Tree Diversity and Dynamics of the Forest of Seu Nico, Viçosa, Minas Gerais, Brazil

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Abstract

Background

To understand future changes in community composition due to global changes, the knowledge about forest community dynamics is of crucial importance. To improve our understanding about processes and patterns involved in maintaining species rich Neotropical ecosystems, we provide here a dataset from the one hectare Forest of Seu Nico (FSN) Dynamics Plot from Southeastern Brazil.

New information

We report diameter at breast height, basal area and height measurements of 2868 trees and treelets identified from two census spanning over a nine-year period. Furthermore, soil properties and understory light availability of all 100 10 x 10m subplots from the one hectare FSN Dynamics Plot during the second census are given.

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Introduction

Global changes such as habitat destruction, fragmentation and climate change threaten species richness and diversity of tropical forests (Wright 2010, Gastauer and Meira Neto 2013b, Magnago et al. 2014). To outline and understand their influences on tropical forest communities, long term monitoring studies, so-called community dynamics, are necessary (Losos and Leigh 2004, Wright 2005, Ernest et al. 2009, Laurance et al. 2014).

Among tropical forests, the Brazilian Atlantic Forest is one of the most diverse terrestrial ecosystems (Stehmann et al. 2009). Due to its high degree of endemism and endangered status it is considered a biodiversity hotspot (Myers et al. 2000). Once covering up to 1,500,000 km² (Câmara 2005), only about 11 % of the original Brazilian Atlantic Forest remains, most of it as small secondary forest patches (Ribeiro et al. 2009). Species rich old-growth forests such as the Forest of Seu Nico (FSN) in the Viçosa municipality, Minas Gerais, Brazil are extremely rare and poorly studied (Campos et al. 2006, Gastauer and Meira Neto 2013a, Gastauer and Meira Neto 2013b). The aim of this data paper is to distribute dynamics data from the FSN Dynamics Plot in order to increase knowledge about community composition and maintenance in the Brazilian Atlantic Forest.

Project description

**Title:** Population and community dynamics of a Seasonal Semideciduous Primary Forest, Viçosa municipality, Minas Gerais, Brazil

**Study area description:** Located in Viçosa, Minas Gerais State, Brazil, the FSN is a forest fragment covering about 36 ha of a small valley (Fig. 1). The patch is surrounded by pastures, eucalypt plantations and secondary fragments such as the Reserva Florestal Mata do Paraíso (RFMP), that is, just as the FSN, used for training and research (http://www.def.ufv.br/infraEstruturaMataParaiso.php) by the nearby Federal University of Viçosa (UFV).

According to the Köppen system, the climate of Viçosa is characterized as mesothermic tropical highland climate with mild, rainy summers and cold, dry winters (Cwb) (Peel et al. 2007). Mean annual precipitation is around 1200 mm, mean temperature is 19.4° C (Departamento Nacional de Meteorologia 1992). The predominant soils are deeply intemperished oxisols, but inceptisols are found on slopes and neosols in sedimentation areas. According to Veloso et al. (1991), the vegetation is characterized as Submontane Seasonal Semideciduous Forest.

The FSN has never been logged (Campos et al. 2006); despite selective wood and non-timber extraction, the fragment maintained primary forests characteristics such as high percentage of non-pioneer, animal-dispersed, understory and endemic species as well as high species richness and diversity (Gastauer 2012, Gastauer and Meira Neto 2013a, Gastauer and Meira Neto 2013b).
Funding: JAAMN received a CNPq scholarship.

**Sampling methods**

**Sampling description:** Within the FSN, a plot of 100 × 100 m was marked and divided into 100 subplots of 10 × 10 m. The plot is situated on the right side of the small valley covered by the FSN, showing northern exposure. The northern, lower part of the plot is flatter than its southern part (Fig. 2, Gastauer and Meira Neto 2013b).

![Figure 2](image-url)

**Figure 2.**
Croqui of the 100 x 100 m FSN Dynamics Plot (Suppl. material 1).

During two censuses, all trees with a circumference at breast height greater than 10 cm were tagged and identified. This corresponds to a diameter at breast height (dbh) greater than 3.2 cm. During field campaigns, circumference of each individual fulfilling inclusion...
criterion was measured and the absolute height of trees was estimated. For multiple stem
individuals, we calculated basal area at breast height for all shoots, summed these areas
up and calculated from that the pooled circumference. dbh was computed from
circumference assuming circular cross section of stems.

Specimens not recognized during field surveys were collected, deposited in the Herbarium
of the Federal University of Viçosa (VIC) and identified with the help of material from the
VIC, by consultation of specialists and/or literature. Species names were checked using
the Taxonomic Name Resolution Service (TNRS) as proposed by Boyle et al. (2013);
species classification follows Angiosperm Phylogeny Group III (2009).

During the second census, three soil samples were collected in each plot following a
standardized protocol. For each sample four to five sampling points were defined, their
systematic arrangement within each plot is shown in Gastauer and Meira Neto (2013b). At
each sampling point, the organic layer was removed and a soil block of 10 × 10 × 20 cm
(length × width × depth) was collected. Blocks from the same sample were mixed before
500 g were weighed, stored in a plastic bag and transported to the lab. Immediately after
arrival at the lab, the soil samples were air-dried.

The following parameters were analyzed in the laboratories of the Soil Department of the
Federal University of Viçosa: soil acidity as pH (extraction with water); the concentrations
of phosphorus, potassium (both Mehlich 1 extraction), calcium, magnesium, and aluminum
(extracted with 1 mol/L KCl); interchangeable bases; the effective cation exchange
capacity as well as the cation exchange capacity at pH 7; and the saturation of bases,
aluminum and remnant phosphorus.

Additionally, the understory light availability was analyzed by hemispherical photography
during the second census. A digital camera (Nikon Coolpix 5700) was combined with an
adapter and a fish-eye lens (Nikon FC-E9). For photography, the camera was mounted on
a tripod. Within each plot, one photo was taken from plot’s center at an altitude of one
meter above soil level. As direct light affects data interpretation and analysis,
hemispherical photos were taken only when sky was perfectly overcast. Canopy openness,
i.e. the percentage of open sky seen from beneath a forest canopy, as well as the amount
of direct, diffuse and total solar radiation transmitted by the canopy were calculated by the
software Gap Light Analyzer 2.0 (Frazer 1999).

Geographic coverage

Description: The FSN forest dynamics plot is situated in the Viçosa municipality, Minas
Gerais, Brazil.

Coordinates: -20.8 and Latitude; and -42.85 Longitude.
Taxonomic coverage

Description: Altogether 2868 trees belonging to 228 (morpho-)species from 54 families and 139 genera were sampled during both censuses (Table 1). Due to the lack of appropriate material (e.g., fruits or flowers) to provide a definite identification, 25 morphospecies remain partially or completely unidentified. 2143 individuals that were still present were resampled during the second census.

| Census | Dates                  | Number of trees | Number of species | Number of trees ≥ 10 cm | Number of species (≥ 10 cm dbh) |
|--------|------------------------|-----------------|-------------------|-------------------------|---------------------------------|
| 1      | October 2000-March 2001| 2482            | 224               | 762                     | 154                             |
| 2      | December 2009-February 2010 | 2529       | 218               | 721                     | 154                             |

Although species richness and diversity declined from the first to the second census (Gastauer & Meira-Neto 2013), they are still outstanding for the region (Table 2, Lopes et al. 2002, Ferreira Júnior et al. 2007).

| Size Class [cm dbh] | BA [m²] | N      | S      | G      | F      | H'     | α ±DP  |
|---------------------|---------|--------|--------|--------|--------|--------|--------|
| ≥ 3.2               | 40.185  | 2529   | 218    | 136    | 54     | 4.36   | 57.19 ±2.16 |
| ≥ 10                | 35.663  | 762    | 154    | 107    | 38     | 4.39   | 58.21 ±3.41 |
| ≥ 30                | 20.535  | 108    | 51     | 46     | 23     | 3.52   | 37.75 ±6.06 |
| ≥ 60                | 9.782   | 11     | 7      | 7      | 6      | -      | -      |

In terms of basal area, Moraceae is the most abundant family, while Fabaceae head the ranking in terms of species richness and Myrtaceae in number of individuals (Table 3). Ficus and Pseudopiptadenia are the most abundant genera in terms of basal area, while Siparuna, Protium and Sorocea are represented with the highest number of individuals and Ocotea, Psychotria and Casearia are most species-rich genera (Table 4). Three genera
(Himatanthus, Moldenhawera and Persea) with one species each were registered only during the first census.

Table 3.
FSN rankings by family, data from the second census. BA is basal area and includes all multiple stems for each individual, N is number of individuals and S is number of species.

| Rank | Family     | BA  | % BA | % N  | Family   | N   | % N  | Family   | S  |
|------|------------|-----|------|------|----------|-----|------|----------|----|
| 1    | Moraceae   | 6.40| 15.92| 10.28| Myrtaceae| 368 | 14.55| Fabaceae | 21 |
| 2    | Fabaceae   | 5.65| 14.05| 6.29 | Siparunaceae | 262 | 10.36| Myrtaceae| 19 |
| 3    | Malvaceae  | 3.76| 9.36 | 1.11 | Moraceae | 260 | 10.28| Rubiaceae| 16 |
| 4    | Myristicaceae | 2.78| 6.91 | 3.80 | Lauraceae | 221 | 8.74 | Lauraceae | 15 |
| 5    | Annonaceae | 2.69| 6.70 | 3.56 | Rubiaceae | 162 | 6.41 | Euphorbiaceae | 11 |
| 6    | Lauraceae  | 2.40| 5.97 | 8.74 | Fabaceae | 159 | 6.29 | Moraceae | 10 |
| 7    | Burseraceae | 1.89| 4.70 | 5.34 | Burseraceae | 135 | 5.34 | Meliaceae | 10 |
| 8    | Myrtaceae  | 1.56| 3.88 | 14.55| Meliaceae | 107 | 4.23 | Salicaceae | 9 |
| 9    | Urticaceae | 1.49| 3.72 | 1.74 | Myristicaceae | 96 | 3.80 | Annonaceae | 8 |
| 10   | Rubiaceae  | 1.42| 3.54 | 6.41 | Areceae | 95  | 3.76 | Sapotaceae | 6 |
| 11   | Meliaceae  | 1.39| 3.46 | 4.23 | Annonaceae | 90  | 3.56 | Melastomataceae | 6 |
| 12   | Salicaceae | 1.39| 3.46 | 2.29 | Sapotaceae | 82  | 3.24 | Malvaceae | 4 |
| 13   | Anacardiaceae | 1.27| 3.17 | 1.30 | Salicaceae | 58  | 2.29 | Urticaceae | 4 |
| 14   | Areceae    | 0.77| 1.92 | 3.76 | Urticaceae | 44  | 1.74 | Anacardiaceae | 4 |
| 15   | Sapotaceae | 0.67| 1.66 | 3.24 | Anacardiaceae | 33  | 1.30 | Celastraceae | 4 |
| 16   | Siparunaceae | 0.60| 1.49 | 10.36| Celastraceae | 32  | 1.27 | Nyctaginaceae | 4 |
| 17   | Euphorbiaceae | 0.48| 1.19 | 1.11 | Malvaceae | 28  | 1.11 | Apocynaceae | 4 |
| 18   | Sapindaceae | 0.45| 1.12 | 0.63 | Euphorbiaceae | 28  | 1.11 | Solanaceae | 4 |
| 19   | Chrysobalanaceae | 0.33| 0.82 | 0.59 | Nyctaginaceae | 28  | 1.11 | Burseraceae | 3 |
| 20   | Celastraceae | 0.32| 0.81 | 1.27 | Olacaceae | 27  | 1.07 | Sapindaceae | 3 |
| 21   | Olacaceae  | 0.26| 0.65 | 1.07 | Clusiaceae | 25  | 0.99 | Bignoniaceae | 3 |
|   | Family                  | Occurrence | Abundance | Importance | Previous Family   | Occurrence | Abundance | Importance |
|---|------------------------|------------|-----------|------------|--------------------|------------|-----------|------------|
| 22| Nyctaginaceae          | 0.22       | 0.55      | 1.11       | Melastomataceae    | 21         | 0.83      |            |
| 23| Bignoniaceae           | 0.22       | 0.54      | 0.51       | Sapindaceae        | 16         | 0.63      |            |
| 24| Boraginaceae           | 0.21       | 0.53      | 0.16       | Chrysobalanaceae   | 15         | 0.59      |            |
| 25| Phyllanthaceae         | 0.19       | 0.46      | 0.16       | Bignoniaceae       | 13         | 0.51      |            |
| 26| Clusiaceae             | 0.14       | 0.34      | 0.99       | Apocynaceae        | 13         | 0.51      |            |
| 27| Lythraceae             | 0.14       | 0.34      | 0.32       | Piperaceae         | 11         | 0.43      |            |
| 28| Apocynaceae            | 0.13       | 0.33      | 0.51       | Lythraceae         | 8          | 0.32      |            |
| 29| Melastomataceae        | 0.13       | 0.33      | 0.83       | Ochnaceae          | 8          | 0.32      |            |
| 30| Rutaceae               | 0.13       | 0.32      | 0.12       | Sabiaceae          | 8          | 0.32      |            |
| 31| Araliaceae             | 0.10       | 0.25      | 0.28       | Araliaceae         | 7          | 0.28      |            |
| 32| Rhamnaceae             | 0.09       | 0.22      | 0.04       | Lacistemataceae    | 7          | 0.28      |            |
| 33| Vochysiaceae           | 0.09       | 0.22      | 0.04       | Primulaceae        | 7          | 0.28      |            |
| 34| Lacistemataceae        | 0.08       | 0.19      | 0.28       | Solanaceae         | 6          | 0.24      |            |
| 35| Ochnaceae              | 0.06       | 0.15      | 0.32       | Achariaceae        | 6          | 0.24      |            |
| 36| Unidentified           | 0.06       | 0.14      | 0.08       | Monimiaceae        | 5          | 0.20      |            |
| 37| Lecythidaceae          | 0.04       | 0.10      | 0.16       | Boraginaceae       | 4          | 0.16      |            |
| 38| Calophyllaceae         | 0.03       | 0.08      | 0.12       | Phyllanthaceae     | 4          | 0.16      |            |
| 39| Solanaceae             | 0.02       | 0.06      | 0.24       | Lecythidaceae      | 4          | 0.16      |            |
| 40| Primulaceae            | 0.02       | 0.05      | 0.28       | Cardiopteridaceae  | 4          | 0.16      |            |
| 41| Asteraceae             | 0.02       | 0.05      | 0.04       | Rutaceae           | 3          | 0.12      |            |
| 42| Achariaceae            | 0.02       | 0.04      | 0.24       | Calophyllaceae     | 3          | 0.12      |            |
| 43| Piperaceae             | 0.01       | 0.04      | 0.43       | Unidentified        | 2          | 0.08      |            |
| 44| Sabiaceae              | 0.01       | 0.04      | 0.32       | Erythroxylaceae    | 2          | 0.08      |            |
| 45| Erythroxylaceae        | 0.01       | 0.03      | 0.08       | Aquifoliaceae      | 2          | 0.08      |            |
| 46| Cardiopteridaceae      | 0.01       | 0.02      | 0.16       | Rhamnaceae         | 1          | 0.04      |            |
| 47| Monimiaceae            | 0.01       | 0.02      | 0.20       | Vochysiaceae       | 1          | 0.04      |            |
| 48| Aquifoliaceae          | 0.01       | 0.02      | 0.08       | Asteraceae         | 1          | 0.04      |            |
Table 4.
FSN ranking by genus, data from the second census. BA is basal area, N is number of individuals and S is number of species.

| Rank | Genus                  | BA   | % BA | % N  | Genus                  | N   | % N  | Genus                  | S   |
|------|------------------------|------|------|------|------------------------|-----|------|------------------------|-----|
| 1    | *Ficus* (Moraceae)     | 3.43 | 8.54 | 0.12 | *Siparuna* (Siparunaceae) | 262 | 10.36 | *Ocotea* (Lauraceae) | 6   |
| 2    | *Pseudopiptadenia* (Fabaceae) | 3.08 | 7.67 | 1.78 | *Protium* (Burseraceae) | 129 | 5.10 | *Psychotria* (Rubiaceae) | 6   |
| 3    | *Virola* (Myristicaceae) | 2.78 | 6.91 | 3.80 | *Sorocea* (Moraceae) | 126 | 4.98 | *Casearia* (Salicaceae) | 5   |
| 4    | *Guatteria* (Annonaceae) | 1.97 | 4.91 | 2.93 | *Ocotea* (Lauraceae) | 103 | 4.07 | *Miconia* (Melastomataceae) | 5   |
| 5    | *Sterculia* (Malvaceae) | 1.84 | 4.58 | 0.47 | *Myrciaria* (Myrtaceae) | 101 | 4.00 | *Myrcia* (Myrtaceae) | 5   |
| 6    | *Ocotea* (Lauraceae)    | 1.73 | 4.30 | 4.07 | *Virola* (Myristicaceae) | 96  | 3.80 | *Chrysophyllum* (Sapotaceae) | 4   |
| 7    | *Sorocea* (Moraceae)    | 1.60 | 3.97 | 4.98 | *Euterpe* (Arecaceae) | 90  | 3.56 | *Eugenia* (Myrtaceae) | 4   |
| 8    | *Protium* (Burseraceae) | 1.37 | 3.42 | 5.10 | *Marlierea* (Myrtaceae) | 81  | 3.20 | *Guarea* (Meliaceae) | 4   |
| 9    | *Ceiba* (Malvaceae)     | 1.37 | 3.41 | 0.04 | *Trichilia* (Meliaceae) | 76  | 3.01 | *Guatteria* (Annonaceae) | 4   |
| 10   | *Astronium* (Anacardiaceae) | 1.06 | 2.63 | 0.67 | *Guatteria* (Annonaceae) | 74  | 2.93 | *Inga* (Fabaceae) | 4   |
| 11   | *Casearia* (Salicaceae) | 1.03 | 2.56 | 1.90 | *Helicostylis* (Moraceae) | 73  | 2.89 | *Trichilia* (Meliaceae) | 4   |
|   | Species                  | Diam. (cm) | Height (m) | DBH (cm) | Genus                  | Family               | Tree Div. Code |
|---|--------------------------|------------|------------|----------|------------------------|----------------------|----------------|
| 12| Trichilia (Meliaceae)    | 0.74       | 1.84       | 3.01     | Myrcia (Myrtaceae)      | 71                   | Aspidosperma (Apocynaceae) 3 |
| 13| Bathysa (Rubiaceae)      | 0.68       | 1.70       | 2.65     | Bathysa (Rubiaceae)     | 67                   | Ficus (Moraceae) 3 |
| 14| Pourouma (Urticaceae)    | 0.66       | 1.64       | 1.23     | Eugenia (Myrtaceae)     | 64                   | Machaerium (Fabaceae) 3 |
| 15| Helicostylis (Moraceae)  | 0.64       | 1.60       | 2.89     | Phyllostemonodaphne (Lauraceae) | 59                   | Marlierea (Myrtaceae) 3 |
| 16| Euterpe (Arecales)       | 0.64       | 1.59       | 3.56     | Chrysophyllum (Sapotaceae) | 56                   | Maytenus (Celastraceae) 3 |
| 17| Inga (Fabaceae)          | 0.63       | 1.57       | 1.34     | Brosimum (Moraceae)     | 49                   | Alchornea (Euphorbiaceae) 2 |
| 18| Annona (Annonaceae)      | 0.60       | 1.50       | 0.40     | Casearia (Salicaceae)   | 48                   | Annona (Annonaceae) 2 |
| 19| Siparuna (Siparunaceae)  | 0.60       | 1.49       | 10.36    | Pseudopiptadenia (Fabaceae) | 45                   | Astronium (Anacardiaceae) 2 |
| 20| Brosimum (Moraceae)      | 0.59       | 1.48       | 1.94     | Inga (Fabaceae)         | 34                   | Bathysa (Rubiaceae) 2 |
| 21| Guarea (Meliaceae)       | 0.59       | 1.47       | 1.11     | Alseis (Rubiaceae)      | 31                   | Cariniana (Lecythidaceae) 2 |
| 22| Trattinnickia (Burseraceae) | 0.51      | 1.28       | 0.24     | Pourouma (Urticaceae)   | 31                   | Cestrum (Solanaeae) 2 |
| 23| Eriotheca (Malvaceae)    | 0.50       | 1.25       | 0.51     | Maytenus (Celastraceae) | 29                   | Coussapoa (Urticaceae) 2 |
| 24| Coussapoa (Urticaceae)   | 0.49       | 1.21       | 0.16     | Guarea (Meliaceae)      | 28                   | Erythroxylum (Erythroxylaceae) 2 |
| 25| Chrysophyllum (Sapotaceae) | 0.48      | 1.19       | 2.22     | Neomitranthes (Myrtaceae) | 26                   | Guapira (Nyctaginaceae) 2 |
| 26| Piptadenia (Fabaceae)    | 0.38       | 0.94       | 0.24     | Pouteria (Sapotaceae)   | 24                   | Nectandra (Lauraceae) 2 |
| 27| Cecropia (Urticaceae)    | 0.35       | 0.86       | 0.36     | Urbanodendron (Lauraceae) | 23                   | Piper (Piperaceae) 2 |
| 28| Matayba (Sapindaceae)    | 0.35       | 0.86       | 0.47     | Aniba (Lauraceae)       | 22                   | Protium (Burseraceae) 2 |
| 29| Myrciaria (Myrtaceae)    | 0.33       | 0.83       | 4.00     | Calyptranthes (Myrtaceae) | 20                   | Siparuna (Siparunaceae) 2 |
| 30| Eugenia (Myrtaceae)      | 0.33       | 0.82       | 2.53     | Psychotria (Rubiaceae)  | 20                   | Sorocea (Moraceae) 2 |
|   | Species                        | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
|---|--------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 31| Myrcia (Myrtaceae)            | 0.30 | 0.74 | 2.81 | Tetrastylidium (Olacaceae) | 20 | 0.79 | Swartzia (Fabaceae) | 2 |
| 32| Phyllostemonodaphne (Lauraceae) | 0.30 | 0.74 | 2.33 | Amaioua (Rubiaceae) | 18 | 0.71 | Tapirira (Anacardiaceae) | 2 |
| 33| Marlerea (Myrtaceae)          | 0.27 | 0.68 | 3.20 | Apuleia (Fabaceae) | 18 | 0.71 | Virola (Myristicaceae) | 2 |
| 34| Machaerium (Fabaceae)         | 0.26 | 0.64 | 0.40 | Astronium (Anacardiaceae) | 17 | 0.67 | Xylopia (Annonaceae) | 2 |
| 35| Hirtella (Chrysobalanaceae)   | 0.24 | 0.59 | 0.51 | Swartzia (Fabaceae) | 16 | 0.63 | Allophylus (Sapindaceae) | 1 |
| 36| Tetrastylidium (Olacaceae)    | 0.23 | 0.57 | 0.79 | Tapirira (Anacardiaceae) | 16 | 0.63 | Alseis (Rubiaceae) | 1 |
| 37| Tapirira (Anacardiaceae)      | 0.22 | 0.54 | 0.63 | Copaifera (Fabaceae) | 15 | 0.59 | Amaioua (Rubiaceae) | 1 |
| 38| Maytenus (Celastraceae)       | 0.22 | 0.54 | 1.15 | Guapira (Nyctaginaceae) | 15 | 0.59 | Andira (Fabaceae) | 1 |
| 39| Cordia (Boraginaceae)         | 0.21 | 0.53 | 0.16 | Mouriri (Melastomataceae) | 14 | 0.55 | Aniba (Lauraceae) | 1 |
| 40| Jacaranda (Bignoniaceae)      | 0.21 | 0.52 | 0.40 | Eriotheca (Malvaceae) | 13 | 0.51 | Aparisthmium (Euphorbiaceae) | 1 |
| 41| Macrothumia (Salicaceae)      | 0.19 | 0.48 | 0.04 | Hirtella (Chrysobalanaceae) | 13 | 0.51 | Apuleia (Fabaceae) | 1 |
| 42| Amaioua (Rubiaceae)           | 0.18 | 0.45 | 0.71 | Ixora (Rubiaceae) | 12 | 0.47 | Astrocaryum (Arecaceae) | 1 |
| 43| Ormosia (Fabaceae)            | 0.18 | 0.44 | 0.08 | Matayba (Sapindaceae) | 12 | 0.47 | Brosimum (Moraceae) | 1 |
| 44| Ixora (Rubiaceae)             | 0.18 | 0.44 | 0.47 | Sterculia (Malvaceae) | 12 | 0.47 | Brunfelsia (Solanaceae) | 1 |
| 45| Copaifera (Fabaceae)          | 0.17 | 0.41 | 0.59 | Aspidosperma (Apocynaceae) | 11 | 0.44 | Cabralea (Meliaceae) | 1 |
| 46| Neomitranthes (Myrtaceae)     | 0.17 | 0.41 | 1.03 | Piper (Piperaceae) | 11 | 0.44 | Calyptranthes (Myrtaceae) | 1 |
| 47| Hymenaea (Fabaceae)           | 0.16 | 0.39 | 0.08 | Annona (Annonaceae) | 10 | 0.40 | Campomanesia (Myrtaceae) | 1 |
| 48| Andira (Fabaceae)             | 0.16 | 0.39 | 0.08 | Jacaranda (Bignoniaceae) | 10 | 0.40 | Carpotroche (Achariaceae) | 1 |
| #  | Species (Family)          | R | H | H | Species (Family)          | R | H | H | Species (Family)          |
|----|--------------------------|---|---|---|--------------------------|---|---|---|--------------------------|
| 49 | Alseis (Rubiaceae)       | 0.15 | 0.37 | 1.23 | Machaerium (Fabaceae)    | 10 | 0.36 | 0.40 | Cecropia (Urticaceae)    |
| 50 | Sapium (Euphorbiaceae)   | 0.14 | 0.35 | 0.16 | Nectandra (Lauraceae)    | 10 | 0.36 | 0.40 | Cedrela (Meliaceae)      |
| 51 | Laphaobis (Lythraceae)   | 0.14 | 0.34 | 0.32 | Pisonia (Nyctaginaceae)  | 10 | 0.36 | 0.40 | Ceiba (Malvaceae)       |
| 52 | Astrocarum (Areceaceae)  | 0.13 | 0.33 | 0.20 | Tovomitas (Clusiaceae)   | 10 | 0.36 | 0.40 | Celtis (Cannabaceae)    |
| 53 | Aniba (Lauraceae)        | 0.12 | 0.31 | 0.87 | Cecropia (Urticaceae)    | 9  | 0.36 | 0.40 | Cinnamomum (Lauraceae)  |
| 54 | Nectandra (Lauraceae)    | 0.12 | 0.31 | 0.40 | Garcinia (Clusiaceae)    | 8  | 0.36 | 0.40 | Citronella (Cardioptertidaceae) |
| 55 | Zanthoxylum (Rutaceae)   | 0.12 | 0.30 | 0.08 | Laphaobis (Lythraceae)   | 8  | 0.36 | 0.40 | Claris (Moraceae)       |
| 56 | Calyptropranthes (Myrtaceae) | 0.12 | 0.30 | 0.79 | Melosma (Sabiaceae)      | 8  | 0.36 | 0.40 | Colubr (Rhamnaceae)     |
| 57 | Xylopia (Annonaceae)     | 0.12 | 0.29 | 0.24 | Ouratea (Ochnaceae)      | 8  | 0.36 | 0.40 | Copaifera (Fabaceae)    |
| 58 | Psychotria (Rubiaceae)   | 0.12 | 0.29 | 0.79 | Heistera (Olacaceae)     | 7  | 0.36 | 0.40 | Cordia (Boraginaceae)   |
| 59 | Pisonia (Nyctaginaceae)  | 0.12 | 0.29 | 0.40 | Lacistema (Lacidemateaceae) | 7  | 0.36 | 0.40 | Croton (Euphorbiaceae)  |
| 60 | Dalbergia (Fabaceae)     | 0.11 | 0.28 | 0.12 | Miconia (Melastomateaceae) | 7  | 0.36 | 0.40 | Cryptocarya (Lauraceae) |
| 61 | Croton (Euphorbiaceae)   | 0.11 | 0.28 | 0.16 | Tovomita (Clusiaceae)    | 7  | 0.36 | 0.40 | Cupimal (Sapindaceae)   |
| 62 | Salacia (Celastraceae)   | 0.11 | 0.27 | 0.12 | Carpotroche (Achariaceae) | 6  | 0.36 | 0.40 | Cybianthus (Primulaceae) |
| 63 | Hieronyma (Phyllanthaceae) | 0.10 | 0.25 | 0.08 | Piptadenia (Fabaceae)    | 6  | 0.36 | 0.40 | Dalbergia (Fabaceae)    |
| 64 | Pouteria (Sapotaceae)    | 0.10 | 0.24 | 0.95 | Rudgea (Rubiaceae)       | 6  | 0.36 | 0.40 | Dendropanax (Araliaceae) |
| 65 | Scheflera (Araliaceae)   | 0.10 | 0.24 | 0.24 | Scheflera (Araliaceae)    | 6  | 0.36 | 0.40 | Eriothea (Malvaceae)    |
| 66 | Licania (Chrysobalanaceae) | 0.09 | 0.23 | 0.08 | Trattinnickia (Burseraceae) | 6  | 0.36 | 0.40 | Euterpe (Arecaceae)     |
| 67 | Swartzia (Fabaceae)      | 0.09 | 0.23 | 0.63 | Xylopia (Annonaceae)     | 6  | 0.36 | 0.40 | Garcinia (Clusiaceae)   |
| Page | Species         | Family       | Cons. | Diam. | Vol. | Cons. | Lit. | Family       |
|------|----------------|--------------|-------|-------|------|-------|------|--------------|
| 68   | Pradosia       | (Sapotaceae) | 0.09  | 0.23  | 0.08 | Alchornea (Euphorbiaceae) | 5    | 0.20 | Genipa (Rubiaceae) | 1 |
| 69   | Guapira        | (Nyctaginaceae) | 0.09  | 0.22  | 0.59 | Astro Caryum (Arecaeaceae) | 5    | 0.20 | Guettarda (Rubiaceae) | 1 |
| 70   | Colubrina      | (Rhamnaceae) | 0.09  | 0.22  | 0.04 | Mollinedia (Monimiaceae) | 5    | 0.20 | Handroanthus (Bignoniiaceae) | 1 |
| 71   | Qualea         | (Vochysiaceae) | 0.09  | 0.22  | 0.04 | Myrsine (Primulaceae) | 5    | 0.20 | Heisteria (Olacaceae) | 1 |
| 72   | Margaritaria   | (Phyllanthaceae) | 0.09  | 0.21  | 0.08 | Aparisthodium (Euphorbiaceae) | 4    | 0.16 | Helicostylis (Moraceae) | 1 |
| 73   | Apuleia        | (Fabaceae) | 0.09  | 0.21  | 0.71 | Cariniana (Lecythidaceae) | 4    | 0.16 | Hieronyma (Phyllanthaceae) | 1 |
| 74   | Allophylus     | (Sapindaceae) | 0.08  | 0.21  | 0.04 | Cestrum (Solanaceae) | 4    | 0.16 | Hirtella (Chrysobalanaceae) | 1 |
| 75   | Urbanodendron  | (Lauraceae) | 0.08  | 0.20  | 0.91 | Citronella (Cardiopteridaceae) | 4    | 0.16 | Hortia (Rutaceae) | 1 |
| 76   | Miconia        | (Melastomataceae) | 0.08  | 0.20  | 0.28 | Clariesia (Moraceae) | 4    | 0.16 | Hymenaea (Fabaceae) | 1 |
| 77   | Melanoxylon    | (Fabaceae) | 0.08  | 0.20  | 0.08 | Cordia (Boraginaceae) | 4    | 0.16 | Ilex (Aquifoliaceae) | 1 |
| 78   | Lacistema      | (Lacistemataceae) | 0.08  | 0.19  | 0.28 | Coussapoa (Urticaceae) | 4    | 0.16 | Ixora (Rubiaceae) | 1 |
| 79   | Aspidosperma   | (Apocynaceae) | 0.07  | 0.18  | 0.44 | Croton (Euphorbiaceae) | 4    | 0.16 | Jacaranda (Bignoniiaceae) | 1 |
| 80   | Tovomita       | (Clusiaceae) | 0.07  | 0.17  | 0.28 | Maclura (Moraceae) | 4    | 0.16 | Jacaratia (Caricaceae) | 1 |
| 81   | Maclura        | (Moraceae) | 0.07  | 0.17  | 0.16 | Sapium (Euphorbiaceae) | 4    | 0.16 | Kielmeyera (Calophyllaceae) | 1 |
| 82   | Maprounea      | (Euphorbiaceae) | 0.07  | 0.17  | 0.08 | Cupania (Sapindaceae) | 3    | 0.12 | Lacistema (Lacistemataceae) | 1 |
| 83   | Lonchocarpus   | (Fabaceae) | 0.06  | 0.15  | 0.04 | Dalbergia (Fabaceae) | 3    | 0.12 | Laoensia (Lythraceae) | 1 |
| 84   | Ouratea        | (Ochnaceae) | 0.06  | 0.15  | 0.32 | Ficus (Moraceae) | 3    | 0.12 | Licania (Chrysobalanaceae) | 1 |
| 85   | Pera           | (Euphorbiaceae) | 0.06  | 0.15  | 0.08 | Guettarda (Rubiaceae) | 3    | 0.12 | Lonchocarpus (Fabaceae) | 1 |
| No | Species                          | Genus         | Family            | Dominance | Importance | Abundance | Tree Diversity and Dynamics of the Forest of Seu Nico, Viçosa, Minas Gerais, ... |
|----|---------------------------------|---------------|-------------------|-----------|------------|-----------|-----------------------------------|
| 86 | Guettarda                       | Rubiaceae     |                   | 0.06      | 0.14       | 0.12      | Kielmeyera (Calophyllaceae) 3 0.12 | Luehea (Malvaceae) 1          |
| 87 | Tabernaemontana                 | Apocynaceae   |                   | 0.06      | 0.14       | 0.08      | Mabea (Euphorbiaceae) 3 0.12     | Mabea (Euphorbiaceae) 1       |
| 88 | Cedrela                         | (Meliaceae)   |                   | 0.06      | 0.14       | 0.08      | Salacia (Celastraceae) 3 0.12     | Maclura (Moraceae) 1          |
| 89 | Genipa                          | Rubiaceae     |                   | 0.05      | 0.13       | 0.04      | Andira (Fabaceae) 2 0.08         | Macrothumia (Salicaceae) 1    |
| 90 | Naucleopsis                     | Moraceae      |                   | 0.05      | 0.13       | 0.04      | Cedrela (Meliaceae) 2 0.08        | Maprounea (Euphorbiaceae) 1   |
| 91 | Peltophorum                     | (Fabaceae)    |                   | 0.05      | 0.13       | 0.08      | Erythroxylum (Erythroxylaceae) 2 0.08 | Margaritaria (Phyllanthaceae) 1 |
| 92 | Mouriri                         | Melastomataceae|                 | 0.05      | 0.13       | 0.55      | Hieronyma (Phyllanthaceae) 2 0.08 | Matayba (Sapindaceae) 1       |
| 93 | Luehea                          | Malvaceae     |                   | 0.05      | 0.11       | 0.08      | Hymenaea (Fabaceae) 2 0.08        | Melanoxylon (Fabaceae) 1      |
| 94 | Tovomitopsis                    | (Olivaceae)   |                   | 0.04      | 0.10       | 0.40      | Ilex (Aquifoliaceae) 2 0.08       | Meliosma (Sabiaceae) 1        |
| 95 | Cariniana                       | Lecythidaceae |                   | 0.04      | 0.10       | 0.16      | Licania (Chrysobalanaceae) 2 0.08 | Mollinedia (Monimiaceae) 1    |
| 96 | Xylosma                         | Salicaceae    |                   | 0.04      | 0.09       | 0.08      | Luehea (Malvaceae) 2 0.08         | Mouriri (Melastomataceae) 1   |
| 97 | Kielmeyera                      | (Calophyllaceae)|             | 0.03      | 0.08       | 0.12      | Maprounea (Euphorbiaceae) 2 0.08  | Myrciaria (Myrtaceae) 1       |
| 98 | Mabea                           | (Euphorbiaceae)|                 | 0.03      | 0.08       | 0.12      | Margaritaria (Phyllanthaceae) 2 0.08 | Myrsine (Primulaceae) 1      |
| 99 | Aparisthmium                    | (Euphorbiaceae)|                 | 0.03      | 0.08       | 0.16      | Melanoxylon (Fabaceae) 2 0.08     | Naucleopsis (Moraceae) 1     |
|100 | Heisteria                       | Olaceae       |                   | 0.03      | 0.08       | 0.28      | Ormosia (Fabaceae) 2 0.08         | Neomitranthes (Myrtaceae) 1   |
|101 | Alchornea                       | (Euphorbiaceae)|                 | 0.03      | 0.08       | 0.20      | Peltophorun (Fabaceae) 2 0.08    | Ormosia (Fabaceae) 1          |
|102 | Garcinia                        | Clusiaceae    |                   | 0.02      | 0.06       | 0.32      | Pera (Euphorbiaceae) 2 0.08       | Ouratea (Ochnaceae) 1         |
|103 | Cinnamomum                      | (Lauraceae)   |                   | 0.02      | 0.05       | 0.04      | Pradosia (Sapotaceae) 2 0.08      | Peltophorun (Fabaceae) 1     |
| Page | Taxon                                          | Genera (Family)          | Percentages | Number | Other Genera (Family)                      | Count |
|------|-----------------------------------------------|--------------------------|-------------|--------|-------------------------------------------|-------|
| 104  | *Vernonanthura*                               | *Randia* (Rubiaceae)     | 0.20 0.05 0.04 | 2      | *Pera* (Euphorbiaceae)                     | 1     |
| 105  | *Cestrum* (Solanaceae)                        | *Sparattosperma* (Bignoniaceae) | 0.02 0.05 0.16 | 2      | *Phyllostemonodaphne* (Lauraceae)          | 1     |
| 106  | *Cryptocarya* (Lauraceae)                     | *Tabernaemontana* (Apocynaceae) | 0.02 0.05 0.04 | 2      | *Piptadenia* (Fabaceae)                    | 1     |
| 107  | *Pwillia* (Myrtaceae)                         | *Xylosma* (Salicaceae)   | 0.02 0.05 0.04 | 2      | *Pisonia* (Nyctaginaceae)                  | 1     |
| 108  | *Cupania* (Sapindaceae)                       | *Zanthoxylum* (Rutaceae) | 0.02 0.04 0.12 | 2      | *Plinia* (Myrtaceae)                       | 1     |
| 109  | *Myrsine* (Primulaceae)                       | *Macrothumia* (Salicaceae) | 0.02 0.04 0.20 | 2      | *Pourouma* (Urticaceae)                     | 1     |
| 110  | *Cardiobroche* (Achariaceae)                  | *Brunfelsia* (Salicaceae) | 0.02 0.04 0.24 | 1      | *Pouteria* (Sapotaceae)                    | 1     |
| 111  | *Piper* (Piperaceae)                          | *Cabralea* (Meliaceae)   | 0.01 0.04 0.44 | 1      | *Pradosia* (Sapotaceae)                    | 1     |
| 112  | *Meliosma* (Sabiaceae)                        | *Campomanesia* (Myrtaceae) | 0.01 0.04 0.32 | 1      | *Prockia* (Saliaceae)                      | 1     |
| 113  | *Clarisia* (Moraceae)                         | *Ceiba* (Malvaceae)      | 0.01 0.03 0.16 | 1      | *Prunus* (Rosaceae)                        | 1     |
| 114  | *Prockia* (Salicaceae)                        | *Celtis* (Cannabaceae)   | 0.01 0.03 0.04 | 1      | *Pseudopiptadenia* (Fabaceae)              | 1     |
| 115  | *Erythroxylum* (Erythroxylaceae)              | *Cinnamomum* (Lauraceae) | 0.01 0.03 0.08 | 1      | *Psidium* (Myrtaceae)                      | 1     |
| 116  | *Rudgea* (Rubiaceae)                          | *Columbina* (Rhamnaceae) | 0.01 0.02 0.24 | 1      | *Qualea* (Vochysiaceae)                    | 1     |
| 117  | *Citronella* (Cardiopteridaceae)              | *Cryptocarya* (Lauraceae) | 0.01 0.02 0.16 | 1      | *Randia* (Rubiaceae)                       | 1     |
| 118  | *Hortia* (Rutaceae)                           | *Cybianthus* (Primulaceae) | 0.01 0.02 0.04 | 1      | *Rudgea* (Rubiaceae)                       | 1     |
| 119  | *Mollinedia* (Monimiaceae)                    | *Dendropanax* (Araliaceae) | 0.01 0.02 0.20 | 1      | *Salacia* (Celastraceae)                   | 1     |
| 120  | *Cabralea* (Meliaceae)                        | *Genipa* (Rubiaceae)     | 0.01 0.02 0.04 | 1      | *Sapium* (Euphorbiaceae)                   | 1     |
| 121  | *Sparattosperma* (Bignoniaceae)               | *Handroanthus* (Bignoniaceae) | 0.01 0.02 0.08 | 1      | *Schefflera* (Araliaceae)                  | 1     |
| No. | Species 1       | Genus Family     | Species 2       | Genus Family     | Frequency | Basal Area | Species 3       | Genus Family     | Frequency | Basal Area |
|-----|----------------|------------------|----------------|------------------|-----------|------------|----------------|------------------|-----------|------------|
| 122 | Ilex (Aquifoliaceae) | 0.01 0.02 0.08 | Hortia (Rutaceae) | 1 0.04           | Sloanea (Elaeocarpaceae) | 1 |
| 123 | Sloanea (Elaeocarpaceae) | 0.01 0.02 0.04 | Jacaratia (Caricaceae) | 1 0.04           | Sparattosperma (Bignoniaceae) | 1 |
| 124 | Prunus (Rosaceae) | 0.00 0.01 0.04 | Lonchocarpus (Fabaceae) | 1 0.04           | Sterculia (Malvaceae) | 1 |
| 125 | Dendropanax (Araliaceae) | 0.00 0.01 0.04 | Allophylus (Sapindaceae) | 1 0.04           | Stylogyne (Primulaceae) | 1 |
| 126 | Campomanesia (Myrtaceae) | 0.00 0.01 0.04 | Naucleopsis (Moraceae) | 1 0.04           | Tabernaemontana (Apocynaceae) | 1 |
| 127 | Jacaratia (Caricaceae) | 0.00 0.01 0.04 | Plinia (Myrtaceae) | 1 0.04           | Terminalia (Combretaceae) | 1 |
| 128 | Stylogyne (Primulaceae) | 0.00 0.01 0.04 | Prockia (Salicaceae) | 1 0.04           | Tetrastylidium (Olacaceae) | 1 |
| 129 | Terminalia (Combretaceae) | 0.00 0.01 0.04 | Prunus (Rosaceae) | 1 0.04           | Tovomita (Clusiaceae) | 1 |
| 130 | Brunfelsia (Solanaeaceae) | 0.00 0.01 0.04 | Psidium (Myrtaceae) | 1 0.04           | Tovomitopsis (Clusiaceae) | 1 |
| 131 | Randia (Rubiaceae) | 0.00 0.01 0.08 | Qualea (Vochysiaceae) | 1 0.04           | Trattinnickia (Burseraceae) | 1 |
| 132 | Psidium (Myrtaceae) | 0.00 0.01 0.04 | Sloanea (Elaeocarpaceae) | 1 0.04           | Urbanodendron (Lauraceae) | 1 |
| 133 | Celtis (Cannabaceae) | 0.00 0.00 0.04 | Stylogyne (Primulaceae) | 1 0.04           | Vantanea (Humiriaceae) | 1 |
| 134 | Vantanea (Humiriaceae) | 0.00 0.00 0.04 | Terminalia (Combretaceae) | 1 0.04           | Vernonanthura (Asteraceae) | 1 |
| 135 | Handroanthus (Bignoniaceae) | 0.00 0.00 0.04 | Vantanea (Humiriaceae) | 1 0.04           | Xylosma (Salicaceae) | 1 |
| 136 | Cybianthus (Primulaceae) | 0.00 0.00 0.04 | Vernonanthura (Asteraceae) | 1 0.04           | Zanthoxylum (Rutaceae) | 1 |
| 137 | Unidentified (14 morphospecies) | 0.37 0.93 0.91 | Unidentified (14 morphospecies) | 23 0.91         | Unidentified | 14 |

The largest tree in the sample is a *Ficus gomelleira* (dbh of 2.08 m), three further trees show a dbh larger than 1 m (*Ceiba speciosa*, *Sterculia curiosa* and *Astronium graveolens*) which explains the high rank of these species in terms of basal area (Table 5). The five species *Siparuna guianensis*, *Protium warmingiana*, *Sorocea bonplandii*, *Myrciaria floribunda* and *Euterpe edulis* count for more than 25% of all individuals (Table 5), on
contrast, 34 species are represented by two individuals (i.e., Doubletons), and 62 species are Singletons, i.e. species with a single individual within our sample.

### Table 5.
FSN tree species ≥ 3.2 cm dbh ranked by number of trees (N) and basal area (BA).

| Rank | Species | BA | % BA | N  | Species | BA | % BA | N  | %  |
|------|---------|----|------|----|---------|----|------|----|----|
| 1    | *Ficus gomelleira* Kunth & C.D. Bouché (Moraceae) | 3.41 | 8.48 | 1  | *Siparuna guianensis* Aubl. (Siparunaceae) | 3.08 | 7.67 | 45 | 10.04 |
| 2    | *Pseudopiptadenia contorta* (DC.) G.P. Lewis & M.P. Lima (Fabaceae) | 2.21 | 5.51 | 77 | *Sorocea bonplandii* (Baill.) W.C. Burger, Lanj. & Wess. Boer (Moraceae) | 1.84 | 4.58 | 12 | 4.23 |
| 3    | *Virola gardneri* (A. DC.) Warb. (Myristicaceae) | 1.91 | 4.76 | 67 | *Myrciaria floribunda* (H. West ex Willd.) O. Berg (Myrtaceae) | 1.37 | 3.41 | 1  | 3.04 |
| 4    | *Guatteria australis* A. St.-Hil. (Annonaceae) | 1.29 | 3.22 | 121 | *Helicostylis tomentosa* (Poepp. & Endl.) Rusby (Moraceae) | 1.26 | 3.13 | 107 | 2.65 |
| 5    | *Sterculia curiosa* (Vell.) Taroda (Malvaceae) | 1.82 | 4.58 | 24 | *Marlierea excoriata* Mart. (Myrtaceae) | 0.73 | 1.81 | 30 | 2.37 |
| 6    | *Ceiba speciosa* (A. St.-Hil.) Ravenna (Malvaceae) | 1.22 | 3.13 | 107 | *Phyllostemonodaphne geminiflora* (Mez) Kosterm. (Lauraceae) | 0.66 | 1.64 | 31 | 1.94 |
| 7    | *Casearia ulmifolia* Vahl ex Vent. (Salicaceae) | 0.97 | 2.43 | 13 | *Bathysa nicholsonii* K. Schum. (Rubiaceae) | 0.64 | 1.60 | 73 | 1.86 |
|   | Scientific Name | Common Name | Diameter (cm) | Height (m) | Age | Tree Type |
|---|----------------|-------------|--------------|-----------|-----|-----------|
| 14 | Euterpe edulis Mart. |  | 0.64 | 1.59 | 90 | Pseudopiptadenia contorta (DC.) G.P. Lewis & M.P. Lima (Fabaceae) |
| 15 | Bathysa richardsonii K. Schum. |  | 0.60 | 1.48 | 60 | Trichilia glabra L. (Meliaceae) |
| 16 | Brosimum guianense (Aubl.) Huber |  | 0.59 | 1.48 | 49 | Trichilia catigua A. Juss. (Meliaceae) |
| 17 | Siparuna guianensis Aubl. |  | 0.58 | 1.44 | 254 | Alseis floribunda Schott (Rubiaceae) |
| 18 | Virola bicuyba (Schott ex Spreng.) Warb. |  | 0.56 | 1.40 | 19 | Pourouma guianensis Aubl. (Rubiaceae) |
| 19 | Guarea macrophylla Vahl |  | 0.56 | 1.38 | 15 | Casearia ulmifolia Vahl ex Vent. (Salicaceae) |
| 20 | Ocotea odorifera Rohwer |  | 0.54 | 1.36 | 27 | Chrysophyllum lucenfolium Cronquist (Sapotaceae) |
| 21 | Trattinnickia sp. (Burseraceae) |  | 0.51 | 1.28 | 6 | Ocotea odorifera Rohwer (Lauraceae) |
| 22 | Eriotheca candolleana (K. Schum.) A. Robyns |  | 0.50 | 1.25 | 13 | Neomitrantes sp. (Myrtaceae) |
| 23 | Trichilia catigua A. Juss. |  | 0.48 | 1.21 | 34 | Maytenus robusta Reissek (Celastraceae) |
| 24 | Inga cylindrica (Vell.) Mart. |  | 0.45 | 1.11 | 7 | Chrysophyllum gonocarpum (Mart. & Eichler ex Miq.) Engl. (Sapotaceae) |
| 25 | Piptadenia gonoacantha (Mart.) J.F. Macbr. |  | 0.38 | 0.94 | 6 | Inga capitata Desv. (Fabaceae) |
| 26 | Coussapoa flocosa Akkermans & C.C. Berg |  | 0.35 | 0.88 | 1 | Myrcia laxiflora Cambess. (Myrtaceae) |
| 27 | Cecropia hololeuca Miq. |  | 0.35 | 0.86 | 9 | Ocotea dispersa (Nees & Mart.) Mez (Lauraceae) |
| 28 | Matayba elaeagnoides Radlk. |  | 0.35 | 0.86 | 12 | Ocotea silvestris Vattimo (Lauraceae) |
| 29 | Soroea guilleminiana Gaudich. |  | 0.34 | 0.84 | 19 | Pouteria cainito (Ruiz & Pav.) Radlk. (Sapotaceae) |
| 30 | Myrciaria floribunda (H. West ex Wild.) O. Berg |  | 0.33 | 0.83 | 101 | Urbanodendron verrucosum (Nees) Mez (Lauraceae) |
| No. | Species                                      | Family           | Diameter | Height |  | Species                                      | Family           | Diameter | Height |
|-----|---------------------------------------------|------------------|----------|--------|---|---------------------------------------------|------------------|----------|--------|
| 31  | Annona cacans Warm. (Annonaceae)             |                  | 0.31     | 0.77   | 4 | Aniba firmula (Nees & Mart.) Mez (Lauraceae) |                  | 0.31     | 0.77   |
| 32  | Phyllostemonodaphne geminiflora (Mez) Kosterm. (Lauraceae) |                  | 0.30     | 0.74   | 59| Marlierea teuscheriana (O. Berg) D. Legrand (Myrtaceae) |                  | 0.30     | 0.74   |
| 33  | Annona neolaunifolia H. Rainer (Annonaceae)  |                  | 0.29     | 0.73   | 6 | Myrcia splendens (Sw.) DC. (Myrtaceae)       |                  | 0.29     | 0.73   |
| 34  | Eugenia lambertiana DC. (Myrtaceae)         |                  | 0.29     | 0.73   | 47| Calyptranthes brasiliensis Spreng. (Myrtaceae) |                  | 0.29     | 0.73   |
| 35  | Chrysophyllum lucentifolium Cronquist (Sapotaceae) |                  | 0.27     | 0.68   | 28| Tetrastylidium grandifolium (Baill.) Sleumer (Olacaceae) |                  | 0.27     | 0.68   |
| 36  | Machaerium nycitans (Vell.) Benth. (Fabaceae) |                  | 0.25     | 0.63   | 8 | Ocotea sp. (Lauraceae)                       |                  | 0.25     | 0.63   |
| 37  | Hirtella hebeclada Moric. ex DC. (Chrysobalanaceae) |                  | 0.24     | 0.59   | 13| Sorocea guilleminiana Gaudich. (Moraceae)    |                  | 0.24     | 0.59   |
| 38  | Tetrastylidium grandifolium (Baill.) Sleumer (Olacaceae) |                  | 0.23     | 0.57   | 20| Virola bicuybyba (Schott ex Spreng.) Warb. (Myristicaceae) |                  | 0.23     | 0.57   |
| 39  | Cordia sellowiana Cham. (Boraginaceae)       |                  | 0.21     | 0.53   | 4 | Amaioua guianensis Aubl. (Rubiaceae)         |                  | 0.21     | 0.53   |
| 40  | Jacaranda macrantha Cham. (Bignoniaceae)     |                  | 0.21     | 0.52   | 10| Apuleia leiocarpa (Vogel) J.F. Macbr. (Fabaceae) |                  | 0.21     | 0.52   |
| 41  | Maytenus robusta Reissek (Celastraceae)      |                  | 0.20     | 0.50   | 25| Copaifera langsdorffii Desf. (Fabaceae)      |                  | 0.20     | 0.50   |
| 42  | Macrothumia kuhlmannii (Sleumer) Alford (Salicaceae) |                  | 0.19     | 0.48   | 2 | Guarea macrophylla Vahl (Meliaceae)          |                  | 0.19     | 0.48   |
| 43  | Amaioua guianensis Aubl. (Rubiaceae)         |                  | 0.18     | 0.45   | 18| Swartzia myrtifolia Sm. (Fabaceae)           |                  | 0.18     | 0.45   |
| 44  | Omosia arborea (Vell.) Harms (Fabaceae)      |                  | 0.18     | 0.44   | 2 | Mouriri glazioviana Cogn. (Melastomataceae)  |                  | 0.18     | 0.44   |
| 45  | Chrysophyllum gonocarpum (Mart. & Eichler ex Miq.) Engl. (Sapotaceae) |                  | 0.18     | 0.44   | 24| Astronium graveolens Jacq. (Anacardiaceae)    |                  | 0.18     | 0.44   |
| 46  | Ixora gardneriana Benth. (Rubiaceae)         |                  | 0.18     | 0.44   | 12| Eriotheca candolleana (K. Schum.) A. Robyns (Malvaceae) |                  | 0.18     | 0.44   |
| 47  | Copaifera langsdorffii Desf. (Fabaceae)      |                  | 0.17     | 0.41   | 15| Hirtella hebeclada Moric. ex DC. (Chrysobalanaceae) |                  | 0.17     | 0.41   |
| 48  | Neomitrantes sp. (Myrtaceae)                 |                  | 0.17     | 0.41   | 26| Myrcia pallida (O. Berg) N. Silveira (Myrtaceae) |                  | 0.17     | 0.41   |
| No. | Species Name                                      | Family             | Density | Height | Diameter | Common Name                                      |
|-----|--------------------------------------------------|--------------------|---------|--------|----------|--------------------------------------------------|
| 49  | Ocotea dispersa (Nees & Mart.) Mez (Lauraceae)   | 0.16 0.40 24       | Ixora gardneriana Benth. (Rubiaceae) | 12 | 0.47     |
| 50  | Trichilia glabra L. (Meliaceae)                  | 0.16 0.40 35       | Matayba elaeagnoides Radlk. (Sapindaceae) | 12 | 0.47     |
| 51  | Hymenaea sp. (Fabaceae)                          | 0.16 0.39 2        | Sterculia curiosa (Vell.) Taroda (Malvaceae) | 12 | 0.47     |
| 52  | Andira fraxinifolia Benth. (Fabaceae)            | 0.16 0.39 2        | Guapira opposita (Vell.) Reitz (Nyctaginaceae) | 11 | 0.43     |
| 53  | Fabaceae sp.                                     | 0.15 0.38 1       | Guarea pendula R.da Silva Ramalho, A.L. Pinheiro & T.D. Penn. (Meliaceae) | 11 | 0.43     |
| 54  | Alseis floribunda Schott (Rubiaceae)             | 0.15 0.37 31       | Myrcia pubipetala Miq. (Myrtaceae) | 11 | 0.43     |
| 55  | Casearia gossypiosperma Briq. (Salicaceae)       | 0.15 0.37 6        | Eugenia florida DC. (Myrtaceae) | 10 | 0.40     |
| 56  | Tapirira guianensis Aubl. (Anacardiaceae)        | 0.14 0.35 9       | Jacaranda macrantha Cham. (Bignoniaceae) | 10 | 0.40     |
| 57  | Sapium glandulosum (L.) Morong (Euphorbiaceae)   | 0.14 0.35 4       | Pisonia ambigua Heimerl (Nyctaginaceae) | 10 | 0.40     |
| 58  | Marlierea excoriata Mart. (Myrtaceae)            | 0.14 0.34 59      | Psychotria carthagenensis Jacq. (Rubiaceae) | 10 | 0.40     |
| 59  | Inga capitata Desv. (Fabaceae)                   | 0.14 0.34 24      | Tovomitospis saldanhae Engl. (Clusiaceae) | 10 | 0.40     |
| 60  | Casearia arborea (Rich.) Urb. (Salicaceae)       | 0.14 0.34 9       | Casearia arborea (Rich.) Urb. (Salicaceae) | 9  | 0.36     |
| 61  | Lafoensia glyptocarpa Koehne (Lythraceae)        | 0.14 0.34 8       | Cecropia hololeuca Miq. (Urticaceae) | 9  | 0.36     |
| 62  | Astrocaryum aculeatissimum (Schott) Burret (Arecaceae) | 0.13 0.33 5       | Piper arboreum Aubl. (Piperaceae) | 9  | 0.36     |
| 63  | Coussapoa microcarpa (Schott) Rizzini (Urticaceae) | 0.13 0.33 3       | Tapirira guianensis Aubl. (Anacardiaceae) | 9  | 0.36     |
| 64  | Aniba firmula (Nees & Mart.) Mez (Lauraceae)     | 0.12 0.31 22      | Garcinia gardneriana (Planch. & Triana) Zappi (Clusiaceae) | 8  | 0.32     |
| 65  | Zanthoxylum rhoifolium Lam. (Rutaceae)           | 0.12 0.30 2       | Laoensia glyptocarpa Koehne (Lythraceae) | 8  | 0.32     |
| 66  | Calyptranthes brasiliensis Spreng. (Myrtaceae)   | 0.12 0.30 20      | Machaerium nytitans (Vell.) Benth. (Fabaceae) | 8  | 0.32     |
| No. | Species                              | Genus     | Family       | Mass (g) | Diameter (cm) | Height (cm) | Volumetric Diameter (cm) | Volumetric Height (cm) | Volumetric Mass (g) | Volumetric Diameter (cm) | Volumetric Height (cm) | Volumetric Mass (g) |
|-----|--------------------------------------|-----------|--------------|----------|---------------|-------------|--------------------------|----------------------|----------------------|--------------------------|----------------------|----------------------|
| 67  | *Pisonia ambigua* Heimerl             | (Nyctaginaceae) | 0.12 0.29 10 | *Meliosma itatiaae Urb.* (Sabiaceae) | 8 | 0.32 |
| 68  | *Dalbergia nigra* (Vell.) Allemão ex Benth. (Fabaceae) | 0.11 0.28 3 | *Ocotea corymbosa* (Meisn.) Mez (Lauraceae) | 8 | 0.32 |
| 69  | Salicaceae sp.                        |           |              |          |               |             |                          |                      |                      |                          |                      |                      |
| 70  | *Myrcia splendens* (Sw.) DC. (Myrtaceae) | 0.11 0.28 21 | *Protium heptaphyllum* (Aubl.) Marchand (Burseraceae) | 8 | 0.32 |
| 71  | *Croton floribundus* Spreng. (Euphorbiaceae) | 0.11 0.28 4 | *Siparuna reginae* (Tul.) A. DC. (Siparunaceae) | 8 | 0.32 |
| 72  | *Salacia elliptica* (Mart. ex Schult.) G. Don (Celastraceae) | 0.11 0.27 3 | *Bathysa cuspidata* (A. St.-Hil.) Hook. f. ex K. Schum. (Rubiaceae) | 7 | 0.28 |
| 73  | Ocotea sp. (Lauraceae)                |           |              |          |               |             |                          |                      |                      |                          |                      |                      |
| 74  | *Hieronyma alchorneoides* Allemão (Phyllanthaceae) | 0.10 0.25 2 | *Inga cylindrica* (Vell.) Mart. (Fabaceae) | 7 | 0.28 |
| 75  | *Pouteria caimito* (Ruiz & Pav.) Radlk. (Sapotaceae) | 0.10 0.24 24 | *Lacistema pubescens* Mart. (Lacistemataceae) | 7 | 0.28 |
| 76  | *Schefflera morototoni* (Aubl.) Maguire, Steyerm. & Frodin (Araliaceae) | 0.10 0.24 6 | *Nectandra lanceolata* Nees & Mart. (Lauraceae) | 7 | 0.28 |
| 77  | *Licania belemii* Prance (Chrysobalanaceae) | 0.09 0.23 2 | *Tapiiria obtusa* (Benth.) J.D. Mitch. (Anacardiaceae) | 7 | 0.28 |
| 78  | *Pradosia lactescens* (Vell.) Radlk. (Sapotaceae) | 0.09 0.23 2 | *Tovomita glazioviana* Engl. (Clusiaceae) | 7 | 0.28 |
| 79  | *Marlierea teuscheriana* (O. Berg) D. Legrand (Myrtaceae) | 0.09 0.23 21 | *Annona neolaurifolia* H. Rainer (Annonaceae) | 6 | 0.24 |
| 80  | *Colubrina glandulosa* Perkins (Rhamnaceae) | 0.09 0.22 1 | *Carpotroche brasiliensis* (Raddi) Endl. (Achariaceae) | 6 | 0.24 |
| 81  | *Qualea multilora* Mart. (Vochysiaceae) | 0.09 0.22 1 | *Casearia gossypiosperma* Briq. (Salicaceae) | 6 | 0.24 |
| 82  | *Margaritaria nobilis* L. f. (Phyllanthaceae) | 0.09 0.21 2 | *Piptadenia gonoacantha* (Mart.) J.F. Macbr. (Fabaceae) | 6 | 0.24 |
| 83  | *Apuleia leiocarpa* (Vogel) J.F. Macbr. (Fabaceae) | 0.09 0.21 18 | *Rudgea myrsinifolia* Benth. (Rubiaceae) | 6 | 0.24 |
| No. | Species                                                                 | Authors & Sources                                                                 | Import | Impact | Species                                                                 | Authors & Sources                                                                 |
|-----|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------|--------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 84  | *Bathysa cuspidata* (A. St.-Hil.) Hook. f. ex K. Schum. (Rubiaceae)     | 0.09 0.21 7 *Schefflera morototoni* (Aubl.) Maguire, Steyerm. & Frodin (Araliaceae) | 6      | 0.24   |
| 85  | *Allophylus edulis* (A. St.-Hil., A. Juss. & Cambess.) Hieron. ex Niederl. ( Sapindaceae) | 0.08 0.21 1 *Trattinnickia* sp. ( Burseraceae) | 6      | 0.24   |
| 86  | *Nectandra lanceolata* Nees & Mart. ( Lauraceae)                        | 0.08 0.21 7 *Aspidosperma polyneuron* Müll. Arg. ( Apocynaceae)                  | 5      | 0.20   |
| 87  | *Protium heptaphyllum* (Aubl.) Marchand ( Burseraceae)                  | 0.08 0.21 8 *Astrocaryum aculeatissimum* (Schott) Burret (Areca ceae)            | 5      | 0.20   |
| 88  | *Urbanodendron verrucosum* (Nees) Mez ( Lauraceae)                      | 0.08 0.20 23 *Guatteria* sp.1 (Annonaceae)                                      | 5      | 0.20   |
| 89  | *Astronium fraxinfolium* Schott ex Spreng. (Anacardiaceae)              | 0.08 0.20 4 *Mollinedia schottiana* Spreng. Perkins (Monimiaceae)               | 5      | 0.20   |
| 90  | *Psychotria carthagenensis* Jacq. (Rubiaceae)                           | 0.08 0.20 10 *Myrsine umbellata* Mart. (Primulaceae)                            | 5      | 0.20   |
| 91  | *Melanoxylon brauna* Schott (Fabaceae)                                  | 0.08 0.20 2 *Psychotria nuda* Cham. & Schltld. Wawra (Rubiaceae)                | 5      | 0.20   |
| 92  | *Lacistema pubescens* Mart. (Lacistemataceae)                           | 0.08 0.19 7 Salicaceae sp.                                                     | 5      | 0.20   |
| 93  | *Tapirira obtusa* (Benth.) J.D. Mitch. (Anacardiaceae)                  | 0.08 0.19 7 *Trichilia lepidota* Mart. (Meliaceae)                              | 5      | 0.20   |
| 94  | *Xylopia brasiliensis* Spreng. (Annonaceae)                            | 0.07 0.19 3 *Annona cacans* Warm. (Annonaceae)                                  | 4      | 0.16   |
| 95  | *Ocotea corymbosa* (Meisn.) Mez ( Lauraceae)                            | 0.07 0.18 8 *Aparisthmium cordatum* (A. Juss.) Ball. (Euphorbiaceae)            | 4      | 0.16   |
| 96  | *Guapira opposita* (Vell.) Reitz (Nyctaginaceae)                       | 0.07 0.17 11 *Astronium fraxinfolium* Schott ex Spreng. (Anacardiaceae)          | 4      | 0.16   |
| 97  | *Myrcia pallida* (O. Berg) N. Silveira (Myrtaceae)                     | 0.07 0.17 13 *Citronella megaphylla* (Miers) R.A. Howard (Cardiop teridaceae)   | 4      | 0.16   |
| 98  | *Tovomita glazioviana* Engl. (Clusiaceae)                              | 0.07 0.17 7 *Clarisia ilicifolia* Spreng. Lanj. & Rossberg (Moraceae)           | 4      | 0.16   |
| 99  | *Myrcia pubipetala* Miq. (Myrtaceae)                                   | 0.07 0.17 11 *Cordia sellowiana* Cham. (Boraginaceae)                           | 4      | 0.16   |
| 100 | *Maclura tinctoria* (L.) D. Don ex Steud. (Moraceae)                   | 0.07 0.17 4 *Croton floribundus* Spreng. (Euphorbiaceae)                        | 4      | 0.16   |
| No. | Species                          | Author(s)                  | Percentage | Height | Photosynthetic | Yr. | 
|-----|---------------------------------|----------------------------|------------|--------|----------------|-----| 
| 101 | Maprounea guianensis Aubl.      | (Euphorbiaceae)            | 0.07       | 0.17   | 2              | Eugenia leptoclada O. Berg (Myrtaceae) | 4   | 0.16 |
| 102 | Swartzia myrtifolia Sm.         | (Fabaceae)                 | 0.06       | 0.16   | 15             | Guapira hirsuta (Choisy) Lundell (Nyctaginaceae) | 4   | 0.16 |
| 103 | Lonchocarpus cultratus (Vell.)  | A.M.G. Azevedo & H.C. Lima (Fabaceae) | 0.06       | 0.15   | 1              | Maclura tinctoria (L.) D. Don ex Steud. (Moraceae) | 4   | 0.16 |
| 104 | Ouratea polygyna Engl.          | (Ochnaceae)                | 0.06       | 0.15   | 8              | Sapium glandulosum (L.) Morong (Euphorbiaceae) | 4   | 0.16 |
| 105 | Pera glabrata (Schott) Poepp. ex Baill. | (Euphorbiaceae)           | 0.06       | 0.15   | 2              | Alchornea glandulosa Poepp. (Euphorbiaceae) | 3   | 0.12 |
| 106 | Guettarda viburnoides Cham. & Schltldl. | (Rubiaceae)                | 0.06       | 0.14   | 3              | Aspidosperma polynuron Müll. Arg. (Apocynaceae) | 3   | 0.12 |
| 107 | Tabernaemontana fuchsiifolia A. DC. | (Apocynaceae)              | 0.06       | 0.14   | 2              | Aspidosperma subincanum Mart. ex A. DC. (Apocynaceae) | 3   | 0.12 |
| 108 | Trichilia lepidota Mart.        | (Meliaceae)                | 0.06       | 0.14   | 5              | Cariniana estrellensis (Raddi) Kuntze (Lecythidaceae) | 3   | 0.12 |
| 109 | Aspidosperma polynuron Müll. Arg. | (Apocynaceae)              | 0.06       | 0.14   | 5              | Coussapoa microcarpa (Schott) Rizzini (Urticaceae) | 3   | 0.12 |
| 110 | Cedrela fissilis Vell.          | (Meliaceae)                | 0.06       | 0.14   | 2              | Cupania vernalis Cambess. (Sapindaceae) | 3   | 0.12 |
| 111 | Genipa americana L.             | (Rubiaceae)                | 0.05       | 0.13   | 1              | Dalbergia nigra (Vell.) Allemão ex Benth. (Fabaceae) | 3   | 0.12 |
| 112 | Naucleopsis oblongifolia (Kuhlm.) Carauta (Moraceae) | 0.05       | 0.13   | 1              | Eugenia dodonaefolia Cambess. (Myrtaceae) | 3   | 0.12 |
| 113 | Peltophorum dubium (Spreng.) Taub. | (Fabaceae)                 | 0.05       | 0.13   | 2              | Guettarda viburnoides Cham. & Schltldl. (Rubiaceae) | 3   | 0.12 |
| 114 | Mouri glazioviana Cogn.         | (Melastomataceae)          | 0.05       | 0.13   | 14             | Kielmeyera albopunctata Saddi (Calophyllaceae) | 3   | 0.12 |
| 115 | Unidentified sp.4               |                            | 0.05       | 0.12   | 1              | Mabea fistilifera Mart. (Euphorbiaceae) | 3   | 0.12 |
| 116 | Marilerea suaveolens Cambess.   | (Myrtaceae)                | 0.05       | 0.11   | 1              | Maytenus salicifolia Reissek (Celastraceae) | 3   | 0.12 |
| 117 | Luehea grandiflora Mart.       | (Malvaceae)                | 0.05       | 0.11   | 2              | Miconia budleoides Triana (Melastomataceae) | 3   | 0.12 |
| 118 | Miconia cinnamomifolia (DC.) Naudin (Melastomataceae) | 0.04       | 0.11   | 1              | Nectandra oppositifolia Nees & Mart. (Lauraceae) | 3   | 0.12 |
| No. | Species                                      |uka laxiflora Cambess. (Myrtaceae) | 0.04 | 0.11 | 24  | Nyctaginaceae sp. | 3   | 0.12 |
|-----|---------------------------------------------|----------------------------------|------|------|-----|------------------|-----|------|
| 120 | Xylopia sericea A. St.-Hil. (Annonaceae)   | 0.04 | 0.11 | 3   | Salacia elliptica (Mart. ex Schult.) G. Don (Celastraceae) | 3   | 0.12 |
| 121 | Guatteria sp.1 (Annonaceae)                 | 0.04 | 0.10 | 5   | Xylopia brasiliensis Spreng. (Annonaceae) | 3   | 0.12 |
| 122 | Tovomitopsis saldanhae Engl. (Clusiaceae)   | 0.04 | 0.10 | 10  | Xylopia sericea A. St.-Hil. (Annonaceae) | 3   | 0.12 |
| 123 | Nectandra oppositifolia Nees & Mart. (Lauraceae) | 0.04 | 0.10 | 3   | Alchornea tripinnervia (Spreng.) Müll. Arg. (Euphorbiaceae) | 2   | 0.08 |
| 124 | Xylosma prockia (Turcz.) Turcz. (Salicaceae) | 0.04 | 0.09 | 2   | Andira fraxinifolia Benth. (Fabaceae) | 2   | 0.08 |
| 125 | Trichilia pallida Sw. (Meliaceae)           | 0.04 | 0.09 | 2   | Casearia sylvestris Sw. (Salicaceae) | 2   | 0.08 |
| 126 | Kielmeyera albopunctata Saddi (Calophylliaceae) | 0.03 | 0.08 | 3   | Cedrela fissilis Yell. (Meliaceae) | 2   | 0.08 |
| 127 | Mabea fistulifera Mart. (Euphorbiaceae)     | 0.03 | 0.08 | 3   | Cestrum marianum Kunth (Solanaceae) | 2   | 0.08 |
| 128 | Aparisthmium cordatum (A. Juss.) Baill. (Euphorbiaceae) | 0.03 | 0.08 | 4   | Cestrum sp. (Solanaceae) | 2   | 0.08 |
| 129 | Inga sp. (Fabaceae)                         | 0.03 | 0.08 | 1   | Chrysophyllum marginatum (Hook. & Arn.) Radlk. (Sapotaceae) | 2   | 0.08 |
| 130 | Heisteria silvianii Schwacke (Olacaceae)    | 0.03 | 0.08 | 7   | Chrysophyllum sp. (Sapotaceae) | 2   | 0.08 |
| 131 | Cariniana legalis (Mart.) Kuntze (Lecythidaceae) | 0.03 | 0.07 | 1   | Euphorbiaceae sp.2 | 2   | 0.08 |
| 132 | Psychotria nuda (Cham. & Schltld.) Wawra (Rubiaceae) | 0.03 | 0.07 | 5   | Hieronyma alchorneoides Allemão (Phyllanthaceae) | 2   | 0.08 |
| 133 | Swartzia acutifolia Vogel (Fabaceae)        | 0.03 | 0.07 | 1   | Hymenaea sp. (Fabaceae) | 2   | 0.08 |
| 134 | Miconia budlejoides Triana (Melastomataceae) | 0.03 | 0.07 | 3   | Ilex cerasifolia var. glaziiovii Loes. (Aquifoliaceae) | 2   | 0.08 |
| 135 | Garcinia gardneriana (Planch. & Triana) Zappi (Clusiaceae) | 0.02 | 0.06 | 8   | Inga vera Willd. (Fabaceae) | 2   | 0.08 |
| 136 | Ocotea pulchella (Nees & Mart.) Mez (Lauraceae) | 0.02 | 0.06 | 1   | Licania belemii France (Chrysobalanaceae) | 2   | 0.08 |
| ID  | Species                                                                 | Family                | A  | C  | N  |  |  |
|-----|-------------------------------------------------------------------------|-----------------------|----|----|----|---|---|
| 137 | *Siparuna reginae* (Tul.) A. DC. (Siparunaceae)                         |                       | 0.02 | 0.06 | 8  |  | 2 | 0.08 |
| 138 | *Chrysophyllum marginatum* (Hook. & Arn.) Radlk. (Sapotaceae)          |                       | 0.02 | 0.05 | 2  |  | 2 | 0.08 |
| 139 | *Cinnamomum glaziovii* (Mez) Kosterm. (Lauraceae)                       |                       | 0.02 | 0.05 | 1  |  | 2 | 0.08 |
| 140 | *Alchornea triplinervia* (Spreng.) Müll. Arg. (Euphorbiaceae)           |                       | 0.02 | 0.05 | 2  |  | 2 | 0.08 |
| 141 | *Vernonia diffusa* Less. (Asteraceae)                                   |                       | 0.02 | 0.05 | 1  |  | 2 | 0.08 |
| 142 | *Cryptocarya moschata* Nees & Mart. (Lauraceae)                         |                       | 0.02 | 0.05 | 1  |  | 2 | 0.08 |
| 143 | *Guapira hirsuta* (Choisy) Lundell (Nyctaginaceae)                      |                       | 0.02 | 0.05 | 4  |  | 2 | 0.08 |
| 144 | *Inga vera* Wild. (Fabaceae)                                            |                       | 0.02 | 0.05 | 2  |  | 2 | 0.08 |
| 145 | *Guatteria villosissima* A. St.-Hil. (Annonaceae)                       |                       | 0.02 | 0.05 | 1  |  | 2 | 0.08 |
| 146 | *Plinia grandifolia* (Mattos) Sobral (Myrtaceae)                        |                       | 0.02 | 0.05 | 1  |  | 2 | 0.08 |
| 147 | *Cupania vernalis* Cambess. (Sapindaceae)                               |                       | 0.02 | 0.04 | 3  |  | 2 | 0.08 |
| 148 | *Myrsine umbellata* Mart. (Primulaceae)                                 |                       | 0.02 | 0.04 | 5  |  | 2 | 0.08 |
| 149 | *Carpotroche brasiliensis* (Raddi) Endl. (Achariaceae)                  |                       | 0.02 | 0.04 | 6  |  | 2 | 0.08 |
| 150 | Nyctaginaceae sp.                                                       |                       | 0.02 | 0.04 | 3  |  | 2 | 0.08 |
| 151 | *Ficus luschnathiana* (Miq.) Miq. (Moraceae)                            |                       | 0.02 | 0.04 | 1  |  | 2 | 0.08 |
| 152 | *Guarea pendula* R.da Silva Ramalho, A.L. Pinheiro & T.D. Penn. (Melicaceae) |                       | 0.02 | 0.04 | 6  |  | 2 | 0.08 |
| 153 | *Casearia sylvestris* Sw. (Salicaceae)                                  |                       | 0.02 | 0.04 | 3  |  | 2 | 0.08 |
| 154 | *Cestrum mariquitense* Kunth (Solanaceae)                               |                       | 0.02 | 0.04 | 2  |  | 2 | 0.08 |

| ID  | Species Name                                      | Genus          | Family    | Frequency | Importance | Diameter | Woody | Non-Woody |
|-----|--------------------------------------------------|----------------|-----------|-----------|------------|----------|--------|-----------|
| 155 | Meliosma itatiaiae Urb.                          | Sabiaceae      | 0.01      | 0.04      | 8          | Xylosma prockia (Turcz.) Turcz. | 2      | 0.08      |
| 156 | Myrtaceae sp.                                    |                | 0.01      | 0.04      | 2          | Zanthoxylum rhoifolium Lam. (Rutaceae) | 2      | 0.08      |
| 157 | *Eugenia florida* DC. (Myrtaceae)                |                | 0.01      | 0.03      | 10         | Allophylus edulis (A. St.-Hil., A. Juss. & Cambess.) Hieron. ex Niederl. (Sapindaceae) | 1      | 0.04      |
| 158 | Clarisia ilicifolia (Spreng.) Lanj. & Rossberg (Moraceae) |                | 0.01      | 0.03      | 4          | Brunfelsia uniflora (Pohl) D. Don (Solanaceae) | 1      | 0.04      |
| 159 | Guarea guidonia (L.) Sleumer (Meliaceae)         |                | 0.01      | 0.03      | 1          | Cabralea cangerana Saldanha (Meliaceae) | 1      | 0.04      |
| 160 | Prockia crucis P. Browne ex L. (Salicaceae)      |                | 0.01      | 0.03      | 1          | Campomanesia xanthocarpa Mart. ex O. Berg (Myrtaceae) | 1      | 0.04      |
| 161 | Piper arboreum Aubl. (Piperaceae)                 |                | 0.01      | 0.03      | 9          | Cariniana legalis (Mart.) Kuntze (Lecythidaceae) | 1      | 0.04      |
| 162 | Eugenia leptoclada O. Berg (Myrtaceae)           |                | 0.01      | 0.03      | 4          | Casearia decandra Jacq. (Salicaceae) | 1      | 0.04      |
| 163 | Maytenus salicifolia Reissek (Celastraceae)      |                | 0.01      | 0.03      | 3          | Ceiba speciosa (A. St.-Hil.) Ravenna (Malvaceae) | 1      | 0.04      |
| 164 | Aspidosperma subincanum Mart. ex A. DC. (Apocynaceae) |                | 0.01      | 0.02      | 3          | Celtis iguanaea (Jacq.) Sarg. (Cannabaceae) | 1      | 0.04      |
| 165 | Eugenia dodonaeifolia Cambess. (Myrtaceae)       |                | 0.01      | 0.02      | 3          | Cinnamomum glaziovii (Mez) Kosterm. (Lauraceae) | 1      | 0.04      |
| 166 | Alchornea glandulosa Poepp. (Euphorbiaceae)      |                | 0.01      | 0.02      | 3          | Colubrina glandulosa Perkins (Rhamnaceae) | 1      | 0.04      |
| 167 | Cariniana estrellensis (Raddi) Kuntze (Lecythidaceae) |                | 0.01      | 0.02      | 3          | Coussapoa floccosa Akkermans & C.C. Berg (Urticaceae) | 1      | 0.04      |
| 168 | Rudgea myrsinifolia Benth. (Rubiaceae)           |                | 0.01      | 0.02      | 6          | Cryptocarya moschata Nees & Mart. (Lauraceae) | 1      | 0.04      |
| 169 | Citronella megaphylla (Miers) R.A. Howard (Cardiopteridaceae) |                | 0.01      | 0.02      | 4          | Cybianthus fuscus Mart. (Primulaceae) | 1      | 0.04      |
| 170 | Erythroxylum daphnites Mart. (Erythroxylaceae)   |                | 0.01      | 0.02      | 1          | Dendropanax cuneatus (DC.) Decne. & Planch. (Araliaceae) | 1      | 0.04      |
| 171 | Hortia brasiliana Vand. ex DC. (Rutaceae)        |                | 0.01      | 0.02      | 1          | Erythroxylum daphnites Mart. (Erythroxylaceae) | 1      | 0.04      |
| 172 | Ficus enormis (Mart. ex Miq.) Mart. (Moraceae)   |                | 0.01      | 0.02      | 1          | Erythroxylum pelleterianum A. St.-Hil. (Erythroxylaceae) | 1      | 0.04      |
| No. | Species                                                                 | Abundance | Frequency | Family               | Genus & Species                                    |
|-----|------------------------------------------------------------------------|-----------|-----------|----------------------|----------------------------------------------------|
| 173 | *Mollinedia schottiana* (Spreng.) Perkins (Monimiaceae)                | 0.01      | 0.02      | Euphorbiaceae sp.1   | 1 0.04                                             |
| 174 | *Cabralea cangerana* Saldanha (Meliaceae)                              | 0.01      | 0.02      | Euphorbiaceae sp.3   | 1 0.04                                             |
| 175 | Unidentified sp.3                                                      | 0.01      | 0.02      | Fabaceae sp.         | 1 0.04                                             |
| 176 | *Sparattosperma leucanthum* (Vell.) K. Schum. (Bignoniaceae)           | 0.01      | 0.02      | *Ficus enormis* (Mart. ex Miq.) Mart. (Moraceae) | 1 0.04 |
| 177 | *Ilex cerasifolia* var. *glaziiovii* Loes. (Aquifoliaceae)              | 0.01      | 0.02      | *Ficus gomelleira* Kunth & C.D. Bouché (Moraceae) | 1 0.04 |
| 178 | *Sloanea hirsuta* (Schott) Planch. ex Benth. (Elaeocarpaceae)           | 0.01      | 0.02      | *Ficus luschnathiana* (Miq.) Miq. (Moraceae)         | 1 0.04 |
| 179 | *Aspidosperma olivaceum* Müll. Arg. (Apocynaceae)                      | 0.01      | 0.02      | *Genipa americana* L. (Rubiaceae)                    | 1 0.04 |
| 180 | *Myricia anceps* O. Berg (Myrtaceae)                                   | 0.01      | 0.01      | *Guarea fistulosa* W. Palacios (Meliaceae)           | 1 0.04 |
| 181 | *Prunus sellowii* Koehne (Rosaceae)                                    | 0.00      | 0.01      | *Guarea guidonia* (L.) Sleumer (Meliaceae)           | 1 0.04 |
| 182 | *Dendropanax cuneatus* (DC.) Decne. & Planch. (Araliaceae)             | 0.00      | 0.01      | *Guatteria sp.2* (Annonaceae)                        | 1 0.04 |
| 183 | *Cestrum* sp. (Solanaceae)                                             | 0.00      | 0.01      | *Guatteria villosissima* A. St.-Hil. (Annonaceae)    | 1 0.04 |
| 184 | *Chrysophyllum* sp. (Sapotaceae)                                       | 0.00      | 0.01      | *Handroanthus chrysotrichus* (Mart. ex A. DC.) Mattos (Bignoniaceae) | 1 0.04 |
| 185 | *Guarea fistulosa* W. Palacios (Meliaceae)                             | 0.00      | 0.01      | *Hortia brasiliana* Vand. ex DC. (Rutaceae)          | 1 0.04 |
| 186 | *Miconia brunnea* Mart. ex DC. (Melastomataceae)                       | 0.00      | 0.01      | *Inga* sp. (Fabaceae)                                 | 1 0.04 |
| 187 | *Campomanesia xanthocarpa* Mart. ex O. Berg (Myrtaceae)                 | 0.00      | 0.01      | *Jacaratia heptaphylla* (Vell.) A. DC. (Caricaceae)   | 1 0.04 |
| 188 | *Machaerium caratinganum* Kuhlmann & Hoehne (Fabaceae)                 | 0.00      | 0.01      | *Lauraceae sp.1*                                           | 1 0.04 |
| 189 | *Miconia minutiflora* (Bonpl.) DC. (Melastomataceae)                   | 0.00      | 0.01      | *Lauraceae sp.2*                                           | 1 0.04 |
| 190 | *Jacaratia heptaphylla* (Vell.) A. DC. (Caricaceae)                     | 0.00      | 0.01      | *Lonchocarpus cultatus* (Vell.) A.M.G. Azevedo & H.C. Lima (Fabaceae) | 1 0.04 |
|    | Family                  | Genus                     | Species                  | Density | Diameter | 0.01 | 0.04 |
|----|------------------------|---------------------------|--------------------------|---------|----------|------|------|
| 191| Lauraceae sp.1         | Machaerium caratinganum   | Kuhlm. & Hoehne (Fabaceae)| 1       | 0.04     |
| 192| Euphorbiaceae sp.2     | Machaerium sp. (Fabaceae) | 1                         | 0.04    |
| 193| *Piper cernuum* Vell. (Piperaceae) | Marlierea suaveolens Cambess. (Myrtaceae) | 1 | 0.04 |
| 194| Stylogyne pauciflora Mez (Primulaceae) | Maytenus floribunda Reissek (Celastraceae) | 1 | 0.04 |
| 195| *Erythroxylum pelleterianum* A. St.-Hil. (Erythroxylaceae) | Miconia brunnea Mart. ex DC. (Melastomataceae) | 1 | 0.04 |
| 196| Lauraceae sp.2         | Miconia cinnamomifolia (DC.) Naudin (Melastomataceae) | 1 | 0.04 |
| 197| *Psychotria myriantha* Müll. Arg. (Rubiaceae) | Miconia minutiflora (Bonpl.) DC. (Melastomataceae) | 1 | 0.04 |
| 198| Rubiaceae sp.           | Miconia tristis Spring (Melastomataceae) | 1 | 0.04 |
| 199| *Casearia decandra* Jacq. (Salicaceae) | Naucleopsis oblongifolia (Kuhlm.) Carauta (Moraceae) | 1 | 0.04 |
| 200| Maytenus floribunda Reissek (Celastraceae) | Ocotea pulchella (Nees & Mart.) Mez (Lauraceae) | 1 | 0.04 |
| 201| Terminalia glabrescens Mart. (Combretaceae) | Oleaceae sp. | 1 | 0.04 |
| 202| Brunfelsia uniflora (Pohl) D. Don (Solanaceae) | Plinia grandifolia (Mattos) Sobral (Myrtaceae) | 1 | 0.04 |
| 203| Euphorbiaceae sp.1     | Prockia crucis P. Browne ex L. (Salicaceae) | 1 | 0.04 |
| 204| Randia ferox (Cham. & Schltdl.) DC. (Rubiaceae) | Prunus sellowii Koehne (Rosaceae) | 1 | 0.04 |
| 205| Psidium oblongatum O. Berg (Myrtaceae) | Psidium oblongatum O. Berg (Myrtaceae) | 1 | 0.04 |
| 206| Solanaceae sp.         | Psychotria myriantha Müll. Arg. (Rubiaceae) | 1 | 0.04 |
| 207| Celtis iguanaea (Jacq.) Sarg. (Cannabaceae) | Psychotria rhytidocarpa Müll. Arg. (Rubiaceae) | 1 | 0.04 |
| 208| *Miconia tristis* Spring (Melastomataceae) | Psychotria vellosiana Benth. (Rubiaceae) | 1 | 0.04 |
| No. | Species Name                                    | Heterogeneity Index | Frequency | Extinction Level | Notes                          |
|-----|------------------------------------------------|---------------------|-----------|-----------------|--------------------------------|
| 209 | Euphorbiaceae sp.3                             | 0.00                | 1         | 0.00            | Qualea multiflora Mart. (Vochysiaceae) |
| 210 | *Psychotria* sp. (Rubiaceae)                   | 0.00                | 2         | 0.04            | Sloanea hirsuta (Schott) Planch. ex Benth. (Elaeocarpaceae) |
| 211 | Vantanea obovata (Nees & Mart.) Benth. (Humiriaceae) | 0.00                | 1         | 0.04            | Solanaceae sp. |
| 212 | *Handroanthus chrysotrichus* (Mart. ex A. DC.) Mattos (Bignoniaceae) | 0.00                | 1         | 0.04            | Stylonyne paucillor Mez. (Primulaceae) |
| 213 | *Machaerium* sp. (Fabaceae)                    | 0.00                | 1         | 0.04            | Swartzia acutiloba Vogel (Fabaceae) |
| 214 | Cybianthus fuscus Mart. (Primulaceae)           | 0.00                | 1         | 0.04            | Terminalia glabrescens Mart. (Combretaceae) |
| 215 | Guatteria sp.2 (Annonaceae)                    | 0.00                | 1         | 0.04            | Unidentified sp.3 |
| 216 | *Psychotria* rhytidocarpa Müll. Arg. (Rubiaceae) | 0.00                | 1         | 0.04            | Unidentified sp.4 |
| 217 | Oleaceae sp.                                   | 0.00                | 1         | 0.04            | Vantanea obovata (Nees & Mart.) Benth. (Humiriaceae) |
| 218 | *Psychotria vellosiana* Benth. (Rubiaceae)      | 0.00                | 1         | 0.04            | Vernonia diffusa Less. (Asteraceae) |

*Persea pyrifolia* (Lauraceae), *Himatanthus phagedaenicus* (Apocynaceae), *Croton hemiarhyreus* (Euphorbiaceae), *Jacaratia spinosa* (Caricaceae), *Moldenhawera* sp., *Inga* sp. (both Fabaceae), *Syagrus romazoffiana* (Arecaceae), *Lauraceae* sp. 3, *Monimiaceae* sp. and an unidentified species (Unidentified sp.3) were registered only during the first census and might be considered as pseudo-extinctions. On contrast, *Celtis iguanaea*, *Cybianthus fuscus*, *Vantanea obovata* and *Rubiaceae* sp. were registered only during the second census.

**Temporal coverage**

**Notes:** see Table 1

**Usage rights**

**Use license:** Creative Commons CCZero

**IP rights notes:** This dataset can be freely used, provided it is cited.
Data resources

**Data package title**: Community dynamics of the Forest of Seu Nico, Viçosa municipality, Minas Gerais, Brazil

**Resource link**: [http://187.32.44.123/ipt/](http://187.32.44.123/ipt/)

**Alternative identifiers**: [http://187.32.44.123/ipt/resource.do?r=2015-06-04-gbif-ipt-unesco-ufv-seunico-fsn](http://187.32.44.123/ipt/resource.do?r=2015-06-04-gbif-ipt-unesco-ufv-seunico-fsn); [http://www.gbif.org/dataset/3e95aa8e-a40c-4d34-ad11-7560484f1ff9](http://www.gbif.org/dataset/3e95aa8e-a40c-4d34-ad11-7560484f1ff9)

**Number of data sets**: 1

**Data set name**: dwca-2015-06-04-gbif-ipt-unesco-ufv-seunico-fsn.zip

**Data format**: Darwin Core Archive DwC-A

**Description**: 2868 tree occurrences from two census within 100 plots of 10x10 m in the Forest of Seu Nico (FSN), Viçosa municipality, Minas Gerais, Brazil, including measurements of each tree as well as environmental data from all 100 plots. Dataset consists of seven independent files (Table 6)

| file                        | Description                                                                                                                                 |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| occurrence.txt             | core occurrence file, contains a list of occurrences (individuals) in this dataset                                                        |
| meta.xml                   | (DwC-) archive descriptor                                                                                                               |
| measurementorfactplots.txt | extension file: measurements or facts, description of the chemical soil properties and understory light availability in plots where occurrences were registered (due to technical issues, extension files measurementorfactplots.txt and measurementorfactplants.txt were merged to the single extension file measurementorfact.txt) |
| measurementorfactplants.txt| extension file: height, diameter at breast height as well as basal area of all occurrences during both census (due to technical issues, extension files measurementorfactplots.txt and measurementorfactplants.txt were merged to the single extension file measurementorfact.txt) |
| description.txt            | extension file: habitat, contains habitat type in which the taxon was registered                                                        |
| eml.xml                    | meta data document                                                                                                                     |
| resourcerelationship.txt    | extension file: describes the relationship among occurrences and plots                                                                  |
| Column label                  | Column description                                                                 |
|------------------------------|-----------------------------------------------------------------------------------|
| id                           | Occurrence identifier                                                             |
| modified                     | Date of modification                                                              |
| language                     | The language of the resource                                                      |
| rights                       | Information about who can access the resource or an indication of its security status |
| rightsHolder                 | The organization owning and managing rights over the resource                     |
| bibliographicCitation        | Bibliography citing this dataset                                                  |
| references                   | DOI of bibliography citing this dataset                                           |
| datasetName                  | The name identifying the data set from which the record was derived                |
| basisOfRecord                | The specific nature of the data record                                             |
| occurrenceID                | Occurrence identifier                                                             |
| occurrenceRemarks            | Comments or notes about the occurrence                                            |
| eventDate                    | The date-time when the occurrence was recorded.                                    |
| decimalLatitude              | The geographic latitude in decimal degrees of the geographic position where occurrence was recorded |
| decimalLongitude             | The geographic longitude in decimal degrees of the geographic position where occurrence was recorded |
| acceptedNameUsageID          | Identifier for the name usage                                                     |
| parentNameUsageID            | Identifier for the name usage                                                     |
| nameAccordingToID            | Identifier for the source in which the specific taxon concept circumscription is defined or implied |
| scientificName               | The full scientific name; when forming only part of an identification, name of lowest level taxonomic rank that was determined |
| acceptedNameUsage            | Full name with authorship information of the sampled taxon                         |
| parentNameUsage              | Full name of the direct, most proximate higher-rank parent taxon                   |
| nameAccordingTo               | Reference to the source in which the specific taxon concept circumscription is defined or implied |
| higherClassification         | List of taxa names terminating at the rank immediately superior to the taxon referenced in the taxon record, starting with the highest rank and separating the names for each rank with a semi-colon |
| kingdom                      | Full scientific name of the kingdom in which the taxon is classified               |
| class                        | Full scientific name of the class in which the taxon is classified                  |
| order                        | Full scientific name of the order in which the taxon is classified                  |
Additional information

Environmental data coverage

Minimum and maximum values of canopy openness differ by the factor 4.5, effective leaf area index show a twofold variation. Higher variation (factor 10) was observed for direct radiation than for diffuse radiation (factor 4), so that total radiation varies by factor 6 within the 100 subplots (Table 7). Nevertheless, influence of canopy openness or amount of radiation on tree species distribution has not yet been evaluated.

| Table 7. Environmental data from 100 subplots from the FSN Dynamics Plot. |
|-----------------|----------|--------|--------|
| Variable | Mean ±SD | Minimum | Maximum |
| Understory light availability | | | |
| Canopy Openness [%] | 4.56 ±1.34 | 1.81 | 8.07 |
| Effective leaf area index integrated over the zenith angles 0 to 60° | 3.85 ±0.57 | 2.93 | 6.16 |
| Effective leaf area index integrated over the zenith angles 0 to 75° | 3.65 ±0.51 | 2.77 | 5.43 |
| Absolut amount of direct (bean) radiation found below the canopy and the topographic mask [mol/m²/d] | 1.82 ±0.63 | 0.38 | 3.81 |
| Absolut amount of diffuse radiation found below the canopy and the topographic mask [mol/m²/d] | 1.37 ±0.38 | 0.62 | 2.40 |
| Absolut amount of total radiation found below the canopy and the topographic mask [mol/m²/d] | 3.19 ±0.97 | 1.01 | 6.20 |
| Soil properties | | | |
| Soil acidity (pH) | 4.43 ±0.32 | 3.96 | 5.63 |
Minimum and maximum values of soil acidity, remnant phosphorus, cation exchange capacity at pH 7, nitrogen availability and organic material differ by the factor 1.4 to 2 among the 100 subplots; effective cation exchange capacity, potential soil acidity and phosphorus availability by factors between 2 and 3; potassium availability by factor 10 and saturation of bases, saturation of aluminium and availability of magnesium by factors up to 60. Aluminium saturation ranges from 0 to 95.1%, while aluminium and calcium availability range from 0 to 2.89 and 3.66 cmol/dm³, respectively (Table 7). Nevertheless, soil variation explains only around 13% of species distribution within the 100 plots (Gastauer and Meira Neto 2013b).

As shown by Gastauer and Meira Neto (2013b), soil acidity increases with availability of potassium, calcium, magnesium as well as nitrogen. Furthermore, saturation of bases, effective cation exchange capacity, remnant phosphorus and nitrogen correlate positively with soil acidity, which decreases with increasing availability of aluminium. Phosphorus availability, on contrast, correlates positively with organic matter. Soil acidity does not correlate with percentage of canopy openness, but is correlated weakly with the amount of total solar radiation transmitted by the canopy (Gastauer 2012): The higher soil acidity, more light reaches understory. Aluminium availability, on the other hand, is significantly correlated with percentage of canopy openness and total solar radiation transmitted by the canopy. Percentage of canopy openness and total solar radiation transmitted by canopy is not correlated to number of individuals or species per plot, but pH correlates positively with per plot basal area and negatively with number of species and individuals per plot.

As outlined in Gastauer and Meira Neto (2013b), there is a soil gradient from south to north within the FSN dynamics plot. Southern subplots are more acidic, i.e., show lower soil acidity, have lower nitrogen, potassium and phosphorus contents, lower calcium and magnesium availability, a higher aluminium availability and lower saturation of bases as well as a lower effective cation exchange capacity than northern plots.
Due to correlations between soil properties and understory light availability, the percentage of canopy openness as well as the amount of solar radiation transmitted by canopy are higher in southern than in northern plots (Table 8).

Table 8.
Canopy openness and total understory radiation (mean and standard deviations) in northern and southern subplots from the FSN dynamics plot. P is significance level of difference according to a two-tailed t-test.

| Variable                                      | Northern subplots | Southern subplots | P      |
|------------------------------------------------|-------------------|-------------------|--------|
| Canopy openness [%]                           | 4.13 ±1.21        | 4.83 ±1.35        | < 0.01 |
| Absolut amount of total radiation found below the canopy and the topographic mask [mol/m²/d]| 2.86 ±0.78        | 3.40 ±1.02        | < 0.005|

Description of the Darwin Core Archive containing dataset

Column labels and descriptions of further Darwin Core Archive files from both datasets are given at

Table 9 (measurementorfactplots.txt)

Table 9.
Column labels and descriptions of measurementorfactplots.txt from Darwin Core Archives dwca-2015-06-04-gbif-ipt-unesco-ufv-seunico-fsn.zip (Suppl. material 2) containing soil properties and understory light availability related to tree occurrences.

| Column label          | Column description                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Id                    | Occurrence identifier                                                                                                                              |
| measurementType       | Description of the measurement, these are pH; phosphorus (P), potassium (K), aluminium (Al), calcium (Ca) and magnesium (Mg) availability; potential acidity; saturation of bases and of aluminium; effective cation exchange capacity; cation exchange capacity at pH 7.0; interchangeable bases; remaining phosphorus; absolute amount of diffuse, direct and total radiation found below the canopy and the topographic mask as well as canopy openness |
| measurementValue      | Value of the measurement                                                                                                                           |
| measurementUnit       | Units associated with the measurementValue                                                                                                          |
| measurementDeterminedDate | Date on which the measurement was carried out                                                                                                   |
| measurementMethod     | Description of the method used to determine plot properties                                                                                       |
| measurementRemarks    | Comments or notes accompanying the measurement                                                                                                     |
Table 10 (measurementorfactplants.txt)

| Column label      | Column description                                                                 |
|-------------------|-------------------------------------------------------------------------------------|
| Id                | Occurrence identifier                                                              |
| measurementType   | Description of the measurement, this is diameter at breast height, basal area and height |
| measurementValue  | Value of the measurement                                                            |
| measurementUnit   | Unit of measurement                                                                |
| measurementDeterminedDate | Date on which the measurement was carried out                                           |
| measurementMethod | Description of the applied method (measurement or estimation)                        |
| measurementRemarks| Comments or notes accompanying the measurement                                       |

Table 11 (resourcerelationship.txt)

| Column label          | Column description                                                                 |
|-----------------------|-------------------------------------------------------------------------------------|
| Id                    | Occurrence identifier                                                              |
| relatedResourceID     | Identifier for related resource                                                    |
| relationshipOfResource| The relationship of the resource identified by relatedResourceID to the tree occurrence |
| relationshipRemark    | Further comments or notes about the relationship among tree occurrences and plots  |

Table 12 (description.txt)

| Column label | Column description                                                                 |
|--------------|-------------------------------------------------------------------------------------|
| Id           | Occurrence identifier                                                              |
| description  | Habitat type at location where occurrence was registered, i.e., seasonal semideciuous forest |
| type         | The kind of description                                                            |
| language     | The language of the ressource                                                      |
References

- Angiosperm Phylogeny Group III (J) (2009) An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. Botanical Journal of the Linnean Society of London 161: 105-121.
- Boyle B, Hopkins N, Lu Z, Garay J, Mozzherin D, Rees T, Matasci N, Narro ML, Piel WH, Mckay SJ, Lowry S, Freeland C, Peet RK, Enquist BJ (2013) The taxonomic name resolution service: an online tool for automated standardization of plant names. BMC Bioinformatics 14 (1): 16. DOI: 10.1186/1471-2105-14-16
- Câmara IG (2005) Breve história da conservação da Mata Atlântica. In: Galindo-Leal C, Câmara IG (Eds) Mata Atlântica: biodiversidade, ameaças e perspetivas. Belo Horizonte.
- Campos ÉPd, Silva AFd, Neto JAAM, Martins SV (2006) Florística e estrutura horizontal da vegetação arbórea de uma ravina em um fragmento florestal no município de Viçosa, MG. Revista Árvore 30 (6): 1045-1054. DOI: 10.1590/s0100-6762200600060021
- Departamento Nacional de Meteorologia (1992) Normais Climatológicas (1961-1990). SPI, Embrapa, Brasília, 85 pp.
- Ernest SKM, White E, Brown J (2009) Changes in a tropical forest support metabolic zero-sum dynamics. Ecology Letters 12 (6): 507-515. DOI: 10.1111/j.1461-0248.2009.01305.x
- Ferreira Júnior WG, Silva AFd, Meira Neto JAA, Schaefer CEGR, Dias AdS, Ignácio M, Medeiros MCMPd (2007) Composição florística da vegetação arbórea de um trecho de floresta estacional semideciduala em Viçosa, Minas Gerais, e espécies de maior ocorrência na região. Revista Árvore 31 (6): 1121-1130. DOI: 10.1590/s0100-67622007000600018
- Frazer GW (1999) Gap Light Analyzer 2.0.
- Gastauer M (2012) SPECIES SPECIES RICHNESS AND DIVERSITY IN THE ATLANTIC RAINFOREST AND ASSOCIATED ECOSYSTEMS: NICHE ASSEMBLY THEORIES AND NEUTRAL FORCES. UFV, 126 pp.
- Gastauer M, Meira Neto JAA (2013b) Community dynamics in a species-rich patch of old-growth forest in a global changing scenario. Acta Botanica Brasilica 27 (2): 270-285. DOI: 10.1590/s0102-33062013000200004
- Gastauer M, Meira Neto JAA (2013a) Interactions, Environmental Sorting and Chance: Phylostructure of a Tropical Forest Assembly. Folia Geobot 49 (3): 443-459. DOI: 10.1007/s12224-013-9181-1
- Laurance W, Andrade A, Magrach A, Camargo JC, Valsko J, Campbell M, Fearnside P, Edwards W, Lovejoy T, Laurance S (2014) Long-term changes in liana abundance and forest dynamics in undisturbed Amazonian forests. Ecology 95 (6): 1604-1611. DOI: 10.1890/13-1571.1
- Lopes WdP, Paula Ad, Sevilha AC, Silva AFd (2002) Composição da flora arbórea de um trecho de floresta estacional no Jardim Botânico da Universidade Federal de Viçosa (face sudoeste), Viçosa, Minas Gerais. Revista Árvore 26 (3): 339-347. DOI: 10.1590/s0100-67622002000300009
- Losos EC, Leigh EG (2004) The Growth of a Tree Plot Network. In: Losos EC, Leigh EG (Eds) Tropical Forest Diversity and Dynamism.
Supplementary materials

Suppl. material 1: Elevation data of FSN Dynamics Plot

Authors: Markus Gastauer, Werner Leyh, João A.A. Meira-Neto
Data type: X, Y and elevation values
Brief description: X, Y and elevation values of all vertices from 100 subplots from the one hectare FSN Dynamics Plot relative to starting point forming the northwestern vertex
Filename: Vertices.txt - Download file (1.46 kb)

Suppl. material 2: Seu Nico Community Dynamics

Authors: Markus Gastauer, Werner Leyh, João Augusto Alves Meira-Neto
Data type: Darwin Core Archive
Brief description: 2868 tree occurrences from two census within 100 plots of 10x10 m in the Forest of Seu Rico (FSN), Viçosa municipality, Minas Gerais, Brazil, including measurements of each tree as well as environmental data from all 100 plots. Dataset consists of seven independent files
Filename: dwca-2015-06-04-gbif-ipt-unesco-ufv-seunico-fsn.zip - Download file (598.28 kb)