

# Floristic studies of the Moconá Park, Misiones, Argentina

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# Floristic studies of the Moconá Park, Misiones, Argentina

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## ABSTRACT

DAVIÑA, J. R., M. E. RODRÍGUEZ, A. I. HONFI, G. J. SEIJO, I. INSAURRALDE & R. GUILLEN (1999). Floristic studies of the Moconá Park, Misiones, Argentina. *Candollea* 54: 231-249. In English, English and Spanish abstracts.

The Moconá Park is located in Misiones, Argentina, and it is a representative area of the Paranaense Forest. Its flora was poorly known, therefore, five recent expeditions were carried out, which resulted in the collection of 411 species that belong to 100 families and include new reports for the Argentine flora. The vegetation units of the Park are briefly described and a list of the collected species is provided.

## RESUMEN

DAVIÑA, J. R., M. E. RODRÍGUEZ, A. I. HONFI, G. J. SEIJO, I. INSAURRALDE & R. GUILLEN (1999). Estudio florístico del Parque Moconá, Misiones, Argentina. *Candollea* 54: 231-249. En Inglés, resúmenes en Inglés y Español.

El Parque Moconá se encuentra en Misiones, Argentina y es un área representativa de la selva Paranaense. Su flora era poco conocida, por esa razón se realizaron 5 expediciones que resultaron en la colección de 411 especies pertenecientes a 100 familias botánicas incluyendo algunas nuevas citas para la flora argentina. Se describen brevemente las unidades vegetacionales del Parque y se adjunta una lista de las especies coleccionadas.

**KEY-WORDS:** Floristic inventory – Moconá Park – Misiones – Argentina – Paranaense Forest.

## Introduction

The mixed forest of the Paranaense Biogeographic Province of South America is a system of high biodiversity and ecological complexity whose conservation concerns the whole world. For this reason, a surface of 253.773 ha, located in San Pedro and Guaraní Departments of Misiones Province, Argentina, has been declared natural reserve. This area was called Yabotí Biosphere Reserve and was recognized by the UNESCO in 1995. This reserve includes the Moconá Park that has an extension of 1000 ha. The predominant vegetation is the subtropical forest composed by several strata that form a 20 to 30 m high dense and green compact mass (MARTÍNEZ-CROVETTO, 1963 y CABRERA, 1976). Within the Park, the Uruguay River has an spectacular 2 km long waterfalls, in a parallel direction to the river stream.

Few studies have been carried out on the Misiones flora and there is little information about the total number of species of the subtropical forest of the high Uruguay River basin

(KLEIN, 1967; RAMBO, 1980; BRACK & al., 1985; DIAS & al., 1992; LÓPEZ CRISTOBAL & al., 1996; TRESSSENS & REVILLA, 1997). Most of the previous report, are focused on trees and shrub species, and there is no floristic inventory of the Park, thus, the floristic diversity existent in it is scarcely known.

Therefore, the present study was conducted aiming at making a botanical checklist and at proving a general description of the Moconá Park vegetation. The results presented here are the first contribution to study the floristic richness of the Park and to increase the knowledge of the Misiones flora.

### Study area and methods

The Moconá Park is located in the southern extreme of San Pedro Department, Misiones, Argentina, and it is mostly surrounded by the Uruguay and Yabotí Rivers, situated at 53°55'W and 27°10'S and at 250 m above sea level (Fig. 1).

Five botanical expeditions were conducted to collect herbarium material along the four seasons between December 1992 and December 1993. Voucher specimens are deposited in the Universidad Nacional de Misiones Herbarium (MNES) and duplicates in the following herbaria: Botanischer Garten und Botanischer Museum Berlin-Dahlem, Germany (B), Instituto de Recursos Biológicos I.N.T.A. Castelar (BAB), Herbario de la Universidad Nacional de Córdoba (CORD), Instituto de Botánica del Nordeste (CTES), Conservatoire et Jardin botaniques de la Ville de Genève (G), Universidad Nacional de Jujuy (JUA), Herbario del Museo de la Plata (LP) and Instituto de Botánica Darwinion (SI).

Some species were only observed *in situ* and are cited as Obs. Values of specific representativity by family (Number of species by family/Total of species registered) were estimated.

### Results and discussion

The botanical checklist of the Moconá Park is based on the collected and few observed species, and it is presented grouped by families in Table 1. It also includes information about herbarium vouchers of each one of them.

The most important families of the checklist are shown in Table 2, which also gives the number of species recorded for each family and the percentage which they represent in relation to the total number of species. The families which contributed more to the total number of species were *Poaceae* (9.73%), *Fabaceae* (6.56%), *Asteraceae* and *Rubiaceae* (4.37%), and the families with greater genus diversity were *Fabaceae* and *Poaceae* (19), *Asteraceae* (18) and *Euphorbiaceae* (16).

Three vegetation units could, at least, be distinguished in the Park. First, the subtropical mixed forest that covers most of the extension. Second, the riverine vegetation on the margin of the Uruguay River and the third unit includes areas with successional vegetation on the roadsides, smaller paths and grasslands around the guardpark house. A brief description of each unit mentioned above is detailed in the following paragraphs.

#### *Subtropical mixed forest*

It comprise several strata: arboreal, shrubby, herbaceous, epiphytes and lianas. In the arboreal stratum, the most representative tree species were: *Apuleia leiocarpa*, *Balfourodendron riedelianum*, *Cabralea canjerana* subsp. *canjerana*, *Syagrus romanzoffiana*, *Calyptanthus tricon*,

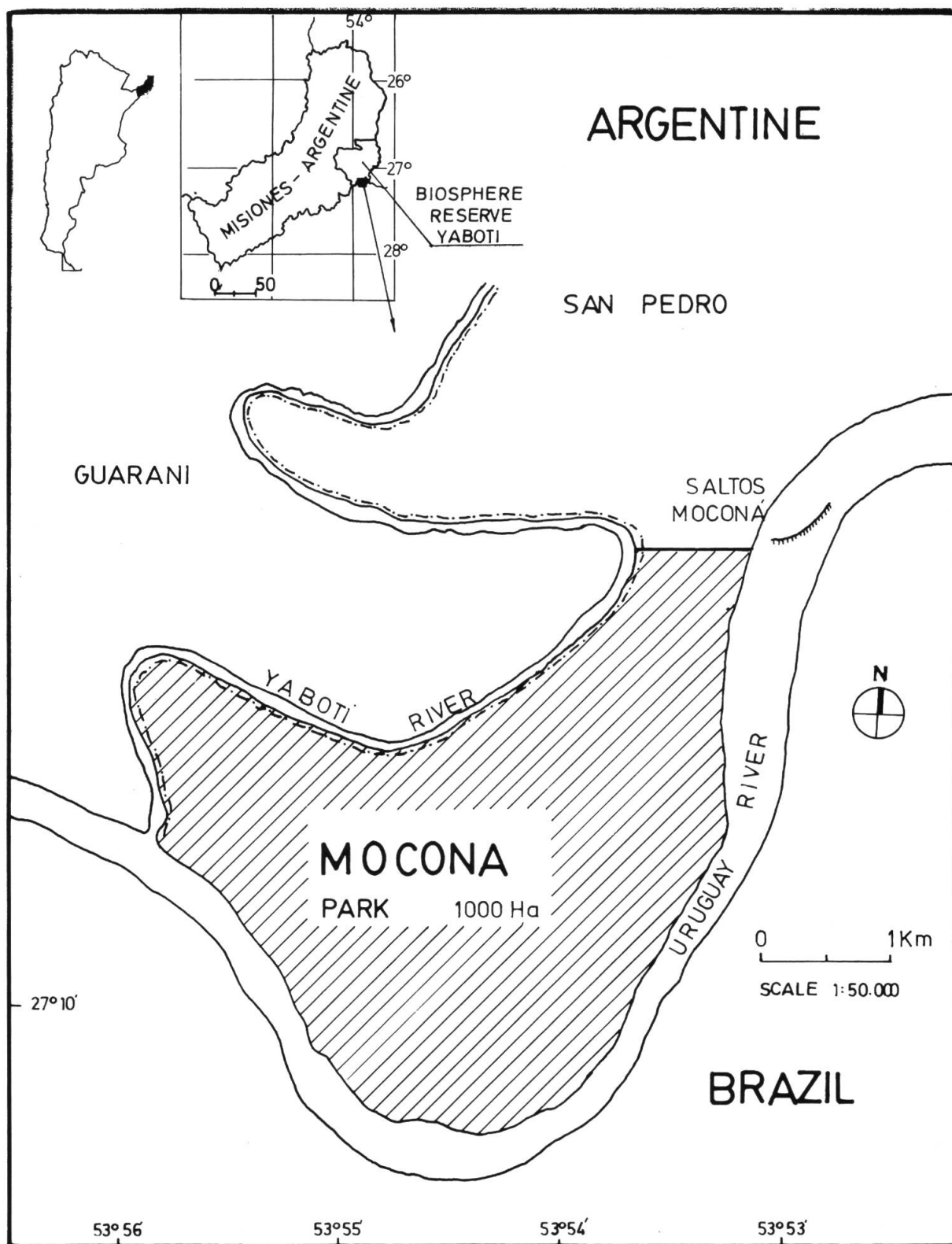


Fig. 1. – Geographic location of the Moconá Park.

*Cedrela fissilis*, *Diatenopteryx sorbifolia*, *Lonchocarpus muehlbergianus*, *Lonchocarpus leucanthus*, *Luehea divaricata*, *Machaerium stipitatum*, *Parapiptadenia rigida*, *Peltophorum dubium*, *Pilocarpus pennatifolius* and *Plinia trunciflora*. The shrubby stratum is composed mainly by species of the *Rubiaceae* family, like *Psychotria leiocarpa*, *P. myriantha*, *P. carthagenensis* and *Schwenckia blumenaviensis*. In the North sector of the park a population of arborescent ferns (*Alsophila setosa*) of nearly 4 m high was found. Among herbs, the most representative species were the Pteridophytes: *Dennstaedtia globulifera*, *Doryopteris nobilis*, *Didymochlaena truncatula*, *Diplazium cristatum*, *Pecluma venturii*, *Selaginella sulcata* and *Thelypteris* sp. and grasses of the genus *Pharus*, *Litachne* and *Olyra*.

*Microgramma squamulosa*, *Niphidium crassifolium*, *Asplenium auritum* and *Lycopodium* sp., *Maxillaria chrysantha*, *Sophronitis cernua*, *Isochilus linearis*, several species of *Rhipsalis*, *Aechmea calyculata*, *Sinningia verticillata* and some species of *Peperomia* were the epiphytes species most frequently collected. The climbers were very abundant specially several species belonging to the *Bignoniaceae*, *Sapindaceae*, *Cucurbitaceae*, *Malpighiaceae* and *Asteraceae* families.

This vegetation unit has all the different strata considered typical for the subtropical forest (MARTINEZ-CROVETTO, 1963 and CABRERA, 1976) in a good stage of conservation. For this reason it constitutes one of the few relics of the pristine mixed forest of the Paranaense Province.

#### Riverine Vegetation

The right margin of the Uruguay River begins with a zone of basaltic outcroppings which has communities with few species like *Zephyranthes flavissima*, *Chomelia obtusa*, *Panicum spathellosum*, *Cyperus iria*, *Echinodorus grandiflorus* and *Justicia* sp. Subsequently, the soil turns from stony-rocky into rocky-sandy with a steep slope. The most conspicuous shrubby species here are *Cephallanthus glabratus*, *Mimosa uraguensis*, *Calliandra selloi*, *Laffoensia nummularifolia*, *Phyllanthus sellowianus* and the herbaceous plants *Doryopteris triphylla*, *Panicum hirticaule* and *P. sabulorum* var. *polycladum*, were also found.

Closer to the mixed forest, the species diversity increased turning into gallery forest with the characteristic woody species like *Inga marginata*, *Nectandra lanceolata*, *N. megapotamica* and *Lonchocarpus leucanthus* among others.

In the whole extension of the riverine area the vegetation is disperse, open-covered and with scarce uniformity. This fact is perhaps related to the river dynamics, which create patchy arrangements of soil types which are subjected to varying hydrological conditions. Therefore, the characteristics of this vegetation unit may be conditioned by the naturally fluctuating levels of water.

#### Areas with disturbed vegetation

Some areas were subjected to antropogenic disturbances made by past human activities and as a result, the native forest is interspersed with successional patches of different stages and sizes.

Characteristic species of successional stages were *Solanum granuloso-leprosum*, *Aloysia virgata* var. *virgata*, *Trema micranthum*, *Manihot grahamii*, *Casearia sylvestris*, *Cecropia pachystachya*, *Celtis triflora*, *Abutilon umbelliflorum*, *Pavonia sepium*, *Paspalum dilatatum*, *P. urvillei*, *Cardiospermum grandiflorum*, *Cissus verticillata* subsp. *verticillata*, *Pyrostegia venusta*, *Mikania micrantha*, *Rubus* cfr. *urticaefolius* and *Sicyos polyacanthus*. *Merostachys clauseni* forms an abundant mass of culms in most of the areas in which the native forest has

been modified. On the other hand, species like *Musa paradisiaca*, *Citrus reticulata*, *Ricinus communis* and *Sorghum technicum* also indicate human activities.

Other species found in these areas were *Hybanthus parviflorus*, *Diodia hispidula*, *Sonchus asper*, *Talinum paniculatum*, *Calceolaria tripartita*, *Mecardonia grandiflora*, *Canna* sp., *Serjania meridionalis*, *Arrabidaea mutabilis*, *Cissus sulcicaulis*, *Fevillea trilobata*, *Melothria fluminensis*, *Manettia luteo-rubra*, *Condilocarpon isthmicum*, *C. rauwolfiae*, *Mascagnia divaricata*, *Thinouia mucronata*, *T. ventricosa*, and the ferns as *Dennstaedtia globulifera* and *Macrothelypteris torresiana*.

In the rocky and humid zones grow *Anemia phyllitidis*, *A. tomentosa* var. *anthriscifolia*, *Begonia cucullata* var. *arenosicola*, *B. subvillosa* as well as several species of the Piperaceae, Pteridaceae, Aspleniaceae, Blechnaceae and Polypodiaceae families.

The present study constitutes the first floristic inventory of the Moconá Park with 411 species belonging to 284 genera and 100 botanical families. Families were classified into: Monocotyledoneae (16), Dicotyledoneae (62), Pteridophyta (12) and Lichenes (10).

Plant communities of different ages and seral stages occur side by side in the park within the pristine native forest. The results presented in this paper evidence the great floristic richness existent in the Park. The genera *Lafoensia* and *Dahlstedtia*; and the species, *Calyptranthes tricona* were reported for the first time for the Argentine flora (RODRÍGUEZ, 1995; VANNI & RODRÍGUEZ, 1998 and TRESSSENS & RODRÍGUEZ, 1996) and other species poorly represented in herbaria were also found.

The collected specimens which conform a documented data base of the species that compose the subtropical mixed forest, are a contribution to the knowledge of the Flora of Misiones, and may be used to design rational strategies of management and to asses conservation priorities.

Table 1. – Checklist of the Plants collected in the Moconá Park.

| <i>Taxa</i>                                                       | <i>Leg.</i> | <i>Herbaria</i>    |
|-------------------------------------------------------------------|-------------|--------------------|
| <b>MONOCOTYLEDONEAE</b>                                           |             |                    |
| <b>ALISMATACEAE</b>                                               |             |                    |
| <i>Echinodorus grandiflorus</i> (Cham. et Schlecht.) Micheli      | G. 182      | MNES, CTES         |
| <b>AMARYLLIDACEAE</b>                                             |             |                    |
| <i>Hippeastrum iguazuianum</i> (Ravenna) T.H. Dudley & M. William | D. 314      | MNES, B, CORD      |
| <i>Zephyranthes flavissima</i> Ravenna                            | D. 279      | MNES, B, CTES, G   |
| <b>ARACEAE</b>                                                    |             |                    |
| <i>Philodendron bipinnatifidum</i> Schott                         | Obs.        |                    |
| <b>ARECACEAE</b>                                                  |             |                    |
| <i>Syagrus romanzoffiana</i> (Cham.) Glassman                     | Obs.        |                    |
| <b>BROMELIACEAE</b>                                               |             |                    |
| <i>Aechmea calyculata</i> (E. Morren) Bak.                        | R. 709      | MNES, BAB, CTES, G |
| <i>Billbergia nutans</i> H. Wendl. ex Regel                       | P. 36       | MNES, G            |
| <i>Tillandsia stricta</i> Sol.                                    | R. 408      | MNES, CTES         |
| <i>Tillandsia</i> sp.                                             | H. 535      | MNES, CTES, G      |
| <b>CANNACEAE</b>                                                  |             |                    |
| <i>Canna</i> sp.                                                  | De. 90      | MNES, CTES         |
| <i>Canna</i> sp.                                                  | R. 673      | MNES, CTES, G      |

| <i>Taxa</i>                                                              | <i>Leg.</i> | <i>Herbaria</i>    |
|--------------------------------------------------------------------------|-------------|--------------------|
| <b>COMMELINACEAE</b>                                                     |             |                    |
| <i>Commelina diffusa</i> Burm.                                           | G. 184      | MNES, G            |
| <i>Tripogandra elongata</i> (G.F.W. Meyer) Woodson                       | G. 183      | MNES, CTES         |
| <b>CYPERACEAE</b>                                                        |             |                    |
| <i>Carex sellowiana</i> Schlecht.                                        | D. 124      | MNES, G            |
| <i>Cyperus andreanus</i> Maury                                           | R. 665      | MNES, CTES, G      |
| <i>Cyperus iria</i> L.                                                   | S. 835      | MNES, SI           |
| <i>Cyperus prolixus</i> H.B.K.                                           | S. 220      | MNES, CTES         |
| <i>Cyperus rotundus</i> L.                                               | R. 428      | MNES, G            |
| <i>Cyperus</i> sp.                                                       | R. 525      | MNES, G            |
| <i>Eleocharis montana</i> (H.B.K.) Roem. et Schult.                      | S. 806      | MNES, CTES         |
| <i>Fimbristylis</i> sp.                                                  | R. 526      | MNES, G            |
| <i>Rhynchospora corymbosa</i> (L.) Britton                               | S. 203      | MNES, CTES, G      |
| <i>Scleria panicoides</i> Kunth                                          | R. 566      | MNES, SI, JUA, G   |
| <b>HYPOXIDACEAE</b>                                                      |             |                    |
| <i>Hypoxis decumbens</i> L.                                              | G. 185      | MNES, CTES, G      |
| <b>IRIDACEAE</b>                                                         |             |                    |
| <i>Sisyrinchium megapotamicum</i> Malme                                  | D. 260      | MNES, CTES         |
| <b>LILIACEAE</b>                                                         |             |                    |
| <i>Herreria montevidensis</i> Klotz.                                     | R. 572      | MNES, CTES         |
| <b>MARANTHACEAE</b>                                                      |             |                    |
| <i>Calathea</i> sp.                                                      | R. 669      | MNES, CTES, G      |
| <i>Marantha sobolifera</i> L. Andersson                                  | S. 204      | MNES, CTES         |
| <b>MUSACEAE</b>                                                          |             |                    |
| <i>Heliconia</i> sp.                                                     | Obs.        |                    |
| <i>Musa paradisiaca</i> L.                                               | Obs.        |                    |
| <b>ORCHIDIACEAE</b>                                                      |             |                    |
| <i>Brassavola tuberculata</i> Hook.                                      | Obs.        |                    |
| <i>Corymborkis flava</i> (Sw.) O. Kuntze                                 | D. 208      | MNES               |
| <i>Isochilus linearis</i> (Jacq.) R. Br.                                 | S. 206      | MNES, CTES, G      |
| <i>Leptotes unicolor</i> Barb. Rodr.                                     | H. 536      | MNES               |
| <i>Maxillaria chrysantha</i> Barb. Rodr.                                 | P. 45       | MNES, CTES, G      |
| <i>Maxillaria picta</i> Hook.                                            | P. 44       | MNES, G            |
| <i>Miltonia flavescens</i> Lindl.                                        | Obs.        |                    |
| <i>Oncidium longicornu</i> Mutel                                         | S. 181      | MNES, CTES, BAB, G |
| <i>Pleurothallis grobyi</i> Lindl.                                       | Obs.        |                    |
| <i>Pleurothallis</i> sp.                                                 | Obs.        |                    |
| <i>Sophranitis cernua</i> Lindl.                                         | S. 205      | MNES, G            |
| <b>POACEAE</b>                                                           |             |                    |
| <i>Axonopus compressus</i> (Sw.) P. Beauv.                               | H. 522      | MNES, CTES, G      |
| <i>Axonopus compressus</i> (Sw.) P. Beauv. var. <i>jesuiticus</i> Araujo | S. 782      | MNES, CTES         |
| <i>Chaetotropis elongata</i> (H.B.K.) Björkman                           | S. 842      | MNES, CTES, G      |

| <i>Taxa</i>                                                           | <i>Leg.</i> | <i>Herbaria</i>   |
|-----------------------------------------------------------------------|-------------|-------------------|
| <i>Chloris pycnothrix</i> Trin.                                       | S. 847      | MNES, CTES        |
| <i>Chusquea ramossisima</i> Lindm.                                    | Obs.        |                   |
| <i>Cynodon dactylon</i> (L.) Pers. var. <i>dactylon</i>               | S. 794      | MNES, G           |
| <i>Deyeuxia viridiflavescens</i> (Poir.) Kunth                        | D. 111      | MNES, G           |
| <i>Digitaria ciliaris</i> (Retz.) Koeler                              | H. 486      | MNES, CTES, G     |
| <i>Eleusine tristachya</i> (Lam.) Lam.                                | H. 474      | MNES, CTES        |
| <i>Eragrostis airoides</i> Nees                                       | S. 815      | MNES, CTES, G     |
| <i>Eragrostis pilosa</i> (L.) Pal. Beauv.                             | H. 558      | MNES              |
| <i>Ichnanthus pallens</i> (Sw.) Munro ex Benth.                       | D. 131      | MNES, CTES        |
| <i>Ichnanthus tenuis</i> (J. Presl) Hitchc. & Chase                   | G. 139      | MNES, CTES, SI, G |
| <i>Litachne pauciflora</i> (Sw.) P. Beauv.                            | H. 541      | MNES              |
| <i>Merostachys claussenii</i> Munro                                   | Obs.        |                   |
| <i>Olyra humilis</i> Nees Von Esenbeck.                               | H. 500      | MNES, CTES, G     |
| <i>Olyra latifolia</i> L.                                             | S. 863      | MNES, CTES, G     |
| <i>Panicum decipiens</i> Nees ex Trin.                                | S. 796      | MNES, CTES        |
| <i>Panicum dichotomiflorum</i> Michx.                                 | S. 795      | MNES, CTES        |
| <i>Panicum hians</i> Elliott                                          | S. 789      | MNES, CTES        |
| <i>Panicum hirticaule</i> Presl.                                      | D. 275      | MNES, G           |
| <i>Panicum maximum</i> Jacq.                                          | G. 195      | MNES, G           |
| <i>Panicum trichanthum</i> Nees                                       | G. 165      | MNES, SI, G       |
| <i>Panicum pilosum</i> Sw.                                            | D. 134      | MNES, CTES, G     |
| <i>Panicum spathellosum</i> Döll.                                     | S. 836      | MNES, CTES, G     |
| <i>Panicum sabulorum</i> Lam. var. <i>polycladum</i> (Ekman) Palacios | D. 281      | MNES, CTES, G     |
| <i>Paspalum dilatatum</i> Poir.                                       | H. 466      | MNES, CTES, G     |
| <i>Paspalum conjugatum</i> Berg.                                      | S. 817      | MNES, G           |
| <i>Paspalum inaequivalve</i> Raddi                                    | S. 833      | MNES              |
| <i>Paspalum mandiocanum</i> Trin. var. <i>subaequiglume</i> Barreto   | D. 258      | MNES              |
| <i>Paspalum notatum</i> Flügge                                        | S. 816      | MNES, G           |
| <i>Paspalum paniculatum</i> L.                                        | H. 563      | MNES              |
| <i>Paspalum pauciciliatum</i> (Parodi) Herter                         | Obs.        |                   |
| <i>Paspalum urvillei</i> Steud.                                       | H. 520      | MNES, CTES, G     |
| <i>Pennisetum nervosum</i> (Nees) Trin.                               | De. 111     | MNES, G           |
| <i>Pharus lappulaceus</i> Aubl.                                       | D. 129      | MNES, CTES, G     |
| <i>Pseudochinolaena polystachya</i> (H.B.K.) Stapf                    | S. 868      | MNES, G           |
| <i>Setaria parviflora</i> (Poir.) Kerg. var. <i>parviflora</i>        | R. 531      | MNES, CTES, SI, G |
| <i>Sorghum halepense</i> (L.) Persoon                                 | R. 578      | MNES, SI, G       |
| <i>Sorghum</i> cfr. <i>almum</i> Parodi                               | H. 476      | MNES, CTES, G     |
| <i>Sorghum technicum</i> (Koern.) Battandier et Trabut                | S. 843      | MNES, CTES, G     |
| <b>SMILACACEAE</b>                                                    |             |                   |
| <i>Smilax cognata</i> Kunth                                           | R. 924      | MNES              |

| <i>Taxa</i>                                                                         | <i>Leg.</i> | <i>Herbaria</i>        |
|-------------------------------------------------------------------------------------|-------------|------------------------|
| <b>DICOTYLEDONEAE</b>                                                               |             |                        |
| <b>ACANTHACEAE</b>                                                                  |             |                        |
| <i>Justicia brasiliiana</i> Roth.                                                   | D. 116      | MNES, CTES, G          |
| <i>Justicia laevilinguis</i> (Nees) Lindau                                          | S. 822      | MNES, CTES, G          |
| <i>Justicia</i> cfr. <i>squarrosa</i> Griseb.                                       | H. 553      | MNES                   |
| <i>Justicia</i> sp.                                                                 | D. 127      | MNES                   |
| <i>Ruellia sanguinea</i> Griseb.                                                    | R. 532      | MNES, CTES, G          |
| <b>AMARANTHACEAE</b>                                                                |             |                        |
| <i>Alternanthera micrantha</i> R.E. Fries                                           | R. 558      | MNES, CTES, G          |
| <i>Amaranthus quitensis</i> H.B.K.                                                  | G. 155      | MNES, CTES, G          |
| <i>Amaranthus spinosus</i> L.                                                       | De. 94      | MNES, CTES, G          |
| <i>Chamissoa altissima</i> (Jacq.) H.B.K.                                           | R. 524      | MNES, G                |
| <i>Gomphrena elegans</i> Mart. var. <i>elegans</i>                                  | R. 577      | MNES, CTES, G          |
| <i>Hebanthe paniculata</i> Mast.                                                    | R. 678      | MNES, BAB, CTES, G     |
| <i>Iresine diffusa</i> Humb. et Bonpl.                                              | G. 167      | MNES, CTES, G          |
| <b>APIACEAE</b>                                                                     |             |                        |
| <i>Apium leptophyllum</i> (Pers.) F. Muell.                                         | S. 820      | MNES, CTES             |
| <i>Eryngium Ekmanii</i> Wolff                                                       | H. 490      | MNES, CTES, G          |
| <i>Hydrocotyle callicephala</i> Cham. et Schlecht.                                  | R. 559      | MNES, CTES             |
| <b>APOCYNACEAE</b>                                                                  |             |                        |
| <i>Condilocarpon isthmicum</i> (Vell. Conc.) A. DC.                                 | G. 192      | MNES, CTES, G          |
| <i>Condilocarpon rauwolfiae</i> (A. DC.) Mull. Arg.                                 | S. 209      | MNES, CTES, SI         |
| <i>Peltastes peltatus</i> (Vell.) Woodson                                           | D. 289      | MNES, CTES, G          |
| <i>Tabernaemontana catharinensis</i> A. DC.                                         | De. 86      | MNES, G                |
| <b>ARALIACEAE</b>                                                                   |             |                        |
| <i>Dendropanax affinis</i> (Marchal) Gamero & Zuloaga                               | G. 169      | MNES, CTES, G          |
| <i>Schefflera morototoni</i> (Aubl.) Maguire                                        | Obs.        |                        |
| <b>ASCLEPIADACEAE</b>                                                               |             |                        |
| <i>Asclepias curassavica</i> L.                                                     | D. 182      | MNES, CTES, G          |
| <i>Tassadia subulata</i> (Vell.) Font. & Schw.                                      | R. 784      | MNES, CTES, G          |
| <i>Tassadia subulata</i> (Vell.) Font. & Schw. var. <i>subulata</i>                 | De. 98      | MNES, CTES             |
| <i>Tassadia subulata</i> (Vell.) Font. & Schw. var. <i>florida</i> (Vell.) et Schw. | De. 96      | MNES, CTES, G          |
| <b>ASTERACEAE</b>                                                                   |             |                        |
| <i>Ageratum conyzoides</i> L.                                                       | D. 188      | MNES, CTES             |
| <i>Bidens pilosa</i> L.                                                             | H. 491      | MNES, CTES             |
| <i>Coreopsis tinctoria</i> Nutt                                                     | R. 425      | MNES                   |
| <i>Elephantopus mollis</i> H.B.K.                                                   | R. 562      | MNES, G                |
| <i>Melanthera latifolia</i> (Gardn.) Cabrera                                        | R. 554      | MNES, CTES, G          |
| <i>Mikania</i> cfr. <i>involucrata</i> H. et A.                                     | R. 668      | MNES, CTES, G          |
| <i>Mikania micrantha</i> Kunth                                                      | S. 216      | MNES, CTES, G          |
| <i>Mutisia speciosa</i> Hook                                                        | S. 218      | MNES, SI, BAB, CTES, G |
| <i>Pluchea sagittalis</i> (Lam.) Cabrera                                            | R. 419      | MNES, CTES, G          |

| <i>Taxa</i>                                                                        | <i>Leg.</i> | <i>Herbaria</i>   |
|------------------------------------------------------------------------------------|-------------|-------------------|
| <i>Polymnia connata</i> (Spreng.) Blake                                            | S. 223      | MNES, CTES, G     |
| <i>Pterocaulon</i> sp.                                                             | R. 421      | MNES              |
| <i>Solidago chilensis</i> Mayon var. <i>megapotamica</i> (DC.) Cabrera             | R. 534      | MNES, CTES, G     |
| <i>Sonchus asper</i> (L.) Hill.                                                    | G. 166      | MNES              |
| <i>Spilanthes</i> sp.                                                              | S. 791      | MNES, G           |
| <i>Tagetes minuta</i> L.                                                           | D. 183      | MNES, CTES, G     |
| <i>Vernonia cataractarum</i> Hieron.                                               | R. 1005     | MNES, G           |
| <i>Vernonia scorpioides</i> (Lam.) Pers. var. <i>sororia</i> (DC.) Bak.            | R. 420      | MNES, CTES, G     |
| <i>Xanthium cavanillesii</i> Schouw.                                               | R. 427      | MNES, CTES, G     |
| <b>BEGONIACEAE</b>                                                                 |             |                   |
| <i>Begonia cucullata</i> Willd. var. <i>arenosicola</i> (C. DC.) Smith. & Schubert | G. 140      | MNES, CTES, G     |
| <i>Begonia subvillosa</i> Klotzsch.                                                | R. 671      | MNES, CTES, G     |
| <i>Begonia</i> sp.                                                                 | H. 514      | MNES              |
| <b>BIGNONIACEAE</b>                                                                |             |                   |
| <i>Adenocalymma marginatum</i> (Cham.) DC.                                         | D. 194      | MNES, CTES        |
| <i>Arrabidaea caudigera</i> (S. Moore) Gentry -                                    | S. 214      | MNES, CTES, G     |
| <i>Arrabidaea mutabilis</i> Bureau & K. Schum.                                     | G. 196      | MNES, CTES, BAB   |
| <i>Arrabidaea</i> sp.                                                              | P. 49       | MNES              |
| <i>Jacaranda micrantha</i> Cham.                                                   | Obs.        |                   |
| <i>Pyrostegia venusta</i> (Ker-Sawl) Miers                                         | P. 50       | MNES              |
| <i>Pithecoctenium crucigerum</i> (L.) Gentry                                       | D. 113      | MNES, CTES, G     |
| <i>Tabebuia heptaphylla</i> (Vell.) Toledo                                         | Obs.        |                   |
| <b>BOMBACACEAE</b>                                                                 |             |                   |
| <i>Chorisia speciosa</i> St. Hil.                                                  | Obs.        |                   |
| <b>BORAGINACEAE</b>                                                                |             |                   |
| <i>Cordia trichotoma</i> (Vell.) Johnst.                                           | Obs.        |                   |
| <i>Heliotropium transalpinum</i> Vell.                                             | P. 42       | MNES, G           |
| <i>Patagonula americana</i> L.                                                     | Obs.        |                   |
| <b>CACTACEAE</b>                                                                   |             |                   |
| <i>Peireskia aculeata</i> (Plum.) Mill.                                            | G. 144      | MNES, CTES        |
| <i>Rhipsalis cruciformis</i> (Vell.) Castell.                                      | H. 534      | MNES, G           |
| <i>Rhipsalis</i> cfr. <i>pentaptera</i> Pfeiff. et Otto                            | S. 183      | MNES, CTES, SI, G |
| <i>Rhipsalis Houlettiana</i> Lem.                                                  | Obs.        |                   |
| <i>Rhipsalis</i> sp.                                                               | S. 182      | MNES, CTES, G     |
| <b>CAMPANULACEAE</b>                                                               |             |                   |
| <i>Triodanis biflora</i> (R. et P.) Greene                                         | S. 825      | MNES              |
| <i>Wahlenbergia linarioides</i> (Lam.) A.DC.                                       | H. 478      | MNES, CTES, G     |
| <b>CAPPARACEAE</b>                                                                 |             |                   |
| <i>Cleome parviflora</i> H.B.K. subsp. <i>brasiliensis</i> (Weism.) Iltis          | G. 159      | MNES, CTES, G     |
| <i>Cleome viridiflora</i> Schred.                                                  | G. 161      | MNES, CTES        |

| <i>Taxa</i>                                                                       | <i>Leg.</i> | <i>Herbaria</i>   |
|-----------------------------------------------------------------------------------|-------------|-------------------|
| <b>CARICACEAE</b>                                                                 |             |                   |
| <i>Carica quercifolia</i> (St. Hil.) Solms. Lamb.                                 | Obs.        |                   |
| <i>Jacaratia spinosa</i> (Aubl.) A. DC.                                           | Obs.        |                   |
| <b>CARYOPHYLLACEAE</b>                                                            |             |                   |
| <i>Paronychia</i> sp.                                                             | H. 523      | MNES, CTES, G     |
| <b>CELTIDACEAE</b>                                                                |             |                   |
| <i>Celtis iguanaea</i> (Jacquin) Sargent                                          | R. 523      | MNES, G           |
| <i>Celtis triflora</i> R. et P.                                                   | R. 663      | MNES, G           |
| <i>Celtis</i> sp.                                                                 | S. 208      | MNES, CTES, G     |
| <i>Trema micranthum</i> (L.) Blume                                                | D. 102      | MNES, CTES, G     |
| <b>COMBRETACEAE</b>                                                               |             |                   |
| <i>Combretum fruticosum</i> (Loefl.) Stuntz.                                      | R. 567      | MNES, CTES, G     |
| <i>Terminalia australis</i> Camb.                                                 | S. 848      | MNES, CTES, G     |
| <b>CONVOLVULACEAE</b>                                                             |             |                   |
| <i>Ipomoea acuminata</i> (Vahl) Roem et Schult.                                   | H. 510      | MNES, CTES, G     |
| <i>Ipomoea grandifolia</i> (Dam.) O'Donell                                        | H. 481      | MNES, CTES, G     |
| <i>Ipomoea</i> sp.                                                                | G. 176      | MNES              |
| <i>Merremia dissecta</i> (Jacq.) Hall. f. var. <i>edentata</i> (Meissn.) O'Donell | R. 429      | MNES, CTES        |
| <i>Merremia</i> sp.                                                               | D. 201      | MNES              |
| <b>CUCURBITACEAE</b>                                                              |             |                   |
| <i>Cayaponia martiniana</i> (Cogn.) Cogn.                                         | D. 178      | MNES, CTES, G     |
| <i>Fevillea trilobata</i> L.                                                      | D. 196      | MNES, CTES, SI, G |
| <i>Melothria fluminensis</i> Gardn.                                               | D. 191      | MNES, CTES, G     |
| <i>Sicyos polyacanthus</i> Cogn.                                                  | De. 113     | MNES, BAB, G      |
| <b>EUPHORBIACEAE</b>                                                              |             |                   |
| <i>Acalypha communis</i> Muell. Arg.                                              | D. 118      | MNES, CTES, G     |
| <i>Acalypha multicaulis</i> Muell. Arg.                                           | D. 137      | MNES, CTES, G     |
| <i>Actinostemon concolor</i> (Spreng.) Müll. Arg.                                 | S. 867      | MNES, CTES        |
| <i>Alchornea iricurana</i> Cassaretto                                             | S. 221      | MNES, CTES, G     |
| <i>Bernardia pulchella</i> (Baill.) Müell. Arg.                                   | S. 865      | MNES, CTES, G     |
| <i>Croton</i> sp.                                                                 | R. 418      | MNES, CTES, G     |
| <i>Dalechampia stipulacea</i> Muell. Arg.                                         | S. 210      | MNES, BAB         |
| <i>Euphorbia sciadophila</i> Boiss.                                               | D. 261      | MNES, CTES        |
| <i>Manihot grahamii</i> Hook.                                                     | D. 106      | MNES, CTES, G     |
| <i>Phyllanthus caroliniensis</i> Walt.                                            | G. 141      | MNES, CTES, G     |
| <i>Phyllanthus sellowianus</i> Muell. Arg.                                        | D. 278      | MNES, CTES, G     |
| <i>Phyllanthus niruri</i> L.                                                      | R. 925      | MNES              |
| <i>Phyllanthus</i> sp.                                                            | D. 202      | MNES              |
| <i>Ricinus communis</i> L.                                                        | Obs.        |                   |
| <i>Sebastiania brasiliensis</i> Spreng.                                           | S. 801      | MNES, CTES, G     |

| <i>Taxa</i>                                                                         | <i>Leg.</i> | <i>Herbaria</i>   |
|-------------------------------------------------------------------------------------|-------------|-------------------|
| <b>FABACEAE</b>                                                                     |             |                   |
| <i>Acacia nitidifolia</i> Speg.                                                     | H. 509      | MNES, G           |
| <i>Apuleia leiocarpa</i> (Vog.) J. F. Macbr.                                        | Obs.        |                   |
| <i>Bauhinia forficata</i> Link. subsp. <i>pruinosa</i> (Vog.) Fortunato et Wundelin | Obs.        |                   |
| <i>Bauhinia microstachya</i> (Raddi) J. F. Macbr.                                   | G. 149      | MNES, CTES, G     |
| <i>Calliandra selloi</i> (Spreng.) J. F. Macbr.                                     | D. 271      | MNES, G           |
| <i>Dahlstedtia pentaphylla</i> (Taub.) Burk.                                        | R. 1004     | MNES              |
| <i>Dalbergia variabilis</i> Vog.                                                    | H. 525      | MNES, G           |
| <i>Desmodium affine</i> Schlecht.                                                   | D. 277      | MNES              |
| <i>Desmodium incianum</i> DC.                                                       | H. 468      | MNES, CTES, G     |
| <i>Desmodium uncinatum</i> (Jacq.) DC.                                              | H. 472      | MNES, CTES, G     |
| <i>Erythrina falcata</i> Benth.                                                     | Obs.        |                   |
| <i>Holocalyx balansae</i> Mich.                                                     | Obs.        |                   |
| <i>Inga marginata</i> Willd.                                                        | D. 285      | MNES, CTES, G     |
| <i>Lonchocarpus leucanthus</i> Burk.                                                | Obs.        |                   |
| <i>Lonchocarpus muehlbergianus</i> Hassl.                                           | Obs.        |                   |
| <i>Machaerium aculeatum</i> Raddi                                                   | Obs.        |                   |
| <i>Machaerium paraguariense</i> Hassl.                                              | Obs.        |                   |
| <i>Machaerium stipitatum</i> (DC.) Vog.                                             | Obs.        |                   |
| <i>Medicago lupulina</i> L.                                                         | S. 823      | MNES, CTES, G     |
| <i>Mimosa bimucronata</i> (DC.) O.K.                                                | G. 178      | MNES, CTES, G     |
| <i>Mimosa uragüensis</i> Hook. et Arn.                                              | D. 112      | MNES, CTES, G     |
| <i>Mimosa</i> sp.                                                                   | R. 423      | MNES, CTES        |
| <i>Myrocarpus frondosus</i> Allemao                                                 | Obs.        |                   |
| <i>Parapiptadenia rigida</i> (Benth.) Brenam                                        | S. 185      | MNES, CTES, G     |
| <i>Peltophorum dubium</i> (Spreng.) Taub.                                           | S. 186      | MNES, CTES, G     |
| <i>Sesbania virgata</i> (Cav.) Pers.                                                | G. 202      | MNES, CTES, G     |
| <i>Vigna caracalla</i> (L.) Verdcourt                                               | G. 197      | MNES, CTES, G     |
| <b>FLACOURTIACEAE</b>                                                               |             |                   |
| <i>Casearia sylvestris</i> Sw.                                                      | D. 109      | MNES, CTES, G     |
| <b>GESNERIACEAE</b>                                                                 |             |                   |
| <i>Sinningia verticillata</i> (Vell.) Moore                                         | S. 202      | MNES              |
| <b>HYPERICACEAE</b>                                                                 |             |                   |
| <i>Hypericum brasiliense</i> Choisy                                                 | H. 527      | MNES, CTES, SI, G |
| <i>Hypericum connatum</i> Lamarck                                                   | R. 528      | MNES, CTES, G     |
| <b>LAMIACEAE</b>                                                                    |             |                   |
| <i>Hyptis fasciculata</i> Benth.                                                    | H. 493      | MNES, CTES, G     |
| <i>Hyptis mutabilis</i> (Rich.) Briq.                                               | R. 422      | MNES, CTES, G     |
| <i>Hyptis</i> sp.                                                                   | G. 160      | MNES, G           |
| <i>Leonurus sibiricus</i> L.                                                        | G. 163      | MNES, CTES, G     |
| <i>Hoehnea</i> sp.                                                                  | D. 205      | MNES, CTES, G     |
| <i>Scutellaria uliginosa</i> St.Hil.                                                | R. 560      | MNES, CTES, G     |

| <i>Taxa</i>                                                                                              | <i>Leg.</i> | <i>Herbaria</i>    |
|----------------------------------------------------------------------------------------------------------|-------------|--------------------|
| <b>LAURACEAE</b>                                                                                         |             |                    |
| <i>Nectandra lanceolata</i> Nees et Mart. ex Nees                                                        | D. 290.     | MNES, CTES, G      |
| <i>Nectandra megapotamica</i> (Spreng.) Mez                                                              | S. 213      | MNES, CTES, G      |
| <i>Ocotea diospyrifolia</i> (Meiss.) Mez                                                                 | R. 540      | MNES, CTES, G      |
| <b>LOASACEAE</b>                                                                                         |             |                    |
| <i>Blumenbachia urens</i> (Vell.) Urban                                                                  | De. 122     | MNES, G            |
| <b>LOGANIACEAE</b>                                                                                       |             |                    |
| <i>Spigelia humboldtiana</i> Cham. et Schlecht.                                                          | D. 274      | MNES, CTES         |
| <i>Strychnos brasiliensis</i> (Spreng.) Mart.                                                            | R. 943      | MNES, G            |
| <b>LYTHRACEAE</b>                                                                                        |             |                    |
| <i>Cuphea carthagenensis</i> (Jacq.) Macbride                                                            | G. 154      | MNES, CTES, G      |
| <i>Lafoensia nummularifolia</i> St. Hil.                                                                 | R. 1003     | MNES, CTES, SI, G  |
| <b>MALPIGHIACEAE</b>                                                                                     |             |                    |
| <i>Banisteriopsis metallicolor</i> (Juss.) O'Don. et Lourt. var. <i>sericea</i> (Nied.) O'Don. et Lourt. | D. 267      | MNES               |
| <i>Heteropteris argyrophaea</i> Juss.                                                                    | H. 528      | MNES, G            |
| <i>Heteropteris argyrophaea</i> Juss. f. <i>ovata</i> A. Niedenzu                                        | H. 559      | MNES, G            |
| <i>Heteropteris</i> sp.                                                                                  | De. 106     | MNES, G            |
| <i>Mascagnia divaricata</i> (H.B.K.) Nied.                                                               | R. 533      | MNES, CTES, G      |
| <b>MALVACEAE</b>                                                                                         |             |                    |
| <i>Abutilon pictum</i> (Gill.) Walp.                                                                     | D. 204      | MNES, CTES, G      |
| <i>Abutilon umbelliflorum</i> St. Hil.                                                                   | D. 203      | MNES, CTES, G      |
| <i>Bastardiopsis densiflora</i> (Hook. et Arn.) Hassl.                                                   | Obs.        |                    |
| <i>Pavonia sepium</i> St. Hil.                                                                           | D. 207      | MNES, CTES, G      |
| <b>MELASTOMATACEAE</b>                                                                                   |             |                    |
| <i>Leandra regnelli</i> (Triana) Cogn.                                                                   | R. 664      | MNES, BAB, CTES, G |
| <i>Miconia</i> sp.                                                                                       | R. 530      | MNES, CTES, G      |
| <i>Ossaea</i> sp.                                                                                        | D. 105      | MNES, CTES, G      |
| <b>MELIACEAE</b>                                                                                         |             |                    |
| <i>Cabralea canjerana</i> (Vellozo) Martius subsp. <i>canjerana</i>                                      | P. 55       | MNES               |
| <i>Cedrela fissilis</i> Vellozo                                                                          | D. 291      | MNES, CTES, G      |
| <i>Guarea macrophylla</i> Vahl var. <i>spicaeflora</i> (A. Juss.) Pennington                             | H. 550      | MNES, CTES         |
| <i>Trichilia catigua</i> A. Juss.                                                                        | De. 119     | MNES, G            |
| <i>Trichilia elegans</i> A. Juss.                                                                        | S. 855      | MNES, CTES, G      |
| <b>MORACEAE</b>                                                                                          |             |                    |
| <i>Cecropia pachystachya</i> Trecul.                                                                     | Obs.        |                    |
| <i>Ficus luschnathiana</i> (Miq.) Miq.                                                                   | H. 549      | MNES, G            |
| <i>Sorocea bonplandii</i> (Baillon) Burger                                                               | S. 866      | MNES, G            |
| <b>MYRSINACEAE</b>                                                                                       |             |                    |
| <i>Rapanea lorentziana</i> Mez.                                                                          | De. 91      | MNES, CTES, G      |
| <b>MYRTACEAE</b>                                                                                         |             |                    |
| <i>Calycorectes riedelianus</i> O. Berg.                                                                 | G. 175      | MNES, CTES, G      |
| <i>Calyptanthus conccina</i> DC.                                                                         | R. 575      | MNES, CTES, G      |

| <i>Taxa</i>                                          | <i>Leg.</i> | <i>Herbaria</i>    |
|------------------------------------------------------|-------------|--------------------|
| <i>Calyptanthus triconus</i> Legr.                   | H. 539      | MNES, CTES, SI     |
| <i>Calyptanthus</i> sp.                              | D. 101      | MNES, CTES, G      |
| <i>Campomanesia xanthocarpa</i> (Vell.) Johnst.      | Obs.        |                    |
| <i>Eugenia burkartiana</i> (Legr.) Legr.             | R. 565      | MNES, CTES, BAB, G |
| <i>Eugenia hyemalis</i> Camb.                        | D. 185      | MNES, CTES, G      |
| <i>Eugenia uruguayensis</i> Camb.                    | D. 186      | MNES, CTES, G      |
| <i>Plinia trunciflora</i> (Berg.) Kauzal             | Obs.        |                    |
| <b>NYCTAGINACEAE</b>                                 |             |                    |
| <i>Pisonia aculeata</i> L.                           | De. 112     | MNES, G            |
| <b>ONAGRACEAE</b>                                    |             |                    |
| <i>Ludwigia</i> cfr. <i>peruviana</i> (L.) Hara      | R. 417      | MNES, CTES, G      |
| <i>Ludwigia decurrens</i> Walt.                      | R. 549      | MNES, CTES, G      |
| <i>Ludwigia octovalvis</i> L.                        | R. 415      | MNES, CTES, G      |
| <i>Ludwigia</i> sp.                                  | H. 489      | MNES               |
| <b>OXALIDACEAE</b>                                   |             |                    |
| <i>Oxalis cytisioides</i> Mart. ex Zucc.             | S. 808      | MNES, CTES, G      |
| <i>Oxalis glaucifolia</i> Knuth                      | G. 174      | MNES, SI, G        |
| <i>Oxalis Niederleinii</i> Knuth                     | R. 570      | MNES, CTES, G      |
| <i>Oxalis refracta</i> St. Hil.                      | De. 116     | MNES, CTES         |
| <b>PASSIFLORACEAE</b>                                |             |                    |
| <i>Passiflora capsularis</i> L.                      | D. 206      | MNES, CTES, G      |
| <b>PHYTOLACACEAE</b>                                 |             |                    |
| <i>Petiveria alliacea</i> L.                         | S. 198      | MNES               |
| <i>Phytolacca dioica</i> L.                          | Obs.        |                    |
| <b>PIPERACEAE</b>                                    |             |                    |
| <i>Peperomia aceroana</i> C.DC.                      | R. 938      | MNES, CTES, G      |
| <i>Peperomia arifolia</i> Miq.                       | S. 812      | MNES, CTES, G      |
| <i>Peperomia Balansana</i> C.DC.                     | H. 544      | MNES, CTES         |
| <i>Peperomia</i> aff. <i>rotundifolia</i> (L.) Kunth | D. 133      | MNES, CTES         |
| <i>Peperomia urocarpa</i> Fisch. & Mey.              | R. 933      | MNES, CTES, G      |
| <i>Peperomia</i> sp.                                 | D. 93       | MNES, CTES         |
| <i>Piper Gaudichaudianum</i> Kunth                   | S. 840      | MNES, CTES, G      |
| <i>Piper</i> sp.                                     | D. 108      | MNES, CTES, G      |
| <b>POLYGONACEAE</b>                                  |             |                    |
| <i>Polygonum acuminatum</i> Kunth                    | S. 837      | MNES, CTES         |
| <i>Polygonum hydropiperoides</i> Michx.              | G. 157      | MNES, CTES, G      |
| <i>Polygonum punctatum</i> Elliott                   | G. 156      | MNES, CTES, G      |
| <i>Rumex crispus</i> L.                              | S. 830      | MNES               |
| <b>PORTULACACEAE</b>                                 |             |                    |
| <i>Talinum paniculatum</i> (Jacq.) Gaertn.           | G. 164      | MNES, CTES, G      |
| <b>PRIMULACEAE</b>                                   |             |                    |
| <i>Anagallis arvensis</i> L.                         | D. 270      | MNES               |

| <i>Taxa</i>                                                                         | <i>Leg.</i> | <i>Herbaria</i>    |
|-------------------------------------------------------------------------------------|-------------|--------------------|
| <b>RANUNCULACEAE</b>                                                                |             |                    |
| <i>Clematis bonariensis</i> Juss.                                                   | R. 568      | MNES, CTES, G      |
| <b>RHAMNACEAE</b>                                                                   |             |                    |
| <i>Gouania ulmifolia</i> Hook. et Arn.                                              | D. 190      | MNES, CTES, G      |
| <b>ROSACEAE</b>                                                                     |             |                    |
| <i>Rubus</i> cfr. <i>urticaefolius</i> Poir.                                        | D. 104      | MNES, CTES, G      |
| <b>RUBIACEAE</b>                                                                    |             |                    |
| <i>Cephalanthus glabratus</i> (Spreng.) K. Schuman                                  | S. 849      | MNES, CTES, G      |
| <i>Chomelia obtusa</i> Cham. et Schlecht.                                           | D. 187      | MNES, CTES, G      |
| <i>Diodia brasiliensis</i> Spreng.                                                  | S. 828      | MNES, CTES         |
| <i>Diodia hispidula</i> DC.                                                         | R. 557      | MNES, CTES, SI, G  |
| <i>Diodia saponariaefolia</i> (Cham. et Schlecht.) Schum.                           | S. 829      | MNES, CTES         |
| <i>Galianthe laxa</i> (Cham. et Schlecht.) Cabral                                   | R. 573      | MNES, CTES, G      |
| <i>Galianthe</i> sp.                                                                | D. 184      | MNES, G            |
| <i>Geophila repens</i> (L.) Johnston                                                | H. 501      | MNES, CTES         |
| <i>Guettarda uruguensis</i> Cham. et Schlecht.                                      | S. 805      | MNES               |
| <i>Manettia cordifolia</i> Mart. var. <i>glabra</i><br>(Cham. et Schlecht.) Wernham | R. 432      | MNES, CTES, G      |
| <i>Manettia luteo-rubra</i> (Vell.) Benth.                                          | D. 193      | MNES, CTES         |
| <i>Psychotria brevicollis</i> Muell. Arg.                                           | S. 582      | MNES, CTES, G      |
| <i>Psychotria carthagenensis</i> Jacquin                                            | D. 197      | MNES, CTES, G      |
| <i>Psychotria leiocarpa</i> Cham. et Schlecht.                                      | D. 180      | MNES, CTES, BAB, G |
| <i>Psychotria myriantha</i> Muell. Arg.                                             | S. 192      | MNES, CTES, G      |
| <i>Richardia brasiliensis</i> Gómez                                                 | R. 547      | MNES, CTES, G      |
| <i>Rudgea parquoides</i> (Cham.) Muell. Arg.                                        | S. 862      | MNES, CTES, G      |
| <i>Schwenckia blumenaviensis</i> K. Schuman                                         | D. 126      | MNES, CTES, SI, G  |
| <b>RUTACEAE</b>                                                                     |             |                    |
| <i>Balfourodendron riedelianum</i> (Engl.) Engl.                                    | H. 551      | MNES               |
| <i>Citrus reticulata</i> Blanco                                                     | Obs.        |                    |
| <i>Helietta apiculata</i> Benth                                                     | Obs.        |                    |
| <i>Pilocarpus pennatifolius</i> Lem.                                                | D. 117      | MNES, CTES, G      |
| <b>SAPINDACEAE</b>                                                                  |             |                    |
| <i>Cardiospermum grandiflorum</i> Sw.                                               | D. 192      | MNES, CTES, G      |
| <i>Cupania vernalis</i> Camb.                                                       | D. 286      | MNES, CTES, G      |
| <i>Diatenopterix sorbifolia</i> Radlk.                                              | Obs.        |                    |
| <i>Matayba eleagnoides</i> Radlk.                                                   | S. 874      | MNES               |
| <i>Serjania meridionalis</i> Cambess.                                               | D. 195      | MNES, CTES, G      |
| <i>Serjania fuscifolia</i> Radlk.                                                   | R. 666      | MNES, BAB, CTES, G |
| <i>Thinouia ventricosa</i> (L.) Blume                                               | G. 194      | MNES, CTES, SI, G  |
| <i>Thinouia mucronata</i> Radlk.                                                    | S. 219      | MNES, CTES, G      |
| <i>Urvillea uniloba</i> Radlk.                                                      | De. 87      | MNES, BAB, G       |

| <i>Taxa</i>                                                | <i>Leg.</i> | <i>Herbaria</i>    |
|------------------------------------------------------------|-------------|--------------------|
| <b>SAPOTACEAE</b>                                          |             |                    |
| <i>Chrysophyllum gonocarpum</i> (Mart. et Eichler) Engler  | P. 32       | MNES               |
| <i>Chrysophyllum marginatum</i> (Hook. et Arn.) Ralclk.    | R. 535      | MNES, CTES         |
| <b>SCROPHULARIACEAE</b>                                    |             |                    |
| <i>Calceolaria tripartita</i> R. et P.                     | R. 672      | MNES, CTES, G      |
| <i>Mecardonia grandiflora</i> (Benth.) Pennell             | R. 527      | MNES, CTES, G      |
| <i>Scoparia dulcis</i> L.                                  | R. 553      | MNES, CTES, G      |
| <i>Stemodia verticillata</i> (Mill.) Hassl.                | R. 552      | MNES, G            |
| <b>SOLANACEAE</b>                                          |             |                    |
| <i>Cestrum strigillatum</i> R. & P.                        | De. 95      | MNES, G            |
| <i>Cyphomandra</i> sp.                                     | R. 662      | MNES, CTES         |
| <i>Solanum granuloso-leprosum</i> Dunal                    | Obs.        |                    |
| <i>Solanum trachytrichium</i> Bitter                       | R. 674      | MNES, BAB, CTES    |
| <i>Solanum</i> sp.                                         | H. 546      | MNES, CBA          |
| <b>STERCULIACEAE</b>                                       |             |                    |
| <i>Byttneria australis</i> St. Hil.                        | R. 545      | MNES, CTES, G      |
| <b>TILIACEAE</b>                                           |             |                    |
| <i>Corchorus argutus</i> Kunth                             | R. 548      | MNES, CTES, G      |
| <i>Heliocarpus popayanensis</i> H.B.K.                     | De. 123     | MNES, CTES, G      |
| <i>Luehea divaricata</i> Mart.                             | R. 406      | MNES, CTES, G      |
| <b>URTICACEAE</b>                                          |             |                    |
| <i>Boehmeria caudata</i> Sw.                               | S. 212      | MNES, CTES, G      |
| <i>Pilea pubescens</i> Liebm.                              | S. 194      | MNES, CTES, G      |
| <i>Pilea</i> sp.                                           | D. 264      | MNES               |
| <i>Urera aurantiaca</i> Wedd.                              | G. 172      | MNES, SI, G        |
| <b>VERBENACEAE</b>                                         |             |                    |
| <i>Aloysia virgata</i> (R. & P.) A. Juss.                  | D. 273      | MNES               |
| <i>Aloysia virgata</i> (R. & P.) Juss. var. <i>virgata</i> | R. 544      | MNES, CTES, BAB, G |
| <i>Bouchea fluminensis</i> (Vell.) Mold.                   | H. 495      | MNES, G            |
| <i>Lantana</i> sp.                                         | S. 222      | MNES, CTES, G      |
| <i>Stachytarpheta cayennensis</i> (Rich.) Vahl             | H. 480      | MNES, G            |
| <i>Verbena montevidensis</i> Spr.                          | D. 198      | MNES, CTES         |
| <b>VIOLACEAE</b>                                           |             |                    |
| <i>Anchietea parvifolia</i> Hall. F.                       | S. 217      | MNES, CTES, G      |
| <i>Hybanthus communis</i> (St.Hil.) Taub.                  | R. 539      | MNES, G            |
| <i>Hybanthus parviflorus</i> (Mult.) Bait                  | G. 162      | MNES, CTES, G      |
| <i>Hybanthus paraguariensis</i> (Chod.) G.K. Schulze       | R. 538      | MNES, G            |
| <i>Hybanthus bigibbosus</i> (St.Hil.) Hassl.               | H. 560      | MNES               |
| <b>VISCACEAE</b>                                           |             |                    |
| <i>Phoradendron</i> cfr. <i>pruinoseum</i> Orb.            | R. 410      | MNES, CTES, G      |

| <i>Taxa</i>                                                                         | <i>Leg.</i> | <i>Herbaria</i>   |
|-------------------------------------------------------------------------------------|-------------|-------------------|
| <b>VITACEAE</b>                                                                     |             |                   |
| <i>Cissus sulcicaulis</i> (Baker) Planchon                                          | De. 97      | MNES, CTES, G     |
| <i>Cissus verticillata</i> (L.) Nicolson et C.E. Jarvis                             | H. 530      | MNES, CTES        |
| <i>Cissus verticillata</i> (L.) subsp. <i>verticillata</i> Nicolson et C. E. Jarvis | S. 211      | MNES, CTES, G     |
| <i>Cissus</i> sp.                                                                   | R. 541      | MNES, CTES        |
| <b>P T E R I D O P H Y T A</b> (Ferns family and related groups)                    |             |                   |
| <b>ASPLENIACEAE</b>                                                                 |             |                   |
| <i>Asplenium auritum</i> Sw.                                                        | G. 209      | MNES, LP, SI, G   |
| <i>Asplenium claussennii</i> Hieron.                                                | G. 208      | MNES, CTES, G     |
| <i>Asplenium laetum</i> Sw.                                                         | P. 30       | MNES, LP, G       |
| <i>Asplenium delitescens</i> (Maxon) L. D. Gómez x <i>A. laetum</i> Sw.             | G. 204      | MNES, CTES, LP, G |
| <i>Asplenium</i> sp.                                                                | P. 58       | MNES, G           |
| <i>Phyllitis brasiliensis</i> (Sw.) Kuntze                                          | P. 29       | MNES, LP, G       |
| <b>ATHYRIACEAE</b>                                                                  |             |                   |
| <i>Diplazium cristatum</i> (Desrouss.) Alston                                       | G. 205      | MNES, CTES, SI    |
| <b>BLECHNACEAE</b>                                                                  |             |                   |
| <i>Blechnum occidentale</i> L.                                                      | G. 173      | MNES, CTES, G     |
| <i>Blechnum</i> sp.                                                                 | P. 26       | MNES, G           |
| <b>CYATHEACEAE</b>                                                                  |             |                   |
| <i>Alsophila setosa</i> Kaulf.                                                      | G. 219      | MNES              |
| <b>DENNSTAEDTIACEAE</b>                                                             |             |                   |
| <i>Dennstaedtia globulifera</i> (Poir.) Hieron.                                     | G. 135      | MNES, CTES, G     |
| <b>LYCOPODIACEAE</b>                                                                |             |                   |
| <i>Lycopodium</i> sp.                                                               | Obs.        |                   |
| <b>POLYPODIACEAE</b>                                                                |             |                   |
| <i>Campyloneurum major</i> (Hieron. ex Hicken) Lellinger                            | S. 200      | MNES, G           |
| <i>Didymochlaena truncatula</i> (Sw.) J. Sm.                                        | D. 120      | MNES, CTES        |
| <i>Microgramma squamulosa</i> (Kaulf.) de la Sota                                   | S. 184      | MNES, SI, G       |
| <i>Microgramma</i> sp.                                                              | R. 407      | MNES              |
| <i>Niphidium crassifolium</i> (L.) Lellinger                                        | P. 46       | MNES              |
| <i>Phlebodium</i> sp.                                                               | P. 54       | MNES, G           |
| <i>Pecuma filicula</i> (Kaulf.) M. G. Price                                         | P. 35       | MNES              |
| <i>Pecuma pectinatiforme</i> (Lindm.) M.G. Price                                    | S. 199      | MNES, CTES        |
| <i>Pecuma sicca</i> (Lindm.) M.G. Price                                             | D. 99       | MNES, G           |
| <i>Pecuma venturii</i> (de la Sota) M.G. Price                                      | P. 53       | MNES, G           |
| <i>Polypodium loriceum</i> Langsd. & Fisch.                                         | S. 197      | MNES, CTES        |
| <i>Polypodium hirsutissimum</i> Raddi                                               | S. 189      | MNES, CTES        |
| <b>PTERIDACEAE</b>                                                                  |             |                   |
| <i>Adiantopsis chlorophylla</i> (Sw.) Fée                                           | G. 215      | MNES, CTES, G     |
| <i>Adiantum latifolium</i> Lam.                                                     | G. 179      | MNES, CTES, G     |
| <i>Adiantum lorentzii</i> Hieron.                                                   | G. 180      | MNES, CTES, G     |

| <i>Taxa</i>                                                                        | <i>Leg.</i> | <i>Herbaria</i> |
|------------------------------------------------------------------------------------|-------------|-----------------|
| <i>Adiantum thalictroides</i> Willd. ex Schlecht. var. <i>thalictroides</i>        | G. 214      | MNES, CTES, G   |
| <i>Anogramma chaerophylla</i> (Desv.) Link.                                        | R. 785      | MNES, CTES      |
| <i>Doryopteris concolor</i> (Langsd. et Fisch.) Kuhn.                              | G. 206      | MNES, SI, G     |
| <i>Doryopteris nobilis</i> (Moore) C. Chr.                                         | G. 211      | MNES, CTES, G   |
| <i>Doryopteris pedata</i> (L.) Fée var. <i>multipartita</i> (Fée) Tryon            | G. 207      | MNES, SI, G     |
| <i>Doryopteris triphylla</i> (Lam.) H. Chr.                                        | R. 579      | MNES, CTES, G   |
| <i>Doryopteris</i> sp.                                                             | G. 181      | MNES            |
| <i>Hemionitis tomentosa</i> (Lam.) Raddi                                           | S. 811      | MNES            |
| <i>Pteris deflexa</i> Link                                                         | G. 203      | MNES, CTES, G   |
| <i>Pteris denticulata</i> Sw.                                                      | G. 216      | MNES, CTES, G   |
| <b>SCHIZAEACEAE</b>                                                                |             |                 |
| <i>Anemia phyllitidis</i> (L.) Sw.                                                 | G. 134      | MNES, SI, G     |
| <i>Anemia tomentosa</i> (Savigni) Sw. var. <i>anthriscifolia</i> (Schrader.) Mick. | G. 189      | MNES, G         |
| <b>SELAGINELLACEAE</b>                                                             |             |                 |
| <i>Selaginella sulcata</i> (Desv. ex Poir.) Spring. ex Mart.                       | G. 200      | MNES, CTES, G   |
| <i>Selaginella</i> aff. <i>novao-nollandiae</i> (Sw.) Spring.                      | G. 201      | MNES, CTES, SI  |
| <b>THELYPTERIDACEAE</b>                                                            |             |                 |
| <i>Macrothelypteris torresiana</i> (Gaudich.) Ching                                | G. 133      | MNES, CTES, G   |
| <i>Thelypteris</i> sp.                                                             | G. 220      | MNES, G         |
| <b>VITTARIACEAE</b>                                                                |             |                 |
| <i>Vittaria lineata</i> J. Sn.                                                     | P. 33       | MNES            |
| <b>LICHENES</b>                                                                    |             |                 |
| <b>BUELLIACEAE</b>                                                                 |             |                 |
| <i>Buellia</i> cfr. <i>myriocarpa</i> Dnot                                         | R. 941b     | MNES            |
| <b>CALICIACEAE</b>                                                                 |             |                 |
| <i>Calicium</i> sp.                                                                | R. 941      | MNES            |
| <b>CHIODECTONACEAE</b>                                                             |             |                 |
| <i>Chiodecton</i> sp.                                                              | S. 229      | MNES, CTES, G   |
| <b>CLADONIACEAE</b>                                                                |             |                 |
| <i>Cladonia chlorophaea</i> (Flörke ex Sommerf.) Sprengel                          | R. 581      | MNES, CTES, G   |
| <i>Cladonia</i> sp.                                                                | R. 439      | MNES, CTES, G   |
| <b>LECANORACEAE</b>                                                                |             |                 |
| <i>Haematomma puniceum</i> (Sw.) Mass.                                             | R. 942      | MNES            |
| <b>PARMELIACEAE</b>                                                                |             |                 |
| <i>Evermistrum</i> sp.                                                             | R. 437      | MNES, CTES, G   |
| <i>Hypotrachyna immaculata</i> (Kurok.) Hale                                       | R. 940      | MNES            |
| <i>Parmotrema mesotropum</i> (Mull. Arg.) Hale                                     | R. 435      | MNES            |
| <i>Parmotrema sancti-angele</i> (Lyng.) Hale                                       | S. 228      | MNES, CTES, G   |
| <i>Parmotrema tinctorum</i> (Nyl.) Hale                                            | S. 225      | MNES, G         |
| <i>Parmotrema</i> sp.                                                              | S. 228 b    | MNES, CTES      |
| <i>Pleuretella</i> sp.                                                             | S. 231 b    | MNES, CTES      |

| <i>Taxa</i>                                      | <i>Leg.</i> | <i>Herbaria</i> |
|--------------------------------------------------|-------------|-----------------|
| <b>PYXIMACEAE</b>                                |             |                 |
| <i>Heterodermia</i> sp.                          | S. 231 c    | MNES, CTES      |
| <b>STICTACEAE</b>                                |             |                 |
| <i>Sticta</i> sp.                                | R. 436      | MNES, G         |
| <b>TELOSCHISTACEAE</b>                           |             |                 |
| <i>Teloschistes exilis</i> (Michx.) Vain         | R. 438      | MNES            |
| <b>USNEACEAE</b>                                 |             |                 |
| <i>Ramalina celastri</i> (Spreng.) Krog. & Swins | R. 931      | MNES, G         |
| <i>Ramalina peruviana</i> Ach.                   | S. 227      | MNES            |
| <i>Ramalina celastri</i> (Spreng.) Krog & Swins  | R. 433      | MNES            |

## ABBREVIATIONS OF COLLECTORS

D = J. R. Daviña et al.

P = A. Pérez et al.

De = M. Dematteis et al.

R = M. E. Rodríguez et al.

G. = R. Guillén et al

S = G. J. Seijo et al.

H = A. I. Honfi et al.

Table 2. — Specific representativity by family in the Moconá Park.

| <i>Families</i>                                                                | <i>Number of collected species by family</i> | <i>Specific representativity %</i> |
|--------------------------------------------------------------------------------|----------------------------------------------|------------------------------------|
| <b>S P E R M A T O P H Y T A</b>                                               |                                              |                                    |
| <b>A N G I O S P E R M A E</b>                                                 |                                              |                                    |
| POACEAE                                                                        | 40                                           | 9.73                               |
| FABACEAE                                                                       | 27                                           | 6.56                               |
| ASTERACEAE, RUBIACEAE                                                          | 18                                           | 4.37                               |
| EUPHORBIACEAE                                                                  | 16                                           | 3.89                               |
| ORCHIDACEAE                                                                    | 11                                           | 2.67                               |
| CYPERACEAE                                                                     | 10                                           | 2.43                               |
| MYRTACEAE, SAPINDACEAE                                                         | 9                                            | 2.18                               |
| BIGNONIACEAE, PIPERACEAE                                                       | 8                                            | 1.94                               |
| AMARANTHACEAE                                                                  | 7                                            | 1.70                               |
| LABIATAE, VERBENACEAE                                                          | 6                                            | 1.45                               |
| ACANTHACEAE, CACTACEAE,<br>CONVOLVULACEAE, MELIACEAE, SOLANACEAE,<br>VIOLACEAE | 5                                            | 1.21                               |
| <b>P T E R I D O P H Y T A</b>                                                 |                                              |                                    |
| PTERIDACEAE                                                                    | 13                                           | 3.16                               |
| POLYPODIACEAE                                                                  | 12                                           | 2.91                               |
| ASPLENIACEAE                                                                   | 6                                            | 1.45                               |
| <b>L I C H E N</b>                                                             |                                              |                                    |
| PARMELIACEAE                                                                   | 7                                            | 1.70                               |

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