

Vascular flora in dry-shrub and wet grassland Cerrado seven years after a fire, Federal District, Brazil

Aryanne Gonçalves Amaral^{1*}, Cássia Beatriz R. Munhoz¹, Chesterton Ulysses Orlando Eugênio^{1,2} and Jeanine Maria Felfili³

1 Universidade de Brasília, Instituto de Biologia, Departamento de Botânica. Campus Darcy Ribeiro, Instituto de Ciências Biológicas, bloco D, 1º piso. CEP 70910-900. Asa Norte, Brasília, DF, Brazil.

2 Universidade Católica de Brasília, Curso de Biologia, Laboratório de Botânica. Campus I - QS 07 Lote 01 EPCT, Águas Claras. CEP 71966-700 – Taguatinga, DF, Brazil.

3 Universidade de Brasília, Departamento de Engenharia Florestal. Campus Darcy Ribeiro, Brasília, DF, Brazil. In memoriam

* Corresponding author. E-mail: aryanne_amaral@yahoo.com.br

ABSTRACT: Studies of temporal dynamics for grassland sites report that fire suppression plays a crucial role in floristic changes. The objective of this study was to verify whether after seven years without fire, communities showed variations in terms of composition, life forms, pollination and dispersal syndromes. The first survey (T0) was conducted from September 1999 to October 2000, while the second (T1) took place from August 2006 to August 2007. The floristic results in T1 were compared with the survey in T0 through the Sorensen similarity index and Chi-square tests. Over time, there were differences in the composition, life forms and pollination and dispersion syndromes. The evidence of changes suggests that the frequency of the fire regime can be considered the main agent for change in the flora of these communities.

INTRODUCTION

The dynamic process in a community is characterized by patterns, mechanisms and, in many systems, successive disturbances are important sources of changes in the landscape (Glenn-Lewin and van der Maarel 1992). The progression of changes in the composition and structure of a community over time, due to disturbances in the environment, is conceptualized as a succession process or directional change (Buchanan 1982).

Studies of temporal dynamics for grassland sites report that the suppression of disturbances such as fire plays a crucial role in the floristic and structural changes of these communities (San José and Fariñas 1991; Moreira 2000; Behling *et al.* 2007; Kahmen and Poschlod 2008; Ravi and D’Odorico 2009). Changes over time are related to differences in species abundance and composition, differences in the spectrum of life forms and functional characteristics. The suppression of fire in savannas intervenes in natural ecological processes, and in more open areas like grasslands, a gradual increase in the density of woody and fire-sensitive species can be seen (San José and Fariñas 1983; 1991; Silva *et al.* 2001; Durigan and Ratter 2006; Gardner 2006; Pinheiro and Durigan 2009).

Savannas are considered dynamic ecotones, distributed between grassland formations and more densely vegetated areas (Coutinho 1978, Roitman *et al.* 2008). In these landscapes grasses and trees coexist, influenced by interactions with the climate, soil and disturbances such as fire, and fluctuations in any of these factors may result in an increase in certain life forms (Roitman *et al.* 2008). The intensification or suppression of disturbances modifies the composition of species in an area. The landscape is altered by the exclusion of sensitive species in the first case, and by the exclusion of resistant species in the second (Libano and Felfili 2006).

In South America, the largest savanna region is located in Brazil, and is called Cerrado, and as in other savannas, the fire regime is an important factor in the evolution of the landscape and, consequently, of the vegetation (Gottsberger and Silberbauer-Gottsberger 2006a). In savannic physiognomies the presence of trees is greater in areas protected from fire, especially in dry-shrub savannas, where protection allows the regeneration of the woody component (Moreira 2000). In general, the absence of fire benefits the woody component and increases the structural complexity of vegetation, while the passage of fire benefits the non-woody component and increases the presence of herbs and subshrubs in the landscape (Mistry 1998).

In the Cerrado, most of the ongoing studies on dynamics have focused only on the tree layer (Libano and Felfili 2006; Aquino *et al.* 2007; Roitman *et al.* 2008, Carvalho and Felfili 2011). Studies that directly focus on understanding the temporal dynamics of the herbaceous and shrub layer over the years are still scarce, especially with regard to the grassland physiognomies of the biome (Eugênio *et al.* 2011).

The Cerrado phytogeographical domain has a very heterogeneous physiognomy, that ranges from open grasslands to dense forests, but which has as the most common formation the savannic physiognomy, known as cerrado *sensu stricto* (Oliveira-Filho and Ratter 2002; Ab’Sáber 2003; Ribeiro and Walter 2008). The grassland formations include wet grassland (campo limpo), dry-shrub grassland (campo sujo) and “campo rupestre” (rupicolous field grassland) (Ribeiro and Walter 2008), and until 2007 these occupied 7% of the entire Cerrado. In the Federal District alone, they covered a total of 6,164 ha (Sano *et al.* 2007).

The dry-shrub grassland (Campo sujo) is one of the

physiognomies of the Cerrado domain and is comprised exclusively by shrubs and herbaceous species, where variations in topography, soil, and humidity allow the establishment of subshrub-herbaceous species and also of some woody species found in adjacent cerrado areas (Ribeiro and Walter 2008). Wet grasslands (Campo limpo úmido) can be found in various topographic positions, with different variations in humidity, depth and soil fertility conditions (Munhoz *et al.* 2008). This physiognomy rarely occurs in flat areas with deep soils, but is common in Central Brazil, on the slopes of plateaus and alongside “veredas” (palm swampy vegetation) (Ribeiro and Walter 2008). The wet grasslands occur on the edge of gallery forests, seasonally flooded soils in valley bottoms, especially on hydromorphic soils and peaty organic soils (Felfili *et al.* 2005), with gradations of humidity and segments where the water table is shallow (Munhoz *et al.* 2008).

This paper reports on an ongoing monitoring project of the flora in an area of wet grassland and dry-shrub grassland, on the Água Limpa Farm, located in the south of the Federal District, Brazil. The study sites had experienced an accidental fire about a month before the first survey (1999-2001) (Munhoz and Felfili 2007a), and over a period of seven years there were no disturbances related to the fire regime. The main objectives were to verify whether after seven years without fire, the communities showed variation in their floristic composition, life forms, pollination and dispersal syndromes.

MATERIALS AND METHODS

Study site

This study was conducted in adjacent wet grassland and dry-shrub grassland sites (Figure 1), both of approximately 16 ha, located on the Água Limpa Farm (ALF), (15°56' to 15°59' S and 47°55' to 47°58' WGr.), in the south of the Federal District, and owned by the University of Brasilia (UnB), comprising a core area of the Cerrado Biosphere Reserve.

The climate is Aw according to Köppen classification and is characterized by two well defined seasons: one that is hot and rainy (October to April) and the other cold and dry (May-September). In the study site the average annual maximum temperature is 28.5°C with an average annual minimum of 12°C. The average annual rainfall from November 1999 to April 2007 was 1,175 mm, measured at

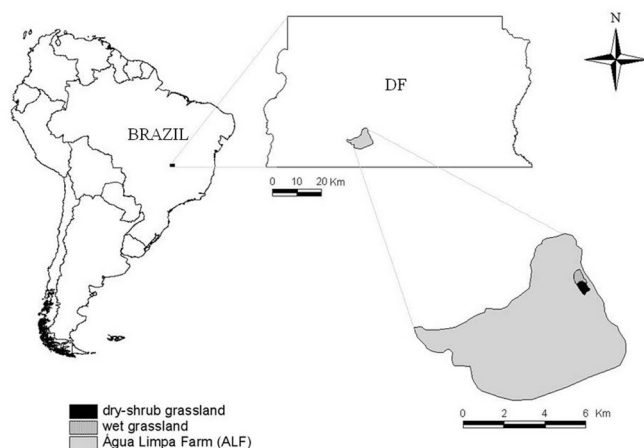


FIGURE 1. Location of Água Limpa Farm (ALF) in the south of Federal District, Brazil. The study areas are located in northeast at AFL.

the meteorological station of the IBGE Ecological Reserve (RECOR), at a distance of approximately 5 km from the study site.

The dry-shrub grassland in ALF occurs on an Oxisol of low fertility, with good drainage, deep groundwater and acid soil (pH 4.02), and high levels of Al⁺³ (0.35 cmolc.dm⁻³), low levels of Ca²⁺ (0.35 cmolc.dm⁻³), Mg²⁺ (0.12 cmolc.dm⁻³) and P⁺ (1.14 cmolc.dm⁻³) (Munhoz and Felfili 2006). The wet grassland adjacent to the dry-shrub grassland has a hydromorphic soil with a shallow water table, featuring areas of temporary flooding in the rainy season and permanent ones in the depressions. The wet grassland also features acid soil (pH 3.76), high levels of Al³⁺ (0.87 cmolc.dm⁻³), low Ca²⁺ (0.22 cmolc.dm⁻³), Mg²⁺ (0.11 cmolc.dm⁻³) and P⁺ (3.31 cmolc.dm⁻³) (Munhoz *et al.* 2008).

Data collection

The study sites and the surrounding areas (gallery forest and cerrado *sensu stricto*) experienced an accidental fire in the first week of August 1999, about a month before the first survey (T0), carried out in the area on a fortnightly basis, from September 1999 to October 2000 (Munhoz and Felfili 2004; 2007a), but have never since suffered any disturbances related to the fire regime.

The second floristic survey (T1) was carried out twice a month from August 2006 to August 2007. In both studies, botanical materials in reproductive stage of all specimens with herbaceous, subshrub, shrub and nonwoody liana habits were collected along marked trails running parallel and perpendicular to the edge of the gallery forest stream Taquara, so as to cover the greatest possible extent of the site (Munhoz and Felfili 2004; 2007a).

The species collected were classified according to the main groups of plant life forms, following the terminology proposed by Raunkiaer (1934) and adapted by Ellenberg and Mueller-Dombois (1967). The taxonomic identification was performed by reference to the literature, comparison with specimens from the herbarium of the University of Brasilia (UB) and the Ecological Reserve of the Brazilian Institute of Geography and Statistics (IBGE) and subsequent confirmation by specialists in each taxonomic group. The specimens collected were herbalized according to the usual procedures, and stored in the herbaria mentioned above. Exotic species behaving as invasive in the study site were also collected for floristic records.

Species were classified into families based on the Angiosperm Phylogeny Group III system (APG III 2009), and through the Angiosperm Phylogeny Website (Stevens 2001). Author names for all species and synonyms were checked against The Plant List project page (2010) (<http://www.theplantlist.org/>).

Data Analysis

Floristic findings in T1 for the ALF wet and dry-shrub grasslands were compared with the T0 survey (Munhoz and Felfili 2004; 2007a), by means of the Sørensen Similarity Index. The floristic lists produced for both surveys was compiled into a single one, taking into account only Angiosperms. Life forms and the dispersal and pollination syndromes comprised the species matrix, classified for their presence and absence in T1 and T0. In order to classify the species as native and subspontaneous

(exotic) we used the information available in the Brazilian Flora Species List (<http://floradobrasil.jbrj.gov.br/2012/index>) and the recommendations suggested by Moro *et al.* (2012). The rare species were classified according to the list of rare plants in Brazil (Giulietti *et al.* 2009).

To verify that the categories of life forms, pollination and dispersal syndromes were significantly different over time and space, Chi-square (χ^2) tests were applied (Zar 1999).

To assess the similarity between surveys and between communities we used the Sørensen Similarity Index, based on the presence and absence of species (Mueller-Dombois and Ellenberg 1974). This index was calculated by means of the MVSP software, version 3.13 (Kovach Computing Services 2005).

RESULTS AND DISCUSSION

After seven years without fire, changes in their floristic composition of the studied communities were verified (Figure 2A). There was an increase in the richness of species, families and genera (Figure 2A). Compared to the first survey, the number of species increased by 7.5% and 6% for the wet (campo limpo úmido) and dry-shrub (campo sujo) grassland, respectively. In both periods, the dry-shrub and wet grasslands had 35 species in common, while in the second survey only 24 such species were found. In the wet grassland, 101 species that were recorded after

the 1999 fire were not found in 2006, and 124 settled in the area after seven years, while in the dry-shrub grassland, 101 disappeared and 134 emerged (Table 1). In total (T0 + T1) were listed 317 species for wet grassland and 394 species for the dry-shrub grassland. There was a record of 557 species adding the two areas.

The floristic similarity between the surveys in the dry-shrub grassland was 53.5%, while in the wet grassland it was 38.5%. Albeit adjacent, the floristic similarity between the sites is low, 30% in T0 and 33.6% in T1. The low similarity between communities in space and on different observation occasions suggests floristic distinctions between the wet and dry-shrub grasslands, with most species being typical of each area, with low sharing over the seven-year interval between the surveys.

The five families with the greatest number of species in the ALF wet and dry-shrub grassland sites were Asteraceae (91), Poaceae (75), Fabaceae (47), Melastomataceae (25) and Cyperaceae (23). The families Poaceae and Cyperaceae showed a reduction in the wealth of species -- the former in both sites and the latter only in the wet grassland. In the grassy-woody savanna of the Pantanal an increase in the number and frequency of the Cyperaceae's species and Eudicots was observed after fire (Cardoso *et al.* 2000), suggesting that its suppression could influence the decline in the richness of these species, as observed in the ALF wet grassland after seven years without the

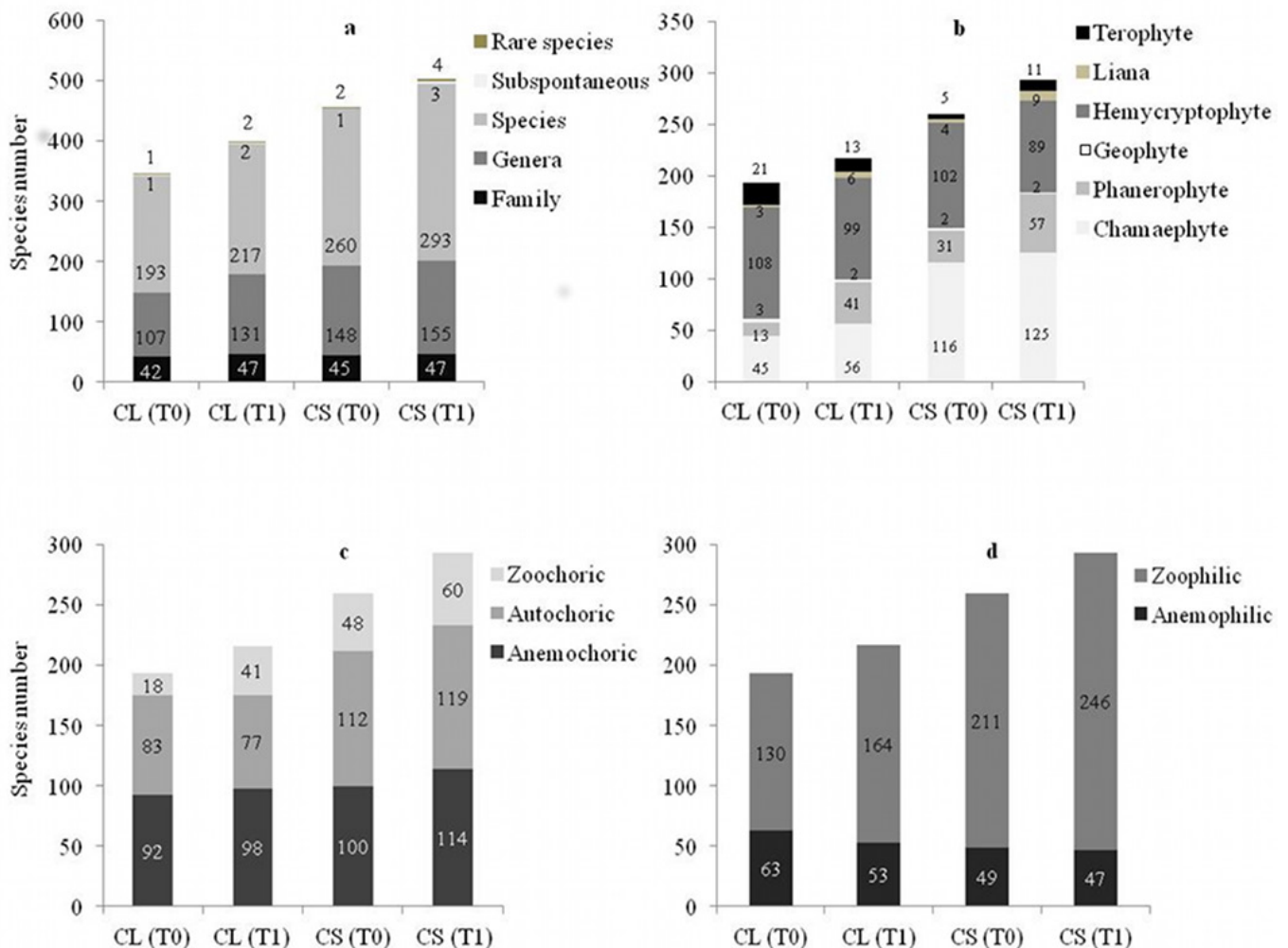


FIGURE 2. Floristic composition, life forms, pollination and dispersal syndromes of the species in the dry-shrub and wet grassland in T0 and T1 at Água Limpa Farm, (ALF), Brasília, DF, Brazil. (A) Number of species per family and genera and subspontaneous and rare species; (B) Number of species per life form; (C) Number of species per dispersal syndrome; (D) Number of species per pollination syndrome.

presence of fire. Over time, only Poaceae and Asteraceae were common to the two sites among the five families with the highest number of species. The Asteraceae and Poaceae typically feature greater variety, especially in the savanna and grassland physiognomies of the Cerrado, where they are virtually restricted to the herbaceous-subshrub component (Mantovani and Martins 1993; Batalha and Martins 2002; Munhoz and Felfili 2007a). The high colonization by individuals of these families is due to the fact that most species support direct sunlight and require high light intensity, conditions found in open areas, making these ideal places for their settlement (Tannus and Assis 2004). These two are also among the nine families deemed hyperdiverse in Brazil, since they feature at least a thousand species considered to be native (Rapini *et al.* 2009).

Significant differences were found in life forms between the wet and dry-shrub grasslands, both in T0 ($\chi^2 = 41.24, p = 8.39 \cdot 10^{-8}$) and in T1 ($\chi^2 = 12.61, p = 0.02$). Over time, the dominant life forms in the communities were the hemicryptophytes and chamaephytes, the former predominating in the wet grassland and the latter in the dry-shrub grassland (Figure 2B). As time elapsed since the last fire, the number of phanerophyte species increased in both communities, and that of therophytes and hemicryptophytes dropped in wet grassland (Figure 2B). Over time, only the wet grassland showed significant differences in the number of species by life form ($\chi^2 = 19.51, p = 0.0015$) due to the significant increase in phanerophytes and chamaephytes and reduction in hemicryptophytes and therophytes (Figure 2B). In the open savannas of Africa, the increase in shrubs determined a decline in the number of herbaceous species, after the suppression of fire (Belsky 1994; Duncan and Duncan 2000). The presence of shrubs and small trees in the landscape can change the phenology, composition, spatial distribution, biomass allocation and productivity of the herbaceous component (Scholes and Archer 1997). Shrub establishment, coverage and density cause changes in the soil and shading of herbs, resulting in the declining productivity of the latter (Scholes and Archer 1997).

As for the Cerrado, a gradual increase in tree coverage density has been recorded after years of vegetation protection against fire. In areas of savanna woodland (cerradão), cerrado *sensu stricto*, “campo cerrado” and shrub savanna (campo sujo), the absence of fires caused a significant increase in the number of woody species, with open areas showing the highest values, that is, the absence of disturbances allowed the settlement and regeneration of the woody component (Moreira 2000). After 44 years of protection from fire, the main change observed with satellite images in vegetation cover at the Assis Ecological Station, an area of Cerrado in southeastern Brazil, was the continuous thickening of vegetation, with open grassland areas being gradually occupied by closed cerrado physiognomies (Pinheiro and Durigan 2009). Protected since 1959, with the suppression of fire since 2004 in that area the wet grassland had its area reduced to one fourth of the initial extent, losing ground to the cerrado *sensu stricto* and riparian forests (Pinheiro and Durigan 2009). Apparently, in the ALF wet grassland these patterns described by Moreira (2000) and Pinheiro and Durigan

(2009) can also be verified, whereby the exclusion of fire for seven years has encouraged the growth and settlement of phanerophytes and chamaephytes (woody component) and resulted in changes in the landscape due to the density of these shrubs.

The dispersal syndromes, anemochory and autocory remained dominant in the communities studied (Figure 2C). There were significant changes in the dispersal syndromes in the wet grassland over time ($\chi^2 = 7.93, p = 0.01$), with a reduction in autochorous species and an increase in zoochoric ones (Figure 2C). The dispersion syndromes of the wet and dry-shrub grasslands were significantly different in T0 ($\chi^2 = 8.56, p = 0.01$) but not in T1 ($\chi^2 = 2.03, p = 0.36$), suggesting that over time and space a functional strategy of dispersal syndrome convergence occurred between the adjacent areas.

Zoophily was the dominant pollination syndrome in the communities in both surveys (Figure 1d), with increases of 8.6% in the wet grassland and approximately 3% in the dry-shrub grassland. There was a general reduction in the number of anemophilous species: in the wet grassland this decrease was of 8.1% and in the dry-shrub grassland, 2.8% (Figure 2D). Over time, only the wet grassland ($\chi^2 = 3.40, p = 0.05$) showed significant differences in pollination syndromes, due to the increase in the number of zoochoric species between surveys and the decrease in anemophilous species (Figure 2D).

The predominance of anemochoric dispersion over time is associated to the physiognomic types of the sites, which are open grasslands, and the dominance of herbaceous species, a pattern observed in other studies on the Cerrado (Batalha *et al.* 1997; Batalha and Mantovani 2000; Tannus *et al.* 2006), and in this dry-shrub grassland seven years ago (Munhoz and Felfili 2007b), but increased zoochory may be another factor to confirm the influence of the absence of fire in the changes found in the landscape over time, especially in the ALF wet grassland, where after years of fire protection a greater density of chamaephytes and phanerophytes was verified. The prevalence of the zoochoric dispersal syndrome in different environments is associated with the dominance of woody species (phanerophytes and chamaephytes), as occurs in the cerrado *sensu stricto* and forest habitats (Batalha and Mantovani 2000; Kinoshita *et al.* 2006; Tannus and Assis 2006; Ishara and Maimoni-Rodella 2011).

The conditions of more open vegetation and the dominance of one layer composed of herbs, besides benefiting the presence of wind-dispersed species also favor a high frequency of anemophilous species (Gottsberger and Silberbauer-Gottsberger 2006b; Barbosa and Sazima 2008; Ishara and Maimoni-Rodella 2011), which in the ALF wet and dry-shrub grasslands showed a reduction over time in the studied communities. This anemophily reduction is associated with the exclusion of fire for seven years, since the reproductive behavior of some grasses, a group to which belong most of the species pollinated by wind, is dependent on fire, so few species flourish in the absence of this type of disorder (Sarmiento 1992; Canales *et al.* 1994; Munhoz and Amaral 2010). The proportions and occurrences of different pollination systems are affected by differences in floristic composition (Ramírez 1989).

Seven species found in the ALF site are on the list of Rare Plants of Brazil (Giulietti *et al.* 2009): *Wedelia souzae* H. Rob. (Asteraceae); *Lobelia brasiliensis* A.O.S. Vieira and G.J. Shep. (Campanulaceae); *Hyptis loeseneriana* Pilg. (Lamiaceae); *Hyptis tenuifolia* Epling (Lamiaceae); *Polygala juncea* A.St.-Hil. (Polygalaceae); *Spermacoce irwiniana* (E.L. Cabral) Delprete (Rubiaceae) and *Xyris diaphanobracteata* Kral and Wand. (Xyridaceae) while *W. souzae*, *L. brasiliensis*, *H.loeseneriana* e *X.diaphanobracteata* only settled in the sites after fire suppression, *P. juncea* was listed after the fire only. This species flowers and fruits from November to May, and flowering is intense especially after fires (Marques 1988). *H.tenuifolia* e *S. irwiniana* were recorded in both surveys. *H. tenuifolia* occurred for a short period in the ALF dry-shrub grassland, and was recorded seven months after the fire, in the month of April during the dry season of 2000 (Munhoz and Felfili 2006). These plants were considered rare, since they have a restricted range of occurrence (<10,000 km²) and therefore meet criteria B1 and D2 of the IUCN (International Union for the Conservation of Nature), that is, in terms of the first criterion they can be classified as threatened depending on the number of locations or fragmentation and if they experience decline and/or extreme fluctuations regarding the boundaries of occurrence, area of occupancy, environmental conditions, number of locations or subpopulations, and/or number of mature individuals; and for the second criterion, these species can be considered endangered in the near future

(Rapini *et al.* 2009).

Three species were classified as subsponaneous to the flora of the Brazil (Brazilian Flora Species List 2012) (Table 1). *Clibadium armanii* (Balb.) Sch. Bip. ex O.E. Schulz (Asteraceae) e *Melinis minutiflora* P. Beauv (Poaceae) were recorded only after some distance from fire and only *Melinis repens* (Willd.) Zizka (Poaceae) appeared in all surveys (Table 1). After seven years of fire the grass *Melinis minutiflora* P. Beauv. settled in the ALF dry-shrub grassland was listed among the species with the highest percentage of coverage (A.G. Amaral, unpublished data). *M. minutiflora* is sensitive to fire and is adapted to low soil fertility (Martins *et al.* 2004), a condition found in the ALF dry-shrub grassland for its settlement and proliferation alongside the absence of fire for seven years. As a consequence of high competitive power, ample plant growth and a vast production of viable seeds, the species *M. minutiflora* has become a threat to the conservation of the biome's flora (Filgueiras 1991; Martins *et al.* 2004).

For the herb-shrub layer of the dry-shrub grassland, and particularly in the ALF wet grassland, the evidence found in changes related to composition, life forms and pollination and dispersal syndromes, point to a process of succession in these communities, generated by the exclusion of fire for seven years. For these environments, the frequency of the fire regime can be considered the main agent of change in the composition, life forms and phenology of species.

TABLE 1. Families, genera and species according the life form (LF) proposed by Raunkiaer (1934) and adapted by Ellenberg and Mueller-Dombois (1967), dispersal syndrome (DS) and pollination syndrome (PS) in a campo sujo (CS), dry-shrub grassland, and a campo limpo úmido (CL), wet grassland, in 1999-2000 (T0) and 2006-2007 (T1), in the Água Limpa Farm, Federal District, Brazil. Legend: cham=chamaephyte; geo=geophyte; hem=hemicryptophyte; ph=phanerophyte; lia=liana; ter=terophyte; autoc= autochoric; zooc= zoochoric; anemoc= anemochoric; zoo= zoophilic; ane= anemophilic; *subsponaneous species; +rare species; CM= C. Munhoz; AA= A. Amaral.

| SPECIES | VOUCHER | CLT0 | CLT1 | CST0 | CST1 | Habit | LF | DS | PS |
|--|---------|------|------|------|------|----------|------|--------|-----|
| Acanthaceae | | | | | | | | | |
| <i>Justicia oncodes</i> (Lindau) Wassh. and C. Ezcurra | CM1058 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Justicia phyllocalyx</i> (Lindau) Wassh. and C. Ezcurra | AA617 | - | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Justicia pycnophylla</i> Lindau | AA696 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Ruellia brevicaulis</i> (Nees) Lindau | CM2076 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Ruellia incomta</i> (Nees) Lindau | AA58 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Ruellia</i> sp. | AA1230 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| Alstroemeriaceae | | | | | | | | | |
| <i>Alstroemeria burchellii</i> Baker | AA232 | - | 1 | - | - | herb | geo | autoc | zoo |
| <i>Alstroemeria gardneri</i> Baker | AA822 | - | - | - | 1 | herb | geo | autoc | zoo |
| <i>Alstroemeria longistyla</i> Schenk | CM956 | 1 | - | - | - | herb | geo | autoc | zoo |
| <i>Alstroemeria</i> sp. | CM1460 | - | - | 1 | - | herb | hem | autoc | zoo |
| Amaranthaceae | | | | | | | | | |
| <i>Gomphrena aphylla</i> Pohl ex Moq. | CM741 | 1 | - | - | - | subshrub | cham | autoc | zoo |
| <i>Pfaffia jubata</i> Mart. | CM890 | 1 | - | 1 | - | subshrub | cham | autoc | zoo |
| Anacardiaceae | | | | | | | | | |
| <i>Anacardium humile</i> A. St.-Hil. | AA92 | - | 1 | - | 1 | shrub | ph | zooc | zoo |
| Apiaceae | | | | | | | | | |
| <i>Eryngium juncifolium</i> (Urb.) Mathias and Constance | AA48 | - | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Eryngium marginatum</i> Pohl ex Urb. | CM812 | 1 | - | 1 | - | herb | hem | autoc | zoo |
| <i>Eryngium</i> sp. | CM2096 | 1 | - | - | - | herb | hem | autoc | zoo |
| Apocynaceae | | | | | | | | | |
| <i>Asclepias candida</i> Vell. | CM2078 | 1 | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Ditassa cordata</i> (Turcz.) Fontella | AA1433 | 1 | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Ditassa</i> sp. | CM2298 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Mandevilla longiflora</i> (Desf.) Pichon | CM2053 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Mandevilla novocapitalis</i> Markgr. | AA393 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Mandevilla rugosa</i> (Benth.) Woodson | AA347 | 1 | - | - | 1 | vine | lia | anemoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Mandevilla velame</i> (A. St.-Hil.) Pichon | AA1636 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Oxypetalum aequaliflorum</i> E. Fourn. | AA535 | 1 | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Oxypetalum appendiculatum</i> Mart. | AA145 | - | 1 | - | - | vine | lia | anemoc | zoo |
| <i>Oxypetalum erectum</i> Mart. | AA407 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| Asteraceae | | | | | | | | | |
| <i>Achyrocline alata</i> (Kunth) DC. | CM1187 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Achyrocline satureioides</i> (Lam.) DC. | AA40 | - | 1 | - | 1 | herb | hem | anemoc | zoo |
| <i>Ageratum conyzoides</i> (L.) L. | AA547 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Apopyros warmingii</i> (Baker) G.L. Nesom | CM1936 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Aspilia foliacea</i> (Spreng.) Baker | AA258 | 1 | 1 | 1 | 1 | herb | hem | anemoc | zoo |
| <i>Aspilia jolyana</i> G.M. Barroso | AA45 | - | - | 1 | 1 | shrub | cham | anemoc | zoo |
| <i>Aspilia montevidensis</i> (Spreng.) Kuntze | AA495 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Aspilia ovalifolia</i> (DC.) Baker | AA709 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Aspilia platyphylla</i> (Baker) S.F. Blake | CM2173 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Aspilia reflexa</i> (Sch.Bip. ex Baker) Baker | CM839 | - | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Aspilia</i> sp. | CM2237 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Ayapana amygdalina</i> (Lam.) R.M. King and H. Rob. | AA49 | - | 1 | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Baccharis erigeroides</i> DC. | CM2013 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Baccharis rufescens</i> var. <i>ventanica</i> Cabrera | AA62 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Baccharis subdentata</i> DC. | CM959 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Baccharis</i> sp.1 | AA1933 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Baccharis</i> sp.2 | AA834 | - | 1 | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Bidens graveolens</i> Mart. | AA750 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Calea cuneifolia</i> DC. | AA504 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Calea fruticosa</i> (Gardner) Urbatsch, Zlotzky and Pruski | CM1341 | - | - | 1 | - | shrub | ph | anemoc | zoo |
| <i>Calea gardneriana</i> Baker | CM1941 | 1 | - | 1 | - | herb | Hem | anemoc | zoo |
| <i>Calea hymenolepis</i> Baker | AA1105 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Calea lantanoides</i> Gardner | AA1786 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Calea mediterranea</i> (Vell.) Pruski | CM792 | 1 | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Calea quadrifolia</i> Pruski and Urbatsch | AA873 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Campuloclinium hirsutum</i> Gardner | AA1197 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Chaptalia integerrima</i> (Vell.) Burkart | AA425 | - | - | 1 | 1 | herb | hem | anemoc | zoo |
| <i>Chresta sphaerocephala</i> DC. | AA20 | - | 1 | 1 | 1 | shrub | ph | anemoc | zoo |
| <i>Chromolaena chaseae</i> (B.L. Rob.) R. M. King and H. Rob. | AA26 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Chromolaena horminoides</i> DC. | AA1770 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Chromolaena laevigata</i> (Lam.) R. M. King and H. Rob. | AA1256 | - | 1 | - | 1 | shrub | ph | anemoc | zoo |
| <i>Chromolaena maximiliani</i> (Schrad. ex DC.) R.M. King and H. Rob. | AA1849 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Chromolaena vindex</i> (DC.) R.M. King and H. Rob. | AA1257 | 1 | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Chrysanthemum morifolium</i> Ramat. | CM1674 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Clibadium armanii</i> (Balb.) Sch. Bip. ex O.E. Schulz * | AA1095 | - | 1 | - | 1 | shrub | ph | anemoc | zoo |
| <i>Dimerostemma asperatum</i> S.F. Blake | CM843 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Dimerostemma brasilianum</i> Cass. | AA639 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Echinocoryne holosericea</i> (Mart.) H. Rob. | AA102 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Echinocoryne stricta</i> (Gardner) H. Rob. | AA426 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Elephantopus elongatus</i> Gardner | AA893 | 1 | 1 | - | 1 | shrub | ph | anemoc | zoo |
| <i>Emilia fosbergii</i> Nicolson | AA1761 | - | 1 | 1 | 1 | herb | ter | anemoc | zoo |
| <i>Erechtites hieracifolius</i> (L.) Raf. ex DC. | AA1557 | - | 1 | - | 1 | herb | ter | anemoc | zoo |
| <i>Eremanthus mollis</i> Sch. Bip. | AA948 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Eupatorium macrocephalum</i> Less. | AA391 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Eupatorium megacephalum</i> Mart. ex Baker | AA748 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Eupatorium stachyophyllum</i> Spreng. | CM2133 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Eupatorium tremulum</i> Hook. and Arn. | AA1068 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Eupatorium</i> sp. | CM783 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Ichthyothere latifolia</i> Baker | AA521 | 1 | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Lepidaploa aurea</i> (Mart. ex DC.) H. Rob. | AA33 | - | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus argyrophyllus</i> (Less.) H. Rob. | AA34 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus bardanoides</i> (Less.) H. Rob. | AA702 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus compactiflorus</i> (Mart. ex Baker) H. Rob. | AA17 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus desertorum</i> (Mart. ex DC.) H. Rob. | CM1859 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus durus</i> (Mart. ex DC.) H. Rob. | AA260 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Lessingianthus erythrophilus</i> (DC.) H. Rob. | AA421 | - | 1 | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus grearii</i> (H. Rob.) H. Rob. | CM889 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus ligulifolius</i> (Mart. ex DC.) H. Rob. | AA720 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus linearifolius</i> (Less.) H. Rob. | CM1697 | 1 | - | - | - | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus psilophyllus</i> (DC.) H. Rob. | AA1194 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Lessingianthus simplex</i> (Less.) H. Rob. | AA327 | 1 | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Mikania sessilifolia</i> DC. | CM1661 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Podocoma</i> sp. | AA494 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Porophyllum angustissimum</i> Gardner | CM1357 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Porophyllum lanceolatum</i> DC. | CM1043 | - | - | 1 | - | shrub | ph | anemoc | zoo |
| <i>Praxelis kleinioides</i> (Kunth) Sch. Bip. | AA1197 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Praxelis</i> sp. | AA205 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Riencourtia oblongifolia</i> Gardner | AA519 | 1 | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Senecio adamantinus</i> Bong. | AA366 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Senecio</i> sp. | AA451 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Soaresia velutina</i> Sch. Bip. | AA1390 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Stevia heptachaeta</i> DC. | AA1366 | 1 | 1 | 1 | 1 | herb | hem | anemoc | zoo |
| <i>Stevia</i> sp. | AA815 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Symphopappus reticulatus</i> Baker | AA590 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Trichogonia salviifolia</i> Gardner | AA472 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Trichogonia</i> sp. | CM986 | 1 | - | - | - | herb | hem | anemoc | zoo |
| <i>Trixis glutinosa</i> D. Don | AA18 | - | - | 1 | 1 | shrub | ph | anemoc | zoo |
| <i>Trixis nobilis</i> (Vell.) Katinas | AA1363 | - | 1 | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Vernonanthura ferruginea</i> (Less.) H. Rob. | AA27 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Vernonanthura membranacea</i> (Gardner) H. Rob. | AA1775 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Vernonanthura phosphorica</i> (Vell.) H. Rob. | CM1366 | - | - | 1 | - | shrub | ph | anemoc | zoo |
| <i>Vernonia megapotamica</i> Spreng. | AA634 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Vernonia rubriramea</i> Mart. ex DC. | AA184 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Viguiera bracteata</i> Gardner | AA259 | - | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Viguiera discolor</i> Baker | AA592 | - | 1 | - | - | subshrub | cham | anemoc | zoo |
| <i>Viguiera kunthiana</i> Gardner | AA1604 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Viguiera robusta</i> Gardner | AA400 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Viguiera</i> sp. | CM917 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Wedelia bishopii</i> H. Rob. | CM839 | 1 | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Wedelia souzae</i> H. Rob.* | AA1263 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Willoughbya officinalis</i> (Mart.) Kuntze | AA868 | 1 | 1 | - | 1 | subshrub | cham | anemoc | zoo |
| Begoniaceae | | | | | | | | | |
| <i>Begonia cucullata</i> Willd. | AA1199 | - | 1 | - | - | herb | ter | autoc | zoo |
| Bignoniaceae | | | | | | | | | |
| <i>Adenocalymma pedunculatum</i> (Vell.) L.G.Lohmann | AA1015 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Anemopaegma arvense</i> (Vell.) Stellfeld ex de Souza | CM782 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Anemopaegma glaucum</i> Mart. ex DC. | AA1274 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Jacaranda caroba</i> (Vell.) A. DC. | AA1878 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Jacaranda ulei</i> Bureau and K. Schum. | s/no | - | - | 1 | - | shrub | ph | anemoc | zoo |
| <i>Zeyheria montana</i> Mart. | AA1016 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| Boraginaceae | | | | | | | | | |
| <i>Cordia calocephala</i> Cham. | AA480 | 1 | - | 1 | 1 | shrub | ph | autoc | zoo |
| <i>Heliotropium salicioides</i> Cham. | AA51 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| Burmanniaceae | | | | | | | | | |
| <i>Burmannia flava</i> Mart. | CM1003 | 1 | - | - | - | herb | ter | autoc | zoo |
| Campanulaceae | | | | | | | | | |
| <i>Lobelia brasiliensis</i> A.O.S. Vieira and G.J.Shepherd* | AA356 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Lobelia camporum</i> Pohl | CM1896 | 1 | 1 | 1 | - | herb | hem | anemoc | zoo |
| Chrysobalanaceae | | | | | | | | | |
| <i>Parinari obtusifolia</i> Hook. f. | AA21 | 1 | - | 1 | 1 | subshrub | cham | zoo | zoo |
| Clusiaceae | | | | | | | | | |
| <i>Kielmeyera abdita</i> Saggi | AA24 | - | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Kielmeyera variabilis</i> Mart. and Zucc. | CM864 | - | - | 1 | - | shrub | ph | anemoc | zoo |
| Convolvulaceae | | | | | | | | | |
| <i>Evolvulus lagopodioides</i> Meisn. | AA82 | - | - | 1 | 1 | herb | hem | anemoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CST0 | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Ipomoea aurifolia</i> Dammer | AA392 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Ipomoea campestris</i> Meisn. | AA499 | - | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Ipomoea geophylifolia</i> K. Afzelius | AA593 | - | 1 | - | - | vine | lia | autoc | zoo |
| <i>Ipomoea procumbens</i> Mart. and Choisy | AA972 | - | - | - | 1 | vine | lia | autoc | zoo |
| <i>Ipomoea procurrens</i> Meisn. | AA507 | 1 | - | 1 | 1 | vine | lia | autoc | zoo |
| <i>Ipomoea</i> sp. | CM2163 | - | - | 1 | - | vine | lia | autoc | zoo |
| <i>Merremia contorquens</i> (Choisy) Hallier f. | AA66 | - | - | - | 1 | vine | lia | autoc | zoo |
| <i>Merremia digitata</i> var. <i>ericoides</i> (Meisn.) D.F. Austin and Staples | AA1400 | - | - | - | 1 | vine | lia | autoc | zoo |
| Cucurbitaceae | | | | | | | | | |
| <i>Cayaponia weddellii</i> (Naudin) Cogn. | AA1076 | - | 1 | - | - | vine | lia | zooc | zoo |
| Cyperaceae | | | | | | | | | |
| <i>Ascolepis brasiliensis</i> (Kunth) Benth. ex C.B. Clarke | CM2039 | 1 | - | - | - | herb | ter | anemoc | ane |
| <i>Bulbostylis capillaris</i> (L.) Kunth ex C.B. Clarke | CM1191 | 1 | - | - | - | herb | ter | anemoc | ane |
| <i>Bulbostylis jacobinae</i> (Steud.) Lindm. | AA659 | - | - | - | 1 | herb | hem | anemoc | ane |
| <i>Bulbostylis junciformis</i> (Kunth) C.B. Clarke | AA536 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Bulbostylis juncooides</i> (Vahl) Kük. ex Herter | CM2174 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Bulbostylis paradoxa</i> (Spreng.) Lindm. | s/no | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Bulbostylis paraensis</i> C.B. Clarke | CM828 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Bulbostylis sellowiana</i> (Kunth) Palla | AA143 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Bulbostylis</i> sp. CL | AA1753 | - | 1 | - | - | herb | hem | anemoc | ane |
| <i>Bulbostylis</i> sp. CS | CM729 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Lagenocarpus rigidus</i> (Kunth) Nees | AA379 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Lagenocarpus rigidus</i> subsp. <i>tenuifolius</i> (Boeckeler) T. Koyama and Maguire | AA568a | - | 1 | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora</i> cf. <i>albiceps</i> Kunth | CM888 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora brasiliensis</i> Boeckeler | CM948 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora consaguinea</i> (Kunth) Boeckeler | AA275 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Rhynchospora emaciata</i> (Nees.) Boeckeler | AA566 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora gigantea</i> Link | CM1293 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora globosa</i> (Kunth) Roem. and Schult. | AA117 | 1 | 1 | - | 1 | herb | hem | autoc | ane |
| <i>Rhynchospora marisculus</i> Lindl. and Nees. | AA609 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora patuligluma</i> C.B. Clarke ex Lindm. | CM2302 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Rhynchospora robusta</i> (Kunth) Boeckeler | AA235 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Rhynchospora rugosa</i> (Vahl) Gale | AA47 | 1 | 1 | - | 1 | herb | hem | anemoc | ane |
| <i>Rhynchospora spruceana</i> C.B. Clarke | AA680 | 1 | 1 | - | - | herb | hem | autoc | ane |
| <i>Rhynchospora tenuis</i> Link | AA901 | 1 | 1 | - | - | herb | hem | autoc | ane |
| <i>Rhynchospora velutina</i> (Kunth) Boeckeler | AA1336 | 1 | 1 | - | 1 | herb | hem | autoc | ane |
| <i>Rhynchospora</i> sp.1 | CM826 | 1 | - | - | - | herb | hem | autoc | ane |
| <i>Rhynchospora</i> sp.2 | CM1594 | 1 | - | - | - | herb | hem | autoc | ane |
| <i>Rhynchospora</i> sp.3 | CM2212 | 1 | - | - | - | herb | hem | autoc | ane |
| <i>Rhynchospora</i> sp.4 | AA1613 | - | 1 | - | - | herb | hem | autoc | ane |
| <i>Scleria hirtella</i> Sw. | CM1064 | 1 | 1 | 1 | - | herb | hem | autoc | ane |
| <i>Scleria leptostachya</i> Kunth | AA816 | 1 | 1 | - | 1 | herb | ter | autoc | ane |
| <i>Scleria scabra</i> Willd. | AA1151 | - | - | - | 1 | herb | ter | autoc | ane |
| <i>Scleria</i> sp. | CM898 | 1 | - | - | - | herb | hem | autoc | ane |
| Dilleniaceae | | | | | | | | | |
| <i>Davilla elliptica</i> A. St.-Hil. | AA1265 | - | - | 1 | 1 | shrub | ph | zooc | zoo |
| Droseraceae | | | | | | | | | |
| <i>Drosera montana</i> A. St.-Hil. | AA820 | 1 | 1 | - | 1 | herb | hem | autoc | zoo |
| Ericaceae | | | | | | | | | |
| <i>Agarista chlorantha</i> (Cham.) G. Don | AA124 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| Ericaceae | | | | | | | | | |
| <i>Gaylussacia goyazensis</i> Sleumer | AA80 | - | 1 | - | 1 | shrub | ph | zooc | zoo |
| <i>Gaylussacia</i> sp. | AA1701 | - | 1 | - | - | shrub | ph | zooc | zoo |
| Eriocaulaceae | | | | | | | | | |
| <i>Eriocaulon modestum</i> Kunth | CM1584 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Paepalanthus eriocauloides</i> Ruhland | CM1480 | 1 | - | - | - | herb | ter | anemoc | zoo |
| <i>Paepalanthus flaccidus</i> (Bong.) Kunth | AA1052 | 1 | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Paepalanthus giganteus</i> Sano | AA198 | - | - | 1 | 1 | herb | hem | anemoc | zoo |
| <i>Paepalanthus lundii</i> Körn. | CM1858 | 1 | - | - | - | herb | hem | anemoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Paepalanthus cf. speciosus</i> Gardner | CM1599 | 1 | - | - | - | herb | hem | anemoc | zoo |
| <i>Syngonanthus densiflorus</i> (Korn.) Ruhland | AA283 | 1 | 1 | - | - | herb | hem | autoc | zoo |
| <i>Syngonanthus gracilis</i> (Bong.) Ruhland | AA282 | 1 | 1 | - | - | herb | ter | autoc | zoo |
| <i>Syngonanthus nitens</i> (Bong.) Ruhland | AA1606 | 1 | 1 | - | - | herb | hem | autoc | zoo |
| <i>Syngonanthus xeranthemoides</i> (Bong.) Ruhland | CM2220 | 1 | - | 1 | - | herb | hem | autoc | zoo |
| <i>Syngonanthus</i> sp.1 | CM1817 | 1 | - | - | - | herb | hem | autoc | zoo |
| <i>Syngonanthus</i> sp.2 | CM1580 | 1 | - | - | - | herb | hem | autoc | zoo |
| Erythroxylaceae | | | | | | | | | |
| <i>Erythroxylum campestre</i> A. St.-Hil | AA50 | - | - | 1 | 1 | subshrub | cham | zooc | zoo |
| <i>Erythroxylum deciduum</i> A. St.-Hil. | AA156 | 1 | - | 1 | 1 | shrub | ph | zooc | zoo |
| <i>Erythroxylum suberosum</i> A. St.-Hil. | AA1000 | - | - | - | 1 | shrub | ph | zooc | zoo |
| <i>Erythroxylum tortuosum</i> Mart. | CM1872 | - | - | 1 | - | shrub | ph | zooc | zoo |
| Euphorbiaceae | | | | | | | | | |
| <i>Acalypha clausenii</i> (Turcz.) Müll.Arg. | CM2052 | 1 | - | 1 | - | herb | hem | autoc | zoo |
| <i>Croton antisiphiliticus</i> Mart. | AA157 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Croton campestris</i> A. St.-Hil. | AA416 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Croton goyazensis</i> Müll. Arg. | AA14 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Dalechampia caperonioides</i> Baill. | AA6 | 1 | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Euphorbia potentilloides</i> Boiss. | CM733 | 1 | 1 | 1 | - | herb | hem | autoc | zoo |
| <i>Euphorbia</i> sp. | CM731 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Maprounea guianensis</i> Aubl. | AA323 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Sapium glandulosum</i> (L.) Morong | AA343 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| Fabaceae | | | | | | | | | |
| <i>Acosmium dasycarpum</i> (Vogel) Yakovlev | AA179 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Aeschynomene falcata</i> (Poir) DC. | CM1068 | - | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Aeschynomene paniculata</i> Vogel | AA192 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Bauhinia dumosa</i> Benth. | AA633 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Bauhinia rufa</i> (Bong.) Steud | AA195 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Bauhinia</i> sp. | CM1463 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Calliandra dysantha</i> Benth. | CM1336 | - | 1 | 1 | - | subshrub | cham | autoc | zoo |
| <i>Chamaecrista cathartica</i> (Mart.) H.S. Irwin and Barneby | AA190 | - | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Chamaecrista conferta</i> (Benth.) H.S.Irwin and Barneby | CM1176 | 1 | - | - | - | subshrub | cham | autoc | zoo |
| <i>Chamaecrista crommyotricha</i> (Harms) H.S. Irwin and Barneby | AA30 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Chamaecrista desvauxii</i> (Collad.) Killip | CM866 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Chamaecrista desvauxii</i> var. <i>langsдорffii</i> (Vogel) H.S. Irwin and Barneby | AA708 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Chamaecrista pohliana</i> (Benth) H.S. Irwin and Barneby | AA388 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Chamaecrista</i> sp. | CM1063 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Crotalaria cf. goiasensis</i> Windler and S.G. Skinner | CM2475 | 1 | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Clitoria guianensis</i> (Aubl.) Benth. | CM2055 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Crotalaria flavicoma</i> Benth. | AA832 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Crotalaria unifoliolata</i> Benth. | AA1486 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Crotalaria</i> sp. | CM855 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Desmodium barbatum</i> (L.) Benth. | AA1306 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Desmodium platycarpum</i> Benth. | CM1896 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Eriosema defoliatum</i> Benth. | AA8 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Eriosema glabrum</i> Benth. | AA847 | - | - | - | 1 | subshrub | hem | autoc | zoo |
| <i>Galactia crassifolia</i> (Benth.) Taub. | AA37 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Galactia grewiifolia</i> (Benth.) Taub. | AA332 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Galactia peduncularis</i> Benth. (Taub) | AA742 | - | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Galactia stereophylla</i> Harms | AA61 | - | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Galactia</i> sp. | AA1891 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Lupinus velutinus</i> Benth. | AA759 | - | - | 1 | 1 | shrub | ph | autoc | zoo |
| <i>Mimosa albolanata</i> Taub. | AA1799 | - | 1 | 1 | 1 | shrub | ph | autoc | zoo |
| <i>Mimosa albolanata</i> var. <i>brasiliiana</i> Barneby | AA36 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Mimosa gracilis</i> Benth. | s/no | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Mimosa lanuginosa</i> Burkart | AA94 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Mimosa nuda</i> Benth. var. <i>glaberrima</i> (Chodat and Hassl.) Barneby | AA524 | - | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Mimosa radula</i> Benth. var. <i>imbricata</i> (Benth.) Barneby | AA739 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Mimosa setosa</i> Benth. | AA1348 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Mimosa setosa</i> Benth. subsp. <i>setosa</i> | AA244 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Mimosa somnians</i> Willd. | AA612 | - | - | - | 1 | shrub | ph | autoc | zoo |
| <i>Mimosa somnians</i> Willd. subsp. <i>viscida</i> (Willd.) Barneby var. <i>leptocaulis</i> (Benth.) Barneby | AA1098 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Mimosa xanthocentra</i> Mart. subsp. <i>tremula</i> (Benth.) Barneby var. <i>tremula</i> | AA844 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Senna rugosa</i> (G. Don) H.S. Irwin and Barneby | AA1234 | - | - | 1 | 1 | shrub | ph | autoc | zoo |
| <i>Stylosanthes guianensis</i> (Aubl.) Sw. | AA2 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Vigna cf. linearis</i> (Kunth) Marechal and al. | CM1000 | 1 | - | - | - | vine | lia | autoc | zoo |
| <i>Zornia gemella</i> (Willd.) Vogel | AA1023 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Zornia vestita</i> Mohlenbr. | AA622 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Zornia virgata</i> Moric. | AA975 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Zornia</i> sp. | AA1232 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| Gentianaceae | | | | | | | | | |
| <i>Chelonanthus purpurascens</i> (Aubl.) Struwe, S. Nilsson and V.A. Albert | AA1058 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Curtia tenuifolia</i> (Aubl.) Knobl. | AA1180 | 1 | 1 | - | - | herb | ter | anemoc | zoo |
| <i>Deianira chiquitana</i> Herzog | AA31 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Deianira nervosa</i> Cham. and Schldtl. | CM1335 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Iribachia speciosa</i> (Cham. and Schldtl.) Maas | AA165 | - | 1 | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Schultesia gracilis</i> Mart. | AA1164 | 1 | 1 | - | - | herb | hem | autoc | zoo |
| <i>Schultesia guianensis</i> (Aubl.) Malme | AA1124 | - | 1 | - | 1 | herb | hem | autoc | zoo |
| Gesneriaceae | | | | | | | | | |
| <i>Sinningia allagophylla</i> (Mart.) Wiehler | AA857 | - | 1 | - | 1 | herb | hem | anemoc | zoo |
| <i>Sinningia elatior</i> (Kunth) Chautems | AA557 | 1 | 1 | - | - | subshrub | cham | anemoc | zoo |
| Iridaceae | | | | | | | | | |
| <i>Sisyrinchium restioides</i> Spreng. | AA1259 | 1 | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Sisyrinchium vaginatum</i> Spreng. | AA1009 | 1 | 1 | - | 1 | herb | hem | autoc | zoo |
| <i>Trimezia juncifolia</i> (Klatt.) Benth. and Hook. f. | CM1121 | 1 | - | - | - | herb | geo | autoc | zoo |
| Lamiaceae | | | | | | | | | |
| <i>Amasonia hirta</i> Benth. | CM1222 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Eriope complicata</i> Mart. ex Benth. | CM746 | - | - | 1 | - | shrub | ph | autoc | zoo |
| <i>Eriope crassipes</i> Benth. | CM1952 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Hypenia brachystachys</i> (Pohl ex Benth.) Harley | AA16 | - | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Hyptis carpinifolia</i> Benth. | AA1468 | 1 | 1 | - | 1 | shrub | ph | autoc | zoo |
| <i>Hyptis crenata</i> Pohl ex Benth. | AA625 | - | - | - | 1 | herb | hem | autoc | zoo |
| <i>Hyptis crinita</i> Benth. | AA1460 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Hyptis cuneata</i> Pohl ex Benth. | AA1350 | - | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Hyptis lavandulacea</i> Pohl ex Benth. | AA1431 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Hyptis linarioides</i> Pohl ex Benth. | AA286 | 1 | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Hyptis loeseneriana</i> Pilg.* | AA32 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Hyptis nudicaulis</i> Benth. | AA896 | - | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Hyptis orbiculata</i> Pohl ex Benth. | AA214 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Hyptis peduncularis</i> Benth. | CM1234 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Hyptis subrotunda</i> Pohl ex Benth. | AA320 | 1 | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Hyptis subviolacea</i> Briq. | CM1940 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Hyptis tenuifolia</i> Epling* | AA823 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Hyptis villosa</i> Pohl ex Benth. | AA99 | - | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Marsypianthes montana</i> Benth. | CM2064 | - | - | 1 | - | shrub | ph | autoc | zoo |
| <i>Rhabdocaulon denudatum</i> (Benth.) Epling | AA28 | 1 | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Salvia brevipes</i> Benth. | CM2086 | - | - | 1 | - | herb | hem | autoc | zoo |
| Lauraceae | | | | | | | | | |
| <i>Cassytha filiformis</i> L. | AA114 | - | 1 | - | 1 | vine | lia | zooc | zoo |
| Lentibulariaceae | | | | | | | | | |
| <i>Utricularia amethystina</i> Salzm. ex A. St.-Hil. and F. Girard | AA678 | 1 | 1 | - | - | herb | ter | autoc | zoo |
| <i>Utricularia hispida</i> Lam. | AA142 | - | 1 | - | - | herb | hem | autoc | zoo |
| <i>Utricularia neottioides</i> A. St.-Hil. and Girard | AA539 | - | 1 | - | - | herb | hem | autoc | zoo |
| Lythraceae | | | | | | | | | |
| <i>Cuphea ferruginea</i> Pohl ex Koehne | AA737 | - | - | - | 1 | subshrub | cham | autoc | zoo |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Cuphea linarioides</i> Cham. and Schltldl. | AA386 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Cuphea spermacoce</i> A. St.-Hil. | AA86 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Diplusodon oblongus</i> Pohl | AA396 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Diplusodon sessiliflorus</i> Koehne | AA977 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Diplusodon villosus</i> Pohl | AA698 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Diplusodon virgatus</i> Pohl | CM1302 | 1 | - | - | - | shrub | ph | autoc | zoo |
| Malpighiaceae | | | | | | | | | |
| <i>Banisteriopsis campestris</i> (A. Juss.) Little | AA70 | - | 1 | 1 | 1 | shrub | ph | anemoc | zoo |
| <i>Banisteriopsis irwinii</i> B. Gates | AA1874 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Banisteriopsis laevifolia</i> (A. Juss.) B. Gates | AA513 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Banisteriopsis megaphylla</i> (A. Juss.) B. Gates | CM2437 | 1 | - | - | - | shrub | ph | anemoc | zoo |
| <i>Banisteriopsis variabilis</i> B. Gates | AA1266 | - | - | - | 1 | shrub | ph | anemoc | zoo |
| <i>Byrsonima basiloba</i> A. Juss. | AA721 | - | - | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Byrsonima guilleminiana</i> A. Juss. | AA96 | - | 1 | - | 1 | shrub | ph | zoc | zoo |
| <i>Byrsonima pachyphylla</i> A. Juss. | AA837 | - | 1 | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Byrsonima rigida</i> A. Juss. | AA402 | - | - | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Byrsonima subterranea</i> Brade and Markgr. | AA189 | - | - | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Heteropterys byrsonimifolia</i> A. Juss. | AA209 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Heteropterys campestris</i> A. Juss. | AA56 | - | - | 1 | 1 | shrub | ph | anemoc | zoo |
| <i>Peixotoa goiana</i> C.E. Anderson | AA19 | - | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Peixotoa</i> sp. | CM1039 | - | - | 1 | - | subshrub | cham | anemoc | zoo |
| <i>Pterandra pyroidea</i> A. Juss. | AA90 | - | - | - | 1 | subshrub | cham | anemoc | zoo |
| <i>Tetrapterys ambigua</i> (A. Juss.) Nied. | AA163 | 1 | - | 1 | 1 | shrub | ph | anemoc | zoo |
| Malvaceae | | | | | | | | | |
| <i>Byttneria scalpellata</i> Pohl | AA825 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Byttneria</i> sp. | AA976 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Melochia spicata</i> (L.) Fryxell | AA711 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Pavonia rosa-campetris</i> A. St.-Hil. | s/no | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Peltaea lasiantha</i> Krapov. and Cristobal | AA629 | - | - | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Peltaea trinervis</i> (C. Presl) Krapov. and Cristóbal | AA582 | - | 1 | - | - | subshrub | cham | zoc | zoo |
| <i>Peltaea</i> sp. | CM2469 | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Sida linifolia</i> Juss. ex Cav. | AA65 | 1 | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Waltheria communis</i> A. St.-Hil. | CM1944 | - | - | 1 | - | herb | hem | autoc | zoo |
| Melastomataceae | | | | | | | | | |
| <i>Cambessedesia espora</i> DC. | AA5 | - | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Cambessedesia hilariana</i> (Kunth) DC. | AA395 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Clidemia capitellata</i> (Bonpl.) D. Don | s/no | 1 | - | - | - | shrub | ph | zoc | zoo |
| <i>Comolia lanceaeflora</i> Triana | AA905 | 1 | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Desmoscelis villosa</i> (Aubl.) Naudin | AA1304 | 1 | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Lavoisiera bergii</i> Cogn. | AA136 | - | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Leandra deflexa</i> Cogn. | AA200 | - | 1 | - | - | shrub | ph | zoc | zoo |
| <i>Leandra erostrata</i> (DC.) Cogn. | AA125 | - | 1 | - | - | shrub | ph | zoc | zoo |
| <i>Leandra polystachya</i> (Naudin) Cogn. | AA864 | 1 | 1 | - | 1 | subshrub | cham | zoc | zoo |
| <i>Macairea radula</i> (Bonpl.) DC. | AA134 | - | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Meisneria cordata</i> (Pohl ex DC.) Triana | AA1556 | - | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Miconia albicans</i> (Sw.) Steud. | AA3 | - | 1 | - | 1 | shrub | ph | zoc | zoo |
| <i>Miconia chamissois</i> Naudin | AA129 | - | 1 | - | - | shrub | ph | zoc | zoo |
| <i>Microlicia euphorbioides</i> Mart. | AA1127 | - | 1 | - | 1 | subshrub | cham | autoc | zoo |
| <i>Microlicia helvola</i> (Spreng.) Triana | AA127 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Microlicia polystemma</i> Naudin | AA203 | 1 | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Ossaea congestiflora</i> Cong. | AA627 | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Pterolepis repanda</i> (DC.) Triana | AA966 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Rhynchanthera grandiflora</i> (Aubl.) DC. | AA138 | 1 | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Tibouchina aegopogon</i> (Naudin) Cogn. | AA529 | 1 | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Tibouchina gracilis</i> (Bonpl.) Cogn. | AA632 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Tibouchina stenocarpa</i> (DC.) Cogn. | AA906 | - | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Tibouchina</i> sp. | AA1056 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Trembleya parviflora</i> (D. Don) Cogn. | AA132 | - | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Trembleya phlogiformis</i> DC. | AA394 | - | 1 | 1 | 1 | shrub | ph | autoc | zoo |
| Menispermaceae | | | | | | | | | |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Cissampelos ovalifolia</i> DC. | AA398 | 1 | 1 | 1 | 1 | subshrub | cham | zoc | zoo |
| Moraceae | | | | | | | | | |
| <i>Brosimum gaudichaudii</i> Trécul | AA1602 | - | 1 | - | - | shrub | ph | zoc | ane |
| Myrtaceae | | | | | | | | | |
| <i>Campomanesia adamantium</i> (Cambess.) O. Berg | AA64 | - | - | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Campomanesia pubescens</i> (Mart. ex DC.) O. Berg | CM1938 | - | - | 1 | - | shrub | ph | zoc | zoo |
| <i>Campomanesia xanthocarpa</i> (Mart.) O. Berg. | AA246 | - | - | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Eugenia calycina</i> Cambess. | AA67 | 1 | 1 | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Eugenia complicata</i> O. Berg. | AA9 | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Eugenia cristaensis</i> O. Berg. | CM787 | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Eugenia klotzschiana</i> O. Berg. | AA57 | - | - | - | 1 | subshrub | cham | zoc | zoo |
| <i>Eugenia myrcianthes</i> Nied. | CM745 | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Eugenia puniceifolia</i> (Kunth) DC. | AA250 | - | 1 | - | 1 | shrub | ph | zoc | zoo |
| <i>Myrcia decorticans</i> DC. | AA7 | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Myrcia decrescens</i> O. Berg. | AA169 | 1 | 1 | 1 | 1 | herb | hem | zoc | zoo |
| <i>Myrcia hiemalis</i> Cambess. | CM1880 | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Myrcia lasiantha</i> DC. | s/no | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Myrcia linearifolia</i> Cambess. | s/no | - | - | 1 | - | subshrub | cham | zoc | zoo |
| <i>Myrcia stricta</i> O. Berg. (Kiaersk.) | AA72 | - | - | - | 1 | subshrub | cham | zoc | zoo |
| <i>Myrcia tomentosa</i> (Aubl.) DC. | AA335 | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Myrcia torta</i> DC. | AA11 | 1 | 1 | 1 | 1 | shrub | ph | zoc | zoo |
| <i>Myrciaria cuspidata</i> O. Berg | CM817 | - | - | 1 | - | shrub | ph | zoc | zoo |
| <i>Psidium firmum</i> O. Berg. | AA12 | - | 1 | - | 1 | shrub | ph | zoc | zoo |
| <i>Psidium grandifolium</i> Mart. ex DC. | AA518 | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Psidium laruotteanum</i> Cambess. | AA406 | - | - | - | 1 | shrub | ph | zoc | zoo |
| Ochnaceae | | | | | | | | | |
| <i>Ouratea floribunda</i> Engl. | AA83 | - | 1 | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Sauvagesia linearifolia</i> A. St.-Hil | AA1554 | 1 | 1 | - | 1 | herb | hem | autoc | zoo |
| <i>Sauvagesia racemosa</i> A. St.-Hil | AA122 | 1 | 1 | - | - | subshrub | cham | autoc | zoo |
| Onagraceae | | | | | | | | | |
| <i>Ludwigia nervosa</i> (Poir.) H. Hara | AA130 | 1 | 1 | - | - | shrub | ph | anemoc | zoo |
| <i>Ludwigia tomentosa</i> (Cambess.) H. Hara | AA1854 | - | 1 | - | - | shrub | ph | anemoc | zoo |
| Orchidaceae | | | | | | | | | |
| <i>Cleistes</i> sp. | CM2213 | 1 | - | - | - | herb | hem | autoc | zoo |
| <i>Epistephium sclerophyllum</i> Lindl. | AA1357 | - | 1 | 1 | 1 | herb | geo | autoc | zoo |
| <i>Habenaria ayangannensis</i> Renz | AA1110 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Habenaria heringeri</i> Pabst | AA647 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Habenaria nuda</i> Lindl. | s/no | 1 | - | 1 | - | herb | geo | anemoc | zoo |
| <i>Habenaria</i> cf. <i>urbaniana</i> Cogn. | CM1495 | 1 | - | - | - | herb | hem | anemoc | zoo |
| Orobanchaceae | | | | | | | | | |
| <i>Buchnera juncea</i> Cham. and Schldl. | AA1440 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Buchnera lavandulacea</i> Cham. and Schldl. | CM906 | 1 | - | - | - | herb | hem | anemoc | zoo |
| <i>Buchnera rosea</i> Kunth | CM1041 | - | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Escobedia grandiflora</i> (L. f.) Kuntze | AA1062 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Esterhazyia splendida</i> J.C. Mikan | AA1373 | - | - | 1 | 1 | shrub | ph | autoc | zoo |
| <i>Melasma</i> sp. | CM1575 | 1 | - | - | - | herb | hem | autoc | zoo |
| Oxalidaceae | | | | | | | | | |
| <i>Oxalis confertifolia</i> (Kuntze) R. Knuth | AA4 | 1 | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Oxalis cordata</i> A. St.-Hil. | AA647 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Oxalis suborbiculata</i> Lourteig | AA74 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| Passifloraceae | | | | | | | | | |
| <i>Passiflora amethystina</i> J.C. Mikan | AA1066 | - | 1 | - | - | vine | lia | zoc | zoo |
| <i>Passiflora clathrata</i> Mast. | AA285 | - | 1 | - | - | subshrub | cham | zoc | zoo |
| <i>Piriqueta sidifolia</i> (A. St.-Hil. and A. Juss. and Cambess.) Urb. | AA1002 | 1 | - | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Turnera longiflora</i> Cambess. | AA242 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Turnera oblongifolia</i> Cambess. | AA390 | 1 | 1 | 1 | 1 | herb | hem | autoc | zoo |
| Piperaceae | | | | | | | | | |
| <i>Piper fuliginum</i> Kunth | AA1061 | - | 1 | - | - | shrub | ph | zoc | zoo |
| Poaceae | | | | | | | | | |
| <i>Agonium leptocladum</i> (Hack.) Clayton | AA119 | - | 1 | - | 1 | herb | hem | anemoc | ane |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|--|---------|------|------|------|------|-------|-----|--------|-----|
| <i>Andropogon bicornis</i> L. | AA887 | 1 | 1 | 1 | 1 | herb | hem | zoc | ane |
| <i>Andropogon lateralis</i> Nees. | AA530 | 1 | 1 | - | 1 | herb | hem | anemoc | ane |
| <i>Andropogon lateralis</i> subsp. <i>cryptopus</i> (Hack.) A. Zanin | CM754 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Andropogon leucostachyus</i> Kunth | AA501 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Andropogon selloanus</i> (Hack.) Hack. | CM796 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Andropogon virgatus</i> Desv. | AA197 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Aristida recurvata</i> Kunth | AA15 | - | - | 1 | 1 | herb | hem | anemoc | ane |
| <i>Aristida riparia</i> Trin. | AA1026 | - | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Aristida setifolia</i> Kunth | AA35 | - | - | 1 | 1 | herb | hem | anemoc | ane |
| <i>Aristida</i> sp. | CM1693 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Arthropogon filifolius</i> Filg. | AA313 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Arthropogon villosus</i> Nees | CM2077 | 1 | - | 1 | - | herb | hem | anemoc | ane |
| <i>Arthropogon</i> sp. | AA1826 | - | 1 | - | - | herb | hem | anemoc | ane |
| <i>Arundinella hispida</i> (Willd.) Kuntze | AA35 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Axonopus aureus</i> P. Beauv. | AA1877 | - | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Axonopus brasiliensis</i> (Spreng.) Kuhlman. | AA882 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Axonopus comans</i> (Doll) Kuhlman. | AA284 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Axonopus marginatus</i> (Trin.) Chase ex Hitchc. | AA657 | - | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Axonopus siccus</i> (Nees) Kuhlman. | AA728 | - | - | 1 | 1 | herb | hem | autoc | ane |
| <i>Axonopus</i> sp. | CM2142 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Ctenium</i> cf. <i>brachystachyum</i> (Nees) Kunth | CM742 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Ctenium cirrhosum</i> (Nees) Kunth | AA1407 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Digitaria</i> sp. | CM1365 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Echinolaena inflexa</i> (Poir.) Chase | AA41 | 1 | 1 | 1 | 1 | herb | hem | zoc | zoo |
| <i>Elionurus muticus</i> (Spreng.) Kuntze | CM750 | 1 | 1 | 1 | - | herb | hem | anemoc | ane |
| <i>Eragrostis maypurensis</i> (Kunth) Steud. | AA1280 | - | - | 1 | 1 | herb | hem | zoc | ane |
| <i>Eriochrysis cayennensis</i> P. Beauv. | AA603 | - | 1 | - | - | herb | hem | anemoc | ane |
| <i>Hyparrhenia bracteata</i> (Humb. and Bonpl. ex Willd.) Stapf. | AA1497 | 1 | 1 | - | 1 | herb | hem | anemoc | ane |
| <i>Ichnanthuschamporum</i> Swallen | AA731 | - | 1 | 1 | 1 | herb | hem | zoc | ane |
| <i>Ichnanthus procurrans</i> (Nees ex Trin.) Swallen | AA374 | - | 1 | - | - | herb | hem | zoc | ane |
| <i>Lasiacis standleyi</i> Hitchc. | CM1969 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Leptocoryphium lanatum</i> (Kunth) Nees | AA429 | - | - | 1 | 1 | herb | hem | anemoc | ane |
| <i>Melinis minutiflora</i> P. Beauv.* | AA110 | - | - | - | 1 | herb | hem | anemoc | ane |
| <i>Melinis repens</i> (Willd.) Zizka.* | AA725 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Mesosetum ferrugineum</i> (Trin.) Chase | CM757 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Mesosetum loliiforme</i> (Steud.) Hitchc. | AA875 | - | - | - | 1 | herb | hem | anemoc | ane |
| <i>Otachyrium seminudum</i> Send. and Soderstr. | CM2283 | 1 | 1 | 1 | - | herb | hem | autoc | ane |
| <i>Panicum caaguazuense</i> Henrard | AA1617b | - | 1 | - | - | herb | hem | zoc | ane |
| <i>Panicum cyanescens</i> Nees ex Trin. | AA648 | 1 | - | 1 | 1 | herb | hem | zoc | ane |
| <i>Panicum olyroides</i> Kunth | s/no | - | - | 1 | 1 | herb | hem | zoc | ane |
| <i>Panicum olyroides</i> Kunth. var. <i>olyroides</i> | AA537 | - | 1 | - | 1 | herb | hem | zoc | ane |
| <i>Panicum parvifolium</i> Lam. | AA913 | 1 | 1 | - | - | herb | hem | zoc | ane |
| <i>Panicum peladoense</i> Henrard | AA726 | - | - | 1 | 1 | herb | hem | zoc | ane |
| <i>Paspalum ammodes</i> Trin. | CM2131 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Paspalum dedecae</i> Quarín | AA297 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Paspalum ellipticum</i> Döll | CM751 | 1 | - | 1 | - | herb | hem | anemoc | ane |
| <i>Paspalum erianthum</i> Nees ex Trin. | CM1960 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Paspalum gardnerianum</i> Nees | AA44 | 1 | 1 | 1 | 1 | herb | hem | zoc | ane |
| <i>Paspalum geminiflorum</i> Steud. | CM1017 | 1 | - | 1 | - | herb | hem | anemoc | ane |
| <i>Paspalum glaucescens</i> Hack. | AA46 | 1 | - | - | 1 | herb | hem | anemoc | ane |
| <i>Paspalum hyalinum</i> Nees ex Trin. | CM1326 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Paspalum imbricatum</i> Filg. | AA806 | 1 | 1 | - | - | herb | hem | anemoc | ane |
| <i>Paspalum lineare</i> Trin. | s/no | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Paspalum maculosum</i> Trin. | AA1035 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Paspalum pectinatum</i> Nees ex Trin. | CM762 | 1 | - | 1 | - | herb | hem | autoc | ane |
| <i>Paspalum pilosum</i> Lam. | AA1035 | - | - | 1 | 1 | herb | hem | anemoc | ane |
| <i>Paspalum polyphyllum</i> Nees ex Trin. | CM1022 | 1 | 1 | 1 | - | herb | hem | anemoc | ane |
| <i>Paspalum reduncum</i> Nees ex Steud. | AA1159 | - | - | 1 | 1 | herb | ter | anemoc | ane |
| <i>Paspalum stellatum</i> Flügge | AA113 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Paspalum trichotomum</i> Hack. | AA1662 | - | - | - | 1 | herb | hem | anemoc | ane |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CSTO | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Pennisetum nervosum</i> (Nees) Trin. | CM1218 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Pennisetum polystachion</i> (L.) Schult. | AA730 | - | - | 1 | 1 | herb | hem | anemoc | ane |
| <i>Saccharum asperum</i> (Nees) Steud. | AA152 | - | 1 | - | - | herb | hem | anemoc | ane |
| <i>Sacciolepis myuros</i> (Lam.) Chase | AA571 | - | 1 | - | - | herb | hem | autoc | ane |
| <i>Schizachyrium condensatum</i> (Kunth) Nees | AA1155 | 1 | 1 | 1 | 1 | herb | hem | anemoc | ane |
| <i>Schizachyrium sanguineum</i> (Retz.) Alston | AA1410 | - | 1 | - | 1 | herb | hem | anemoc | ane |
| <i>Schizachyrium tenerum</i> Nees | CM1386 | - | - | 1 | - | herb | hem | anemoc | ane |
| <i>Schizachyrium</i> sp. | CM1214 | 1 | - | - | - | herb | hem | anemoc | ane |
| <i>Setaria parviflora</i> (Poir.) M. Kerguelen | AA880 | - | 1 | 1 | 1 | herb | ter | zoc | ane |
| <i>Sorghastrum nutans</i> (L.) Nash | AA1278 | - | - | - | 1 | herb | hem | anemoc | ane |
| <i>Sporobolus reflexus</i> Boechat and Longhi-Wagner | CM763 | 1 | - | 1 | - | herb | hem | anemoc | ane |
| <i>Trachypogon macroglossus</i> Trin. | AA1661 | - | - | - | 1 | herb | hem | zoc | ane |
| <i>Trachypogon spicatus</i> (L.f.) Kuntze | CM1387 | - | - | 1 | - | herb | hem | zoc | ane |
| <i>Tristachya leiostachya</i> Nees | AA431 | - | 1 | 1 | 1 | herb | hem | zoc | ane |
| Polygalaceae | | | | | | | | | |
| <i>Monnina oblongifolia</i> Arechav. | AA278 | 1 | - | 1 | 1 | subshrub | cham | anemoc | zoo |
| <i>Polygala abreu</i> Marques and J.F.B. Pastore | AA216 | - | 1 | - | - | herb | hem | zoc | zoo |
| <i>Polygala carphoides</i> Chodat | CM953 | 1 | - | - | - | herb | ter | zoc | zoo |
| <i>Polygala celosioides</i> Mart. ex A.W. Benn. | AA1889 | - | - | - | 1 | herb | ter | zoc | zoo |
| <i>Polygala cuspidata</i> DC. | CM1012 | - | - | 1 | - | herb | hem | zoc | zoo |
| <i>Polygala</i> cf. <i>fendleri</i> Chodat | CM2442 | 1 | - | - | - | herb | ter | autoc | zoo |
| <i>Polygala galioides</i> Poir. | AA830 | 1 | 1 | - | 1 | herb | ter | autoc | zoo |
| <i>Polygala harleyi</i> M.C.M. Marques | CM1177a | 1 | - | - | - | herb | hem | autoc | zoo |
| <i>Polygala hygrophila</i> Kunth | AA963 | 1 | - | - | - | herb | ter | autoc | zoo |
| <i>Polygala juncea</i> A. St.-Hil.* | CM2061 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Polygala longicaulis</i> Kunth | AA819 | 1 | 1 | 1 | 1 | herb | ter | autoc | zoo |
| <i>Polygala martiana</i> A.W. Benn. | AA399 | 1 | - | 1 | 1 | herb | hem | anemoc | zoo |
| <i>Polygala misella</i> Bernardi | AA1040 | 1 | 1 | - | - | herb | ter | autoc | zoo |
| <i>Polygala pseudosericea</i> Chodat | CM795 | 1 | - | - | - | herb | hem | autoc | zoo |
| <i>Polygala subtilis</i> Kunth | CM972 | 1 | - | - | - | herb | ter | autoc | zoo |
| <i>Polygala tenella</i> Willd. | CM1199 | 1 | - | - | - | herb | ter | autoc | zoo |
| <i>Polygala tenuis</i> DC. | AA81 | 1 | 1 | 1 | 1 | herb | hem | autoc | zoo |
| <i>Polygala timoutou</i> Aubl. | CM1314 | 1 | - | - | - | herb | ter | autoc | zoo |
| <i>Pteromonnina stenophylla</i> (A. St.-Hil.) B. Eriksen | AA221 | 1 | 1 | - | - | subshrub | cham | zoc | zoo |
| Rhamnaceae | | | | | | | | | |
| <i>Crumenaria choretroides</i> Martius ex Reisseck | CM737 | - | - | 1 | - | herb | hem | anemoc | zoo |
| <i>Crumenaria erecta</i> Reisseck | CM1808 | - | - | 1 | - | herb | hem | autoc | zoo |
| Rubiaceae | | | | | | | | | |
| <i>Chomelia ribesoides</i> Benth. ex A. Gray | AA256a | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Declieuxia cordigera</i> var. <i>cordigera</i> | CM2164 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Declieuxia fruticosa</i> (Willd. ex Roem. and Schult.) Kuntze | AA998 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Galianthe grandifolia</i> E.L. Cabral | AA862 | - | 1 | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Galianthe ramosa</i> E.L. Cabral | AA474 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Galianthe verbenoides</i> Cham. and Schtdl. | AA46 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Mitracarpus frigidus</i> (Willd. ex Roem. and Schult.) K. Schum. | CM1358 | - | - | 1 | - | herb | hem | autoc | zoo |
| <i>Palicourea coriacea</i> (Cham.) K. Schum. | AA22 | - | - | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Palicourea officinalis</i> Mart. | AA43 | - | 1 | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Palicourea rigida</i> Kunth | AA516a | - | - | - | 1 | shrub | ph | zoc | zoo |
| <i>Richardia scabra</i> L. | CM1014 | - | - | 1 | - | herb | hem | zoc | zoo |
| <i>Sabicea brasiliensis</i> Wernham | AA69 | - | 1 | 1 | 1 | subshrub | cham | zoc | zoo |
| <i>Spermacoce irwiniana</i> (E.L. Cabral) Delprete* | AA1769 | 1 | - | - | 1 | herb | hem | autoc | zoo |
| <i>Spermacoce latifolia</i> Aubl. | AA397 | 1 | 1 | - | 1 | subshrub | cham | autoc | zoo |
| <i>Spermacoce martirovettiana</i> (E.L.Cabral) Govaerts | CM1680 | 1 | - | 1 | - | herb | hem | autoc | zoo |
| <i>Spermacoce ocymoides</i> Burm. f. | AA599 | - | 1 | - | - | herb | hem | autoc | zoo |
| <i>Spermacoce poaya</i> A. St.-Hil. | AA417 | 1 | - | 1 | 1 | subshrub | ter | autoc | zoo |
| <i>Spermacoce tenella</i> (Kunth) Cham. and Schtdl. | AA1253 | 1 | - | 1 | 1 | herb | hem | autoc | zoo |
| <i>Spermacoce</i> sp. | CM2069a | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Staelia capitata</i> K. Schum. | CM1347 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Tocoyena formosa</i> (Cham. and Schtdl.) K. Schum. | AA334 | - | - | 1 | 1 | shrub | ph | zoc | zoo |
| Salicaceae | | | | | | | | | |

TABLE 1. CONTINUED.

| SPECIES | VOUCHER | CLTO | CLT1 | CST0 | CST1 | Habit | LF | DS | PS |
|---|---------|------|------|------|------|----------|------|--------|-----|
| <i>Casearia sylvestris</i> Sw. | AA42 | - | - | 1 | 1 | shrub | ph | autoc | zoo |
| Santalaceae | | | | | | | | | |
| <i>Thesium brasiliense</i> A. DC. | CM974 | 1 | - | - | - | herb | ter | zooc | zoo |
| Sapindaceae | | | | | | | | | |
| <i>Serjania erecta</i> Radlk. | AA492 | - | 1 | - | 1 | vine | cham | autoc | zoo |
| <i>Serjania lethalis</i> A. St.-Hil. | AA109 | - | 1 | - | 1 | vine | lia | anemoc | Zoo |
| Simaroubaceae | | | | | | | | | |
| <i>Simaba suffruticosa</i> Engl. | AA55 | - | - | 1 | 1 | subshrub | cham | zooc | zoo |
| Siparunaceae | | | | | | | | | |
| <i>Siparuna brasiliensis</i> (Spreng.) A. DC. | AA25 | - | 1 | - | - | shrub | ph | zooc | zoo |
| Smilacaceae | | | | | | | | | |
| <i>Smilax goyazana</i> A. DC. | AA25 | - | - | 1 | 1 | vine | lia | zooc | zoo |
| Solanaceae | | | | | | | | | |
| <i>Brunfelsia obovata</i> Benth. | AA131 | - | 1 | - | - | shrub | ph | autoc | zoo |
| <i>Schwenckia americana</i> Rooyen ex L. | AA1 | - | - | - | 1 | herb | hem | autoc | zoo |
| <i>Solanum americanum</i> Mill. | CM2300 | - | - | 1 | - | herb | hem | zooc | zoo |
| <i>Solanum foederale</i> M. Nee | AA382 | - | - | - | 1 | herb | hem | zooc | zoo |
| <i>Solanum lycocarpum</i> A. St.-Hil. | AA383 | - | - | - | 1 | shrub | ph | zooc | zoo |
| <i>Solanum subumbellatum</i> Vell. | AA183 | 1 | 1 | 1 | 1 | subshrub | cham | zooc | zoo |
| Symplocaceae | | | | | | | | | |
| <i>Symplocos crenata</i> (Vell.) Mattos | AA1593 | - | 1 | - | - | shrub | ph | zooc | zoo |
| Verbenaceae | | | | | | | | | |
| <i>Lippia corymbosa</i> Cham. | CM1658 | 1 | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Lippia lacunosa</i> Mart. and Schauer | AA1514 | - | 1 | - | - | subshrub | cham | autoc | zoo |
| <i>Lippia lupulina</i> Cham. | AA738 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Lippia martiana</i> Schauer | CM870 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Lippia rotundifolia</i> Cham. | AA1772 | - | 1 | - | 1 | shrub | ph | autoc | zoo |
| <i>Lippia sericea</i> Cham. | AA1341 | - | - | - | 1 | subshrub | cham | autoc | zoo |
| <i>Lippia</i> sp. | CM1695 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Stachytarpheta gesnerioides</i> Cham. | CM845 | - | - | 1 | - | subshrub | cham | autoc | zoo |
| <i>Stachytarpheta longispicata</i> (Pohl) S. Atkins | AA852 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| <i>Stachytarpheta</i> sp. | AA889 | - | - | 1 | 1 | subshrub | cham | autoc | zoo |
| Violaceae | | | | | | | | | |
| <i>Hybanthus lanatus</i> (A. St.-Hil.) Baill. | CM781 | - | - | 1 | - | herb | hem | autoc | zoo |
| Vitaceae | | | | | | | | | |
| <i>Cissus erosa</i> Rich. | AA490 | - | - | 1 | 1 | vine | lia | zooc | zoo |
| Xyridaceae | | | | | | | | | |
| <i>Abolboda poarchon</i> Seub. | AA1453 | 1 | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris dawsonii</i> L.B. Sm. and Downs | AA888 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Xyris diaphanobracteata</i> Kral and Wand.* | AA1447 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris fallax</i> Malme | AA810 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris filifolia</i> L.A. Nilsson | AA1688 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris guaranitica</i> Malme | AA146 | 1 | 1 | - | - | herb | ter | anemoc | zoo |
| <i>Xyris hymenachne</i> Mart. | AA929 | 1 | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris jupicai</i> Rich. | AA104 | 1 | 1 | - | 1 | herb | ter | anemoc | zoo |
| <i>Xyris lacerata</i> Pohl ex Seub. | AA144 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris laxifolia</i> Mart. | AA1093 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris paculipoda</i> Kral and Smith | AA1158 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris roraimae</i> Malme | AA1625 | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris savanensis</i> Miq. | AA1208b | - | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris schizachne</i> Mart. | CM2278 | 1 | 1 | 1 | - | herb | hem | anemoc | zoo |
| <i>Xyris seubertii</i> A. Nilsson | AA1816 | - | - | - | 1 | herb | hem | anemoc | zoo |
| <i>Xyris tortula</i> Mart. | AA921 | 1 | 1 | - | - | herb | hem | anemoc | zoo |
| <i>Xyris</i> sp.1 | CM827 | 1 | - | - | - | herb | hem | anemoc | zoo |
| <i>Xyris</i> sp.2 | CM2044 | 1 | - | - | - | herb | hem | anemoc | zoo |
| <i>Xyris</i> sp.3 | AA1085 | - | 1 | - | - | herb | hem | anemoc | zoo |

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