* (MEXU).
Ornithocephalus tripterus Schltr. – Ep; *NMM 924* (HEM).
Platystele minimiflora (Schltr.) Garay – Ep; *JC & FBT 1383* (CHIP).
Pleurothallis cardiothallis Rchb. f. – Ep; *JMM 1043*, *1157* (HEM).
Pleurothallis circumplexa Lindl. – Ep; *JC & FBT 1731*, *1781* (CHIP).
Pleurothallis deregularis (Barb. Rodr.) Luer – Ep; *FEPC 85*, *147* (HEM); *MAPF 1619* (HEM); *MH & AL 133*, *513* (MEXU).
Pleurothallis matudana C. Schweinf. – Ep; *DEB 55955a* (CAS); *FEPC 126* (HEM); *JC & FBT 1596*, *1737* (CHIP); *MH & AL 1331a* (MEXU); *NMM 82*, *1153* (HEM).
Pleurothallis saccatilabia C. Schweinf. – Ep; *DEB 46703* (CAS); *EM 2046* (MO).
Pleurothallis tuerckheimii Schltr. – Ep; *JC 831* (CHIP); *MH & AL 168*, *951*, *953* (MEXU); *NMM 119* (HEM).
Polystachya foliosa (Lindl.) Rchb. f. – Ep; *FEPC*, *MAVM & MELM 95* (HEM).
Prosthechea baculus (Rchb. f.) W.E. Higgins – Ep; *DEB 67618* (CAS); *FEPC & MAVM 67* (HEM); *JCR 206* (HEM); *TCC 60* (CHIP).
Prosthechea chacaoensis (Rchb. f.) W.E. Higgins – Ep; *DEB 67368* (CAS); *EM 17621* (MEXU); *JC & FBT 911*, *1361*, *1371* (CHIP).
Prosthechea cochleata (L.) W.E. Higgins – Ep; *DEB 71172* (MO); *FEPC & RNMV 64* (HEM); *TCC 62* (CHIP).
Prosthechea maculosa (Ames, F.T. Hubb. & C. Schweinf.) W.E. Higgins – Ep; *DEB 67580* (MO); *FEPC & RNMV 12* (HEM); *JC & FBT 1045* (CHIP); *MELM 349* (HEM); *NMM 90* (HEM).
Prosthechea ochracea (Lindl.) W.E. Higgins – Ep; *JC 821* (CHIP); *JC & FBT 1478*, *1796* (CHIP); *JCR 207* (HEM); *NMM 61*, *92*, *92-bis*, *106* (HEM); *RG 280* (HEM).
Prosthechea pseudopygmaea (Finet) W.E. Higgins – Ep; *JC & FBT 1437*, *1476* (CHIP); *NMM 174* (HEM).
Prosthechea pygmaea (Hook.) W.E. Higgins – Ep; *JC & FBT 1483* (CHIP).
Prosthechea radiata (Lindl.) W.E. Higgins – Ep; *NMM 341*, *386* (HEM); *RNMV*, *FEPC* & *MAOR 5* (HEM).
Prosthechea rhynchophora (A. Rich. & Galeotti) W.E. Higgins – Ep; *DEB 67621* (MO); *UB & RR 794* (CHIP).
Prosthechea varicosa (Bateman *ex* Lindl.) W.E. Higgins – Ep; *JC 829* (CHIP); *JC & FBT 1455*, *1739* (CHIP); *MH & AL 333*, *1304*, *1348* (MEXU); *NMM 5* (HEM).
Prosthechea vitellina (Lindl.) W.E. Higgins – Ep; *JC & FBT 1453* (CHIP); *NMM 58* (HEM).
Restrepia trichoglossa F. Lehm. *ex* Sander – Ep; *DEB 48648*, *67633* (CAS); *HRE 7* (HEM); *JMM 1758* (HEM); *MH & AL 709* (MEXU).
Restrepiella ophiocephala (Lindl.) Garay & Dunst. – Ep; *DEB 48647* (CAS); *FEPC 61* (HEM); *NMM 338* (HEM).
Rhynchostele bictoniensis (Bateman) Soto Arenas & Salazar – Ep; *JC & FBT 918* (CHIP).

Rhynchostele cordata (Lindl.) Soto Arenas & Salazar – Ep; *EPE 1171* (CHIP); *NMM 185*, *185-bis* (HEM).
Rhynchostele rossii (Lindl.) Soto Arenas & Salazar – Ep; *EM 1706* (MEXU); *FEPC 127* (HEM); *FHN 196a* (CHIP); *MH & AL 510* (MEXU); *NMM 184* (HEM); *RRS 109* (HEM).
Rhynchostele stellata (Lindl.) Soto Arenas & Salazar – Ep; *TCC 101* (CHIP).
Rossioglossum grande (Lindl.) Garay & G.C. Kenn. – Ep; *EM 4060* (MO).
Scaphyglottis crurigera (Bateman *ex* Lindl.) Ames & Correll – Ep; *ARA 273* (HEM); *DEB 50755*, *67585* (MO); *FEPC 188* (HEM); *JC & FBT 1755* (CHIP); *JCR 209* (HEM); *MH & AL 707* (MEXU); *NMM 336* (HEM).
Scaphyglottis fasciculata Hook. – Ep; *FEPC*, *MAVM & RNMV 47* (HEM).
Scaphyglottis hondurensis (Ames) L.O. Williams – Ep; *JMM 804* (HEM).
Scaphyglottis livida (Lindl.) Schltr. – Ep; *JC & FBT 1138* (CHIP).
Scaphyglottis minuta (A. Rich. & Galeotti) Garay – Ep; *JMM 751*, *765* (HEM); *NMM 791* (HEM).
Scelochilus tuerckheimii Schltr. – Ep; *JC & FBT 1493* (CHIP).
Specklinia endotrachys (Rchb. f.) Pridgeon & M.W. Chase – Ep; *JC & FBT 1334* (CHIP); *MAPF 2812* (HEM).
Specklinia glandulosa (Ames) Pridgeon & M.W. Chase – Ep; *DEB 67609* (CAS).
Specklinia marginata (Lindl.) Pridgeon & M.W. Chase – Ep; *FEPC 210* (HEM); *FHN 183* (CHIP); *JC & FBT 1362*, *1760*, *1797* (CHIP); *MELM 595* (HEM).
Specklinia tribuloides (Sw.) Pridgeon & M.W. Chase – Ep; *DEB 67554* (CAS); *MH & AL 885* (MEXU).
Stanhopea saccata Bateman – Ep; *DEB 40075*, *67395* (CAS); *JC & FBT 1485* (CHIP).
Stelis cobanensis (Schltr.) Pridgeon & M.W. Chase – Ep; *JMM 682* (HEM); *MDRS 148* (HEM); *NMM 540* (HEM).
Stelis emarginata (Lindl.) Soto Arenas & R. Solano – Ep; *DEB 67394* (CAS).
Stelis guatemalensis Schltr. – Ep; *JC & FBT 1452*, *1474* (CHIP); *MH & AL 950* (MEXU); *NMM 89* (HEM).
Stelis hymenantha Schltr. – Ep; *FHN 195a* (CHIP); *JC & FBT 1462* (CHIP); *MH & AL 1318*, *1346*, *1459* (MEXU); *NMM 89* (HEM).
Stelis immersa (Linden & Rchb. f.) Pridgeon & M.W. Chase – Ep; *MAPF 2656* (HEM).
Stelis megachlamys (Schltr.) Pridgeon & M.W. Chase – Ep; *NMM 119* (HEM).
Stelis ovatilabia Schltr. – Ep; *MH & AL 1312* (MEXU); *JCZ*, *GC & GJ 8765*, *8786*, *8883* (AMO); *NMM 64* (HEM).
Stelis pachyglossa (Lindl.) Pridgeon & M.W. Chase – Ep; *JC & FBT 1748* (CHIP); *MH & AL 952* (MEXU); *NMM 88* (HEM).
Stelis purpurascens A. Rich. & Galeotti – Ep; *RG 294* (HEM).
Stelis quadrifida (La Llave & Lex.) R. Solano & Soto Arenas – Ep; *JC & FBT 1793* (CHIP).
Stelis rubens Schltr. – Ep; *MH & AL 142* (MEXU).
Stelis segoviensis (Rchb. f.) Pridgeon & M.W. Chase – Ep; *MH & AL 918* (MEXU).
Stelis tenuissima Schltr. – Ep; *EM 2588* (AMO); *JC & FBT 1725*, *1777* (CHIP); *JCZ*, *GC & GJ 8883* (AMO); *MH & AL 1180* (MEXU).
Stelis vespertina R. Solano & Soto Arenas – Ep; *EM 3972* (AMO); *JC 827* (CHIP); *JC & FBT 1047*, *1729*, *1802* (CHIP).

Stelis villosa (Knowles & Westc.) Pridgeon & M.W. Chase – Ep; *MH & AL 954*, *1315a* (MEXU); *NMM 20*, *203* (HEM).
Stenorrhynchos speciosum (Jacq.) Rich. – Ep; *RRS 526* (HEM).
Trichocentrum ascendens Lindl. – Ep; *NMM 203* (HEM).
Trichocentrum bicallosum (Lindl.) M.W. Chase & N.H. Williams – Ep; *JC 875* (CHIP); *MH & AL 1354* (MEXU); *NMM 115* (HEM); *RRS 108* (HEM).
Trichocentrum candidum Lindl. – Ep; *JC & FBT 916*, *1765* (CHIP).
Trichocentrum microchilum Bateman *ex* Lindl. – Ep; *EPE & TCC 234* (CHIP).
Trichopilia tortilis Lindl. – Ep; *NMM 470* (HEM).
Trichosalpinx blaisdellii (S. Watson) Luer – Ep; *DEB 48704*, 57007 (CAS).
Trichosalpinx memor (Rchb. f.) Luer – Ep; *JC & FBT 1089*, *1723* (CHIP); *MH & AL 971*, *1356* (MEXU).
Trigonidium egertonianum Bateman *ex* Lindl. – Ec; *JC & FBT 1756*, *1795* (CHIP); *RG 296* (HEM).
Vanilla inodora Schiede – Ep; *EM 17912* (MEXU).
Xylobium foveatum (Lindl.) G. Nicholson – Ep; *MAPF 2191* (HEM).

DICOTYLEDONS

ARALIACEAE

Oreopanax sanderianus Hemsl. – He; *NMM 10*, *46* (HEM).

ASTERACEAE

Eupatorium odoratum L. – Ep; *MELM 398* (HEM).
Eupatorium salvia Colla – Ep; *RRS 524* (HEM).

BEGONIACEAE

Begonia sartorii Liebm. – Ec; *RRS 504* (HEM).

CACTACEAE

Disocactus ramulosus (Salm-Dyck) Kimnach – Ep; *MAPF 44-bis* (HEM).
Epiphyllum acuminatum K. Schum. – Ep; *DEB 67671* (CAS).
Epiphyllum crenatum (Lindl.) G. Don – Ep; *MAVM 107* (HEM); *NMM 28* (HEM); *RMC 553* (HEM); *RRS 52* (HEM).
Epiphyllum oxypetalum (DC.) Haw. – Ep; *TBC 43871* (MO).
Epiphyllum phyllanthus var. *guatemalense* (Britton & Rose) Kimnach – Ep; *EM 16636* (MEXU).
Epiphyllum phyllanthus var. *hookeri* (Haw.) Kimnach – Ep; *FEPC*, *MAOR & MAVM 10* (HEM).
Epiphyllum thomasianum (K. Schum.) Britton & Rose – Ep; *MAPF 1614* (HEM); *MH & AL 893* (MEXU).
Heliocereus cinnabarinus (Eichlam *ex* Weing.) Britton & Rose – Ep; *DEB 40427* (CAS).
Heliocereus elegantissimus Britton & Rose – Ep; *JMM 819* (HEM).
Nopalxochia macdougallii (Alexander) W.T. Marshall – Ep; *FEPC 77*, *189* (HEM).
Rhipsalis baccifera (J.S. Muell.) Stearn – Ep; *MAPF 1655* (HEM).

Selenicereus sp. – Ep; *NMM 383* (HEM).
Weberocereus glaber subsp. *mirandae* (Bravo) Doweld – Ep; *NMM 311* (HEM).

CLUSIACEAE

Clusia guatemalensis Hemsl. – He; *NMM 73* (HEM).
Clusia salvinii Donn. Sm. – He; *NMM 34*, *1827* (HEM).

CRASSULACEAE

Echeveria chiapensis Rose *ex* Poelln. – Ep; *RMC 436* (HEM).
Sedum botteri Hemsl. – Ep; *DEB 58298* (CAS); *EM 5187* (MEXU).

ERICACEAE

Cavendishia crassifolia (Benth.) Hemsl. – He; *JMM 1784* (HEM).
Sphyrospermum majus Griseb. – Ep; *JMM 1759* (HEM); *NMM 263* (HEM).

GESNERIACEAE

Achimenes sp. – Ea; *RRS 592* (HEM).
Columnea nervosa (Klotzsch *ex* Oerst.) Hanst. – Ec; *MDRS 136*, *226*, *327* (HEM).
Drymonia serrulata (Jacq.) Mart. – He; *JMM 1436*, *1849* (HEM).
Moussonia sp. – Ec; *MELM 438* (HEM).
Neomortonia nummularia (Hanst.) Wiehler – Ec; *MAPF 2560* (HEM); *NMM 939* (HEM).

LOASACEAE

Schismocarpus matudae Steyerm. – Ec; *NMM 718* (HEM).

PIPERACEAE

Peperomia aggravescens Trel. – Ep; *MAPF 2778*, *2778-bis* (HEM); *MAVM 69-bis* (HEM); *MELM 508*, *512* (HEM); *SMVM 120* (HEM).
Peperomia alata Ruiz & Pav. – Ep; *NMM 19*, *127* (HEM); *RMC 247* (HEM).
Peperomia angularis C. DC. – Ep; *RMC 80* (HEM).
Peperomia asarifolia Schltdl. & Cham. – Ep; *EM 4211* (MO); *MELM 570* (HEM); *MH & AL 1083* (MEXU); *RMC 126* (HEM).
Peperomia collocata Trel. – Ep; *MAPF 2663*, *2804* (HEM); *MELM 453*, *720* (HEM); *MH & AL 467*, *497*, *630* (MEXU); *RMC 74*, *295* (HEM); *RRS 66* (HEM).
Peperomia floribunda (Miq.) Dahlst. – Ep; *MH & AL 1063* (MEXU).
Peperomia galioides Kunth – Ep; *FEPC 136* (HEM); *MAPF 1199*, *2539* (HEM); *MELM 457* (HEM); *MH & AL 229*, *729* (MEXU); *RMC 78*, *79* (HEM).
Peperomia glabella (Sw.) A. Dietr. – Ep; *MAPF 1535* (HEM); *MAVM 69* (HEM).
Peperomia glutinosa Millsp. – Ep; *SMVM 197*, *203* (HEM).
Peperomia granulosa Trel. – Ep; *DEB 30668* (CAS).
Peperomia hirta C. DC. – Ep; *TBC 63381A* (MO).
Peperomia hispidula (Sw.) A. Dietr. – Ep; *RH*, *PS*, *MH*, *ARG & AL 485* (MO).
Peperomia hoffmannii C. DC. – Ep; *FEPC 180* (HEM); *MAPF 2186* (HEM); *MH & AL 361* (MEXU); *SMVM 181* (HEM).
Peperomia humilis A. Dietr. – Ep; *GCLH 55* (HEM).
Peperomia hylophila C. DC. – Ep; *MAPF 2806* (HEM); *RMC 212*, *248* (HEM).
Peperomia lenticularis Dahlst. – Ep; *MDRS 71*, *127* (HEM).

Peperomia limana Trel. & Standl. – Ep; *MH & AL 947* (MEXU).
Peperomia macrostachya (Vahl) A. Dietr. – Ep; *TBC 47546* (MO).
Peperomia mexicana (Miq.) Miq. – Ep; *DEB 50778* (MO).
Peperomia obtusifolia (L.) A. Dietr. – Ep; *HGD 1330* (HEM); *JMM 1201* (HEM); *MH & AL 228*, *439*, *731*, *972* (MEXU); *NMM 1584* (HEM).
Peperomia pellucida (L.) Kunth – Ep; *TBC 43868* (MO).
Peperomia peltata (L.) A. Dietr. – Ep; *MH & AL 8742* (MEXU).
Peperomia portobellensis Beurl. – Ep; *TBC 47505* (MO).
Peperomia praeteruentifolia Trel. – Ep; *MH & AL 1152* (MEXU).
Peperomia pseudoalpina Trel. – Ep; *MELM 427* (HEM).
Peperomia quadrifolia (L.) Kunth – Ep; *FEPC 36*, *145* (HEM); *MH & AL 948* (MEXU); *NMM 249*, *267*, *267a*, *294* (HEM); *RMC 457* (HEM); *SMVM 81* (HEM).
Peperomia succulenta C. DC. – Ep; *MAPF 2577* (HEM).
Peperomia tenuicaulis C. DC. – Ep; *TBC 47504* (MO).
Peperomia tetraphylla (G. Forst.) Hook. & Arn. – Ep; *FEPC 86*, *130* (HEM); *FEPC & RNMV 19* (HEM); *JCR 115* (HEM); *MH & AL 227*, *629* (MEXU); *NMM 333* (HEM); *RMC 81* (HEM); *VAVA 29* (HEM).

RUBIACEAE

Hillia macrocarpa Standl. & Steyerm. – Ep; *JMM 1679* (HEM).

SCROPHULARIACEAE

Gibsoniothamnus cornutus (Donn. Sm.) A.H. Gentry – Ep; *JMM 758*, *1811* (HEM); *MH & AL 93* (MEXU).

SOLANACEAE

Juanulloa mexicana (Schltdl.) Miers – HE; *MAPF 2167* (HEM); *MDRS 16* (HEM).
Solandra grandiflora Sw. – He; *NMM 785* (HEM).
Solandra maxima (Sessé & Moc.) P.S. Green – He; *NMM 972* (HEM).

URTICACEAE

Pilea dauciodora Wedd. *ex* Pav. – Ep; *MELM 436-bis* (HEM).
Pilea elegantissima C.J. Chen – Ep; *NMM 557* (HEM).
Pilea swinglei Merr. – Ep; *NMM 1763* (HEM).