Abstract

The biota of the humid mountain ranges of the Brazilian semiarid is still poorly understood. In order to fill this scientific gap, we carried out an extensive survey along altitudinal ranges (400 m – 1,000 m) on both the windward and the leeward slopes of the Baturité Mountain Range, in the state of Ceará state. We registered 400 plant species and 92 families. The Myrtaceae (36 spp.), Fabaceae (25 spp.), Rubiaceae (20 spp.) and Bromeliaceae (15 spp.) families predominated on the windward slope; while Fabaceae (19 spp.), Myrtaceae (14 spp.) and Euphorbiaceae (11 spp.) were the most abundant on the leeward slope. As we expected, the species richness of trees, shrubs, subshrubs, epiphytes and terrestrial herbs was positively correlated with the altitude ($R^2 > 0.60$). Above 800 m, we registered 273 species exclusive to the windward slope, 81 exclusive to the leeward slope, and 46 shared species. Therefore, management actions must consider the spatial heterogeneity, distribution and taxa richness.

Keywords: Deciduous Tropical Forest, Evergreen Tropical Forest, Semideciduous Tropical Forest, Steppic Savanna.

1. INTRODUCTION AND OBJECTIVES

The mountain ranges in the semiarid domain of Northeastern Brazil stand out from the surrounding flattened landscape expressing a climatic exception (Mantovani et al., 2017; Moro et al., 2015). They occupy approximately 5% of the northeastern surface, being scattered throughout the states of Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas and Bahia (Souza & Oliveira, 2006). On windward slopes and at higher altitudes, the climate is cooler and wetter, whereas drier climates occur on leeward slopes and at lower altitudes (Nimer, 1989). This climatic variation leads to a spatially heterogeneous flora along the altitudinal gradient, consequently increasing the local species richness (Ferraz & Rodal, 2006; Homeier et al., 2010). Evergreen and Semideciduous Forests have been commonly reported along this altitudinal gradient (Rodal & Sales, 2008;
Silva & Figueirêdo, 2013). Since this flora is a remnant of the Brazilian Atlantic Rain Forest (Barbosa et al., 2004), these mountain ranges have been considered a priority for the conservation of Brazilian biodiversity (Lopes et al., 2017; MMA, 2000). Especially in the Brazilian Northeast, the mountainous areas are critically important for the preservation of regional ecosystems, because they represent natural refuges for biota (Silva et al., 2014).

Thirty-five percent (35%) of the mountain ranges are located within Ceará State (Sobrinho, 1971), but information on its biota composition is still incipient (Bétard et al., 2007; Kamimura et al., 2017; Lima & Mansano, 2011). Plant cover and soils of most local wetlands have suffered from intensive and chronic anthropogenic disturbances (Souza & Oliveira, 2006). Therefore, reports on floristic composition are crucial for implementing sustainable use actions, since the biodiversity degradation on the Baturité Mountain Range has been happening since the colonial period (Mantovani, 2006; Oliveira et al., 2006). Our study shows the need for registering, cataloguing and presenting the biodiversity of such peculiar environments. Thus, we aim to analyze the plant composition and species richness along the altitudinal gradient on the windward and leeward slopes of Baturité Mountain Range, in Ceará State. We also intend to spread information on the local flora and on the protected areas of Northeastern Brazil.

2. MATERIALS AND METHODS

2.1. Study site

The Baturité Mountain Range is a residual relief with an extension of 800 km² and moderate altitudes (800 – 1,115 m). It is a Precambrian crystalline complex located in the northeastern of Ceará State, 70 km from the coast (Bétard et al., 2007; Souza & Oliveira, 2006). From the elevation of 600 m up, the mountain range is a strict protected area, the APA de Baturité. The first protected area was established by state law no. 20,956, on September 18, 1990, which was later altered by state law no. 27,290, on December 15, 2003. Currently, it encompasses 32,690 hectares.

Both the altitude and the geographical position favor an orographic effect at the top and on the windward slope (north-eastward) of the mountain, whereby a humidity of > 1,000 mm × year⁻¹ is carried by South Atlantic trade winds. On the leeward slope (westward), the precipitation is below 1,000 mm × year⁻¹ (Mantovani, 2006; Santos et al., 2012; Souza & Oliveira, 2006). In order to register the local species composition and richness, we selected three well-conserved areas on each slope, at the following altitudinal ranges: 400 – 600 m a.s.l., 600 – 800 m a.s.l. and above 800 m a.s.l. We chose these areas in order to comprise the climatic and physiognomic variations along the altitudinal range on both slopes (Table 1).
The Forested Steppic Savanna (FSS; “Caatinga”) is composed of a thorny deciduous vegetation, predominant at lower altitudes. Along the altitudinal range, the FSS is gradually replaced by a forest vegetation along the altitudinal range. On the windward slope, there are: i) a Seasonal Semideciduous Submountain Forest (SSSF) 400 – 600 m; and ii) a Seasonal Evergreen Mountain Forest (SEMF) above 600 m. On the leeward slope, there are: i) a transition from the FSS to the SDSF (Seasonal Deciduous Submountain Forest) 400 – 600 m; ii) a Seasonal Deciduous Mountain Forest (SDMF) 600 – 800 m; and iii) a Seasonal Evergreen Mountain Forest (SEMF) above 800 m (see Table 1).

2.2. Data collection

In order to list the plants, we sampled 200 quadrants in each of the six areas, according to the procedures suggested by Araújo et al. (2006). In addition, we completed our list researching the samples of the EAC Herbarium of the Universidade Federal do Ceará. We also revised and updated the taxonomic identifications with the aid of specialists from the following herbaria: EAC, PEUFR, IPA and CEPEC. The taxonomic classification that we used follows the APG IV system (2016). The names of botanical families, genera, species and authorships were confirmed in the International Plant Names Index (Royal Botanic Gardens, Kew et al., 2015) and in the list of Brazilian Flora 2020 (JBRJ, 2016).

To categorize the vegetation physiognomy, we used Whittaker’s classification of plant growth forms (1975). The growth forms are adequate indicators of communities, since they can reflect global and local climatic conditions. We adjusted Whittaker’s (1975) system as following: i) trees: > 3 m-height woody plants; ii) shrubs: > 3 m-height woody plants with main branches developing at approximately 50 cm above ground; iii) subshrubs: < 2 m-height plants with a woody main stem and herbaceous secondary branching; iv) terrestrial herbs: land plants with herbaceous aerial stems; v) epiphytes: plants with herbaceous stems that use other plants as support; vi) vines: plants with prolonged stems that twine around a substrate; and vii) hemiparasites: photosynthetic plants that withdraw sap from their host plants.

We obtained precipitation data from the Fundação Cearense de Meteorologia e Recursos Hídricos (FUNCEME, 2017), at the following local stations, close to our studied areas: Baturité-n22, Pacoti-n105, Guaramiranga-54, Mulungu-n98 and Caridade-n31. Data showed a seasonal rainfall regime with precipitation concentrated from January to May, driven by the Intertropical Convergence Zone. However, stations located at distinct altitudes and different mountain slopes showed remarkable differences in the annual rainfall regime. Greater precipitation was found in the northeastern slope and at higher portions of the mountain range. The soil classification of the studied areas followed that of Oliveira et al. (2006). Altitudinal ranges and coordinates were measured in the field with a GPS navigation device (Table 1).

2.3. Data analysis

We organized our list by family, species, vernacular name, growth form, altitudinal range, phytophysiognomy and collector number. Samples are deposited at EAC. We estimated the global richness, as well as the richness at family and species levels, and by phytophysiognomy. We analyzed the relationship between species richness, growth form (dependent variable), and altitude (independent or predictive variable) through a simple linear regression using the Bioestat 5.0 Software (Ayers et al., 2007).

3. RESULTS AND DISCUSSION

We registered 400 morphospecies distributed within 92 families. A total of 23 taxa (13%) were identified only to the genus due to the lack of or inadequacy of reproductive organs. The families with greatest species richness were Myrtaceae (43 spp.), Fabaceae (38 spp.), Euphorbiaceae (21 spp.), Rubiaceae (20 spp.), Melastomataceae (14 spp.), and Bromeliaceae, Erythroxylaceae and Orchidaceae, with 10 species each (Appendix A). The high richness of vascular plants confirms the documented pattern for mountainous areas of the Brazilian semi-arid: they are more diverse than the surrounding Caatinga, since they contain a mix of Caatinga and Atlantic Forest species (Carnaval et al., 2009; Leite et al., 2016; Lopes et al., 2017). In addition, the richness of 400 species of vascular plants, found on the Baturité Mountain Range, is higher than the species richness registered for other similar Brazilian forests, e.g., Pau-Ferro Ecological Reserve, with 309 species, in Paraíba State (Barbosa et al., 2004), Brejo Madre de Deus, with 293 species, in Pernambuco State (Nascimento et al., 2012) and Meruoca Sierra, with 100 species, in Ceará State (Silva & Figueiredo, 2013), highlighting the importance of this montane forests for the conservation of tropical biodiversity.

Our results show that the richness increases towards the top of the mountain, and that it is greater on the windward slope at the Evergreen Forest. We registered a total of 255 species (64%) and 69 families (75%) at higher altitudes, above 800 m in the Baturité Mountain Range – joined data from Arvoredo and Lagoa sites. On the windward slope, below 800 m—on Sinimbu and Taveiras sites together—we registered 175 species (44%) and 62 families (67%); whereas, on the leeward slope,
below 800 m—on Jardim and Salva-Vidas sites together—we registered 127 species (32%) and 50 families (54%) (Appendix A). Such differences reflect the combined effects of ocean winds, altitudinal variation and position of the slope. These results also corroborate the pattern documented by Lopes et al. (2008), Lima et al. (2011), Kamimura et al. (2017) and BF (2015), that indicates dry forests have significantly less species and families compared to humid-forests.

In the Seasonal Evergreen Forest located both on the windward and leeward slopes—above 600 m and 800 m, respectively (Table 1)—, the most diverse families were Myrtaceae (36 spp.), Fabaceae (25 spp.), Rubiaceae (20 spp.), Bromeliaceae (15 spp.), Melastomataceae (14 spp.), Euphorbiaceae (13 spp.) and Orchidaceae (10 spp.). On the leeward slope, where a Seasonal Deciduous Forest and a Forested Steppic Savanna predominate, Fabaceae (19 spp.), Myrtaceae (14 spp.) and Euphorbiaceae (11 spp.) were the most diverse families. In the Fabaceae family, the subfamilies presented distinct species richness on windward and leeward slopes. In the former, Mimosoideae (8 spp.) and Faboideae (7 spp.) predominated, whereas in the latter the most representative were Mimosoideae (13 spp.) and Caesalpinioideae (11 spp.).

In the Baturité Mountain Range leeward slope, where Deciduous Forests and Forested Savannas were the most representative (see Alcoforado-Filho et al., 2003; Cestaro & Soares, 2004; Ferraz et al., 2004), the subfamilies Mimosoideae and Caesalpinioideae, predominated. Even though Myrtaceae was among the most diverse families on the leeward slope, its richness was higher on the windward slope. Furthermore, most of its species (84%) occur above 600 m, indicating that the richness of Myrtaceae in the Brazilian semi-arid is more associated with areas with higher water availability than with the surrounding Caatinga. The area of occurrence of Myrtaceae in the Evergreen Forest, both on the windward and on the leeward slopes, above 600 m and 800 m, respectively, confirms the pattern reported by Peixoto & Gentry (1990), also observed in the Atlantic Domain as a whole. Furthermore, Myrtaceae, Fabaceae, Rubiaceae, Bromeliaceae, Melastomataceae, Euphorbiaceae and Orchidaceae are abundant in Tropical Rainforests as well, including lowland and highland Seasonal Evergreen Forests in the States of Pernambuco and Paraíba (Rodal & Nascimento, 2002; Andrade & Rodal, 2004; Barbosa et al., 2004; Ferraz & Rodal, 2006; Nascimento et al., 2012; Rodal & Sales, 2008). Species and family similarities to this type of forest are likely associated with water availability on the soil, from rainfall or dew.

Aspidosperma pyrifolium Mart., Bauhinia chelanthana (Bong.) Steud., Cordia glazioviana (Taub.) Gottschling & J. S. Mill., Croton blanchetianus Baill., and Mimosa caesalpinifolia Bentham occurred below 600 m on the windward slope. These taxa are commonly found in the Caatinga. Some species are strictly distributed in wetter areas, above 800 m on the windward slope and above 600 m on the leeward slope, such as: Albizia polycephala (Benth.) Killip ex Record, Apeiba tibourbou Aubl., Byrsonima crispa A. Juss., Cassia ferruginea (Schrad.) Schrad. ex DC. var. ferruginea, Cupania racemosa (Vell.) Radlk., Guazuma ulmifolia Lam., Inga marginata Willd., Myrciaria ferruginea O.Berg, Ouratea polygyna Engl., Podocarpus sellowii Klotzsch ex. Endl., Pouteria macrophylla (Lam.) Eyma, Vismia guianensis (Aubl.) Choisy and Zanthoxylum rhoifolium Lam. We note that Podocarpus sellowii was found at one collecting site only (Arvoredo). At lower altitudes of the windward slope, some exclusive species occurred, such as: Alchornea glandulosa subsp. iceriana (Casar.) Secco, Attalea speciosa Mart. ex Spreng., Casearia grandiflora Cambess., Chrysothyllum gonocarpus (Mart. & Eichler ex Miq.) Engl., Coccoloba parimensis Benth., Coussarea contracta (Walp.) Müll.Arg. var. contracta, Oreopanax capitatus (Jacq.) Decne. & Planch., Parkia pendula (Willd.) Benth. ex Walp., Protium warmingianum Marchand., Pseudobombax marginatum (A.S.-Hil.) A. Robyns and Zizyphus undulata Reissek.

Concerning growth forms, the studied flora was composed of 214 trees (54%), 82 shrubs, 49 terrestrial herbs, 23 epiphytic herbs, 18 vines, 10 subshrubs and 4 hemiparasites. There was a positive correlation between altitude and richness of trees, shrubs, subshrubs, epiphytic herbs and terrestrial herbs ($R^2 > 0.60$ and $p < 0.05$). However, for vines and hemiparasites, the correlation was not statistically significant (Figure 1). The richness of tree species is one of the most striking characteristics of the Tropical Forest typologies, a pattern documented in other Brazilian Atlantic forests (BFG, 2015; Nascimento et al., 2012).

The species richness and composition found in our study showed that, on the windward slope above 600 m, and on the leeward slope above 800 m, the flora is more similar. In contrast, below these altitudinal levels, on both slopes, the flora differed. The positive correlation between diversity and altitude is likely a response to greater water availability in higher elevations of the altitudinal gradient. The mountains of Northeastern Brazil are relatively low, with some altitudes of approximately 1,000 m a.s.l. However, they have a more favorable water balance, milder temperatures, and lower rates of evapotranspiration and evening condensation than the lower area of the countryside depression (Mantovani et al., 2017; Moro et al., 2015; Souza & Oliveira, 2006). This may explain why the plant species richness in the semi-arid domain of Northeastern Brazil increases with higher altitudes.

It is also worth mentioning that the greater richness of epiphytic herbs (18 out of 23 species) at altitudes above 800 m reflects a higher humidity. According to Gentry (1988), there is a positive correlation between diversity and
precipitation in the Neotropical Region. In addition, our results are in accordance with those found in other studies on the Mountain Forests of Pernambuco State (Ferraz et al., 1998; Ferraz et al., 2003; Rodal & Nascimento, 2002). According to Ferraz et al. (2004) and Lopes et al. (2008), under similar climatic and edaphic regimes, the Evergreen and the Semideciduous Montane Forests can be found closely associated in Northeastern Brazil, but demonstrate different floristic and structural compositions. Thus, protection efforts must contemplate both humid and dry forest areas.

Figure 1. Linear regression of altitude and number of plants of each growth form [(a), (b), (c), (d), (e), (f), (g)] and dispersion diagrams (h) of plants. 
shr: shrub; subshr: subshrub; vi: vine; th: terrestrial herb; eh: epiphytic herb; hm: hemiparasite; W: windward; L: leeward; T: top.
4. CONCLUSION

In conclusion, 273 species (68%) were found exclusively at the top of the mountain and on the windward slope; 81 species (20%) were exclusively found on the leeward slope; and 46 species (12%) were found on both slopes, with a total of 400 species on the Baturité Mountain Range, in Ceará State. Our results highlight that the management actions, the restoration of degraded areas and the establishment of integral conservation on the Baturité Mountain Range must consider the spatial heterogeneity described in our work; that is, the differential plant distribution and richness both along the altitudinal gradient and between slope positions. Adequate conservation efforts should consider the total richness and the local heterogeneity.

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Appendix A. List of families and species registered at distinct altitudinal levels on the Baturité Mountain Range, Ceará, Brazil.

| FAMILY/SPECIES/AUTHOR | ALTITUDE | WINDWARD | LEEWARD | C |
|-----------------------|----------|----------|---------|---|
| **1. Acanthaceae**    |          |          |         |   |
| Dicliptera ciliaris Juss. | 400-600  |          | subshr  | V. Gomes, 912.2 |
| Justicia aequilabris (Nees) Lindau | 600-800  |          | x       | V. Gomes, 562.2 |
| Justicia sp.           |          |          | x       | V. Gomes, 2109-8 |
| Ruellia bahiensis (Nees) Morong | > 800    |          | x       | V. Gomes, 398 |
| **2. Alstroemeriaceae**|          |          |         |   |
| Bomarea edulis (Tussac) Herb. | 400-600  |          | x       | V. Gomes, 1271 |
| **3. Amaranthaceae**   |          |          |         |   |
| Alternanthera brasiliana L. | 400-600  |          | x       | V. Gomes, 2109-1 |
| Cyathula achyranthoides (Kunth) Moq. | 600-800  |          | x       | V. Gomes, 737 |
| Iresine diffusa Humb. & Bonpl. ex Willd. | > 800B   |          | x       | V. Gomes, 744 |
| **4. Amaryllidaceae**  |          |          |         |   |
| Hippeastrum stylosum Herb. | 400-600  |          | x       | E. S. Araújo, 1612 |
| **5. Anacardiaceae**   |          |          |         |   |
| Astronium fraxinifolium Schott | 400-600  |          | x       | M.A. Figueiredo, 18463 |
| Myracrodruon urundeuva Almão | 600-800  |          | x       | L.W. Lima-Verde, 3526 |
| Thyrsodium spruceanum Benth. | > 800    |          | x       | V. Gomes, 1113 |
| **6. Annonaceae**      |          |          |         |   |
| Cymbopetalum brasiliense (Vell.) Benth. ex Baill. | 400-600  |          | x       | V. Gomes, 766 |
| Duguetia riedeliana R.E.Fr. | 600-800  |          | x       | V. Gomes, 936 |
| Guatteria pogonopus Mart. | > 800B   |          | x       | V. Gomes, 1274 |
| Xylopia frutescens Aubl. | > 800S   |          | x       | A. Silveira, 470 |
| Xylopia sericea A.St.-Hil. | > 800S   |          | x       | A. Silveira, 144 |
| **7. Apocynaceae**     |          |          |         |   |
| Aspidosperma multiflorum A.DC. | 400-600  |          | x       | V. Gomes, 61-3 |
| Aspidosperma pyrifolium Mart. | 600-800  |          | x       | V. Gomes, 2109-4 |
| Aspidosperma ulei Markgr. | > 800S   |          | x       | V. Gomes, 5-32 |
| Blepharodon bicolor Decne. | > 800     |          | x       | A. Silveira, 744 |
| Condylodacron isthmicum (Vell.) A.DC. | > 800B   |          | x       | V. Gomes, 1029 |
| Macoubea sp.           |          |          | x       | A. Silveira, 948 |
| **8. Aquifoliaceae**   |          |          |         |   |
| Ilex sapoifolia Reissek | 400-600  |          | x       | V. Gomes, 1011-03 |
| **9. Araceae**         |          |          |         |   |
| Anthurium scandens (Aubl.) Engl. | 400-600  |          | x       | V. Gomes, 1129 |
| Anthurium sinuatum Benth. ex Schott | > 800S   |          | x       | V. Gomes, 1205-9 |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | WINDWARD   | ALTITUDE |
|------------------------|------------|----------|
|                        | FAMILY/SPECIES/AUTHOR | WINDWARD   | ALTITUDE |
|                        | V        | GF | 400-600 | 600-800 | >800B | >800S | LAG | JAR | 400-600 | C       |
| 9. Araceae             | Monstera adansonii var. klotzchiana (Schott) Madison | th | x       |         |       |       |     |     |        |         | V. Gomes, 2209-1 |
|                        | Monstera praetermissa E.G.Gonç. & Temponi | eh | x       |         |       |       |     |     |        |         | V. Gomes, 780 |
|                        | Philodendron pedatum (Hook) Kunth | th | x       |         |       |       |     |     |        |         | V. Gomes, 902-1 |
|                        | Philodendron ornatum Schott | th | x       |         |       |       |     |     |        |         | V. Gomes, 902-2 |
|                        | Anthurium pentaphyllum (Aubl.) G.Don | th | x       |         |       |       |     |     |        |         | V. Gomes, 1026 |
| 10. Araliaceae         | Oreopanax capitatus (Jacq.) Decne. & Planch. | Piroá | tre | x       |       |       |     |     |        |         | V. Gomes, 2704-2 |
|                        | Schefflera morettoni (Aubl.) Maguire et al. var. morettoni | Garguuba | tre | x | x | x |     |     |        |         | V. Gomes, 1003 |
| 11. Arecaceae          | Attalea speciosa Mart. ex Spreng. | Babaçu | tre | x       |         |       |     |     |        |         | Lima, J. R., 1127 |
|                        | Geonoma pohlina Mart. | Palmeirinha-da-serra, Guaricana | tre | x | x | x |     |     |        |         | V. Gomes, 663 |
|                        | Syngrus comosa (Mart.) Mart. | Coco-babão, Catolé | tre | x | x |     |     |     |        |         | V. Gomes, 4-278 |
| 12. Asteraceae         | Cyrtocymura scorpioides (Lam.) H.Rob. | Assa-peixe | subshr | x       |         |       |     |     |        |         | L.W. Lima-Verde, 3479-8 |
|                        | Gymnachemum amygdalimum (Delile) Sch.Bip. ex Walp. | Boldo | shr | x       |         |       |     |     |        |         | A. Silveira, 388 |
|                        | Trichogoniopsis adenantha (DC.) R.M.King & H. Rob. | th | x       |         |       |       |     |     |        |         | A. Silveira, 969 |
|                        | Vernonanthura brasiliana (L.) H.Rob. | Catirina | shr | x | x |     |     |     |        |         | A. Silveira, 459 |
|                        | Wedelia alagoensis Baker | Camará-de-flecha | subshr | x |     |     |     |     |        |         | V. Gomes, 4-278 |
| 13. Balanophoraceae    | Langsdorffia hypogaea Mart. | th | x       |         |       |       |     |     |        |         | V. Gomes, 707-1 |
| 14. Begoniaceae        | Begonia reniformis Dryand. | Begônia | th | x       |         |       |     |     |        |         | A. Silveira, 300 |
| 15. Bignoniaceae       | Handroanthus impetiginosus Mattos | Pau-d’arco-roxo | tre | x | x | x |     |     |        |         | A. Silveira, 863 |
|                        | Handroanthus serratifolius (A.H.Gentry) S.Grose | Pau-d’arco-amarelo | tre | x | x | x |     |     |        |         | V. Gomes, 597 |
|                        | Jacaranda brasiliana (Lam.) Pers. | Caroba | tre | x | x | x |     |     |        |         | A. Silveira, 219 |
|                        | Lundia cordata (Vell.) DC. | Cipó-de-cesta vi | x |     |     |     |     |     |        |         | A. Silveira, 295 |
|                        | Lundia sp. vi | x |     |     |     |     |     |     |        |         | V. Gomes, 894 |
| 16. Bixaceae           | Cochlospermum vitifolium (Willd.) Spreng. | Pacotê | tre | x | x | x |     |     |        |         | L. W. Lima-Verde, 3515 |
| 17. Boraginaceae       | Cordia alliodora (Ruiz & Pav.) Cham. | Freijó | tre | x |     |     |     |     |        |         | V. Gomes, 4-338 |
|                        | Cordia anabaptista Cham. | Freijó | tre | x |     |     |     |     |        |         | V. Gomes, 495 |
|                        | Cordia glazioliana (Taub.) Gottschling & J.S.Mill. | Pau-branco-louro | tre | x |     |     |     |     |        |         | L. W. Lima-Verde, 3492 |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| **WINDWARD**          |    |    | TAV     | SIN     | ARV   | SRS   | TAV     | SIN     |   |
| **TOP**               |    |    |         |         |       |       |         |         |   |
| **LEEWARD**           |    |    |         |         |       |       |         |         |   |
| **C**                 |    |    |         |         |       |       |         |         |   |

#### 17. Boraginaceae
- *Cordia rufescens* A.DC.  
- *Cordia taguahyensis* Vell.  
- *Cordia toqueve* Aubl.  
- *Cordia trichotoma* (Vell.) Arrábia ex Steud.

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Trejó                 |    |    | x       | x       | x     |       |         |         |   |

#### 18. Bromeliaceae
- *Aechmea aquilega* (Salisb.) Griseb.  
- *Aechmea bromeliifolia* (Rudge) Baker  
- *Guazuma lingulata* (L.) Mez  
- *Guazuma monostachia* (L.) Rusby ex Mez  
- *Racinaea spiculosa* (Griseb.) M.A.Spencer & L.B.Sm.  
- *Tillandsia juncea* (Ruiz & Pav.) Poiret.  
- *Tillandsia recurvata* (L.) L.  
- *Tillandsia stricta Sol. var. stricta*  
- *Vriesea olesa* Leme  
- *Vriesea rodigasiana* E. Morren

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Crocata               |    |    | x       | x       | x     |       |         |         |   |

#### 19. Burseraceae
- *Commiphora leptophloeos* (Mart.) J. B. Gillett
- *Protium heptaphyllum* (Aubl.) Marchand subsp. *heptaphyllum*  
- *Protium warmingianum* Marchand.

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Imburana              |    |    | x       | x       |       |       |         |         |   |

#### 20. Cactaceae
- *Cereus jamacaru* DC. subsp. *jamacaru*  
- *Epiphyllum phyllanthus* (L.) Haw.  
- *Hylodorus setaceus* (Salm – Dyck) R. Bauer  
- *Pereskia aculeata* Mill.  
- *Pilosocereus catingicola subsp. salvadorensis* (Werderm.) Zappi  
- *Rhipsalis baccifera* (J.M.Muell.) Stearn. subsp. *baccifera*

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Cardeiro, Mandacaru   |    |    | x       | x       |       |       |         |         |   |

#### 21. Capparaceae
- *Cynophalla flexuosa* (L.) J. Presl.

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Feijão-bravo          |    |    | x       | x       |       |       |         |         |   |

#### 22. Caricaceae
- *Jacaratia spinosa* (Aubl.) A.DC.

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Jacaratia             |    |    | x       | x       |       |       |         |         |   |

#### 23. Celastraceae
- *Maytenus distichophylla* Mart. ex Reissek  
- *Maytenus erythroxylla* Reissek  
- *Maytenus gonocloada* Mart.  
- *Maytenus impressa* Reissek

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800B | >800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|-------|-------|---------|---------|---|
| Folha-dura            |    |    | x       | x       |       |       |         |         |   |

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**Appendix A. Continued...**

A. Silvera, 355
A. Silvera, 817
V. Gomes, 1235
A. Silvera, 1605
V. Gomes, 546
V. Gomes, 712
A. Silvera, 1029
V. Gomes, 307
V. Gomes, 607-15
V. Gomes, 899
V. Gomes, 2109-9
V. Gomes, 2209-11
V. Gomes, 726
V. Gomes, 376
V. Gomes, 947
V. Gomes, 1120
V. Gomes, 887
V. Gomes, 4-399
V. Gomes, 625
Lima-Verde, 3472
Lima-Verde, 3596
V. Gomes, 5-277
A. Silveira, 406
V. Gomes, 1160
A. Castro, 30996
V. Gomes, 442
A. Silvera, 851
V. Gomes, 912
V. Gomes, 2009
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | WINDWARD | ALTIMITUDE |
|-----------------------|-----------|------------|
|                       | FAMILY | SPECIES | AUTHOR | VN | GF | 400-600 | 600-800 | >800 | >800B | >800S | 600-800 | 400-600 |
| **FLORA OF BATURITÉ, CEARÁ...** |
|                       |        |          |         |    |    | TAV | SIN | ARV | LAG | JAR | SAL | C |
| **23. Celastraceae**  |        |          |         |    |    |     |     |     |     |     |     | |
| *Maytenus obtusifolia* Mart. | Jerimum | tre | x | x | x | x | x | x | x | x | V. Gomes, 2704-5 |
| *Maytenus schumamianiana* Loes. | Jerimum | tre | x | x | x | x | x | x | x | x | V. Gomes, 1-273 |
| *Maytenus sp.* | Jerimum | tre | x | x | x | x | x | x | x | x | V. Gomes, 2704-5 |
| **24. Chrysobalanaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Hirtella racemosa* var. *hexandra* (Wild. ex Roem. & Schult.) Prance | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 779 |
| *Licaria sp.* | tre | x | x | x | x | x | x | x | x | x | V. Gomes, 924 |
| **25. Clusiaceae**  |        |          |         |    |    |     |     |     |     |     |     | |
| *Clusia dardanoi* G.Mariz & Maguire | Gitó-da-mata | tre | x | x | x | x | x | x | x | x | V. Gomes, 1144 |
| *Clusia nemorosa* G.Mey. | Orelha-de-burro | tre | x | x | x | x | x | x | x | x | V. Gomes, 815 |
| *Garcinia gardneriana* (Planch. & Triana) Zappi | Bacupari | tre | x | x | x | x | x | x | x | x | V. Gomes, 1014 |
| **26. Combretaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Buchenavia tetraphylla* (Aubl.) R.A.Howard. | Amarelão | tre | x | x | x | x | x | x | x | x | A. Silveira, 182 |
| **27. Commelinaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Aneilema brasiliense* C.B.Clarke | th | x | x | x | x | x | x | x | x | x | V. Gomes, 1305-9 |
| *Commelina benghalensis* L. | th | x | x | x | x | x | x | x | x | x | V. Gomes, 798 |
| *Dichorisandra hexandra* (Aubl.) Kuntze ex Hand.-Mazz. | th | x | x | x | x | x | x | x | x | x | V. Gomes, 1270 |
| **28. Costaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Costus spiralis* (Jacq.) Roscoe | th | x | x | x | x | x | x | x | x | x | V. Gomes, 666 |
| **29. Cyperaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Becquerelia cymosa* Brongn. | th | x | x | x | x | x | x | x | x | x | V. Gomes, 798 |
| *Cyperus cf. ligularis* L. | th | x | x | x | x | x | x | x | x | x | V. Gomes, 719 |
| *Rhynchospora cephalotes* (L.) Vahl | th | x | x | x | x | x | x | x | x | x | V. Gomes, 336 |
| *Scleria latifolia* Sw. | th | x | x | x | x | x | x | x | x | x | V. Gomes, 78 |
| **30. Dilleniaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Deliciocalyx dentatus* (Aubl.) Standl. subsp. *dentatus* | vi | x | x | x | x | x | x | x | x | x | V. Gomes, 776 |
| **31. Elaeocarpaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Sloanea garckeana* K.Schum. | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 883 |
| **32. Erythroxylaceae** |        |          |         |    |    |     |     |     |     |     |     | |
| *Erythroxylum affine* A.St.-Hil. | tre | x | x | x | x | x | x | x | x | x | A. Silveira, 809 |
| *Erythroxylum citrifolium* A.St.-Hil. | tre | x | x | x | x | x | x | x | x | x | A. Silveira, 418 |
| *Erythroxylum macrochaetum* Miq. | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 1002-1 |
| *Erythroxylum mucronatum* Benth. | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 112 |
| *Erythroxylum pulchrum* A.St.-Hil. | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 1093 |
| *Erythroxylum simonis* Plowman | shr | x | x | x | x | x | x | x | x | x | V. Gomes, 1095 |
| FAMILY/SPECIES/AUTHOR | WINDWARD | ALTITUDE | TOP | MID | DOWN | SHRN | SAL | C |
|-----------------------|----------|----------|-----|-----|------|------|-----|---|
| 32. Erythroxylaceae   |          |          |     |     |      |      |     |   |
| Erythroxylum squamatum Sw. | shr      | x        |     |     |      |      |     |   |
| Erythroxylum subrotundum A.St.-Hil. | shr      | x        |     |     |      |      |     |   |
| Erythroxylum sp.1      | x        | x        |     |     |      |      |     |   |
| 33. Euphorbiaceae     |          |          |     |     |      |      |     |   |
| Acalypha sp.          | x        | x        |     |     |      |      |     |   |
| Acalypha villosa Jacq. | shr      | x        |     |     |      |      |     |   |
| Actinostemon sp.       | x        | x        |     |     |      |      |     |   |
| Alchornea glandulosa subsp. iricurana (Casar.) Secco | shr      | x        |     |     |      |      |     |   |
| Aparthenium concolor (Spreng.) Müll. Arg. | tre      | tre      |     |     |      |      |     |   |
| Actinostemon klotzschii (Didr.) Pax | shr      | x        |     |     |      |      |     |   |
| Actinostemon verticillatus (Klotzsch) Baill. | shr      | x        |     |     |      |      |     |   |
| 34. Fabaceae           |          |          |     |     |      |      |     |   |
| 34.1 Caesalpinioideae |          |          |     |     |      |      |     |   |
| Bauhinia cf. chilantia (Bong.) Steud. | shr      | x        |     |     |      |      |     |   |
| Bauhinia sp.           | x        | x        |     |     |      |      |     |   |
| Cassia ferruginea (Schrad.) Spre. ex DC. var. ferruginea | shr      | x        |     |     |      |      |     |   |
| Cassia grandis L.      | x        | x        |     |     |      |      |     |   |

Appendix A. Continued...
### 34.1 Caesalpinioideae

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | > 800B | > 800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|--------|--------|---------|---------|---|
| Chamaecrista zygophylloides var. colligans (H.S.Irwin & Barneby) H.S.Irwin & Barneby | shr | x | x | x | x | J.R.Lima, 862 |
| Chamaecrista sp. | subshr | x | A. Silveira, 943 |
| Copaifera langsdorffii Desf. | Pau-d'óleo | tre | x | x | x | A. Silveira, 884 |
| Hymenaea eriogyne Benth. | Jetobá | tre | x | x | V. Gomes, 6-54 |
| Libidibia ferrae (Mart. ex Tul.) L.P. Queiroz var. ferrae | Jucá, Pau-ferro | tre | x | x | A. Silveira, 951 |
| Libidibia ferrae var. leiostachya (Benth.) L.P. Queiroz | Pau-ferro | tre | x | x | V. Gomes, 1162 |
| Poinciana bracteosa (Tul.) L.P. Queiroz | Catêgingueira | tre | x | x | V. Gomes, 5-411 |
| Senna quinquangulata (Rich.) H.S.Irwin & Barneby | Besouro | tre | x | x | A. Silveira, 362 |
| Senna splendida (Vogel) H.S.Irwin & Barneby | São-João | shr | x | M.A.Figueiredo, 8920 |

### 34.2 Faboideae

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | > 800B | > 800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|--------|--------|---------|---------|---|
| Andira cf. nitida Mart. ex Benth. | tre | x | x | V. Gomes, 850 |
| Desmodium procumbens (Mill.) Hitchc. | th | x | x | M.A.Figueiredo, 17662 |
| Dioclea grandiflora Mart. ex Benth. | Mucuná | vi | x | x | V. Gomes, 0903-2 |
| Dioclea virgata (Rich.) Amshoff | Mucuná | vi | x | x | L.W. Lima-Verde, 110 |
| Lonchocarpus sericeus (Poir.) Kunth ex DC. | Ingá-brava | tre | x | x | M.A.Figueiredo, 15938 |
| Machaerium hirtum (Vell.) Stellfeld | Chifre-de-bode | tre | x | x | A. Silveira, 1001 |
| Myroxyylon peraferum L.f. | Bâlsamo | tre | x | x | V. Gomes, 4-778 |
| Ormosia sp. | tre | x | x | x | V. Gomes, 1-221 |
| Platymiscium floribundum Vogel | tre | x | x | x | V. Gomes, 907-1 |

### 34.3 Mimosoideae

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | > 800B | > 800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|--------|--------|---------|---------|---|
| Abarema jupunba (Willd.) Britton & Killip var. jupunba | tre | x | x | x | x | J.R.Lima, 385 |
| Albizia polypephala (Benth.) Killip ex Record | Camuzé | tre | x | x | x | x | A. Silveira, 348 |
| Anadenanthera colubrina var. cebil (Griseb.) Altschul | Calumbi | tre | x | x | x | x | L.W.Lima-Verde, 3570 |
| Chloroleucon dumosum (Benth.) G.P. Lewis | Arapiraca | tre | x | x | x | x | A. Silveira, 867 |
| Inga bollandii Sprague & Sandwith | Ingá | tre | x | x | x | A. Silveira, 357 |
| Inga ingoides (Rich.) Willd. | Ingá | tre | x | x | x | V. Gomes, 4-751 |
| Inga laurina (Sw.) Willd. | Ingá | tre | x | x | V. Gomes, 4-778 |
| Inga marginata Willd. | Ingá | tre | x | M.R.Oliveira, 20976 |
| Mimosa arenosa (Willd.) Poir. var. arenosa | tre | x | x | L.W.Lima-Verde, 3621 |
| Mimosa caesalpinifolia Benth. | Sâbiá | tre | x | x | V. Gomes, 4 |
| Parkia pendula (Willd.) Benth. ex Walp. | Visqueiro | tre | x | A. Silveira, 379 |
| Piptadenia stipulacea (Benth.) Duke | Saia-velha | tre | x | V. Gomes, 436 |
| Senega tabulata (DC.) Britton & Rose | Espinheiro, Espinheiro-preto | tre | x | x | V. Gomes, 4-773 |
| Senega riparia (Kunth) Britton & Rose ex Britton & Killip | Unha-de-gato | shr | x | V. Gomes, 5-689 |
| FAMILY/SPECIES/AUTHOR          | VN   | GF | ALTITUDE          | C          |
|-------------------------------|------|----|-------------------|------------|
|                               |      |    | 400-600 TAV  | 600-800 SIN | > 800B ARV | > 800S LAG | 600-800 JAR | 400-600 SAL |
| **FAMILY/SPECIES/AUTHOR**     |      |    | WINDWARD         | TOP        | LEEWARD    |           |           |           |
| 34.3 Mimosoideae              |      |    |                  |            |           |           |           |           |
| *Stryphnodendron guianense*   |      |    |                  |            |           |           |           |           |
| (Aubl.) Benth. subsp. guianense |      | tre | x                | x          | x          |           |           |           |
|                               | Favinha |    |                  |            |           |           |           |           |
| 35. Gentianaceae              |      |    |                  |            |           |           |           |           |
| *Chelonanthes purpurascens*   |      |    | shr              | x          |           |           |           |           |
| Aubl.                         | sh    |    |                  |            |           |           |           |           |
| *Voyria flavescens* Griseb.   |      | th |                  | x          |           |           |           |           |
| 36. Heliconiaceae             |      |    |                  |            |           |           |           |           |
| *Heliconia spathocircinata*   |      | th |                  | x          | x          |           |           |           |
| Aristeg.                      | Cana-de-macaco |    |                  |            |           |           |           |           |
| *Heliconia pendula* Wawra     |      | th |                  | x          |           |           |           |           |
| *Heliconia pittacorum* L.f.   |      | th |                  | x          | x          |           |           |           |
|                               | Pacavira |    |                  |            |           |           |           |           |
| 37. Humiriaceae               |      |    |                  |            |           |           |           |           |
| *Sagotitis* sp.               |      | tre |                  | x          |           |           |           |           |
| Folha-dura                    |       |    |                  |            |           |           |           |           |
| 38. Hypericaceae              |      |    |                  |            |           |           |           |           |
| *Vismia guianensis* (Aubl.)   |      | tre | x                | x          | x          |           |           |           |
| Choisy                        | Lacre-vermelho | tre |                  |            |           |           |           |           |
| 39. Hypoxidaceae              |      | th |                  | x          |           |           |           |           |
| *Hypoxis decumbens* L.        |      | th |                  | x          |           |           |           |           |
| 40. Iridaceae                 |      | th |                  | x          |           |           |           |           |
| *Cipura paludos* Aubl.        |      |    |                  |            |           |           |           |           |
| 41. Lamiaceae                 |      |    |                  |            |           |           |           |           |
| *Aegiphila integrifolia*       |      | tre |                  | x          |           |           |           |           |
| (Jacq.) Moldenke              | Orelha-de-onça |    |                  |            |           |           |           |           |
| *Hyptia pectinata* (L.) Poit. |      | th |                  | x          |           |           |           |           |
| Canela-de-juriti               |       |    |                  |            |           |           |           |           |
| *Vitex cf. capitata* Vahl     |      | tre |                  | x          |           |           |           |           |
| *Vitex flavescens* Kunth       |      | tre |                  | x          |           |           |           |           |
| *Vitex cf. panshiniiana* Moldenke |  Gargauba | tre |                  | x          |           |           |           |           |
| *Vitex triflora* Vahl         |      | tre |                  | x          |           |           |           |           |
| *Vitex sp.*                   |      | tre |                  | x          |           |           |           |           |
| Guabiraba                     |       |    |                  |            |           |           |           |           |
| 42. Lauraceae                 |      |    |                  |            |           |           |           |           |
| *Cinnamomum triplinerve* (Ruiz & Pav.) Kosterm. |  Louro-eucalipto | tre | x                | x          |           |           |           |
| *Endlicheria* sp.             |      | tre |                  | x          |           |           |           |           |
| *Nectandra cuspidata* Nees    | Louro | tre |                  | x          |           |           |           |           |
| *Ocotea daphnifolia* (Meisn.) Mez |  Louro | tre |                  | x          |           |           |           |           |
| *Ocotea glauca* (Ness & Mart.) Mez |  Louro | tre |                  | x          |           |           |           |           |
| *Ocotea glomerata* (Nees) Mez | Louro | tre |                  | x          |           |           |           |           |
| *Ocotea longifolia* Kunth     | Louro | tre |                  | x          |           |           |           |           |
| *Ocotea paberula* (Rich.) Nees |  Jenipapo-bravo | tre |                  | x          |           |           |           |           |
| *Ocotea sp.*                  | Louro | tre |                  | x          |           |           |           |           |

Appendix A. Continued...
| FAMILY/SPECIES/AUTHOR                  | WINDWARD | ALTITUDE | C         |
|---------------------------------------|----------|----------|-----------|
|                                       | FN       | GF       | 400-600   | 600-800 | > 800B | > 800S | 600-800 | 400-600 |
| 43. Lythraceae                        |          |          | TAV       | SIN     | ARV    | LAG    | JAR     | SAL     |          |
| *Lafoensia pacari* A.St.-Hil.         | tre      | x        | x         | x       |        |        |         |         | V. Gomes, 2009-13 |
| 44. Malpighiaceae                     |          |          |          |         |        |        |         |         |           |
| *Bunchiosia acuminata* Dobson         | tre      | x        | x         | x       |        |        |         |         | V. Gomes, 1303-5 |
| *Byronima crispa* A. Juss.            | tre      | x        | x         | x       |        |        |         |         | A. Silveira, 206 |
| *Byronima sericea* DC.                | tre      | x        | x         | x       |        |        |         |         | V. Gomes, 1112 |
| *Byronima stipulacea* A. Juss.        | tre      | x        | x         |        |        |        |         |         | M. A. Figueiredo, 17050 |
| *Heteropterys tricanthera* A. Juss.    | vi       | x        |           |         |        |        |         |         | V. Gomes, 1102-3 |
| *Tetrapterys mucronata* Cav.           | Canela-brava | vi      | x        |           |         |        |         |         | A. Silveira 436 |
| 45. Malvaceae                         |          |          |          |         |        |        |         |         |           |
| *Apeiba tibourbou* Aubl.              | Jangada, Pau-de-jangada | tre      | x        | x       | x       |        |         |         | A. Silveira 861 |
| *Callianthe bezerra* (Monteiro) Donnel | subshr   | x        |           |         |         |        |         |         | M. A. Figueiredo, 349 |
| *Ceiba glaziovii* (Kuntze) K.Schum.  | Barriguda | tre      |           | x       | x       |        |         |         | V. Gomes, 508-3 |
| *Helicteres baruensis* Jacq.          | Maria-preta | shr     | x        |         |         |        |         |         | V. Gomes, 1102-5 |
| *Helicteres velutina* K.Schum.        | Maria-preta | shr     |           | x       | x       |        |         |         | V. Gomes, 795   |
| *Helicteres sp.*                      | shr      |           | x        |         | x       |        |         |         | V. Gomes, 1102-6 |
| *Pseudobombax marginatum* (A.St.-Hil) | Imbiratanha | tre | x | | x | | | | V. Gomes, 1103-6 |
| *Sida urens* L.                      | th       |           | x        |         | x       |        |         |         | M. A. Figueiredo, 15249 |
| 46. Marantaceae                       |          |          |          |         |        |        |         |         |           |
| *Calathea cylinndrica* (Roscoe) K.Schum. | Bananinha | th      | x        |         |     |        |         |         | V. Gomes, 2604-4 |
| *Calathea sp.*                        | Bananinha-de-salão | th  | x        |         | x       |        |         |         | A. Silveira 972  |
| *Ischnosiphon puberulus* Loes.        | Taquari  | th        | x        |         | x       |        |         |         | V. Gomes 1119   |
| *Maranta leuconeura* E. Morren        | Baratinha | th       |           | x       | x       |        |         |         | A. Silveira 971  |
| 47. Marcgraviaceae                    |          |          |          |         |        |        |         |         |           |
| *Norantea guianensis* Aubl.           | shr      |          | x        |         |         |        |         |         | V. Gomes, 903   |
| 48. Melastomataceae                   |          |          |          |         |        |        |         |         |           |
| *Aciotis sp.*                         | th       |          | x        |         |         |        |         |         | V. Gomes, 778   |
| *Clidemia debilis* Crueg.             | Lava-mato | shr     | x        |         |         |        |         |         | V. Gomes, 2604-3 |
| *Clidemia dentata* D. Don             | Lacre-branco | shr  |           | x       |         |        |         |         | A. Silveira, 161 |
| *Clidemia hirta* (L.) D. Don          | shr      |           | x        |         |         |        |         |         | V. Gomes, 2704-2 |
| *Miconia affinis* D.C.                | shr      | x        | x        | x       |         |        |         |         | A. Silveira, 903 |
| *Miconia alata* (Aubl.) DC.           | Canela-de-veado | tre | x        | x       | x       |        |         |         | A. Silveira, 404 |
| *Miconia aff. caudigera* DC.          | Lacre-branco | shr  |           |         | x       |        |         |         | A. Silveira, 353 |
| *Miconia holosericea* (L.) DC.        | tre      | x        | x        |         |         |        |         |         | V. Gomes, 767   |
| *Miconia hypoleuca* (Benth.) Triana   | shr      | x        |           |         |         |        |         |         | V. Gomes, 1109  |
| *Miconia minutiflora* (Bonpl.) DC.    | Lacre-branco | shr | x        | x       |         |        |         |         | A. Silveira, 10  |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | > 800B | > 800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|--------|--------|---------|---------|---|
|                       |    |    | TAV     | SIN     | ARV    | LAG    | JAR     | SAL     |   |
| **48. Melastomataceae** |    |    |         |         |        |        |         |         |   |
| *Miconia nervosa* (Sm.) Triana | Língua-de-vaca | shr | x | | | | | | Silveira, 626 |
| *Miconia prasina* (Sw.) DC. | Lacre-branco | tre | x | x | x | x | | | A. Silveira, 380 |
| *Miconia sp.* | shr | x | | | | | | | V. Gomes, 2704-7 |
| *Tibouchina heteromalla* (D.Don) Cogn. | shr | x | | | | | | | A. Silveira, 894 |
| **49. Meliaceae** |    |    |         |         |        |        |         |         |   |
| *Cedrela odorata* L. | Cedro | tre | | | | | | x | A. Silveira, 635 |
| *Trichilia emarginata* (Turcz.) C.DC. | tre | x | | | | | | x | V. Gomes, 2009-18 |
| *Trichilia ralhloi* Rizzini | tre | | | | | | | x | V. Gomes, 1068 |
| **50. Menispermaceae** |    |    |         |         |        |        |         |         |   |
| *Cissampelos andromorpha* DC. | vi | x | | | | | | | A. Silveira, 906 |
| **51. Moraceae** |    |    |         |         |        |        |         |         |   |
| *Brosimum gaudichaudii* Trécul | Inharé | tre | x | x | x | | | | A. Silveira, 419 |
| *Ficus guianensis* Desv. | Gamelaire | tre | x | x | x | x | | x | V. Gomes, 797 |
| **52. Myrsinaceae** |    |    |         |         |        |        |         |         |   |
| *Mysrine guianensis* (Aubl.) Kuntze | Cajuéiro-bravo | tre | | | | | | x | V. Gomes, 700 |
| *Myrsine umbellata* Mart. | Coração-de-nego; Mium-de-sangue | tre | x | x | x | x | | | A. Silveira, 304 |
| **53. Myrtaceae** |    |    |         |         |        |        |         |         |   |
| *Campomanesia aromatica* (Aubl.) Griseb. | Guabiraba | tre | x | x | x | x | | | Silveira, 902 |
| *Campomanesia ilhoensis* Mattos | Guabiraba | tre | x | | | | | | V. Gomes, 1002-9 |
| *Campomanesia sp1.* | Guabiraba | tre | x | x | | | | | V. Gomes, 609 |
| *Eugenia cf. piresii* Mattos |  | tre | x | | | | | | V. Gomes, 1140 |
| *Eugenia aurata* O.Berg. | Café-bravo | tre | | | | | | x | A. Silveira, 871 |
| *Eugenia cf. cacoërensis* | | tre | x | x | | | | | A. Silveira, 976 |
| *Eugenia cf. egensis* DC. | Folha-miúda | tre | | | | | | x | A. Silveira, 612 |
| *Eugenia cf. schottiana* O. Berg | Folha-miúda | tre | x | | | | | x | A. Silveira, 924 |
| *Eugenia cf. uniflora* L. | shr | | | | | | | x | V. Gomes, 598 |
| *Eugenia flavescens* DC. | Folha-miúda | tre | | | | | | x | V. Gomes, 586 |
| *Eugenia florida* DC. | Café-bravo | tre | x | x | | | | | A. Silveira, 438 |
| *Eugenia ligustrina* (Sw.) Willd. | Folha-miúda | tre | x | x | x | x | | | V. Gomes, 1079 |
| *Eugenia cf. paraensis* O. Berg | | tre | | | | | | x | A. Silveira, 607 |
| *Eugenia piresii* Mattos | | tre | | x | | x | | | V. Gomes, 790 |
| *Eugenia punicifolia* (Kunth) DC. | Folha-miúda | tre | x | x | | | | | V. Gomes, 49 |
| *Eugenia sp.1* | Folha-miúda | tre | x | | | | | | V. Gomes, 771-1 |
| *Eugenia sp. 2* | Café-bravo | tre | x | x | | | | | A. Silveira, 949 |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | WINDWARD | ALTIMETRY |
|-----------------------|-----------|-----------|
|                       | FAMILY   | ALTITUDE  |
|                       | SPECIES  | TOP 600-800 | LEEWARD 600-800 |
|                       | AUTHOR   | TAV 400-600 | JAR 400-600 |
|                       | GF   | SIN 600-800 | LAG 600-800 |
|                       | VN   | ARV > 800B | SAL > 800S |
|                       |       |           | C |
| **53. Myrtaceae**     |         |           | |
| Eugenia sp. 3         | shr     |           | x |
| Marlieria sp1         | tre     |           | x |
| Marlieria sp2         | tre     |           | x |
| Myrcia alagoensis O. Berg | tre  x  x  x  x | V. Gomes, 1041 |
| Myrcia multiflora (Lam.) DC. | shr | x | x | V. Gomes, 935 |
| Myrcia pubiflora DC.  | tre     |           | x |
| Myrcia rostrata DC.   | tre     |           | x |
| Myrcia splendens (Sw.) DC. | Folha-miúda | tre | x | x | x | V. Gomes, 1147 |
| Myrcia sylvatica (G.Mey.) DC. | Folha-miúda-pretta | tre | x | x | x | A. Silveira, 458 |
| Myrcia tomentosa (Aubl.) DC. | Goiabinha | tre | x | x | A. Silveira, 387 |
| Myrcia sp. 1           | shr     |           | x |
| Myrcia sp. 2           | Cabacinha | tre | x | x |
| Myrcia sp. 3           | tre     |           | x |
| Myrcia sp. 4           | tre     |           | x |
| Myrcia sp. 5           | tre     |           | x |
| Myrcia sp. 6           | tre     |           | x |
| Myriaria ferruginea O.Berg | tre | x | x | A. Silveira, 808 |
| Myriaria sp1           | tre     |           | x |
| Myriaria sp2           | tre     |           | x |
| Myriaria sp3           | tre     |           | x |
| Myriaria tenella (DC) O. Berg | Sangue de boi | tre | x | A. Silveira, 1216 |
| Psidium guianense Sw.  | tre     |           | x |
| Psidium sartorianum (O.Berg,) Nied. | tre | x | x | V. Gomes, 0206-15 |
| Siphoneugenia sp.      | tre     |           | x |
| Syzygium jambos (L.) Alston | tre | x | A. Silveira 779 |
| **54. Nyctaginaceae**  |         |           | |
| Guapira sp.           | João-mole | tre | x | x | V. Gomes, 1-462 |
| Neea obovata Spruce ex. Heimerl | João-mole | tre | x | x | x | x | V. Gomes, 1153 |
| **55. Ochnaceae**      |         |           | |
| Ouratea hexasperma (A.St.-Hil.) Baill. | Cajuzinho | tre | x | x | x | A. Silveira, 399 |
| Ouratea polygyna Engl. | Cajuzinho | tre | x | x |
| **56. Olacaceae**      |         |           | |
| Heisteria blanchetiana (Engl.) Sleumer | Mium-de-sangue-branco | tre | x | A. Silveira, 973 |
| Heisteria perianthomega (Vell.) Sleumer | Mium-de-sangue-branco | tre | x | A. Silveira, 973 |
| Schoepfia obliquifolia Turcz. | Mium-de-sangue-branco | tre | x | A. Silveira, 973 |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | VN | GF | 400-600 | 600-800 | >800TAV | >800SIN | >800ARV | >800ARV | 600-800 | 400-600 | C |
|-----------------------|----|----|--------|--------|---------|---------|---------|---------|--------|--------|---|
| 56. Olacaceae         |    |    |        |        |         |         |         |         |        |        |   |
| Ximenia americana L.  | tre| x  |        |        |         |         |         |         |        |        | V. Gomes, 4-449 |

| 57. Oleaceae          |    |    |        |        |         |         |         |         |        |        |   |
| Chionanthus sp.       | tre| x  |        |        |         |         |         |         |        |        | V. Gomes, 462 |

| 58. Opiliaceae        |    |    |        |        |         |         |         |         |        |        |   |
| Agonandra brasiliensis Miers. ex Benth. & Hook.f. | Juá-mirim | tre | x |        |         |         |         |         |        |        | V. Gomes, 72 |

| 59. Orchidaceae       |    |    |        |        |         |         |         |         |        |        |   |
| Alatiglossum barbatum (Lindl.) Baptista | eh | x |        |         |         |         |         |         |        |        | V. Gomes, 523 |
| Catasetum macrocarpum Rich. ex Kunth | eh | x | x |         |         |         |         |         |        |        | V. Gomes, 1009-1 |
| Epidendrum armeniacum Lindl | eh | x  |         |         |         |         |         |         |        |        | V. Gomes, 0607-3 |
| Epidendrum nocturnum Jacq. | eh | x  |         |         |         |         |         |         |        |        | V. Gomes, 299 |
| Gongora quinquenervis Ruiz & Pav. | eh | x  | x |         |         |         |         |         |        |        | V. Gomes, 3031 |
| Notylia lyrata S. Moore | eh | x  |         |         |         |         |         |         |        |        | V. Gomes, 2209-16 |
| Polystachia concreta (Jacq.) Garay & Sweet | th | x  | x | x |         |         |         |         |        |        | A. Silveira, 897 |
| Preschottia stachyodes (Sw.) Lindl. | th | x  | x | x |         |         |         |         |        |        | V. Gomes, 716 |
| Specklinia trifida (Lindl.) F.Barros | th | x  |         |         |         |         |         |         |        |        | V. Gomes, 621 |
| Trichocentrum fuscum Lind. | th | x  |         |         |         |         |         |         |        |        | V. Gomes, 716 |

| 60. Oxalidaceae       |    |    |        |        |         |         |         |         |        |        |   |
| Oxalis alstonii Loureng. | th | x  |         |         |         |         |         |         |        |        | A. Silveira, 804 |

| 61. Passifloraceae     |    |    |        |        |         |         |         |         |        |        |   |
| Mitostemma brevifilis Gontsch. | Maracujá-suspiro | vi | x |         |         |         |         |         |        |        | A. Silveira, 741 |

| 62. Peraceae           |    |    |        |        |         |         |         |         |        |        |   |
| Pera glabrata (Schott) Poepp. ex Baill. | Casquim | tre | x  |         |         |         |         |         |        |        | V. Gomes, 991 |

| 63. Phyllanthaceae     |    |    |        |        |         |         |         |         |        |        |   |
| Phyllanthus acutifolius Poir. ex Spreng. | subsh | x |         |         |         |         |         |         |        |        | A. Silveira, 855 |

| 64. Phytolaccaceae     |    |    |        |        |         |         |         |         |        |        |   |
| Hilleria latifolia (Lam.) H.Walter | th | x  |         |         |         |         |         |         |        |        | A. Silveira, 829 |

| 65. Picramiaceae       |    |    |        |        |         |         |         |         |        |        |   |
| Picramnia gardneri Planch. | tre | x  |         |         |         |         |         |         |        |        | V. Gomes, 488 |
| Picramnia glaziioviana Engl. | tre | x  |         |         |         |         |         |         |        |        | V. Gomes, 922 |

| 66. Piperaceae         |    |    |        |        |         |         |         |         |        |        |   |
| Piper aduncum L.       | shr | x  |         |         |         |         |         |         |        |        | A. Silveira, 463 |
| Piper arboreum Aubl.   | shr | x  |         |         |         |         |         |         |        |        | A. Silveira, 390 |
| Piper ovatum Vahl.     | subsh | x  |         |         |         |         |         |         |        |        | V. Gomes, 0707-3 |
| Peperomia circinnata Link | th | x  |         |         |         |         |         |         |        |        | V. Gomes, 0707-2 |
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | WINDWARD | ALTITUDE | ALPITUDE | C |
|------------------------|----------|----------|----------|---|
| **Plumbaginaceae**     |          |          |          |   |
| *Plumbago scandens* L. | subshr   | x        | V. Gomes, 735 |
| **Poaceae**            |          |          |          |   |
| *Merochrys sp.*        | Taquara   | th       | x        | V. Gomes, 1124 |
| *Olyra latifolia* L.  | th        | x        | V. Gomes, 15-3 |
| *Parodiolyra micrantha* (Kunth) Davidse & Zuloaga | th | x | V. Gomes, 545 |
| **Podocarpaceae**      |          |          |          |   |
| *Podocarpus sellowii* Klotzsch ex. Endl. | tre | x | A. Silveira, 239 |
| **Polygalaceae**       |          |          |          |   |
| *Acanthocladus albicans* A.W.Benn. | Ameixa | shr | x | V. Gomes, 793 |
| *Polygala paniculata* L. | Vique | th | x | A. Silveira, 447 |
| **Polygonaceae**       |          |          |          |   |
| *Coccoloba parimensis* Benth. | tre | x | A. Silveira, 729 |
| *Coccoloba* sp.1.      | tre | x | V. Gomes, 1197 |
| *Coccoloba* sp. 2      | shr | x | A. Silveira, 494 |
| *Ruprechtia laxiflora* Meisn. | Tubibeira | tre | x | A. Silveira, 924 |
| **Portulacaceae**      |          |          |          |   |
| *Talinum paniculatum* (Jacq.) Gaertn. | th | x | A. Silveira, 953 |
| **Proteaceae**         |          |          |          |   |
| *Roupala* sp.          | Carne-de-vaca; Rabugem | tre | x | A. Silveira, 729 |
| **Rhamnaceae**         |          |          |          |   |
| *Colubrina glandulosa* Perkins | Sabiaquaba | shr | x | V. Gomes, 1205-1 |
| *Ziziphus undulata* Reissek | Juá-mirim | tre | x | V. Gomes, 6-26 |
| **Rosaceae**           |          |          |          |   |
| *Prunus myrtifolia* (L.) Urb. | Pau-de-soinho | tre | x | V. Gomes, 2209-3 |
| **Rubiaceae**          |          |          |          |   |
| *Alseis floribunda* Schott | Guabiraba | tre | x | A. Silveira, 850 |
| *Amaioua intermedia* Mart. ex Schult. & Schult. f | Casquim | tre | x | V. Gomes, 1087 |
| *Chiococca alba* (L.) Hitchc. | shr | x | M.A. Figueiredo, 16670 |
| *Coussarea contracta* (Walp.) Müll.Arg. var. *contracta* | Folha-dura | tre | x | V. Gomes, 6-42 |
| *Coutarea hexandra* (Jacq.) K.Schum. | Quina-quiña | tre | x | A. Silveira, 909 |
| *Faramea hyacinthina* Mart. | Folha-dua | tre | x | V. Gomes, 1003-5 |
| *Faramea* sp. 1        | Violeta, Folha-dura | tre | x | V. Gomes, 916 |
| *Faramea* sp. 2        | Folha-dua | tre | x | A. Silveira, 774 |
| *Gonzalagunia dicoca* Cham. & Schltdl. | Canela-de-juriti | th | x | V. Gomes, 1048 |
| *Guettarda angelica* Mart. ex Müll.Arg. | Espinho-branco | shr | x | A. Silveira, 721 |
### Windward

| FAMILY/SPECIES/AUTHOR | VN | GF | ALTITUDE |
|-----------------------|----|----|----------|
|                       |    |    | 0.400-0.800 | > 0.800 |
|                       |    |    | TAV | SIN | ARV | LAG | JAR | SAL |
|                       |    |    |     |     |     |     |     |     |
| **76. Rubiaceae**     |    |    |     |     |     |     |     |     |
| *Hamelia patens* Jacq.* | th | x | x | x | A. Silveira, 827 |
| *Palicourea guianensis* Aubl. | shr | x | x | x | V. Gomes 1103 |
| *Palicourea maragravii* A.St.-Hil. | shr | x | A. Silveira, 1205-7 |
| *Psychotria bracteocardia* (DC.) Müll. Arg. | th | x | x | x | V. Gomes, 0902-1 |
| *Psychotria capitata* Ruiz & Pav. | shr | x | x | x | A. Silveira, 759 |
| *Psychotria carthagenensis* Jacq. | shr | x | x | x | A. Silveira, 767 |
| *Psychotria colorata* (Willd. ex Schult.) Müll. Arg. | shr | x | A. Silveira, 734 |
| *Psychotria deflexa* DC. | shr | x | A. Silveira, 733 |
| *Psychotria hoffmannseggiana* (Willd. ex Schult.) Müll. Arg | shr | x | A. Silveira, 742 |
| *Randia armata* (Sw.) DC. | Veludo-preto | tre | x | x | x | x | V. Gomes, 1102-4 |
| **77. Rutaceae**      |    |    |     |     |     |     |     |     |
| *Esenbeckia grandiflora* Mart. | tre | x | x | x | A. Silveira, 811 |
| *Pilocarpus spicatus* A.St.-Hil. | tre | x | A. Silveira, 845 |
| *Rauia* sp.            | tre | x | V. Gomes, 772 |
| *Zanthoxylum petiolaris* A.St.-Hil & Tul. | Limãozinho | tre | x | x | V. Gomes, 466 |
| *Zanthoxylum rhoifolium* Lam. | Limãozinho | tre | x | V. Gomes, 908 |
| **78. Salicaceae**    |    |    |     |     |     |     |     |     |
| *Banara guianensis* Aubl. | Farinha-seca | tre | x | x | x | x | V. Gomes, 1125 |
| *Casearia commersoniana* Cambess. | shr | x | | V. Gomes, 0607-1 |
| *Casearia grandiflora* Cambess. | shr | x | V. Gomes, 1114 |
| *Casearia sylvestris* Sw. | shr | x | x | x | A. Silveira, 826 |
| *Casearia sp. 1* | shr | x | V. Gomes, 2-753 |
| *Casearia sp. 2* | shr | x | V. Gomes, 6-263 |
| *Prockia crucis* P. Browne ex L. | shr | x | A. Silveira, 726 |
| *Xylosma ciliatifolia* (Clos) Eichler | Espinho-de-judeu | shr | x | x | V. Gomes, 0306-1 |
| **79. Santalaceae**   |    |    |     |     |     |     |     |     |
| *Phoradendron crassifolium* (Pohl ex DC.) Eichler | hm | x | x | V. Gomes, 727 |
| *Phoradendron mucronatum* (DC.) Krug & Urb. | hm | x | V. Gomes, 2009-14 |
| *Phoradendron sp. 1* | hm | x | V. Gomes, 1130 |
| *Phoradendron sp. 2* | hm | x | A. Silveira, 975 |
| **80. Sapindaceae**   |    |    |     |     |     |     |     |     |
| *Allophylus edulis* (A.St.-Hil. et al.) Hieron. ex Niederl. | shr | x | A. Silveira, 822 |
| *Aparisthmium cordatum* (A.Juss.) Baill. | Piroá | tre | x | V. Gomes, 774 |
| *Cupania impressinervia* Acev.-Rodr. | tre | x | Araújo, F. S. 1604 |
| *Cupania racemosa* (Vell.) Radlk. | Cajueiro-bravo | tre | x | V. Gomes, 736 |
### Appendix A. Continued...

#### WINDWARD

| FAMILY/SPECIES/AUTHOR | FN | GF | 200-600 | 600-800 | > 800B | > 800S | 600-800 | 400-600 | C |
|-----------------------|----|----|---------|---------|--------|--------|---------|---------|----|
| **80. Sapindaceae**   |    |    |         |         |        |        |         |         |    |
| Cupania longifolia Benth. | tre | x  | x       |         |        |        |         |         |    |
| Paullinia uloptera Radlk. | vi  |    |         |         |        |        |         |         |    |
| Serjania hebecarpa Benth. | vi  |    |         |         |        |        |         |         |    |
| **81. Sapotaceae**    |    |    |         |         |        |        |         |         |    |
| Chrysophyllum flexuosum Mart. | tre | x  |         |         |        |        |         |         |    |
| Chrysophyllum gonocarpum (Mart. & Eichler ex Miq.) Engl. | Jitó | tre | x       |         |        |        |         |         |    |
| Chrysophyllum sp. | Fólia-dura | tre | x       | x       | x       | x       | x       |         |    |
| Manilkara rufula (Miq.) H.J.Lam | Andarilho | tre | x       | x       | x       | x       | x       |         |    |
| Micropholis aff. guyanensis (A.DC.) Pierre | Presunto | tre | x       | x       |         |        |         |         |    |
| Pouteria bangii (Rusby) T.D.Penn. | Engasga-vaca | tre | x       |         |        |        |         |         |    |
| Pouteria macrophylla (Lam.) Eyma |    |    |         |         |        |        |         |         |    |
| Pouteria peduncularis (Mart. & Eichler ex Miq.) Baehni |    |    |         |         |        |        |         |         |    |
| Pouteria venosa (Mart.) Baehni subsp. venosa | tre | x  |         |         |        |        |         |         |    |
| **82. Schoepfiaceae** |    |    |         |         |        |        |         |         |    |
| Schoepfia brasiliensis A.D.C. | tre | x  | x       |         |        |        |         |         |    |
| **83. Simaroubaceae** |    |    |         |         |        |        |         |         |    |
| Simarouba amara Aubl. | Paraíba | tre | x       | x       | x       | x       |         |         |    |
| **84. Siparunaceae** |    |    |         |         |        |        |         |         |    |
| Siparuna guianensis Aubl. | Sabonete | shr | x       |         |        |        |         |         |    |
| **85. Smilacaceae** |    |    |         |         |        |        |         |         |    |
| Smilax sp. | Japecanga | vi  | x       | x       |         |        |         |         |    |
| **86. Solanaceae** |    |    |         |         |        |        |         |         |    |
| Acnistus arborescens (L.) Schltdl. | shr | x  |         |         |        |        |         |         |    |
| Brunfelsia uniflora (Pohl) D.Don | shr | x  | x       |         |        |        |         |         |    |
| Cestrum axillare Vell. | Dominguinho | shr | x       |         |        |        |         |         |    |
| Cestrum schlechtendalli G.Don. | Dominguinho | shr | x       |         |        |        |         |         |    |
| Solanum caudatum Vell. | shr | x  | x       |         |        |        |         |         |    |
| Solanum campaniforme Roem. & Schult. | Caninana | shr | x       |         |        |        |         |         |    |
| Solanum paniculatum L. | shr | x  |         |         |        |        |         |         |    |
| Solanum rhytidandra Sendtn. | Boldo, Jurubeba-preta | shr | x       | x       |         |        |         |         |    |
| **87. Sterculiaceae** |    |    |         |         |        |        |         |         |    |
| Basiloxylon brasiliensis (All.) K. Schum. | Piroá | tre | x       | x       |         |        |         |         |    |
| Guazuma ulmifolia Lam. | Mutamba-brava | tre | x       |         |        |        |         |         |    |
| **88. Symplocaceae** |    |    |         |         |        |        |         |         |    |
| Symplocos nitens (Pohl) Benth. | tre | x  |         |         |        |        |         |         |    |

*Note: The table continues with similar entries for other families.*
### Appendix A. Continued...

| FAMILY/SPECIES/AUTHOR | VN          | GF | ALTITUDE | ALTITUDE |
|-----------------------|-------------|----|----------|----------|
|                       |             |    | 400-600  | 600-800  |
|                       |             |    | TAV      | SIN      |
|                       |             |    | 800B     | ARV      |
|                       |             |    | > 800S   | LAG      |
|                       |             |    | 600-800  | JAR      |
|                       |             |    | 400-600  | SAL      |
|                       |             |    |          |          |
| **WINDWARD**          |             |    |          |          |
|                       |             |    |          |          |
| **LEEWARD**            |             |    |          |          |
|                       |             |    |          |          |
| **TOP**               |             |    |          |          |
| 89. Thymelaeaceae     | Daphnopsis racemosa Griseb. | Embira-branca | shr | x | x | x | x | V. Gomes, 1106 |
| 90. Urticaceae        | Cecropia palmata Willd. | Embaúba, Torém | tre | x | x | x | V. Gomes, 1203-5 |
|                       | Urera bacifera (L.) Gaudich. ex Wedd. | Urtiga | tre | x | x | x | V. Gomes, 1203-5 |
| 91. Verbenaceae       | Lantana camara L. | Camará | shr | x | A. Silveira, 732 |
| Lantana radula Sw.    | Camará | shr | x | V. Gomes, 2109-5 |
| 92. Zingiberaceae     | Renealmia chrysotricha Petersen | Colônia-brava | th | x | A. Silveira, 455 |

VN: vernacular name; GF: growth form; ter: tree; shrub: shrub; subshrub: subshrub; vi: vine; th: terrestrial herb; eh: epiphytic herb; hm: hemiparasite; C: main collector's name and number; x: present species. Surveyed sites: TAV: Taveiras; SIN: Sinimbu; ARV: Arvoredo; LAG: Lagoa; JAR: Jardim; SAL: Salva-Vidas.