

Vascular flora of the Legado das Águas, Reserva Votorantim, municipalities of Tapiraí, Miracatú and Juquiá, São Paulo, Brazil

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Abstract: We present a list of vascular plants found in Legado das Águas, Reserva Votorantim, a private reserve having an area of approximately 35,000 ha that spans the municipalities of Tapiraí, Miracatú, and Juquiá, in the state of São Paulo, Brazil. The reserve is part of a complex of state-protected areas including Alto Ribeira Touristic State Park, Intervalos State Park, Carlos Botelho State Park, Jurupará State Park, and Serra do Mar State Park. Together, these form an important and large area of continuous and well-preserved forest. Our study, which involved two main floristic surveys in March/April 2013 and April 2014, recorded 768 species, representing 131 families and 432 genera. The majority of species were angiosperms (619) representing 106 families and 370 genera. There were also two species of gymnosperms belonging to two genera in separate families; 147 species of ferns and lycophytes belonging to 23 families and 60 genera. In demonstrating the presence of almost 800 species of plants, of which 16 are threatened, our study highlights the importance of floristic surveys and the critical role of private protected areas in managing and preserving native flora.

Key words: Atlantic Forest biome; Serra do Mar; biodiversity; species list

INTRODUCTION

The Brazilian Atlantic Forest biome is recognized as one of the five priority areas worldwide for conservation because of its high species richness, levels of endemic species, and loss of area due to anthropogenic activities (Myers et al. 2000; Mittermeier et al. 2004). While these 'hotspots' cover a mere 0.4% of the Earth's surface, they comprise about 20% of all plant species (Myers et al. 2000). However, this rich biodiversity is poorly documented even in national scientific collections (Giulietti et al. 2005). Although there are publications that focus on the state of current vegetation, authors disagree about the percentage of intact forest remaining, which may vary from 8% to 16% (Myers et al. 2000; Fundação SOS Mata Atlântica and INPE 2014; Ribeiro et al. 2009).

Historically the Atlantic Forest once covered more than 1,300,000 km² distributed through 17 states



Figure 1. Different habitats in the Reserva Votorantim. **A.** Riparian forest. **B.** Interior of the forest, along a trail. **C.** A road crossing the reserve. **D.** The forest edge.

along the coastal region of Brazil (Fundação S.O.S Mata Atlântica and INPE 2014). Although generally characterized as rainforest (Galindo-Leal and Câmara 2003), other authors emphasize both floristic and physiognomic heterogeneity due to climatic variation associated with broad ranges in latitude (ca. 27 degrees), longitude (from the coast to the interior), and altitude (sea level to ca. 2,700 m; Scarano 2002; Oliveira-Filho and Fontes 2000). Indeed, Atlantic Forest vegetation is diverse, characterized by trees up to 50 m high, numerous epiphytes, lianas, shrubs, ferns, and herbs, and with high rates of endemism (Mori et al. 1981).

Reportedly, 82% of the area of São Paulo state was once covered by Atlantic forest (Leitão-Filho 1994). Today, the remaining forests are mainly located in areas of rugged topography where anthropogenic activities are not widespread, such as the region of Serra do Mar (Leitão-Filho 1994). While numerous botanical studies have focused on the Atlantic Forest in São Paulo state (Salino and Almeida 2008; Lima et al. 2011), many of the extensive and important private areas have not been surveyed.

Thus, the main objective of our study is to document the vascular flora from Legado das Águas, Reserva Votorantim, hereafter called the Reserva Votorantim. We contributing botanical records to enhance information on biodiversity, plant life forms, species distribution; and compiling a species list of the Votorantim protected area for use by the three municipalities of Tapiraí, Miracatú, and Juquiá.

MATERIALS AND METHODS

Study site

The Reserva Votorantim covers an area of ca. 35,000 ha within the boundaries of the municipalities of Tapiraí, Miracatú and Juquiá (centroid at 24.03° S, 047.38° W, datum WGS84). The reserve consists of Atlantic Forest vegetation, mostly well preserved (Kronka et al. 2005; Figure 1), and was part of the original Atlantic Forest (Figure 2).

The climate of the region surrounding the Reserva Votorantim is classified as Cfa, subtropical and warm (Cepagri 2015) according to the classification of Köppen (1948). The soil is classified as Cambisol, which is

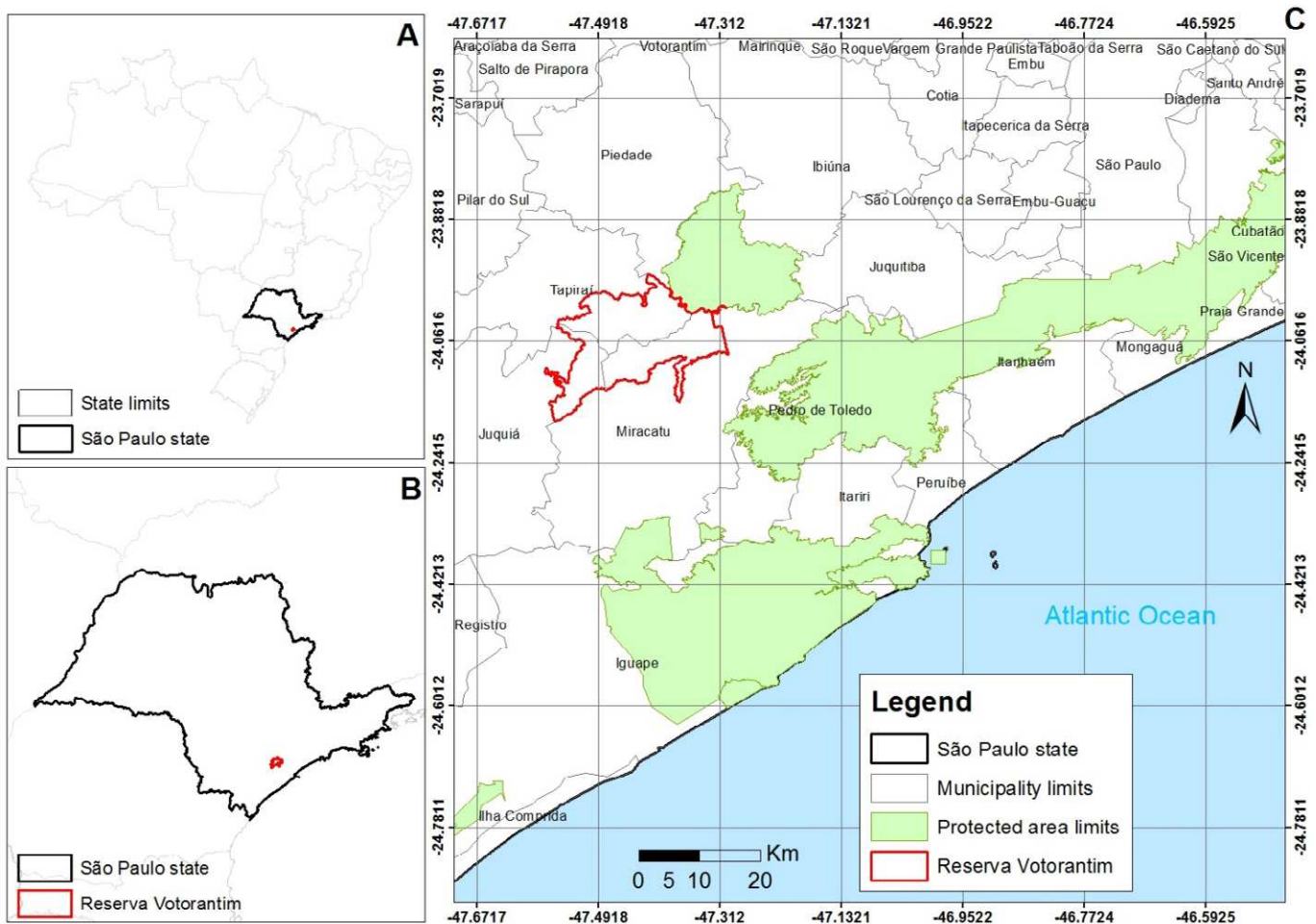


Figure 2. Location of the study area, Reserva Votorantim in Brazil (A) and São Paulo state (B). C. The Reserva Votorantim (red outline) and neighboring state parks (green).

characterized by the presence of an incipient or undeveloped B-horizon (IBGE 2007). Typically, the thickness of this subsoil horizon is between 10–50 cm, and 5% or more of its volume consists of the original rock, which is predominantly yellowish and reddish due to the segregation of iron oxides (IBGE 2007).

Today, the area is owned by the Votorantim Group, one of the largest industrial conglomerates in Latin America, a multi-industry company whose activities include mining, paper pulp production, steel manufacturing, and finance. The reserve was acquired by the Votorantim Group in two stages (1920 and 1950), for the purpose of harnessing water resources and energy. Since 2012, the area has been recognized as a nature reserve and conservation has become one of the company's primary goals. The Reserva Votorantim is the largest privately owned area of Atlantic Forest in Brazil. It increases the area of a complex of state-protected areas that include the Touristic State Park of Alto Ribeira, Intervalos State Park, Carlos Botelho State Park, Jurupará State Park, and Serra do Mar State Park. Together with Reserva Votorantim, these form an important and large area of continuous and well-preserved forest (Figure 2).

Data collection

Our study consisted of two main periods of fieldwork. The first 15-day expedition took place between March and April 2013 during the Field Taxonomy Course headed Escola Superior de Agricultura – Luiz de Queiroz (ESALQ/USP), Universidade de São Paulo (IB/USP), and Universidade Estadual de Campinas (Unicamp). The second 15-day expedition was carried out in April 2014.

We extensively sampled along transects throughout the whole reserve in order to document and collect all vascular plant life forms, including ferns and lycophytes. We deposited the majority of our specimens in ESA, UEC, SPSE, BHCB, SPF and RB herbaria (acronyms according to Thiers 2016). The first set of duplicates was deposited in the ESA herbarium, available at INCT virtual herbarium (<http://inct.splink.org.br/>). In the case of specimens for species *Araucaria angustifolia* (Bertol.) Kuntze, no voucher specimens were collected due to challenges of collecting in the field, coupled with the ease of identifying the species visually.

Data analysis

Species were identified by referring to expert literature and identification keys, comparing material

in herbaria, and consulting specialists. The classification of species follows APG III (2009) for angiosperms, Smith et al. (2008), with modifications proposed by Rothfels et al. (2012), for ferns, and Øllgaard (1992, 2012) for lycophytes. Species names used are those currently accepted by the List of Species of the Brazilian Flora (LSBF 2015), which also served as a criterion for doubtful circumscriptions. For current information on threatened species we followed the state and national lists of threatened flora (Estado de São Paulo 2004; CNCFLORA 2016).

RESULTS

We recorded 768 species from the Reserva Votorantim, representing 131 families and 432 genera (Table 1; Table 2). Of these, 619 species were angiosperms (80.5%) and included 106 families and 370 genera. Two species were gymnosperms belonging to two genera in separate families (Table 1). There were 147 species (19.1%) of ferns and lycophytes representing 23 families and 60 genera (Table 2).

Out of the 106 families of angiosperms, the following 10 families represented 48% of the total number of

species sampled: Rubiaceae (47 species), Fabaceae (41 species), Orchidaceae (36 species), Asteraceae (31 species), Melastomataceae (30 species), Myrtaceae (29 species), Poaceae (26 species), Lauraceae (21 species), Piperaceae (21 species), and Cyperaceae (19 species). With 15 species each, *Piper* (Piperaceae) and *Psychotria* (Rubiaceae) were found to be the richest genera, followed by *Miconia* (Melastomataceae) with ten species; *Begonia* (Begoniaceae) with nine species, and *Ocotea* (Lauraceae) and *Eugenia* (Myrtaceae) with eight species each.

Nine of the angiosperms and one gymnosperm species are considered threatened (Estado de São Paulo 2004; CNCFLORA 2016; Table 1).

Of all ferns and lycophytes collected, Polypodiaceae were the most prevalent with 23 species, followed by Pteridaceae (18 species) and Dryopteridaceae (17 species). With 11 species, *Asplenium* (Aspleniaceae) was the richest genus among the ferns and lycophytes, followed by *Thelypteris* (Thelypteridaceae) (10 species), and *Blechnum* (Blechnaceae) and *Cyathea* (Cyatheaceae) (7 species each).

Six species of the ferns and lycophytes are considered threatened (Estado de São Paulo 2004; Table 2).

Table 1. Families and species of angiosperms and gymnosperms found in the Reserva Votorantim. Vouchers are represented by collector number (* species observed but not collected are indicated by an asterisk). Species' status (EN, Endangered; VU, Vulnerable) follow Estado de São Paulo (2004) and CNCFLORA (2016).

Family/Species	Voucher	Status	Family/Species	Voucher	Status
Acanthaceae			Araliaceae		
<i>Aphelandra chamissoniana</i> Nees	999 Kuntz		<i>Anthurium sellowianum</i> Kunth	1212 Polisel	
<i>Aphelandra ornata</i> (Nees) T.Anderson	1049 Colletta		<i>Monstera adansonii</i> Schott	90 Virillo	
<i>Hygrophila costata</i> Nees	980 Kuntz		<i>Philodendron cordatum</i> Kunth ex Schott	901 Kuntz	
<i>Justicia carnea</i> Lindl.	1166 Polisel		<i>Philodendron ochrostemon</i> Schott	890 Kuntz	
<i>Mendoncia puberula</i> Mart.	1054 Kuntz		<i>Philodendron propinquum</i> Schott	918 Kuntz	
<i>Mendoncia velloziana</i> Mart.	1220 Polisel		<i>Xanthosoma aureum</i> E.G.Gonç.	1121 Colletta	
<i>Staurogyne alba</i> Braz & R.Monteiro	973 Delfini		Araucariaceae		
<i>Staurogyne sylvatica</i> Lindau ex Braz & R.Monteiro	35016 Souza		<i>Araucaria angustifolia</i> (Bertol.) Kuntze	*	EN
Amaranthaceae			Arecaceae		
<i>Celosia grandifolia</i> Moq.	1007 Delfini		<i>Astrocaryum aculeatissimum</i> (Schott) Burret	10 Bettinardi	
Anacardiaceae			<i>Bactris setosa</i> Mart.	1916 Flores	
<i>Tapirira guianensis</i> Aubl.	1155 Colletta		<i>Euterpe edulis</i> Mart.	990 Kuntz	VU
Annoaceae			<i>Geonoma elegans</i> Mart.	1118 Colletta	
<i>Annona cacans</i> Warm.	1008 Colletta		<i>Geonoma pohliana</i> Mart.	1125 Polisel	
<i>Annona dolabripetala</i> Raddi	850 Delfini		<i>Geonoma schottiana</i> Mart.	1209 Polisel	
<i>Annona sylvatica</i> A.St.-Hil.	1182 Polisel		<i>Lytocaryum hoehnei</i> (Burret) Toledo	1137 Colletta	
<i>Guatteria australis</i> A.St.-Hil.	951 Kuntz		Asteraceae		
<i>Xylopia brasiliensis</i> Spreng.	1008 Kuntz		<i>Achyrocline alata</i> (Kunth) DC.	34956 Souza	
Apiaceae			<i>Achyrocline vargasiana</i> DC.	1147 Polisel	
<i>Centella asiatica</i> (L.) Urb.	29 Virillo		<i>Acmella uliginosa</i> (Sw.) Cass.	870 Cabral	
Apocynaceae			<i>Adenostemma brasilianum</i> (Pers.) Cass.	34979 Souza	
<i>Asclepias curassavica</i> L.	1862 Flores		<i>Ageratum conyzoides</i> L.	989 Kuntz	
<i>Aspidosperma tomentosum</i> Mart.	223 Virillo		<i>Baccharis dracunculifolia</i> DC.	66 Virillo	
<i>Aspidosperma olivaceum</i> Müll.Arg.	141 Virillo		<i>Baccharis microdonta</i> DC.	60 Virillo	
<i>Malouetia cestroides</i> (Nees ex Mart.) Müll.Arg.	34924 Souza		<i>Baccharis semiserrata</i> DC.	1001 Kuntz	
<i>Mandevilla unifloris</i> (Vell.) K.Schum.	117 Virillo		<i>Baccharis crispa</i> Spreng.	65 Virillo	
<i>Peltastes peltatus</i> (Vell.) Woodson	119 Virillo		<i>Bidens pilosa</i> L.	986 Delfini	
<i>Prestonia coalita</i> (Vell.) Woodson	1048 Kuntz		<i>Chaptalia nutans</i> (L.) Pol.	13 Virillo	
Aquifoliaceae			<i>Chromolaena laevigata</i> (Lam.) R.M.King & H.Rob.	59 Virillo	
<i>Illex theezans</i> Mart. ex Reissek	212 Virillo		<i>Chromolaena squallida</i> (DC.) R.M.King & H.Rob.	61 Virillo	
Araceae					
<i>Anthurium gaudichaudianum</i> Kunth	1821 Flores				
<i>Anthurium pentaphyllum</i> (Aubl.) G.Don	933 Kuntz				

Continued

Table 1. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Conyza canadensis</i> (L.) Cronquist	1880 Flores		<i>Rhipsalis teres</i> (Vell.) Steud.	1034 Kuntz	
<i>Cyrtocymura scorpioides</i> (Lam.) H.Rob.	970 Delfini		Campanulaceae		
<i>Eclipta prostrata</i> (L.) L.	996 Delfini		<i>Hippobroma longiflora</i> (L.) G.Don	963 Delfini	
<i>Elephantopus mollis</i> Kunth	39 Virillo		<i>Siphocampylus convolvulaceus</i> (Cham.) G.Don	1010 Kuntz	
<i>Emilia fosbergii</i> Nicolson	981 Delfini		<i>Siphocampylus longipedunculatus</i> Pohl	924 Kuntz	
<i>Jaegeria hirta</i> (Lag.) Less.	5 Virillo		Cannabaceae		
<i>Jungia selowii</i> Less.	990 Delfini		<i>Celtis iguanaea</i> (Jacq.) Sarg.	1000 Kuntz	
<i>Leptostelma maximum</i> D.Don	1012 Delfini		<i>Trema micrantha</i> (L.) Blume	840 Delfini	
<i>Mikania micrantha</i> Kunth	1807 Flores		Cardiopteridaceae		
<i>Mikania trinervis</i> Hook. & Arn.	1012 Kuntz		<i>Citronella paniculata</i> (Mart.) R.A.Howard	980 Colletta	
<i>Orthopappus angustifolius</i> (Sw.) Gleason	956 Delfini		Celastraceae		
<i>Piptocarpha oblonga</i> (Gardner) Baker	1190 Polisel		<i>Maytenus aquifolia</i> Mart.	35005 Souza	
<i>Pterocaulon alopecuroides</i> (Lam.) DC.	919 Delfini		<i>Maytenus obtusifolia</i> Mart.	203 Virillo	
<i>Solidago chilensis</i> Meyen	44 Virillo		<i>Maytenus schumanniana</i> Loes.	1038 Colletta	
<i>Sphagnetica trilobata</i> (L.) Pruski	951 Delfini		<i>Salacia elliptica</i> (Mart. ex Schult.) G.Don	1046 Colletta	
<i>Vernonanthura beyrichii</i> (Less.) H.Rob.	937 Delfini		<i>Salacia grandifolia</i> (Mart. ex Schult.) G.Don	931 Cabral	
<i>Vernonanthura divaricata</i> (Spreng.) H.Rob.	233 Virillo		Chrysobalanaceae		
<i>Vernonanthura discolor</i> (Spreng.) H.Rob.	180 Virillo		<i>Couepia grandiflora</i> (Mart. & Zucc.) Benth.	1101 Colletta	
Balsaminaceae			<i>Hirtella hebeclada</i> Moric. ex DC.	1051 Colletta	
<i>Impatiens walleriana</i> Hook. f.	931 Delfini		<i>Licania kunthiana</i> Hook.f.	1102 Colletta	
Begoniaceae			<i>Parinari excelsa</i> Sabine	992 Colletta	
<i>Begonia coccinea</i> Hook.	975 Delfini	EN	Clethraceae		
<i>Begonia convolvulacea</i> (Klotzsch) A.DC.	110 Virillo		<i>Clethra scabra</i> Pers.	1069 Polisel	
<i>Begonia cucullata</i> Willd.	1058 Kuntz		Clusiaceae		
<i>Begonia digitata</i> Raddi	950 Delfini		<i>Clusia criuva</i> Cambess.	1000 Colletta	
<i>Begonia fischeri</i> Schrank	823 Delfini		<i>Garcinia gardneriana</i> (Planch. & Triana) Zappi	1050 Colletta	
<i>Begonia fruticosa</i> (Klotzsch) A.DC.	861 Delfini		Combretaceae		
<i>Begonia pulchella</i> Raddi	ESA 124797		<i>Terminalia januariensis</i> DC.	207 Virillo	
<i>Begonia radicans</i> Vell.	859 Delfini		Commelinaceae		
<i>Begonia stenophylla</i> A.DC.	896 Kuntz		<i>Commelina diffusa</i> Burm.f.	961 Delfini	
Bignoniaceae			<i>Commelina obliqua</i> Vahl	982 Kuntz	
<i>Adenocalymma hatschbachii</i> A.H.Gentry	93 Virillo		<i>Dichorisandra paranaensis</i> D.Maia et al.	983 Kuntz	
<i>Anemopaegma prostratum</i> DC.	1076 Colletta		<i>Dichorisandra pubescens</i> Mart. ex Schult & Schult.f.	825 Cabral	
<i>Handroanthus chrysotrichus</i> (Mart. ex DC.) Mattos	894 Delfini		<i>Tradescantia zanoniana</i> (L.) Sw.	873 Cabral	
<i>Handroanthus heptaphyllus</i> (Vell.) Mattos	1160 Colletta		<i>Tripogandra diuretica</i> (Mart.) Handlos	1135 Polisel	
Boraginaceae			Convolvulaceae		
<i>Cordia sellowiana</i> Cham.	1092 Colletta		<i>Ipomoea ramosissima</i> (Poir.) Choisy	1025 Kuntz	
<i>Cordia silvestris</i> Fresen.	39 Bettinardi		<i>Jacquemontia holosericea</i> (Weinm.) O'Donell	866 Delfini	
<i>Varronia polycephala</i> Lam.	995 Delfini		<i>Jacquemontia uleana</i> Hallier f.	1806 Flores	
<i>Tournefortia bicolor</i> Sw.	1060 Kuntz		<i>Merremia dissecta</i> (Jacq.) Hallier f.	893 Kuntz	
Bromeliaceae			Costaceae		
<i>Aechmea gracilis</i> Lindm.	1022 Kuntz		<i>Costus spiralis</i> (Jacq.) Roscoe	947 Delfini	
<i>Canistropsis billbergioides</i> (Schult. & Schult.f.) Leme	99 Virillo		Cucurbitaceae		
<i>Canistropsis burchellii</i> (Baker) Leme	916 Cabral		<i>Fevillea passiflora</i> Vell.	1219 Polisel	
<i>Nidularium innocentii</i> Lem.	928 Cabral		<i>Melothria pendula</i> L.	1050 Kuntz	
<i>Nidularium procerum</i> Lindm.	891 Kuntz		<i>Wilbrandia hibiscoides</i> Silva Manso	911 Cabral	
<i>Racinaea spiculosa</i> (Griseb.) M.A.Spencer & L.B.Sm.	1222 Polisel		Cunoniaceae		
<i>Tillandsia stricta</i> Sol.	930 Kuntz		<i>Lamanonia ternata</i> Vell.	896 Delfini	
<i>Tillandsia tenuifolia</i> L.	926 Cabral		Cyclanthaceae		
<i>Tillandsia usneoides</i> (L.) L.	1223 Polisel		<i>Asplundia polymera</i> (Hand.-Mazz.) Harling	904 Kuntz	
<i>Vriesea carinata</i> Wawra	821 Delfini		Cyperaceae		
<i>Vriesea ensiformis</i> (Vell.) Beer	854 Delfini		<i>Becquerelia muricata</i> Nees	1877 Flores	
<i>Vriesea incurvata</i> Gaudich.	869 Delfini		<i>Bulbostylis capillaris</i> (L.) C.B.Clark	944 Delfini	
<i>Vriesea platynema</i> Gaudich.	913 Kuntz		<i>Cyperus distans</i> L.	2 Virillo	
<i>Vriesea rodigasiana</i> E.Morren	907 Kuntz		<i>Cyperus laxus</i> Lam.	999 Delfini	
<i>Vriesea scalaris</i> E.Morren	91 Virillo		<i>Cyperus luzulae</i> (L.) Retz.	1107 Polisel	
<i>Vriesea unilateralis</i> (Baker) Mez	922 Cabral		<i>Cyperus meyanianus</i> Kunth	1108 Polisel	
<i>Wittrockia cyathiformis</i> (Vell.) Leme	923 Kuntz		<i>Fimbristylis dichotoma</i> (L.) Vahl	982 Delfini	
Burseraceae			<i>Fimbristylis miliacea</i> (L.) Vahl	988 Delfini	
<i>Protium heptaphyllum</i> (Aubl.) Marchand	ESA 124897		<i>Hypolytrum schraderianum</i> Nees	1118 Polisel	
<i>Protium kleinii</i> Cuatrec.	1088 Colletta		<i>Pleurostachys distichophylla</i> (Boeckeler) C.B.Clark	950 Cabral	
Cactaceae			<i>Pleurostachys gaudichaudii</i> Brongn.	829 Cabral	
<i>Hatiora salicornioides</i> (Haw.) Britton & Rose	1195 Polisel		<i>Pleurostachys urvillei</i> Brongn.	827 Cabral	
<i>Lepismium houletianum</i> (Lem.) Barthlott	1204 Polisel		<i>Rhynchospora polyantha</i> Steud.	858 Cabral	
<i>Rhipsalis cereuscula</i> Haw.	1081 Colletta		<i>Rhynchospora pubera</i> (Vahl) Boeckeler	1868 Flores	
<i>Rhipsalis elliptica</i> G.Lindb. ex K.Schum.	1205 Polisel		<i>Scleria distans</i> Poir.	1011 Delfini	
<i>Rhipsalis pachyptera</i> Pfeiff.	1822 Flores		<i>Scleria hirtella</i> Sw.	859 Cabral	
<i>Rhipsalis paradoxa</i> (Salm-Dyck ex Pfeiff.) Salm-Dyck	1201 Polisel		<i>Scleria latifolia</i> Sw.	822 Delfini	

Continued

Table 1. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Scleria microcarpa</i> Nees ex Kunth	1881 Flores		<i>Zornia curvata</i> Mohlenbr.	865 Cabral	
<i>Scleria gaertneri</i> Raddi	867 Delfini		Gentianaceae		
Dilleniaceae			<i>Voyria aphylla</i> (Jacq.) Pers.	942 Delfini	
<i>Davilla rugosa</i> Poir.	35002 Souza		Gesneriaceae		
<i>Doliocarpus dentatus</i> (Aubl.) Standl.	864 Delfini		<i>Besleria longimucronata</i> Hoehne	939 Delfini	
Dioscoreaceae			<i>Codonanthe devosiana</i> Lem.	906 Cabral	
<i>Dioscorea dodecaneura</i> Vell.	1080 Colletta		<i>Nematanthus bradei</i> (Handro) Chautems	1051 Kuntz	
Droseraceae			<i>Nematanthus fissus</i> (Vell.) L.E.Skog	895 Kuntz	
<i>Drosera communis</i> A.St.-Hil.	930 Delfini		<i>Nematanthus fritschii</i> Hoehne	858 Delfini	
Elaeocarpaceae			<i>Nematanthus maculatus</i> (Fritsch) Wiehler	913 Cabral	
<i>Sloanea guianensis</i> (Aubl.) Benth.	35011 Souza		<i>Nematanthus striatus</i> (Handro) Chautems	1820 Flores	
<i>Sloanea hirsuta</i> (Schott) Planch. ex Benth.	1131 Colletta		<i>Nematanthus villosus</i> (Hanst.) Wiehler	908 Kuntz	
Euphorbiaceae			Gratiolaceae		
<i>Alchornea glandulosa</i> Poepp. & Endl.	34959 Souza		<i>Scoparia dulcis</i> L.	979 Kuntz	
<i>Alchornea sidifolia</i> Müll.Arg.	1064 Colletta		<i>Stemodia vandelloides</i> (Benth.) V.C.Souza	960 Delfini	
<i>Alchornea triplinervia</i> (Spreng.) Müll.Arg.	1028 Colletta		Heliconiaceae		
<i>Aparisthium cordatum</i> (A.Juss.) Baill.	34928 Souza		<i>Heliconia farinosa</i> Raddi	976 Colletta	
<i>Croton lundianus</i> (Didr.) Müll.Arg.	928 Delfini		<i>Heliconia spathocircinata</i> Aristeg.	841 Cabral	
<i>Dalechampia scandens</i> L.	1870 Flores		Humiriaceae		
<i>Euphorbia hyssopifolia</i> L.	932 Delfini		<i>Vantanea compacta</i> (Schnizl.) Cuatrec.	217 Virillo	
<i>Hieronyma alchorneoides</i> Allemão	192 Virillo		Hypoxidaceae		
<i>Manihot inflata</i> Mull. & Arg.	1394 Colletta		<i>Hypoxis decumbens</i> L.	14 Virillo	
<i>Maprounea guianensis</i> Aubl.	1925 Flores		Iridaceae		
<i>Pausandra morisiana</i> (Casar.) Radlk.	885 Cabral		<i>Sisyrinchium</i> sp.	987 Kuntz	
<i>Sapium glandulosum</i> (L.) Morong	1064 Polisel		Lacistemataceae		
<i>Tetrorchidium rubrivenium</i> Poepp.	1071 Polisel		<i>Lacistema hasslerianum</i> Chodat	1104 Polisel	
Fabaceae			Lamiaceae		
<i>Albizia polycephala</i> (Benth.) Killip ex Record	945 Kuntz		<i>Aegiphila integrifolia</i> (Jacq.) Moldenke	1074 Colletta	
<i>Andira fraxinifolia</i> Benth.	999 Colletta		<i>Aegiphila obducta</i> Vell.	1218 Polisel	
<i>Apuleia leiocarpa</i> (Vogel) J.F.Macbr.	34902 Souza	VU	<i>Hyptis atrorubens</i> Poit.	23 Virillo	
<i>Calliandra</i> sp.	85 Virillo		<i>Hyptis lappulacea</i> Mart. ex Benth.	800 Delfini	
<i>Copaifera trapezifolia</i> Hayne	979 Colletta		<i>Hyptis sidifolia</i> (L'Hér.) Briq.	1215 Polisel	
<i>Crotalaria lanceolata</i> E.Mey.	1146 Polisel		<i>Marsypianthes chamaedrys</i> (Vahl) Kuntze	1139 Polisel	
<i>Dahlstedtia pinnata</i> (Benth.) Malme	34917 Souza		<i>Ocimum campechianum</i> Mill.	975 Kuntz	
<i>Dalbergia frutescens</i> (Vell.) Britton	821 Cabral		<i>Peltodon radicans</i> Pohl	30 Virillo	
<i>Desmodium adscendens</i> (Sw.) DC.	6 Virillo		<i>Salvia splendens</i> Sellow ex Roem. & Schult.	34986 Souza	
<i>Desmodium barbatum</i> (L.) Benth.	985 Delfini		<i>Scutellaria uliginosa</i> A.St.-Hil. ex Benth.	909 Delfini	
<i>Desmodium incanum</i> DC.	7 Virillo		<i>Vitex sellowiana</i> Cham.	991 Colletta	
<i>Desmodium uncinatum</i> (Jacq.) DC.	1859 Flores		Lauraceae		
<i>Hymenaea courbaril</i> L.	1133 Colletta		<i>Aiouea saligna</i> Meisn.	900 Delfini	
<i>Hymenolobium janeirensis</i> Kuhlm.	34929 Souza		<i>Aniba firmula</i> (Nees & Mart.) Mez	34962 Souza	
<i>Inga capitata</i> Desv.	897 Delfini		<i>Cinnamomum pseudoglaziovii</i> Lorea-Hern.	131 Virillo	
<i>Inga edulis</i> Mart.	1933 Flores		<i>Cryptocarya aschersoniana</i> Mez	214 Virillo	
<i>Inga edwallii</i> (Harms) T.D.Penn.	1087 Colletta		<i>Cryptocarya mandioccana</i> Meisn.	1037 Colletta	
<i>Inga marginata</i> Willd.	827 Delfini		<i>Cryptocarya saligna</i> Mez	1152 Colletta	
<i>Inga sellowiana</i> Benth.	1086 Colletta		<i>Cryptocarya moschata</i> Nees & Mart.	1804 Flores	
<i>Inga sessilis</i> (Vell.) Mart.	843 Delfini		<i>Endlicheria paniculata</i> (Spreng.) J.F.Macbr.	1143 Colletta	
<i>Machaerium cantarellianum</i> Hoehne	898 Cabral		<i>Nectandra leucantha</i> Nees	123 Virillo	
<i>Machaerium hirtum</i> (Vell.) Stellfeld	34975 Souza		<i>Nectandra membranacea</i> (Sw.) Griseb.	34978 Souza	
<i>Machaerium nyctitans</i> (Vell.) Benth.	1079 Colletta		<i>Nectandra oppositifolia</i> Nees	34909 Souza	
<i>Machaerium stipitatum</i> Vogel	ESA 125250		<i>Nectandra psammophila</i> Nees	227 Virillo	
<i>Machaerium villosum</i> Vogel	1035 Colletta		<i>Ocotea aciphylla</i> (Nees & Mart.) Mez	1109 Colletta	
<i>Mimosa pudica</i> L.	871 Cabral		<i>Ocotea brachybotrya</i> (Meisn.) Mez	939 Kuntz	
<i>Mucuna urens</i> (L.) Medik.	104 Virillo		<i>Ocotea daphnifolia</i> (Meisn.) Mez	7 Bettinardi	
<i>Ormosia arborea</i> (Vell.) Harms	1435 Colletta		<i>Ocotea dispersa</i> (Nees & Mart.) Mez	833 Delfini	
<i>Phanera microstachya</i> (Raddi) L.P.Queiroz	938a Cabral		<i>Ocotea elegans</i> Mez	898 Delfini	
<i>Phanera splendens</i> (Kunth) Vaz	35028 Souza		<i>Ocotea odorifera</i> (Vell.) Rohwer	1145 Colletta	
<i>Piptadenia gonoacantha</i> (Mart.) J.F.Macbr.	34904 Souza		<i>Ocotea teleiandra</i> (Meisn.) Mez	1097 Polisel	
<i>Piptadenia paniculata</i> Benth.	55 Bettinardi		<i>Ocotea venulosa</i> (Nees) Baitello	1082 Colletta	
<i>Pseudopiptadenia warmingii</i> (Benth.) G.P.Lewis & M.P.Lima	66 Bettinardi		<i>Persea willdenovii</i> Kosterm.	34949 Souza	
<i>Pterocarpus rohrii</i> Vahl	1144 Colletta		Lecythidaceae		
<i>Schizolobium parahyba</i> (Vell.) Blake	ESA 125154		<i>Cariniana estrellensis</i> (Raddi) Kuntze	56 Bettinardi	
<i>Senna cernua</i> (Balb.) H.S.Irwin & Barneby	25 Bettinardi		Linderniaceae		
<i>Senna multijuga</i> (Rich.) H.S.Irwin & Barneby	838 Delfini		<i>Lindernia crustacea</i> (L.) F.Muell.	866 Cabral	
<i>Tachigali denudata</i> (Vogel) Oliveira-Filho	1068 Kuntz		<i>Lindernia diffusa</i> (L.) Wettst.	868 Cabral	
<i>Vatairea heteroptera</i> (Allemão) Ducke	1007 Colletta		<i>Torenia thouarsii</i> (Cham. & Schltdl.) Kuntze	1152 Polisel	
<i>Zollernia ilicifolia</i> (Brongn.) Vogel	35004 Souza		Loganiaceae		
			<i>Spigelia beyrichiana</i> Cham. & Schltdl.	977 Kuntz	

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Table 1. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Spigelia flemmingiana</i> Cham. & Schltldl.	1115 Colletta		MONIMIACEAE		
<i>Spigelia pusilla</i> Mart.	923 Delfini		<i>Mollinedia schottiana</i> (Spreng.) Perkins	1835 Flores	
<i>Strychnos acuta</i> Progel	1007 Kuntz		MORACEAE		
<i>Strychnos trinervis</i> (Vell.) Mart.	1930 Flores		<i>Brosimum glaziovii</i> Taub.	1838 Flores	
Loranthaceae			<i>Brosimum guianense</i> (Aubl.) Huber	1036 Colletta	
<i>Struthanthus flexicaulis</i> Mart.	1035 Kuntz		<i>Brosimum lactescens</i> (S.Moore) C.C.Berg	1062 Colletta	
Lythraceae			<i>Dorstenia hirta</i> Desv.	913 Delfini	
<i>Cuphea calophylla</i> Cham. & Schltldl.	869 Cabral		<i>Ficus eximia</i> Schott	1138 Colletta	
Magnoliaceae			<i>Ficus gomelleira</i> Kunth	1012 Colletta	
<i>Magnolia ovata</i> (A.St.-Hil.) Spreng	34973 Souza		<i>Ficus adhatodifolia</i> Schott ex Spreng.	23 Bettinardi	
Malpighiaceae			<i>Ficus obtusiuscula</i> (Miq.) Miq.	946 Kuntz	
<i>Bunchosia maritima</i> (Vell.) J.F.Macbr.	897 Cabral		<i>Ficus pulchella</i> Schott	183 Virillo	
<i>Niadenzuela glabra</i> (Spreng.) W.R.Anderson	1922 Flores		<i>Sorocea bonplandii</i> (Baill.) W.C.Burger et al.	1839 Flores	
<i>Stigmaphyllon puberulum</i> Griseb.	1191 Polisel		MYRISTICACEAE		
<i>Stigmaphyllon tomentosum</i> A.Juss.	35052 Souza		<i>Virola bicuhyba</i> (Schott ex Spreng.) Warb.	1057 Polisel	EN
Malvaceae			<i>Virola gardneri</i> (A.DC.) Warb.	1158 Colletta	
<i>Ceiba speciosa</i> (A.St.-Hil.) Ravenna	193 Virillo		MYRTACEAE		
<i>Pavonia nemoralis</i> A.St.-Hil.	36 Virillo		<i>Calyptanthes concinna</i> DC.	1098 Colletta	
<i>Pseudobombax</i> sp.	34974 Souza		<i>Calyptanthes grandifolia</i> O.Berg	1032 Colletta	
<i>Sida planicaulis</i> Cav.	48 Virillo		<i>Calyptanthes lanceolata</i> O.Berg	34990 Souza	
<i>Sida rhombifolia</i> L.	984 Delfini		<i>Calyptanthes lucida</i> Mart. ex DC.	42 Bettinardi	
<i>Spirotheca rivieri</i> (Decne.) Ulbr.	995 Colletta		<i>Calyptanthes strigipes</i> O.Berg	224 Virillo	
<i>Triumfetta grandiflora</i> Vahl	801 Delfini		<i>Campomanesia phaea</i> (O.Berg) Landrum	852 Delfini	
MARANTHACEAE			<i>Campomanesia xanthocarpa</i> (Mart.) O.Berg	1837 Flores	
<i>Stromanthe tonckat</i> (Aubl.) Eichler	1005 Delfini		<i>Eugenia brevistyla</i> D.Legrand	35008 Souza	
MARCGRAVIACEAE			<i>Eugenia cerasiflora</i> Miq.	202 Virillo	
<i>Marcgravia polyantha</i> Delpino	927 Cabral		<i>Eugenia cuprea</i> (O.Berg) Nied.	936 Kuntz	
MELASTOMATACEAE			<i>Eugenia malacantha</i> D.Legrand	205 Virillo	EN
<i>Bertolonia mosenii</i> Cogn.	1159 Polisel		<i>Eugenia mosenii</i> (Kausel) Sobral	983 Colletta	
<i>Clidemia hirta</i> (L.) D.Don	1110 Polisel		<i>Eugenia oblongata</i> O.Berg	1048 Colletta	
<i>Leandra variabilis</i> Raddi	34911 Souza		<i>Eugenia pruinosa</i> D.Legrand	150 Virillo	EN
<i>Leandra melastomoides</i> Raddi	34945 Souza		<i>Eugenia supraaxillaris</i> Spring	35037 Souza	
<i>Leandra refracta</i> Cogn.	1887 Flores		<i>Marlierea eugeniopoides</i> (D.Legrand & Kausel) D.Legrand	6 Bettinardi	
<i>Leandra reversa</i> (DC.) Cogn.	844 Cabral		<i>Marlierea silvatica</i> (O.Berg) Kiaersk.	152 Virillo	
<i>Meriania glabra</i> (DC.) Triana	35043 Souza		<i>Marlierea suaveolens</i> Cambess.	1045 Colletta	
<i>Miconia brunnea</i> DC.	895 Cabral		<i>Marlierea tomentosa</i> Cambess.	1085 Polisel	
<i>Miconia cabucu</i> Hoehne	1059 Polisel		<i>Myrceugenia myrcioides</i> (Cambess.) O.Berg	1186 Polisel	
<i>Miconia cinerascens</i> Miq.	900 Cabral		<i>Myrcia flagellaris</i> (D.Legrand) Sobral	35026 Souza	
<i>Miconia cinnamomifolia</i> (DC.) Naudin	1090 Polisel		<i>Myrcia hatschbachii</i> D.Legrand	1126 Colletta	
<i>Miconia dodecandra</i> Cogn.	22 Bettinardi		<i>Myrcia heringii</i> D.Legrand	1105 Colletta	
<i>Miconia latecrenata</i> (DC.) Naudin	170 Virillo		<i>Myrcia pubipetala</i> Miq.	1921 Flores	
<i>Miconia leucocarpa</i> DC.	848 Delfini		<i>Myrcia spectabilis</i> DC.	1156 Colletta	
<i>Miconia paniculata</i> (DC.) Naudin	1002 Kuntz		<i>Myrcia splendens</i> (Sw.) DC.	1004 Colletta	
<i>Miconia racemifera</i> (DC.) Triana	1797 Flores		<i>Plinia complanata</i> M.L.Kawas. & B.Holst	35035 Souza	EN
<i>Miconia tristis</i> Spring	851 Delfini		<i>Plinia pseudodichasiantha</i> (Kiaersk.) G.M.Barroso ex Sobral	35024 Souza	
<i>Mouriri chamissoana</i> Cogn.	1043 Colletta		<i>Psidium cattleianum</i> Sabine	34981 Souza	
<i>Ossaea angustifolia</i> (DC.) Triana	836 Delfini		NYCTAGINACEAE		
<i>Ossaea sanguinea</i> Cogn.	1019 Kuntz		<i>Guapira nitida</i> (Mart. ex J.A.Schmidt) Lundell	228 Virillo	
<i>Pleiochiton blepharodes</i> (DC.) Reginato et al.	1816 Flores		<i>Guapira opposita</i> (Vell.) Reitz	1027 Colletta	
<i>Pleiochiton ebracteatum</i> Triana	1206 Polisel		<i>Neea pendulina</i> Heimerl	38 Bettinardi	
<i>Pleiochiton glaziovianum</i> Cogn.	1202 Polisel		<i>Neea schwackeana</i> Heimerl	34995 Souza	
<i>Pterolepis glomerata</i> (Rottb.) Miq.	856 Cabral		OCHNACEAE		
<i>Rhynchanthera hispida</i> Naudin	998 Kuntz		<i>Ouratea multiflora</i> (Pohl) Engl.	35018 Souza	
<i>Salpinga margaritacea</i> (Naudin) Triana	35041 Souza		<i>Ouratea parviflora</i> (A.DC.) Baill.	891 Cabral	
<i>Tibouchina clinopodifolia</i> Cogn.	1001 Delfini		<i>Sauvagesia erecta</i> L.	979 Delfini	
<i>Tibouchina fothergillae</i> (Schränk & Mart. ex DC.) Cogn.	1903 Flores		OLACACEAE		
<i>Tibouchina herbacea</i> (DC.) Cogn.	62 Virillo		<i>Heisteria silvianii</i> Schwacke	1132 Colletta	
<i>Tibouchina pulchra</i> Cogn.	845 Delfini		<i>Tetrastylidium grandifolium</i> (Baill.) Sleumer	1029 Colletta	
MELIACEAE			OLEACEAE		
<i>Cabralea canjerana</i> (Vell.) Mart.	1802 Flores		<i>Chionanthus filiformis</i> (Vell.) P.S.Green	1124 Colletta	
<i>Cedrela fissilis</i> Vell.	947 Kuntz	VU	ONAGRACEAE		
<i>Cedrela odorata</i> L.	1168 Colletta	VU	<i>Ludwigia elegans</i> (Cambess.) H.Hara	994 Delfini	
<i>Guarea macrophylla</i> Vahl	1061 Polisel		<i>Ludwigia octovalvis</i> (Jacq.) P.H.Raven	967 Delfini	
<i>Trichilia elegans</i> A.Juss.	28 Bettinardi		ORCHIDACEAE		
MENISPERMACEAE			<i>Acianthera oligantha</i> (Barb.Rodr.) F.Barros	120 Virillo	
<i>Cissampelos andromorpha</i> DC.	883 Delfini		<i>Aspidogyne longicornu</i> (Cogn.) Garay	35017 Souza	

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Table 1. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Barbosella</i> sp.	1053 Kuntz		<i>Piper rivinoides</i> Kunth	802 Delfini	
<i>Campylocentrum linearifolium</i> Schltr ex. Mansf.	906 Kuntz		<i>Piper setebarranense</i> E.F.Guim. & L.H.P.Costa	813 Delfini	
<i>Cleistes libonii</i> (Rchb.f.) Schltr.	9 Virillo		<i>Piper solmsianum</i> C.DC.	826 Delfini	
<i>Corymborkis flava</i> (Sw.) Kuntze	995 Kuntz		<i>Piper umbellatum</i> L.	57 Virillo	
<i>Cyrtopodium</i> sp.	1169 Colletta		Plantaginaceae		
<i>Dichaea cogniauxiana</i> Schltr.	892 Kuntz		<i>Plantago australis</i> Lam.	1144 Polisel	
<i>Dichaea pendula</i> (Aubl.) Cogn.	930 Cabral		Poaceae		
<i>Elleanthus brasiliensis</i> (Lindl.) Rchb.f.	901 Cabral		<i>Andropogon bicornis</i> L.	974 Delfini	
<i>Epidendrum armeniacum</i> Lindl.	98 Virillo		<i>Cortaderia selloana</i> (Schult.) Asch.	1020 Colletta	
<i>Epidendrum latilabre</i> Lindl.	1197 Polisel		<i>Digitaria bicornis</i> (Lam.) Roem. & Schult.	992 Delfini	
<i>Epidendrum nocturnum</i> Jacq.	900 Kuntz		<i>Eragrostis leucosticta</i> Nees ex Döll	1014 Colletta	
<i>Epidendrum ramosum</i> Jacq.	1203 Polisel		<i>Gymnopogon foliosus</i> (Willd.) Nees	1017 Delfini	
<i>Epidendrum strobiliferum</i> Rchb.f.	121 Virillo		<i>Ichnanthus tenuis</i> (J. Presl & C. Presl) Hitchc. & Chase	1127 Polisel	
<i>Epidendrum xanthinum</i> Lindl.	942 Cabral		<i>Lasiacis ligulata</i> Hitchc. & Chase	1018 Delfini	
<i>Eulophia alta</i> (L.) Fawc. & Rendle	1854 Flores		<i>Merostachys ternata</i> Nees	1413 Colletta	
<i>Gomesa flexuosa</i> (Lodd.) M.W.Chase & N.H.Williams	876 Delfini		<i>Olyra ecaudata</i> Döll	1155 Polisel	
<i>Habenaria josephensis</i> Barb.Rodr.	921 Delfini		<i>Olyra latifolia</i> L.	961 Kuntz	
<i>Habenaria parviflora</i> Lindl.	1865 Flores		<i>Oplismenus hirtellus</i> (L.) P.Beauv.	1004 Delfini	
<i>Heterotaxis brasiliensis</i> (Brieger & Illg) F.Barros	928 Kuntz		<i>Panicum sellowii</i> Nees	846 Cabral	
<i>Ligeophila juruenensis</i> (Hoehne) Garay	941 Delfini		<i>Paspalum atratum</i> Swallen	1133 Polisel	
<i>Liparis nervosa</i> (Thumb.) Lindl.	985 Kuntz		<i>Paspalum commune</i> Lillo	864 Cabral	
<i>Maxillaria ochroleuca</i> Lodd. ex Lindl.	875 Delfini		<i>Paspalum conjugatum</i> P.J.Bergius	967 Kuntz	
<i>Octomeria crassifolia</i> Lindl.	1200 Polisel		<i>Paspalum corcovadense</i> Raddi	969 Kuntz	
<i>Oeceoclades maculata</i> (Lindl.) Lindl.	925 Delfini		<i>Paspalum nutans</i> Lam.	1 Virillo	
<i>Phymatidium falcifolium</i> Lindl.	925 Cabral		<i>Pharus lappulaceus</i> Aubl.	917 Delfini	
<i>Polystachya micrantha</i> Schltr.	899 Kuntz		<i>Pharus parvifolius</i> Nash	43 Virillo	
<i>Promenaea xanthina</i> Lindl.	903 Cabral		<i>Pseudechinolaena polystachya</i> (Kunth) Stapf	940 Cabral	
<i>Prosthechea fragrans</i> (Sw.) W.E.Higgins	1198 Polisel		<i>Rugloa pilosa</i> (Sw.) Zuloaga	34 Virillo	
<i>Prosthechea glumacea</i> (Lindl.) W.E.Higgins	926 Kuntz		<i>Rugloa polygonata</i> (Schrad.) Zuloaga	910 Delfini	
<i>Prosthechea pygmaea</i> (Hook.) W.E.Higgins	862 Delfini		<i>Saccharum asperum</i> (Nees) Steud.	1014 Delfini	
<i>Scaphyglottis modesta</i> (Rchb.f.) Schltr.	905 Kuntz		<i>Sacciolepis vilvoidea</i> (Trin.) Chase	987 Delfini	
<i>Stelis hypnicola</i> (Lindl.) Pridgeon & M.W.Chase	1062 Kuntz		<i>Setaria sulcata</i> Raddi	1020 Delfini	
<i>Xylobium variegatum</i> (Ruiz & Pav.) Garay & Dunst.	865 Delfini		<i>Streptochaeta spicata</i> Schrad. ex Nees	920 Delfini	
<i>Zygostates cornuta</i> Lindl.	116 Virillo		<i>Trichantheum cyanescens</i> (Nees ex Trin.) Zuloaga & Morrone	952 Cabral	
Oxalidaceae			Podocarpaceae		
<i>Oxalis cytisoides</i> Mart. ex Zucc.	976 Delfini		<i>Podocarpus sellowii</i> Klotzsch ex Endl.	1100 Colletta	
Passifloraceae			Polygalaceae		
<i>Passiflora capsularis</i> L.	934 Kuntz		<i>Bredemeyera floribunda</i> Willd.	1429 Colletta	
<i>Passiflora mediterranea</i> Vell.	1817 Flores		<i>Caamembeca laureola</i> (A.St.-Hil. & Moq.) J.F.B.Pastore	940 Delfini	
Peraceae			<i>Diclidanthera laurifolia</i> Mart.	882 Cabral	
<i>Pera glabrata</i> (Schott) Poepp. ex Baill.	1001 Colletta		<i>Polygala paniculata</i> L.	10 Virillo	
Phyllanthaceae			Polygonaceae		
<i>Hieronyma alchorneoides</i> Allemão	1016 Colletta		<i>Coccoloba warmingii</i> Meisn.	935 Kuntz	
<i>Phyllanthus niruri</i> L.	984 Kuntz		<i>Ruprechtia laurifolia</i> (Cham. & Schltld.) A.C.Meyer	1848 Flores	
Phytolaccaceae			Primulaceae		
<i>Phytolacca dioica</i> L.	819 Cabral		<i>Ardisia guianensis</i> (Aubl.) Mez	1799 Flores	
<i>Phytolacca thyrsoiflora</i> Fenzl. ex J.A.Schmidt	33 Virillo		<i>Myrsine coriacea</i> (Sw.) R.Br. ex Roem. & Schult.	35019 Souza	
Picramnaceae			<i>Myrsine hermogenesii</i> (Jung-Mend. & Bernacci) M.F.Freitas & Kin.-Gouv.	35030 Souza	
<i>Picramnia ramiflora</i> Planch.	60 Bettinardi		<i>Myrsine umbellata</i> Mart.	140 Virillo	
<i>Picramnia gardneri</i> Planch.	ESA 125015		<i>Myrsine venosa</i> A.DC.	844 Delfini	
Piperaceae			<i>Stylogyne Ihotzkyana</i> (A.DC.) Mez	893 Cabral	
<i>Manekia obtusa</i> (Miq.) Arias et al.	881 Delfini		Proteaceae		
<i>Peperomia circinnata</i> Link	1208 Polisel		<i>Euplassa legalis</i> (Vell.) I.M.Johnst.	1094 Colletta	
<i>Peperomia corcovadensis</i> Gardner	908 Cabral		<i>Roupala montana</i> Aubl.	953 Kuntz	
<i>Peperomia subrubripica</i> C.DC.	1199 Polisel		Quiinaceae		
<i>Peperomia tetraphylla</i> (G.Forst.) Hook. & Arn.	1064 Kuntz		<i>Quiina glazovii</i> Engl.	34915 Souza	
<i>Peperomia urocarpa</i> Fisch. & C.A.Mey.	898 Kuntz		Ranunculaceae		
<i>Piper aduncum</i> L.	1403 Colletta		<i>Clematis</i> sp.	1065 Kuntz	
<i>Piper amplum</i> Kunth	34 Bettinardi		Rosaceae		
<i>Piper arboreum</i> Aubl.	35955 Souza		<i>Prunus myrtifolia</i> (L.) Urb.	44 Bettinardi	
<i>Piper cernuum</i> Vell.	804 Delfini		<i>Rubus rosifolius</i> Sm.	56 Virillo	
<i>Piper chimonanthifolium</i> Kunth	ESA 125096		<i>Rubus sellowii</i> Cham. & Schltld.	1059 Kuntz	
<i>Piper gaudichaudianum</i> Kunth	1910 Flores		Rubiaceae		
<i>Piper lanceolatum</i> Ruiz & Pav.	810 Delfini		<i>Aleisis floribunda</i> Schott	1135 Colletta	
<i>Piper lepturum</i> Kunth	156 Virillo				
<i>Piper Ihotzkyanum</i> Kunth	1891 Flores				
<i>Piper malacophyllum</i> (C.Presl) C.DC.	1176 Polisel				
<i>Piper mollicomum</i> Kunth	837 Delfini				

Continued

Table 1. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Amaioua intermedia</i> Mart. ex Schult. & Schult.f.	1 Bettinardi		Sapindaceae		
<i>Bathysa australis</i> (A.St.-Hil.) K.Schum.	1185 Polisel		<i>Allophylus petiolulatus</i> Radlk.	1015 Kuntz	
<i>Borreria schumannii</i> (Standl. ex Bacigalupo) E.L. Cabral & Sobrado	843 Cabral		<i>Cupania ludowigii</i> Somner & Ferrucci	1941 Flores	
<i>Borreria latifolia</i> (Aubl.) K.Schum.	877 Delfini		<i>Cupania oblongifolia</i> Mart.	34926 Souza	
<i>Borreria ocymifolia</i> (Roem. & Schult.) Bacigalupo & E.L.Cabral	816 Delfini		<i>Matayba obovata</i> R. Coelho, Souza & Ferrucci	151 Virillo	
<i>Borreria palustris</i> (Cham. & Schltld.) Bacigalupo & E.L.Cabral	862 Cabral		<i>Serjania meridionalis</i> Cambess.	113 Virillo	
<i>Chomelia parvifolia</i> (Standl.) Govaerts	982 Colletta		<i>Serjania reticulata</i> Cambess.	1040 Kuntz	
<i>Coccocypselum capitatum</i> (Graham) C.B.Costa & Mamede	824 Delfini		Sapotaceae		
<i>Coccocypselum hasslerianum</i> Chodat	993 Kuntz		<i>Chrysophyllum flexuosum</i> Mart.	888 Cabral	
<i>Coccocypselum geophiloides</i> Wawra	946 Cabral		<i>Chrysophyllum inornatum</i> Mart.	1044 Colletta	
<i>Coccocypselum lanceolatum</i> (Ruiz & Pav.) Pers.	42 Virillo		<i>Chrysophyllum viride</i> Mart. & Eichler	126 Virillo	
<i>Coussarea contracta</i> (Walp.) Müll.Arg.	1067 Colletta		<i>Diploon cuspidatum</i> (Hoehne) Cronquist	1052 Colletta	
<i>Diodia saponariifolia</i> (Cham. & Schltld.) K.Schum.	959 Delfini		<i>Ecclinusa ramiflora</i> Mart.	1034 Colletta	
<i>Emmeorrhiza umbellata</i> (Spreng.) K.Schum.	925 Kuntz		<i>Micropholis crassipedicellata</i> (Mart. & Eichler) Pierre	1134 Colletta	
<i>Faramea multiflora</i> A.Rich. ex DC.	884 Cabral		<i>Pouteria beaurepairei</i> (Glaz. & Raunk.) Baehni	975 Colletta	
<i>Faramea tetragona</i> Müll.Arg.	1163 Colletta		<i>Pouteria caimito</i> (Ruiz & Pav.) Radlk.	1084 Colletta	
<i>Ferdinandusa</i> sp.	35000 Souza		<i>Pradosia lactescens</i> (Vell.) Radlk.	201 Virillo	
<i>Galianthe brasiliensis</i> (Spreng.) E.L.Cabral & Bacigalupo	1000 Delfini		Schlegeliaceae		
<i>Geophila repens</i> (L.) I.M.Johnst.	998 Delfini		<i>Schlegelia parviflora</i> (Oerst.) Monach.	1107 Colletta	
<i>Manettia luteo-rubra</i> (Vell.) Benth.	881 Cabral		Scrophulariaceae		
<i>Manettia gracilis</i> Cham. & Schltld.	1210 Polisel		<i>Buddleja brachiata</i> Cham. & Schltld.	34982 Souza	
<i>Margaritopsis cephalantha</i> (Müll.Arg.) C.M.Taylor	1003 Kuntz		Solanaceae		
<i>Margaritopsis cymuligera</i> (Müll.Arg.) C.M.Taylor	8 Bettinardi		<i>Acnistus arborescens</i> (L.) Schltld.	1026 Kuntz	
<i>Palicourea marcgravii</i> A.St.-Hil.	883 Cabral		<i>Athenea</i> sp.	64 Virillo	
<i>Posoqueria acutifolia</i> Mart.	20 Bettinardi		<i>Brunfelsia pauciflora</i> (Cham. & Schltld.) Benth.	879 Cabral	
<i>Posoqueria latifolia</i> (Rudge) Schult.	1110 Colletta		<i>Brunfelsia uniflora</i> (Pohl) D.Don	825 Delfini	
<i>Psychotria brachypoda</i> (Müll.Arg.) Britton	838 Cabral		<i>Capsicum recurvatum</i> (Witasek) Hunz.	35055 Souza	
<i>Psychotria deflexa</i> DC.	1040 Colletta		<i>Cestrum bracteatum</i> Link & Otto	814 Delfini	
<i>Psychotria forsteronioides</i> Müll.Arg.	67 Virillo		<i>Schwenckia</i> sp.	34906 Souza	
<i>Psychotria gracilentia</i> Müll.Arg.	833 Cabral		<i>Solanum americanum</i> Mill.	63 Virillo	
<i>Psychotria hastisepala</i> Müll.Arg.	880 Cabral		<i>Solanum castaneum</i> Carvalho	847 Delfini	
<i>Psychotria hoffmannseggiana</i> (Willd. ex Schult.) Müll.Arg.	54 Virillo		<i>Solanum pseudoquina</i> A.St.-Hil.	1451 Colletta	
<i>Psychotria leiocarpa</i> Cham. & Schltld.	1056 Colletta		<i>Solanum swartzianum</i> Roem. & Schult.	846 Delfini	
<i>Psychotria leitana</i> C.M.Taylor	1139 Colletta		Symplocaceae		
<i>Psychotria mapouriioides</i> DC.	1150 Colletta		<i>Symplocos estrellensis</i> Casar.	1148 Colletta	
<i>Psychotria nemorosa</i> Gardner	74 Virillo		<i>Symplocos falcata</i> Brand	208 Virillo	
<i>Psychotria nuda</i> (Cham. & Schltld.) Wawra	1047 Colletta		<i>Symplocos laxiflora</i> Benth.	1360 Colletta	
<i>Psychotria ruelliiifolia</i> (Cham. & Schltld.) Müll.Arg.	1075 Colletta		Thymeliaceae		
<i>Psychotria suterella</i> Müll.Arg.	81 Virillo		<i>Daphnopsis schwackeana</i> Taub.	1104 Colletta	
<i>Psychotria tenerior</i> (Cham.) Müll.Arg.	835 Cabral		Urticaceae		
<i>Psychotria vellosiana</i> Benth.	ESA 125254		<i>Boehmeria caudata</i> Sw.	1179 Polisel	
<i>Rudgea coriacea</i> (Spreng.) K.Schum.	1024 Colletta		<i>Boehmeria cylindrica</i> (L.) Sw.	968 Delfini	
<i>Rudgea gardenioides</i> (Cham.) Müll.Arg.	1130 Colletta		<i>Cecropia glaziovii</i> Sneath.	1019 Colletta	
<i>Rudgea jasminoides</i> (Cham.) Müll.Arg.	1057 Colletta		<i>Cecropia pachystachya</i> Trécul	43 Bettinardi	
<i>Rudgea recurva</i> Müll.Arg.	1004 Kuntz		<i>Coussapoa microcarpa</i> (Schott) Rizzini	886 Cabral	
<i>Sabicea villosa</i> Willd. ex Schult.	882 Delfini		<i>Pilea pubescens</i> Liebm.	981 Kuntz	
Rutaceae			<i>Pourouma acuminata</i> Mart. ex Miq.	1055 Polisel	
<i>Esenbeckia grandiflora</i> Mart.	230 Virillo		<i>Urera caracasana</i> (Jacq.) Griseb.	1917 Flores	
<i>Zanthoxylum rhoifolium</i> Lam.	59 Bettinardi		<i>Urera nitida</i> (Vell.) P.Brack	829 Delfini	
Sabiaceae			Verbenaceae		
<i>Meliosma chartacea</i> Lombardi	984 Colletta		<i>Citharexylum myrianthum</i> Cham.	1077 Colletta	
<i>Meliosma sellowii</i> Urb.	1006 Kuntz		<i>Lantana trifolia</i> L.	948 Delfini	
Salicaceae			<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	997 Kuntz	
<i>Casearia decandra</i> Jacq.	34985 Souza		<i>Verbena litoralis</i> Kunth	953 Delfini	
<i>Casearia obliqua</i> Spreng.	1056 Polisel		Vitaceae		
<i>Casearia sylvestris</i> Sw.	1851 Flores		<i>Cissus paulliniifolia</i> Vell.	1046 Kuntz	
<i>Prockia crucis</i> P.Browne ex L.	1187 Polisel		<i>Cissus sulcicaulis</i> (Baker) Planch.	102 Virillo	
Santalaceae			<i>Cissus verticillata</i> (L.) Nicolson & C.E.Jarvis	873 Delfini	
<i>Phoradendron crassifolium</i> (Pohl ex DC.) Eichler	1889 Flores		Vochysiaceae		
<i>Phoradendron undulatum</i> (Pohl ex DC.) Eichler	1193 Polisel		<i>Callisthene fasciculata</i> Mart.	956 Kuntz	
			Winteraceae		
			<i>Drimys brasiliensis</i> Miers	1123 Colletta	
			Xyridaceae		
			<i>Xyris laxifolia</i> Mart.	1853 Flores	
			Zingiberaceae		
			<i>Hedychium coronarium</i> J.Koenig	854 Cabral	
			<i>Zingiber officinale</i> Roscoe	820 Delfini	

Table 2. Families and species recorded for the ferns and lycophytes found in the Reserva Votorantim. Vouchers are represented by collector number. Species' status (VU, Vulnerable) follow Estado de São Paulo (2004).

Family/Species	Voucher	Status	Family/Species	Voucher	Status
Anemiaceae			Hemidictyaceae		
<i>Anemia blechnoides</i> J.Sm.	3219 Almeida		<i>Sticherus ferrugineus</i> (Desv.) J. Gonzales	3251 Almeida	
<i>Anemia phyllitidis</i> (L.) Sw.	15598 Salino		<i>Sticherus nigropaleaceus</i> (J.W. Sturm) Prado & Lellinger	15610 Salino	
<i>Anemia raddiana</i> Link	15611 Salino		Hymenophyllaceae		
Aspleniaceae			<i>Hemidictyum marginatum</i> (L.) C. Presl	15668 Salino	
<i>Asplenium alatum</i> Willd.	15662 Salino		Lindsaeaceae		
<i>Asplenium austrobrasiliense</i> (Christ) Maxon	3239 Almeida	VU	<i>Lindsaea arcuata</i> Kunze	15601 Salino	
<i>Asplenium bradeanum</i> Handro	3262 Almeida	VU	<i>Lindsaea lancea</i> (L.) Bedd.	15622 Salino	
<i>Asplenium inaequilaterale</i> Willd.	3241 Almeida		<i>Lindsaea quadrangularis</i> Raddi var. <i>quadrangularis</i>	3235 Almeida	
<i>Asplenium kunzeanum</i> Klotzsch ex Rosenst.	3213 Almeida		Lomariopsidaceae		
<i>Asplenium mucronatum</i> C. Presl	3180 Almeida		<i>Lomariopsis marginata</i> (Schrad.) Kuhn	15604 Salino	
<i>Asplenium muellerianum</i> Rosenst.	3179 Almeida	VU	<i>Nephrolepis brownii</i> (Desv.) Hovenkamp & Miyam.	3252 Almeida	
<i>Asplenium pteropus</i> Kaulf.	15660 Salino		<i>Nephrolepis pectinata</i> (Willd.) Schott	3249 Almeida	
<i>Asplenium radicans</i> L.	3248 Almeida		<i>Nephrolepis pendula</i> (Raddi) J.Sm.	15667 Salino	
<i>Asplenium scandicinum</i> Kaulf.	3217 Almeida		Lycopodiaceae		
<i>Asplenium serratum</i> L.	3206 Almeida		<i>Lycopodium clavatum</i> L.	15671 Salino	
<i>Hymenasplenium laetum</i> (Sw.) L. Regalado & Prada	15633 Salino		<i>Palhinhaea cernua</i> (L.) Franco & Vasc.	3177 Almeida	
<i>Hymenasplenium triquetrum</i> (N. Murak. & R.C. Moran) L. Regalado & Prada	15659 Salino		Lygodiaceae		
Athyriaceae			<i>Lygodium volubile</i> Sw.	15678 Salino	
<i>Deparia peterseni</i> (Kunze) Kato	15652 Salino		Maeattiaceae		
<i>Diplazium ambiguum</i> Raddi	15607 Salino		<i>Danaea geniculata</i> Raddi	3232 Almeida	
<i>Diplazium cristatum</i> (Desr.) Alston	15632 Salino		<i>Danaea nodosa</i> (L.) Sm.	3211 Almeida	
Blechnaceae			<i>Eupodium kauffussii</i> (J. Sm.) Hook.	3212 Almeida	
<i>Blechnum acutum</i> (Desv.) Mett.	3250 Almeida		Osmundaceae		
<i>Blechnum austrobrasiliense</i> de la Sota	3231 Almeida		<i>Osmunda regalis</i> L.	15655 Salino	
<i>Blechnum brasiliense</i> Desv.	15612 Salino		Polypodiaceae		
<i>Blechnum cordatum</i> (Desv.) Hieron	3184 Almeida		<i>Alansmia reclinata</i> (Brack.) Moguel & M. Kessler	15620 Salino	
<i>Blechnum occidentale</i> L.	15657 Salino		<i>Campyloneurum acrocarpon</i> Fée	15624 Salino	
<i>Blechnum polypodioides</i> Raddi	15603 Salino		<i>Campyloneurum decurrens</i> (Raddi) C. Presl	15631 Salino	
<i>Blechnum serrulatum</i> Rich.	3237 Almeida		<i>Campyloneurum lapathifolium</i> (Poir.) Ching	15627 Salino	
<i>Salpichlaena volubilis</i> (Kaulf.) Hook.	3229 Almeida		<i>Campyloneurum nitidum</i> (Kaulf.) C. Presl	3246 Almeida	
Cyatheaceae			<i>Campyloneurum rigidum</i> (Aubl.) C. Presl	15648 Salino	
<i>Alsophila setosa</i> Kaulf.	15669 Salino		<i>Campyloneurum serrulatum</i> (Sw.) L.E. Bishop	3181 Almeida	
<i>Alsophila sternbergii</i> (Sternb.) Conant	3207 Almeida		<i>Microgramma geminata</i> (Schrad.) A.F. Tryon & R.M. Tryon	3258 Almeida	
<i>Cyathea atrovirens</i> (Langsd. & Fisch.) Domin	3189 Almeida		<i>Microgramma percussa</i> (Cav.) de la Sota	3176 Almeida	
<i>Cyathea corcovadensis</i> (Raddi) Domin	15616 Salino		<i>Microgramma squamulosa</i> (Kaulf.) de la Sota	3245 Almeida	
<i>Cyathea delgadii</i> Sternb.	15609 Salino		<i>Microgramma tecta</i> (Kaulf.) Alston	3203 Almeida	
<i>Cyathea hirsuta</i> C. Presl	15613 Salino		<i>Microgramma vacciniifolia</i> Langsd. & Fisch.	3216 Almeida	
<i>Cyathea leucofolis</i> Domin	15630 Salino		<i>Niphidium crassifolium</i> (L.) Lellinger	3247 Almeida	
<i>Cyathea phalerata</i> Mart.	3208 Almeida		<i>Pecluma cnoophora</i> (Kunze) Salino & F.C. Assis	3183 Almeida	
<i>Cyathea villosa</i> Willd.	3255 Almeida		<i>Pecluma robusta</i> (Fée) M. Kessler & A.R. Sm.	3188 Almeida	
Dennstaedtiaceae			<i>Pecluma truncorum</i> (Lindm.) M.G. Price	15600 Salino	
<i>Dennstaedtia cicutaria</i> (Sw.) T.Moore	3253 Almeida		<i>Pleopeltis astrolepis</i> (Liebm.) Fourn.	3202 Almeida	
<i>Dennstaedtia dissecta</i> (Sw.) T.Moore	15608 Salino		<i>Pleopeltis desvauxii</i> (Klotzsch) Salino	3214 Almeida	
<i>Pteridium arachnoideum</i> (Kaulf.) Maxon	3236 Almeida		<i>Pleopeltis hirsutissima</i> (Raddi) de la Sota	3186 Almeida	
Dryopteridaceae			<i>Pleopeltis pleopeltifolia</i> (Raddi) Alston	3225 Almeida	
<i>Ctenitis aspidioides</i> (C.Presl) Copel.	15646 Salino		<i>Serpocaulon catharinae</i> (Langsd. & Fisch.) A.R. Sm.	15654 Salino	
<i>Ctenitis pedicellata</i> (Christ) Copel.	15594 Salino		<i>Serpocaulon fraxinifolium</i> (Jacq.) A.R. Sm.	3178 Almeida	
<i>Ctenitis submarginalis</i> (Langsd. & Fisch.) Ching	15640 Salino		<i>Serpocaulon sehnenii</i> (Pic. Serm.) Labiak & Prado	Almeida3221	
<i>Didymochlaena truncatula</i> (Sw.) J.Sm.	15623 Salino		Pteridaceae		
<i>Elaphoglossum glaziovii</i> (Fée) Brade	15593 Salino		<i>Adiantum curvatum</i> Kaulf.	3233 Almeida	
<i>Elaphoglossum iguapense</i> Brade	3256 Almeida	VU			
<i>Elaphoglossum lingua</i> (C.Presl) Brack.	15596 Salino				
<i>Elaphoglossum longifolium</i> (Jacq.) J. Sm.	15619 Salino	VU			
<i>Elaphoglossum luridum</i> (Fée) Christ	3224 Almeida				
<i>Lastreopsis amplissima</i> (C.Presl) Tindale	3223 Almeida				
<i>Megalastrum albidum</i> R.C.Moran et al.	15626 Salino				
<i>Mickelia scandens</i> (Raddi) R.C. Moran et al.	3198 Almeida				
<i>Offersia cervina</i> (L.) Kunze	3197 Almeida				
<i>Polybotrya cylindrica</i> Kaulf.	3238 Almeida				
<i>Polybotrya semipinnata</i> Fée	3228 Almeida				
<i>Stigmatopteris caudata</i> (Raddi) C.Chr.	15625 Salino				
<i>Stigmatopteris heterocarpa</i> (Fée) Rosenst.	3187 Almeida				
Gleicheniaceae					
<i>Dicranopteris flexuosa</i> (Schrad.) Underw.	15658 Salino				
<i>Gleichenella pectinata</i> (Willd.) Ching	3192 Almeida				

Continued

Table 2. Continued.

Family/Species	Voucher	Status	Family/Species	Voucher	Status
<i>Adiantum diogoanum</i> Glaziou ex Baker	3215 Almeida		Selaginellaceae		
<i>Adiantum incertum</i> Lindm.	15653 Salino		<i>Selaginella</i> sp.	3260 Almeida	
<i>Adiantum obliquum</i> Willd.	15641 Salino		<i>Selaginella contigua</i> Baker	3261 Almeida	
<i>Adiantum pentadactylon</i> Langsd. & Fisch	3227 Almeida		<i>Selaginella flexuosa</i> Spring	3199 Almeida	
<i>Adiantum terminatum</i> Kunze ex Miq.	15677 Salino		<i>Selaginella macrostachya</i> (Spring) Spring	3200 Almeida	
<i>Anetium citrifolium</i> (L.) Splitg.	3218 Almeida	VU	<i>Selaginella valida</i> Alston	15617 Salino	
<i>Doryopteris majestosa</i> J.C. Yesilyurt	15642 Salino		Tectariaceae		
<i>Doryopteris pentagona</i> Raddi	15650 Salino		<i>Tectaria buchtienii</i> (Rosenst.) Maxon	3210 Almeida	
<i>Doryopteris sagittifolia</i> (Raddi) J.Sm.	3230 Almeida		<i>Tectaria pilosa</i> (Fée) R.C. Moran	3222 Almeida	
<i>Pityrogramma calomelanos</i> (L.) Link	3194 Almeida		Thelypteridaceae		
<i>Polytaenium lineatum</i> (Sw.) J.Sm.	15599 Salino		<i>Macrothelypteris torresiana</i> Gaudich.	3234 Almeida	
<i>Pteris angustata</i> (Fée) C.V. Morton	15663 Salino		<i>Thelypteris amambayensis</i> (Christ) Ponce	3191 Almeida	
<i>Pteris brasiliense</i> Raddi	15661 Salino		<i>Thelypteris decussata</i> (L.) Proctor	15634 Salino	
<i>Pteris decurrens</i> C. Presl	15651 Salino		<i>Thelypteris dentata</i> (Forssk.) E.P.St. John	3242 Almeida	
<i>Pteris vittata</i> L.	15675 Salino		<i>Thelypteris lugubris</i> (Mett.) R.M. Tryon & A.F. Tryon	15643 Salino	
<i>Radiovittaria stipitata</i> (Kunze) E.H. Crane	15649 Salino		<i>Thelypteris opposita</i> (Vahl) Ching	3185 Almeida	
<i>Vittaria lineata</i> (L.) Sm.	3240 Almeida		<i>Thelypteris pachyrhachis</i> (Kunze ex Mett.) Ching	3195 Almeida	
Saccolomataceae			<i>Thelypteris patens</i> (Sw.) Small	3193 Almeida	
<i>Saccoloma inaequale</i> (Kunze) Mett.	15615 Salino		<i>Thelypteris polypodioides</i> (Raddi) C.F. Reed	3254 Almeida	
Schizaeaceae			<i>Thelypteris raddii</i> (Rosenst.) Ponce	15605 Salino	
<i>Schizaea elegans</i> (Vahl) Sw.	15676 Salino		<i>Thelypteris saxicola</i> (Sw.) C.F. Reed	15679 Salino	

DISCUSSION

The results of our study were largely consistent with those of several other floral studies in São Paulo state. For example, Mamede et al. (2001) found 756 vascular plant species in the Serra da Juréia, and Lima et al. (2011) found 1,143 species in Carlos Botelho State Park. However, whereas we found that Rubiaceae was the richest family in the Reserva Votorantim, other studies in São Paulo state showed Myrtaceae, Fabaceae, and Orchidaceae as predominant (Lima et al. 2011; Kortz 2014). This difference may be attributable to a bias in our sampling process, as certain specimens, mainly Myrtaceae and Fabaceae, were collected when sterile, and consequently we were unable to identify them to species.

Euterpe edulis Mart is widely exploited and traded by local people who remove the edible palm hearts, causing the death of the plant. Although this species is considered threatened (Estado de São Paulo 2004), we found in abundance. This is likely due to the restricted access, which leads to virtually no exploitation and emphasizes the importance of protecting large forest fragments. On the other hand, the presence of the threatened *Araucaria angustifolia* (Bertol.) Kuntze in the reserve is probably more recent according to historical reports; occurrences are possibly due to the nearby plantations of this species.

We also found a new record of the genus *Ferdinandusa* (Rubiaceae) for the state of São Paulo, and we cannot yet identify the specimen at species level. Although there is a specimen in the SPSF herbarium identified as *Ferdinandusa speciosa* (Pohl) Pohl, (SPSF 44152), it has not yet been determined by an expert in the Rubiaceae. Until now, nothing was published on the genus in São Paulo (Jung-Mendaçoli et al. 2007; Anunciação and Calió 2015). The southernmost limit for the genus was

believed to be in Minas Gerais and Mato Grosso do Sul (Anunciação and Calió 2015).

We collected many naturalized species in the reserve, including *Centella asiatica* (L.) Urb, *Asclepias curassavica* L., *Bidens pilosa* L., *Impatiens walleriana* Hook. F., *Desmodium adscendens* (Sw.) DC., *D. incanum* DC., *Hedychium coronarium* J. Koenig, and *Zingiber officinale* Roscoe. This attests to the history of human disturbances in the Reserva Votorantim. The area has several intersecting roads, most of which have been deactivated with the abandonment of adjoining buildings.

We found that the richness of ferns and lycophytes the Reserva Votorantim (147 species) was consistent with other studies in the state, e.g., Jacupiranga State Park (212 species; Salino and Almeida 2008) and Carlos Botelho State Park (123 species; Lima et al. 2011). According to Prado and Hirai (2011), the number of ferns and lycophytes that we found represents >25% of the total fern and lycophyte species in São Paulo state. The high number of ferns and lycophytes in the Reserva Votorantim is likely attributable to its size and preservation in conjunction with yearlong high humidity levels, which is important for reproduction of ferns and lycophytes.

In some cases, we were unable to identify sterile specimens to species due to the limits imposed by the timing of our fieldwork. We expect that future surveys done in other seasons and in unexplored areas will likely increase the number of species for many families, such as Myrtaceae and Orchidaceae, as new fertile specimens are collected and recorded.

Our study represents the first floristic survey in the municipalities of Tapiraí, Miracatu, and Juquiá. The presence of almost 800 plant species, including 16 threatened species, highlights the importance of



Figure 3. Some angiosperms from Reserva Votorantim. **A.** *Ferdinandusa* sp. **B.** *Monstera adansonii* Schott. **C.** *Hygrophila costata* Nees. **D.** *Astrocarium aculeatissimum* (Schott) Burret.



Figure 4. Some ferns and lycophytes from Reserva Votorantim. **A.** *Alsophila sternbergii* (Sternb.) Conant. **B.** *Blechnum acutum* (Desv.) Mett. **C.** *Selaginella flexuosa* Spring. **D.** *Polybotrya cylindrica* Kaulf.

floristic surveys of this kind and also shows the critical role of privately owned protected areas in managing and preserving the native flora.

The results of our floristic survey of the Reserva Votorantim support the concept that the reserve increases greatly a complex of state parks that together form a large, mostly continuous, and well-preserved fragment of Atlantic Forest. Our list of species is the first step towards building the local biodiversity knowledge base. This may be used to ensure effective prioritization, planning and management of future conservation efforts to preserve the invaluable natural heritage of this region.

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