

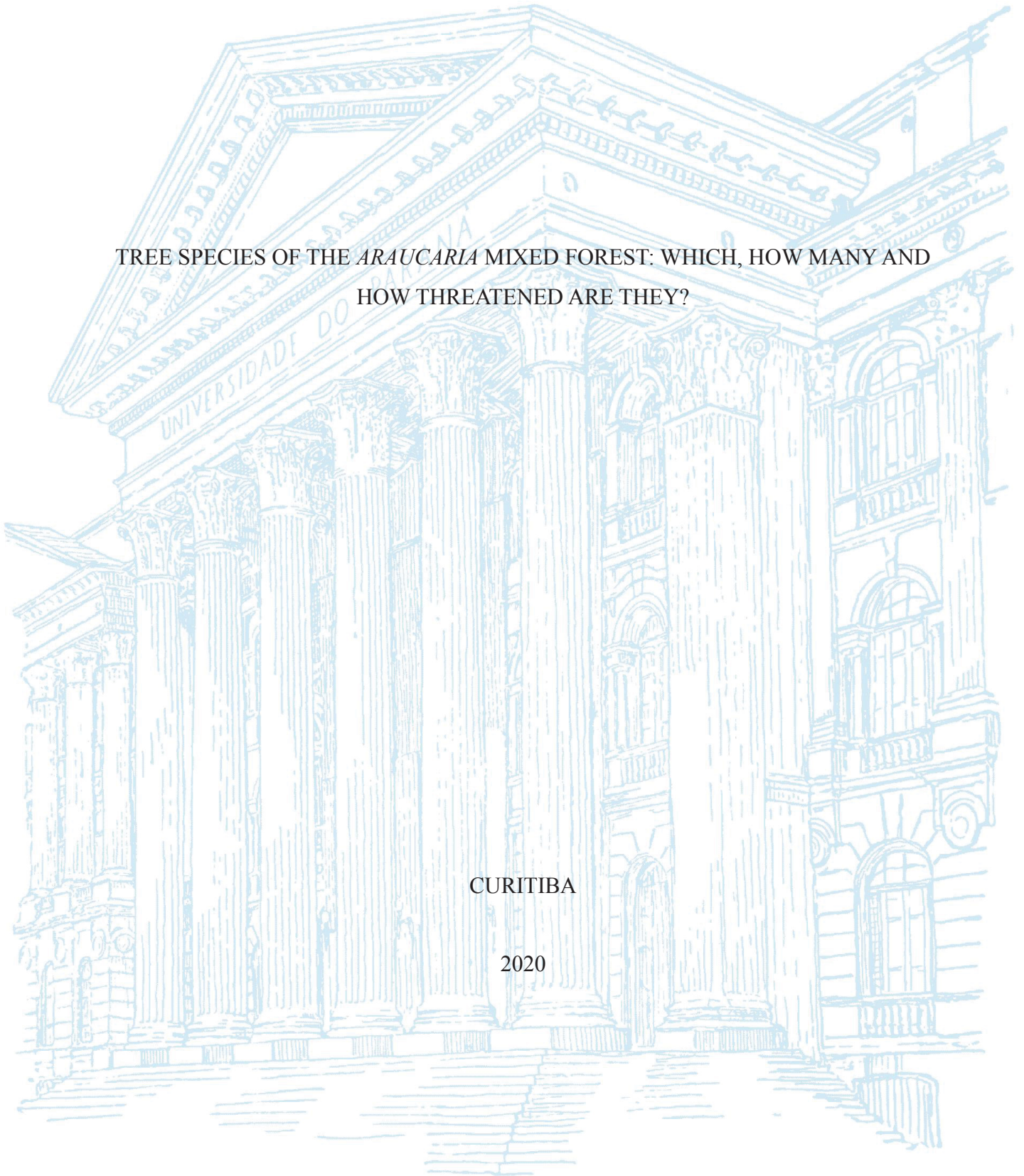
UNIVERSIDADE FEDERAL DO PARANÁ

ANDRESSA ZANELLA

TREE SPECIES OF THE *ARAUCARIA* MIXED FOREST: WHICH, HOW MANY AND  
HOW THREATENED ARE THEY?

CURITIBA

2020



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HOW THREATENED ARE THEY?

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Orientador: Prof<sup>o</sup>. Dr. Marcos Bergmann Carlucci

Co-orientadora: Dra. Fernanda Thiesen Brum

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*Dedico este trabalho a todos que  
estão em busca dos seus sonhos!*

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## RESUMO

Fragmentação de habitat, mudanças climáticas, introdução de espécies exóticas invasoras e sobreexploração são algumas das pressões negativas exercidas sobre o meio ambiente, o que leva ao declínio da biodiversidade mundial. Para conter a perda de diversidade de plantas, as listas vermelhas ajudam a avançar os planos de ação para priorizar a conservação das espécies avaliadas em termos de risco de extinção. A Mata Atlântica é um *hotspot* de biodiversidade, e inclui a Floresta Ombrófila Mista, que sofreu profunda exploração e ainda é alvo de atividades ilícitas. Atributos funcionais podem ajudar a revelar informações sobre como as plantas respondem às mudanças ambientais. É importante entender se, entre as espécies ameaçadas, há padrões claros de relação entre o risco de extinção e os atributos funcionais. Buscamos responder 1) Quantas espécies arbóreas e arborescentes ocorrem na Floresta com Araucária? 2) Quantas destas espécies estão sob algum risco de extinção e como elas estão distribuídas nos estados brasileiros e na Província de Misiones, Argentina? 3) Como os atributos funcionais destas espécies estão relacionados às categorias de ameaça? Nossos resultados revelam a ocorrência de 1.252 espécies em mais de 100 famílias. São Paulo, Minas Gerais e Paraná apresentaram as maiores riquezas de espécie. As famílias Myrtaceae, Fabaceae, Melastomataceae e Lauraceae apresentaram os maiores números de espécie total e ameaçadas. Das espécies listadas, 5,19% estão classificadas como ameaçadas e 73,24% constam como não avaliadas. Não encontramos evidência de relação entre atributos funcionais e risco de extinção. Combinando características funcionais, distribuição e riqueza de espécies, nossos resultados são fundamentais para auxiliar ações de conservação e planos de manejo.

**Palavras-chave:** Atributos funcionais; Espécies ameaçadas; Flora arborea; Floresta subtropical.

## ABSTRACT

Habitat fragmentation, climate change, introduction of invasive exotic species and overexploitation are some of the negative pressures exerted upon the environment, which leads to global biodiversity decline. To contain the loss of plant diversity, the red lists help to advance the action plans to prioritize the conservation of the species evaluated in terms of risk of extinction. The Atlantic Forest is a biodiversity hotspot, and includes the *Araucaria* Mixed Forest, which has suffered and is still subject to overexploitation. Functional traits are good ecosystem functioning indicators and may be used to measure the consequences of habitat loss for species extinction process. We aimed to answer 1) How many tree species occur in the *Araucaria* Mixed Forest? 2) How many of these species are under some risk of extinction and how species richness is distributed within Brazilian states and Argentinean Province of Misiones? 3) How are plant functional traits related to categories of extinction risk? Our results revealed the occurrence of 1,252 species in over 100 families in the *Araucaria* Mixed Forest. São Paulo, Minas Gerais and Paraná showed highest species richness. The number of evaluated species reflects the total number of species found per state. Myrtaceae, Fabaceae, Melastomataceae and Lauraceae were the families with highest numbers of total and threatened species. Out of all the species listed, 5.19% were classified as threatened and 73.24% were not yet evaluated. We found no evidence that functional traits are related to extinction risk. Combining functional characteristics, distribution and species richness, our results are essential to assist conservation actions and management plans.

**Keywords:** Tree flora; Functional traits; Subtropical Forest; Threatened Species.

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## LISTA DE ABREVIATURAS

GSPC	- Global Strategy for Plant Conservation
IUCN	- International Union for Conservation of Nature's
CR	- Critically Endangered
EN	- Endangered
VU	- Vulnerable
NT	- Near Threatened
LC	- Least Concern
DD	- Insufficient Data
NE	- Not Evaluated

## SUMÁRIO

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## TREE SPECIES OF THE *ARAUCARIA* MIXED FOREST: WHICH, HOW MANY AND HOW THREATENED ARE THEY?

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### ABSTRACT

Habitat fragmentation, climate change, introduction of invasive exotic species and overexploitation are some of the negative pressures exerted upon the environment, which leads to global biodiversity decline. To contain the loss of plant diversity, the red lists help to advance the action plans to prioritize the conservation of the species evaluated in terms of risk of extinction. The Atlantic Forest is a biodiversity hotspot, and includes the *Araucaria* Mixed Forest, which has suffered and is still subject to overexploitation. Functional traits are good ecosystem functioning indicators and may be used to measure the consequences of habitat loss for species extinction process. We aimed to answer 1) How many tree species occur in the *Araucaria* Mixed Forest? 2) How many of these species are under some risk of extinction and how species richness is distributed within Brazilian states and Argentinean Province of Misiones? 3) How are plant functional traits related to categories of extinction risk? Our results revealed the occurrence of 1,252 species in over 100 families in the *Araucaria* Mixed Forest. São Paulo, Minas Gerais and Paraná showed highest species richness. The number of evaluated species reflects the total number of species found per state. Myrtaceae, Fabaceae, Melastomataceae and Lauraceae were the families with highest numbers of total and

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**Keywords:** Tree flora; Functional traits; Subtropical Forest; Threatened Species.

## 2. INTRODUCTION

Shifts in land use, climate changes and introduction of invasive exotics are the main causes of worldwide biodiversity decline (Haddad et al. 2015). The number of known plant species across the world is around 370 thousand, with two thirds of them under some degree of extinction risk (SCBD 2009). The Global Strategy for Plant Conservation (GSPC 2009) was created to aid in the protection of threatened plants and consists of 16 goals that promote and direct policy efforts of the involved countries in conservation of plant species (Martinelli and Moraes 2013). Among them, goals 1 and 2 involve increasing the knowledge about worldwide flora and the evaluation of their conservation status, respectively (GSPC 2009). The red lists, which are databases on plants that need priority protection, help identify which International Union for Conservation of Nature's (IUCN) category each species belongs to (IUCN 2016).

. The IUCN Rest List served as a basis and contributed to the advancement of research in Brazil. Based on this incentive, the implementation of action plans focused on endangered species (Martinelli and Moraes 2013). Brazil's guiding documents, which serve as references on the endangered flora, are The Red List of the Brazilian Flora (Martinelli and Moraes 2013) and The National Strategy for the Conservation of Threatened Species (*Portaria* MMA N° 433 of 2014). So far, 46,223 species were identified, being 6,046 evaluated in an extinction category. Of these, 2,953 are categorized as threatened (Critically Endangered = CR; Endangered = EN; Vulnerable = VU) (CNCFlora 2020), but only 322 species are considered in action plans aiming at their conservation and population recover through *ex-situ* activities, such as seeding production and development of inventories for priority areas (Mittermeier et al. 2011). The other IUCN categories are Near Threatened (NT), Least Concern (LC) and Insufficient Data (ID).

The Brazilian flora has been declining mainly due to production patterns, overexploitation and soil occupation, driven mainly by population growth with consequent urbanization and expansion of agricultural and livestock activities (Gentile and D'Andrea 2016). Such events, that cause landscape changes, are observed throughout the Atlantic Forest domain since the beginning of its colonization and exploration (Dean 1997). The Atlantic Forest originally covered around 150 million ha (Ribeiro et al. 2009). It is a biodiversity hotspot because of its high diversity indexes and endemism of species, along with its

advanced stage of degradation (Mittermeier et al. 2011). Nowadays, between 11.73% and 28% of its original range remains (Ribeiro et al. 2009), being ~26% of these reminiscent forest ecosystems and ~2% non-forest native ecosystems (Rezende et al. 2018). The Atlantic Forest comprises the following forest ecosystems: Dense Ombrophilous Forest, Mixed Ombrophilous Forest (= *Araucaria* Mixed Forest), Open Ombrophilous Forest, Deciduous Seasonal Forest and Deciduous Seasonal Forest (Law of the Atlantic Forest, law n° 11.428, Brazil, December 22, December 2006).

Impacts upon natural environments reached the *Araucaria* Mixed Forest, which covered 20 million ha originally in the Southern and Southeastern states of Brazil (Campanili and Schaffer 2010) and was reduced to 12.6% of its original area according to satellite imagery from 2005 (Ribeiro et al. 2009). It is characterized by its distinct floristic composition along its geographic distribution (Jarenkow and Budke 2009) and determined by the presence of the conifer *Araucaria angustifolia* (Bertol.) Kuntze, commonly known as Paraná-pine or Brazilian-pine (Campanili and Schaffer 2010). In a survey of spermatophytes in three *Araucaria* Mixed Forest sites in Rio Grande do Sul, 239 plants species were identified (Rambo 1958), whereas in other 38 sites of the same forest type, 323 species were identified, with only *A. angustifolia* present in every site (Jarenkow and Budke 2009). *Araucaria angustifolia* is a magnificent tree that is eminent for its presence, emerging up the crowns of other tree species (Rambo 1958). The species is a target for illegal activities and anthropic pressures, which maintains intense anthropic pressure upon *Araucaria* Mixed Forest remnants (Capobianco 2001).

In the South of Brazil, this ecosystem originally covered 40% of Paraná, 31% of Santa Catarina and 25% of Rio Grande do Sul. In the Southeast, it covered 3% of São Paulo and 1% of Rio de Janeiro and Minas Gerais (Mahler-Junior and Larocca 2009). Forest loss affects ecological processes, ecosystem functions and species traits richness along anthropogenic pressure gradients on vegetation (Rocha-Santos et al. 2020). Functional traits are morphological, physiological or phenological characteristics that predict a function and performance of an organism in an ecosystem (Violle et al. 2007). Thus, it is possible to use such indicators of process and functions that are easy to measure for a large number of species. In fragmented areas the functional characteristics of plants were observed, and in isolated patches the species present there are of heavier diaspores, and with few dispersion

mechanisms, seeds with a short life span and insect pollination, thus proving the negative interference of loss of habitat (Kolb and Diekmann 2005).

Wood density, for example, is a trait that indicates wood quality for different purposes, such as cellulose production or timber (Mokfienski et al. 2008; Dias et al. 2017). Under ongoing global changes and their threats over the flora, it is important to understand how plants respond to environmental disturbances and if the functional traits are related to the different categories of extinction risks. *Araucaria* Mixed Forest tree species have been surveyed throughout the years and in many areas, but these surveys were limited by the territorial borders, not considering the forest as a whole (e.g. Vibrans et al. 2013). Moreover, the degradation degree of *Araucaria* Mixed Forest is concerning, and we urge to know which tree species occur in this forest type. It is also important to notice how many of its tree species are threatened and how they are distributed in the Southern and Southeastern states of Brazil to help developing future policy plans for conservation.

In this study, we aimed to answer: (1) How many tree species occur in the *Araucaria* Mixed Forest? (2) How many of these species are threatened and how are they distributed in the Brazilian *Araucaria* Mixed Forest and in the Argentinean Province of Misiones? (3) How are functional traits related to the different categories of threat? Combining these data we expect to make possible, in the future, to use functional traits as predictors of extinction risk categories for non evaluated species in order to identify which species have a higher risk probabilities and, thereby, prioritize their conservation. We expected that the states with the largest forest area would be the ones that would have more species in general and more threatened species. Regarding the relationship between functional traits and the extinction risk categories, we expected that threatened species would present dense or highly dense wood, higher maximum height - both characteristics extremely targeted by the logging industry - and zoochoric dispersal - given that fauna loss may lead zoochoric plants to population decline.

### 3. MATERIALS AND METHODS

**Study area** - The *Araucaria* Mixed Forest spreads from 18°S to 29,5°S, on elevations between 500 and 1800 m, in Southern and Southeastern Brazil and in the Argentinean Province of Misiones. Plant species occurring in this forest type form dense groups, established under conditions of high precipitation, 1,300-3000 mm.year<sup>-1</sup>, mean temperatures of 20°C-21°C during summer, and 10°C-11°C during winter (Klein 1960). Some typical species occurring at different successional stages are *Dicksonia sellowiana* Hook., *Eugenia rotundicosta* D.Legrand., *Ocotea odorifera* (Vell.) Rohwer., *Lithraea brasiliensis* Marchand., *Campomanesia xanthocarpa* (Mart.) O.Berg., *Casearia decandra* Jacq., *Mimosa scabrella* Benth., and *Myrceugenia regnelliana* (O.Berg) D.Legrand & Kausel (Klein 1960).

**Taxonomic data compilation** - We used online databases (Oliveira-Filho et al. 2017; Flora do Brasil 2020) and specialized literature (Vibrans et al. 2013; Stehmann et al. 2009) to compile the *Araucaria* Mixed Forest tree species list. We considered a broad definition of tree species, including besides trees, arborescent cacti, palms, and ferns.

We applied the following filters to the Flora do Brasil 2020 database in order to restrain species search: “Group: Angiosperms”; “Life form: Tree”; “Vegetation: *Araucaria* Mixed Forest”; “Search: Species:”; “Search Options: List only accepted names”. Given that palm are classified as herbs in Flora do Brasil 2020, we made an additional search regarding the Areaceae family. Additionally, we search for gymnosperms, ferns and lycophytes, also using the filters: “Vegetation: *Araucaria* Mixed Forest”; “Search: Species:”; “Search Options: List only accepted names”.

For NeoTropTree, which is a database for species distribution along the Neotropical region (Oliveira-Filho et al. 2017), we filtered only species that occur in the *Araucaria* Mixed Forest and regions where this forest type occurs. These regions were Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Minas Gerais in Brazil, and Province of Misiones in Argentina. We verified how the threatened tree species are distributed along these regions. Firstly, we considered the total number of species per state and, lastly, the threatened species per state. For Argentina, we carefully considered only the species of the *Araucaria* Mixed Forest occurring in the Misiones Province to avoid the inclusion of *Araucaria araucana* mixed forests, which occur in other provinces of the country.

Finally, we compiled gymnosperm and angiosperm species from *Plantas da Floresta Atlântica* (Stehmann et al. 2009) that occurs in the *Araucaria* Mixed Forest.

We standardized the botanical nomenclature according to the Flora do Brasil 2020 database. For this, we used the “flora” package in R software (R Core Team 2019).

**Extinction risk categories** – We recovered the threaten category for each species using “flora” package in R, which obtains data from CNCFlora (2020). Thus, we know whether the species were already evaluated or not and, if evaluated under which category it was listed. The threaten categories are Critically Endangered (CR), Endangered (EN), and Vulnerable (VU). The other categories are Near Threatened (NR), Least Concern (LC) and Insufficient Data (ID).

Since CNCFlora is a platform for assessing the conservation status only for the Brazilian flora, we performed an additional search through the IUCN database (IUCN 2016), on the ten threatened species that occur in the *Araucaria* Mixed Forest, both in Brazil and Argentina. They are *Myracrodruon balansae* (Engl.) Santin, *Araucaria angustifolia* (Bertol.) Kuntze, *Butia eriospatha* (Mart. ex Drude) Becc., *Dicksonia sellowiana* Hook., *Apuleia leiocarpa* (Vogel) J.F.Macbr., *Gleditsia amorphoides* (Griseb.) Taub., *Cedrela fissilis* Vell., *Cedrela odorata* L., *Quillaja brasiliensis* (A.St.-Hil. & Tul.) Mart., *Condalia buxifolia* Reissek. Only four out of these ten had information at IUCN: *A. angustifolia*, *B. eriospatha*, *C. fissilis*, and *C. odorata* L. Only *A. angustifolia* was listed in different category in IUCN and CNCFlora, which made us consider only CNCFlora’s classification for all species.

**Functional trait data compilation** - From the consolidated list of species that occur in the *Araucaria* Mixed Forest and were evaluated for their threaten category, we obtained information on maximum height, wood density, and dispersal syndrome (zoochory, autochory, or anemochory). These data were obtained from the following sources: Carvalho (2003, 2006, 2008, 2010, 2014), Lorenzi (2002, 2016) and TRY data base (Kattge et al. 2011; see Table S1, Online Resource 1).

**Data analyses** - We extracted the number of species per extinction risk category for the Southern and Southeastern States (except for Espírito Santo where *Araucaria* Mixed Forest is absent) and for the Province of Misiones to obtain a ranking of the regions with higher numbers of threatened species from the *Araucaria* Mixed Forest. We performed a

Pearson Correlation Analyses to test if there was an association at the state scale (1) between the number of evaluated species and species richness, (2) between the number of threatened species and species richness and (3) between the number of evaluated species and threatened species. The data presented Gaussian distribution.

We used Wilcoxon test to evaluate if maximum tree height and wood density differed between groups of threatened species (CR, EN and VU) and non-threatened species (NT and LC). The species not evaluated for extinction risk category were not used. We used chi-square test to evaluate if the proportion of species with different dispersion mechanisms differed between threatened and non-threatened species.

All analyses were performed in R (R Core Team 2019).

## 4. RESULTS

Our results indicate that 1,252 species (Table S2, Online Resource 2) of 102 families of trees occur in the *Araucaria* Mixed Forest (Table S3, Online Resource 3). Out of these 1,252 species, 951 occur in the mixed forests of São Paulo, 880 in Minas Gerais, 854 in Paraná, 849 in Rio de Janeiro, 700 in Santa Catarina, 480 in Rio Grande do Sul and 310 in the Province of Misiones (Fig. 1-A). Non-evaluated species sum 917 species (Fig. 1-B). Out of the 335 evaluated species, 75 are in a category of threat. There are 33 species categorized as “Endangered”, 31 as “Vulnerable”, and only one as “Critically Endangered” (*Eugenia rotundicosta* D. Legrand). Forty-four species are classified as “Near Threatened”, 220 as “Least Concern” and six have “Insufficient Data”. The families with highest number of species were Myrtaceae, Fabaceae, Melastomataceae, Lauraceae, Rubiaceae and Solanaceae (Fig. 1-C).

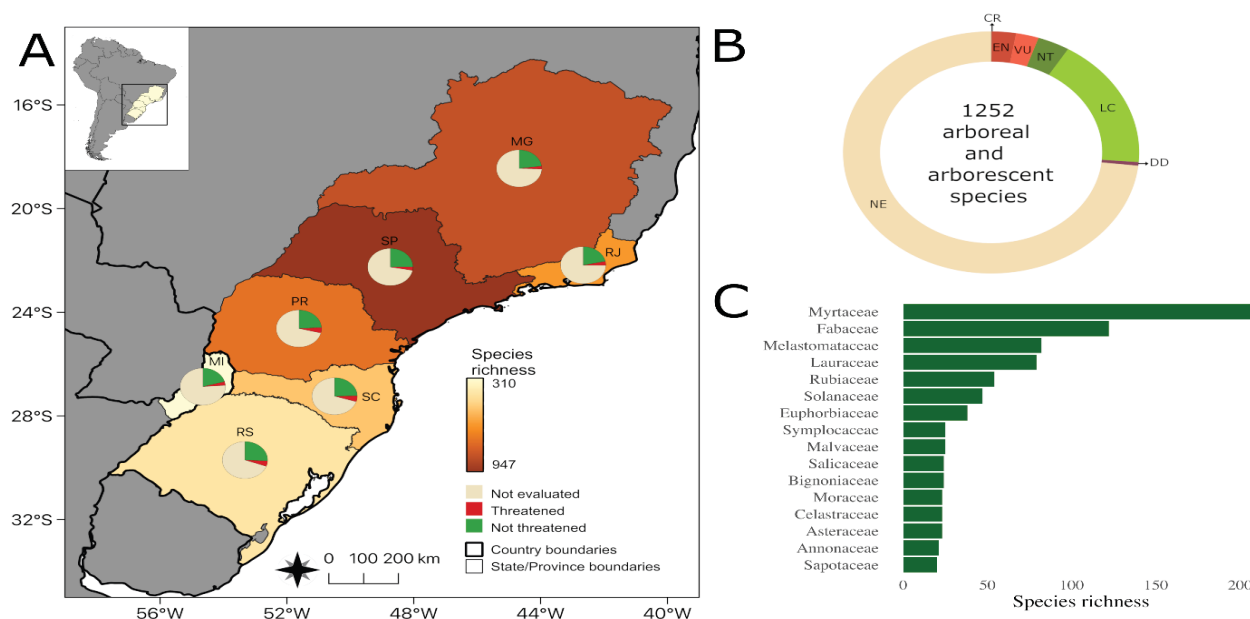


Figura 1- A) Total species richness per state and number of species under IUCN extinction risk categories throughout the *Araucaria* Mixed Forest. A) Color per state indicates species richness for S and SE Brazilian states and for the Province of Misiones, Argentina. B) Number of species per extinction risk category. C) Species richness per family.

In total, 335 species were evaluated by CNCFlora following the IUCN guidelines, which in our compilation resulted in 21 families that present threatened species: Myrtaceae (with 27 species), Lauraceae (7), Fabaceae (5), Proteaceae (3), Arecaceae (2), Bignoniaceae

(2), Meliaceae (2), Rhammanaceae (2), Sapotaceae (2), and Symplocaceae (2). The other families (Anacardiaceae, Araucariaceae, Dicksoniaceae, Lecythidaceae, Monimiaceae, Myristicaceae, Podocarpaceae, Quillajaceae, Salicaceae, Sapindaceae and Vochysiaceae) presented only one species categorized as threatened. We can observe that the families with most threatened species are not necessarily the ones with highest richness.

The states with highest number of threatened species were Paraná (41 species), Santa Catarina (36 species) - both with occurrence of *E. rotundicosta* - and São Paulo (30 species) (Fig. S1, Online Resource 4). The states with highest number of non-evaluated species were São Paulo, Rio de Janeiro, and Minas Gerais.

The number of evaluated species reflected the total number of species found per state ( $r = 0.97$ ;  $d.f. = 5$ ;  $P = <0.001$ ; Fig. S2, Online Resource 4). Moreover, the higher the number of evaluated species for extinction risk, the higher the number of species that are categorized as threatened ( $r = 0.8$ ;  $d.f. = 5$ ;  $P = 0.027$ ; Fig. S3, Online Resource 4). The amount of threatened species also reflects species richness per state ( $r = 0.69$ ;  $d.f. = 5$ ;  $P = 0.084$ ) (Fig. S4, Online Resource 4).

Regarding functional traits, neither maximum height ( $W = 3202$ ;  $P = 0.5078$ ) nor wood density ( $W = 3202$ ;  $P = 0.5078$ ) differed among threatened and not threatened species (Figs. S5-S6, Online Resource 4). The dispersal syndrome did not differ between threatened and not threatened species either ( $X^2 = 0.82211$ ;  $d.f. = 2$ ;  $P = 0.663$ ).

## 5. DISCUSSION

Our results indicate that the *Araucaria* Mixed Forest harbors a rich tree flora, reaching impressively 1,252 species in over 100 families. The previously existing literature information on the species richness of this entire forest type was very limited. The available studies are usually of local scale, focused on forest fragments. Therefore, it is difficult to compare existing information with the ones we compiled.

Data from the Flora do Brasil 2020 have an elevated taxonomic rigor [Flora do Brasil 2020 (under construction)]. However, because of this strict taxonomic focus, Flora do Brasil limits the species information to those obtained from herbarium vouchers revised by specialists. Since there is a lack of sampling for many species and the plant material collected is often not deposited in herbaria, there are many knowledge gaps for the majority of species. Consequently, by searching for tree species that occur in the *Araucaria* Mixed Forest using Flora do Brasil 2020 database, we found only 395 species for this forest type. Therefore, despite Flora do Brasil 2020 is taxonomically accurate, it still does not allow a complete listing of species per forest type. We expect that the species list that we compiled may serve as base instrument for the *Araucaria* Mixed Forest tree species conservation. Considering environmental degradation and public politics negligence regarding conservation (Sühs et al. 2018), there is the need to minimize these factors, and knowledge about flora might contribute with conservation actions (Messias et al. 2017).

Our results showed that the states with higher richness for the *Araucaria* Mixed Forest were São Paulo, Minas Gerais and Paraná. This finding differs from the one found by Ribeiro et al. (2012), where they described lower species richness for São Paulo than in other regions where this vegetation type occurs. Biodiversity is not evenly distributed across the globe and the majority of species occur in tropical and subtropical ecosystems. The more information available for threatened species, such as geographic coordinates, functional traits data and genetic information, the more easily we can direct conservation efforts. Nowadays, only ca. 18% of terrestrial plant species described globally are highly known regarding geographical distribution, functional traits, and genetic information, while ca. 27% of terrestrial plant species have considerable knowledge gaps, i.e. the ones for which we know only the species name (Cornwell et al. 2019).

The States of Paraná, Santa Catarina and São Paulo are the ones with the highest numbers of threatened species. If the number of threatened species merely reflects the richness of the regional species pool, then we would expect a higher number of threatened species in more speciose regions. However, in southern Brazil, the *Araucaria* Mixed Forest has been broadly exploited since the colonization period, which resulted in a drastic loss of its original forest cover, leaving this ecosystem as one of the most threatened typologies of the Atlantic Forest (Medeiros et al. 2005). This intense degradation seems to have driven many species of the *Araucaria* Mixed Forest to an extinction process.

The families with higher richness of tree species for the *Araucaria* Mixed Forest were Myrtaceae, Fabaceae, Melastomataceae, and Lauraceae. These families are also the ones with the highest number of threatened species. Our results corroborate the pattern found by Martinelli and Moraes (2013) for the following families: Fabaceae, with 87 threatened species out of the 247 evaluated; Myrtaceae, with 79 threatened species out of the 171 evaluated; and Melastomataceae, with 69 threatened species out of the 137 evaluated. The genera *Eugenia* (Myrtaceae) and *Mimosa* (Fabaceae) present over 50% of their evaluated species classified at a threaten category (Martinelli and Moraes 2013).

Out of all the *Araucaria* Mixed Forest species that were evaluated regarding their extinction risk categories, 19.4% are classified as threatened, which represents 5.19% of the total number of species of this ecosystem. It is also necessary to consider another result: 73.24% of the species were not yet evaluated. Such topic is very important, because when there is not enough data, we are under the risk of losing species without having basic information about its biology and function in nature. Knowledge gaps and global anthropogenic changes increase the biodiversity crisis, leading many species to a process of extinction (Mittermeier et al. 2011).

Our hypothesis regarding the relationship between functional traits and the extinction risk categories predicted that threatened species would have dense or highly dense wood, higher maximum height - both characteristics extremely targeted by the logging industry - and zoochoric dispersal - given that fauna loss may lead zoochoric plants to population decline. Our analyses were limited by the lack of functional traits data for the species that were evaluated regarding their extinction risk, and the results we obtained do not sustain our hypothesis. For maximum height, we obtained information for 41.5% and for woody density, 29.2% species. Even though we did not find a difference in functional traits

between threatened and non-threatened tree species of the *Araucaria* Mixed Forest, this is still an open topic. Data on species functional traits are still necessary. Given that there is a large number of tree species in this forest type, as we have shown, we suggest that future data collection focus on the evaluated species by CNCFLora firstly. By accomplishing so, we will be able to test more robustly if there is, in fact, such relation.

We compiled a list with 1,252 tree species occurring in the *Araucaria* Mixed Forest and mapped species richness and number of threatened species of this forest type per state. Only 26.7% out of the 1,252 species are evaluated for threaten category and 5.19% are classified as threatened, with Brazilian southern states showing highest numbers of threatened species. We found no evidence of relationship between functional traits and extinction risk, but analysis was limited by lack of trait data for most of the species. We consider we have advanced the knowledge on the tree flora of the *Araucaria* Mixed Forest, and expect that our results will be useful for prioritizing species data collection and supporting conservation actions in the near future.

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## Online Resource 1

**Table S1** Databases for maximum height, wood density and dispersion mechanism in TRY database

Autorship	Dataset ID	Dataset
Higgins	48	Dispersal Traits Database
Lloyd	34	The RAINFOR Plant Trait Database
Wirth	68	The Functional Ecology of Trees (FET) Database - Jena
Wright	112	Panama Plant Traits Database
Wright	20	GLOPNET - Global Plant Trait Network Database
Wright	64	Neotropic Plant Traits Database
Finegan	74	Costa Rica Rainforest Trees Database
Kattge	67	Leaf Physiology Database
Craven	230	Panama Tree Traits
Powers	263	Costa Rican Tropical Dry Forest Trees
Baraloto	269	The Bridge Database
Souza	369	Traits and ecological strategies of 66 subtropical tree species in the Brazilian Atlantic Forest

## Online Resource 2

**Table S2** List of arboreal and arborescent species that occur in the *Araucaria* Mixed Forest. Critically endangered (CR); Endangered (EN); Vulnerable (VU); Near Threatened (NT); Least Concern (LC); Data Deficient (DD); Not Evaluated (NE).

Family	Species	Category
Achatocarpaceae	<i>Achatocarpus praecox</i> Griseb.	LC
Adoxaceae	<i>Sambucus australis</i> Cham. & Schltdl.	NE
Anacardiaceae	<i>Astronium graveolens</i> Jacq.	LC
	<i>Lithraea brasiliensis</i> Marchand	NE
	<i>Lithraea molleoides</i> (Vell.) Engl.	NE
	<i>Myracrodruon balansae</i> (Engl.) Santin	EN
	<i>Schinus engleri</i> F.A.Barkley	NT
	<i>Schinus ferox</i> Hassl.	NE
	<i>Schinus longifolia</i> (Lindl.) Speg.	NE
	<i>Schinus molle</i> L.	NE
	<i>Schinus ramboi</i> F.A.Barkley	NE
	<i>Schinus spinosa</i> Engl.	NE
	<i>Spondias mombin</i> L.	NE
	<i>Tapirira guianensis</i> Aubl.	NE
	<i>Tapirira obtusa</i> (Benth.) J.D.Mitch.	NE
Annonaceae	<i>Annona cacans</i> Warm.	LC
	<i>Annona dolabripetala</i> Raddi	NE
	<i>Annona emarginata</i> (Schltdl.) H.Rainer	LC
	<i>Annona exsucca</i> DC.	NE
	<i>Annona montana</i> Macfad.	NE
	<i>Annona mucosa</i> Jacq.	NE
	<i>Annona neosalicifolia</i> H.Rainer	NE
	<i>Annona neosericea</i> H.Rainer	NE
	<i>Annona rugulosa</i> (Schltdl.) H.Rainer	NE
	<i>Annona sylvatica</i> A.St.-Hil.	NE
	<i>Annona xylopiifolia</i> A.St.-Hil. & Tul.	NT
	<i>Bocageopsis mattogrossensis</i> (R.E.Fr.) R.E.Fr.	NE
	<i>Duguetia lanceolata</i> A.St.-Hil.	LC
	<i>Guatteria australis</i> A.St.-Hil.	LC
	<i>Guatteria candolleana</i> Schltdl.	NE
	<i>Guatteria latifolia</i> R.E.Fr.	NE
	<i>Guatteria sellowiana</i> Schltdl.	LC
	<i>Xylopia aromatica</i> (Lam.) Mart.	LC
	<i>Xylopia brasiliensis</i> Spreng.	NT

	<i>Xylopia frutescens</i> Aubl.	NE
	<i>Xylopia sericea</i> A.St.-Hil.	NE
Apocynaceae	<i>Aspidosperma australe</i> Müll.Arg.	LC
	<i>Aspidosperma parvifolium</i> A.DC.	NE
	<i>Aspidosperma polyneuron</i> Müll.Arg.	NT
	<i>Aspidosperma pyricollum</i> Müll.Arg.	NE
	<i>Aspidosperma ramiflorum</i> Müll.Arg.	LC
	<i>Aspidosperma riedelii</i> Müll.Arg.	LC
	<i>Aspidosperma tomentosum</i> Mart.	LC
	<i>Rauvolfia sellowii</i> Müll.Arg.	NE
	<i>Tabernaemontana catharinensis</i> A.DC.	NE
	<i>Tabernaemontana hystrix</i> Steud.	NE
Aquifoliaceae	<i>Ilex brasiliensis</i> (Spreng.) Loes.	NE
	<i>Ilex brevicuspis</i> Reissek	NE
	<i>Ilex cerasifolia</i> Reissek	NE
	<i>Ilex dumosa</i> Reissek	NE
	<i>Ilex integerrima</i> (Vell.) Reissek	NE
	<i>Ilex microdonta</i> Reissek	NE
	<i>Ilex paraguariensis</i> A.St.-Hil.	LC
	<i>Ilex pseudobuxus</i> Reissek	NE
	<i>Ilex sapotifolia</i> Reissek	NE
	<i>Ilex schwackeana</i> Loes.	NE
	<i>Ilex taubertiana</i> Loes.	NE
	<i>Ilex theezans</i> Mart. ex Reissek	NE
Araliaceae	<i>Aralia warmingiana</i> (Marchal) J.Wen	LC
	<i>Dendropanax cuneatus</i> (DC.) Decne. & Planch.	LC
	<i>Dendropanax nebulosus</i> Fiaschi & Jung-Mend.	NE
	<i>Oreopanax capitatus</i> (Jacq.) Decne. & Planch.	LC
	<i>Oreopanax fulvum</i> Marchal	LC
	<i>Schefflera angustissima</i> (Marchal) Frodin	NE
	<i>Schefflera calva</i> (Cham.) Frodin & Fiaschi	LC
	<i>Schefflera morototoni</i> (Aubl.) Maguire et al.	NE
Araucariaceae	<i>Araucaria angustifolia</i> (Bertol.) Kuntze	EN
Arecaceae	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex Mart.	NE
	<i>Attalea oleifera</i> Barb.Rodr.	LC
	<i>Bactris setosa</i> Mart.	NE
	<i>Butia eriospatha</i> (Mart. ex Drude) Becc.	VU
	<i>Euterpe edulis</i> Mart.	VU
	<i>Syagrus romanzoffiana</i> (Cham.) Glassman	LC
	<i>Trithrinax acanthocoma</i> Drude	NE
	<i>Trithrinax brasiliensis</i> Mart.	NT
Asteraceae	<i>Austrocritionia angulicaulis</i> (Sch.Bip. ex Baker) R.M.King & H.Rob.	LC
	<i>Baccharis dentata</i> (Vell.) G.M.Barroso	NE
	<i>Baccharis montana</i> DC.	NE

	<i>Baccharis oreophila</i> Malme	NE
	<i>Baccharis semiserrata</i> DC.	NE
	<i>Critoniopsis quinqueflora</i> (Less.) H.Rob.	NE
	<i>Dasyphyllum brasiliense</i> (Spreng.) Cabrera	NE
	<i>Dasyphyllum spinescens</i> (Less.) Cabrera	NE
	<i>Dendrophorbium glaziovii</i> (Baker) C.Jeffrey	NE
	<i>Eremanthus erythropappus</i> (DC.) MacLeish	NE
	<i>Kaunia rufescens</i> (Lund ex DC.) R.M. King	NE
	<i>Moquiniastrum polymorphum</i> (Less.) G. Sancho	NE
	<i>Piptocarpha angustifolia</i> Dusén ex Malme	NE
	<i>Piptocarpha axillaris</i> (Less.) Baker	NE
	<i>Piptocarpha densifolia</i> Dusén ex G. Lom. Sm.	NE
	<i>Piptocarpha macropoda</i> (DC.) Baker	NE
	<i>Piptocarpha organensis</i> Cabrera	NE
	<i>Piptocarpha regnellii</i> (Sch.Bip.) Cabrera	NE
	<i>Stiffia chrysantha</i> J.C.Mikan	NE
	<i>Symphyopappus lymansmithii</i> B.L.Rob.	NT
	<i>Vernonanthura discolor</i> (Spreng.) H.Rob.	NE
	<i>Vernonanthura divaricata</i> (Spreng.) H.Rob.	NE
	<i>Vernonanthura petiolaris</i> (DC.) H.Rob.	NE
Berberidaceae	<i>Berberis laurina</i> Billb.	NE
Bignoniaceae	<i>Cybistax antisyphilitica</i> (Mart.) Mart.	NE
	<i>Handroanthus albus</i> (Cham.) Mattos	LC
	<i>Handroanthus bureavii</i> (Sandwith) S.Grose	NE
	<i>Handroanthus catarinensis</i> (A.H.Gentry) S.Grose	LC
	<i>Handroanthus chrysotrichus</i> (Mart. ex DC.) Mattos	NE
	<i>Handroanthus heptaphyllus</i> (Vell.) Mattos	LC
	<i>Handroanthus impetiginosus</i> (Mart. ex DC.) Mattos	NT
	<i>Handroanthus ochraceus</i> (Cham.) Mattos	NE
	<i>Handroanthus pulcherrimus</i> (Sandwith) Mattos	NE
	<i>Handroanthus serratifolius</i> (Vahl) S.Grose	NE
	<i>Handroanthus umbellatus</i> (Sond.) Mattos	NE
	<i>Handroanthus vellosi</i> (Toledo) Mattos	NE
	<i>Jacaranda cuspidifolia</i> Mart.	NE
	<i>Jacaranda jasminoides</i> (Thunb.) Sandwith	NE
	<i>Jacaranda macrantha</i> Cham.	LC
	<i>Jacaranda micrantha</i> Cham.	NE
	<i>Jacaranda microcalyx</i> A.H.Gentry	EN
	<i>Jacaranda montana</i> Morawetz	NE
	<i>Jacaranda puberula</i> Cham.	LC
	<i>Jacaranda subalpina</i> Morawetz	LC
	<i>Sparattosperma leucanthum</i> (Vell.) K.Schum.	NE
	<i>Tabebuia aurea</i> (Silva Manso) Benth. & Hook.f. ex S.Moore	NE
	<i>Zeyheria montana</i> Mart.	LC

	<i>Zeyheria tuberculosa</i> (Vell.) Bureau ex Verl.	VU
Bixaceae	<i>Bixa orellana</i> L.	NE
Boraginaceae	<i>Cordia americana</i> (L.) Gottschling & J.S.Mill.	NE
	<i>Cordia ecalyculata</i> Vell.	NE
	<i>Cordia magnoliifolia</i> Cham.	NE
	<i>Cordia sellowiana</i> Cham.	NE
	<i>Cordia silvestris</i> Fresen.	LC
	<i>Cordia superba</i> Cham.	NE
	<i>Cordia trichoclada</i> DC.	LC
	<i>Cordia trichotoma</i> (Vell.) Arráb. ex Steud.	NE
Burseraceae	<i>Protium heptaphyllum</i> (Aubl.) Marchand	NE
	<i>Protium kleinii</i> Cuatrec.	LC
	<i>Protium widgrenii</i> Engl.	NE
Cactaceae	<i>Brasiliopuntia brasiliensis</i> (Willd.) A.Berger	LC
	<i>Cereus hildmannianus</i> K.Schum.	NE
	<i>Pereskia grandifolia</i> Haw.	LC
	<i>Pilosocereus catingicola</i> (Gürke) Byles & Rowley	NE
Calophyllaceae	<i>Calophyllum brasiliense</i> Cambess.	NE
Canellaceae	<i>Cinnamodendron axillare</i> Endl. ex Walp.	NE
	<i>Cinnamodendron dinisii</i> Schwacke	NE
Cannabaceae	<i>Celtis brasiliensis</i> (Gardner) Planch.	NE
	<i>Celtis ehrenbergiana</i> (Klotzsch) Liebm.	LC
	<i>Celtis iguanaea</i> (Jacq.) Sarg.	NE
	<i>Trema micrantha</i> (L.) Blume	NE
Capparaceae	<i>Capparidastrum frondosum</i> (Jacq.) Cornejo & Iltis	NE
	<i>Crateva tapia</i> L.	NE
Cardiopteridaceae	<i>Citronella apogon</i> (Griseb.) R.A.Howard	NE
	<i>Citronella engleriana</i> (Loes.) R.A.Howard	NE
	<i>Citronella gongonha</i> (Mart.) R.A.Howard	NE
	<i>Citronella mucronata</i> (Ruiz & Pav.) D.Don	NE
	<i>Citronella paniculata</i> (Mart.) R.A.Howard	NE
Caricaceae	<i>Jacaratia spinosa</i> (Aubl.) A.DC.	LC
	<i>Vasconcellea quercifolia</i> A.St.-Hil.	NE
Celastraceae	<i>Cheiloclinium cognatum</i> (Miers) A.C.Sm.	NE
	<i>Maytenus aquifolia</i> Mart.	LC
	<i>Maytenus boaria</i> Molina	NT
	<i>Maytenus dasyclada</i> Mart.	NE
	<i>Maytenus floribunda</i> Reissek	LC
	<i>Maytenus glaucescens</i> Reissek	LC
	<i>Maytenus gonoclada</i> Mart.	NE
	<i>Maytenus ilicifolia</i> Mart. ex Reissek	LC
	<i>Maytenus schumanniana</i> Loes.	NE
	<i>Monteverdia evonymoides</i> (Reissek) Biral	NE
	<i>Peritassa flaviflora</i> A.C.Sm.	NE

	<i>Plenckia populnea</i> Reissek	NE
	<i>Pristimera nervosa</i> (Miers) A.C.Sm.	NE
	<i>Salacia arborea</i> (Schrank) Peyr.	LC
	<i>Salacia elliptica</i> (Mart. ex Schult.) G.Don	NE
	<i>Salacia grandifolia</i> (Mart. ex Schult.) G.Don	NE
	<i>Schaefferia argentinensis</i> Speg.	NE
	<i>Tontelea corcovadensis</i> Glaz. ex A.C.Sm.	NE
	<i>Tontelea laxiflora</i> (Benth.) A.C.Sm.	NE
	<i>Tontelea leptophylla</i> A.C.Sm.	LC
	<i>Tontelea miersii</i> (Peyr.) A.C.Sm.	NE
	<i>Tontelea passiflora</i> (Vell.) Lombardi	NE
	<i>Tontelea tenuicula</i> (Miers) A.C.Sm.	NE
Chloranthaceae	<i>Hedyosmum brasiliense</i> Mart. ex Miq.	NE
Chrysobalanaceae	<i>Hirtella hebeclada</i> Moric. ex DC.	NE
	<i>Hirtella racemosa</i> Lam.	LC
	<i>Hirtella triandra</i> Sw.	NE
	<i>Licania heteromorpha</i> Benth.	NE
	<i>Licania hypoleuca</i> Benth.	NE
	<i>Licania incana</i> Aubl.	NE
Clethraceae	<i>Clethra scabra</i> Pers.	LC
	<i>Clethra uleana</i> Sleumer	LC
Clusiaceae	<i>Clusia criuva</i> Cambess.	LC
	<i>Clusia nemorosa</i> G.Mey.	NE
	<i>Garcinia gardneriana</i> (Planch. & Triana) Zappi	NE
	<i>Tovomita brevistaminea</i> Engl.	NE
	<i>Tovomita glazioviana</i> Engl.	NE
	<i>Tovomita hopkinsii</i> Bittrich & L. Marinho	NE
	<i>Tovomita leucantha</i> (Schltdl.) Planch. & Triana	NE
	<i>Tovomita mangle</i> G. Mariz	NE
	<i>Tovomita megantha</i> L. Marinho & Amorim	NE
	<i>Tovomita riedeliana</i> Engl.	NE
	<i>Tovomita salimena</i> L. Marinho & Amorim	NE
	<i>Tovomita stergiosii</i> Cuello	NE
	<i>Tovomitopsis saldanhae</i> Engl.	NE
Combretaceae	<i>Buchenavia kleinii</i> Exell	LC
	<i>Terminalia australis</i> Cambess.	NE
	<i>Terminalia januariensis</i> DC.	LC
	<i>Terminalia reitzii</i> Exell	DD
	<i>Terminalia triflora</i> (Griseb.) Lillo	NE
Connaraceae	<i>Connarus rostratus</i> (Vell.) L.B.Sm.	LC
Cunoniaceae	<i>Lamanonia cuneata</i> (Cambess.) Kuntze	LC
	<i>Lamanonia grandistipularis</i> (Taub.) Taub.	NE
	<i>Lamanonia ternata</i> Vell.	NE
	<i>Weinmannia discolor</i> Gardner	LC

	<i>Weinmannia humilis</i> Engl.	NE
	<i>Weinmannia organensis</i> Gardner	NT
	<i>Weinmannia paulliniifolia</i> Pohl ex Ser.	NT
	<i>Weinmannia pinnata</i> L.	NE
Cyatheaceae	<i>Alsophila capensis</i> (L.f.) J.Sm.	LC
	<i>Alsophila setosa</i> Kaulf.	NE
	<i>Alsophila sternbergii</i> (Sternb.) D.S.Conant	NE
	<i>Cyathea atrovirens</i> (Langsd. & Fisch.) Domin	NE
	<i>Cyathea corcovadensis</i> (Raddi) Domin	LC
	<i>Cyathea delgadii</i> Sternb.	NE
	<i>Cyathea dichromatolepis</i> (Fée) Domin	NE
	<i>Cyathea feeana</i> (C.Chr.) Domin	NE
	<i>Cyathea gardneri</i> Hook.	NE
	<i>Cyathea glaziovii</i> (Fée) Domin	LC
	<i>Cyathea hirsuta</i> C.Presl	NE
	<i>Cyathea microdonta</i> (Desv.) Domin	NE
	<i>Cyathea phalerata</i> Mart.	NE
	<i>Cyathea rufa</i> (Fée) Lellinger	NE
	<i>Cyathea villosa</i> Willd.	NE
Dichapetalaceae	<i>Stephanopodium organense</i> (Rizzini) Prance	NE
Dicksoniaceae	<i>Dicksonia sellowiana</i> Hook.	EN
Dilleniaceae	<i>Curatella americana</i> L.	NE
Ebenaceae	<i>Diospyros hispida</i> A.DC.	LC
	<i>Diospyros inconstans</i> Jacq.	LC
Elaeocarpaceae	<i>Sloanea garckeana</i> K.Schum.	LC
	<i>Sloanea guianensis</i> (Aubl.) Benth.	NE
	<i>Sloanea hirsuta</i> (Schott) Planch. ex Benth.	LC
	<i>Sloanea lasiocoma</i> K.Schum.	NE
Ericaceae	<i>Agarista eucalyptoides</i> (Cham. & Schltdl.) G.Don	NE
	<i>Agarista glaberrima</i> (Sleumer) Judd	NE
	<i>Agarista minensis</i> (Glaz. ex Sleumer) Judd	NE
	<i>Agarista niederleinii</i> (Sleumer) Judd	LC
	<i>Agarista oleifolia</i> (Cham.) G.Don	NE
	<i>Agarista pulchra</i> (Cham. & Schltdl.) G.Don	NT
	<i>Gaylussacia brasiliensis</i> (Spreng.) Meisn.	NE
	<i>Gaylussacia rhododendron</i> Cham. & Schltdl.	LC
	<i>Gaylussacia salicifolia</i> Sleumer	NE
Erythroxylaceae	<i>Erythroxylum ambiguum</i> Peyr.	LC
	<i>Erythroxylum anguifugum</i> Mart.	LC
	<i>Erythroxylum argentinum</i> O.E.Schulz	NE
	<i>Erythroxylum cuneifolium</i> (Mart.) O.E.Schulz	NE
	<i>Erythroxylum cuspidifolium</i> Mart.	NE
	<i>Erythroxylum deciduum</i> A.St.-Hil.	NE
	<i>Erythroxylum frangulifolium</i> A.St.-Hil.	NE

	<i>Erythroxylum myrsinites</i> Mart.	LC
	<i>Erythroxylum pelleterianum</i> A.St.-Hil.	LC
	<i>Erythroxylum umbu</i> Costa-Lima	NE
Escalloniaceae	<i>Escallonia bifida</i> Link & Otto	NE
	<i>Escallonia chlorophylla</i> Cham. & Schldl.	LC
	<i>Escallonia megapotamica</i> Spreng.	NE
Euphorbiaceae	<i>Acalypha diversifolia</i> Jacq.	NE
	<i>Acalypha macrostachya</i> Jacq.	NE
	<i>Acalypha villosa</i> Jacq.	NE
	<i>Actinostemon appendiculatus</i> Jabl.	NE
	<i>Actinostemon concolor</i> (Spreng.) Müll.Arg.	NE
	<i>Actinostemon klotzschii</i> (Didr.) Pax	NE
	<i>Actinostemon roselii</i> L. Oliveira, A.L. Melo & M.F. Sales	NE
	<i>Actinostemon schomburgkii</i> (Klotzsch) Hochr.	NE
	<i>Alchornea glandulosa</i> Poepp. & Endl.	NE
	<i>Alchornea sidifolia</i> Müll.Arg.	NE
	<i>Alchornea triplinervia</i> (Spreng.) Müll.Arg.	NE
	<i>Croton alchorneicarpus</i> Croizat	NE
	<i>Croton campanulatus</i> Caruzo & Cordeiro	NE
	<i>Croton celtidifolius</i> Baill.	NE
	<i>Croton eichleri</i> Müll.Arg.	NE
	<i>Croton floribundus</i> Spreng.	NE
	<i>Croton macrobothrys</i> Baill.	NE
	<i>Croton organensis</i> Baill.	NE
	<i>Croton piptocalyx</i> Müll.Arg.	NE
	<i>Croton salutaris</i> Casar.	NE
	<i>Croton urucurana</i> Baill.	NE
	<i>Croton vulnerarius</i> Baill.	NE
	<i>Gymnanthes gaudichaudii</i> Müll. Arg.	NE
	<i>Gymnanthes klotzschiana</i> Müll.Arg.	NE
	<i>Gymnanthes schottiana</i> Müll.Arg.	NE
	<i>Gymnanthes widgrenii</i> Müll.Arg.	NE
	<i>Manihot grahamii</i> Hook.	NE
	<i>Maprounea brasiliensis</i> A.St.-Hil.	NE
	<i>Pachystroma longifolium</i> (Nees) I.M.Johnst.	NE
	<i>Philyra brasiliensis</i> Klotzsch	NE
	<i>Sapium glandulosum</i> (L.) Morong	NE
	<i>Sapium haematospermum</i> Müll.Arg.	NE
	<i>Sapium sellowianum</i> (Müll.Arg.) Huber	NE
	<i>Sebastiania brasiliensis</i> Spreng.	NE
	<i>Stillingia oppositifolia</i> Baill. ex Müll.Arg.	NE
	<i>Tetrorchidium dusenii</i> Pax & K.Hoffm.	NE
	<i>Tetrorchidium rubrivenium</i> Poepp.	LC
	<i>Cnidoscolus tubulosus</i> (Müll.Arg.) I.M.Johnst.	NE

Fabaceae	<i>Abarema filamentosa</i> (Benth.) Pittier	LC
	<i>Abarema langsdorffii</i> (Benth.) Barneby & J.W.Grimes	NE
	<i>Albizia burkartiana</i> Barneby & J.W.Grimes	VU
	<i>Albizia edwallii</i> (Hoehne) Barneby & J.W.Grimes	LC
	<i>Albizia polycephala</i> (Benth.) Killip ex Record	NE
	<i>Anadenanthera peregrina</i> (L.) Speg.	NE
	<i>Andira fraxinifolia</i> Benth.	NE
	<i>Andira inermis</i> (W.Wright) DC.	NE
	<i>Andira ormosioides</i> Benth.	NE
	<i>Apuleia leiocarpa</i> (Vogel) J.F.Macbr.	VU
	<i>Ateleia glazioviana</i> Baill.	NE
	<i>Barnebydendron riedelii</i> (Tul.) J.H.Kirkbr.	NE
	<i>Bauhinia forficata</i> Link	NE
	<i>Bauhinia longifolia</i> (Bong.) Steud.	NE
	<i>Bauhinia unguolata</i> L.	NE
	<i>Bauhinia uruguayensis</i> Benth.	NE
	<i>Calliandra foliolosa</i> Benth.	NE
	<i>Calliandra tweedii</i> Benth.	NE
	<i>Cassia ferruginea</i> (Schrad.) Schrad. ex DC.	NE
	<i>Cassia leptophylla</i> Vogel	NE
	<i>Centrolobium tomentosum</i> Guillem. ex Benth.	LC
	<i>Chamaecrista zygophylloides</i> (Taub.) H.S.Irwin & Barneby	NE
	<i>Copaifera langsdorffii</i> Desf.	NE
	<i>Copaifera trapezifolia</i> Hayne	NE
	<i>Dahlstedtia floribunda</i> (Vogel) M.J. Silva & A.M.G. Azevedo	NE
	<i>Dahlstedtia muehlbergiana</i> (Hassl.) M.J.Silva & A.M.G. Azevedo	NE
	<i>Dahlstedtia peckoltii</i> (Wawra) M.J. Silva & A.M.G. Azevedo	NE
	<i>Dahlstedtia pentaphylla</i> (Taub.) Burkart	NE
	<i>Dahlstedtia pinnata</i> (Benth.) Malme	NE
	<i>Dalbergia brasiliensis</i> Vogel	NE
	<i>Dalbergia foliolosa</i> Benth.	NE
	<i>Dalbergia nigra</i> (Vell.) Allemão ex Benth.	VU
	<i>Dalbergia villosa</i> (Benth.) Benth.	NE
	<i>Dialium guianense</i> (Aubl.) Sandwith	NE
	<i>Enterolobium contortisiliquum</i> (Vell.) Morong	NE
	<i>Erythrina crista-galli</i> L.	NE
	<i>Erythrina falcata</i> Benth.	NE
	<i>Erythrina speciosa</i> Andrews	NE
	<i>Exostyles venusta</i> Schott	NE
	<i>Gleditsia amorphoides</i> (Griseb.) Taub.	VU
	<i>Holocalyx balansae</i> Micheli	NE
	<i>Hymenaea courbaril</i> L.	LC
	<i>Inga barbata</i> Benth.	NE
	<i>Inga chartacea</i> Poepp. & Endl.	NE

<i>Inga cylindrica</i> (Vell.) Mart.	NE
<i>Inga edulis</i> Mart.	NE
<i>Inga edwallii</i> (Harms) T.D.Penn.	NE
<i>Inga laurina</i> (Sw.) Willd.	LC
<i>Inga lentiscifolia</i> Benth.	NT
<i>Inga marginata</i> Willd.	NE
<i>Inga schinifolia</i> Benth.	NE
<i>Inga sellowiana</i> Benth.	NT
<i>Inga sessilis</i> (Vell.) Mart.	NE
<i>Inga striata</i> Benth.	NE
<i>Inga subnuda</i> Salzm. ex Benth.	NE
<i>Inga thibaudiana</i> DC.	NE
<i>Inga vera</i> Willd.	NE
<i>Inga virescens</i> Benth.	NE
<i>Inga vulpina</i> Mart. ex Benth.	NE
<i>Leucochloron incuriale</i> (Vell.) Barneby & J.W.Grimes	NE
<i>Lonchocarpus cultratus</i> (Vell.) A.M.G.Azevedo & H.C.Lima	NE
<i>Lonchocarpus nitidus</i> (Vogel) Benth.	NE
<i>Lonchocarpus sericeus</i> (Poir.) Kunth ex DC.	NE
<i>Luetzelburgia guaissara</i> Toledo	LC
<i>Machaerium brasiliense</i> Vogel	NE
<i>Machaerium hatschbachii</i> Rudd	NE
<i>Machaerium hirtum</i> (Vell.) Stellfeld	NE
<i>Machaerium nyctitans</i> (Vell.) Benth.	LC
<i>Machaerium paraguariense</i> Hassl.	LC
<i>Machaerium scleroxylon</i> Tul.	NE
<i>Machaerium stipitatum</i> Vogel	NE
<i>Machaerium villosum</i> Vogel	LC
<i>Mimosa bimucronata</i> (DC.) Kuntze	NE
<i>Mimosa cubatanensis</i> Hoehne	NE
<i>Mimosa flocculosa</i> Burkart	NE
<i>Mimosa myuros</i> Barneby	VU
<i>Mimosa scabrella</i> Benth.	NE
<i>Muelleria campestris</i> (Mart. ex Benth.) M.J. Silva & A.M.G. Azevedo	NE
<i>Muelleria graciliflora</i> (M.J. Silva et al.) M.J. Silva & A.M.G. Azevedo	NE
<i>Muelleria torrensis</i> (N. Mattos) M.J.Silva & A.M.G.Azevedo	NE
<i>Myrocarpus frondosus</i> Allemão	LC
<i>Myroxylon peruiferum</i> L.f.	LC
<i>Ormosia altimontana</i> Meireles & H.C.Lima	NE
<i>Ormosia arborea</i> (Vell.) Harms	NE
<i>Ormosia fastigiata</i> Tul.	NE
<i>Ormosia friburgensis</i> Taub. ex Glaz.	NE
<i>Parapiptadenia rigida</i> (Benth.) Brenan	NE
<i>Peltophorum dubium</i> (Spreng.) Taub.	NE

	<i>Piptadenia gonoacantha</i> (Mart.) J.F.Macbr.	LC
	<i>Piptadenia viridiflora</i> (Kunth) Benth.	NE
	<i>Platycyamus regnellii</i> Benth.	NE
	<i>Platymiscium floribundum</i> Vogel	NE
	<i>Platypodium elegans</i> Vogel	NE
	<i>Poecilanthe parviflora</i> Benth.	LC
	<i>Poeppigia procera</i> C.Presl	NE
	<i>Pseudopiptadenia contorta</i> (DC.) G.P.Lewis & M.P.Lima	NE
	<i>Pseudopiptadenia leptostachya</i> (Benth.) Rauschert	NE
	<i>Pseudopiptadenia warmingii</i> (Benth.) G.P.Lewis & M.P.Lima	NE
	<i>Pterocarpus rohrii</i> Vahl	NE
	<i>Pterogyne nitens</i> Tul.	LC
	<i>Schizolobium parahyba</i> (Vell.) Blake	NE
	<i>Senegalia polyphylla</i> (DC.) Britton & Rose	NE
	<i>Senna alata</i> (L.) Roxb.	NE
	<i>Senna bacillaris</i> (L.f.) H.S.Irwin & Barneby	NE
	<i>Senna macranthera</i> (DC. ex Collad.) H.S.Irwin & Barneby	NE
	<i>Senna multijuga</i> (Rich.) H.S.Irwin & Barneby	NE
	<i>Senna oblongifolia</i> (Vogel) H.S.Irwin & Barneby	NE
	<i>Senna pendula</i> (Humb.& Bonpl.ex Willd.) H.S.Irwin & Barneby	NE
	<i>Senna quinquangulata</i> (Rich.) H.S.Irwin & Barneby	NE
	<i>Senna reniformis</i> (G.Don) H.S.Irwin & Barneby	NE
	<i>Senna spectabilis</i> (DC.) H.S.Irwin & Barneby	NE
	<i>Swartzia acutifolia</i> Vogel	LC
	<i>Swartzia flaemingii</i> Raddi	LC
	<i>Swartzia myrtifolia</i> Sm.	NE
	<i>Swartzia oblata</i> R.S.Cowan	NE
	<i>Swartzia pilulifera</i> Benth.	NE
	<i>Swartzia simplex</i> (Sw.) Spreng.	LC
	<i>Swartzia submarginata</i> (Benth.) Mansano	NE
	<i>Tachigali denudata</i> (Vogel) Oliveira-Filho	NT
	<i>Tachigali duckei</i> (Dwyer) Oliveira-Filho	NE
	<i>Tachigali pilgeriana</i> (Harms) Oliveira-Filho	NT
	<i>Tachigali rugosa</i> (Mart. ex Benth.) Zarucchi & Pipoly	NT
Gentianaceae	<i>Macrocarpaea glaziovii</i> Gilg	NE
Humiriaceae	<i>Vantanea compacta</i> (Schnizl.) Cuatrec.	NE
Hypericaceae	<i>Vismia atlantica</i> L. Marinho & M.V. Martins	NE
	<i>Vismia magnoliifolia</i> Cham. & Schltld.	NE
	<i>Vismia martiana</i> Reichardt	LC
	<i>Vismia micrantha</i> A.St.-Hil.	NE
Lacistemataceae	<i>Lacistema aggregatum</i> (P.J.Bergius) Rusby	NE
	<i>Lacistema hasslerianum</i> Chodat	NE
	<i>Lacistema pubescens</i> Mart.	NE
Lamiaceae	<i>Aegiphila brachiata</i> Vell.	NE

	<i>Aegiphila integrifolia</i> (Jacq.) Moldenke	NE
	<i>Aegiphila mediterranea</i> Vell.	NE
	<i>Aegiphila obducta</i> Vell.	NE
	<i>Aegiphila verticillata</i> Vell.	NE
	<i>Hyptidendron asperrimum</i> (Spreng.) Harley	LC
	<i>Vitex chrysleriana</i> Moldenke	NE
	<i>Vitex megapotamica</i> (Spreng.) Moldenke	NE
	<i>Vitex polygama</i> Cham.	NE
	<i>Vitex vauthieri</i> DC. ex Schauer	NE
Lauraceae	<i>Aiouea acarodomatifera</i> Kosterm.	LC
	<i>Aiouea saligna</i> Meisn.	NE
	<i>Aniba firmula</i> (Nees & Mart.) Mez	NE
	<i>Beilschmiedia rigida</i> (Mez) Kosterm.	EN
	<i>Cinnamomum amoenum</i> (Nees & Mart.) Kosterm.	NE
	<i>Cinnamomum glaziovii</i> (Mez) Kosterm.	NE
	<i>Cinnamomum hatschbachii</i> Vattimo-Gil	VU
	<i>Cinnamomum sellowianum</i> (Nees & Mart.) Kosterm.	NE
	<i>Cryptocarya aschersoniana</i> Mez	NE
	<i>Cryptocarya mandioccana</i> Meisn.	NE
	<i>Cryptocarya micrantha</i> Meisn.	NE
	<i>Cryptocarya moschata</i> Nees & Mart.	NE
	<i>Cryptocarya saligna</i> Mez	NE
	<i>Endlicheria paniculata</i> (Spreng.) J.F.Macbr.	NE
	<i>Licaria armeniaca</i> (Nees) Kosterm.	NE
	<i>Nectandra angustifolia</i> (Schrad.) Nees	LC
	<i>Nectandra barbellata</i> Coe-Teix.	VU
	<i>Nectandra cuspidata</i> Nees	NE
	<i>Nectandra grandiflora</i> Nees	LC
	<i>Nectandra hihua</i> (Ruiz & Pav.) Rohwer	LC
	<i>Nectandra lanceolata</i> Nees	NE
	<i>Nectandra leucantha</i> Nees	NE
	<i>Nectandra megapotamica</i> (Spreng.) Mez	NE
	<i>Nectandra membranacea</i> (Sw.) Griseb.	NE
	<i>Nectandra nitidula</i> Nees	NE
	<i>Nectandra oppositifolia</i> Nees	NE
	<i>Nectandra paranaensis</i> Coe-Teix.	VU
	<i>Nectandra puberula</i> (Schott) Nees	NE
	<i>Nectandra reticulata</i> (Ruiz & Pav.) Mez	NE
	<i>Ocotea aciphylla</i> (Nees & Mart.) Mez	NT
	<i>Ocotea acutifolia</i> (Nees) Mez	NE
	<i>Ocotea bicolor</i> Vattimo-Gil	LC
	<i>Ocotea brachybotrya</i> (Meisn.) Mez	NE
	<i>Ocotea catharinensis</i> Mez	VU
	<i>Ocotea corymbosa</i> (Meisn.) Mez	NE

<i>Ocotea curucutuensis</i> J.B. Baitello	NT
<i>Ocotea daphnifolia</i> (Meisn.) Mez	LC
<i>Ocotea diospyrifolia</i> (Meisn.) Mez	NE
<i>Ocotea dispersa</i> (Nees & Mart.) Mez	NE
<i>Ocotea elegans</i> Mez	NE
<i>Ocotea floribunda</i> (Sw.) Mez	NE
<i>Ocotea glaziovii</i> Mez	NE
<i>Ocotea indecora</i> (Schott) Mez	NE
<i>Ocotea lanata</i> (Nees & Mart.) Mez	NE
<i>Ocotea lancifolia</i> (Schott) Mez	LC
<i>Ocotea laxa</i> (Nees) Mez	LC
<i>Ocotea leucoxylon</i> (Sw.) Laness.	NE
<i>Ocotea lobbii</i> (Meisn.) Rohwer	LC
<i>Ocotea marumbiensis</i> Brotto & Baitello	NE
<i>Ocotea minarum</i> (Nees & Mart.) Mez	NE
<i>Ocotea nectandrifolia</i> Mez	LC
<i>Ocotea notata</i> (Nees & Mart.) Mez	NE
<i>Ocotea nunesiana</i> (Vattimo-Gil) J.B. Baitello	LC
<i>Ocotea nutans</i> (Nees) Mez	NE
<i>Ocotea odorifera</i> (Vell.) Rohwer	EN
<i>Ocotea paranaensis</i> Brotto, Baitello, Cervi & E.P.Santos	NE
<i>Ocotea porosa</i> (Nees & Mart.) Barroso	EN
<i>Ocotea puberula</i> (Rich.) Nees	NT
<i>Ocotea pulchella</i> (Nees & Mart.) Mez	LC
<i>Ocotea pulchra</i> Vattimo-Gil	NE
<i>Ocotea schwackeana</i> Mez	NE
<i>Ocotea silvestris</i> Vattimo-Gil	LC
<i>Ocotea spectabilis</i> (Meisn.) Mez	NE
<i>Ocotea sulcata</i> Vattimo-Gil	NE
<i>Ocotea teleiandra</i> (Meisn.) Mez	NE
<i>Ocotea tenuiflora</i> (Nees) Mez	NE
<i>Ocotea tristis</i> (Nees & Mart.) Mez	LC
<i>Ocotea velloziana</i> (Meisn.) Mez	NE
<i>Ocotea villosa</i> Kosterm.	NE
<i>Ocotea virgultosa</i> (Nees) Mart.	NE
<i>Persea alba</i> Nees & Mart.	NE
<i>Persea fulva</i> L.E.Kopp	NE
<i>Persea major</i> (Meisn.) L.E.Kopp	NE
<i>Persea punctata</i> Meisn.	DD
<i>Persea splendens</i> Meisn.	NE
<i>Persea venosa</i> Nees & Mart.	NE
<i>Persea willdenovii</i> Kosterm.	LC
<i>Phyllostemonodaphne geminiflora</i> (Mez) Kosterm.	LC
<i>Rhodostemonodaphne macrocalyx</i> (Meisn.) Rohwer ex Madriñán	NE

Laxmanniaceae	<i>Cordyline spectabilis</i> Kunth & Bouché	NE
Lecythidaceae	<i>Cariniana estrellensis</i> (Raddi) Kuntze	NE
	<i>Couratari pyramidata</i> (Vell.) Kunth	EN
Lythraceae	<i>Lafoensia pacari</i> A.St.-Hil.	LC
	<i>Lafoensia vandelliana</i> Cham. & Schldl.	NE
Magnoliaceae	<i>Magnolia ovata</i> (A.St.-Hil.) Spreng.	LC
Malpighiaceae	<i>Bunchosia maritima</i> (Vell.) J.F.Macbr.	LC
	<i>Byrsonima crassifolia</i> (L.) Kunth	NE
	<i>Byrsonima laxiflora</i> Griseb.	NE
	<i>Byrsonima ligustrifolia</i> A.Juss.	NE
	<i>Byrsonima myricifolia</i> Griseb.	NE
Malvaceae	<i>Apeiba albiflora</i> Ducke	NE
	<i>Apeiba tibourbou</i> Aubl.	NE
	<i>Ceiba crispiflora</i> (Kunth) Ravenna	NE
	<i>Ceiba erianthos</i> (Cav.) K.Schum.	NE
	<i>Ceiba glaziovii</i> (Kuntze) K.Schum.	NE
	<i>Ceiba pubiflora</i> (A.St.-Hil.) K.Schum.	NE
	<i>Ceiba speciosa</i> (A.St.-Hil.) Ravenna	NE
	<i>Ceiba ventricosa</i> (Nees & Mart.) Ravenna	NE
	<i>Eriotheca candolleana</i> (K.Schum.) A.Robyns	NE
	<i>Eriotheca dolichopoda</i> A.Robyns	NE
	<i>Eriotheca globosa</i> (Aubl.) A.Robyns	NE
	<i>Guazuma ulmifolia</i> Lam.	NE
	<i>Helicteres macropetala</i> A.St.-Hil.	NE
	<i>Helicteres vuaramé</i> Mart.	NE
	<i>Heliocarpus popayanensis</i> Kunth	NE
	<i>Luehea candicans</i> Mart. & Zucc.	LC
	<i>Luehea conwentzii</i> K.Schum.	LC
	<i>Luehea divaricata</i> Mart. & Zucc.	NE
	<i>Luehea grandiflora</i> Mart. & Zucc.	NE
	<i>Luehea ochrophylla</i> Mart.	NE
	<i>Luehea rufescens</i> A.St.-Hil.	NE
	<i>Pachira endecaphylla</i> (Vell.) Carv.-Sobr.	NE
	<i>Pavonia calyculosa</i> A.St.-Hil. & Naudin	NE
	<i>Pseudobombax grandiflorum</i> (Cav.) A.Robyns	LC
	<i>Spirotheca rivieri</i> (Decne.) Ulbr.	LC
Melastomataceae	<i>Huberia glazioviana</i> Cogn.	NE
	<i>Huberia laurina</i> DC.	DD
	<i>Huberia nettoana</i> Brade	NT
	<i>Huberia ovalifolia</i> DC.	NE
	<i>Leandra acutiflora</i> (Naudin) Cogn.	NE
	<i>Leandra amplexicaulis</i> DC.	NE
	<i>Leandra aurea</i> (Cham.) Cogn.	NE
	<i>Leandra barbinervis</i> (Cham. ex Triana) Cogn.	NE

<i>Leandra carassana</i> (DC.) Cogn.	NE
<i>Leandra fragilis</i> Cogn.	NE
<i>Leandra melastomoides</i> Raddi	NE
<i>Leandra multiplinervis</i> (Naudin) Cogn.	NE
<i>Leandra purpureovillosa</i> Hoehne	NE
<i>Leandra quinquedentata</i> (DC.) Cogn.	NE
<i>Leandra quinquenodis</i> (DC.) Cogn.	NE
<i>Leandra regnellii</i> (Triana) Cogn.	NE
<i>Leandra reitzii</i> Wurdack	NE
<i>Leandra sylvestris</i> DC.	NE
<i>Leandra tristis</i> Cogn.	NE
<i>Leandra truncata</i> Baumgratz & D'El Rei Souza	NE
<i>Leandra variabilis</i> Raddi	NE
<i>Leandra vesiculosa</i> Cogn.	NE
<i>Meriania clausenii</i> (Naudin) Triana	NE
<i>Meriania glabra</i> (DC.) Triana	NE
<i>Miconia affinis</i> DC.	NE
<i>Miconia albicans</i> (Sw.) Triana	NE
<i>Miconia brunnea</i> DC.	NE
<i>Miconia budlejoides</i> Triana	NE
<i>Miconia cabucu</i> Hoehne	NE
<i>Miconia calvescens</i> DC.	NE
<i>Miconia castaneiflora</i> Naudin	NE
<i>Miconia chartacea</i> Triana	NE
<i>Miconia cinerascens</i> Miq.	NE
<i>Miconia cinnamomifolia</i> (DC.) Naudin	NE
<i>Miconia collatata</i> Wurdack	NE
<i>Miconia corallina</i> Spring	NE
<i>Miconia cubatanensis</i> Hoehne	NE
<i>Miconia discolor</i> DC.	NE
<i>Miconia dodecandra</i> Cogn.	NE
<i>Miconia fasciculata</i> Gardner	LC
<i>Miconia holosericea</i> (L.) DC.	NE
<i>Miconia hyemalis</i> A.St.-Hil. & Naudin	NE
<i>Miconia inconspicua</i> Miq.	NE
<i>Miconia jucunda</i> (DC.) Triana	NE
<i>Miconia kollmannii</i> R.Goldenb. & Reginato	NE
<i>Miconia latecrenata</i> (DC.) Naudin	NE
<i>Miconia ligustroides</i> (DC.) Naudin	NE
<i>Miconia longicuspis</i> Cogn.	NT
<i>Miconia lymanii</i> Wurdack	NE
<i>Miconia matthaei</i> Naudin	NE
<i>Miconia minutiflora</i> (Bonpl.) DC.	NE
<i>Miconia mirabilis</i> (Aubl.) L.O.Williams	NE

	<i>Miconia nervosa</i> (Sm.) Triana	NE
	<i>Miconia paniculata</i> (DC.) Naudin	NE
	<i>Miconia petropolitana</i> Cogn.	NE
	<i>Miconia prasina</i> (Sw.) DC.	NE
	<i>Miconia pusilliflora</i> (DC.) Naudin	NE
	<i>Miconia racemifera</i> (DC.) Triana	NE
	<i>Miconia ramboi</i> Brade	LC
	<i>Miconia sclerophylla</i> Triana	NE
	<i>Miconia sellowiana</i> Naudin	NE
	<i>Miconia shepherdii</i> R.Goldenb. & Reginato	NE
	<i>Miconia splendens</i> (Sw.) Griseb.	NE
	<i>Miconia theizans</i> (Bonpl.) Cogn.	NE
	<i>Miconia tomentosa</i> (Rich.) D.Don	NE
	<i>Miconia trianae</i> Cogn.	NE
	<i>Miconia tristis</i> Spring	NE
	<i>Miconia urophylla</i> DC.	NE
	<i>Miconia valtheri</i> Naudin	NE
	<i>Miconia willdenowii</i> Klotzsch ex Naudin	LC
	<i>Mouriri myrtilloides</i> (Sw.) Poir.	NE
	<i>Pleroma fissinervium</i> Schrank et Mart. ex DC.	NE
	<i>Pleroma mutabilis</i> (Vell.) Triana	NE
	<i>Pleroma stenocarpa</i> (Schrank et Mart. ex DC.) Triana	NE
	<i>Tibouchina canescens</i> (D.Don) Cogn.	NE
	<i>Tibouchina dusenii</i> Cogn.	NT
	<i>Tibouchina estrellensis</i> (Raddi) Cogn.	NE
	<i>Tibouchina pulchra</i> Cogn.	NE
	<i>Tibouchina regnellii</i> Cogn.	NE
	<i>Tibouchina reitzii</i> Brade	NE
	<i>Tibouchina sellowiana</i> Cogn.	NE
	<i>Trembleya parviflora</i> (D.Don) Cogn.	NE
Meliaceae	<i>Cabralea canjerana</i> (Vell.) Mart.	NE
	<i>Cedrela fissilis</i> Vell.	VU
	<i>Cedrela odorata</i> L.	VU
	<i>Guarea guidonia</i> (L.) Sleumer	NE
	<i>Guarea kunthiana</i> A.Juss.	NE
	<i>Guarea macrophylla</i> Vahl	NE
	<i>Trichilia casaretti</i> C.DC.	LC
	<i>Trichilia catigua</i> A.Juss.	NE
	<i>Trichilia claussemi</i> C.DC.	NE
	<i>Trichilia elegans</i> A.Juss.	NE
	<i>Trichilia hirta</i> L.	LC
	<i>Trichilia lepidota</i> Mart.	LC
	<i>Trichilia martiana</i> C.DC.	NE
	<i>Trichilia pallida</i> Sw.	NE

	<i>Trichilia ramalhoi</i> Rizzini	NT
Monimiaceae	<i>Hennecartia omphalandra</i> J.Poiss.	NE
	<i>Macropeplus dentatus</i> (Perkins) I.Santos & Peixoto	NE
	<i>Macropeplus ligustrinus</i> (Tul.) Perkins	NE
	<i>Mollinedia acutissima</i> Perkins	NE
	<i>Mollinedia argyrogyna</i> Perkins	LC
	<i>Mollinedia blumenaviana</i> Perkins	NT
	<i>Mollinedia boracensis</i> Peixoto	NT
	<i>Mollinedia calodonta</i> Perkins	NE
	<i>Mollinedia clavigera</i> Tul.	NE
	<i>Mollinedia elegans</i> Tul.	NE
	<i>Mollinedia eugeniifolia</i> Perkins	EN
	<i>Mollinedia lamprophylla</i> Perkins	NT
	<i>Mollinedia schottiana</i> (Spreng.) Perkins	NE
	<i>Mollinedia triflora</i> (Spreng.) Tul.	NE
	<i>Mollinedia uleana</i> Perkins	NE
	<i>Mollinedia widgrenii</i> A.DC.	NE
Moraceae	<i>Artocarpus heterophyllus</i> Lam.	NE
	<i>Brosimum guianense</i> (Aubl.) Huber	NE
	<i>Brosimum lactescens</i> (S.Moore) C.C.Berg	LC
	<i>Ficus adhatodifolia</i> Schott in Spreng.	NE
	<i>Ficus americana</i> Aubl.	NE
	<i>Ficus broadwayi</i> Urb.	LC
	<i>Ficus cestrifolia</i> Schott ex Spreng.	NE
	<i>Ficus citrifolia</i> Mill.	NE
	<i>Ficus crocata</i> (Miq.) Miq.	NE
	<i>Ficus enormis</i> Mart. ex Miq.	NE
	<i>Ficus ernanii</i> Carauta et al.	NE
	<i>Ficus eximia</i> Schott	LC
	<i>Ficus gomelleira</i> Kunth	NE
	<i>Ficus lagoensis</i> C.C.Berg & Carauta	NE
	<i>Ficus luschnathiana</i> (Miq.) Miq.	NE
	<i>Ficus maxima</i> Mill.	NE
	<i>Ficus obtusifolia</i> Kunth	NE
	<i>Ficus pertusa</i> L.f.	NE
	<i>Maclura tinctoria</i> (L.) D.Don ex Steud.	NE
	<i>Naucleopsis oblongifolia</i> (Kuhlm.) Carauta	LC
	<i>Pseudolmedia hirtula</i> Kuhlm.	LC
	<i>Sorocea bonplandii</i> (Baill.) W.C.Burger et al.	NE
	<i>Sorocea guilleminiana</i> Gaudich.	LC
Muntingiaceae	<i>Muntingia calabura</i> L.	NE
Myristicaceae	<i>Virola bicuhyba</i> (Schott ex Spreng.) Warb.	EN
Myrtaceae	<i>Acca sellowiana</i> (O.Berg) Burret	NE
	<i>Blepharocalyx salicifolius</i> (Kunth) O.Berg	LC

<i>Calyptranthes brasiliensis</i> Spreng.	NE
<i>Calyptranthes clusiifolia</i> O.Berg	NE
<i>Calyptranthes concinna</i> DC.	LC
<i>Calyptranthes grammica</i> (Spreng.) D.Legrand	NE
<i>Calyptranthes grandifolia</i> O.Berg	NE
<i>Calyptranthes hatschbachii</i> D.Legrand	EN
<i>Calyptranthes lanceolata</i> O.Berg	NE
<i>Calyptranthes lucida</i> Mart. ex DC.	NE
<i>Calyptranthes obovata</i> Kiaersk.	NE
<i>Calyptranthes pileata</i> D.Legrand	VU
<i>Calyptranthes pteropoda</i> O.Berg	NE
<i>Calyptranthes pulchella</i> DC.	NE
<i>Calyptranthes rubella</i> (O.Berg) D.Legrand	NT
<i>Calyptranthes serrana</i> A.R.Lourenço	NE
<i>Calyptranthes strigipes</i> O.Berg	NE
<i>Calyptranthes tricona</i> D.Legrand	NE
<i>Calyptranthes widgreniana</i> O.Berg	NE
<i>Campomanesia anemonea</i> Landrum	NE
<i>Campomanesia eugenioides</i> (Cambess.) D.Legrand ex Landrum	LC
<i>Campomanesia guaviroba</i> (DC.) Kiaersk.	NE
<i>Campomanesia guazumifolia</i> (Cambess.) O.Berg	NE
<i>Campomanesia hirsuta</i> Gardner	EN
<i>Campomanesia neriiflora</i> (O.Berg) Nied.	LC
<i>Campomanesia phaea</i> (O.Berg) Landrum	LC
<i>Campomanesia prosthecesepala</i> Kiaersk.	EN
<i>Campomanesia reitziana</i> D.Legrand	VU
<i>Campomanesia schlechtendaliana</i> (O.Berg) Nied.	LC
<i>Campomanesia sessiliflora</i> (O.Berg) Mattos	LC
<i>Campomanesia simulans</i> M.L.Kawas.	NE
<i>Campomanesia xanthocarpa</i> (Mart.) O.Berg	LC
<i>Curitiba prismatica</i> (D.Legrand) Salywon & Landrum	NE
<i>Eugenia acutata</i> Miq.	NE
<i>Eugenia bacopari</i> D.Legrand	NE
<i>Eugenia beaurepairiana</i> (Kiaersk.) D.Legrand	NE
<i>Eugenia brasiliensis</i> Lam.	LC
<i>Eugenia brevistyla</i> D.Legrand	LC
<i>Eugenia burkartiana</i> (D.Legrand) D.Legrand	LC
<i>Eugenia capitulifera</i> O.Berg	NE
<i>Eugenia cerasiflora</i> Miq.	LC
<i>Eugenia cereja</i> D.Legrand	LC
<i>Eugenia chlorocarpa</i> O.Berg	NE
<i>Eugenia chlorophylla</i> O.Berg	NE
<i>Eugenia dodonaeifolia</i> Cambess.	NE
<i>Eugenia egensis</i> DC.	NE

<i>Eugenia florida</i> DC.	LC
<i>Eugenia gracillima</i> Kiaersk.	LC
<i>Eugenia handroana</i> D.Legrand	NE
<i>Eugenia handroi</i> (Mattos) Mattos	NE
<i>Eugenia hiemalis</i> Cambess.	LC
<i>Eugenia involucrata</i> DC.	NE
<i>Eugenia joenssonii</i> Kausel	VU
<i>Eugenia kleinii</i> D.Legrand	NE
<i>Eugenia leptoclada</i> O.Berg	NE
<i>Eugenia ligustrina</i> (Sw.) Willd.	NE
<i>Eugenia longipedunculata</i> Nied.	NE
<i>Eugenia mansoi</i> O.Berg	NE
<i>Eugenia melanogyna</i> (D.Legrand) Sobral	NE
<i>Eugenia mosenii</i> (Kausel) Sobral	NE
<i>Eugenia multicostata</i> D.Legrand	NE
<i>Eugenia myrcianthes</i> Nied.	NE
<i>Eugenia myrciariifolia</i> Soares-Silva & Sobral	EN
<i>Eugenia neoglomerata</i> Sobral	NE
<i>Eugenia neomyrtifolia</i> Sobral	NE
<i>Eugenia neoverrucosa</i> Sobral	NE
<i>Eugenia nutans</i> O.Berg	LC
<i>Eugenia oblongata</i> O.Berg	NE
<i>Eugenia oeidocarpa</i> O.Berg	NE
<i>Eugenia ophthalmantha</i> Kiaersk.	NE
<i>Eugenia pachyclada</i> D.Legrand	EN
<i>Eugenia piloensis</i> Cambess.	NE
<i>Eugenia platysema</i> O.Berg	LC
<i>Eugenia pluriflora</i> DC.	LC
<i>Eugenia prasina</i> O.Berg	LC
<i>Eugenia pruinosa</i> D.Legrand	EN
<i>Eugenia pyriformis</i> Cambess.	NE
<i>Eugenia ramboi</i> D.Legrand	NE
<i>Eugenia repanda</i> O.Berg	NE
<i>Eugenia rostrifolia</i> D.Legrand	NE
<i>Eugenia rotundicosta</i> D.Legrand	CR
<i>Eugenia sclerocalyx</i> D.Legrand	VU
<i>Eugenia sonderiana</i> O.Berg	NE
<i>Eugenia speciosa</i> Cambess.	NE
<i>Eugenia squamiflora</i> Mattos	NE
<i>Eugenia subavenia</i> O.Berg	NE
<i>Eugenia subterminalis</i> DC.	LC
<i>Eugenia supraaxillaris</i> Spring	NE
<i>Eugenia tenuipedunculata</i> Kiaersk.	NE
<i>Eugenia uniflora</i> L.	NE

<i>Eugenia uruguayensis</i> Cambess.	NE
<i>Eugenia vattimoana</i> Mattos	VU
<i>Eugenia viridiflora</i> Cambess.	NE
<i>Eugenia widgrenii</i> Sond. ex O.Berg	NE
<i>Marlierea eugeniopsoides</i> ( D.Legrand & Kausel) D.Legrand	NE
<i>Marlierea excoriata</i> Mart.	NE
<i>Marlierea suaveolens</i> Cambess.	LC
<i>Myrceugenia acutata</i> D.Legrand	NE
<i>Myrceugenia acutiflora</i> (Kiaersk.) D.Legrand & Kausel	NE
<i>Myrceugenia alpigena</i> (DC.) Landrum	LC
<i>Myrceugenia bocaiuensis</i> Mattos	NE
<i>Myrceugenia bracteosa</i> (DC.) D.Legrand & Kausel	EN
<i>Myrceugenia brevipedicellata</i> (Burret) D.Legrand & Kausel	EN
<i>Myrceugenia campestris</i> (DC.) D.Legrand & Kausel	LC
<i>Myrceugenia cucullata</i> D.Legrand	NE
<i>Myrceugenia euosma</i> (O.Berg) D.Legrand	NE
<i>Myrceugenia foveolata</i> (O.Berg) Sobral	EN
<i>Myrceugenia franciscensis</i> (O.Berg) Landrum	EN
<i>Myrceugenia gertii</i> Landrum	EN
<i>Myrceugenia glaucescens</i> (Cambess.) D.Legrand & Kausel	LC
<i>Myrceugenia hatschbachii</i> Landrum	VU
<i>Myrceugenia hoehnei</i> (Burret) D.Legrand & Kausel	VU
<i>Myrceugenia kleinii</i> D.Legrand & Kausel	VU
<i>Myrceugenia mesomischa</i> (Burret) D.Legrand & Kausel	NE
<i>Myrceugenia miersiana</i> (Gardner) D.Legrand & Kausel	LC
<i>Myrceugenia myrcioides</i> (Cambess.) O.Berg	LC
<i>Myrceugenia myrtoides</i> O.Berg	NE
<i>Myrceugenia ovalifolia</i> (O.Berg) Landrum	NE
<i>Myrceugenia oxysepala</i> (Burret) D.Legrand & Kausel	LC
<i>Myrceugenia pilotantha</i> (Kiaersk.) Landrum	LC
<i>Myrceugenia reitzii</i> D.Legrand	NT
<i>Myrceugenia rufescens</i> (DC.) D.Legrand & Kausel	LC
<i>Myrceugenia scutellata</i> D.Legrand	NT
<i>Myrceugenia seriatoramosa</i> (Kiaersk.) D.Legrand & Kausel	NE
<i>Myrceugenia venosa</i> D.Legrand	LC
<i>Myrcia aethusa</i> (O.Berg) N.Silveira	NE
<i>Myrcia amazonica</i> DC.	NE
<i>Myrcia anacardiifolia</i> Gardner	NE
<i>Myrcia brasiliensis</i> Kiaersk.	NE
<i>Myrcia calyptranthoides</i> (O.Berg) Mattos	NE
<i>Myrcia catharinensis</i> (D.Legrand) NicLugh.	NE
<i>Myrcia coelosepala</i> Kiaersk.	NE
<i>Myrcia congestiflora</i> Caliari & V.C. Souza	NE
<i>Myrcia diaphana</i> (O.Berg) N.Silveira	VU

<i>Myrcia eriocalyx</i> DC.	NE
<i>Myrcia ferruginea</i> (Poir.) McVaugh	NE
<i>Myrcia ferruginosa</i> Mazine	NE
<i>Myrcia flagellaris</i> (D.Legrand) Sobral	NT
<i>Myrcia freyreissiana</i> (O.Berg) Kiaersk.	NE
<i>Myrcia glabra</i> (O.Berg) D.Legrand	NE
<i>Myrcia grandifolia</i> Cambess.	NE
<i>Myrcia guianensis</i> (Aubl.) DC.	LC
<i>Myrcia hartwegiana</i> (O.Berg) Kiaersk.	NE
<i>Myrcia hatschbachii</i> D.Legrand	NE
<i>Myrcia hebeptala</i> DC.	NE
<i>Myrcia lajeana</i> D.Legrand	NE
<i>Myrcia laruotteana</i> Cambess.	NE
<i>Myrcia laxiflora</i> Cambess.	NE
<i>Myrcia montana</i> Cambess.	NE
<i>Myrcia multiflora</i> (Lam.) DC.	NE
<i>Myrcia neospruceana</i> E.Lucas & Sobral	NE
<i>Myrcia oblongata</i> DC.	LC
<i>Myrcia obovata</i> (O.Berg) Nied.	LC
<i>Myrcia oligantha</i> O.Berg	NE
<i>Myrcia palustris</i> DC.	NE
<i>Myrcia pubipetala</i> Miq.	LC
<i>Myrcia pulchra</i> (O.Berg) Kiaersk.	LC
<i>Myrcia racemosa</i> (O.Berg) Kiaersk.	NE
<i>Myrcia reticulata</i> Cambess.	NE
<i>Myrcia retorta</i> Cambess.	NE
<i>Myrcia rupicola</i> D.Legrand	EN
<i>Myrcia selloi</i> (Spreng.) N.Silveira	NE
<i>Myrcia spectabilis</i> DC.	NE
<i>Myrcia splendens</i> (Sw.) DC.	NE
<i>Myrcia squamata</i> (Mattos & D.Legrand) Mattos	NE
<i>Myrcia strigipes</i> Mart.	NE
<i>Myrcia subverticillaris</i> (O.Berg) Kiaersk.	NE
<i>Myrcia tenuivenosa</i> Kiaersk.	NE
<i>Myrcia tijucensis</i> Kiaersk.	LC
<i>Myrcia tomentosa</i> (Aubl.) DC.	NE
<i>Myrcia undulata</i> O.Berg	LC
<i>Myrcia venulosa</i> DC.	LC
<i>Myrcianthes cisplatensis</i> (Cambess.) O.Berg	LC
<i>Myrcianthes fragrans</i> (Sw.) McVaugh	NE
<i>Myrcianthes gigantea</i> (D.Legrand) D.Legrand	NE
<i>Myrcianthes pungens</i> (O.Berg) D.Legrand	LC
<i>Myrciaria cuspidata</i> O.Berg	LC
<i>Myrciaria delicatula</i> (DC.) O.Berg	NE

	<i>Myrciaria floribunda</i> (H.West ex Willd.) O.Berg	LC
	<i>Myrciaria plinioides</i> D.Legrand	VU
	<i>Myrciaria tenella</i> (DC.) O.Berg	DD
	<i>Myrrhimum atropurpureum</i> Schott	NE
	<i>Neomitranthes capivariensis</i> (Mattos) Mattos	DD
	<i>Neomitranthes cordifolia</i> (D.Legrand) D.Legrand	VU
	<i>Neomitranthes gemballae</i> (D.Legrand) D.Legrand	LC
	<i>Neomitranthes glomerata</i> (D.Legrand) D.Legrand	LC
	<i>Neomitranthes pedicellata</i> (Burret) Mattos	EN
	<i>Neomitranthes warmingiana</i> (Kiaersk.) Mattos	NE
	<i>Pimenta pseudocaryophyllus</i> (Gomes) Landrum	NE
	<i>Plinia cauliflora</i> (Mart.) Kausel	NE
	<i>Plinia cordifolia</i> (D.Legrand) Sobral	NT
	<i>Plinia coronata</i> (Mattos) Mattos	NE
	<i>Plinia hatschbachii</i> (Mattos) Sobral	EN
	<i>Plinia peruviana</i> (Poir.) Govaerts	NE
	<i>Plinia pseudodichasiantha</i> (Kiaersk.) G.M.Barroso ex Sobral	NE
	<i>Plinia rivularis</i> (Cambess.) Rotman	NE
	<i>Psidium araucanum</i> Soares-Silva & Proença	NE
	<i>Psidium cattleianum</i> Sabine	NE
	<i>Psidium guajava</i> L.	NE
	<i>Psidium guineense</i> Sw.	NE
	<i>Psidium longipetiolatum</i> D.Legrand	LC
	<i>Psidium myrtoides</i> O.Berg	NE
	<i>Psidium ovale</i> (Spreng.) Burret	LC
	<i>Psidium robustum</i> O.Berg	NE
	<i>Psidium rufum</i> Mart. ex DC.	NE
	<i>Psidium sartorianum</i> (O.Berg) Nied.	LC
	<i>Siphoneugena crassifolia</i> (DC.) Proença & Sobral	NE
	<i>Siphoneugena densiflora</i> O.Berg	LC
	<i>Siphoneugena kiaerskoviana</i> (Burret) Kausel	NE
	<i>Siphoneugena kuhlmannii</i> Mattos	VU
	<i>Siphoneugena reitzii</i> D.Legrand	LC
Nyctaginaceae	<i>Bougainvillea glabra</i> Choisy	NE
	<i>Bougainvillea spectabilis</i> Willd.	NE
	<i>Guapira areolata</i> (Heimerl) Lundell	NE
	<i>Guapira hirsuta</i> (Choisy) Lundell	LC
	<i>Guapira nitida</i> (Mart. ex J.A.Schmidt) Lundell	LC
	<i>Guapira opposita</i> (Vell.) Reitz	NE
	<i>Neea pendulina</i> Heimerl	NE
	<i>Pisonia ambigua</i> Heimerl	LC
	<i>Pisonia zapallo</i> Griseb.	NE
Ochnaceae	<i>Ouratea hexasperma</i> (A.St.-Hil.) Baill.	NE
	<i>Ouratea parviflora</i> (A.DC.) Baill.	NE

	<i>Ouratea salicifolia</i> (A.St.-Hil. & Tul.) Engl.	NE
	<i>Ouratea sellowii</i> (Planch.) Engl.	NE
	<i>Ouratea semiserrata</i> (Mart. & Nees) Engl.	NE
	<i>Ouratea vaccinioides</i> (A.St.-Hil. & Tul.) Engl.	NE
Olacaceae	<i>Heisteria silvianii</i> Schwacke	NE
Oleaceae	<i>Chionanthus crassifolius</i> (Mart.) P.S.Green	NE
	<i>Chionanthus filiformis</i> (Vell.) P.S.Green	LC
	<i>Chionanthus trichotomus</i> (Vell.) P.S.Green	NE
Onagraceae	<i>Fuchsia regia</i> (Vell.) Munz	LC
Opiliaceae	<i>Agonandra excelsa</i> Griseb.	NE
Pentaphragmaceae	<i>Ternstroemia brasiliensis</i> Cambess.	LC
Peraceae	<i>Pera glabrata</i> (Schott) Poepp. ex Baill.	NE
Phyllanthaceae	<i>Phyllanthus acuminatus</i> Vahl	NE
Phyllanthaceae	<i>Phyllanthus riedelianus</i> Müll.Arg.	NE
	<i>Richeria grandis</i> Vahl	NE
	<i>Savia dictyocarpa</i> Müll.Arg.	LC
Phytolaccaceae	<i>Gallesia integrifolia</i> (Spreng.) Harms	NE
	<i>Phytolacca dioica</i> L.	NE
	<i>Seguieria langsdorffii</i> Moq.	LC
Picramniaceae	<i>Picramnia excelsa</i> Kuhlm. ex Pirani	NE
	<i>Picramnia gardneri</i> Planch.	NE
	<i>Picramnia glazioviana</i> Engl.	NE
	<i>Picramnia latifolia</i> Tul.	NE
	<i>Picramnia parvifolia</i> Engl.	LC
	<i>Picramnia ramiflora</i> Planch.	NE
	<i>Picramnia sellowii</i> Planch.	LC
Pinaceae	<i>Pinus elliottii</i> L.	NE
	<i>Pinus taeda</i> L.	NE
Piperaceae	<i>Piper aduncum</i> L.	NE
Podocarpaceae	<i>Podocarpus brasiliensis</i> Laubenf.	VU
	<i>Podocarpus lambertii</i> Klotzsch ex Endl.	LC
	<i>Podocarpus sellowii</i> Klotzsch ex Endl.	LC
Polygonaceae	<i>Coccoloba cordata</i> Cham.	NE
	<i>Coccoloba glaziovii</i> Lindau	NE
	<i>Coccoloba persicaria</i> Wedd.	NE
	<i>Coccoloba warmingii</i> Meisn.	NE
	<i>Ruprechtia laxiflora</i> Meisn.	NE
Primulaceae	<i>Myrsine balansae</i> (Mez) Otegui	NE
	<i>Myrsine coriacea</i> (Sw.) R.Br. ex Roem. & Schult.	NE
	<i>Myrsine gardneriana</i> A.DC.	NE
	<i>Myrsine guianensis</i> (Aubl.) Kuntze	NE
	<i>Myrsine hermogenesii</i> (Jung-Mend. & Bernacci) M.F.Freitas & Kin.-Gouv.	NE
	<i>Myrsine laetevirens</i> (Mez) Arechav.	NE
	<i>Myrsine lineata</i> (Mez) Imkhan.	NE

	<i>Myrsine loefgrenii</i> (Mez) Imkhan.	NE
	<i>Myrsine parvula</i> (Mez) Otegui	NE
	<i>Myrsine umbellata</i> Mart.	NE
	<i>Myrsine venosa</i> A.DC.	NE
Proteaceae	<i>Euplassa cantareirae</i> Sleumer	EN
	<i>Euplassa hoehnei</i> Sleumer	NE
	<i>Euplassa itatiaiae</i> Sleumer	NE
	<i>Euplassa nebularis</i> Rambo & Sleumer	EN
	<i>Euplassa organensis</i> (Gardner) I.M.Johnst.	NE
	<i>Roupala asplenioides</i> Sleumer	EN
	<i>Roupala consimilis</i> Mez ex Taub.	NE
	<i>Roupala longepetiolata</i> Pohl	NE
	<i>Roupala montana</i> Aubl.	NE
Quiinaceae	<i>Quiina glaziovii</i> Engl.	NE
	<i>Quiina macrophylla</i> Tul.	NE
Quillajaceae	<i>Quillaja brasiliensis</i> (A.St.-Hil. & Tul.) Mart.	EN
Rhamnaceae	<i>Colubrina glandulosa</i> Perkins	LC
	<i>Condalia buxifolia</i> Reissek	EN
	<i>Rhamnidium elaeocarpum</i> Reissek	NE
	<i>Rhamnidium glabrum</i> Reissek	VU
	<i>Rhamnus sphaerosperma</i> Sw.	NE
	<i>Scutia buxifolia</i> Reissek	NE
Rosaceae	<i>Prunus myrtifolia</i> (L.) Urb.	NE
Rubiaceae	<i>Alseis floribunda</i> Schott	NE
	<i>Amaioua glomerulata</i> (Lam. ex Poir.) Delprete & C.Persson	NE
	<i>Amaioua intermedia</i> Mart. ex Schult. & Schult.f.	NE
	<i>Bathysa australis</i> (A.St.-Hil.) K.Schum.	LC
	<i>Bathysa stipulata</i> (Vell.) C.Presl	NE
	<i>Bathysa sylvestrae</i> Germano-Filho & M.Gomes	NE
	<i>Chomelia brasiliana</i> A.Rich.	NE
	<i>Chomelia obtusa</i> Cham. & Schltdl.	NE
	<i>Chomelia parvifolia</i> (Standl.) Govaerts	NE
	<i>Chomelia pedunculosa</i> Benth.	NE
	<i>Cordia concolor</i> (Cham.) Kuntze	NE
	<i>Coussarea congestiflora</i> Müll.Arg.	NE
	<i>Coussarea contracta</i> (Walp.) Müll.Arg.	NE
	<i>Coussarea hydrangeifolia</i> (Benth.) Müll.Arg.	LC
	<i>Coussarea ilheotica</i> Müll.Arg.	NE
	<i>Coussarea megistophylla</i> Standl.	NE
	<i>Coussarea strigosipes</i> Müll.Arg.	NE
	<i>Coussarea verticillata</i> Müll.Arg.	NE
	<i>Coutarea hexandra</i> (Jacq.) K.Schum.	NE
	<i>Faramea hyacinthina</i> Mart.	NE
	<i>Faramea martiana</i> Müll.Arg.	NE

	<i>Faramea montevidensis</i> (Cham. & Schltdl.) DC.	NE
	<i>Faramea pachyantha</i> Müll.Arg.	NE
	<i>Faramea porophylla</i> (Vell.) Müll.Arg.	NE
	<i>Genipa americana</i> L.	LC
	<i>Genipa infundibuliformis</i> Zappi & Semir	LC
	<i>Guettarda viburnoides</i> Cham. & Schltdl.	NE
	<i>Ixora venulosa</i> Benth.	NE
	<i>Machaonia acuminata</i> Bonpl.	NE
	<i>Palicourea forsteronioides</i> (Müll.Arg.) C.M.Taylor	NE
	<i>Palicourea mamillaris</i> (Müll.Arg.) C.M.Taylor	NE
	<i>Palicourea octocuspis</i> (Müll.Arg.) C.M.Taylor	NE
	<i>Palicourea racemosa</i> (Aubl.) Borhidi	NE
	<i>Posoqueria acutifolia</i> Mart.	NE
	<i>Posoqueria latifolia</i> (Rudge) Schult.	LC
	<i>Posoqueria longiflora</i> Aubl.	NE
	<i>Psychotria carthagenensis</i> Jacq.	NE
	<i>Psychotria fluminensis</i> Vell.	NE
	<i>Psychotria vellosiana</i> Benth.	NE
	<i>Randia armata</i> (Sw.) DC.	NE
	<i>Randia ferox</i> (Cham. & Schltdl.) DC.	NE
	<i>Rudgea coriacea</i> (Spreng.) K.Schum.	NE
	<i>Rudgea gardenioides</i> (Cham.) Müll.Arg.	NE
	<i>Rudgea jasminoides</i> (Cham.) Müll.Arg.	NE
	<i>Rudgea nobilis</i> Müll.Arg.	NT
	<i>Rudgea parquioides</i> (Cham.) Müll.Arg.	NE
	<i>Rudgea recurva</i> Müll.Arg.	NE
	<i>Rudgea reticulata</i> Benth.	LC
	<i>Rudgea triflora</i> Benth.	NT
	<i>Schizocalyx cuspidatus</i> (A.St.-Hil.) Kainul. & B. Bremer	NE
	<i>Simira corumbensis</i> (Standl.) Steyerm.	NE
	<i>Simira glaziovii</i> (K.Schum.) Steyerm.	NE
	<i>Simira sampaioana</i> (Standl.) Steyerm.	NE
	<i>Tocoyena brasiliensis</i> Mart.	NE
Rutaceae	<i>Balfourodendron riedelianum</i> (Engl.) Engl.	NT
	<i>Conchocarpus adenantherus</i> (Rizzini) Kallunki & Pirani	NE
	<i>Dictyoloma vandellianum</i> A.Juss.	NE
	<i>Esenbeckia febrifuga</i> (A.St.-Hil.) A. Juss. ex Mart.	NE
	<i>Esenbeckia grandiflora</i> Mart.	NE
	<i>Helietta apiculata</i> Benth.	NE
	<i>Metrodorea nigra</i> A.St.-Hil.	NE
	<i>Pilocarpus pauciflorus</i> A.St.-Hil.	NE
	<i>Pilocarpus pennatifolius</i> Lem.	NE
	<i>Zanthoxylum acuminatum</i> (Sw.) Sw.	NE
	<i>Zanthoxylum caribaeum</i> Lam.	NE

	<i>Zanthoxylum fagara</i> (L.) Sarg.	NE
	<i>Zanthoxylum kleinii</i> (R.S.Cowan) P.G.Waterman	NE
	<i>Zanthoxylum monogynum</i> A.St.-Hil.	NE
	<i>Zanthoxylum petiolare</i> A.St.-Hil. & Tul.	LC
	<i>Zanthoxylum rhoifolium</i> Lam.	NE
	<i>Zanthoxylum riedelianum</i> Engl.	NE
Sabiaceae	<i>Meliosma itatiaiae</i> Urb.	NE
	<i>Meliosma sellowii</i> Urb.	NE
Salicaceae	<i>Azara uruguayensis</i> (Speg.) Sleumer	NT
	<i>Banara parviflora</i> (A.Gray) Benth.	NE
	<i>Banara tomentosa</i> Clos	NE
	<i>Casearia aculeata</i> Jacq.	NE
	<i>Casearia arborea</i> (Rich.) Urb.	NE
	<i>Casearia catharinensis</i> Sleumer	NE
	<i>Casearia commersoniana</i> Cambess.	NE
	<i>Casearia decandra</i> Jacq.	NE
	<i>Casearia gossypiosperma</i> Briq.	LC
	<i>Casearia lasiophylla</i> Eichler	LC
	<i>Casearia mariquitensis</i> Kunth	NE
	<i>Casearia melliodora</i> Eichler	NE
	<i>Casearia obliqua</i> Spreng.	NE
	<i>Casearia paranaensis</i> Sleumer	VU
	<i>Casearia pauciflora</i> Cambess.	LC
	<i>Casearia sylvestris</i> Sw.	NE
	<i>Casearia ulmifolia</i> Vahl ex Vent.	NE
	<i>Prockia crucis</i> P.Browne ex L.	NE
	<i>Salix humboldtiana</i> Willd.	LC
	<i>Xylosma ciliatifolia</i> (Clos) Eichler	NE
	<i>Xylosma glaberrima</i> Sleumer	NT
	<i>Xylosma prockia</i> (Turcz.) Turcz.	NE
	<i>Xylosma pseudosalzmanii</i> Sleumer	NE
	<i>Xylosma tweediana</i> (Clos) Eichler	NE
Santalaceae	<i>Acanthosyris spinescens</i> (Mart. & Eichler) Griseb.	NE
	<i>Jodina rhombifolia</i> (Hook. & Arn.) Reissek	NE
Sapindaceae	<i>Allophylus edulis</i> (A.St.-Hil. et al.) Hieron. ex Niederl.	NE
	<i>Allophylus guaraniticus</i> (A. St.-Hil.) Radlk.	NE
	<i>Allophylus petiolulatus</i> Radlk.	NE
	<i>Allophylus puberulus</i> (Cambess.) Radlk.	LC
	<i>Allophylus racemosus</i> Sw.	NE
	<i>Allophylus semidentatus</i> (Miq.) Radlk.	LC
	<i>Cupania furfuracea</i> Radlk.	VU
	<i>Cupania ludowigii</i> Somner & Ferrucci	NE
	<i>Cupania racemosa</i> (Vell.) Radlk.	NE
	<i>Cupania vernalis</i> Cambess.	NE

	<i>Cupania zanthoxyloides</i> Radlk.	NE
	<i>Diatenopteryx sorbifolia</i> Radlk.	NE
	<i>Dodonaea viscosa</i> Jacq.	NE
	<i>Matayba cristae</i> Reitz	NE
	<i>Matayba elaeagnoides</i> Radlk.	NE
	<i>Matayba intermedia</i> Radlk.	NE
	<i>Matayba leucodictya</i> Radlk.	NE
	<i>Melicoccus oliviformis</i> Kunth	NE
	<i>Sapindus saponaria</i> L.	NE
Sapotaceae	<i>Chrysophyllum flexuosum</i> Mart.	LC
	<i>Chrysophyllum gonocarpum</i> (Mart. & Eichler ex Miq.) Engl.	NE
	<i>Chrysophyllum inornatum</i> Mart.	LC
	<i>Chrysophyllum marginatum</i> (Hook. & Arn.) Radlk.	NE
	<i>Chrysophyllum viride</i> Mart. & Eichler	NT
	<i>Micropholis crassipedicellata</i> (Mart. & Eichler) Pierre	LC
	<i>Micropholis gardneriana</i> (A.DC.) Pierre	NE
	<i>Pouteria andarahiensis</i> T.D.Penn.	NT
	<i>Pouteria beaurepairei</i> (Glaz. & Raunk.) Baehni	LC
	<i>Pouteria caimito</i> (Ruiz & Pav.) Radlk.	NE
	<i>Pouteria coelomatica</i> Rizzini	VU
	<i>Pouteria gardneri</i> (Mart. & Miq.) Baehni	NE
	<i>Pouteria gardneriana</i> (A.DC.) Radlk.	NE
	<i>Pouteria macahensis</i> T.D.Penn.	EN
	<i>Pouteria psammophila</i> (Mart.) Radlk.	NE
	<i>Pouteria reticulata</i> (Engl.) Eyma	LC
	<i>Pouteria salicifolia</i> (Spreng.) Radlk.	LC
	<i>Pouteria torta</i> (Mart.) Radlk.	LC
	<i>Pouteria venosa</i> (Mart.) Baehni	NE
	<i>Sideroxylon obtusifolium</i> (Roem. & Schult.) T.D.Penn.	LC
Schoepfiaceae	<i>Schoepfia brasiliensis</i> A.DC.	NE
Simaroubaceae	<i>Picrasma crenata</i> (Vell.) Engl.	LC
	<i>Simarouba amara</i> Aubl.	NE
Siparunaceae	<i>Siparuna brasiliensis</i> (Spreng.) A.DC.	LC
	<i>Siparuna guianensis</i> Aubl.	NE
Solanaceae	<i>Aureliana cuspidata</i> (Witasek) I.M.C.Rodrigues & Stehmann	NE
	<i>Aureliana fasciculata</i> (Vell.) Sendtn.	LC
	<i>Aureliana tomentosa</i> Sendtn.	NE
	<i>Aureliana velutina</i> Sendtn.	NE
	<i>Aureliana wettsteiniana</i> (Witasek) Hunz. & Barboza	NE
	<i>Brunfelsia cuneifolia</i> J.A.Schmidt	NE
	<i>Brunfelsia pilosa</i> Plowman	NE
	<i>Cestrum axillare</i> Vell.	NE
	<i>Cestrum intermedium</i> Sendtn.	NE
	<i>Cestrum schlechtendalii</i> G.Don	NE

	<i>Cestrum strigilatum</i> Ruiz & Pav.	NE
	<i>Sessea brasiliensis</i> Toledo	NT
	<i>Sessea regnellii</i> Taub.	LC
	<i>Solanum argenteum</i> Dunal	NE
	<i>Solanum betaceum</i> Cav.	NE
	<i>Solanum bullatum</i> Vell.	LC
	<i>Solanum capoerum</i> Dunal	NE
	<i>Solanum castaneum</i> Carvalho	NE
	<i>Solanum cernuum</i> Vell.	NE
	<i>Solanum cinnamomeum</i> Sendtn.	LC
	<i>Solanum compressum</i> L.B.Sm. & Downs	NE
	<i>Solanum decorum</i> Sendtn.	NE
	<i>Solanum diploconos</i> (Mart.) Bohs	LC
	<i>Solanum gertii</i> S.Knapp	NT
	<i>Solanum granuloseprosum</i> Dunal	LC
	<i>Solanum johannae</i> Bitter	NE
	<i>Solanum kleinii</i> L.B.Sm. & Downs	NE
	<i>Solanum lacerdae</i> Dusén	NE
	<i>Solanum latiflorum</i> Bohs	LC
	<i>Solanum leptostachys</i> Dunal	NE
	<i>Solanum lycocarpum</i> A.St.-Hil.	NE
	<i>Solanum mauritianum</i> Scop.	NE
	<i>Solanum melissarum</i> Bohs	LC
	<i>Solanum pabstii</i> L.B.Sm. & Downs	NE
	<i>Solanum paranense</i> Dusén	NE
	<i>Solanum pinetorum</i> (L.B.Sm. & Downs) Bohs	NT
	<i>Solanum pseudoquina</i> A.St.-Hil.	LC
	<i>Solanum reitzii</i> L.B.Sm. & Downs	NT
	<i>Solanum rugosum</i> Dunal	NE
	<i>Solanum sambuciflorum</i> Sendtn.	NE
	<i>Solanum sanctae-catharinae</i> Dunal	NE
	<i>Solanum sciadostylis</i> (Sendtn.) Bohs	NE
	<i>Solanum scuticum</i> M.Nee	NE
	<i>Solanum sellowianum</i> Sendtn.	NE
	<i>Solanum swartzianum</i> Roem. & Schult.	NE
	<i>Solanum variabile</i> Mart.	NE
	<i>Solanum wacketii</i> Witassek	NE
Stemonuraceae	<i>Discophora guianensis</i> Miers	NE
Styracaceae	<i>Styrax acuminatus</i> Pohl	LC
	<i>Styrax chrysocalyx</i> P.W.Fritsch	NE
	<i>Styrax glabratus</i> Schott	NE
	<i>Styrax latifolius</i> Pohl	NE
	<i>Styrax leprosus</i> Hook. & Arn.	NE
	<i>Styrax martii</i> Seub.	NE

Symplocaceae	<i>Symplocos bidana</i> Aranha	NE
	<i>Symplocos celastrinea</i> Mart.	NE
	<i>Symplocos corymboclados</i> Brand	EN
	<i>Symplocos estrellensis</i> Casar.	NE
	<i>Symplocos falcata</i> Brand	LC
	<i>Symplocos glandulosomarginata</i> Hoehne	NE
	<i>Symplocos glaziovii</i> Brand	NE
	<i>Symplocos incrassata</i> Aranha	NE
	<i>Symplocos insignis</i> Brand	NE
	<i>Symplocos itatiaiae</i> Wawra	EN
	<i>Symplocos kleinii</i> Bidá ex Aranha	NE
	<i>Symplocos laxiflora</i> Benth.	NE
	<i>Symplocos nitens</i> (Pohl) Benth.	NE
	<i>Symplocos nitidiflora</i> Brand	NE
	<i>Symplocos oblongifolia</i> Casar.	NE
	<i>Symplocos pentandra</i> (Mattos) Occhioni ex Aranha	NE
	<i>Symplocos platyphylla</i> (Pohl) Benth.	NE
	<i>Symplocos pubescens</i> Klotzsch ex Benth.	NE
	<i>Symplocos pustulosa</i> Aranha	NE
	<i>Symplocos revoluta</i> Casar.	NE
	<i>Symplocos rizzinii</i> Occhioni	NE
	<i>Symplocos tenuifolia</i> Brand	LC
	<i>Symplocos tetrandra</i> Mart.	NE
	<i>Symplocos trachycarpus</i> Brand	NE
	<i>Symplocos uniflora</i> (Pohl) Benth.	NE
Theaceae	<i>Laplacea fruticosa</i> (Schrad.) Kobuski	NE
Thymelaeaceae	<i>Daphnopsis brasiliensis</i> Mart.	NE
	<i>Daphnopsis coriacea</i> Taub.	NE
	<i>Daphnopsis fasciculata</i> (Meisn.) Nevling	NE
	<i>Daphnopsis martii</i> Meisn.	NE
	<i>Daphnopsis racemosa</i> Griseb.	NE
	<i>Daphnopsis sellowiana</i> Taub.	NE
Ulmaceae	<i>Phyllostylon rhamnoides</i> (Poiss.) Taub.	NT
Urticaceae	<i>Boehmeria ramiflora</i> Jacq.	NE
	<i>Cecropia glaziovii</i> Snethl.	NE
	<i>Cecropia hololeuca</i> Miq.	NE
	<i>Cecropia pachystachya</i> Trécul	NE
	<i>Cecropia palmata</i> Willd.	NE
	<i>Coussapoa curranii</i> S.F.Blake	NT
	<i>Coussapoa floccosa</i> Akkermans & C.C.Berg	DD
	<i>Coussapoa microcarpa</i> (Schott) Rizzini	NE
	<i>Coussapoa pachyphylla</i> Akkermans & C.C.Berg	NE
	<i>Myriocarpa cordifolia</i> Liebm.	NE
	<i>Urera baccifera</i> (L.) Gaudich. ex Wedd.	NE

	<i>Urera caracasana</i> (Jacq.) Griseb.	NE
	<i>Urera simplex</i> Wedd.	NE
Verbenaceae	<i>Aloysia virgata</i> (Ruiz & Pav.) Juss.	NE
	<i>Citharexylum glaziovii</i> Moldenke	NE
	<i>Citharexylum montevidense</i> (Spreng.) Moldenke	NE
	<i>Citharexylum myrianthum</i> Cham.	NE
	<i>Citharexylum solanaceum</i> Cham.	NE
	<i>Duranta vestita</i> Cham.	NE
	<i>Recordia reitzii</i> (Moldenke) Thode & O'Leary	NE
Vochysiaceae	<i>Callisthene castellanosii</i> H.F.Martins	NE
	<i>Callisthene inundata</i> Bueno et al.	EN
	<i>Callisthene minor</i> Mart.	NE
	<i>Qualea cordata</i> Spreng.	NE
	<i>Qualea cryptantha</i> (Spreng.) Warm.	NE
	<i>Qualea glaziovii</i> Warm.	NE
	<i>Qualea selloi</i> Warm.	NE
	<i>Vochysia acuminata</i> Bong.	NE
	<i>Vochysia bifalcata</i> Warm.	NE
	<i>Vochysia densiflora</i> Spruce	NE
	<i>Vochysia glazioviana</i> Warm.	NE
	<i>Vochysia grandis</i> Mart.	NE
	<i>Vochysia lehmannii</i> Hieron.	NE
	<i>Vochysia magnifica</i> Warm.	NE
	<i>Vochysia pachyantha</i> Ducke	NE
	<i>Vochysia rectiflora</i> Warm.	NE
	<i>Vochysia schwackeana</i> Warm.	NE
	<i>Vochysia tucanorum</i> Mart.	NE
	<i>Vochysia venulosa</i> Warm.	NE
Winteraceae	<i>Drimys angustifolia</i> Miers	LC
	<i>Drimys brasiliensis</i> Miers	LC

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### Online Resource 3

**Table S3** Total number and threatened number of arboreal and arborescent species per family that occur in the *Araucaria* Mixed Forest.

Family	Number of species	Number of species evaluated	Number of threatened species
Myrtaceae	211	84	27
Fabaceae	122	27	5
Melastomataceae	82	7	-
Lauraceae	79	27	7
Rubiaceae	54	8	-
Solanaceae	47	13	-
Euphorbiaceae	38	1	-
Malvaceae	25	4	-
Symplocaceae	25	4	2
Bignoniaceae	24	10	2
Salicaceae	24	7	1
Asteraceae	23	2	-
Celastraceae	23	7	-
Moraceae	23	6	-
Annonaceae	21	8	-
Sapotaceae	20	12	2
Sapindaceae	19	3	1
Vochysiaceae	19	1	1
Rutaceae	17	2	-
Monimiaceae	16	5	1
Cyatheaceae	15	3	-
Meliaceae	15	6	2
Anacardiaceae	13	3	1
Clusiaceae	13	1	-
Urticaceae	13	2	-

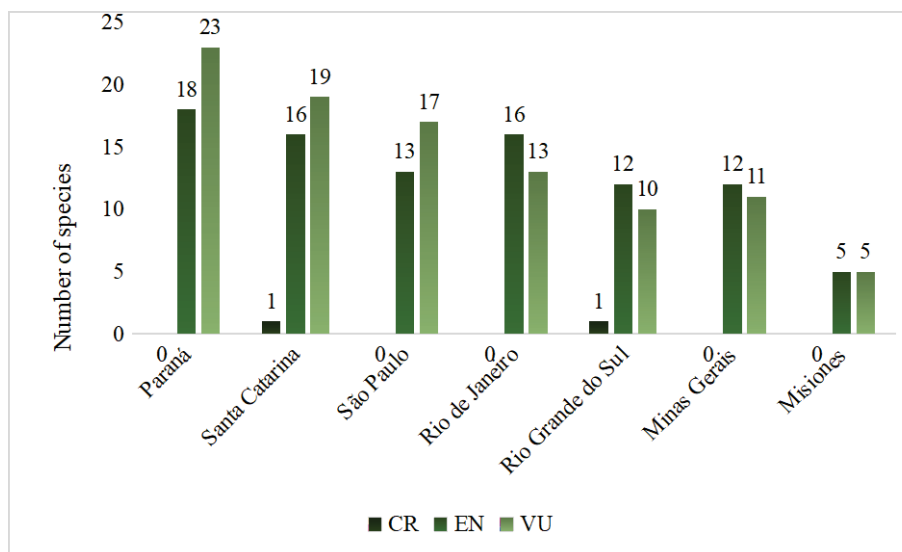
Aquifoliaceae	12	1	-
Primulaceae	11	0	-
Apocynaceae	10	5	-
Erythroxylaceae	10	4	-
Lamiaceae	10	1	-
Ericaceae	9	3	-
Nyctaginaceae	9	3	-
Proteaceae	9	3	3
Araliaceae	8	5	-
Arecaceae	8	5	2
Boraginaceae	8	2	-
Cunoniaceae	8	4	-
Picramniaceae	7	2	-
Verbenaceae	7	0	-
Chrysobalanaceae	6	1	-
Ochnaceae	6	0	-
Rhamnaceae	6	3	2
Styracaceae	6	1	-
Thymelaeaceae	6	0	-
Cardiopteridaceae	5	0	-
Combretaceae	5	3	-
Malpighiaceae	5	1	-
Polygonaceae	5	0	-
Cactaceae	4	2	-
Cannabaceae	4	1	-
Elaeocarpaceae	4	2	-
Hypericaceae	4	1	-
Phyllanthaceae	4	1	-
Burseraceae	3	1	-
Escalloniaceae	3	1	-
Lacistemataceae	3	0	-
Oleaceae	3	1	-

Phytolaccaceae	3	1	-
Podocarpaceae	3	3	1
Canellaceae	2	0	-
Capparaceae	2	0	-
Caricaceae	2	1	-
Clethraceae	2	2	-
Ebenaceae	2	2	-
Lecythidaceae	2	1	1
Lythraceae	2	1	-
Pinaceae	2	0	-
Quinaceae	2	0	-
Sabiaceae	2	0	-
Santalaceae	2	0	-
Simaroubaceae	2	1	-
Siparunaceae	2	1	-
Winteraceae	2	2	-
Achatocarpaceae	1	1	-
Adoxaceae	1	0	-
Araucariaceae	1	1	1
Berberidaceae	1	0	-
Bixaceae	1	0	-
Calophyllaceae	1	0	-
Chloranthaceae	1	0	-
Connaraceae	1	1	-
Dichapetalaceae	1	0	-
Dicksoniaceae	1	1	1
Dilleniaceae	1	0	-
Gentianaceae	1	0	-
Humiriaceae	1	0	-
Laxmanniaceae	1	0	-
Magnoliaceae	1	1	-
Muntingiaceae	1	0	-

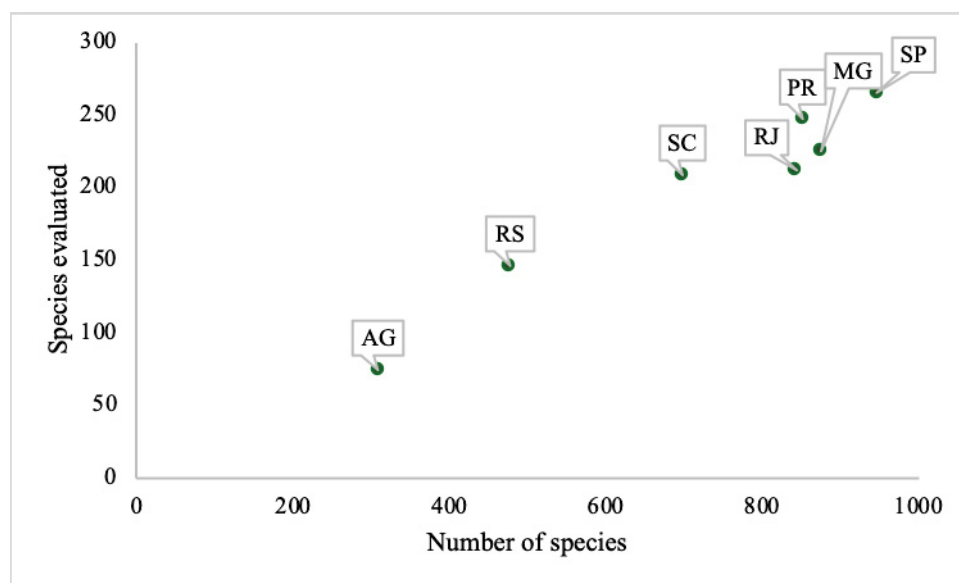
Myristicaceae	1	1	1
Olacaceae	1	0	-
Onagraceae	1	1	-
Opiliaceae	1	0	-
Pentaphylacaceae	1	1	-
Peraceae	1	0	-
Piperaceae	1	0	-
Quillajaceae	1	1	1
Rosaceae	1	0	-
Schoepfiaceae	1	0	-
Stemonuraceae	1	0	-
Theaceae	1	0	-
Ulmaceae	1	1	-

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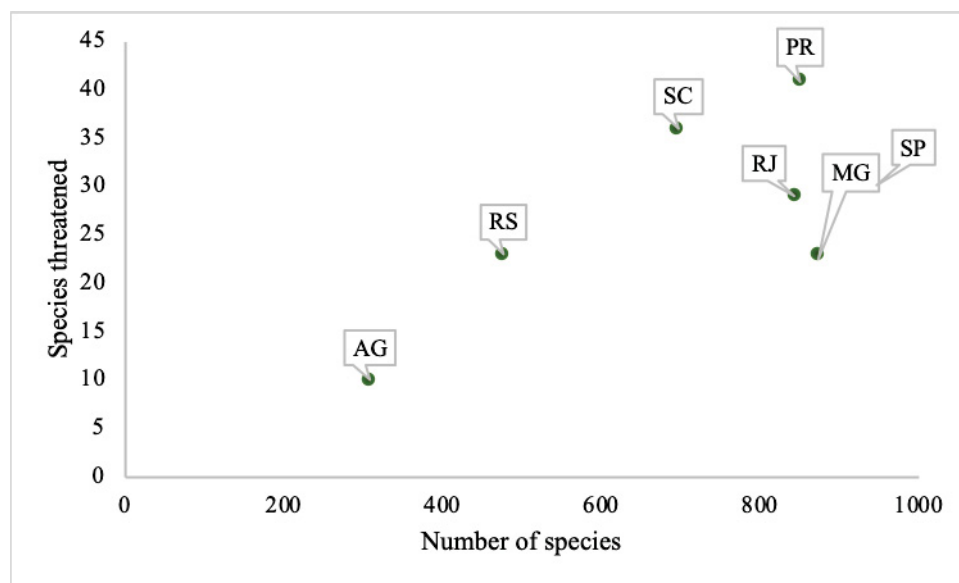
## Online Resource 4



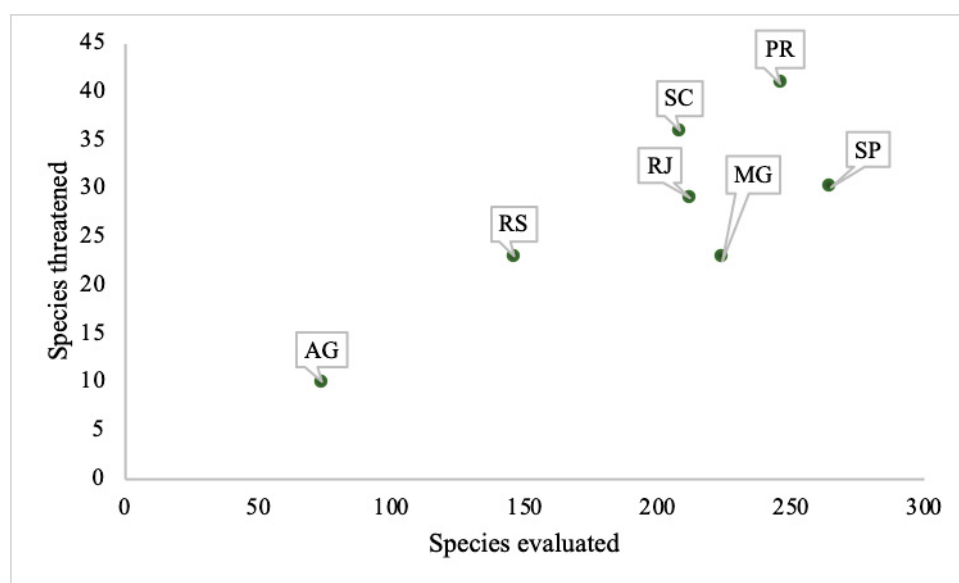
**Fig S1** Distribution of threatened arboreal and arborescent species of the *Araucaria* Mixed Forest per Brazilian State and the Argentinian Misiones Province. CR- Critically Endangered, EN- Endangered, VU- Vulnerable



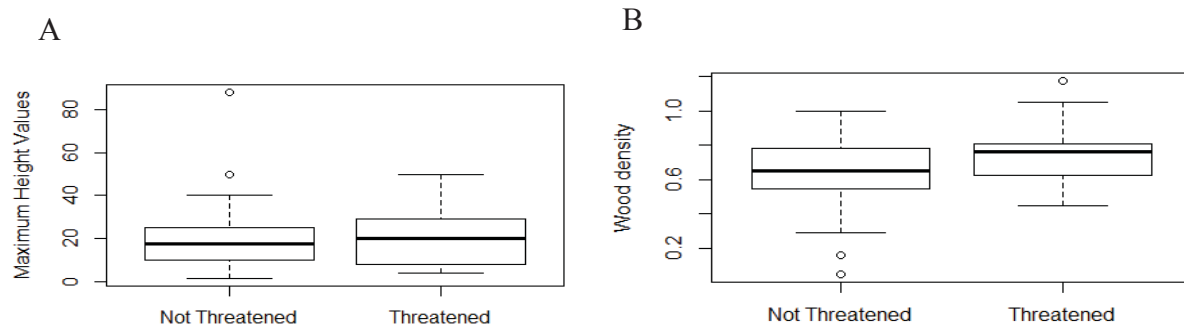
**Fig. S2** Relationship ( $r = 0.97$ ;  $df = 5$ ;  $P = <0.001$ ) between species number and the number of evaluated species in Brazilian States (Rio Grande do Sul - RS; Santa Catarina – SC; Paraná – PR; São Paulo – SP; Rio de Janeiro – RJ; Minas Gerais – MG) and in the Argentinian Misiones Province (AG).



**Fig S3** Relationship ( $r = 0.8$ ;  $df. = 5$ ;  $P = 0.027$ ) between total species number and number of threatened species per state (Rio Grande do Sul - RS; Santa Catarina - SC; Paraná - PR; São Paulo - SP; Rio de Janeiro - RJ; Minas Gerais - MG) and in the Argentinian Misiones Province (AG).



**Fig S4** Relationship ( $r = 0.69$ ;  $df. = 5$ ;  $P = 0.084$ ) between the number of threatened species and species evaluated per Brazilian State (Rio Grande do Sul - RS; Santa Catarina - SC; Paraná - PR; São Paulo - SP; Rio de Janeiro - RJ; Minas Gerais - MG) and in the Argentinian Misiones Province (AG).



**Fig S5** Variation of maximum tree height between non threatened and threatened species (A) and variation of wood density between non threatened and threatened species (B).