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Vascular Flora of the Mata dos Godoy State Park, Londrina, Paraná, Brazil

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Abstract: The Mata dos Godoy State Park (MGSP) is a remnant of the Seasonal Semideciduous Forest in northern Paraná, with an area of 690 hectares. The MGSP flora inventory was produced from a survey of herbarium specimens deposited in the FUEL Herbarium. The result was the catalogue of 508 species, among which we screened 40 specimens of ferns and lycophytes, and the remainder was classified as angiosperms. The two richest families among the ferns were Polypodiaceae and Pteridaceae, whereas among the arboreal angiosperms, Leguminosae and Myrtaceae stood out, confirming the floristic profile of the lower Tibagi River basin. Among the species, 12 can be classified as naturalized and 21 are among the threatened species in the state of Paraná, besides the inclusion of species whose collections were reduced in Brazil. These results indicate the MGSP as an important area for the representation of the Seasonal Semideciduous Forest in northern Paraná.

Introduction

The Atlantic Forest is composed of a coastal forest or Atlantic Rainforest, a seasonal type of the Atlantic Semideciduous Forest (Morellato and Haddad 2000), and the *Araucaria* Mixed Forest (Oliveira-Filho and Fontes 2000). The Atlantic Forest is considered a biodiversity hotspot (Myers *et al.* 2000) that originally covered an area around 150 million ha, which extended almost continuously northwards, from the state of Rio Grande do Sul to the state of Rio Grande do Norte. Nowadays, only 11.7% of the original area remains (Ribeiro *et al.* 2009).

In the northern region of the Paraná State, more specifically in the Lower Tibagi River basin, where the Seasonal Semideciduous Forest predominates, only 5.72% of the original vegetation cover was maintained (IPARDES 2010), almost always in the form of small fragments. However, in the municipality of Londrina, there is a preserved remnant known as "Mata dos Godoy State Park" (MGSP), the best known and one of the most important forest fragments in northern Paraná (Vicente 2006), which is also considered an area of Atlantic forest of extreme biological importance for the conservation of biodiversity (MMA/SBF 2002).

Over the past three decades, hundreds of samples (vouchers) of vascular plant specimens have been deposited in the Herbarium of State University of Londrina (FUEL). According to Prather *et al.* (2004), herbarium samples are the basis for floristic inventories. These, in turn, describe the richness of a region in several qualitative ways, such as the number of vascular plant species and families, proportion of the total species associated with each life habit, dispersal and pollination syndrome, and also investigate occurrences of threatened species.

The FUEL collection includes vouchers from previous surveys about the vascular flora of the Mata dos Godoy State Park (Soares-Silva and Barroso 1992; Silveira 1993, unpublished data; Silveira 2006; Soares-Silva *et al.* 1998; Silva and Soares-Silva 2000). However, the sampling effort of these surveys was concentrated on the arboreal and shrubbing habits, and a complete floristic inventory of the MGSP has not yet been accomplished.

The main purpose of this article is to make a qualitative description of the MGSP vascular plant richness through the organization of an inventory with data from the material deposited in the Herbarium of the State University of Londrina (FUEL).

Materials and Methods

The Mata dos Godoy State Park (MGSP) is a remnant of the Seasonal Semideciduous Forest located in the municipality of Londrina, in the Lower Tibagi River basin, northern Paraná (23°26' S and 51°15' W), covering about 690 hectares, which was part of the Santa Helena Farm, property of the Godoy Family until 1989, when the Government of the Paraná State acquired the area and transformed it into a park (Figure 1).

The relief is spread throughout a plateau. The soil is of the red nitosol type, well structured in its northern portion. The plateau slope extends southward where there are basalt rock outcrops that end in the Apertados Stream valley bottom, with the presence of some flood plain terraces with fluvic neosol soil with a clayey texture associated with red nitosol (IAP 2002). According to the Köppen classification, the climate in the region is humid subtropical (Cfa), although there are two defined precipitation seasons, with a historical rainfall average (1976-2011) of 1604 mm annually, varying between a minimum of 52,5 mm during the winter (August) and a maximum of 218,5 mm during the summer (January), and a historical average temperature of 21,1ºC, with a maximum of 23,9ºC (January) and a minimum of 16,8ºC (June) (IAPAR 2012).

The park consists of primary and secondary seasonal forests, besides the riparian forest and reforested areas,

as illustrated in Vicente (2006). The survey of the park vascular flora was accomplished through the analysis of herbarium specimens deposited in the Herbarium of the State University of Londrina (FUEL), which were located with the help of the database generated by the program BRAHMS (Botanical Research and Herbarium Management System). The MGSP collection included 1931 herbarium specimens originated in a time interval between 1984 and 2013, of which 102 samples were collected by the authors from September 2009 to December 2010 and also incorporated in the FUEL Herbarium, with the authorization of the Environmental Institute of Paraná (portuguese abreviation IAP), which manages the park (IAP Permit n° 194/09). These samples were mostly of herbaceous that were collected in the open trails existing in the park. The herbarium specimens were identified or revised after consulting the literature and the experts, although not all of them could be observed because some had been loaned to other institutions.

The classification of the plant habit followed the criteria proposed by Simpson (2010), with minor modifications, for example, the habits lianas and vines were both treated as climbers. After obtaining the list of vascular plant species from the database, the abbreviations of the authors' names were checked against the *Lista de Espécies da Flora do Brasil* (List of Species of the Brazilian Flora) (Forzza *et al.* 2013) for consistency. The classifications of the families followed the APG III (2009) for angiosperms; Smith *et al.* (2006) for non-eupolypodiod ferns, while the treatment developed by Rothfels *et al.* (2012) was adopted for eupolypodiod ferns. In order to recognize the threatened species from the park species list, we consulted the *Livro Vermelho da Flora Ameaçada de Extinção do Estado do Paraná* (Red Book of the Threatened Flora of the State of Paraná) (Haschtbach and Ziller 1995) and checked the *Lista Oficial das Espécies da Flora Brasileira Ameaçada de Extinção* (Official List of the Brazilian Threatened Flora Species) (MMA 2008). The exotic naturalized plants *sensu* Moro et al. (2012) were catalogued according to the *Lista de Espécies da Flora do Brasil* (List of Species of the Brazilian Flora) (Forzza *et al.* 2013).

Results and Discussion

Up to the present, 508 vascular species from the collections existing in the park were catalogued. Among those, 40 species are ferns or lycophytes, distributed into 12 families, and 468 are angiosperms species included in 79 families (Table 1).

The richest families among ferns were Polypodiaceae (9 species), Pteridaceae (8), Aspleniaceae (7), and Dryopteridaceae (5), while seven families were represented by a single species each and only one species of the Selaginellaceae family represented the lycophytes.

The richness of the ferns and lycophytes in the MGSP (40 species) is smaller than in other formations, such as the *Araucaria* Mixed Forest. Schwartsburd and Labiak (2007) catalogued 152 fern species in the Vila Velha State Park (Ponta Grossa, Paraná), an area of *Araucaria* Mixed Forest characterized by relicts of grassland and sandstone outcrops. Azevedo and Vieira (2008) catalogued 50 species in their inventory of the herbaceous and shrub plants along the Varanal Stream (300 m along its 9.2 km long), an area of Seasonal Semideciduous Forest and *Araucaria* Mixed Forest in the city of Telêmaco Borba (Paraná). Dittrich *et al.* (2005), found 81 species in a sample of one hectare of the Atlantic rainforest in the Pico do Marumbi State Park, also in the state of Paraná. In the Jacupiranga State Park (150,000 ha of area), in southern São Paulo State, the number of taxa was 212 among species, subspecies and varieties collected in variations of the Atlantic Rainforest, *Restinga* and *Caxetal* at altitudes from 0-800 m (Salino and Almeida 2008). Thus, the low quantity of fern species and the record of a single species of lycophyte could be ascribable to the location of the MGSP, an area with few watercourses, besides the inconstancy of the amount of precipitation and air humidity, factors that, according to Dittrich *et.al.* (2005) directly influence the richness of this group.

The fern families with the highest richness in the MGSP were the same as in other regions, such as the two turfs of the Vassununga State Park, in the municipality Santa Rita do Passa Quatro, state of São Paulo (Colli *et al.* 2004a), an area where the Seasonal Semideciduous Forest and Riparian Forests predominate, with three of the four richest families in common (Polypodiaceae, Pteridaceae and Aspleniaceae). Another survey in the forest reserve of Bebedouro (state of São Paulo), also an area of Seasonal Semideciduous Forest (Colli *et al.* 2004b), revealed that the two most representative families were the same as the ones found in the MGSP. In the Varanal Stream, Paraná State (Azevedo and Vieira 2008), the situation is similar to that occurring in the MGSP, where Polypodiaceae was the family with the highest number of species, whereas Dryopteridaceae, with the second highest number of species in these locality, was the fourth most representative family in the Mata dos Godoy State Park.

From the angiosperms registered, 62 species are monocots included in ten families, and Orchidaceae is the richest family, with 21 species, followed by Poaceae (17), Commelinaceae (7), Bromeliaceae (5), Arecaceae (3), Marantaceae (3) and Cyperaceae (2). Amaryllidaceae, Cannaceae, Dioscoreaceae and Smilacaceae have one species each. Among the eudicots, 365 species were found in 64 families: Leguminosae (with 39 species, and its subfamily Papilionoideae with the highest number of representatives, 19 species), Asteraceae (24), Solanaceae (23), Myrtaceae

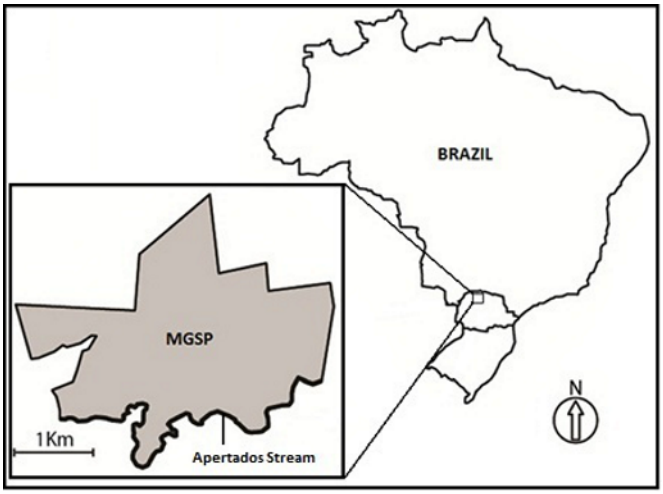

Figure 1. Localization of Mata dos Godoy State Park (gray area) in the Paraná state, Brazil.

(23), Rubiaceae (22), Bignoniaceae (18), Euphorbiaceae (17), Apocynaceae (15) stood out, whereas 21 families contained only one species. For the basal angiosperms, 41 species were found in four families, among which Piperaceae and Lauraceae were the main families with 26 and 10 species, respectively.

Among climbers, Bignoniaceae (16 species), Apocynaceae (10), Asteraceae (8) and Sapindaceae (8) were the most representative families, while the richest genera were *Mikania* (5), *Forsteronia* (4) and *Fridericia* (4).

For the climbing component, families such as Bignoniaceae and Sapindaceae also presented high richness in other surveys conducted in seasonal forests (Udulutsch *et al.* 2004; Rezende and Ranga 2005; Tibiriçá *et al.* 2006; Udulutsch *et al.* 2010; Carneiro and Vieira 2012). However, in some of these surveys, the families Convolvulaceae, Malpighiaceae and Leguminosae presented considerable richness, which did not occur in the MGSP. The explanation for this may lie in the fact that the sampling effort employed to acquire the knowledge of the climbing habit in the MGSP has been smaller than that made in other areas. In adition, somes species catalogued in these works do not occur in the region where the MGSP is situated, as in the case of the Malpighiaceae species *Banisteriopsis argyrophylla* (A.Juss.) B.Gates; *Banisteriopsis oxyclada* (A.Juss.) B.Gates; and *Mascagnia cordifolia* (A.Juss.) Griseb; besides the Celastraceae species *Anthodon decussatum* Ruiz and Pav., whose geographic distributions can be seen on the *Lista das Espécies da Flora do Brasil* database (Forzza *et al.* 2013).

Among shrubs, Piperaceae (16 species), Rubiaceae (11) and Solanaceae (11), and *Piper* (16), and *Psychotria* (8) and *Solanum* (7), were the families and genera with the greatest number of species. As for herbs, the richest families were Poaceae (16 species), Pteridaceae (8) and Commelinaceae (7), and the genus *Olyra* stood out with four species.

The richest families in epiphytic species were Orchidaceae (14 species), Polypodiaceae (8), Piperaceae (8) and Bromeliaceae (5). The most representative genera were *Peperomia* (8), *Tillandsia* (5) and *Asplenium* (4). Only two species of *Phoradendron* (Santalaceae) represented the hemiparasites.

The number of species must be higher among epiphytes, especially Orchidaceae, considering that the Seasonal Semideciduous Forest, although fragmented and drier than rainforests, can provide conditions for a considerable richness of species belonging to this habit, as demonstrated by Rogalski and Zanin (2003), who cataloged 70 vascular epiphytes species in a disturbed area of seasonal forest of the Uruguai River (Rio Grande do Sul state). This is substantiated by Tozzo and Carvalho (2007), who found 38 species of epiphytic orchids in the fragments of the Seasonal Semideciduous Forest in the municipality of Congonhinhas, also in northern Paraná. Although some epiphytic species catalogued in the MGSP were collected from tall trees (about 20m tall or more), there are other epiphytic species (most of them orchids) living in emergent tree species, such as *Aspidosperma polyneuron* Müll.Arg., which remain unsampled.

The insufficient sampling is not limited to the orchids. Species of families such as Araceae were not collected, although sterile plants were observed. The reason for that was the focus of the researches over the latest years, which was concentrated mainly on trees and shrubs.

Regarding arboreal species, there were 197 species catalogued, and the families with the greatest number of tree species were Leguminosae (29 species), Myrtaceae (23), Euphorbiaceae (12), Meliaceae (11), and Lauraceae (10), while the richest genera were *Eugenia* (10), *Ocotea* (6), *Trichilia* (6), and *Casearia*, *Ficus* and *Macherium* with five species each. However, two tree species included in the list were only observed but not collected due to their great height.

For the arboreal angiosperms, the families in the park confirmed the floristic profile of the Lower Tibagi River basin (Dias *et al.* 2002), highlighting Myrtaceae as the second richest family, followed by Leguminosae. This pattern corroborates the results observed in the tropical seasonal forests of the Brazilian Northeastern and Southeastern regions (Oliveira-Filho *et al.* 2006) although the MGSP is located in a geographical transition to the subtropic, where Myrtaceae overcomes Leguminosae (Oliveira-Filho *et al.* 2006). However, species reported to occur in the Atlantic Rainforest in the state of Paraná were found in the MGSP. For example, there is a single record for the species *Davilla rugosa* Poir., which means an expansion in its known geographic occurrence in the state, since the collections in the state of Paraná are restricted to the coastal and Serra do Mar range, with another record of their occurrence in a fragment of the Paraná River riparian forest, in the Porto Rico municipality, northwest of Paraná (Souza and Monteiro 2005), and in the municipality of Tuneiras do Oeste, also in the northwest of Paraná (CRIA 2013). In the Paraná State, *Mikania clematidifolia* Dusén has its collections restricted to both the coastal and the first plateau areas (CRIA 2013). Both species were collected only once, and may belong to small populations, confirming a floristic peculiarity of the park and the importance of its conservation for rare species in northern Paraná.

The comparison between the flora of the MGSP to an even more urbanized area of the Seasonal Semideciduous Forest, the Arthur Thomas Municipal Park (ATMP), located in the municipality Londrina (Cotarelli *et al.* 2008), resulted in some dissimilarities. The latter harbors the two richest families: Asteraceae, with 46 species (almost twice as many species as those from the Mata dos Godoy State Park) and Leguminosae, with 44, while Myrtaceae held the sixth position. The highest level of Asteraceae richness can be ascribed to the fact that the ATMP is most subjected to anthrophic actions, since there are few species typical of this family in the interior of dense forests (Souza and Lorenzi 2012). Another evidence of the advanced stage of regeneration of the MGSP was found by Silva and Soares-Silva (2000), who observed that 67% of the arboreal species of this park had the zoochoric dispersion syndrome. Lastly, the epiphytic richness of the MGSP (45 species of epiphytic plants catalogued, 14 of which are orchids) was greater than that found in the ATMP, where only one species of Orchidaceae from a total of five epiphytic species were catalogued (Cotarelli *et al.* 2008). Apart from the sampling effort, the lower epiphytic richness in the ATMP is related to the greater level of anthropic impact undergone. This

pattern was also observed in another urbanized Seasonal Semideciduous Forest fragment in nothern Paraná (Dettke *et al.* 2008).

Considering the rarity of the species and the critical level of the conservation status, *Exostyles godoyensis* Soares-Silva & Mansano and *Ruprechtia paranensis* Pendry should be kept under surveillance in conservation programs. *E. godoyensis* was described in 2004 based on the material collected in the MGSP. There was another sample of this species in the municipality of Conselheiro Mairinck (Paraná) (Soares-Silva and Mansano 2004), and in the Parapanema Ecological Station (southeastern São Paulo state) (Cielo-Filho *et al.* 2009). Apparently, few young individuals are found in the MGSP, however in the municipality of Jundiaí do Sul, in northern Paraná, adult individuals and seedlings were located in two fragments of the Seasonal Semideciduous Forest (personal observation). Projects that intend to use seedlings of these populations in the vicinity of the MGSP may provide for the maintenance of the species genetic variability. *R. paranensis* was described in 2003, based not only on materials from the MGSP, but also from other regions of Paraná and Santa Catarina (Pendry 2003). A herbaceous species, *Schwendenera tetrapyxis* K.Schum, was also found in populations close to the Apertados Stream, in the southeastern side of the park, whose records have been limited to three collections so far. The last one occurred in 1986 (Bacigalupo and Cabral 2007).

As a consequence, plans addressed to the maintenance of these species in the MGSP and in other forest fragments in northern Paraná must be created aiming to preserve species genetic variability.

Regarding the threatened species, 21 species were found. Among those, 15 are considered rare, three vulnerable and three endangered (Table 1), in accordance with the *Livro Vermelho da Flora Ameaçada de Extinção do Estado do Paraná* (Hatschbach and Ziller 1995). In line with the new *Lista Oficial das Espécies da Flora Brasileira Ameaçada de Extinção* (MMA 2008), there was only one species threatened, *Euterpe edulis* Mart. ("Palmito-juçara"). The family with the highest number of species in this condition is Leguminosae (with four species), followed by Orchidaceae, with two species. Unfortunately, there are no fern species included in this category due to the absence of data on the conservation status of fern plants in the Red Book of the Threatened Flora of the State of Paraná.

Paiva (2006) listed 19 "exotic" species, but did not file any voucher of the species he mentioned. There are currently vouchers of 12 naturalized species (Table 1) deposited in the aforementioned herbarium, but populations considered invasive (*sensu* Schneider 2007) were not observed. *Megathyrsus maximus* (Jacq.) B.K.Simon & S.W.Jacobs is spread in the understory of reforested areas while the other species were collected near the Apertados Stream, on the edges of the park and along a trail in the northern portion of the park, which are open areas accessed by visitors. For the State of Paraná, Rodolfo *et al.* (2008), listed 15 "exotic" species along the 9 km of the Poço Preto trail, in the Iguaçu National Park (Foz do Iguaçu, Paraná), and Carpanezzi (Environmental Institute of Paraná, unpublished data) registered 64 "exotic" species in the Vila Velha State Park (Ponta Grossa, Paraná). When compared to these studies, the lower number of naturalized species in the MGSP indicates the quality of the conservation in this fragment.

In order to avoid a prolonged contact with anthropogenic environments, which may result in an increase in the number and range of invasive species, causing the extinction of native species, the MGSP needs studies aimed to determine the long-term viability of the species populations, together with management actions, such as the creation of reforestation areas in its surroundings.

Finally, the park comprises a considerable flora, with rare and endangered species, including those that were unknown until recently, and few naturalized species, featuring the MGSP as an important fragment for the maintenance of the floristic diversity in northern Paraná.

Table 1. Vascular flora list of the Mata dos Godoy State Park (MGSP), Londrina, Paraná, Brazil.

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Ferns and lycophytes			
Anemiaceae			
Anemia phyllitidis (L.) Sw.	10016	Herbaceous	
Aspleniaceae			
Asplenium abscissum Willd.	10761	Herbaceous	
Asplenium auriculatum Sw.	10036	Epiphyte	
Asplenium claussenii Hieron.	10044	Herbaceous	
Asplenium inaequilaterale Willd.	48331	Herbaceous	
Asplenium mucronatum C.Presl	10047	Epiphyte	
Asplenium scandicinum Kaulf.	8816	Epiphyte	
Asplenium stuebelianum Hieron.	10040	Epiphyte	
Athyriaceae			
Diplazium cristatum (Desr.) Alston	10030	Herbaceous	
Blechnaceae			
Blechnum binervatum subsp. *acutum* (Desv.) R.M.Tryon & Stolze	21464	Epiphyte	
Cyatheaceae			
Alsophila setosa Kaulf.	10031	Tree	
Dennstaedtiaceae			
Dennstaedtia globulifera (Poir.) Hieron.	10024	Herbaceous	

Table 1. *Continued.*

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Dryopteridaceae			
Ctenitis submarginalis (Langsd. & Fisch.) Ching	48390	Herbaceous	
Didymochlaena truncatula (Sw.) J.Sm.	3707	Herbaceous	
Lastreopsis effusa (Sw.) Tindale	10023	Herbaceous	
Megalastrum connexum (Kaulf.) A.R.Sm. & R.C.Moran	10032	Herbaceous	
Megalastrum crenulans (Fée) A.R.Sm. & R.C.Moran	10039	Herbaceous	
Polypodiaceae			
Campyloneurum acrocarpon Fée	11787	Herbaceous	
Campyloneurum nitidum (Kaulf.) C.Presl	8836	Epiphyte	
Campyloneurum rigidum J.Sm.	22276	Epiphyte	
Microgramma lindbergii (Mett. ex Kuhn) de la Sota	10033	Epiphyte	
Microgramma squamulosa (Kaulf.) de la Sota	22280	Epiphyte	
Pecluma sicca (Lindm.) M.G.Price	47041	Epiphyte	
Pecluma truncorum (Lindm.) M.G.Price	10043	Epiphyte	
Pleopeltis pleopeltifolia (Raddi) Alston	8805	Epiphyte	
Pleopeltis squalida (Vell.) de la Sota	22277	Epiphyte	
Pteridaceae			
Adiantopsis chlorophylla (Sw.) Fée	10019	Herbaceous	
Adiantopsis radiata (L.) Fée	25361	Herbaceous	
Adiantum tetraphyllum Humb. & Bonpl. ex Willd.	11790	Herbaceous	
Doryopteris concolor (Langsd. & Fisch.) Kuhn	30228	Herbaceous	
Doryopteris nobilis (T.Moore) C.Chr.	25362	Herbaceous	
Doryopteris pentagona Pic.Serm.	48338	Herbaceous	
Pteris deflexa Link	10022	Herbaceous	
Pteris denticulata Sw.	25360	Herbaceous	
Selaginellaceae			
Selaginella sulcata (Desv. ex Poir.) Spring	47034	Herbaceous	
Tectariaceae			
Tectaria incisa Cav.	11788	Herbaceous	
Thelypteridaceae			
Macrothelypteris torresiana (Gaudich.) Ching	10015	Herbaceous	Naturalized
Thelypteris dentata (Forssk.) E.P.St.John	44997	Herbaceous	Naturalized
Thelypteris hispidula (Decne) C.F.Reed	10021	Herbaceous	
Thelypteris scabra (C.Presl.) Lellinger	48354	Herbaceous	
Angiosperms			
Acanthaceae			
Aphelandra longiflora (Lindl.) Profice	22874	Shrub	
Justicia brasiliana Roth	900	Shrub	
Justicia carnea Lindl.	2204	Shrub	
Justicia lythroides (Nees) V.A.W.Graham	715	Shrub	Rare
Justicia sp.	5583	Shrub	
Mendoncia velloziana Mart.	2206	Climber	
Ruellia angustiflora (Nees) Lindau ex Rambo	1357	Shrub	
Achatocarpaceae			
Achatocarpus praecox Griseb.	20135	Tree	Rare
Amaranthaceae			
Altenanthera tenella Colla	749	Herbaceous	
Amaranthus spinosus L.	3377	Herbaceous	Naturalized
Chamissoa acuminata Mart.	2190	Herbaceous	
Chamissoa altissima (Jacq.) Kunth	8304	Climber	
Hebanthe eriantha (Poir.) Pedersen	2209	Climber	
Iresine diffusa Humb. & Bonpl. ex Willd.	733	Climber	
Amaryllidaceae			
Hippeastrum reticulatum Herb.	51703	Herbaceous	
Anacardiaceae			
Astronium graveolens Jacq.	11924	Tree	Rare
Schinus terebinthifolius Raddi	20787	Tree	
Annonaceae			
Annona cacans Warm.	1369	Tree	
Annona sylvatica A.St.-Hil.	12310	Tree	
Duguetia lanceolata A.St.-Hil.	11330	Tree	

Table 1. *Continued.*

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Apocynaceae			
Araujia sericifera Brot.	2486	Climber	
Asclepias curassavica L.	6184	Shrub	
Aspidosperma polyneuron Müll.Arg.	11388	Tree	Rare
Condylocarpon isthmicum (Vell.) A.DC.	817	Climber	
Ditassa sp.	2196	Climber	
Fischeria stellata (Vell.) E.Fourn.	9046	Climber	
Forsteronia pilosa Müll.Arg.	8789	Climber	
Forsteronia refracta Müll.Arg.	3421	Climber	
Forsteronia rufa Müll.Arg.	8232	Shrub	
Forsteronia thyrsoidea (Vell.) Müll.Arg.	2185	Climber	
Orthosia sp.	9474	Climber	
Peltastes peltatus (Vell.) Woodson	8783	Climber	
Prestonia coalita (Vell.) Woodson	2216	Climber	
Rauvolfia sellowii Müll.Arg.	8800	Tree	
Tabernaemontana catharinensis A.DC.	27485	Tree	
Aquifoliaceae			
Ilex brevicuspis Reissek	11900	Tree	
Araliaceae			
Aralia warmingiana (Marchal) J.Wen.	10239	Tree	
Hydrocotyle leucocephala Cham. & Schltdl.	46479	Herbaceous	
Arecaceae			
Euterpe edulis Mart.	9421	Tree (palms)	
Geonoma schottiana Mart.	9596	Tree (palms)	
Syagrus romanzoffiana (Cham.) Glassman	8187	Tree (palms)	
Asteraceae			
Acanthospermum australe (Loefl.) Kuntze	7478	Herbaceous	
Austroeupatorium inulifolium (Kunth) R.M.King & H.Rob.	648	Shrub	
Bidens pilosa L.	3093	Herbaceous	Naturalized
Chaptalia nutans (L.) Pol.	3403	Herbaceous	
Chromolaena maximilianii (Schrad. ex DC.) R.M.King & H.Rob.	650	Shrub	
Critonia morifolia (Mill.) R.M.King & H.Rob.	2250	Shrub	
Erechtites valerianifolius (Link ex Spreng.) DC.	2478	Herbaceous	
Lepidaploa balansae (Hieron.) H.Rob.	1302	Climber	
Mikania burchellii Baker	9376	Climber	
Mikania clematidifolia Dusén	9600	Climber	
Mikania hemisphaerica Sch.Bip. ex Baker	9375	Climber	
Mikania lundiana DC.	4032	Climber	
Mikania micrantha Kunth	4366	Climber	
Parthenium hysterophorus L.	3072	Herbaceous	Naturalized
Piptocarpha sellowii (Sch.Bip.) Baker	717	Climber	
Podocoma notobellidiastrum (Griseb.) G.L.Nesom	47037	Herbaceous	
Senecio brasiliensis (Spreng.) Less.	1360	Shrub	
Solidago chilensis Meyen	1825	Herbaceous	
Synedrella nodiflora (L.) Gaertn.	2461	Shrub	
Trixis sp.	2249	Climber	
Vernonanthura brasiliana (L.) H.Rob.	3070	Shrub	
Vernonanthura divaricata (Spreng.) H.Rob.	9092	Tree	
Vernonanthura puberula (Less.) H.Rob.	9379	Tree	
Vernonanthura subverticillata (Sch.Bip. ex Baker) H.Rob.	1817	Shrub	
Balsaminaceae			
Impatiens walleriana Hook.f.	48855	Herbaceous	Naturalized
Bignoniaceae			
Amphilophium crucigerum (L.) L.G.Lohmann	2223	Climber	
Bignonia campanulata Cham.	8759	Climber	
Bignonia sciuripabula (K.Schum.) L.G.Lohmann	35023	Climber	
Cuspidaria convoluta (Vell.) A.H.Gentry	2143	Climber	
Dolichandra hispida (DC.) L.M.Fonseca & L.G.Lohmann	8763	Climber	
Dolichandra quadrivalvis (Jacq.) L.G.Lohmann	6182	Climber	
Dolichandra unguis-cati (L.) L.G.Lohmann	8763	Climber	
Fridericia dichotoma (Jacq.) L.G.Lohmann	2225	Climber	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Fridericia leucopogon (Cham.) L.G.Lohmann	4199	Climber	
Fridericia mutabilis (Bureau & K.Schum.) L.G.Lohmann	8224	Climber	
Fridericia platyphylla (Cham.) L.G.Lohmann	1355	Climber	
Handroanthus crysotrichus (Mart. ex DC.) Mattos	9403	Tree	
Mansoa difficilis (Cham.) Bureau & K.Schum.	741	Climber	
Pyrostegia venusta (Ker Gawl.) Miers	1283	Climber	
Stizophyllum perforatum (Cham.) Miers	747	Climber	
Tynanthus elegans Miers	1826	Climber	
Tynanthus micranthus Corr.Mello ex K.Schum.	2226	Climber	
Zeyheria tuberculosa (Vell.) Bureau ex Verl.	9841	Tree	Rare
Boraginaceae			
Cordia americana (L.) Gottschling & J.S.Mill.	9396	Tree	
Cordia ecalyculata Vell.	20155	Tree	
Cordia trichotoma (Vell.) Arráb. ex Steud.	2195	Tree	
Heliotropium indicum L.	10182	Shrub	
Heliotropium transalpinum Vell.	2231	Shrub	
Tournefortia breviflora DC.	2230	Climber	
Bromeliaceae			
Tillandsia loliacea Mart. ex Schult.f.	9630	Epiphyte	
Tillandsia pohliana Mez	46596	Epiphyte	
Tillandsia cf. *recurvata* (L.) L.	46591	Epiphyte	
Tillandsia tenuifolia L.	3513	Epiphyte	
Tillandsia tricholepis Baker	46483	Epiphyte	
Cactaceae			
Lepismium cruciforme (Vell.) Miq.	1829	Epiphyte	
Lepismium warmingianum (K.Schum.) Barthlott	8680	Epiphyte	
Pereskia aculeata Mill.	1307	Climber	
Rhipsalis cereuscula Haw.	2234	Epiphyte	
Rhipsalis floccosa Salm-Dick ex Pfeiff.	51014	Epiphyte	
Cannaceae			
Canna paniculata Ruiz & Pav.	1272	Herbaceous	
Cannabaceae			
Celtis iguanaea (Jacq.) Sarg.	47250	Climber	
Trema micrantha (L.) Blume	3408	Tree	
Caprifoliaceae			
Valeriana scandens L.	5593	Climber	
Cardiopteridaceae			
Citronella paniculata (Mart.) R.A.Howard	48448	Tree	
Caricaceae			
Jacaratia spinosa A.DC.	8997	Tree	Rare
Celastraceae			
Maytenus aquifolia Mart.	11332	Tree	
Pristimera celastroides (Kunth) A.C.Sm.	1300	Climber	
Cleomaceae			
Cleome viridifolia Schreb.	11121	Shrub	
Hemiscola diffusa (Banks ex DC.) Iltis	9628	Shrub	
Combretaceae			
Combretum fruticosum (Loefl.) Stuntz	9530	Climber	
Terminalia triflora (Griseb.) Lillo	20137	Tree	
Commelinaceae			
Commelina benghalensis L.	29799	Herbaceous	
Commelina obliqua Vahl	825	Herbaceous	
Dichorisandra hexandra (Aubl.) Standl.	2253	Herbaceous	
Dichorisandra paranaënsis D.Maia et al.	46595	Herbaceous	
Gibasis geniculata (Jacq.) Rohweder	11228	Herbaceous	
Tradescantia fluminensis Vell.	47035	Herbaceous	
Tradescantia zanonia (L.) Sw.	3141	Herbaceous	
Convolvulaceae			
Ipomoea grandifolia (Dammer) O'Donell	29946	Climber	
Ipomoea indica (Burm.f.) Merr.	3326	Climber	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Cucurbitaceae			
Cayaponia cf. *bonariensis* (Mill.) Mart.Crov.	26780	Climber	
Cayaponia sp.	2268	Climber	
Wilbrandia sp.	2266	Climber	
Cyperaceae			
Cyperus friburgensis Boeckeler	645	Herbaceous	Rare
Cyperus incomtus Kunth	3698	Herbaceous	
Dilleniaceae			
Davilla rugosa Poir	8787	Climber	
Dioscoreaceae			
Dioscorea rumicoides Griseb.	11297	Climber	
Elaeocarpaceae			
Sloanea hirsuta (Schott) Planch. ex Benth.	8869	Tree	
Erythroxylaceae			
Erythoxylum cuneifolium (Mart.) O.E.Schulz	11392	Tree	
Euphorbiaceae			
Acalypha gracilis Müll.Arg.	1819	Shrub	
Actinostemon concolor (Spreng.) Müll.Arg.	2176	Tree	
Alchornea glandulosa subsp. *irucurana* (Casar.) Secco	8796	Tree	
Alchornea triplinervia (Spreng.) Müll.Arg.	8814	Tree	
Bia alienata Didr.	4186	Climber	
Croton floribundus Spreng.	1442	Tree	
Croton urucurana Baill.	10161	Tree	
Dalechampia clausseniana Baill.	11234	Climber	
Dalechampia stipulacea Müll.Arg.	4194	Climber	
Manihot grahamii Hook.	20127	Tree	
Pachystroma longifolium (Nees) I.M.Johnst.	20521	Tree	
Pera glabrata (Schott) Poepp.	17825	Tree	
Sapium glandulosum (L.) Morong	9434	Tree	
Sebastiana brasiliensis Spreng.	17823	Tree	
Sebastiana klotzschiana (Müll.Arg.) Müll.Arg.	9381	Tree	
Tetrorchidium rubrinervium Poepp.	8799	Tree	Rare
Tragia volubilis L.	8766	Climber	
Gesneriaceae			
Sinningia douglasii (Lindl.) Chautems	2311	Epiphyte	
Lamiaceae			
Aegiphila brachiata Vell.	9398	Tree	
Aegiphila mediterranea Vell.	9080	Tree	
Hyptis cf. *mutabilis* (Rich.) Briq.	2495	Herbaceous	
Leonurus japonicus Houtt.	6183	Herbaceous	Naturalized
Ocimum carnosum (Spreng.) Link & Otto ex Benth.	8758	Herbaceous	
Vitex megapotamica (Spreng.) Moldenke	11336	Tree	
Lauraceae			
Cinnamomum sellowianum (Nees & Mart. ex Nees) Kosterm.	8864	Tree	
Endlicheria paniculata (Spreng.) J.F.Macbr.	2320	Tree	
Nectandra lanceolata Nees	11382	Tree	
Nectandra megapotamica (Spreng.) Mez	1275	Tree	
Ocotea corymbosa (Meisn.) Mez	11272	Tree	
Ocotea diospyrifolia (Meisn.) Mez	8967	Tree	
Ocotea elegans Mez	4044	Tree	
Ocotea indecora (Schott) Mez	2463	Tree	
Ocotea puberula (Rich.) Nees	37688	Tree	
Ocotea silvestris Vattimo-Gil	13203	Tree	
Leguminosae- Caesalpinoideae			
Bauhinia longifolia (Bong.) Steud.	11353	Tree	
Peltophorum dubium (Spreng.) Taub.	26357	Tree	
Phanera microstachya (Raddi) L.P.Queiroz	2145	Climber	Rare
Senna hirsuta var. *leptocarpa* (Benth.) H.S.Irwin & Barneby	14757	Shrub	
Senna multijuga subsp. *lindleyana* (Gardner) H.S.Irwin & Barneby	11125	Tree	
Senna splendida (Vogel) H.S.Irwin & Barneby	30722	Tree	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Leguminosae- Mimosoideae			
Albizia edwallii (Hoehne) Barneby & J.W.Grimes	9438	Tree	
Albizia niopoides (Spruce ex Benth.) Burkart	20141	Tree	
Anadenanthera colubrina (Vell.) Brenan	Observed	Tree	
Enterolobium cortotisiliquum (Vell.) Morong	9407	Tree	
Inga marginata Willd.	2333	Tree	
Inga sessilis (Vell.) Mart.	3406	Tree	
Inga striata Benth.	1271	Tree	
Inga virescens Benth.	13181	Tree	
Mimosa nuda Benth.	8709	Climber	
Parapiptadenia rigida (Benth.) Brenan	9433	Tree	
Senegalia martiusiana (Steud.) Seigler & Ebinger	1451	Tree	
Senegalia polyphylla (DC.) Britton & Rose	35052	Tree	
Senegalia tenuifolia (L.) Britton & Rose	9531	Tree	
Senegalia velutina (DC.) Seigler & Ebinger	2335	Climber	
Leguminosae-Papilionoideae			
Centrosema pubescens Benth.	2163	Climber	
Crotalaria incana L.	3042	Herbaceous	
Dahlstedtia muehlbergiana (Hassl.) M.J.Silva & A.M.G.Azevedo	9042	Tree	Rare
Dalbergia frutescens (Vell.) Britton	11295	Tree	
Desmodium tortuosum (Sw.) DC.	652	Herbaceous	
Erythrina falcata Benth.	8851	Tree	
Exostyles godoyensis Soares-Silva & Mansano	33556	Tree	
Holocalyx balansae Micheli	8803	Tree	
Lonchocarpus cultratus (Vell.) A.M.G.Azevedo & H.C.Lima	20130	Tree	
Machaerium aculeatum Raddi	10830	Tree	
Machaerium hatschbachii Rudd	10831	Tree	
Machaerium paraguariense Hassl.	8964	Tree	Rare
Machaerium scleroxylum Tul.	11350	Tree	
Machaerium stipitatum (DC.) Vogel	20788	Tree	
Mucuna pruriens (L.) DC.	26481	Climber	
Muellera campestris (Mart. ex Benth.) M.J.Silva & A.M.G.Azevedo	9299	Tree	
Myrocarpus frondosus Allemão	3387	Tree	Rare
Rynchosia phaseoloides (Sw.) DC.	9069	Climber	
Vigna caracalla (L.) Verdc.	5601	Climber	
Loganiaceae			
Spigelia scabra Cham. & Schltdl.	47590	Herbaceous	
Strychnos brasiliensis (Spreng.) Mart.	2341	Climber	
Lythraceae			
Cuphea calophylla subsp. *mesostemon* (Koehne) Lourteig	3516	Herbaceous	
Malpighiaceae			
Alicia anisopetala (A.Juss.) W.R.anderson	906	Climber	
Bunchosia pallescens Skottsb.	8817	Tree	
Heteropterys intermedia (A.Juss.) Griseb.	2351	Climber	
Heteropterys pauciflora A.Juss.	11232	Climber	
Hiraea cuneata Griseb.	8786	Climber	Rare
Hiraea fagifolia (DC.) A.Juss.	11233	Climber	
Mascagnia australis C.E.anderson	3419	Climber	
Mascagnia divaricata (Kunth) Nied.	11236	Climber	
Malvaceae			
Bastardiopsis densiflora (Hook. & Arn.) Hassl.	13206	Tree	
Byttneria catalpifolia subsp. *sidifolia* (A.St.-Hil.) Cristóbal	8961	Climber	Endangered
Ceiba speciosa (A.St.-Hil.) Ravenna	20786	Tree	
Guazuma ulmifolia Lam.	48123	Tree	
Heliocarpus popayanensis Kunth	2175	Tree	
Luehea divaricata Mart.	14684	Tree	
Pavonia communis A.St.-Hil.	9482	Shrub	
Pavonia sepium A.St.-Hil.	18021	Shrub	
Pseudobombax grandiflorum (Cav.) A.Robyns	9061	Tree	
Marantaceae			
Ctenanthe muelleri Petersen	46593	Herbaceous	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Goeppertia longibracteata (Sweet.) Borchs. & S.Suárez	48390	Herbaceous	
Saranthe eichleri Petersen	48356	Herbaceous	
Marcgraviaceae			
Marcgravia polyantha Delpino	2188	Climber	
Melastomataceae			
Leandra bergiana Cogn.	10733	Shrub	
Leandra fragilis Cogn.	647	Shrub	
Miconia budlejoides Triana	11163	Tree	
Miconia cinerascens Miq.	20156	Tree	
Miconia discolor DC.	8221	Shrub	
Miconia petropolitana Cogn.	2360	Shrub	
Miconia pusilliflora (DC.) Naudin	5584	Shrub	
Miconia cf. *tristis* subsp. *australis* Wurdack	10734	Shrub	
Meliaceae			
Cabralea canjerana (Vell.) Mart.	9081	Tree	
Cedrela fissilis Vell.	1832	Tree	
Guarea kunthiana A.Juss.	26364	Tree	
Guarea macrophylla Vahl	1314	Tree	
Melia azedarach L.	48854	Tree	Naturalized
Trichilia casaretti C.DC.	818	Tree	
Trichilia catigua A.Juss.	8993	Tree	
Trichilia claussenii C.DC.	1312	Tree	
Trichilia elegans A.Juss.	11938	Tree	
Trichilia pallens C.DC.	8218	Tree	
Trichilia pallida Sw.	10747	Tree	
Monimiaceae			
Mollinedia blumenaviana Perkins	17092	Tree	
Mollinedia clavigera Tul.	8797	Tree	
Moraceae			
Ficus adhatodifolia Schott ex Spreng.	533	Tree	
Ficus eximia Schott	Observed	Tree	
Ficus guaranitica Chodat	737	Tree	
Ficus luschnathiana (Miq.) Miq.	9386	Tree	
Ficus organensis Miq.	9454	Tree	
Maclura tinctoria (L.) D.Don ex Steud.	12305	Tree	
Sorocea bonplandii (Baill.) W.C.Burger et al.	1313	Tree	
Myrtaceae			
Calyptranthes concinna DC.	11331	Tree	
Calyptranthes grandifolia O.Berg.	8830	Tree	
Campomanesia guaviroba (DC.) Kiaersk.	34998	Tree	
Campomanesia guazumifolia (Cambess.) O.Berg	9408	Tree	
Campomanesia xanthocarpa O.Berg	9401	Tree	
Eugenia blastantha (O.Berg) D.Legrand	2378	Tree	
Eugenia burkartiana (D.Legrand) D.Legrand	17800	Tree	
Eugenia florida DC.	11162	Tree	
Eugenia handroana D.Legrand	17093	Tree	
Eugenia hyemalis Cambess.	18900	Tree	
Eugenia cf. *malacantha* D.Legrand	22849	Tree	
Eugenia neoverrucosa Sobral	9383	Tree	
Eugenia ramboi D.Legrand	26194	Tree	
Eugenia repanda O.Berg	17804	Tree	
Eugenia uniflora DC.	8823	Tree	
Myrceugenia miersiana (Gardner) D.Legrand & Kausel	8870	Tree	
Myrcia laruotteana Cambess.	12110	Tree	
Mycianthes pungens (O.Berg) D.Legrand	11395	Tree	
Myrciaria delicatula (DC.) O.Berg	17043	Tree	
Myrciaria floribunda (H.West ex Willd.) O.Berg	17045	Tree	
Neomitranthes glomerata (D.Legrand) D.Legrand	44083	Tree	Endangered
Plinia rivularis (Cambess.) Rotman	11155	Tree	
Plinia cf. *trunciflora* (O.Berg) Kausel	1447	Tree	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Nyctaginaceae			
Bougainvillea spectabilis Willd.	11408	Tree	
Guapira opposita (Vell.) Reitz	3420	Tree	
Pisonia aculeata L.	9049	Climber	
Pisonia ambigua Heimerl	1295	Tree	
Orchidaceae			
Acianthera sp.	9627	Epiphyte	
Aspidogyne kuczynskii (Porsch) Garay	48392	Herbaceous	
Baptistonia pubes (Lindl.) Chiron & V.P.Castro	9687	Epiphyte	
Capanemia micromera Barb.Rodr.	10707	Epiphyte	
Christensonella subulata (Lindl.) Szlach et al.	48152	Epiphyte	
Corymborkis flava (Sw.) Kuntze	26607	Herbaceous	Vulnerable
Cyclopogon congestus Hoehne	9693	Herbaceous	
Eltoplectris sp.	10727	Herbaceous	
Encyclia patens Hook.	10708	Epiphyte	
Eurystyles lorenzii (Cogn.) Schltr.	9686	Epiphyte	Vulnerable
Gomesa crispa (Lindl.) Klotzsch & Rchb.f.	31839	Epiphyte	
Govenia utricularia (Sw.) Lindl.	9701	Herbaceous	
Isochilus linearis (Jacq.) R.Br.	2980	Epiphyte	
Leptotes unicolor Barb.Rodr.	9625	Epiphyte	
Miltonia flavescens Lindl.	9715	Epiphyte	
Notylia lyrata S.Moore	9624	Epiphyte	
Octomeria sp.	9710	Epiphyte	
Oeceoclades maculata (Lindl.) Lindl.	10728	Herbaceous	
Pleurothallis sp.	9629	Epiphyte	
Stelis sp.	9717	Epiphyte	
Wullschlaegelia sp.	10709	Herbaceous	
Oxalidaceae			
Oxalis rhombeo-ovata A.St.-Hil.	17280	Shrub	
Passifloraceae			
Passiflora amethystina J.C.Mikan	9631	Climber	
Passiflora capsularis L.	8231	Climber	
Passiflora tricuspis Mast.	1979	Climber	
Phyllanthaceae			
Margaritaria nobilis L.f.	13207	Tree	
Phytolaccaceae			
Gallesia integrifolia (Spreng.) Harms	2189	Tree	
Petiveria alliacea L.	6359	Herbaceous	Naturalized
Phytolacca dioica L.	20134	Tree	
Seguieria americana L.	9430	Climber	
Picramniaceae			
Picramnia ramiflora Planch.	8585	Tree	
Piperaceae			
Peperomia arifolia Miq.	11397	Herbaceous	
Peperomia barbarana C.DC.	46594	Herbaceous	
Peperomia campinasana C.DC.	11231	Epiphyte	
Peperomia circinnata Link	1401	Epiphyte	
Peperomia af. *corcovadensis* Gardner	2156	Epiphyte	
Peperomia delicatula Henschen	2401	Epiphyte	
Peperomia af. *inaequalilimba* C.DC.	2397	Epiphyte	
Peperomia rotundifolia (L.) Kunth	2399	Epiphyte	
Peperomia tetraphylla (G.Forst.) Hook. & Arn.	2400	Epiphyte	
Peperomia urocarpa Fisch. & C.A.Mey.	47033	Epiphyte	
Piper aduncum L.	2160	Shrub	
Piper amalago var. *medium* (Jacq.) Yunck.	30061	Shrub	
Piper amplum Kunth	2404	Shrub	
Piper arboreum Aubl. var. *arboreum*	2398	Shrub	
Piper corcovadensis (Miq.) C.DC.	16256	Shrub	
Piper gaudichaudianum Kunth	31763	Shrub	
Piper glabratum (Jacq.) Yunck.	646	Shrub	
Piper hispidum Sw.	1274	Shrub	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Piper malacophyllum (C.Presl) C.DC.	3697	Shrub	
Piper mikanianum (Kunth) Steud.	3322	Shrub	
Piper miquelianum C.DC.	2403	Shrub	
Piper mollicomum Kunth	48382	Shrub	
Piper umbellatum L.	47036	Shrub	
Piper vicosanum Yunck.	6354	Shrub	
Piper viminifolium Trel.	2392	Shrub	Vulnerable
Piper xylosteoides (Kunth) Steud.	30025	Shrub	
Poaceae			
Chusquea ramossisima Lindm.	47322	Tree (bamboo)	
Ichnanthus pallens (Sw.) Munro ex Benth.	2459	Herbaceous	
Lasiacis ligulata Hitchc. & Chase	51012	Herbaceous	
Megathyrsus maximus (Jacq.) B.K.Simon & S.W.Jacobs	742	Herbaceous	Naturalized
Olyra ciliatifolia Raddi	2308	Herbaceous	
Olyra fasciculata Trin.	6334	Herbaceous	
Olyra humilis Nees	2300	Herbaceous	
Olyra latifolia L.	2301	Herbaceous	
Oplismenus hirtellus (L.) P.Beauv. subsp. *hirtellus*	47039	Herbaceous	
Panicum pilosum Sw.	47043	Herbaceous	
Parodiolyra micrantha (Kunth) Davidse & Zuloaga	2303	Herbaceous	
Paspalum notatum Alain ex Flüggé	2886	Herbaceous	
Pharus lappulaceus Aubl.	2289	Herbaceous	
Pseudechinolaena polystachya (Kunth) Stapf	2291	Herbaceous	
Setaria poiretiana (Schult.) Kunth	47042	Herbaceous	
Setaria vulpiseta (Lam.) Roem. & Schult.	2895	Herbaceous	
Streptochaeta spicata Schrad. ex Nees	2292	Herbaceous	
Polygonaceae			
Ruprechtia laxiflora Meisn.	12940	Tree	
Ruprechtia paranensis Pendry	9449	Tree	
Primulaceae			
Myrsine balansae (Mez) Otegui	30526	Tree	
Myrsine coriacea (Sw.) R.Br. ex Roem. & Schult.	20790	Tree	
Myrsine guianensis (Aubl.) Kuntze	3409	Tree	
Myrsine loefgrenii (Mez) Otegui	3412	Tree	
Proteaceae			
Roupala montana var. *brasiliensis* (Klotzsch) K.S.Edwards	11896	Tree	
Ranunculaceae			
Clematis dioica L.	4023	Climber	
Rhamnaceae			
Colubrina glandulosa Perkins	5587	Tree	
Gouania virgata Reissek	8306	Climber	
Rosaceae			
Prunus myrtifolia (L.) Urb.	11916	Tree	
Rubus sellowii Cham. & Schltdl.	2494	Shrub	
Rubiaceae			
Alseis floribunda Schott	8802	Tree	
Chiococca alba (L.) Hitchc.	911	Climber	
Coffea arabica L.	10183	Shrub	Naturalized
Coutarea hexandra (Jacq.) K.Schum.	9475	Tree	
Geophila repens (L.) I.M.Johnst.	2413	Herbaceous	
Hamelia patens Jacq.	4188	Shrub	
Manettia luteo-rubra (Vell.) Benth.	24493	Climber	
Palicourea macrobotrys (Ruiz & Pav.) Schult.	1270	Shrub	
Psychotria carthagenensis Jacq.	1285	Shrub	
Psychotria deflexa DC.	24078	Shrub	
Psychotria fractistipula L.B.Sm. et al.	2416	Shrub	
Psychotria leiocarpa Cham. & Schltdl.	2409	Shrub	
Psychotria myriantha Müll.Arg.	25961	Shrub	
Psychotria officinalis (Aubl.) Raeusch. ex Sandwith	2420	Shrub	
Psychotria suterella Müll.Arg.	2996	Shrub	
Psychotria tenuifolia Sw.	47323	Shrub	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Randia ferox (Cham. & Schltdl.) DC.	8760	Tree	
Richardia brasiliensis Gomes	3378	Herbaceous	
Rudgea jasminoides (Cham.) Müll.Arg.	11399	Tree	
Rudgea parquioides (Cham.) Müll.Arg.	9094	Tree	
Schwendenera tetrapyxis K.Schum.	47191	Herbaceous	
Simira corumbensis (Standl.) Steyerm.	9427	Tree	
Rutaceae			
Balfourodendron riedelianum (Engl.) Engl.	11940	Tree	Rare
Citrus x *limon* (L.) Osbeck	48856	Tree	Naturalized
Esenbeckia febrifuga (A.St.-Hil.) A.Juss. ex Mart.	8605	Shrub	
Esenbeckia grandiflora Mart.	13214	Tree	
Zanthoxylum caribaeum Lam.	908	Tree	
Zanthoxylum fagara (L.) Sarg.	17046	Tree	
Zanthoxylum petiolare A.St.-Hil. & Tul.	9441	Tree	
Zanthoxylum rhoifolium Lam.	15155	Tree	
Salicaceae			
Banara tomentosa Clos	9480	Tree	
Casearia decandra Jacq.	8587	Tree	
Casearia gossypiosperma Briq.	9045	Tree	Rare
Casearia lasiophylla Eichler	17383	Tree	
Casearia obliqua Spreng.	9039	Tree	
Casearia sylvestris Sw.	8315	Tree	
Prockia crucis P.Browne ex L.	8856	Tree	
Xylosma ciliatifolium (Clos) Eichler	11929	Tree	
Xylosma tweediana (Clos) Eichler	828	Tree	
Santalaceae			
Phoradendron mucronatum (DC.) Krug & Urb.	2343	Hemiparasite	
Phoradendron piperoides (Kunth) Trel.	25642	Hemiparasite	
Sapindaceae			
Allophylus edulis (A.St.-Hil. et al.) Radlk.	8844	Tree	
Allophylus guaraniticus Radlk.	12941	Tree	
Allophylus semidentatus (Miq.) Radlk.	9054	Tree	
Cupania vernalis Cambess.	9384	Tree	
Diatenopteryx sorbifolia Radlk.	11396	Tree	
Matayba elaeagnoides Radlk.	35039	Tree	
Paullinia meliifolia Juss.	8313	Climber	
Serjania caracasana (Jacq.) Willd.	1279	Climber	
Serjania fuscifolia Radlk.	827	Climber	
Serjania laruotteana Cambess.	1284	Climber	
Thinouia mucronata Radlk.	11123	Climber	
Thinouia ventricosa Radlk.	11436	Climber	
Urvillea laevis Radlk.	901	Climber	
Urvillea ulmacea Kunth	8604	Climber	
Sapotaceae			
Chrysophyllum gonocarpum (Mart. & Eichler ex Miq.) Engl.	8316	Tree	
Chrysophyllum marginatum (Hook. & Arn.) Radlk.	30889	Tree	
Pouteria beaurepairei (Glaz. & Raunk.) Baehni	11363	Tree	
Schoepfiaceae			
Schoepfia brasiliensis A.DC.	11150	Tree	
Smilacaceae			
Smilax cognata Kunth	14688	Climber	
Solanaceae			
Aureliana fasciculata var. *tomentella* (Sendtn.) Barboza & Hunz.	9382	Tree	
Brunfelsia pauciflora (Cham. & Schltdl.) Benth.	2207	Shrub	
Capsicum flexuosum Sendtn.	3320	Shrub	
Cestrum bracteatum Link & Otto	9088	Shrub	
Cestrum intermedium Sendtn.	898	Tree	
Cestrum strigilatum Ruiz & Pav.	8630	Tree	
Lycianthes pauciflora (Vahl) Bitter	907	Tree	
Lycianthes rantonnei (Carrière) Bitter	9360	Tree	Endangered
Solanum americanum Mill.	15141	Herbaceous	

Table 1. ***Continued.***

FAMILIES/SPECIES	HERBARIUM NUMBER IN FUEL	HABIT*	CONSERVATION STATUS / NATURALIZED SPECIES
Solanum argenteum Dunal	1267	Tree	
Solanum atropurpureum Schrank	1823	Shrub	
Solanum campaniforme Roem. & Schult.	4511	Shrub	
Solanum diploconos (Mart.) Bohs	9364	Shrub	
Solanum granuloso-leprosum Dunal	1306	Tree	
Solanum hirtellum (Spreng.) Hassl.	11610	Climber	
Solanum nigrescens M.Martens & Galeotti	11612	Herbaceous	
Solanum palinacanthum Dunal	14282	Herbaceous	
Solanum robustum H.L.Wendl.	6333	Shrub	
Solanum sanctaecatharinae Dunal	9374	Tree	
Solanum schwackei Glaz.	2452	Shrub	
Solanum scuticum M.Nee	27079	Shrub	
Solanum trachytrichium Bitter	2497	Shrub	
Vassobia breviflora (Sendtn.) Hunz.	26628	Shrub	
Styracaceae			
Styrax acuminatus Pohl	8852	Tree	
Styrax leprosus Hook. & Arn.	11337	Tree	
Symplocaceae			
Symplocos celastrinea Mart. ex Miq.	11902	Tree	
Talinaceae			
Talinum paniculatum (Jacq.) Gaertn.	46475	Herbaceous	
Tropaeolaceae			
Tropaeolum pentaphyllum Lam.	11393	Climber	
Urticaceae			
Boehmeria caudata Sw.	29776	Shrub	
Boehmeria nivea (L.) Gaudich.	14593	Shrub	
Cecropia glaziovi Snethl.	11799	Tree	
Pilea pubescens Liebm.	2162	Herbaceous	
Urera aurantiaca Wedd.	2448	Shrub	
Urera baccifera (L.) Gaudich. ex Wedd.	10280	Shrub	
Urera nitida (Vell.) P.Brack	8226	Shrub	
Verbenaceae			
Aloysia virgata (Ruiz & Pav.) Pers.	23764	Tree	
Petrea volubilis L.	9395	Climber	
Violaceae			
Anchietea pyrifolia G.Don	1286	Climber	
Hybanthus bigibbosus (A.St.-Hil.) Hassl.	29693	Shrub	
Hybanthus communis (A.St.-Hil.) Taub.	7480	Herbaceous	

* The terms "epiphyte" and "hemiparasite" refer to plant habitat and plant life form, respectively, however, these terms were herein referred to as "plant habit" in order to simplify the description of the MGSP flora").

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