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Catalogue of the Living Collection of the Iowa State University Botany Department Greenhouses

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The Botany Department greenhouses at Iowa State University are a rooftop facility including 17 separate houses, divided into three temperature zones. Some illuminated houses are provided to encourage good plant growth during the winter. One greenhouse is operated as a short-day facility and provided with curtained chambers for short days. Summer cooling of the greenhouses is effected by evaporative coolers.

The living teaching and research collections include over 800 plant taxa, ranging from bryophytes to orchids and composites. Propagation materials, as available, may be provided to other educational institutions for teaching or research.

INDEX DESCRIPTORS: Greenhouse design, plant growth conditions, species list

The Iowa State University Botany Department has long maintained greenhouse collections for research and teaching. The entire collection was moved to a new greenhouse facility on the roof of Bessey Hall in 1967. The rooftop facility has ca 10,000 square feet (920 square meters) under glass, plus ca 2,000 square feet (180 square meters) of headhouse and work area.

The glassed area is divided into an east range, nominally maintained at 60°F (16°C), a south range at 80°F (27°C), and a west range at 70°F (21°C). Summer temperature control is aided by evaporative coolers located on the roof.

The area under glass is divided into 17 individual houses, which can be maintained under differing conditions. Some houses now have illumination provided by high intensity sodium lights, so that good growth of plants can now be maintained during the short-day winter season. A number of smaller houses are designated for special research projects. One house is utilized primarily as a short-day facility for plants needing such conditions.

The department maintains an extensive teaching and research collection of over 800 taxa (see Catalogue). The collection includes a number of important economic plants, including cacao, coffee, sugarcane, mahogany, guava, mango, New Zealand flax, vanilla, bamboos, papyrus, pomegranate, annatto, bananas, balsa and others. The taxa represented in the collection range from bryophytes and *Psilotum* to grasses and composites. Some of the rarities included are "blooming" *Gnetum* and *Welwitschia*. Taxonomy and related courses are taught using living materials with few exceptions. One house is reserved mostly for the production of flowering material for classes during the winter season. This house is now illuminated with high intensity sodium lights, so that the plants can bloom throughout the winter.

Since greenhouses are usually constructed on the ground, we anticipated problems with a rooftop greenhouse. Surprisingly few have occurred. The floor is concrete, but is underlaid by a thick layer of tarred roofing. While the concrete can crack, the tarry material

beneath serves as a sealant, and thus leaks to the upper floor of the building have not developed. The fact that the greenhouse is above the level of the other buildings and trees allows it to get more light than many ground-level houses. Soil needed for the plants must be brought from basement storage by elevator to the greenhouse in garbage cans, where it is pasteurized by steam in the cans. Trash must similarly be removed via elevator. Since the quantity of material is not great, this is only a minor inconvenience. Access to the roof of the greenhouse to apply shading material during the spring and summer is somewhat difficult. The design of the glass roof, with a trough at the center, has caused snow loading during severe winter storms and at times resulted in glass breakage.

All plants at the present are pot-grown, with the exception of a few large woody plants that are grown in wooden or plastic tubs. Special moist chambers are provided for the propagation of cuttings. Chambers for the growth of tropical rain forest plants are humidified by cool mist vaporizers filled with distilled water.

The Botany greenhouses are open for students and visitors from 8:30 A.M. to 4:00 P.M. on weekdays. We cooperate with other educational institutions in providing propagation materials for teaching or research. Copies of the catalogue of the collection as it is updated will be available upon request.

CATALOGUE OF THE LIVING COLLECTION

The plants on the following catalogue are currently being grown in the greenhouses for teaching and research purposes. Not included are numerous species grown temporarily for special purposes. It is to be expected that some species will die out and others will be added from time to time. We will attempt to provide propagation material to other institutions upon request when facilities and funds permit this, and we encourage exchanges with other educational institutions.

Nomenclature for cultivated plants primarily follows *Hortus Third* (Bailey Hortorium Staff, 1976).

HEPATOPHYTA

- Conocephalum conicum* (L.) Dum.
Lunularia cruciata (L.) Dum.
Marchantia polymorpha L.
Ricciocarpus natans (L.) Corda

BRYOPHYTA

- Funaria hygrometrica* Hedw.
Leptobryum pyriforme (Hedw.) Wils.

PSILOTOPHYTA

- Psilotum nudum* Swartz.
Psilotum sp. (hybrid)

LYCOPODIOPHYTA

- Isoetes* sp.

Lycopodiophytina

- Lycopodium lucidulum* Michx.
Lycopodium sp.
Selaginella pallescens (K. Presl.) Spring
Selaginella sp.

EQUISETOPHYTA

- Equisetum diffusum*
Equisetum hyemale L.
Equisetum scirpoides Michx.
Equisetum trisetale
Equisetum variegatum Schleich.

PTERIDOPHYTA

- ADIANTEACEAE
Adiantum capillus-veneris L.

- Pellaea rotundifolia* (G. Forst.) Hook.
Pteris cretica L.
Pteris vittata L.

ASPLENIACEAE

- Asplenium bulbiferum* G. Forst.
Asplenium nidus L.
Asplenium sp.
Cyrtomium falcatum (L.f.) K. Presl.

ATHYRIACEAE

- Cystopteris fragilis* (L.) Bernh.
BLECHNACEAE
Doodia caudata (Cav.) R. Br.
Elaphoglossum sp.

- Simmondsia chinensis* (Link.) C. K. Schneid.
- CACTACEAE**
- Ariocarpus fissuratus* (Engelm.) K. Schum.
 - Astrophytum myriostigma* (Salm-Dyck) Lem.
 - Carnegia gigantea* Britt. & Rose
 - Cereus peruvianus* (L.) Mill.
 - Chamaecereus silvestrii* (Speg.) Britt. & Rose
 - Coryphantha vivipara* (Nutt.) Britt. & Rose
 - Echinocereus* sp.
 - Echinopsis* sp.
 - Epiphyllum oxypetalum* (DC.) Haw.
 - Hattiora salicinoides* (Haw.) Britt. & Rose
 - Lemairerecereus thurberi* (Engelm.) Britt. & Rose
 - Mammillaria elongata* DC.
 - Nopalochia ackermannii* (Haw.) F. M. Knuth
 - Opuntia ficus-indica* (L.) Mill.
 - Opuntia* sp.
 - Pereckia aculeata* Mill.
 - Pereskia diaz-romeroana* Cardenas
 - Pereskia grandifolia* Haw.
 - Perekopis* sp.
 - Rhipsalis capilliformis* A. Web.
 - Rhipsalis paradoxa* Salm-Dyck
 - Schlumbergera bridgesii* (Lem.) Lofgr.
- CAMpanulaceae**
- Campanula carpatica* Jacq. cv. "blue chips"
 - Campanula isophylla* Moretti
 - Campanula medium* L.
 - Delisea rhytidosperma* H. Mann.
 - Hippobroma longiflora* (L.) G. Don
 - Lobelia erinus* L.
 - Lobelia inflata* L.
 - Lobelia siphilitica* L.
- CAPPARIDACEAE**
- Capparis spinosa* L. var. *inermis*
- CAPRIFOLIACEAE**
- Syphoricarpos orbiculatus* Moench.
 - Viburnum prunifolium* L.
- CARYOPHYLLACEAE**
- Agrostemma githago* L.
 - Ceratium nutans* Raf.
 - Ceratium stellatum* Herb. ex Colla
 - Dianthus armeria* L.
 - Dianthus chinensis* L.
 - Dianthus* sp.
 - Gypsophila elegans* Bieb.
 - Sagina decumbens* (Ell.) T. & G.
- CASUARINACEAE**
- Casuarina equisetifolia* J. R. Forst. & G. Forst.
- CELASTRACEAE**
- Celastrus edulis* (Vahl) Forsk. ex. Endl.
- CHENOPodiaceae**
- Beta vulgaris* L.
 - Chenopodium album* L.
 - Chenopodium ambrasoides* L.
- CLEOMACEAE**
- Cleome spinosa* Hort.
- CLusiaceae**
- Clusia* sp.
- CNEORACEAE**
- Cneorum tricoccum* L.
- COMBRETACEAE**
- Conocarpus erectus* L.
 - Laguncularia racemosa* (L.) Gaertn.f.
- COMPOSITAE**
- Aster novae-angliae* L.
 - Coreopsis* sp.
 - Cosmos bipinnatus* Cav.
 - Cosmos sulphureus* Cav.
 - Dahlia* sp. (hybrid)
 - Dimorphotheca pluvialis* (L.) Moench.
 - Dimorphotheca* sp.
 - Dysodia tenuiloba* (DC.) B. L. Robinson
 - Felicia amelloides* (L.) Voss
 - Gaillardia aristata* Pursh
 - Gerbera jamesonii* H. Bolus ex Hook.f.
 - Gynura aurantiaca* (Blume) DC.
- Mikania apifolia** DC.
- Ratibida** sp.
- Senecio articulatus** (L.f.) Schultz-Bip.
- Senecio confusus** (DC.) Britton
- Senecio herreianus** Dinter
- Senecio jacobsonii** L.
- Senecio macroglossus** DC. cv. *variegatum*
- Senecio mikanioides** Otto
- Senecio serpens** Rowley
- Tagest** sp. (hybrid)
- CONVolvulaceae**
- Convolvulus aquatica* Walt.
 - Convolvulus sepium* L.
 - Ipomoea* sp.
- CORIARIACEAE**
- Coriaria myrtifolia* L.
 - Coriaria nepalensis* Wall.
- CORNACEAE**
- Aucuba japonica* Thunb.
 - Cornus siolomifera* Michx.
- CORYNOCARPACEAE**
- Corynocarpus laevigata* J. R. Forst. & G. Forst.
- CRASSULACEAE**
- Crassula argentea* Thunb.
 - Crassula falcatifolia* H. Wendl.
 - Crassula perforata* L.
 - Crassula tetragona* L.
 - Graptotetalum paraguayense* (N. E. Br.) Walth.
 - Kalanchoe beauverdii* Hamet.
 - Kalanchoe beharensis* Drake
 - Kalanchoe blossfeldiana* Poelln.
 - Kalanchoe daigremontiana* Hamet. & Perr.
 - Kalanchoe fedtschenkoi* Hamet. & Perr.
 - Kalanchoe pinnata* (Lam.) Pers.
 - Kalanchoe tomentosa* Bak.
 - Kalanchoe tubiflora* (Harv.) Hamet.
 - Kalanchoe* sp.
 - Pachyphytum compactum* Rose
 - Sedum spectabile* Boreau
 - Sedum* sp.
 - Sempervivum* sp.
- CRUCIFERAE**
- Brassica juncea* (L.) Coss.
 - Brassica peviridis* Bailey
 - Iberis amara* L.
 - Lobularia maritima* Desv.
 - Lunaria annua* L.
 - Nasturtium officinale* R. Br.
- CUCURBITACEAE**
- Cucumis* sp.
 - Cucurbita pepo* L.
 - Echallium elaterium* (L.) A. Rich
 - Luffa aegyptiaca* Mill.
- DATISCACEAE**
- Datisca cannabina* L.
- DIDIEREACEAE**
- Alluaudia procera* Drake
- DILLENIACEAE**
- Dillenia indica* L.
- DIONAEACEAE**
- Dionaea muscipula* Ellis.
- DIPSACACEAE**
- Scabiosa atropurpurea* L.
- DROSERACEAE**
- Drosera capensis* L.
 - Drosera spatulata* Labill
- EBENACEAE**
- Diospyros ebenaster* Retz.
 - Diospyros virginiana* L.
- ELAEAGNACEAE**
- Elaeagnus* sp.
- ERICACEAE**
- Rhododendron* sp.
- EUPHORBIACEAE**
- Acalypha wilkesiana* Mull. Arg.
 - Breynia disticha* J. R. Forst. & G. Forst.
- Codiaeum variegatum** (L.) Blume
- Euphorbia dentata** Michx.
- Euphorbia esula** L.
- Euphorbia helioscopia** L.
- Euphorbia ingens** E. H. Mey.
- Euphorbia lactea** Haw.
- Euphorbia lathyris** L.
- Euphorbia leucophylla** Benth.
- Euphorbia maculata** L.
- Euphorbia mammillaris** L.
- Euphorbia miliifolia** Desmoul. cv. *splendens*
- Euphorbia pseudocactus** A. Berger
- Euphorbia ramiflora** Croiz.
- Euphorbia tirucalli** L.
- Euphorbia triangularis** Desf.
- Euphorbia** sp.
- Jatropha spathulata** Muell. ex DC.
- Manihot esculenta** Crantz
- Pedilanthus tithymaloides** (L.) Poit.
- Phyllanthus niruri** L.
- Ricinus communis** L.
- Securinega suffruticosa** (Pall.) Rehd.
- Synadenium grantii** Hook.f. cv. *rubra*
- FAGACEAE**
- Fagus grandifolia* Ehrh.
 - Quercus ilex* Muench.
 - Quercus phellos* L.
 - Quercus rubra* L.
- FOUQUIERIACEAE**
- Fouquieria columnaris* Kellogg
 - Fouquieria splendens* Engelm.
- FUMARIACEAE**
- Adlumia fungosa* (Ait.) Greene ex BSP.
 - Dicentra eximia* (Ker) Torr.
- GENTIANACEAE**
- Eustoma grandiflorum* (Raf.) Shinn.
 - Exacum affine* Balf.f.
 - Gentiana* sp.
 - Menyanthes trifoliata* L.
- GERANIACEAE**
- Erodium cicutarium* (L.) L'Her
 - Pelargonium X hortorum* L. H. Bailey
 - Pelargonium peltatum* (L.) L'Her ex Ait.
 - Pelargonium* sp.
- GESNERIACEAE**
- Aeschynanthus marmoratus* F. Moore
 - Aeschynanthus pulcher* (Blume) G. Don
 - Allotropa nummularia* (Hanst.) Wiehl.
 - Columnnea birta* Klotzsch & Hanst.
 - Columnnea tulae* Urb.
 - Didymocarpus kerrii* Craib
 - Episcia cuprea* (Hook.) Hanst.
 - Episcia dianthiflora* H. E. Moore & R. G. Wils.
 - Episcia reptans* Mart.
 - Kohleria bogotensis* (Nichols.) Fritsch
 - Naufragium bullatum* (Lem.) T. Sprague
 - Ramonda myconi* L.
 - Saintpaulia ionantha* H. Wendt.
 - Sinningia cardinalis* (Lehm.) H. E. Moore
 - Streptocarpus X hybridus* Voss cv. "wiesmoor"
- GOODENIACEAE**
- Scaevola* sp.
- HALORAGACEAE**
- Myriophyllum brasiliense* Cambess.
- HAMAMELIDACEAE**
- Liquidambar styraciflua* L.
- HYDROPHYLACEAE**
- Nonophila menziesii* Hook. & Arn.
 - Phacelia* sp.
- HYPERICACEAE**
- Hypericum leschenaultii* Choisy
 - Hypericum punctatum* Lam.
- JUGLANDACEAE**
- Carya illinoensis* (Wang.) C. Koch
 - Juglans nigra* L.
- LABIATAE**
- Coleus blumei* Benth.
 - Iboza riparia* (Hochst.) N. E. Br.

- Sasa pygmaea* (Miq.) Asch. & Graebn.
Schizachyrium salzmannii (Trin.) Nash
Setaria palmifolia (J. Konig) Stapf.
Shibataea kumasaca (Zoll. ex Steud.) Nakai
Sinarundinaria nitida (Mitford) Nakai
Sorghastrum nutans (L.) Nash
Sporobolus indicus (L.) R. Br.
Stenotaphrum secundatum (Walt.) O. Ktze.
Streptium distichophyllum Sods. & Cald.
Streptocheila sodiroiana Hack.
Themedia triandra Forssk.
Tripsacum dactyloides L. var. *hispidum* Hitchc.
Tripsacum maizae E. Hernandez X. & Randolph
Vetiveria zizanioides (L.) Nash
Zea diploperennis Iltsis & Doebley
Zea mexicana (Schrad.) Reeves & Mangelsd.
Zea perennis (Hitchc.) Reeves & Mangelsd.
Zeugitea pittieri Hack.
Zoysia japonica Steud.
- HELICONIACEAE**
Heliconia aurantiaca Ghiesbr. ex Lem.
- HYDROCHARITACEAE**
Elodea densa (Planch.) Casp.
- IRIDACEAE**
Belamcanda chinensis (L.) DC.
Freesia sp.
Lapeirousia laxa (Thunb.) N. E. Br.
Neomarica longifolia (Link & Otto) T. Sprague
Sisyrinchium bellum S. Wats.
- JUNCACEAE**
Juncus tenuis Willd.
Juncus sp.
Luzula sp.
- JUNCAGINACEAE**
Triglochin maritima L.
- LEMNACEAE**
Lemna minor L.
Lemna trisulca L.
Spirodela polyrhiza (L.) Schleid.
- LILIACEAE**
Allium tuberosum Rottle ex K. Spreng.
Aloe barbadensis Mill.
Aloe ciliaris Haw.
Aloe mitriformis Mill.
Aloe saponaria (Ait.) Haw.
Aloe striata Haw.
Asparagus densiflorus (Kunth) Jessop
Asparagus macowanii Bak.
Asparagus setaceus (Kunth) Jessop
Asphodelus fistulosus L.
Chlorophytum sp.
Cordyline terminalis (L.) Kunth
Dasylistron leiocephalum Engelm.
Drimiopsis maculata Lindl. ex Paxt.
Eucomis undulata (Mill.) Chitt.
Gasteria trigona Haw.
Hemerocallis sp.
Lebedouria socialis (Bak.) Jessop
Nothoscordum bivalve (L.) Britt.
Nothoscordum fragrans (Ait.) Nichols.
Nothoscordum sp.
Ornithogalum caudatum Ait.
Ornithogalum saundersiae Bak.
Pleomele thalioidea N. E. Br.
Ruscus aculeatus L.
Sansevieria cylindrica Bojer
Sansevieria harvia N. E. Br.
Sansevieria trifasciata Prain.
Sansevieria trifasciata cv. *habnii*
Schizobasopsis volubilis Macb.
Tricyrtis formosana Bak.
Tulbaghia violacea Harv.
Tulipa cv.
- MARANTACEAE**
Calathea ornata (Linden) Korn.
Ctenanthe oppenheimiana (E. Morr.) K. Schum. cv. *tricolor*
Maranta leuconeura E. Morr.
Maranta leuconeura cv. *erythronema*
- Maranta leuconeura* cv. *kerchoviana*
- MUSACEAE**
Musa nana Loure.
Ravenala madagascariensis Sonn.
Strelitzia reginae Ait.
- NAJADACEAE**
Najas sp.
- ORCHIDACEAE**
Arundina graminifolia (D. Don) Hochr.
Bletilla striata (Thunb.) Rchb.f.
Catasetum pileatum Rchb.f.
Catasetum platyglossum Schltr.
Cattleya skinneri Batem.
Cattleya sp.
Cymbidium sp.
Dendrobium minax Reichb.
Epidendrum cinnabarinum Salzm. ex Lindl.
Epidendrum ibaguense HBK.
Haemaria discolor Lindl. cv. *dawsoniana*
Paphiopedilum insigne (Wall.) Pfitz.
Phaius tankervilliae (Ait.) Blume
Saccobodium bellinum (Ktze.) Reichb.
Stanhopea wardii Lodd. ex Lindl.
Vanilla barbellata Reichb.
Vanilla planifolia Andr.
- PALMAE**
Chamaedorea elegans Mart.
Phoenix loureiri Kunth
Rhapis excelsa (Thunb.) A. Henry
Washingtonia filifera (L. Linden) H. Wendl.
- PONTEDERIACEAE**
Eichhornia crassipes (Mart.) Solms-Laub.
- POTAMOGETONACEAE**
Potamogeton sp.
- VELLOZIACEAE**
Barbacenia coronata P. F. Ravenna
- XANTHORRHOEACEAE**
Xanthorrhoea arborea R. Br.
- ZINGIBERACEAE**
Alpinia purpurata (Vieill.) K. Schum.
Anomum cardomonum L.
Kaempferia rotunda L.
Zingiber spectabile Griff.
- MAGNOLIOPHYTA: MAGNOLIOPSIDA**
- ACANTHACEAE**
Aphelandra squarrosa Nees
Crossandra infundibuliformis (L.) Nees
Hemigraphis alternata (Burm.f.) T. Anderson
Hydrophilia difformis (L.f.) Blume
Hypoestes phyllostachya Bak.
Justicia brandegeana Wassh. & L. B. Sm.
Ruellia devosiana Hort. Makoy ex E. Mort.
Ruellia gracilis Bacher
Ruellia makoyana Hort. Makoy ex Closon
Ruellia strepsis L.
Strobilanthes dyeranus M. T. Mast
- ACERACEAE**
Acer circinatum Pursh
Acer rubrum L.
Acer saccharinum L.
Acer saccharum Marsh.
- AIZOACEAE**
Aptenia cordifolia (L.f.) Schwartz.
Carpobrotus edulis (L.) L. Bolus
Delosperma sp.
Faucaria sp.
Lampranthus bicolor N. E. Br.
Lampranthus emarginatus (L.) N.E. Br.
Lithops lesliei (N. E. Br.) N. E. Br. var. *minor*
Lithops pseudotruncatella (A. Berger) N. E. Br.
Pleiospilos sp.
Rhombophyllum nelii Schwartz.
- AMARANTHACEAE**
Acnida tamariscina (Nutt.) Wood.
Amaranthus retroflexus L.
Amaranthus tricolor L.
Celosia argentea L.
- ANACARDIACEAE**
Mangifera indica L.
Rhus copallina L.
Rhus typhina L.
- ANNONACEAE**
Asimina triloba (L.) Dunal.
- APOCYNACEAE**
Allamanda cathartica L.
Catharanthus roseus (L.) G. Don
Mandevilla X. *amabilis* (Hort. Backh.) Dress.
Nerium oleander L.
Pachypodium lamerei Drake
Plumeria rubra L.
Tabernaemontana divaricata (L.) R. Br.
Vinca major L. cv. *variegata*
- AQUIFOLIACEAE**
Ilex decidua Walt.
Ilex opaca Ait.
Ilex paraguariensis St.-Hil.
- ARALIACEAE**
Brasilia actinophylla Endl.
X. Fatsadera lizei (Cochet) Guillaum
Hedera helix L.
- ARISTOLOCHIACEAE**
Aristolochia elegans M. T. Mast
- ASCLEPIADACEAE**
Araujia sericifera Brot.
Asclepias curassavica L.
Ceropegia sandersonii Hook.f.
Ceropegia woodii Schlechter
Hoya bandaeensis Schlechter
Hoya carnosa (L.f.) R. Br.
Hoya purpureafusca Hook.
Huerbia sp.
Periploca graeca L.
Stapelia gigantea N. E. Br.
Stapelia variegata L.
Stephanotis floribunda Brongn.
- AVICENNIACEAE**
Avicennia nitida Jacq.
- BALSAMINACEAE**
Impatiens balsamina L.
- BASELLACEAE**
Amredora cordifolia (Ten.) Steenis
Basella alba L. cv. *rubra*
- BEGONIACEAE**
Begonia boweri Ziesenh.
Begonia biemalis Fotsch.
Begonia cv. "immense"
Begonia masoniana Irmsch
Begonia mazae Ziesenh.
Begonia X rex Putz.
Begonia salicifolia A. DC.
Begonia X semperflorens-cultorum Hort.
Begonia serratifolia Irmsch
Begonia sp.
- BETULACEAE**
Alnus glutinosa (L.) Gaertn.
Betula pubescens J. F. Ehrh.
- BIGNONIACEAE**
Clytostoma callistegioides (Cham.) Bur.
Incarvillea delavayi Bur. & Franch.
Macfadyena unguis-cati (L.) A. Gentry
Spathodea campanulata Beauv.
- BIXACEAE**
Bixa orellana L.
- BOMBACACEAE**
Ceiba pentandra (L.) Gaertn.
Ochroma lagopus Sw.
- BORAGINACEAE**
Anchusa azurea Mill.
Borago officinalis L.
- BUDDLEJACEAE**
Buddleja diversifolia Tenore
- BUXACEAE**
Buxus microphylla L.

CYATHEACEAE

- Alsophila australis* R. Br.
Dicksonia antarctica Labill
DAVALLIACEAE
Davallia mariesii T. Moore
Davallia sp.
Nephrolepis biserrata (Swartz) Schott. cv. *furcans*
Nephrolepis cordifolia (L.) K. Presl.
Nephrolepis exaltata (L.) Schott.
Nephrolepis exaltata cv. *bostoniensis*

MARSILEACEAE

- Marsilea quadrifolia* L.
Marsilea quadrifolium (Sw.) Fee
Drynaria sp.
Microgramma heterophyllum (L.) Wherry
Platycerium sp.
Polypodium aureum L.
Polypodium musifolium Blume
Polypodium polycarpon (L.) Swartz.

SALVINIACEAE

- Azolla mexicana* Presl.
Salvinia sp.

SCHIZAEACEAE

- Lycopodium japonicum* Swartz.
Lycopodium sp.

THELYPTERIDACEAE

- Thelypteris normalis* (C. Chr.) Moxley
Thelypteris sp.

THYRSOPTERIDACEAE

- Cibotium chamissoi* Kaulf.

VITTARIACEAE

- Ananthaurus angustifolius* (Sw.) Underw. & Maxon
Antrophyum ensiforme Hook.
Antrophyum lineatum (Sw.) Kaulf.
Vittaria dimorpha C. Muell.
Vittaria graminifolia Kaulf.
Vittaria lineata (L.) J.E. Sm.
Vittaria minima (Baker) Benedict
Vittaria remota Fee

CYCADOPHYTA

- CYCADACEAE**
Bowiea serrulata Hook. ex Hook.f.
Ceratozamia bidae Landry & Wilson
Ceratozamia mexicana Brongn.
Cycas revoluta Thunb.
Lepidozamia perofskiana Regel.
Macrozamia communis L. A. S. Johnson
Zamia floridana A. DC.
Zamia laetevolia Lodd.
Zamia pumila L.

GINKGOPHYTA

- GINKGOACEAE**
Ginkgo biloba L.

PINOPHYTA

- ARAUCARIACEAE**
Araucaria araucana (Bertol.) O. Ktze.
Araucaria bidwillii Hook.
Araucaria excelsa R. Br.
CUPRESSACEAE
Chamaecyparis lawsoniana (A. Murr.) Parl.
Chamaecyparis nootkatensis (D. Don) Spach
Chamaecyparis thyoides (L.) BSP.
Juniperus deppeana Steud.
Juniperus virginiana L.
Libocedrus decurrens Torr.
Thuja occidentalis L.
Thuja plicata J. Donn ex D. Don

PINACEAE

- Abies lasiocarpa* (Hook.) Nutt.
Larix laricina (DuRoi) K. Koch
Picea mariana (Mill.) BSP.
Picea rubens Sarg.
Pinus contorta Dougl. ex Loud.

- Pinus echinata* Mill.
Pinus palustris Mill.
Pinus rigida Mill.
Tsuga canadensis (L.) Carr.
Tsuga heterophylla (Raf.) Sarg.

PODOCARPACEAE

- Podocarpus macrophyllus* L'Her ex Pers.

TAXACEAE

- Taxus brevifolia* Nutt.

TAXODIACEAE

- Metasequoia glyptostroboides* H.H. Hu & Cheng.
Sequoia sempervirens (D. Don) Endl.

- Taxodium distichum* (L.) Rich

GNETOPHYTA

EPHEDRACEAE

- Ephedra distachya* L.

GNETACEAE

- Gnetum gnemon* L.

WELWITSCHIACEAE

- Welwitschia mirabilis* Hook.f.

MAGNOLIOPHYTA: LILIOPSIDA

AGAVACEAE

- Agave ferdinandi-regis* A. Berger
Agave lecheguilla Torn.
Agave lophantha Schiede. cv. *poselgeri*
Agave sisalana Perrine
Beaucarnea recurvata Lem.
Cordyline terminalis (L.) Kunth cv. *tricolor*
Dracaena cincta Bak.
Dracaena marginata Lam.
Dracaena sanderana Hort. Sander ex M. T. Mast
Furcraea foetida (L.) Haw.
Furcraea hexapetala (Jacq.) Urb.
Hesperaloe parviflora (Torr.) J. Coulter.
Phormium tenax J.R. Forst. and G. Forst.
Yucca aloifolia L.

ALISMACEAE

- Alisma plantago-aquatica* L.
Sagittaria sagittifolia L.
Sagittaria subulata (L.) Buchenau
Sagittaria sp.

AMARYLLIDACEAE

- Agapanthus africanus* Hoffmng.
Alstroemeria sp.
Amaryllis sp.
Anigozanthos manglesii D. Donn
Clivia miniata Regel.
Crinum jagus (J. Thompsons.) Dandy
Crinum sp.
Eucharis grandiflora Planch. & Linden
Habranthus tubispathus (L'Her.) Traub.
Haemanthus albiflos Jacq.
Haemanthus multiflorus Martyn
Hymenocallis narcissiflora (Jacq.) Macbr.
Hymenocallis speciosa (Salisb.) Salisb.
Hymenocallis sp.
Lycoris squamigera Maxim.
Zephyranthes sp.

ARACEAE

- Aglonema commutatum* Schott.
Aglonema modestum Schott. ex Engl.
Anthurium crassinervium (Jacq.) G. Don
Anthurium polystichum R.E. Schult. & Idrobo
Anthurium scandens (Aubl.) Engl.
Dieffenbachia picta Schott.
Dieffenbachia seguine Schott.
Epipremnum aureum (Linden & Andre) Bunt.
Monstera deliciosa Liebm.
Monstera obliqua (Miq.) Walp.
Philodendron bipinnatifidum Schott.
Pistia stratiotes L.
Spathiphyllum cv. "clevelandii"
Syngonium podophyllum Schott.
Xanthosoma sagittifolium (L.) Schott.
Zantedeschia aethiopica Spreng.

BROMELIACEAE

- Abromeitiella abstrusa* Castellanos

Aechmea caudata Lindm. cv. *variegata*

Aechmea cylindrica Lindm.

Aechmea X *maginalii*

Billbergia distachia (Vell.) Mez.

Billbergia leptopoda L.B. Sm.

Billbergia nutans H. Wendl.

Billbergia pyramidalis (Sims) Lindl.

Billbergia saundersii Hort. ex C. Koch X *pyramidalis*

Cryptanthus babianus L. B. Sm.

Cryptanthus bivittatus (Hook.) Regel cv. *minor*X *Cryptbergia rubra* (Mol.) Skeels.

Neoregelia spectabilis (T. Moore) L.B. Sm.

Tillandsia fasciculata Swartz. cv. *clavigrada*

Tillandsia recurvata (L.) L. Ball

Tillandsia usneoides L.

Vriesea carinata Wawra

BUTOMACEAE

Hydrocleys commersonii Rich.

CANNACEAE

Canna X *orchiodae* L.H. Bailey

COMMELINACEAE

Aneilema sp.

Commelinia appendiculata C.B. Clark

Commelinina communis L.

Hadromedea warszewiczianum (Kunth & Bouche)

H.E. Moore

Palisota barteri Hook.f.

Rhoeo spathacea Hance

Setcreasea pallida Rose

Tradescantia blossfeldiana Mildb.

Tradescantia ohensis Raf.

Tradescantia sillamontana Matuda

Tradescantia velutina Matuda

Tradescantia sp.

Triogandra multiflora (Sw.) Steyermark.

Zebria pendula Schnizl.

CYPERACEAE

Cyperus alternifolius L.

Cyperus papyrus L.

Cyperus sp.

Dulichium arundinaceum (L.) Britt.

Eleocharis quadrangulata (Michx.) R. & S.

Eleocharis sp.

Scirpus acutus Muhl.

Scirpus fluviatilis (Torr.) Gray

FLAGELLARIACEAE

Flagellaria indica L.

GRAMINEAE

Avena fatua L.

Bambusa arundinacea (Retz.) Willd.

Bambusa longispiculata Gamble ex Brandis.

Bambusa multiplex (Lour.) Rauschel.

Chionachne koenigii (Spreng.) Thw.

Chloris sp.

Chusquea coronalis Sods. & Cald.

Coix lacryma-jobi L.

Cryptochloa granulifera Swallen

Cymbopogon citratus (DC. ex Nees) Stapf.

Disichlis stricta (Torr.) Rydb.

X Elybordeum iowense Pohl

Elymus canadensis L.

Eragrostis curvula (Schrad.) Nees

Hymenachne amplexicaulis (Rudge) Nees

Lithachne humilis Sods. & Cald.

Lithachne pauciflora (Sw.) Beauvois

Melinis minutiflora Beauvois

Oplismenus hirtellus (L.) Beauvois

Oryza sativa L.

Panicum grande Hitchc. & Chase

Pariana parviflora Pohl

Pennisetum sp.

Phaeosperma globosa Munro ex Benth.

Pharus latifolia L.

Phragmites australis (Cav.) Trin. ex Steud.

Phyllostachys aurea Carriere ex A. Riviere &

C. Riviere

Phyllostachys nigra (Lodd. ex Lindl.) Munro

Pseudosasa japonica (Sieb. & Zucc. ex Steud.) Mak.

Saccharum officinarum L.

- Lamiastrum galeobdolon* (L.) Ehrend. & Polatsch.
Lavandula stoechas L.
Lavandula sp.
Mentha X piperita L.
Mentha requienii Benth.
Mentha sp.
Motucella laevis L.
Nepeta cataria L.
Ocimum basilicum L.
Plectranthus nummularius Briq.
Plectranthus verticillatus T. C. E. Fries.
Plectranthus tomentosus Benth. ex E. H. Mey.
Rosmarinus officinalis L.
Salvia coccinea Juss. ex J. Murr.
Salvia sp.
- LAURACEAE**
Laurus nobilis L.
Lindera benzoin (L.) Blume
Persea americana Mill.
Sassafras albidum (Nutt.) Nees
Umbellularia californica (Hook. & Arn.) Nutt.
- LECYTHIDACEAE**
Couroupita guianensis Aubl.
- LEGUMINOSAE**
Acacia cornigera (L.) Willd.
Acacia farnesiana (L.) Willd.
Acacia sp.
Albizia julibrissin Durazz.
Amorphia sp.
Apios americana Medic.
Astragalus cicer L.
Baptisia australis (L.) R. Br.
Caesalpinia pulcherrima (L.) Swartz.
Cajanus cajan (L.) Huth.
Calliandra emarginata (Humb. & Bonpl.) Benth.
Calliandra tweedii Benth.
Canavalia sp.
Cassia occidentalis L.
Cassia tora L.
Cercis canadensis L.
Cladrastis lutea (Michx.f.) C. Koch
Coronilla varia L.
Crotalaria retusa L.
Dalea leporina (Ait.) Kearney & Peebles
Erythrina herbacea K. Spreng.
Genista tinctoria L.
Indigofera australis Willd.
Laburnum X watereri (Kirchn.) Dipp.
Lathyrus latifolius L.
Leucaena leucocephala (Lam.) de Wit
Lotus corniculatus L.
Lupinus polyphyllus Lindl.
Machaerium sp.
Medicago sativa L.
Melilotus alba Desr.
Melilotus officianalis (L.) Pall.
Neomotonia verdcourtii Isely
Neomotonia wightii (Arnott) Lackey
Pachyrhizus erosus (L.) Urb.
Parkinsonia aculeata L.
Psophocarpus tetragonolobus (L.) DC.
Psoralea tenax Lindl.
Robinia pseudoacacia L.
Trifolium pratense L.
Trifolium repens L.
Vicia villosa Roth.
- LINACEAE**
Linum perenne L.
Linum sp.
- LYTHRACEAE**
Cuphea heterophylla Benth.
Cuphea hyssopifolia HBK.
Cuphea platycentra A. DC.
Heimia salicifolia (HBK.) Link
Lagerstroemia indica L.
- MALPIGHIACEAE**
Malpighia cocigera L.
- MALVACEAE**
Abelmoschus esculentus (L.) Moench.
- Gossypium herbaceum* L.
Hibiscus mutabilis L.
Hibiscus trionum L.
Lavatera trimestris L.
Lebronnecia kokiooides F. R. Fosberg
Malva sylvestris L.
Malvaviscus arboreus Cav.
Thespesia populnea (L.) Soland ex Correa.
- MELASTOMATACEAE**
Heterocentron elegans (Schlechtend.) O. Ktze.
- MELIACEAE**
Cipadessa baccifera Miq.
Melia azedarach L.
Swietenia macrophylla King
- MORACEAE**
Bruceomelia papyrifera (L.) Vent.
Dorstenia contrajerva L.
Ficus benghalensis L.
Ficus benjamina L.
Ficus carica L.
Ficus deltoidea Jack
Ficus elastica Roxb. ex Hornem.
Ficus elastica cv. *variegata*
Ficus lyrata Ward.
Ficus macrophylla Desf. ex Pers.
Ficus myroensis B. Heyne ex Roth.
Ficus pumila L.
Ficus sagittata Vahl
- MYRSINACEAE**
Ardisia crispa (Thunb.) A. DC.
Ardisia escallonioides Cham. & Schlechtend.
Ardisia polycarpa Wall.
- MYRTACEAE**
Callistemon phoeniceus Lindl.
Eucalyptus crebra F. J. Muell.
Eucalyptus viminalis Labill
Eucalyptus sp.
Eugenia uniflora L.
Myrtus communis L. cv. *microphylla*
Psidium guajava L.
Psidium littorale Raddi. cv. *longipes*
- NEPENTHACEAE**
Nepenthes hookeriana Lindl.
Nepenthes X superba B. S. Williams.
Nepenthes sp.
- NOLANACEAE**
Nolana paradoxa Lindl.
- NYCTAGINACEAE**
Bougainvillea glabra Choisy
- NYMPHAEACEAE**
Nymphaea X daubeniana Hort ex O. Thomas
- NYSSACEAE**
Nyssa sylvatica Marsh.
- OLEACEAE**
Fraxinus americana L.
Ligustrum japonicum Thunb.
Olea europaea L.
- ONAGRACEAE**
Fuchsia corymbiflora Ruiz & Pav.
Fuchsia sp.
Oenothera cheiranthifolia Hornem. ex K. Spreng.
Oenothera fruticosa L.
Oenothera glazioviana Micheli
- OXALIDACEAE**
Biophytum sensitivum (L.) DC.
Oxalis deppei Lodd. ex Sweet
Oxalis pes-caprae L.
- PAPAVERACEAE**
Hunnemannia fumariifolia Sweet
- PASSIFLORACEAE**
Adenia digitata Burtt-Davy
Passiflora caerulea L.
Passiflora capsularis L.
Passiflora coriacea Juss.
Passiflora incarnata L.
- PHYTOLACCACEAE**
Phytolacca americana L.
- PIPERACEAE**
Peperomia argyreia E. Mort.
Peperomia caperata Yunck.
Peperomia caperata cv. "emerald Ripple"
Peperomia clusiifolia (Jacq.) Hook.
Peperomia dahlstedtii A. C. DC.
Peperomia depeana Schlechtend. & Cham.
Peperomia fraseri A. C. DC.
Peperomia griseoargentea Yunck.
Peperomia huanilis A. Dietr.
Peperomia incana (Haw.) Hook.
Peperomia meridana Yunck.
Peperomia obtusifolia (L.) A. Dietr.
Peperomia persicifolia (Jacq.) HBK.
Peperomia rotundifolia (L.) HBK. var. *pilosior*
Peperomia rubella (Haw.) Hook.
Peperomia scandens Ruiz & Pav. cv. *variegata*
Peperomia subpeltata A. C. DC.
Peperomia trinervis Ruiz & Pav.
Piper crocatum Ruiz & Pav.
Piper kadsura (Choisy) Ohwi
Piper nigrum L.
Piper sp.
- PITTOSPORACEAE**
Pittosporum tobira (Thunb.) Ait.
- PLANTAGINACEAE**
Plantago lanceolata L.
Plantago rugelii DCne.
- PLATANACEAE**
Platanus occidentalis L.
- POLEMONIACEAE**
Phlox drummondii Hook.
Polemonium caeruleum L.
- POLYGONACEAE**
Antigonon leptopus Hook. & Arn.
Coccoloba uvifera (L.) L.
Fagopyrum esculentum Moench.
Homalocladium platycladum (F. J. Muell.) L. H. Bailey
Polygonum capitatum Don
- PORTULACACEAE**
Portulaca grandiflora Hook.
Portulaca oleracea L. X *grandiflora* Hook.
Portulacaria afra (L.) Jacq.
Talinum paniculatum (Jacq.) Gaertn.
- PRIMULACEAE**
Anagallis monelli L. ssp. *linifolia*
Cyclamen persicum Mill.
Lysimachia clethroides Duby
Lysimachia nummularia L.
Lysimachia punctata L.
- PROTEACEAE**
Grevillea robusta A. Conn.
- PUNICACEAE**
Punica granatum L.
- RANUNCULACEAE**
Aquilegia sp.
Delphinium sp. (hybrid)
Ranunculus cymbalaria Pursh
- RHIZOPHORACEAE**
Rhizophora mangle L.
- ROSACEAE**
Cotoneaster horizontalis Decne.
Duchesnea indica (Andr.) Focke.
Eriobotrya japonica (Thunb.) Lindl.
Potentilla fruticosa L.
Potentilla recta L. cv. *warrenii*
Potentilla tabernaemontana Asch.
Potentilla sp.
Rhaphiolepis umbellata Mak.
Rosa centifolia L. var. *muscosa*
Rosa sp.
- RUBIACEAE**
Coffea arabica L.
Gardenia jasminoides Ellis.
Gardenia sp.

<i>Hydnophytum formicarum</i> Jack	<i>Verbascum thapsus</i> L.	<i>Coriandrum sativum</i> L.
<i>Ixora coccinea</i> L.	<i>Veronica</i> sp.	<i>Daucus carota</i> L.
<i>Pentas lanceolata</i> (Forssk.) Deflers	SIMAROUBACEAE	<i>Eryngium maritimum</i> L.
<i>Psychotria angustifolia</i> Poir.	<i>Ailanthus altissima</i> (Mill.) Swingle	<i>Foeniculum vulgare</i> Mill.
<i>Psychotria punctata</i> Varke	SOLANACEAE	<i>Hydrocotyle rotundifolia</i> Lam.
<i>Psychotria</i> sp.	<i>Atropa belladonna</i> L.	<i>Lilaeopsis chinensis</i> (L.) O. Ktze.
<i>Synephalum dulcificum</i> (Shumach. & Thonn.) Daniell ex S.	<i>Brugmansia suaveolens</i> (Humb. & Bonpl. ex Willd.) Bercht. & J. Presl.	<i>Sium suave</i> Walt.
RUTACEAE	<i>Brunfelsia nitida</i> Benth.	URTICACEAE
X <i>Citrofortunella mitis</i> (Blanco) J. Ingram & H. E. Moore	<i>Capsicum</i> spp.	<i>Boehmeria nivea</i> (L.) Guad.-Beaup.
<i>Citrus limon</i> (L.) Burm.f.	<i>Cestrum elegans</i> (Brongn.) Schlechtend.	<i>Pellionia daveauana</i> (Godefr.) N. E. Br.
<i>Murraya paniculata</i> (L.) Jack.	<i>Cyphomandra betacea</i> (Cav.) Sendtn.	<i>Pellionia pulchra</i> N. E. Br.
SALICACEAE	<i>Lycium chinense</i> Mill.	<i>Pilea cadierei</i> Gagnep. & Guillaum.
<i>Populus balsamifera</i> L.	<i>Nicotiana sylvestris</i> Spreng. & Comes.	<i>Pilea involucrata</i> (Sims) Urb.
<i>Populus deltoides</i> Bartr. ex Marsh.	<i>Nicotiana</i> sp.	<i>Pilea nummulariifolia</i> (Swartz.) Wedd.
SAPINDACEAE	<i>Physalis</i> sp.	VALERIANACEAE
<i>Cardiospermum halicacabum</i> L.	<i>Solanum americanum</i> Mill.	<i>Valeriana officinalis</i> L.
<i>Melicoccus bijugatus</i> Jacq.	<i>Solanum dulcamara</i> L.	VERBENACEAE
<i>Serjania clematidifolia</i> Cambess.	<i>Solanum pseudocapsicum</i> L.	<i>Aloysia triphylla</i> (L'Her) Britt.
SAURURACEAE	<i>Solanum quitoense</i> Lam.	<i>Caryopteris</i> X <i>clandonensis</i> A. Simmonds ex Rehd.
<i>Hoottuynia cordata</i> Thunb.	<i>Solanum seaforthianum</i> Andr.	<i>Clerodendrum fragrans</i> (Vent.) R. Br. var. <i>pleniflorum</i>
<i>Saururus cernuus</i> L.	<i>Solanum wendlandii</i> Hook.f.	<i>Clerodendrum speciosissimum</i> Van Geert.
SAXIFRAGACEAE	STERCULIACEAE	<i>Clerodendrum thomsoniae</i> Balf.
<i>Bergenia crassifolia</i> (L.) Fritsch	<i>Dombeya</i> sp.	<i>Duranta repens</i> L.
<i>Escallonia bifida</i> Link & Otto	<i>Theobroma cacao</i> L.	<i>Holmskioldia sanguinea</i> Retz.
<i>Saxifraga stolonifera</i> Meerb.	TAMARICACEAE	<i>Lantana camara</i> L.
<i>Tolmiea menziesii</i> (Pursh) Torr. & A. Gray	<i>Tamarix ramosissima</i> Ledeb.	<i>Verbena</i> cv.
SCROPHULARIACEAE	THEACEAE	<i>Vitex agnus-castus</i> L.
<i>Antirrhinum majus</i> L.	<i>Camellia japonica</i> L.	VIOOLACEAE
<i>Bacopa caroliniana</i> (Walt.) B. L. Robinson	<i>Camellia sinensis</i> (L.) O. Ktze.	<i>Viola tricolor</i> L.
<i>Bacopa monnieri</i> (L.) Pennell	TILIACEAE	VITACEAE
<i>Calceolaria</i> sp.	<i>Tilia americana</i> L.	<i>Ampelopsis arborea</i> Koehne
<i>Cymbalaria muralis</i> P. Gaertn.	TROCHODENDRACEAE	<i>Cissus antarctica</i> Vent. cv. <i>minima</i>
<i>Digitalis purpurea</i> L.	<i>Euptelea polyandra</i> Sieb. & Zucc.	<i>Cissus discolor</i> Blume
<i>Hebe</i> cv.	TURNERACEAE	<i>Cissus juttae</i> Dinter & Gilg ex Gilg & M. Brandt.
<i>Leucophyllum frutescens</i> (Berland.) I. M. Johnst.	<i>Turnera ulmifolia</i> L.	<i>Cissus quadrangularis</i> L.
<i>Lindernia grandiflora</i> Nutt.	ULMACEAE	<i>Cissus rhombifolia</i> Vahl
<i>Mimulus guttatus</i> Fisch. ex DC.	<i>Ulmus pumila</i> L.	<i>Cissus</i> sp.
<i>Tetranema roseum</i> (M. Marten & Galeotti) Standl. & Steyermark	UMBELLIFERAE	<i>Rhoicissus capensis</i> (Burm.f.) Planch.
	<i>Carum carvi</i> L.	<i>Tetrastigma voinierianum</i> (Baltet) Pierre ex Gagnep.
		WINTERACEAE
		<i>Drimys grenadensis</i> L. var. <i>mexicana</i>

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