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Inventory

Phanerogamic flora of the Catimbau National Park, Pernambuco, Brazil

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Abstract: Specimens of phanerogamic plants from the Catimbau National Park, located in northeastern Brazil, were collected during extensive fieldwork and analyzed together with information gathered from the specialized literature. A total of 613 species was recorded, belonging to 366 genera and 85 families. The largest families were Fabaceae, Poaceae, Euphorbiaceae, Asteraceae, Convolvulaceae, Malvaceae, Myrtaceae, Apocynaceae, Malpighiaceae, and Cyperaceae, comprising almost 60% of the species. The level of endemism found was below that projected in the literature, as only four known species are unique to the study area. The area is, however, home to a varied flora with high richness and numerous rare or threatened species, demonstrating the importance of the National Park for conserving the regional flora. Additionally, 34 new registrations are reported here for Pernambuco State.
Keywords: *Conservation, diversity, flora, Northeastern Brazil.*

Flora fanerogâmica do Parque Nacional do Catimbau, Pernambuco, Brasil

Resumo: Espécimes de plantas fanerogâmicas do Parque Nacional do Catimbau, localizado no nordeste do Brasil, foram coletados durante um extenso trabalho de campo e analisados em conjunto com informações obtidas da literatura especializada. Foi registrado um total de 613 espécies pertencentes a 366 gêneros e 85 famílias. As maiores famílias foram: Fabaceae, Poaceae, Euphorbiaceae, Asteraceae, Convolvulaceae, Malvaceae, Myrtaceae, Apocynaceae, Malpighiaceae e Cyperaceae, compreendendo quase 60% das espécies. O nível de endemismo encontrado foi abaixo do projetado na literatura, pois apenas quatro espécies conhecidas são exclusivas da área de estudo. A área é, no entanto, o lar de uma flora variada com alta riqueza e numerosas espécies raras ou ameaçadas, demonstrando a importância do Parque Nacional para a conservação da flora regional. Além disso, 34 novos registros são reportados aqui para o estado de Pernambuco.
Palavras-chave: *Conservação, diversidade, flora, Nordeste do Brasil.*

Introduction

The Catimbau National Park (CNP) is considered to be an area of extreme biological importance in the Brazilian Northeast as it has high numbers of endemic and rare species associated with a diverse flora and various phytophysiognomies, justifying its high conservation priority (MMA 2002). One of the most important aspects of the park is its mosaic of vegetation, which includes rocky savanna ("campo rupestre"), upland forests ("brejos de altitude"), evergreen subshrub vegetation, neotropical savanna (Cerrado), dryland Caatinga, and vegetation refuges. The diversity and floristic richness associated with those different vegetation types are related to its geomorphology and a paleoclimate that strongly influenced the area (Ab'saber 1974). Caatinga dryland vegetation is the most representative phytophysiognomy in the region (Rodal et al. 1998, Sales et al. 1998).

The Caatinga is a unique Brazilian ecosystem growing in a semiarid climate with high solar radiation and evapotranspiration levels, determining a deciduous thorny vegetation that varies from shrubby and open, to closed forests (Sampaio 1995, Pennington et al. 2009). The caatinga in Northeastern Brazil is one of twelve disjunct groups of Neotropical dry forests (DRYFLOR 2016). The dry forests of the caatinga, together with those of central Brazil, have strong floristic affinities and share almost 700 species (DRYFLOR 2016). Although the Caatinga is the only exclusive Brazilian domain, with an unparalleled

biological heritage, it is considered the least known vegetation form in the country and has not yet had its importance fully recognized by the government (Maciel 2010).

Due to the high human population density in the region, the floristic diversity there is highly influenced by anthropogenic pressures. The loss of plant diversity is a real and alarming threat that has intensified mainly due to the impacts of human activities on the natural habitat, climate change, and the intense exploitation of natural resources, pollution, and the voluntary or involuntary introduction of exotic species (Lobo et al. 2011). The discharacterization of the original vegetation has led to habitat fragmentation in Pernambuco, leaving natural vegetation remnants interspersed among plantations and cities. No other Brazilian biome has been as neglected as the caatinga, which can be seen in its low numbers of conservation areas. Conservation Areas (CAs) have been established to ensure the preservation of the biological diversity of Brazil (Leão et al. 2011), with a total of 328 CAs being found in northeastern region of the country, of which 123 are established in the Caatinga biome. Pernambuco has 78 state level CAs, but only four areas (Vale do CNP, Serra Negra, Negreiros, and Chapada do Araripe) under federal responsibility (CPRH 2014). Only six of the state CAs protect caatinga sites.

Various studies of the flora and vegetation of the CNP have been developed with taxonomic (e.g., Sales et al. 1998, Santos et al. 2013, Melo 2012, Delgado-Júnior et al. 2014, Ferreira et al. 2015, Vasconcelos & Melo 2016, Costa & Melo 2017, Delgado-Júnior & Alves 2017), floristic, or phytosociological focuses (e.g., Andrade et al. 2004, Serafim-Filho 2014).

National Parks with touristic vocations, such as the CNP, require detailed floristic inventories for planning aimed at the conservation and rational use of their natural resources. In that context, the present work sought to provide a species list of the Angiosperms found in the CNP as a way of guiding its sustainable utilization.

Material and Methods

The present study was conducted in the Catimbau National Park (created in 2002), situated in the Ipanema Valley in the central region of Pernambuco State (Northeastern Brazil) (8°24'00" to 8º36'35"S and 37º09'30" to 37º14'40"W) (DOU 2002). The Park covers 62,300 ha and includes parts of the municipalities of Buíque, Ibimirim, and Tupanatinga (MMA 2002; Sampaio et al. 2002) (Figure 1). It is geologically part of the Jatobá sedimentary basin, and is characterized topographically by low mountainous elevations (800 to 1000 m a.s.l.) and by open valleys with abrupt slopes (Rodal et al. 1998, SIGEP 2010). The predominant climate in the region is type BShs' with an average annual rainfall is approximately 1,100 mm and a rainy season between January and June (Alvares et al. 2014). The vegetation there is typical of Caatinga, but also shows influences of other Brazilian ecosystems (Atlantic rainforest and Cerrado), with physiognomies such as dense arboreal Caatinga and shrubby spineless vegetation growing on deep sandy soils with sandstone rock outcrops (Sales et al. 1998, IBAMA 2009).

Data from specimen collections were compiled using the specialized literature focusing on the flora of the CNP (or part of it), and on some of the municipalities included in the Park, such as Buíque. Additional data was obtained from extensive collections carried out by a team led by Dr. Margareth Sales since the turn of the recent century, and others funded by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) - "Diversidade e Conservação do Parque Nacional do Vale do Catimbau, Buíque, Pernambuco" with periodic collections between September/2011 and August/2014 during the plants' reproductive phases. The collection material was pressed and dried following Mori et al. (1989), and incorporated into the "Professor Vasconcelos Sobrinho" Herbarium (PEUFR) at the Federal Rural University of Pernambuco (UFRPE). In addition to the specimens deposited in the herbarium, specimens belonging to other Pernambuco herbarium collections, such as HST, HVASF, IPA, and UFP (acronyms according to Thiers 2018) were consulted. The species were identified by comparisons with collections, by using identification keys and the specialized literature (e.g. Queiroz 2006, Laurênio & Sales 2008, Silva et al. 2009, Delgado-Júnior et al. 2017, Delgado-Júnior & Alves 2017) and, when necessary, by consultations with specialists. The floristic list is based on the Angiosperm Phylogeny Group APG IV (2016) classification system, with exception of Turneraceae (= Passifloraceae). The present study is registered in the National System of Genetic Resource Management and Associated Traditional Knowledge (SisGen) under number AE11C7F.

The new records detected in the state of Pernambuco were indicated in the table (Tab. 1) with asterisks (*).

Results

This work provides an inventory of angiosperms in the CNP and includes 613 species belonging to 85 families (Table 1). The highest percentage (78.9%) of families of flowering plants were in the clade of eudicots, followed by monocotyledons (17.6%), and magnolids (3.5%) (Figures 2 to 5). The most species rich families were: Fabaceae (109 spp.), Poaceae (49 spp.), Euphorbiaceae (40 spp.), Asteraceae (36 spp.), Convolvulaceae (35 spp.), Malvaceae (22 spp.), Myrtaceae (19 spp.), Apocynaceae (19 spp.), Malpighiaceae (18 spp.), and Cyperaceae (18 spp.) (Figure 6). The ten richest families represented almost 60% of the total species identified in the study area. Cactaceae and Bromeliaceae, traditionally associated with the caatinga phytophysiognomy, are well-represented in the region, with 10 and 12 species respectively. Twenty-seven families were represented by only one species (Aizoaceae, Alstroemeriaceae, Arecaceae, Asparagaceae, Balanophoraceae, Brassicaceae, Burseraceae, Hydroleaceae, Krameriaceae, Lentibulariaceae, Loasaceae, Marantaceae, Molluginaceae, Moraceae, Ochnaceae, Olacaceae, Phyllanthaceae, Phytolaccaceae, Piperaceae, Plumbaginaceae, Salicaceae, Santalaceae, Schoepfiaceae, Simaroubaceae, Trigoniaceae, Urticaceae, and Velloziaceae).

Of the 366 genera of Angiosperms registered for the CNP, fifteen (4.1%) showed high numbers of species: *Croton* L. (18 spp.), *Ipomoea* L. (18 spp.), *Chamaecrista* Moench (16 spp.), *Mimosa* L. (14 spp.), *Senna* Mill. (10 spp.), *Cyperus* L. (10 spp.), *Jacquemontia* Choisy (7 spp.), *Erythroxylum* P. Browne (7 spp.), *Polygala* L. (7 spp.), *Sida* L. (7 spp.), *Tillandsia* L. (6 spp.), *Evolvulus* L. (6 spp.), *Dioscorea* L. (6 spp.), *Eugenia* L. (5 spp.), and *Myrcia* DC. (5 spp.) (Table 1).

The most representative habitat in the study area was herbaceous, represented by 202 species (33% of the total), followed by shrubs with 99 species (16.1%), and vines/climbers with 95 species (15.5%) (Fig. 7). As such, the flora of the area was predominantly herbaceous-

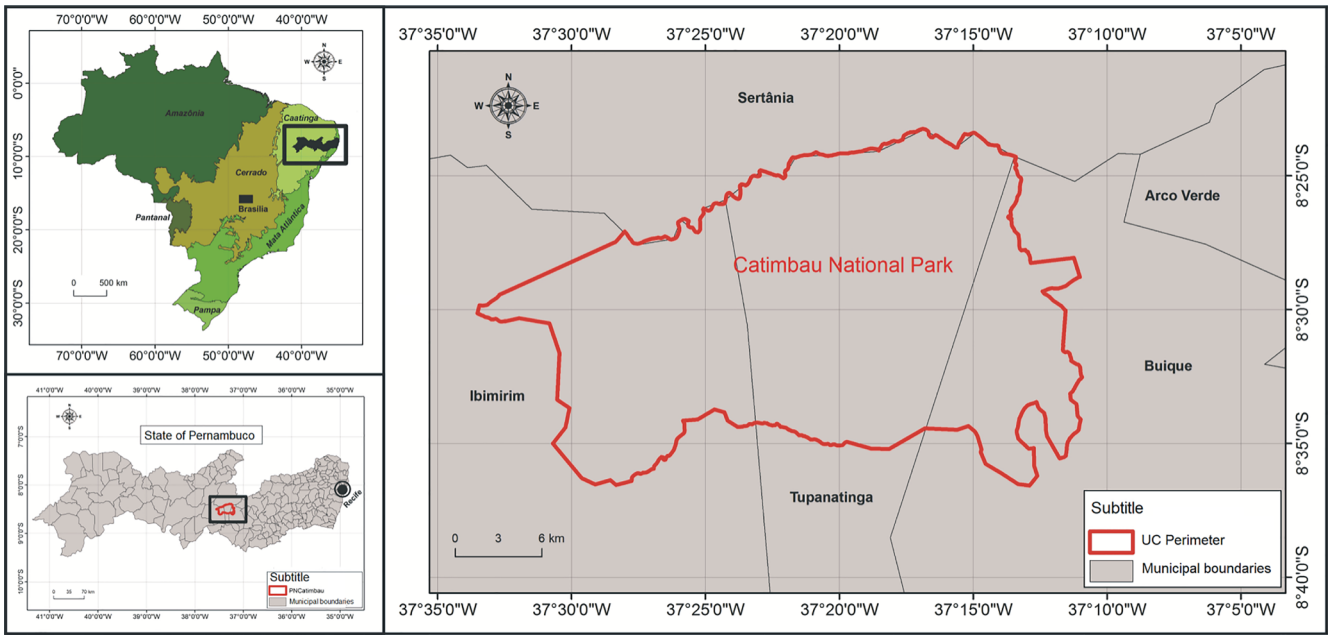

Figure 1. Map of the Catimbau National Park located in the state of Pernambuco in the Northeast region of Brazil.

Table 1. Angiosperms of the Catimbau National Park, Brazil. H = Herb; SU = Subshrub; S = Shrub; T = Tree; V = Vine; C = Climber; P = Palm tree. The new records detected in the state of Pernambuco were indicated with asterisks (*).

Taxa	Habit	Voucher(s)
Acanthaceae		
1. *Harpochilus neesianus* Mart.	SU, S	A. Laurênio 439
2. *Justicia aequilabris* (Nees) Lindau	H	O. Cano 810
3. *Ruellia asperula* (Nees) Lindau	H	L.S. Figueiredo 216
4. *Ruellia bahiensis* (Nees) Morong	H	O. Cano 806
5. *Ruellia paniculata* L.	H	O. Cano 805
6. *Thyrsacanthus ramosissimus* Lindau	S	M.F. Sales 381
Aizoaceae		
7. *Sesuvium portulacastrum* L.	H	F. Gallindo 43389
Alstroemeriaceae		
8. *Alstroemeria longistaminea* Mart. ex Schult. & Schult. f.	H	A.M. Miranda s.n.
Amaranthaceae		
9. *Alternanthera brasiliana* (L.) Kuntze	H	O. Cano 720
10. *Amaranthus spinosus* L.	H, SU	R. Pereira 2712
11. *Froelichia humboldtiana* Roem. & Schult.	H	Menezes 47
12. *Gomphrena demissa* Mart.	H	O. Cano 705
13. *Gomphrena vaga* Mart.	H	M.J.N. Rodal 626
14. *Pfaffia acutifolia* (Moq.) O. Stützer *	H	O. Cano 816
Amaryllidaceae		
15. *Habranthus sylvaticus* Herb.	H	M. Oliveira 5436
16. *Griffinia gardneriana* (Herb.) Ravenna	H	A. Alves-Araújo 66
17. *Hippeastrum stylosum* Herb.	H	C.R.S. Oliveira 170
Anacardiaceae		
18. *Anacardium occidentale* L.	T	E. Freire 03
19. *Myracrodruon urundeuva* Allemão	T	J.I.S. Barbosa et al. 65
20. *Schinopsis brasiliensis* Engl.	T	M.C. Tschá 563

Continuation Table 1.

Taxa	Habit	Voucher(s)
21. *Spondias tuberosa* Arruda	T	A.P.S. Gomes 377
Annonaceae		
22. *Annona leptopetala* (R.E. Fries) H. Rainer	S	C.R.S. Oliveira 292
23. *Oxandra reticulata* Mass. *	S	K. Andrade 24
Apocynaceae		
24. *Allamanda blanchetii* A.DC.	SU, S	M.F.A. Lucena 165
25. *Asclepias curassavica* L.	SU	F. Gallindo et al. CFPE695
26. *Aspidosperma pyrifolium* Mart.	T	M.C. Tschá 561
27. *Blepharodon manicatum* (Decne) Fontella	C	Andrade-Lima 8070
28. *Blepharodon pictum* (Vahl) W.D. Stevens	V	E. Inácio 39
29. *Calotropis procera* (Ait.) Ait. f.	SU	A. Laurênio 399
30. *Ditassa capillaris* E.Fourn.	H, V	A. Laurênio 322
31. *Ditassa crassifolia* Decne.	V	M.J.N. Rodal 291
32. *Ditassa hastata* Decne.	V	A.C.G. Costa 23
33. *Ditassa oxyphylla* Turcz.	H, V	K. Andrade 119
34. *Ditassa rotundifolia* (Decne.) Baill. ex K. Schum.	C, SU	A.M. Miranda 1780
35. *Mandevilla catimbauensis* Souza-Silva et al.	C	G.C. Delgado-Junior 627
36. *Mandevilla scabra* Hoffmann ex Roem.	V	F.M.O. Villarouco 3
37. *Mandevilla tenuifolia* (J.C. Mikan) Woodson	H	M.C. Tschá 618
38. *Marsdenia hilariana* E. Fourn.	S	Andrade-Lima 61-3997
39. *Matelea ganglinosa* (Vell.) Rapini	V	K. Andrade 120
40. *Schubertia multiflora* Mart.	C	G.C. Delgado-Júnior 719
41. *Skytanthus hancornifolius* (A. DC.) Miers	C	G.C. Delgado-Júnior 351
42. *Temnadenia violacea* (Vell.) Miers	V	M.F. Sales 509
Araceae		
43. *Anthurium affine* Schott	H	R. Pereira 2117
44. *Anthurium petrophilum* K.Krause	H	A.M. Miranda et al. 1803
45. *Philodendron acutatum* Schott.	H	C.R.S. Oliveira
Arecaceae		
46. *Syagrus coronata* (Mart.) Becc.	P	C.R.S. Oliveira 51
Asparagaceae		
47. *Agave sisalana* Perrine	H	J.V.A. Ferreira 177
Asteraceae		
48. *Acanthospermum hispidum* DC.	H	R. Pereira 1037
49. *Achyrocline satureioides* (Lam.) DC. *	SU	L.S. Figueiredo 183
50. *Acmella uliginosa* (Sw.) Cass.	H	R. Pereira 2784
51. *Acritopappus buiquensis* H.P. Bautista & D.J.N. Hind	SU	K. Andrade 41
52. *Ageratum conyzoides* L.	H	R. Pereira 2785
53. *Aspilia martii* Baker	H	O. Cano 763
54. *Baccharis serrulata* (Lam.) Pers.	SU	A. Viana 05
55. *Bidens pilosa* L.	H	O. Cano 714
56. *Blainvillea acmella* (L.) Philipson	H	R. Pereira 2775
57. *Centratherum punctatum* Cass.	H	L.S. Figueiredo 132
58. *Chresta pacourinoides* (Mart. ex DC.) C.M. Siniscalchi & B. Loeuille	H	A. Bocage 1065

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Continuation Table 1.

Taxa	Habit	Voucher(s)
59. *Chrysanthellum indicum* DC.	H	R. Pereira 1034
60. *Conocliniopsis prasiifolia* (DC.) R.M. King & H.Rob.	SU	K. Andrade 96
61. *Cyrtocymura scorpioides* (Lam.) H. Rob.	SU	A.P.S. Gomes 70
62. *Dasyphyllum sprengelianum* (Gard.) Cabrera	SU, S	M.F. Sales 364
63. *Eclipta prostrata* L.	H	O. Cano 804
64. *Egletes viscosa* (L.) Less.	H	R. Pereira 1033
65. *Elephantopus mollis* Kunth	H	R. Pereira 1039
66. *Emilia fosbergii* Nicolson	SU	K. Andrade 123
67. *Emilia sonchifolia* (L.) DC.	H	R. Pereira 2766
68. *Erechtites hieraciifolius* (L.) Raf. ex DC.	H	R. Pereira 66439
69. *Eremanthus arboreus* (Gard.) MacLeisch *	S	L.P. Félix 7457
70. *Eremanthus capitatus* (Spreng.) MacLeish	S	M.F. Sales 424
71. *Lepidaploa chalybaea* (Mart.ex DC.) H. Rob	SU, S	A.P.S. Gomes 41
72. *Moquiniastrum oligocephala* (Gard.) G. Sancho	SU, S	E. Freire 20
73. *Paralychnophora reflexoauriculata* (G.M. Barroso) MacLeish	SU, S	A. Laurênio 354
74. *Platypodanthera melissifolia* (DC.) R.M. King & H.Rob.	H	M.J.N. Rodal 259
75. *Pluchea sagittalis* (Lam.) Cabrera	H, SU	R. Pereira 1036
76. *Synedrella nodiflora* (L.) Gaertn.	H	R. Pereira 2771
77. *Tagetes minuta* L.	H	R. Pereira 2786
78. *Tilesia baccata* (L.) Pruski	S	K. Andrade 78
79. *Trichogonia heringeri* R.M. King & H. Rob.	H	O. Cano 723
80. *Trichogonia salviifolia* Gard.	SU	Andrade – Lima 8068
81. *Tridax procumbens* L.	H	M.F. Sales 628
82. *Verbesina macrophylla* (Cass.) S.F. Blake	SU	R. Pereira 1150
83. *Wedelia vilosa* Gardner	SU	K. Andrade 159
Balanophoraceae		
84. *Langsdorffia hypogaea* Mart.	H	L. Figueiredo 147
Begoniaceae		
85. *Begonia grisea* DC.	H	R. Pereira 2733
86. *Begonia pernambucensis* Brade	H	Andrade - Lima 61-4001
Bignoniaceae		
87. *Anemopaegma chamberlaynii* (Sims.) Bureau & K. Schum.*	V	A.P.S. Gomes s.n
88. *Anemopaegma laeve* DC.	V	M.F. Sales et al. 518
89. *Bignonia ramentacea* (Mart. ex DC.) L.G. Lohmann	S	A.T. Carvalho 05
90. *Cuspidaria argentea* (Wawra) Sandwith	V	L.S. Figueiredo 110
91. *Fridericia dichotoma* (Jacq.) L.G. Lohmann	S	L.S. Figueiredo 233
92. *Fridericia limae* (A. H. Gentry) L.G. Lohmann	V	A. Laurênio 63
93. *Fridericia parviflora* (Mart. ex DC.) L.G. Lohmann	S	J.I.S. Barbosa 55
94. *Handroanthus chrysotrichus* (Mart. ex DC.) Standl.	T	M.J.N. Rodal 423
95. *Handroanthus impetiginosus* (Mart. ex DC.) Mattos	S	A.C.G. Costa 45
96. *Jacaranda rugosa* A. Gentry	S	M.J.N. Rodal 429
97. *Mansoa difficilis* (Cham.) Bur. & K. Schum.	V	E. Inácio 56
98. *Mansoa paganuccii* M.M.Silva-Castro	C	A. Laurênio 24
99. *Pyrostegia venusta* (Ker Gawl.) Miers	V	M.F. Sales 382
100. *Tabebuia aurea* (Silva Manso) Benth. & Hook.	T	A.M. Miranda et al. 2297

Continuation Table 1.

Taxa	Habit	Voucher(s)
Boraginaceae		
101. *Cordia rufescens* A.DC.	S	H.B. Oliveira et al. 4
102. *Cordia trichotoma* (Vell.) Arrab. ex Steud.	S	R. Pereira 2709
103. *Euploca humilis* (L.) Feuillet	H	A.M. Miranda et al. 1827
104. *Euploca procumbens* (Mill.) Diane & Hilger	SU	G.D. Alcântara 29
105. *Heliotropium angiospermum* Murray	S	A. Laurênio 11
106. *Heliotropium elongatum* (Lehm.) I.M. Johnst.	H	O. Cano 841
107. *Heliotropium indicum* L.	H	G.D. Alcântara 32
108. *Myriopus rubicundus* (Salzm. ex DC.) Luebert	S	G.D. Alcântara et al. 30
109. *Myriopus salzmannii* (DC.) Diane & Hilger	S, C	A. Bocage et al. 1067
110. *Varronia curassavica* Jacq.	S	D.N. Silva et al. 23
111. *Varronia dardani* (Taroda) J.S. Mill.	S	J.I.M. Melo 452
112. *Varronia globosa* Jacq.	S	M.C. Tschá 562
113. *Varronia leucocephala* (Moric.) J. S. Mill.	S, SU	A. Laurênio 314
Brassicaceae		
114. *Lepidium bonariense* L.	H	L.S. Figueiredo 161
Bromeliaceae		
115. *Aechmea leptantha* (Harms) Leme & J.A.Siqueira	H	A.C.G. Costa 8
116. *Billbergia porteana* Brongn.	H	K. Andrade 98
117. *Bromelia laciniosa* Mart. ex Schult. & Schult. f.	H	C.R.S. Oliveira 295
118. *Dyckia limae* L.B. Sm.	H	M.C. Tschá 25
119. *Encholirium spectabile* Mart. ex Schult. f.	H	R. Pick 155
120. *Neoglaziovia variegata* (Arruda) Mez.	H	A. Laurênio 266
121. *Tillandsia catimbauensis* Leme, W. Till & J.A. Siqueira	H	C.R.S. Oliveira 76
122. *Tillandsia loliacea* Mart. ex Schult. f.	H	E.A. Rocha 1551
123. *Tillandsia recurvata* (L.) L.	H	R. Pimentel 96
124. *Tillandsia streptocarpa* Baker	H	Andrade-Lima 60-3528
125. *Tillandsia tricholepis* Baker	H	R. Pereira 2108
126. *Tillandsia usneoides* L.	H	R. Pimentel 95
Burseraceae		
127. *Commiphora leptophloeos* (Mart.) J.B.Gillett	T	A. Laurênio 429
Cactaceae		
128. *Cereus albicaulis* (Britton & Rose) Luetzelb.	S	E.A. Rocha 1198
129. *Cereus jamacaru* DC.	S, T	A.P.S. Gomes 385
130. *Harrisia adscendens* (Gurke) Britton & Rose	S, SU	L.S. Figueiredo 267
131. *Melocactus zehntneri* (Britton & Rose) Luetzelb.	H	E.A. Rocha 1704
132. *Pilosocereus chrysostele* (Vaupel) Byles & G.D. Rowley	T	E.A. Rocha 1490
133. *Pilosocereus pachycladus* F. Ritter	SU, S	L.S. Figueiredo 60
134. *Pilosocereus pachycladus* subsp. *pernambucensis* (F. Ritter) Zappi	S	L.S. Figueiredo 102
135. *Pilosocereus tuberculatus* (Werderm.) Byles & G.D. Rowley	SU, S	A.P.S. Gomes 383
136. *Rhipsalis baccifera* (J.S. Muell.) Stearn	H	O. Cano 736
137. *Tacinga inamoena* (K. Schum.) N.P. Taylor & Stuppy	H, S	A.P.S. Gomes 381
138. *Tacinga palmadora* (Britton & Rose) N.P. Taylor & Stuppy	S	A. Laurênio 420
Capparaceae		
139. *Colicodendron yco* Mart.	S, T	A. Laurênio 271
140. *Cynophalla flexuosa* (L.) J.Presl	S	E.A. Rocha 1324

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Continuation Table 1.

Taxa	Habit	Voucher(s)
141. *Neocalyptrocalyx longifolium* (Mart.) Cornejo & Iltis	S	M.J.N. Rodal 548
Celastraceae		
142. *Maytenus imbricata* Mart. ex Reissek	S	A.P.S. Gomes 291A
143. *Monteverdia rigida* (Mart.) Biral	S, T	A.P.S. Gomes 363
Chrysobalanaceae		
144. *Hirtella ciliata* Mart. & Zucc.	S	E. Freire 18
145. *Hirtella racemosa* (Willd. ex Roem. & Schult.) Prance	SU, S	A.M. Miranda et al. 2265
Cleomaceae		
147. *Tarenaya diffusa* (Banks ex DC.) Soares-Neto & Roalson	H	A.P.S. Gomes 346
146. *Tarenaya microcarpa* (Ule) Soares-Neto & Roalson	H	A.M. Miranda et al. 4467
148. *Tarenaya spinosa* (Jacq.) Raf.	H	R. Pereira 2782
Clusiaceae		
149. *Clusia hilariana* Schltdl.	T	M.F. Sales 1059
150. *Clusia nemorosa* G. Mey.	S, T	M.F. Sales 420
Combretaceae		
151. *Buchenavia tetraphylla* (Aubl.) R.A. Howard	S, T	G.D. Alcântara et al. 21
152. *Combretum hilarianum* D. Dietr.	V	A. Laurênio 49
Commelinaceae		
153. *Commelina erecta* L.	H	Andrade-Lima 8102
154. *Commelina obliqua* Vahl.	H	R. Pereira 2768
155. *Tradescantia ambigua* Mart.	H	E.A. Rocha 1481
Convolvulaceae		
156. *Daustinia montana* (Moric.) Buril & A.R. Simões	C	A.C. Lacerda et al. s.n. (HST10114)
157. *Evolvulus daphnoides* Moric.	H	M.T. Vital et al. 21
158. *Evolvulus elegans* Moric.	H, SU	M.F. Sales 506
159. *Evolvulus filipes* Mart.	H	A.G. Silva 1665
160. *Evolvulus frankenioides* Moric.	H	L.S. Figueiredo 64
161. *Evolvulus glomeratus* Nees & Mart.	H, SU	M.F. Sales 375
162. *Evolvulus sericeus* Sw.	V	L.S. Figueiredo 14
163. *Ipomoea asarifolia* (Desr.) Roem. & Schult.	H	G.C. Delgado-Junior 624
164. *Ipomoea bahiensis* Willd.	C	G.C. Delgado-Junior et al. 808
165. *Ipomoea brasiliana* (Choisy) Meissn.	V	L.S. Figueiredo 109
166. *Ipomoea carnea* (Mart. ex Choisy) D.F.Austin	SU	E. Freire 26
167. *Ipomoea grandifolia* (Dammer) O'Donell	C	G.C. Delgado-Junior 722
168. *Ipomoea hederifolia* L.	C	R. Pereira 2833
169. *Ipomoea indica* (Burm. f.) Merr.	H	R. Pereira 2777
170. *Ipomoea longeramosa* Choisy	C	G.C. Delgado-Junior 695
171. *Ipomoea marcellia* Meissn.	V	L.S. Figueiredo 111
172. *Ipomoea nil* (L.) Roth	C	G.C. Delgado-Junior 678
173. *Ipomoea philomega* (Vell.) House	H	O. Cano 794
174. *Ipomoea pintoi* O'Donell	V	L.S. Figueiredo 108
175. *Ipomoea piurensis* O'Donell	V	G.C. Delgado-Junior 691
176. *Ipomoea rosea* Choisy	C	G.C. Delgado-Junior 668
177. *Ipomoea setosa* Huber	V	R. Pereira 2702
178. *Ipomoea subalata* Hassl.	C	G.C. Delgado-Junior 364
179. *Ipomoea subincana* (Choisy) Meissn.	V	K. Andrade 348

Continuation Table 1.

Taxa	Habit	Voucher(s)
180. *Ipomoea triloba* L.	H	O. Cano 835
181. *Jacquemontia bahiensis* O'Donell	V	L.S. Figueiredo 117
182. *Jacquemontia chrysanthera* Buril	C	A.C.G. Costa et al.17
183. *Jacquemontia corymbulosa* Benth.	C	A. Araújo 02
184. *Jacquemontia evolvuloide*s (Moric.) Meissn.	V	M.F. Sales 431
185. *Jacquemontia multiflora* (Choisy) Hallier f.	V	M.J.N. Rodal 366
186. *Jacquemontia nodiflora* Meisn.	V	A. Laurênio 60
187. *Jacquemontia pentanthos* (Jacq.) G. Don	V	A.C.P. Oliveira 3150
188. *Merremia aegyptia* (L.) Urb.	V	E.A. Rocha 1568
189. *Merremia cissoides* (Vahl) Hallier f.	V	K. Andrade 55
190. *Turbina cordata* (Choisy) D.F. Austin & Staples	V	R. Pereira 2844
Cucurbitaceae		
191. *Apodanthera congestiflora* Cogn.	H	G.C. Delgado-Junior 630
192. *Apodanthera glaziovi*i Cogn.	C	G.C. Delgado-Junior 701
193. *Cayaponia martiana* (Cogn.) Cogn.	V	R. Pereira 2713
194. *Cayaponia tayuya* (Vell.) Cogn.	C	A.M. Miranda et al. 2828
195. *Citrullus lanatus* (Thunb.) Matsum. & Nakai	H	J.V.A. Ferreira 170
196. *Cucumis anguria* L.	H	R. Pereira 2776
197. *Momordica charantia* L.	C	G.C. Delgado-Junior 654
Cyperaceae		
198. *Bulbostylis capillaris* (L.) C.B. Clarke	H	O. Cano 824
199. *Bulbostylis junciformis* (Kunth) C.B. Clarke	H	E.A. Rocha 1548
200. *Bulbostylis scabra* (J. Presl & C. Presl) C.B. Clarke	H	E.A. Rocha 1210
201. *Cyperus aggregatus* (Willd.) Endl.	H	M.B. Costa & Silva 3657
202. *Cyperus amabilis* Vahl	H	M.B. Costa & Silva 3651
203. *Cyperus cuspidatus* Kunth	H	E.A. Rocha 1547
204. *Cyperus haspan* L.	H	R. Pereira 1078
205. *Cyperus hermaphroditus* (Jacq.) Standl.	H	M.B. Costa & Silva 3658
206. *Cyperus laxus* Lam.	H	O. Cano 797
207. *Cyperus meyenianus* Kunth	H	O. Cano 829
208. *Cyperus schomburgkianus* Nees	H	Andrade - Lima 8130
209. *Cyperus subsquarrosus* (Muhl.) Bauters	H	E.C. Tenório 1115
210. *Cyperus surinamensis* Rottb.	H	E.A. Rocha 1543
211. *Eleocharis elegans* (Kunth) Roem. & Schult.	H	R. Pereira 1030
212. *Eleocharis filiculmis* Kunth	H	R. Pereira 1044
213. *Eleocharis flavescens* (Poir.) Urb.	H	R. Pereira 1043
214. *Rhynchospora cephalotes* (L.) Vahl	H	M. Luceño 316
215. *Rhynchospora ridleyi* C.B. Clarke	H	A. Laurênio 356
Dioscoreaceae		
216. *Dioscorea campestris* Griseb.	V	Andrade – Lima 75-8117
217. *Dioscorea cinnamomifolia* Hook.	C	G.C. Delgado-Junior et al. 312
218. *Dioscorea leptostachya* Gardn.	C	L.B. Oliveira 174
219. *Dioscorea piperifolia* Humb. & Bonpl. ex Willd.	C	G.C. Delgado-Junior et al. 681
220. *Dioscorea polygonoides* Humb. & Bonpl. ex Willd.	V	M.J.N. Rodal 519
221. *Dioscorea subhastata* Vell.	V	G.C. Delgado-Junior 702

Continuation Table 1.

Taxa	Habit	Voucher(s)
Eriocaulaceae		
222. *Paepalanthus lamarckii* Kunth	H	R. Pereira 1014
223. *Paepalanthus myocephalus* (Mart.) Körn.	H	A.M. Miranda 2752
224. *Paepalanthus subtilis* Miq. *	H	M.B. Costa & Silva 3681
225. *Paepalanthus tortilis* (Bong.) Mart.	H	O. Cano 793
Erythroxylaceae		
226. *Erythroxylum betulaceum* Mart. *	S	M.J.N. Rodal 503
227. *Erythroxylum caatingae* Plowan	S, T	E. Freire 19
228. *Erythroxylum* cf. *distortum* Mart.	SU, S	L.S. Figueiredo 22
229. *Erythroxylum loefgrenii* Diogo	S	M. Oliveira 4995
230. *Erythroxylum nummularium* Peyr.	S	A. Laurênio 335
231. *Erythroxylum pungens* O.E.Schulz	T	M.J. Hora 67
232. *Erythroxylum revolutum* Mart.	S	A. Laurênio 368
Euphorbiaceae		
233. *Acalypha brasiliensis* Müll. Arg. *	S	R. Pereira 2846
234. *Acalypha multicaulis* Müll. Arg.	SU	K. Andrade 267
235. *Astraea lobata* (L.) Klotzsch	SU	L.S. Figueiredo 308
236. *Cnidoscolus bahianus* (Ule) Pax & K. Hoffm.	S	M.J.N. Rodal 323
237. *Cnidoscolus pubescens* Pohl *	S, T	A. Laurênio 398
238. *Cnidoscolus quercifolius* Pohl ex Baill.	S, T	A. Laurênio 313
239. *Cnidoscolus urens* (L.) Arthur	S, T	A. Laurênio 395
240. *Cnidoscolus urens* var. *neglectus* (Pohl) Lourteig	S, T	A. Laurênio 461
241. *Cnidoscolus vitifolius* (Mill.) Pohl	SU, S	L.S. Figueiredo 197
242. *Croton adamantinus* Müll. Arg.	S	S.I. Silva 400
243. *Croton argyrophyllus* Kunth	S	S.I. Silva 399
244. *Croton blanchetianus* Baill.	SU	J.A. Siqueira-Filho 2921
245. *Croton campestris* A. St. –Hill.	SU	M. Correia 179
246. *Croton echioides* Baill.	S	A.P.S. Gomes 1106
247. *Croton glandulosus* L.	H	S.I. Silva 751
248. *Croton grewioides* Baill.	H	M.C. Tschá 633
249. *Croton heliotropiifolius* Kunth	SU	K. Andrade 33
250. *Croton hirtus* L'Hér.	S	R. Pereira 2769
251. *Croton janeirensis* Radd.-Sm. & Govaerts. *	S	M.J.N. Rodal 499
252. *Croton lundianus* (Didr.) Mull. Arg.	H, SU	S.I. Silva 291
253. *Croton nummularius* Baill.	S	A. Laurênio 351
254. *Croton pedicellatus* Kunth *	SU, S	A. Laurênio 123
255. *Croton rudolphianus* Müll. Arg.	SU, S	A.P.S. Gomes 1124
256. *Croton sonderianus* Müll. Arg.	S	E. Inácio 175
257. *Croton tricolor* Klotzsch ex Baill.	S	J.S. Silva 347
258. *Croton velutinus* Baill.	S	G. Webster 25729
259. *Croton virgultosus* Müll. Arg.	S	J.S. Silva s.n.
260. *Dalechampia schenckiana* Pax & K. Hoffm.	V	A. Laurênio 321
261. *Euphorbia comosa* Vell.	H, SU	A. Laurênio 69
262. *Euphorbia sarcodes* Boiss.	S	Andrade-Lima 8063
263. *Euphorbia thymifolia* L.	H	M.F. Sales 629

Continuation Table 1.

Taxa	Habit	Voucher(s)
264. *Euphorbia tirucalli* L.	SU	A. Bocage et al. 1076
265. *Jatropha mollissima* (Pohl) Baill.	S	A.P.S. Gomes 368
266. *Jatropha mutabilis* (Pohl) Baill.	SU, S	A.P.S. Gomes 323
267. *Jatropha ribifolia* (Pohl) Baill.	SU, S	A.P.S. Gomes 81
268. *Manihot* cf. *dichotoma* Ule	SU, S	M.J.N. Rodal 508
269. *Microstachys corniculata* (Vahl) Griseb.	S	O. Cano 769
270. *Microstachys hispida* (Mart.) Govaerts	SU	M.J.N. Rodal 520
271. *Tragia friesii* Pax & K. Hoffm.	C	G.C. Delgado-Junior et al. 688
272. *Sapium argutum* (Müll. Arg.) Huber	S	R. Pereira 2759
273. *Stillingia trapezoidea* Ule	S	S.M.A. Souza 13
Fabaceae		
274. *Aeschynomene histrix* var. *densiflora* (Benth.) Rudd	SU	M.F. Sales 417
275. *Aeschynomene marginata* Benth.	SU	Andrade-Lima 8069
276. *Aeschynomene martii* Benth.	S	Andrade-Lima 61-3979
277. *Albizia polycephala* (Benth.) Killip ex Record	T	E.B. Ferraz 293A
278. *Anadenanthera colubrina* var. *cebil* (Griseb.) Reis	T	A.G. da Silva 1360
279. *Ancistrotropis peduncularis* (Kunth) A. Delgado	V	G.C. Delgado-Júnior 699
280. *Apuleia leiocarpa* (Vogel) J.F. Macbr.	T	A. Laurênio 339
281. *Bauhinia acuruana* Moric.	S	A. Laurênio 117
282. *Bauhinia pentandra* (Bong.) D. Dietr.	S	A. Laurênio 394
283. *Bionia pedicellata* (Benth.) L.P. Queiroz	S	Andrade-Lima 60-3519
284. *Bowdichia virgilioides* Kunth	T	K. Andrade 319
285. *Cajanus cajan* (L.) Millsp.	S	M.J.N. Rodal 500
286. *Calliandra aeschynomenoides* Benth.	SU, S	A.P.S. Gomes 403
287. *Canavalia brasiliensis* Mart. ex Benth.	C	G.C. Delgado-Junior 693
288. *Centrosema arenarium* Benth.	V	R.A. Pick 236
289. *Centrosema brasilianum* (L.) Benth.	C	R. Pereira 3704
290. *Centrosema coriaceum* Benth.	V	G.C. Delgado-Júnior et al. 460
291. *Centrosema pubescens* Benth. *	C	Rocha et al. 1262
292. *Centrosema virginianum* (L.) Benth.	V	A. Laurênio 84
293. *Chaetocalyx scandens* var. *pubescens* (DC.) Rudd.	V	A. Laurênio 66
294. *Chamaecrista absus* (L.) H.S. Irwin & Barneby	H	R. Pereira 3711
295. *Chamaecrista brachystachy*a (Benth.) Conc.	S, T	A.M. Miranda et al. 4468
296. *Chamaecrista brevicalyx* (Benth.) H.S. Irwin & Barneby	S	A. Laurênio 13
297. *Chamaecrista calycioides* (DC. ex Collad.) Greene	S	R.A. Pick 244
298. *Chamaecrista cytisoides* (DC. Collad.) H.S. Irwin & Barneby *	S	A.P.S. Gomes 302
299. *Chamaecrista desvauxii* (Collad.) Killip	S	M. Campelo 13
300. *Chamaecrista diphylla* (L.) Greene	H	R.A. Pick 245
301. *Chamaecrista flexuosa* (L.) Greene	SU, S	A.P.S. Gomes 22
302. *Chamaecrista hispidula* (Vahl) H.S. Irwin & Barneby	H	R.A. Pick 281
303. *Chamaecrista nictitans* (L.) Moench	SU	K. Andrade 162
304. *Chamaecrista pilosa* var. *luxurians* (Benth.) H.S. Irwin & Barneby	H	K. Andrade 122
305. *Chamaecrista ramosa* var. *ramosa* (Vogel) H.S. Irwin & Barneby	SU, S	A. Araújo 7
306. *Chamaecrista repens* var. *multijuga* (Vogel) H.S. Irwin & Barneby	SU, S	E. Menezes 13
307. *Chamaecrista rotundifolia* (Pers.) Greene	V, SU	M.F. Sales 353
308. *Chamaecrista swainsonii* (Benth.) H.S. Irwin & Barneby	SU	K. Andrade 134

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Continuation Table 1.

Taxa	Habit	Voucher(s)
309. *Chamaecrista zygophylloides* var. *colligans* (H.S. Irwin & Barneby) H.S. Irwin & Barneby	S	M.J.N. Rodal 463
310. *Chloroleucon foliolosum* (Benth.) G.P. Lewis	S	A. Laurênio 296
311. *Cratylia mollis* Mart. ex Benth.	S	A. Laurênio 127
312. *Crotalaria bahiensis* Windler & S.G.Skinner *	S	K. Andrade 48
313. *Crotalaria holosericea* Nees & Mart.	SU, S	A. Laurênio 89
314. *Dahlstedtia araripensis* (Benth.) M.J. Silva & A.M.G. Azevedo	T	G.D. Alcântara et al.10
315. *Dalbergia cearensis* Ducke	S, T	L.S. Figueiredo 52
316. *Dalbergia frutescens* var. *frutescens* (Vell.) Britton	S, C	E.B. Ferraz et al. 294
317. *Dioclea grandiflora* Mart. ex Benth.	V	M.C. Tschá 138
318. *Enterolobium contortisiliquum* (Vell.) Morong	T	A. Bocage 918
319. *Erythrostemon calycina* (Benth.) L.P. Queiroz	S	A.M. Miranda 5658
320. *Erythrina velutina* Willd.	T	R. Pereira 3702
321. *Galactia remansoana* Harms. *	V	L.S. Figueiredo 68
322. *Hymenaea courbaril* L.	T	L.S. Figueiredo 253
323. *Hymenaea cangaceira* R.B. Pinto, V.F. Mansano & A.M.G. Azevedo	T	E.A. Rocha et al. 1308
324. *Hymenaea stigonocarp*a Mart. ex Hayne	T	E.A. Rocha 1038
325. *Indigofera spicata* Forssk.	SU	L.B. Oliveira 165
326. *Indigofera suffruticosa* Mill.	SU, S	M.F.A. Lucena 164
327. *Inga laurina* (Sw.) Willd.	T	A. Bocage 1098
328. *Leptolobium dasycarpum* Vogel *	T	Andrade-Lima71-6559
329. *Libidibia ferrea* (Mart. ex Tul.) L.P. Queiroz	T	K. Andrade 302
330. *Libidibia ferrea* var. *leiostachya* (Benth.) L.P. Queiroz *	T	V. Sobrinho 708
331. *Macroptilium bracteatum* (Nees & Mart.) Maréchal & Baudet	C	G.C. Delgado-Junior 694
332. *Macroptilium gracile* (Poepp.) Urb.	SU	M.F. Sales 415
333. *Macroptilium martii* (Benth.) Maréchal & Baudet	C	G.C. Delgado-Juniore et al.689
334. *Mimosa adenophylla* var. *mitis* Barneby	SU, S	M.F. Sales 567
335. *Mimosa gemmulata* var. *adamantina* Barneby	S	A.P.S. Gomes 304
336. *Mimosa gemmulata* var. *gemmulata* Barneby *	S	A.P.S. Gomes 157
337. *Mimosa guaranitica* Chod. & Hassl. *	SU	M.F. Sales 433
338. *Mimosa hirsutissima* var. *hirsutissima* Mart.	H	K. Andrade 82
339. *Mimosa lewisii* Barneby	SU, S	A. Laurênio 65
340. *Mimosa misera* Benth.	SU	M.J.N. Rodal 530
341. *Mimosa modesta* var. *ursinoides* (Harms) Barneby	H	L.S. Figueiredo 98
342. *Mimosa ophtalmocentra* Mart. ex Benth.	T	M. Meiado 18
343. *Mimosa sensitiva* L.	SU, S	K. Andrade 239
344. *Mimosa setosa* Benth. *	SU, S	R. Pereira 3647
345. *Mimosa somnians* Humb. & Bonpl. ex Willd.	S, SU	M.J.N. Rodal 422
346. *Mimosa tenuiflora* (Wills.) Poir.	T	A.P.S. Gomes 153
347. *Mimosa ursina* Mart.	H	R.A. Pick 117
348. *Mimosa verrucosa* Benth.	S	M.F. Sales 567
349. *Myroxylon peruiferum* L. f. *	T	A.G. da Silva 1389
350. *Parapiptadenia zehntneri* (Harms) M.P.Lima & H.C.Lima	T	A.P.S. Gomes 80
351. *Peltogyne pauciflora* Benth.	T	A. Laurênio 362
352. *Periandra coccinea* (Schrad.) Benth.	H, SU	L.S. Figueiredo 248
353. *Periandra mediterranea* (Vell.) Taub.	SU, S	E. Menezes 23

Continuation Table 1.

Taxa	Habit	Voucher(s)
354. *Piptadenia stipulacea* (Benth.) Ducke	S, T	E. Inácio 47
355. *Pityrocarpa obliqua* (Pers.) Brenan	S	L.S. Figueiredo 48
356. *Pityrocarpa moniliformis* (Benth.) Luckow & R.W. Jobson	T	A.G. da Silva 1380
357. *Plathymenia reticulata* Benth.	T	G.D. Alcântara 36
358. *Platymiscium floribundum* Vogel	T	M.J.N. Rodal 441
359. *Poecilanthe ulei* (Harms) Arroyo & Rudd	T	O. Cano 815
360. *Poeppigia procera* C. Presl	S, T	A. Laurênio 366
361. *Poincianella microphylla* (Mart. ex G. Don) L.P. Queiroz	S, T	A. Laurênio 55
362. *Poincianella pyramidalis* (Tul.) L.P. Queiroz	S, T	A. Laurênio 12
363. *Pterogyne nitens* Tul.	T	Andrade-Lima 2036
364. *Senna acuruensis* (Benth.) H.S. Irwin & Barneby	S	A. Laurênio 360
365. *Senna angulata* (Vogel) H.S. Irwin & Barneby	S	A. Laurênio 194
366. *Senna cana* var. *cana* (Nees & Mart.) H.S. Irwin & Baneby	SU, S	A. Laurênio 316
367. *Senna macranthera* var. *micans* (Nees) H.S. Irwin & Barneby	S, T	G.M. Souza 40
368. *Senna macranthera* var. *pudibunda* (Collad.) H.S. Irwin & Barneby	S	L.S. Figueiredo 37
369. *Senna obtusifolia* (L.) Irwin & Barneby	H	K. Andrade 145
370. *Senna occidentalis* (L.) Link	SU, S	E.H. Rodrigues 15
371. *Senna rizzinii* H.S. Irwin & Barneby	S	A.P.S. Gomes 350
372. *Senna spectabilis* var. *excelsa* (DC.) H.S. Irwin & Barneby	S, T	A. Laurênio 358
373. *Senna splendida* var. *gloriosa* (Vogel) H.S. Irwin & Barneby	S, T	K. Andrade 45
374. *Senna trachypus* (Benth.) H.S. Irwin & Barneby	S, T	A. Laurênio 81
375. *Senegalia bahiensis* (Benth.) Seigler & Ebinger	S	R.A. Pick 151
376. *Senegalia piauhiensis* (Benth.) Seigler & Ebinger	SU, S	A.P.S. Gomes 14
377. *Senegalia polyphylla* (DC.) Britton & Rose	S	R.A. Pick 219
378. *Stylosanthes gracilis* Kunth	H	Z. Travassos 206
379. *Stylosanthes guianensis* var. *guianensis* (Aubl.) Sw.	H	Z. Travassos 207
380. *Stylosanthes macrocephala* M.B. Ferr. & Souza Costa	H	Z. Travassos 210
381. *Stylosanthes scabra* Vogel	H	E. Menezes 14
382. *Stylosanthes viscosa* Sw.	H, SU	E. Menezes 24
383. *Trischidium molle* (Benth.) H.E. Ireland	T	R.A. Pick 131
384. *Vachellia farnesiana* (L.) Wight & Arn.	S	R. Pereira 3689
385. *Zollernia ilicifolia* (Brongn.) Vogel	T	Andrade-Lima 71-6542
Gentianaceae		
386. *Chelonanthus purpuracens* (Aubl.) Struwe, S. Nilsson & V.A. Albert	H	M.F. Sales 428
387. *Schultesia guianensis* (Aubl.) Malme	H	R. Pereira 1009
Hydroleaceae		
388. *Hydrolea spinosa* L.	H	R. Pereira 1046
Krameriaceae		
389. *Krameria tomentosa* A. St.-Hill.	SU, S	O. Cano et al. 746
Lamiaceae		
390. *Aegiphila verticillata* Cham.	S	M.J. Campelo 26
391. *Eplingiella fruticosa* (Salzm. ex Benth.) Harley & J.F.B. Pastore	SU	K. Andrade 137
392. *Eriope* cf. *macrostachya* Mart. ex Benth.	S	M.J.N. Rodal 305
393. *Hypenia salzmannii* (Benth.) Harley	SU	M.J.N. Rodal 266
394. *Leonotis nepetifolia* (L.) R.Br.	H, SU	K. Andrade 160

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Continuation Table 1.

Taxa	Habit	Voucher(s)
395. *Medusantha martiusii* (Benth.) Harley & J.F.B. Pastore	SU, S	A. Laurênio 46
396. *Mesosphaerum pectinatum* (L.) Kuntze	SU, S	M.J.N. Rodal 284
397. *Rhaphiodon echinus* (Nees & Mart.) Schauer	H	M.J.N. Rodal 271
Lauraceae		
398. *Cassytha filiformis* L.	H	A.P.S. Gomes 21
399. *Ocotea fasciculata* (Nees) Mez	S, T	E. Freire 30
400. *Ocotea nitida* (Meisn.) Mez	S	L.S. Figueiredo 213
401. *Ocotea xanthocalyx* (Nees) Mez	T	K. Andrade 144
Lentibulariaceae		
402. *Utricularia pusilla* Vahl	H	C.R.S. Oliveira 367
Loasaceae		
403. *Mentzelia aspera* L.	H	R. Pereira 2765
Loganiaceae		
404. *Spigelia gracilis* A.DC.	H	R. Pereira 2123
405. *Spigelia linarioides* DC.	H	O. Cano 768
406. *Strychnos gardneri* A.DC.	C	G.C. Delgado-Júnior 413
407. *Strychnos rubiginosa* DC.	SU, S	M.J. Hora 45
Loranthaceae		
408. *Psittacanthus cordatus* (Hoffmanns.) G. Don	H	A. Laurênio 370
409. *Struthanthus attenuatus* Eichl.	H	A. Bocage 1092
410. *Struthanthus concinnus* Mart.	H	A. Bocage 1091
411. *Struthanthus polyrhizus* Mart.	H	E. Freire 48
412. *Struthanthus syringifolius* Mart.	H	K. Andrade 26
Lythraceae		
413. *Cuphea ericoides* Cham. & Schltdl.	H, SU	E. Menezes 22
414. *Lafoensia glyptocarpa* Koehne	SU	K. Andrade 110
Marantaceae		
415. *Maranta zingiberina* (L.) Andersson	H	L. Figueiredo 27
Malpighiaceae		
416. *Banisteriopsis muricata* (Cav.) Cuatr.	V	R. Pereira et al. 1063
417. *Banisteriopsis schizoptera* Juss. (B. Gates)	S	M.J.N. Rodal 447
418. *Banisteriopsis stellari*s (Griseb.) B. Gates	V	K. Andrade 24
419. *Barnebya harleyi* W.R. Anderson & B. Gates	T	R.S. Pinho 58
420. *Bunchosia pernambucana* W.R. Anderson	SU	A. Laurênio 40
421. *Byrsonima cydoniifoli*a A. Juss.	T	K. Andrade 260
422. *Byrsonima gardneriana* A. Juss.	S, T	A. Laurênio 47
423. *Byrsonima vacciniifolia* A. Juss.	SU, S	L.S. Figueiredo 16
424. *Carolus chasei* (W.R. Anderson) W.R. Anderson	V	E.A. Rocha 1229
425. *Diplopterys lutea* (A. Juss.) W.R. Anderson & C.C. Davis	V	L.S. Figueiredo 219
426. *Diplopterys pubipetala* (A. Juss.) W.R. Anderson & C.C. Davis	V	R.S. Pinheiro 38
427. *Heteropterys byrsonimifolia* A. Juss. *	V	A.P.S. Gomes 29
428. *Heteropterys caducibracteata* W.R. Anderson	C	A. Lima 75-8105
429. *Heteropterys trichanthera* A. Juss.	C	A.P.S. Gomes et al. 29
430. *Janusia anisandra* (Juss.) Griseb.	V	L.S. Figueiredo 135
431. *Mascagnia sepium* (A.Juss.) Griseb.	C	E.A. Rocha et al. 1529

Continuation Table 1.

Taxa	Habit	Voucher(s)
432. *Stigmaphyllon auriculatum* (Cav.) A. Juss.	V	M. J. Campelo 3
433. *Stigmaphyllon paralias* A. Juss.	SU, S	A. Laurênio 22
Malvaceae		
434. *Ceiba glaziovi*i (Kuntze) K. Schum.	T	E.A. Rocha 1506
435. *Helicteres baruensis* Jacq.	S	A. Bocage 353
436. *Helicteres brevispira* A. St.-Hil.	S	R. Pereira 2853
437. *Helicteres macropetala* A. St.-Hil.	SU	O. Cano et al. 845
438. *Helicteres velutina* K. Schum.	S	A. Laurênio 364
439. *Herissantia crispa* (L.) Brizicky	H, V	L.S. Figueiredo 17
440. *Melochia tomentosa* L.	S	R. Pereira 2723
441. *Pavonia blanchetiana* Miq.	SU, S	L.S. Figueiredo 171
442. *Pavonia cancellata* Cav.	SU, S	K. Andrade 155A
443. *Pavonia* cf. *glazioviana* Gurke	SU, S	C.S. Zickel 10
444. *Pavonia humifusa* A. St. -Hill.	H, V	K. Andrade 255
445. *Pavonia varians* Moric.	SU	O. Cano 699
446. *Sida angustissim*a A. St. –Hill.	H	E. Freire 56
447. *Sida cordifolia* L.	S	K. Andrade 17
448. *Sida galheirensi*s Ulbr.	H, SU	K. Andrade 263
449. *Sida glomerat*a Cav.	H	O. Cano 836
450. *Sida linifolia* Cav.	H	K. Andrade 107
451. *Sida rhombifolia* L.	H	R. Pereira 2789
452. *Sida ulei* Ulbr.	SU, S	E. Freire 62
453. *Sidastrum paniculatum* (L.) Fryxell	SU	L. Figueiredo 62
454. *Triumfetta semitriloba* Jacq.	H	O. Cano 779
455. *Waltheria indica* L.	H, SU	K. Andrade 114
Melastomataceae		
456. *Clidemia hirta* (L.) D. Don	S	K. Andrade et al. 76
457. *Comolia villosa* (Aubl.) Triana	H	O. Cano 754
458. *Marcetia taxifolia* (A. St.-Hil.) Cogn.	S	Andrade-Lima 60-3521
459. *Miconia caudigera* DC.	S	Andrade-Lima 61-3972
460. *Mouriri pusa* Gard. ex Gard. *	T	Andrade-Lima 61-3972
461. *Pleroma heteromallum* (D. Don) D. Don	S	Andrade-Lima 60-3516
462. *Pterolepis glomerat*a (Rottb.) Miq.	S	M.J.N. Rodal 279
463. *Pterolepis perpusilla* (Naudin) Cogn. *	H	M.F. Sales 348
Meliaceae		
464. *Guarea guidonia* (L.) Sleum.	T	O. Cano 831
465. *Trichilia hirta* L.	T	O. Cano 827
Molluginaceae		
466. *Mollugo verticillata* L.	H	A.M. Miranda et al. 1757
Moraceae		
467. *Ficus caatingae* R.M. Castro	T	L.P. Félix et al. 7447
Myrtaceae		
468. *Calyptranthes brasiliensis* Spreng.	T	A. Bocage et al. 1044
469. *Campomanesia aromatica* (Aubl.) Griseb.	SU, S	A.P.S. Gomes 296
470. *Campomanesia eugenioides* (Cambess.) D. Legrand ex Landrum	SU	R. Pereira 1016
471. *Eugenia brejoensis* Mazine	T	J.I.S. Barbosa 39

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Continuation Table 1.

Taxa	Habit	Voucher(s)
472. *Eugenia candolleana* DC.	S, T	A. Laurênio 422
473. *Eugenia prasina* Kiaerstk.	S	K. Andrade 124
474. *Eugenia punicifolia* (Kunth) DC.	S, T	M.F. Sales 108
475. *Eugenia supraaxillaris* Vell. *	SU, S	E. Freire 51
476. *Marlierea clausseniana* (O. Berg) Kiaersk.	S	A. Bocage 1044
477. *Myrcia densa* (DC.) Sobral	S, T	Andrade-Lima 758055
478. *Myrcia guianensis* (Aubl.) DC.	S	M.F. Sales 1063
479. *Myrcia multiflora* (Lam.) DC.	S, T	A. Laurênio 29
480. *Myrcia splendens* (Sw.) DC.	S, T	A. Laurênio 14
481. *Myrcia tomentosa* (Aubl.) DC.	S, T	E. Freire 21
482. *Psidium brownianum* DC.	S	A. Bocage 1046
483. *Psidium myrtoides* O. Berg *	S	A. Laurênio 17
484. *Psidium oligospermum* DC.	T	A.M. Miranda 2751
485. *Psidium riparium* Mart. ex DC.	S	A.B. Marcon 8
486. *Psidium salutare* (Kunth) O. Berg *	T	E. Freire 111
Nyctaginaceae		
487. *Boungainvillea spectabilis* Willd.	S	R. Pereira 2764
488. *Guapira laxa* (Netto) Furlan	S, T	H.B. Oliveira et al. 19
Ochnaceae		
489. *Ouratea blanchettiana* (Planch.) Engl.	S, T	A.B. Marcon 7
Olacaceae		
490. *Ximenia americana* L.	S	C.R.S. Oliveira 161
Onagraceae		
491. *Ludwigia erecta* (L.) H. Hara	S, H, SU	R. Pereira 1079
492. *Ludwigia* cf. *octovalvis* (Jacq.) Raven	S, T	E. Menezes 19
Orchidaceae		
493. *Acianthera ochreata* (Lindl.) Pridgeon & M.W. Chase	H	A.M. Giulietti 8075
494. *Cyrtopodium gigas* (Vell.) Hoehne	H	E.C. Tenório 1142
495. *Vanilla palmarum* (Salzm. ex Lindl.) Lindl.	H	R. Pereira 1011
Oxalidaceae		
496. *Oxalis divaricata* Mart. ex Zucc.	H	R. Pereira 1019
497. *Oxalis frutescens* subsp. *frutescens* L.	H, SU	M.J.N. Rodal 462
498. *Oxalis glaucenses* Norlind	H	K. Randau 84010
499. *Oxalis psoraleiodes* Kunth	H	R. Pereira 2716
500. *Oxalis psoraleiodes* subsp. *insipida* (A. St.-Hil.) Lourteig	S	O. Cano 823
Passifloraceae		
501. *Passiflora cincinnata* Mast.	V	G.C. Delgado-Junior 327
502. *Passiflora foetida* L.	V	F.M.O. Oliveira 12
503. *Passiflora luetzelburgii* Harms	V	E. Freire 45
504. *Passiflora silvestris* Vell.	V	A. Laurênio 38
Phyllanthaceae		
505. *Phyllanthus klotzschianus* Müll. Arg.	SU	C.R.S. Oliveira 358
Phytolaccaceae		
506. *Microtea paniculata* Moq.	H	M.J.N. Rodal 286
Piperaceae		
507. *Peperomia blanda* (Jacq.) Kunth	H	C.R.S. Oliveira 277

Continuation Table 1.

Taxa	Habit	Voucher(s)
Plantaginaceae		
508. *Angelonia campestris* Nees & Mart.	C, H	R.A. Pick 250
509. *Angelonia cornigera* Hook. f.	H, SU	A.M. Miranda 1761
510. *Scoparia dulcis* L.	SU	E.A. Rocha 1282
511. *Stemodia foliosa* Benth.	H	A.M. Miranda et al. 1796
512. *Tetraulacium veroniciforme* Turcz.	H	O. Cano et al. 758
Plumbaginaceae		
513. *Plumbago scandens* L.	H	O. Cano 811
Poaceae		
514. *Anthephora hermaphrodita* (L.) Kuntze	H	M.B. Costa e Silva 3653
515. *Aristida adscensionis* L.	H	A.M. Giulietti 8145
516. *Aristida setifolia* Kunth	H	Andrade-Lima 8138
517. *Axonopus capillaris* (Lam.) Chase	H	O. Cano 744
518. *Axonopus compressus* (Sw.) P. Beauv.	H	M.B. Costa e Silva 3677
519. *Axonopus laxiflorus* (Trin.) Chase *	H	E.C. Tenório 1124
520. *Axonopus polydactylus* (Steud.) Dedecca	H	E. Inácio 38
521. *Cenchrus ciliaris* L.	H	M.B. Costa e Silva 3686
522. *Cenchrus echinatus* L. *	H	M.B. Costa e Silva 3706
523. *Chloris barbata* Sw.	H	M.B. Costa e Silva 3678
524. *Chloris orthonoton* Döll.	H	E.C. Tenório 1042
525. *Chloris pycnothrix* Trin.	H	M.B. Costa e Silva 3705
526. *Dactynoctenium aegyptium* (L.) Willd.	H	M.B. Costa e Silva 3684
527. *Digitaria bicornis* (Lam.) Roem. & Schult.	H	E.C. Tenório 1120
528. *Digitaria insularis* (L.) Fedde	H	Andrade-Lima 8136
529. *Digitaria tenuis* (Nees) Henrard	H	M.B. Costa e Silva 3652
530. *Eleusine indica* (L.) Gaertn.	H	M.B. Costa e Silva 3649
531. *Enteropogon mollis* (Ness) Clayton	H	M.B. Costa e Silva 3660
532. *Eragrostis acutiflora* (Kunth) Nees	H	M.B. Costa e Silva 3662
533. *Eragrostis articulata* (Schrank) Nees	H	E.C. Tenório 1109
534. *Eragrostis ciliaris* (L.) R. Br.	H	M.B. Costa e Silva 3656
535. *Eragrostis japonica* (Thunb.) Trin.	H	E.C. Tenório 1063
536. *Eragrostis maypurensis* (Kunth) Steud.	H	Andrade-Lima 8135
537. *Gymnopogon foliosu*s (Willd.) Nees	H	E.C. Tenório 1104
538. *Ichnanthus glaber* (Raddi.) Hitchc.	H	E.C. Tenório 1111
539. *Ichnanthus leiocarpus* (Spreng.) Kunth *	H	E.C. Tenório 1131
540. *Megathyrsus maximum* (Jacq.) B.K. Simon & S.W.L. Jacobs	S, H	E.C. Tenório 1064
541. *Melinis repens* (Willd.) Zizka	H	D.N. Silva 1
542. *Panicum millegrana* Poir.	H	E.C. Tenório 1146
543. *Panicum trichoides* Sw.	H	E.C. Tenório 1144
544. *Pappophorum mucronulatum* Nees	H	E.C. Tenório 1138
545. *Pappophorum pappiferum* (Lam.) Kuntze	H	M.B. Costa e Silva 3650
546. *Paspalum arenarium* Schrad.	H	Andrade-Lima 8128
547. *Paspalum conjugatum* Bonpl.	H	P. Luetzelburg 26304
548. *Paspalum decumbens* Sw. *	H	M.B. Costa e Silva 3674
549. *Paspalum maritimum* Trin.	H	E.C. Tenório 1128
550. *Paspalum scutatum* Nees ex Trin.	H	M.B. Costa e Silva 3648

Continuation Table 1.

Taxa	Habit	Voucher(s)
551. *Setaria parviflora* (Poir.) Kerguélen	H	L. Figueiredo 13
552. *Setaria scabrifolia* (Nees) Kunth	H	M.B. Costa e Silva 3683
553. *Setaria setosa* (Sw.) P. Beauv.	H	E.C. Tenório 1137
554. *Setaria tenax* (Rich.) Desv.	H	E. Inácio 4
555. *Setaria vulpiseta* (Lam.) Roem. & Schult.	H	E.C. Tenório 1126
556. *Steinchisma laxum* (Sw.) Zuloaga	H, C	E.C. Tenório 1134
557. *Streptostachys asperifolia* Desv.	H	O. Cano 745
558. *Tragus berteronianus* Schult.	H	M.B. Costa e Silva 3659
559. *Urochloa mollis* Morrone & Zuloaga	H	M.B. Costa e Silva 3671
560. *Urochloa paucispicata* (Morong) Morrone & Zuloaga	H	M.B. Costa e Silva 3667
Polygalaceae		
561. *Asemeia ovata* (Poir.) J.F.B. Pastore & J.R. Abbott	H	R. Pereira 2830
562. *Monnina insignis* A.W. Benn.	H	I. Machado 84461
563. *Polygala appendiculata* Vell.	H	Y. Marinho 82586
564. *Polygala boliviensis* A.W. Benn.	H	J.I. Barbosa 84
565. *Polygala galioides* Poir.	T	L.S. Figueiredo 106
566. *Polygala glochidata* Kunth	H	O. Cano 830
567. *Polygala longicaulis* Kunth	H, S	L.S. Figueiredo 178
568. *Polygala paniculata* L.	H	J.I. Barbosa 89
569. *Polygala trichosperma* Jacq.	H	A. Bocage 352
570. *Securidaca coriacea* Bonpl. *	V, T	R. Pereira 1072
571. *Securidaca diversifolia* (L.) S.F.Blake	C	G.S. Baracho et al. 271
Polygonaceae		
572. *Ruprechtia laxiflora* Meisn.	T	C.R.S. Oliveira 411
573. *Triplaris gardneriana* Wedd.	T	M.J.N. Rodal 426
Portulacaceae		
574. *Portulaca elatior* Mart. ex Rohrb.	H	C.R.S. Oliveira 63
575. *Portulaca grandiflora* Hook. *	H	M.F. Sales 563
576. *Portulaca halimoides* L.	H	R. Pereira 2788
577. *Portulaca mucronata* Link	H	A.G. da Silva 1365
578. *Portulaca pilosa* L.	S	L.S. Figueiredo 114
Rhamnaceae		
579. *Colubrina cordifolia* Reisseck	S, T	Andrade-Lima 61-4003
580. *Gouania colurnifolia* Reisseck	C	M. Oliveira 5006
581. *Ziziphus cotinifolia* Reisseck	T	O. Cano 822
582. *Ziziphus joazeiro* Mart.	T	A.P.S. Gomes 354
Rubiaceae		
583. *Declieuxia fruticosa* (Willd. ex Roem. & Schult.) Kuntze	S, SU	A.M. Miranda et al. 1824
584. *Manettia cordifolia* Mart.	C	M.F. Sales 416
585. *Richardia grandiflora* (Cham. & Schtdl.) Steud.	SU, H	A.M. Miranda et al. 1759
586. *Staelia virgata* (Link ex Roem. & Schult.) K.Schum.	SU, H	K. Andrade 333
587. *Tocoyena formosa* (Cham. & Schltdl.) K. Schum.	SU, H	A.P.S. Gomes 16
Rutaceae		
588. *Balfourodendron molle* (Miq.) Pirani	T	A.P.S. Gomes 331
589. *Zanthoxylum stelligerum* Turcz.	T	Rita Pereira et al. 2867

Continuation Table 1.

Taxa	Habit	Voucher(s)
Salicaceae		
590. *Casearia sylvestris* Sw.	S, T	D.N. Silva et al. 22
Sapindaceae		
591. *Allophylus quercifolius* (Mart.) Radlk.	T, S	C. Farias-Fonseca 285
592. *Cardiospermum corindum* L.	C	E.A. Rocha et al. 1510
593. *Dodonaea viscosa* (L.) Jacq.	S, T, SU	M.J.N. Rodal 470
594. *Serjania glabrata* Kunth	C	A.M. Miranda et al. 2487
595. *Serjania lethalis* A.St.-Hil.	C	G.C. Delgado-Junior 480
596. *Serjania marginata* Casar	C	G.C. Delgado-Junior 437
597. *Serjania pernambucensis* Radlk.	C	A.M. Miranda et al. 2740
598. *Urvillea ulmacea* Kunth	C	A.C. Lacerda et al. s.n
Sapotaceae		
599. *Manilkara rufula* (Miq.) H.J. Lam.	T	A.M. Miranda et al. 2799
600. *Sideroxylon obtusifolium* (Roem. & Schult.) T.D. Penn.	S, T	M.F. Sales 351
Santalaceae		
601. *Phoradendron tunaeforme* (DC.) Eichl.	H	A.C.G. Costa et al. 62
Schoepfiaceae		
602. *Schoepfia brasiliensis* A. DC.	S, T	A.M. Miranda et al. 1809
Simaroubaceae		
603. *Simarouba amara* Aubl.	T	K. Andrade 227
Smilacaceae		
604. *Smilax campestris* Griseb.	C	G.C. Delgado-Junior 321
605. *Smilax cissoides* Mart. ex Griseb.	C	E. Freire 29
Solanaceae		
606. *Datura stramonium* L.	S	M.J.N. Rodal 313
607. *Solanum rhytidoandrum* Sendtn.	S	M.J.N. Rodal 546
608. *Solanum stipulaceum* Willd.	T, S	G.D. Alcântara et al. 15
609. *Solanum thomasiifolium* Sendtn. *	S	M.J.N. Rodal 534
Trigoniaceae		
610. *Trigonia nivea* Cambess.	C	A.M. Miranda et al. 1712
Turneraceae		
611. *Piriqueta duarteana* (Cambess.) Urb.	H, SU	M.J. Campelo 63
612. *Piriqueta sidifolia* Cambess. var. *multiflora* Urb.	S	M.J.N. Rodal 368
613. *Turnera diffusa* Willd. ex Schult.	S, SU	R. Pick 257
Urticaceae		
614. *Pilea hyalina* Fenzl	H	R. Pereira 2701
Velloziaceae		
615. *Vellozia cinerascens* (Mart. ex Schult. & Schult. f.) Mart. ex Seub	H	E.A. Rocha et al. 1489
Verbenaceae		
616. *Lantana camara* L.	S	A. Bocage et al. 1070
617. *Lantana canescens* Kunth	S	J.A. Siqueira-Filho 2925
Vitaceae		
618. *Cissus blanchetiana* Planch.	C	G.C. Delgado-Júnior 680
619. *Cissus verticillata* (L.) Nicolson & C.E.Jarvis	C	Rita Pereira 2700

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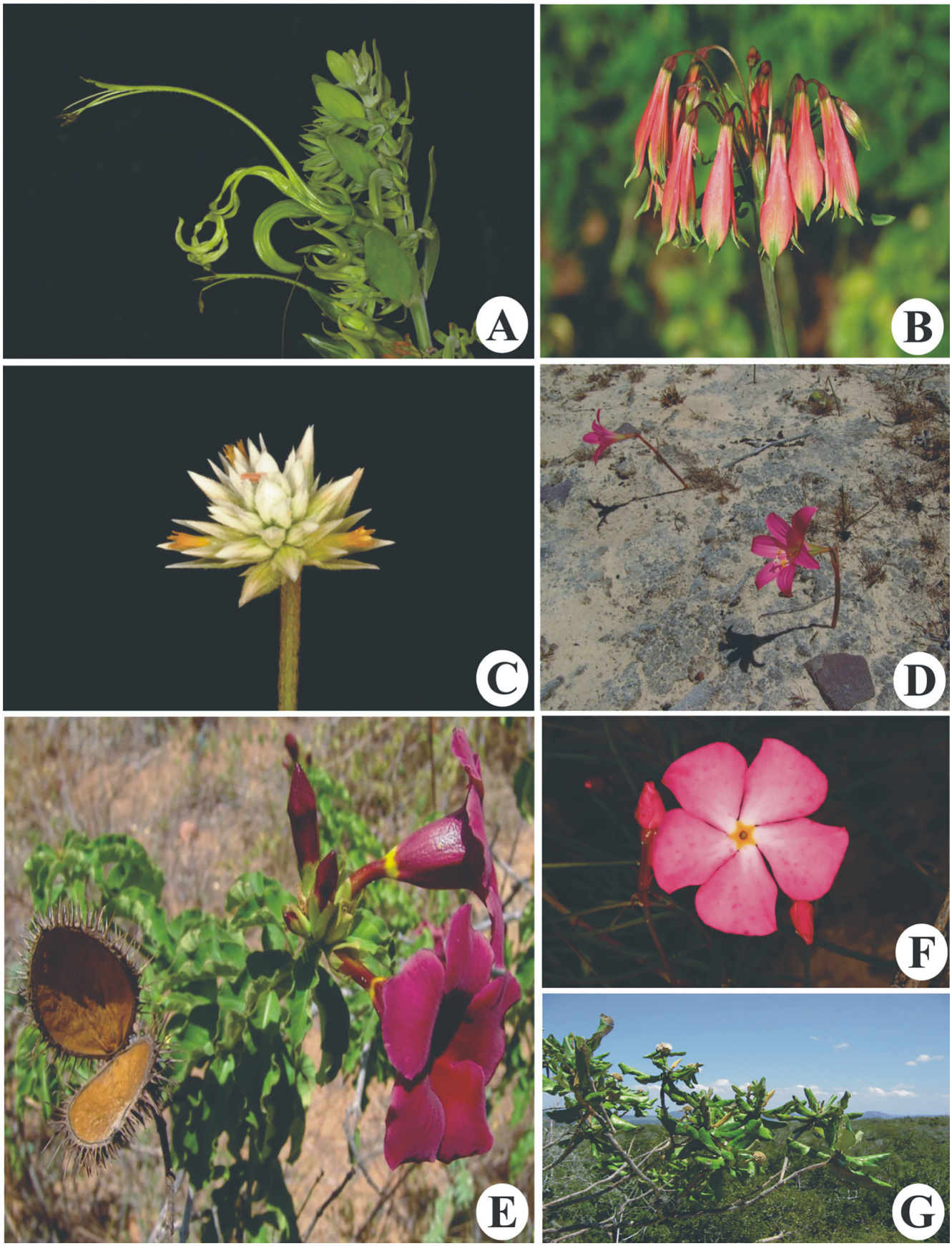

Figure 2. A. *Harpochilus neesianus* Mart. **B.** *Alstroemeria longistaminea* Mart. ex Schult. & Schult. f. **C.** *Gomphrena vaga* Mart. **D.** *Habranthus sylvaticus* Herb. **E.** *Allamanda blanchetii* A.DC. **F.** *Mandevilla tenuifolia* (J.C. Mikan) Woodson. **G.** *Paralychnophora reflexoauriculata* (G.M. Barroso) MacLeish.

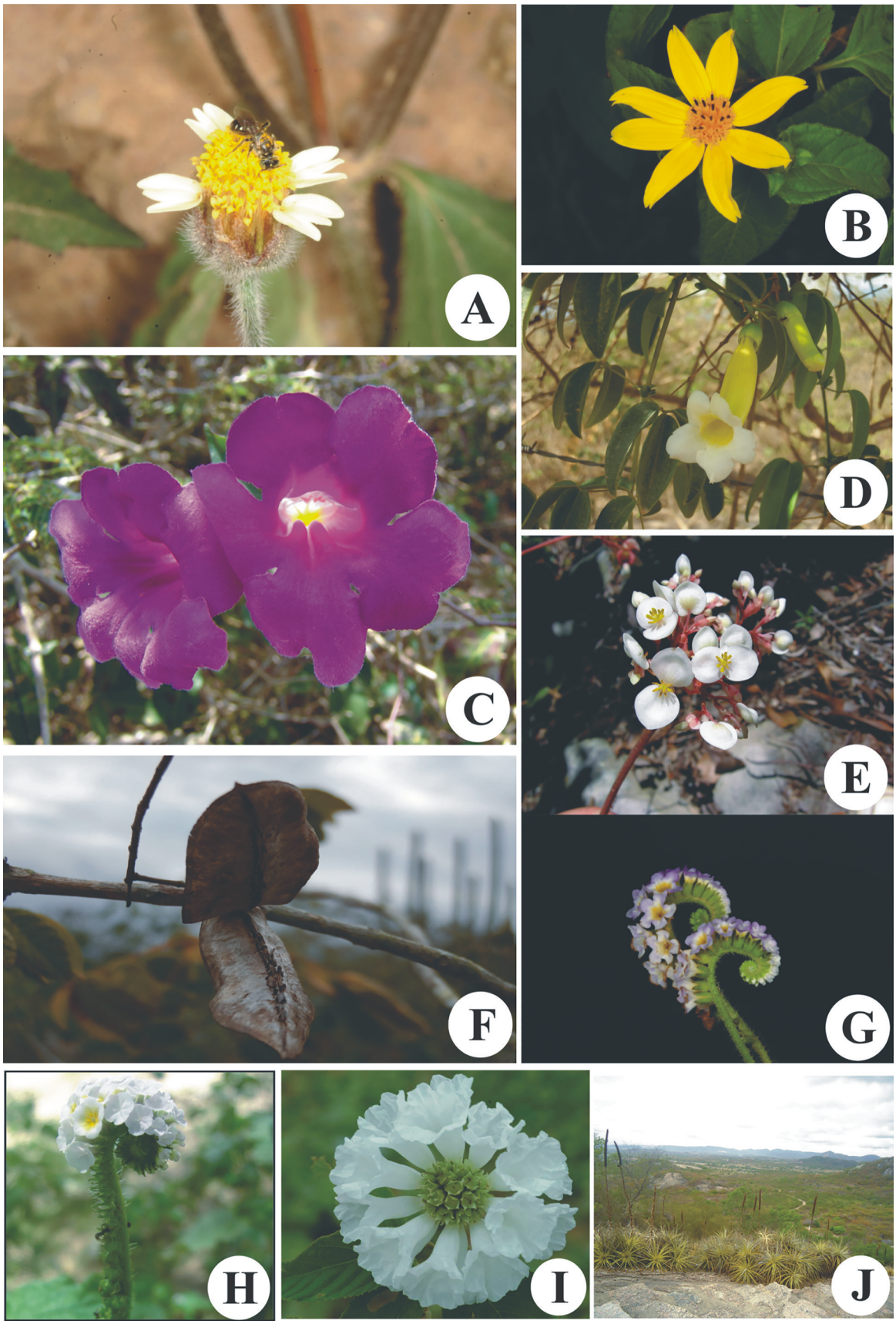

Figure 3. A. *Tridax procumbens* L. **B.** *Wedelia vilosa* Gardner. **C.** *Fridericia limae* (A.H. Gentry) L.G. Lohmann. **D.** *Anemopaegma laeve* DC. **E.** *Begonia grisea* DC. **F.** *Jacaranda rugosa* A. Gentry. **G.** *Heliotropium angiospermum* Murray. **H.** *Heliotropium elongatum* (Lehm.) I.M. Johnst. **I.** *Varronia leucocephala* (MORO c.) J. S. Mill. **J.** *Encholirium spectabile* Mart. ex Schult. f.

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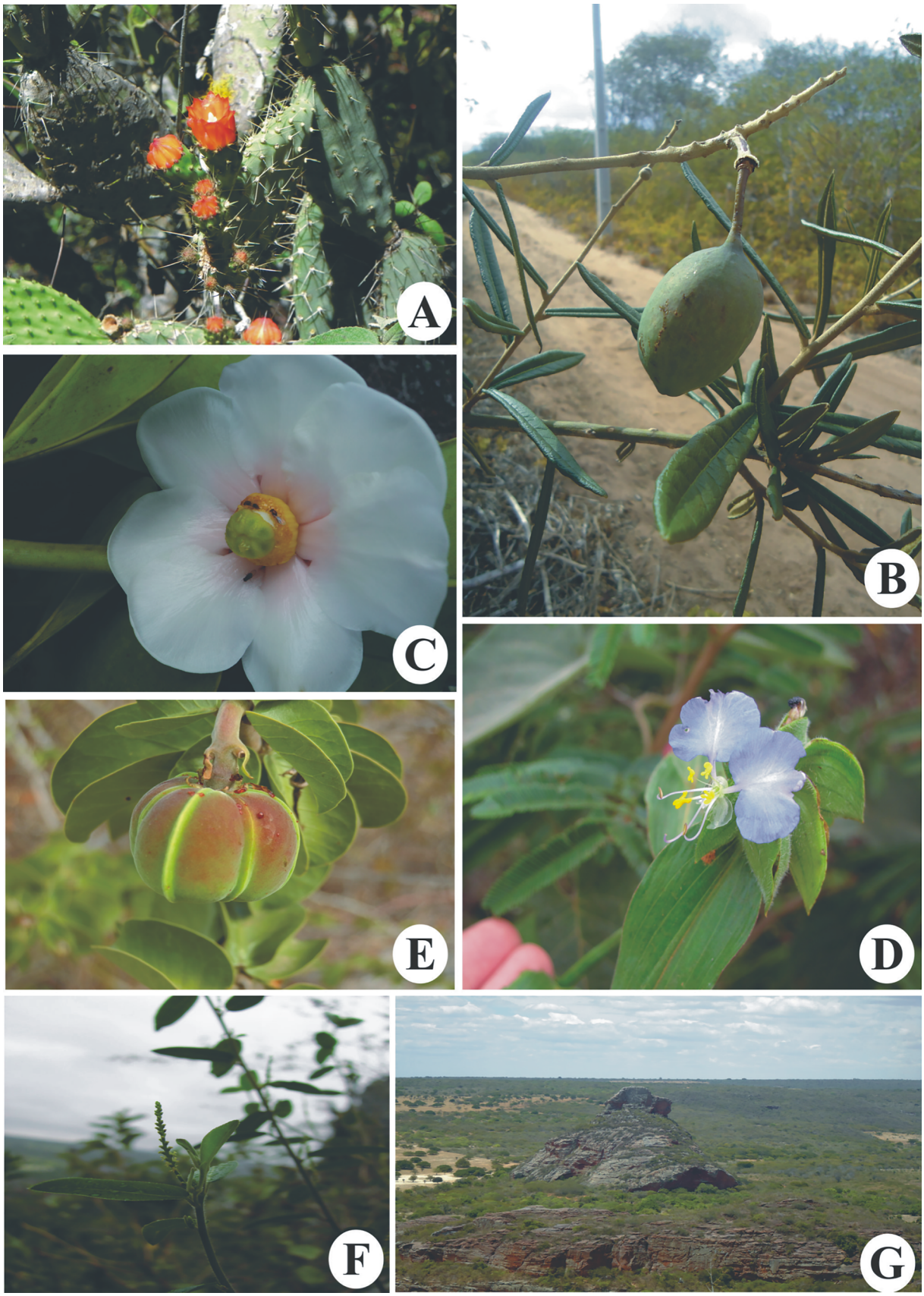

Figure 4. A. *Tacinga palmadora* (Britton & Rose) N.P. Taylor & Stuppy. **B.** *Colicodendron yco* Mart. **C.** *Clusia nemorosa* G. Mey. **D.** *Commelina erecta* L. **E.** *Jatropha molissima* (Pohl) Baill. **F.** *Microstachys corniculata* (Vahl) Griseb. **G.** Partial view of the Catimbau National Park.

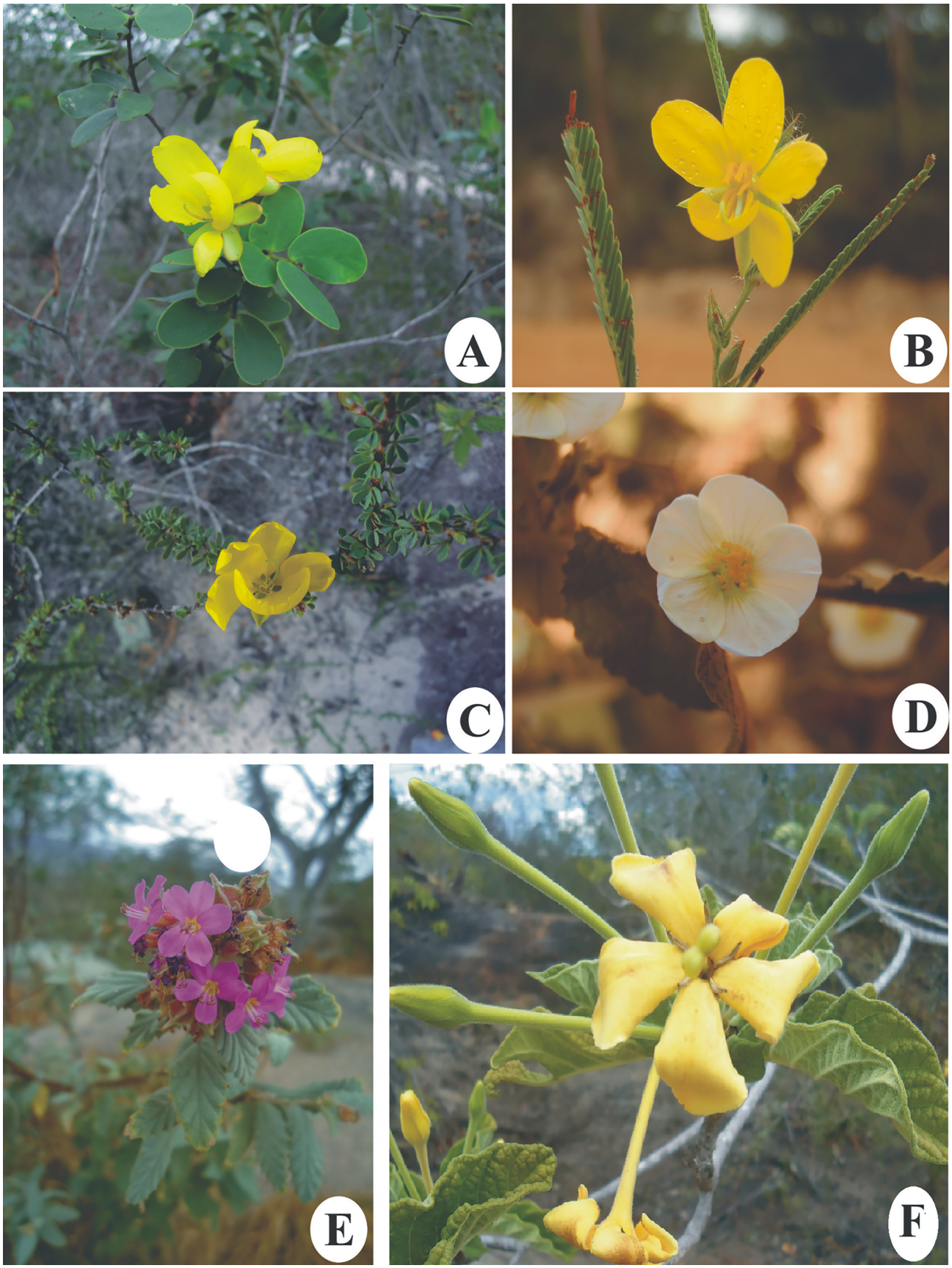

Figure 5. A. *Chamaecrista cytisoides* (DC. Collad.) H.S. Irwin & Barneby. **B.** *Chamaecrista flexuosa* (L.) Greene. **C.** *Chamaecrista ramosa* var. *ramosa* (Vogel) H.S. Irwin & Barneby. **D.** *Herissantia crispa* (L.) Brizicky. **E.** *Melochia tomentosa* L. **F.** *Tocoyena formosa* (Cham. & Schltdl.) K. Schum.

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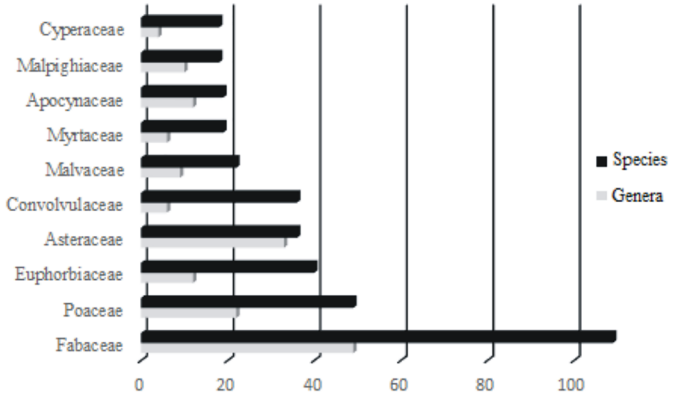

Figure 6. Number of species and genus in the ten most representative families in the Catimbau National Park.

shrub (49%), with a very prominent presence of vines/climbers (15.6%) (Figure 7). The families Poaceae, Asteraceae, Cyperaceae, Bromeliaceae, and Fabaceae stood out in terms of their herbaceous species, with Poaceae and Asteraceae representing 7.5% and 3.1% of all of the species recorded. The families that stood out in terms of the numbers of shrub representatives were Fabaceae (26 species) and Euphorbiaceae (17 species).

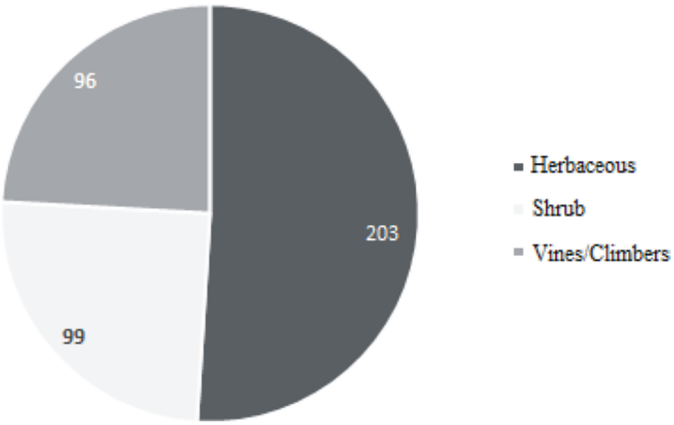

Figure 7. Number of species in the Catimbau National Park considering the habit.

Among vines/climbers, the most diverse families were Convolvulaceae (25 spp.), Fabaceae (12 spp.), Malpighiaceae (11 spp.), Apocynaceae (10 spp.), Bignoniaceae (7 spp.), and Dioscoreaceae and Sapindaceae (6 species each).

Among the 613 species listed for the CNP, 34 are new records for Pernambuco State (see table 1). Some of the species found in the CNP occur in most Brazilian states (e.g., *Alternanthera brasiliana* (L.) Kuntze, *Anacardium occidentale* L., *Asclepias curassavica* L., *Chamaecrista flexuosa* (L.) Greene, *Bidens pilosa* L., *Commelina erecta* L., *Croton glandulosus* L., *Emilia fosbergii* Nicolson, *Ipomoea nil* (L.) Roth, and *Lantana camara* L.). On the other hand, four are endemic to the CNP (*Acritopappus buiquensis* D.J.N. Hind & Bautista, *Dyckia limae* L.B. Sm., *Mandevilla catimbauensis* Souza-Silva, Rapini & J.F. Morales, and *Tillandsia catimbauensis* Leme, W. Till & J.A. Siqueira). The majority of species listed for the Park are native to Brazil, although (*Agave sisalana* Perrine, *Cajanus cajan* (L.) Millsp., *Calotropis procera* (Ait.) Ait. f., *Citrullus lanatus* (Thunb.) Matsum. & Nakai, *Cucumis anguria* L., *Euphorbia tirucalli* L., *Megathyrsus maximum* (Jacq.) B.K. Simon & S.W.L. Jacobs, *Melinis repens* (Willd.) Zizka, *Momordica charantia* L.) are exotic (BFG 2015). Among the species recorded for the Park (87 spp.), many show restricted geographical distributions, occurring only in the Caatinga domain [e.g., *Acritopappus buiquensis*, *Alstroemeria longistaminea* Mart. ex Schult. & Schult f., *Apodanthera congestiflora* Cogn., *A. glaziovii* Cogn., *Chresta pacourinoides* (Mart. ex DC.) C.M. Siniscalchi & B. Loeuille, *Cnidoscolus quercifolius* Pohl ex Baill., *Crotalaria bahiensis* Windler & S.G. Skinner, *Cuspidaria argentea* (Wawra) Sandwith, *Dioclea grandiflora* Mart. ex Benth., *Dyckia limae* L.B. Sm., *Encholirium spectabile* Mart. ex Schult. f., *Fridericia limae* (A.H. Gentry) L.G. Lohmann, *Harpochilus neesianus* Mart., *Ipomoea marcellia* Meissn., *I. pintoi* O'Donell, *Jacaranda rugosa* A. Gentry, *Mandevilla catimbauensis*, *Mansoa paganuccii* M.M. Silva-Castro, *Paralychnophora reflexoauriculata* (G.M. Barroso) MacLeish, *Pilosocereus pachycladus* F. Ritter, *Piptadenia stipulacea* (Benth.) Ducke, *Ruellia asperula* (Nees) Lindau, *R. bahiensis* (Nees) Morong, *Senna rizzinni* H.S. Irwin & Barneby, *Stillingia trapezoidea* Ule, *Tillandsia catimbauensis*, *Trichogonia heringeri* R.M. King & H. Rob., *Thyrsacanthus ramosissimus* Lindau and *Varronia dardani* (Taroda) J.S. Mill.) (Tölke et al. 2011, Giulietti et al. 2002, *Flora do Brasil 2020* (2018)]. The remaining 527 species occur in more than one Brazilian domain, with 70 occurring in both caatinga and Cerrado [e.g., *Allamanda blanchetii* A. DC., *Allophylus quercifolius* (Mart.) Radlk., *Aspilia martii* Baker, *Chamaecrista swainsonii* (Benth.) H.S. Irwin & Barneby, *Chrysanthellum indicum* DC., *Ditassa capillaris* E.Fourn., *Froelichia humboldtiana* Roem. & Schult., *Ipomoea brasiliana* (Choisy) Meissn., *Manilkara rufula* (Miq.) H.J. Lam., *Mimosa ursina* Mart., *Schinopsis brasiliensis* Engl., *Tradescantia ambigua* Mart.]; 35 are found exclusively in the Caatinga and the Atlantic rainforest [e.g., *Croton pedicellatus* Kunth, *Ditassa oxyphylla* Turcz., *Eleocharis flavescens* (Poir.) Urb., *Heliotropium angiospermum* Murray, *Ichnanthus glaber* (Raddi.) Hitchc., *Macroptilium martii* (Benth.) Maréchal & Baudet, *Monteverdia rigida* (Mart.) Biral, *Varronia globosa* Jacq.].

Discussion

An inventory of Brazilian seed plants (BFG 2015) listed 32,086 Angiosperms species, with 3,133 species in Pernambuco State, including 69 endemic species (2.2% of the total number of species). The Caatinga has been ranked as the biome with the fourth highest number of Angiosperm species (4,657) and the highest number of endemic species (913). According to Tabarelli & Vicente (2004), information is still lacking in relation to the composition of 41% of the caatinga area, and therefore the actual number of species must certainly be underestimated.

In a floristic and phytogeographical study of semideciduous vegetation of the São José Plateau (near the CNP), the most representative families were Fabaceae (29 spp.), Euphorbiaceae (19 spp.), and Myrtaceae (10 spp.) (Gomes et al. 2006). That Fabaceae is the most representative group in the Caatinga has been corroborated in various floristic lists (Rodal and Melo 1999, Queiroz 2002). The family Myrtaceae, together with Cactaceae, have the largest numbers of endemic species in that ecosystem (Queiroz 2002, Taylor & Zappi 2002). According to the catalogue of vascular plants of the Caatinga (Moro et al. 2014), the most diverse families there are Fabaceae (292 spp.),

Euphorbiaceae (103 spp.), Malvaceae (82 spp.), and Asteraceae (67 spp.). Ours results are quite similar to other surveys carried out in caatinga vegetation, which showed Fabaceae, Euphorbiaceae, and Convolvulaceae to be the most diverse (e.g., Rodal 1992, Sales et al. 1998, Araújo et al. 1995, Rodal & Melo 1999, Alcoforado Filho et al. 2003, Barbosa et al. 2005, Santos & Melo 2010, Moro et al. 2014). It is worth noting that the seven most diverse families in the CNP coincide with the ten richest families in Brazil (regardless of the type of ecosystem) (BFG 2015), except for Convolvulaceae, which does not appear on the BFG list. The BFG (2015) list for the caatinga cites Fabaceae, Poaceae, Asteraceae, Euphorbiaceae, Rubiaceae, Cyperaceae, Malvaceae, Apocynaceae, Melastomataceae, and Orchidaceae as the most numerous families.

The diversity of families (approximately 20) in the CNP was significantly higher than average when compared to other surveys conducted in caatinga sites (e.g., Barbosa et al. 2005, Andrade et al. 2002, Amorim et al. 2005, Costa et al. 2009, Santos & Melo 2010). The large number of botanical families found in the study area probably reflects the diversity of regional vegetation types in a varied mosaic of environments. The preservation the Park for at least 16 years could also contribute to the species richness found there.

Among the fifteen most diverse genera of the CNP, nine coincide with the genera listed by Moro et al. (2014) as most representative of Caatinga vegetation (*Croton* - 37 spp., *Mimosa* - 28 spp., *Ipomoea* - 28 spp., *Chamaechrista* - 24 spp., *Erythroxylum* - 24 spp., *Senna* - 21 spp., *Cyperus* - 20 spp., *Eugenia* - 19 spp. and *Sida* - 17 spp.). *Croton* was also found to be the most diversified genus in terms of the number of species in other floristic surveys carried out in areas of caatinga (Guerra et al. 2008, Santos & Melo 2010). The CNP holds 51% and 50% of the species of *Croton* (35) and *Ipomoea* (36) recorded in caatinga vegetation in all of Pernambuco State.

Our data indicated that most genera (175) comprise only one species, while 137 genera comprise more than one. Other surveys carried out in areas of Caatinga (e.g., Rodal 1992, Araújo et al. 1995, Ramalho et al. 2009) likewise showed a tendency of low diversity within the genera, corroborating our results.

Some of the most well-represented families in the region (e.g., Convolvulaceae, Euphorbiaceae, and Fabaceae) have been the subject of reviews (Delgado-Júnior et al. 2014, Gomes et al. 2006, Melo 2013), with extensive collections and identification updates in regional herbaria.

Myrtaceae is generally poorly represented in the surveys of woody components in areas associated with the *sertaneja* depression of the central *sertão* region of Pernambuco (Rodal 1992), although *Eugenia* (with five species) was included in the present study among the fifteen most diverse genera. Moro et al. (2014) ranked Myrtaceae as the eleventh largest family in the caatinga (with 42 species) and highlighted the genus *Eugenia* (with 19 species) as the eighth most diverse taxon in that ecosystem. Ferraz (1998) observed that the Myrtaceae family stood out as the most representative (with nine species) in humid forests located at altitudes ≥1,100 m in the uplands forests of Pernambuco. That family was listed as the sixth richest (with six species) at 900 m a.s.l., with a predominance of species typical of the caatinga. In the survey carried out by Lyra (1982) in montane forests in the municipality of Bituri (Pernambuco), Myrtaceae also stood out as the family with the greatest number of species (9). Upland forests, where the greatest fraction of the representatives of *Eugenia* was found, represent one of the phytophysiognomies that compose the intricate vegetation complex in the study area. Additionally, Myrtaceae species are more frequently found in sedimentary areas, which would help to explain the richness of the family in the study area (Rodal et al. 1999, Lemos & Rodal 2002). *Anadenanthera colubrina* (Vell.) Brenan (Fabaceae) was registered in eight of the twelve floristic groups of the dry forest categories established by DRYFLOR (2016), and is considered one of the most widely disseminated species in the Caatinga and in central Brazil. Our floristic listing included one of its varieties: *Anadenanthera colubrina* var. *cebil* (Griseb.) Reis, which can be found in several regions of Brazil (northeast, central-western, and southeast) and in several of its phytogeographical domains (caatinga, savanna, and Atlantic Forest) (*Flora do Brasil 2020* 2018).

In terms of plant habits, Poaceae was referred to as the family with the highest herbaceous species richness in other studies conducted in the Caatinga (e.g., Costa et al. 2009, Araújo et al. 2002, Alcoforado-Filho et al. 2003). Generally, high numbers of grasses are associated with anthropic intervention and disturbance (Albuquerque & Bandeira 1995).

Delgado-Júnior & Alves (2017) reported results similar to ours in the same study area. According to those authors, Convolvulaceae, Apocynaceae, Fabaceae, Malpighiaceae, and Bignoniaceae had the highest number of species with a climbing habit. Other authors (e.g., Rodal et al. 1999, Figueiredo et al. 2000, Costa et al. 2009) reported high diversities of climbing plants in vegetation types associated with sedimentary basins and mountains in the semiarid region of Brazil, which could explain the high number of climbing species encountered in the Park.

Dyckia limae and *Tillandsia catimbauensis* are restricted to the Park and represented by just a few irregularly distributed populations in the area (Fabricante et al. 2014). Those authors reported that due to their extents of occurrence and areas of occupation, both species were classified as critically endangered (CR) according the criteria of IUCN (2010). *Mandevilla catimbauensis* has a number of records in the park, but has not been evaluated in terms of its threatened status (Delgado-Júnior & Alves 2017, *Flora do Brasil 2020* 2018). The specimen labels of *A. buiquensis* do not accurately indicate its collection locations within the Park, and the species was therefore classified as Data Deficient (DD) (Hind & Bautista 2009). The low percentage of exclusive species in the Park reflects the large number of species shared with neighboring floristic groups, and our results contradict reports of high rates of endemism in the CNP (MMA 2002). That fact does not reduce the importance of the area, however, as it shows high diversity and floristic richness, and includes rare and endangered species; it also comprises a mosaic of vegetation forming unique landscapes in the region.

In addition to endemic species, the study area comprises species such as *Bunchosia pernambucana* W.R. Anderson (Malpighiaceae), *Griffinia gardneriana* (Herb.) Ravenna (Amaryllidaceae), and *Jacaranda rugosa* A.H. Gentry (Bignoniaceae) that fall into the endangered category (EN) (IUCN 2010, *Flora do Brasil 2020* 2018). According Amorim et al. (2013), *B. pernambucana* is known from only a few collections and has so far been recorded in only one other conservation area, the Serra Negra Biological Reserve (which has become increasingly degraded due to a lack of supervision). *Setaria parviflora* (Poir.) Kerguélen (Poaceae) was classified as critically endangered; *Apuleia leiocarpa* (Vogel) J.F. Macrb. was classified as

Vulnerable (VU), probably due to its economic importance (Lima et al. 2013); *Jacquemontia chrysanthera* Buril (Convolvulaceae) was also classified as Vulnerable (VU) by Buril (2011).

Considering the data available in the species lists of the *Flora do Brasil 2020* (2018), the Centro Nacional de Conservação da Flora (CNCFlora 2018), and in floristic studies conducted in Pernambuco (e.g., Rodal et al. 1998, Almeida-Júnior et al. 2007, Silva et al 2009, Nascimento et al. 2012, Delgado-Júnior & Alves 2017), 34 new occurrences for Pernambuco State were recorded in the present study. Most of the species reported for the first time in Pernambuco are known to occur in several states in Northeastern Brazil [*Acalypha brasiliensis* Müll. Arg., *Anemopaegma chamberlaynii* (Sims.) Bureau & K. Schum., *Cenchrus echinatus* L., *Cnidoscolus pubescens* Pohl, *Crotalaria bahiensis* Windler & S.G.Skinner, *Croton pedicelatus* Kunth., *Erythroxylum betulaceum* Mart., *Heteropterys byrsonimifolia* A. Juss., *Ichnanthus leiocarpus* (Spreng.) Kunth, *Leptolobium dasycarpum* Vogel, *Mimosa guaranitica* Chod. & Hassl., *M. setosa* Benth., *Mouriri pusa* Gard. ex Gard. *Myroxylon peruiferum* L. f., *Paepalanthus subtilis* Miq., *Psidium myrtoides* O. Berg., *Securidaca coriacea* Bonpl., and *Solanum thomasiifolium* Sendtn.].

The other new records for Pernambuco consist of species currently known to be endemic to Bahia State [*Axonopus laxiflorus* (Trin.) Chase, *Chamaecrista cytisoides* (DC. Collad.) H.S. Irwin & Barneby, *Croton janeirensis* Radd.-Sm. & Govaerts., *Eugenia supraaxillaris* Vell., *Galactia remansoana* Harms., *Libidibia ferrea* var. *leiostachya* (Benth.) Ducke, *Mimosa gemmulata* var. *gemmulata* Barneby, *Paspalum decumbens* Sw., *Portulaca grandiflora* Hook. and *Psidium salutare* (Kunth) O. Berg), Ceará State (*Centrosema pubescens* Benth. and *Eremanthus arboreus* (Gard.) MacLeisch), and Sergipe State (*Pterolepis perpusilla* (Naudin) Cogn.) (*Flora do Brasil 2020* 2018)].

The lack of knowledge of those taxa in Pernambuco probably reflects low collection efforts, and the high numbers of new records for the state encountered demonstrate the importance of the park area. The information generated by the present can be used to subsidize the proper management of the Catimbau National Park and help guide policies to ensure its sustainability.

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Authors Contributions

Sarah M. Athiê-Souza: Conceived the idea and structured the manuscript; contributed to the writing of the text, and the interpretation of the results. Conducted the fieldwork.

José Iranildo Miranda de Melo: Conceived the idea and structured the manuscript; contributed to the writing of the text, and the interpretation of the results.

Luan Pedro da Silva: Reviewed the species list, prepared the maps, the plates of photographs, and the table.

Leidiana Lima dos Santos: Conducted the fieldwork.

Juliana Silva dos Santos: Conducted the fieldwork.

Luciana dos Santos Dias de Oliveira: Conducted the fieldwork.

Margareth Ferreira de Sales: Conducted the fieldwork. Designed the study and has contributed to the correction and discussion of the results, and to research funding.

Conflicts of interest

The authors declare that they have no conflict of interest related to the publication of this manuscript.

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