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Composition and structure of the gallery forest in the Taquaruçu Grande Sub-basin, Municipality of Palmas, Tocantins State

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ABSTRACT. In the State of Tocantins, there is an abundance of water bodies, and consequently a large range of gallery forests. Despite growing awareness of the importance of these forest resources and the need to conserve them, little is known about the composition and floristic diversity of existing remnants, which still represent part of the original vegetation. The aim of this study was to review and compare the floristic composition and structure of the tree layer of the gallery forest in two microbasins of Taquaruçu Grande Sub-basin, Palmas County, Tocantins State. For phytosociological sampling, contiguous 50 plots of 10 x 10 m were set in each area, where all the individuals with trunk circumference greater than or equal to 15, at 130 cm from the ground were sampled. To calculate the phytosociological parameters, was used Fitopac 1 software, and for the similarity calculation, was used Similarity Score of Sörensen. 928 individuals were recorded, totaling 139 tree species belonging to 45 botanical families for Area 1 and 2. Species richness for the two areas studied showed no differences, and the Shannon diversity index (H') that 3.751 and 3.671, showing that the species distribution was uniform A1 (J = 0.83) and A2 (P = 0.822). The similarity index between areas was 42%, a result considered low.

Keywords: tree layer, watershed, similarity.

Composição florística e estrutura fitossociológica de dois trechos de Mata de Galeria na Sub-Bacia do Taquaruçu Grande, Município de Palmas, Estado de Tocantins

RESUMO. Apesar da importância desses recursos florestais e da necessidade de conservá-los, pouco se sabe sobre a composição e diversidade florística dos remanescentes existentes. O objetivo desse estudo foi analisar e comparar a composição florística e estrutural do estrato arbóreo da mata galeria em duas microbacias da sub-bacia do ribeirão Taquaruçu Grande, município de Palmas, Tocantins. Para o levantamento fitossociológico, foram alocadas 50 parcelas contíguas de 10 x 10 m em cada área, na qual todos os indivíduos com circunferência de tronco maior ou igual a 15 a 130 cm do solo foram amostrados. Para o cálculo dos parâmetros fitossociológicos foi utilizado o programa Fitopac 1, e para o cálculo da similaridade foi usado o Índice de Similaridade de Sörensen. Foram registrados 928 indivíduos, totalizando 139 espécies arbóreas pertencentes a 45 famílias botânicas para as áreas 1 e 2. A riqueza de espécies para as duas áreas não mostrou diferenças expressivas, assim como o índice de diversidade de Shannon (H') com 3,751 e 3,671, mostrando também que a distribuição das espécies foi uniforme A1 (J = 0,83) e A2 (J = 0,822). O índice de similaridade entre as áreas foi 42%, resultado considerado baixo.

Palavras-chave: estrato arbóreo, microbacia, similaridade.

Introduction

Studies of floristic and ecological aspects of the Brazilian Gallery Forests began in the Amazon Basin in the 50's and were later extended to other regions of the country (Martins, 1989). This forest formation of the Central Brazil is considered refuge of forests in environments where savannas dominate (Meave, Kellman, Mac Dougall, & Rosles, 1991), presenting the most diverse environment of the Cerrado (Felfili, 1995). These ecosystems stand out for their species richness (Felfili, Franco, Fagg & Sousa-Silva, 2001a) and their role in protecting water resources (Lima & Zakia, 2001), which are usually small rivers and streams, forming closed corridors (galleries). Local variations in floristics and phytosociological structure of these forests seem to be mainly related to the topography, soil waterlogging and luminosity, but are also subjected to the same levels of water stress due to the frequency of fires observed in the Cerrado, as fire usually extinguishes in the edges of these forests (Felfili 1995, 1997). As reported by Kellman & Meave (1997), occasional fires that affect only the

edges of forests is one of the factors that cause the high floristic diversity.

The Tocantins State is home to many water bodies, and despite the growing awareness of the importance of these forest resources and the need to conserve them, little is known about the composition, structure and floristic diversity. This evidences the relevance of conducting studies aimed at contributing to the maintenance of resources and management of gallery forests. These formations are stable communities, but it is expected to find a floristic and structural differentiation within the same region. Previous studies, such as Ribeiro and Walter (1998), Fernandes (2006), Felfili, et al., (2001), indicate that Gallery Forests may represent a mosaic of vegetation, made up of subunits of tree communities, with quite distinct limits.

In this context, the present study aimed to analyze and compare the floristic composition and the phytosociological structure of tree species of the gallery forest in the microbasins of the streams Mutum and Serrote, Taquaruçu Grande Sub-basin, Tocantins State.

Material and methods

Study area

The region of the Taquaruçu Grande river sub-basin is located in the central southern part of the municipality of Palmas, Tocantins State, with most of its course located in a rural area, with a sub-dendritic drainage model with its sources in the Serra do Lajeado, Secretaria do Planejamento e Meio Ambiente (Seplan, 2008). The study was developed in microbasins of the Mutum Stream (A1) and Serrote Stream (A2), which according to Bonatto (2008), represent 3.86% and 2.62% respectively of the total area of Taquaruçu Grande sub-basin, Tocantins State (Figure 1).

The climate of the region is classified as tropical of altitude with rainy summer (September to April), and cold and dry winter (April to September), i.e., with moderate water stress in winter, annual rainfall between 1,700 and 1,800 mm and average annual temperature of 28.5ºC. The Taquaruçu Grande river sub-basin altitude is approximately 400 m; shows several type of soils, but with predominance of Latossolo - aged soils, generally acidic, with good drainage capacity (Seplan, 2008).

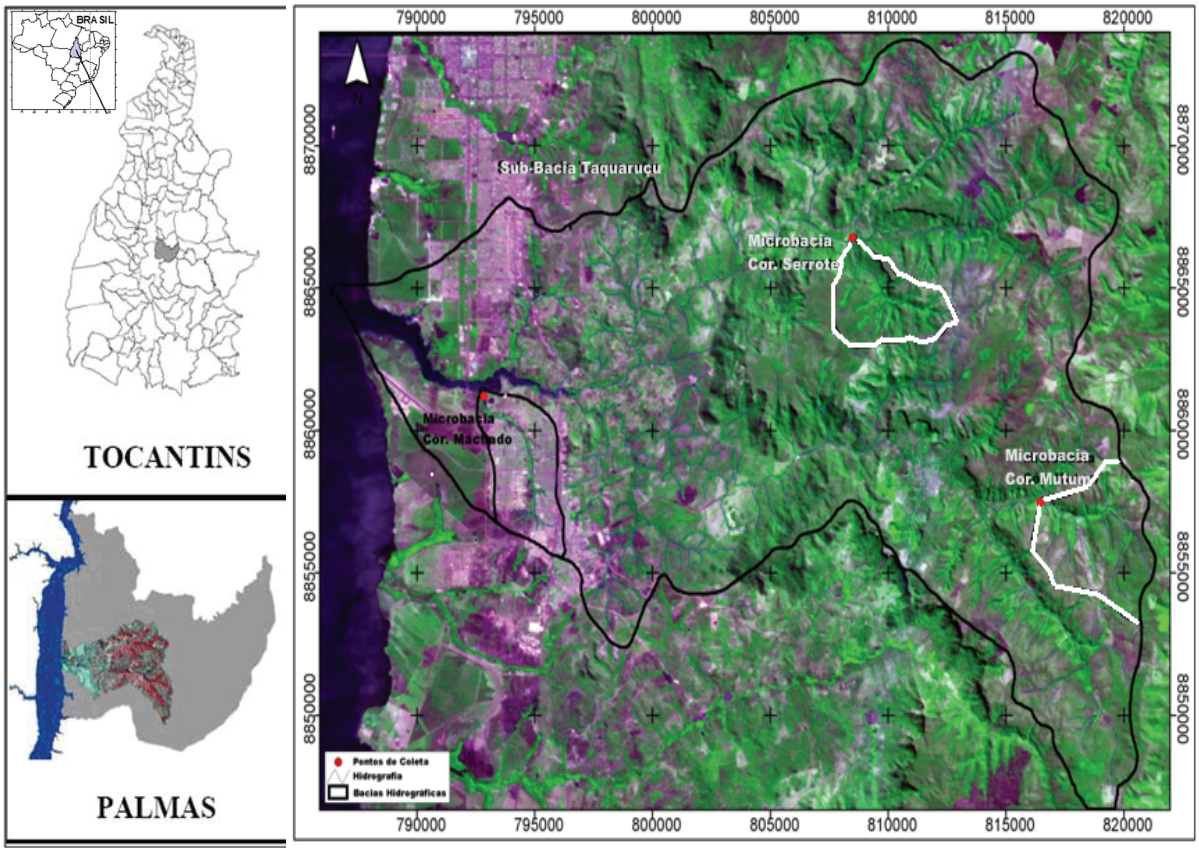

Figure 1. Location of the Taquaruçu Grande sub-basin, Tocantins State (Bonatto, 2008) and microbasins studied: streams Mutum (area 1) and Serrote (area 2).

The vegetation consists of several cerrado physiognomies, from areas of "campo sujo" to "cerrado denso", besides gallery forests occurring in depressions and valleys. The area 1 (A1) shows steep relief, and the area 2 (A2) has flatter terrain subjected to flooding during the rainy period

Methodological procedure

For the phytosociological survey of the tree layer, we used the plot method proposed by Mueller-Dombois and Ellenberg (2002). In each area, 50 contiguous plots of 10 x 10 m were established. In each plot were recorded all individuals that presented circumference at breast height (CAP), 130 cm above the ground, greater than or equal to 15 cm.

All sampled individuals were identified, and when this was not possible, the botanical material was collected for later identification using specialized literature, and comparison with existing material at the Tocantins Herbarium (HTO), Universidade Federal de Tocantins. The families were classified according to the Angiosperm Phylogeny Group III (APG III, 2009).

To calculate the phytosociological parameters (Density, Frequency, Dominance and Importance Value Index-IVI), Shannon Diversity Index (H') and equability (J') (Pielou, 1975) were used the software Fitopac 1 (Shepherd, 1996). The floristic similarity between areas was estimated by Sörensen similarity index (Magurran, 1988).

Results and discussion

The present study sampled a total of 928 individuals in both microbasins of the Taquaruçu Grande sub-basin, Tocantins State, totaling 139 species belonging to 45 families, with 37 common species. Regarding the species richness, stand out the families Fabaceae (15 spp.), Annonaceae (10 spp), Chrysobalanaceae (8 spp.).

In the microbasin of the Mutum Stream (A1), were sampled 361 individuals, of 91 species. The most species-rich family was Fabaceae (10 spp) followed by Euphorbiaceae (5 spp.). In the microbasin of the Serrote Stream (A2), were sampled 567 individuals of 86 species and 39 botanical families. As in A1, the family Fabaceae stood out for the number of species, along with Annonaceae and Chrysobalanaceae (7 spp each).

In both areas, there was a significant number of rare species (species with only one individual in each area). Among the 91 species sampled in A1, rare species are represented with 35.87% of the total. Among the 87 species in A2, 28.73% of all species are rare. This high number of rare species confirms a trend that about 1 4^{-1} to 1 3^{-1} of species in tropical forests are sampled with low density (Hartshorn, 1980). According to Martins (1991), species with low values of density and frequency are considered rare. However, this consideration should be done only for the study area, without generalizations, as these species can occur at high density, even in nearby areas. The significant presence of rare species in the community indicates the need for more studies on the conservation of these species and special care in cases of forest management. In agreement with Kageyama and Lepsch-Cunha (2001), the conservation of populations of these rare species ensures that other species, less rare and more common, are also preserved.

In a survey conducted in a Semideciduous Seasonal Forest in the municipality of Santa Rita do Passa Quatro, Minas Gerais State, Martins (1991) found 27.2% of rare species; in a gallery forest stretch in the municipality of Itatinga, São Paulo State, Ivanauskas, Rodrigues, and Nave (1997) reported a percentage of 37.11%. In the municipality of Bom Sucesso, Minas Gerais State, and in the Rio Doce State Park (PERD), a survey on gallery forests performed by Carvalho, Oliveira-Filho, Vilela, and Gavilanes (1995) found 27.4% and by Lopes, Silva, Souza, and Neta (2002) found 36.36%.

Values of species richness in the studied areas were 91 for A1 and 86 for A2, and the Shannon diversity index (H') was 3.751 nats ind^{-1} (A1) and 3.671 nats ind^{-1} (A2), also showing that the species distribution was uniform for the two areas, A1 (J = 0.83) and A2 (J = 0.82). However, the Sørensen Similarity Index between the areas was 42%, indicating a low similarity, with 37 species common to both areas.

Rodrigues & Leitão-Filho (2000) pointed out that the high environmental heterogeneity accounts for the high floristic diversity in gallery forests. This corroborates our findings, once A2 has a flatter terrain subjected to flooding in the rainy period, and A1 has a steeper surface, which probably contributes to the low floristic similarity. Moreover, the complexity of these forests forming a mosaic with different species composition (Kageyama, 1987) points out the importance of studying the microbasins.

For gallery forests in Central Brazil, Shannon index values range from 2.27 to 4.45 nats ind^{-1}, usually between 3.6 and 4.2 nats ind^{-1}. The lowest index value refers to a floodable gallery forest in Uberlândia, Minas Gerais State (Nogueira & Schiavini, 2003) and the highest to a non-floodable

gallery forest in the Federal District (Nóbrega, Ramos, & Silva-Júnior, 2001).

The species that showed the highest importance value indices (IVI) in the A1 were *Licania egleri* (47.16), followed by *Protium heptaphyllum* (21.97), *Sclerolobium paniculatum* (17.1) (Table 1). In the area A2, the species with higher IVI were *L. egleri* (40.07), followed by *Brosimum rubescens* (21.52), *P. heptaphyllum* (20.46) (Table 1).

The species *L. egleri*, *B. rubescens, P. heptaphyllum* and *Tapirira guianensis* were among the 10 species with the highest IVI for both areas. While *Trattinickia rhoifolia*, *Oenocarpus distichus* and *Physocalymma scaberrimum* are among the 10 species with higher IVI in A1, but did not occur in A2. Moreover Myrtaceae sp. and *Emmotum nitens* are important in the A2 area, and were not sampled in the area A1. *L. egleri*, *P. heptaphyllum* and *Tapirira guianensis* had their importance justified in the A1, due to their high frequency and dominance, and in the A2, the success of these species is related to the density present in the area. The importance *B. rubescens* is explained by the significant frequency in both areas, and in the A2, its importance is also due to its relative dominance.

Licania egleri showed the highest number of individuals in both areas and had the highest IVI, followed by *P. heptaphyllum*, these species have contributed most to the structural characterization of the sub-basins. *L. egleri* is a native plant, not endemic to Brazil, whose phytogeographic limits are the Amazon and Cerrado, including the regions North (Amapá, Pará, Amazonas and Rondônia), Central West (Mato Grosso, Goiás), Southeast (Minas Gerais) (Prance & Sothers 2010). In turn, *P. heptaphyllum* is mentioned by Oliveira Filho and Ratter (2000) as having common occurrence in riparian areas and considered as generalist for habitats.

Tapirira guianensis was an important species in both areas, and according to Oliveira Filho and Ratter (1995), this is a species widely distributed throughout Brazil, especially in humid soil, is a species considered cosmopolitan showing high environmental plasticity.

Table 1. Structural descriptors for species sampled in the microbasin of the Mutum Stream (A1) of the gallery forest of the Taquaruçu Grande sub-basin, Tocantins State. Where: DR = relative density; FR = relative frequency; DoR = relative dominance and IVI = importance value index. ⋆ = Species common to both areas

Espécie	Area 1				Area 2			
	DR	FR	DoR	IVI	DR	FR	DoR	IVI
L. egleri Prance	17.18	11.81	18.17	47.16	16.75	10.28	13.04	40.07
P. heptaphyllum (Aubl.) Marchand ⋆	6.65	5.91	9.42	21.97	7.58	6.39	6.49	20.46
B. rubescens Taub.⋆	3.33	3.54	1.88	8.74	7.41	6.67	7.45	21.52
S. paniculatum Vogel⋆	8.03	3.15	5.91	17.10	0.71	0.83	1.54	3.07
Ocotea sp.⋆	1.11	1.57	0.22	2.91	6.35	5.56	5.13	17.04
Tapirira guianensis Aubl.⋆	4.16	5.12	6.77	16.04	3.88	3.89	6.75	14.52
Heisteria sp.⋆	3.05	3.15	3.57	9.77	6.88	5.83	3.11	15.82
Emmotum nitens(Benth.) Miers	-	-	-	-	3.17	3.33	6.71	13.21
Trattinnickia rhoifolia Willd.	4.16	4.33	4.65	13.14	-	-	-	-
Oenocarpus distichus Mart.⋆	4.16	3.94	4.69	12.78	0.35	0.56	0.40	1.31
Byrsonima sp.⋆	0.28	0.39	0.03	0.70	2.47	2.5	5.56	10.53
Byrsonima cf sericea DC.	-	-	-	-	3.35	3.61	3.20	10.16
Richeria grandis Vahl ⋆	1.39	1.57	5	7.96	1.76	1.67	5.23	8.66
Physocalymma scaberrimum Pohl ⋆	2.22	2.36	1.68	6.26	1.59	1.67	1.14	4.40
Roupala montana Aubl. ⋆	0.28	0.39	0.33	1.00	1.41	1.94	2.05	5.41
Annonaceae sp1.⋆	0.55	0.39	0.21	1.16	1.59	1.94	1.70	5.23
Casearia cf. arborea (Rich.) Urb.	2.22	2.36	0.71	5.28	-	-	-	-
Virola sebifera Aubl. ⋆	0.55	0.79	0.25	1.59	1.41	1.67	1.98	5.05
Inga sp. ⋆	1.94	2.36	0.58	4.88	0.35	0.56	0.17	1.08
Syagrus sp.	1.94	2.36	0.54	4.84	-	-	-	-
Maprounea guianensis Aubl.⋆	0.83	1.18	1.38	3.39	1.41	1.67	1.71	4.79
Byrsonima crispa A. Juss.	1.11	1.57	2.1	4.78	-	-	-	-
Aspidosperma sp.	-	-	-	-	1.59	1.67	1.45	4.71
Chrysophyllum sp.	-	-	-	-	1.59	1.94	0.83	4.36
Sloanea sp.⋆	0.55	0.79	0.36	1.70	1.41	1.67	1.23	4.31
Apuleia leiocarpa (Vogel) J. F. Macbr.	0.55	0.79	2.96	4.30	-	-	-	-
Simarouba amara Aubl. ⋆	1.11	1.18	1.92	4.21	1.41	1.39	0.90	3.70
Syagrus oleraceae (Mart.) Becc.	-	-	-	-	1.59	1.94	0.41	3.94
Croton urucurana Baill.	0.83	1.18	1.88	3.89	-	-	-	-
Vitex polygama Cham.	0.83	1.18	1.81	3.82	-	-	-	-
Eriotheca sp.⋆	1.39	1.97	0.39	3.74	0.71	0.83	0.28	1.82
Pouteria sp.	-	-	-	-	1.23	1.67	0.84	3.74
Trattinnickia sp.	-	-	-	-	0.88	1.39	1.26	3.54
Himatanthus articulatus (Vahl) Woodson⋆	0.55	0.79	0.3	1.64	0.88	1.39	1.23	3.50
Pouteria macrophylla (Lam.) Eyma	-	-	-	-	1.23	1.67	0.54	3.44
Matayba guianensis Aubl. ⋆	0.83	1.18	1.22	3.23	0.35	0.28	0.08	0.71
Licania octandra (Hoffmanns. ex Roem. & Schult.) Kuntze	0.83	0.79	1.46	3.07	-	-	-	-

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Espécie	Area 1				Area 2			
	DR	FR	DoR	IVI	DR	FR	DoR	IVI
Copaifera langsdorffii Desf. ⋆	0.55	0.79	1.72	3.06	0.53	0.56	0.71	1.79
Unonopsis guatterioide (A. DC.) R. E. Fr.	1.11	1.18	0.7	2.99	-	-	-	-
Guarea guidonia (L.) Sleumer⋆	1.11	1.57	0.2	2.88	0.18	0.28	0.03	0.48
Licania sp2.⋆	1.11	0.79	0.97	2.87	0.18	0.28	0.14	0.59
Guarea sp.	1.11	1.18	0.44	2.73	-	-	-	-
Mollia burchellii Sprague	-	-	-	-	0.71	0.83	1.16	2.70
Moraceae sp. ⋆	1.11	0.79	0.78	2.67	0.53	0.56	0.08	1.16
Mauritiella armata (Mart.) Burret⋆	0.55	0.39	0.15	1.10	0.71	0.56	1.35	2.61
Xylopia emarginata Mart.	-	-	-	-	0.71	1.11	0.77	2.59
Licania apetala (E. Mey.) Fritsch	-	-	-	-	0.88	1.11	0.57	2.57
Guatteria sp.	-	-	-	-	0.71	1.11	0.71	2.53
*Cecropia pachystachya*Trécul	1.39	0.79	0.28	2.45	-	-	-	-
Vochysia haenkeana Mart.	0.83	0.79	0.74	2.36	-	-	-	-
Himatanthus obovatus (Müll. Arg.) Woodson⋆	0.83	1.18	0.26	2.27	0.53	0.83	0.92	2.28
Campomanesia sp.	-	-	-	-	1.06	0.83	0.18	2.07
Cenostigma sp.	0.55	0.39	1.12	2.07	-	-	-	-
Lauraceae sp. ⋆	0.55	0.79	0.57	1.92	0.71	0.83	0.52	2.06
Mollia burchellii Sprague	0.55	0.79	0.68	2.02	-	-	-	-
Hyeronima alchorneoides Allemão⋆	0.55	0.79	0.63	1.97	0.53	0.56	0.80	1.88
Rubiaceae sp.	0.83	0.79	0.28	1.90	-	-	-	-
Diospyros sericea A. DC. ⋆	0.28	0.39	0.15	0.82	0.53	0.56	0.80	1.89
Protium unifoliolatum Engl.	0.55	0.79	0.53	1.87	-	-	-	-
Melastomataceae sp.	0.56	0.79	0.5	1.84	-	-	-	-
Symphonia globulifera L. f.⋆	0.83	0.79	0.17	1.79	0.53	0.83	0.11	1.48
Myrcia splendens (Sw.) DC.⋆	0.55	0.39	0.09	1.04	0.71	0.56	0.52	1.78
Xylopia aromatica (Lam.) Mart.	-	-	-	-	0.71	0.83	0.18	1.72
Hirtella glandulosa Spreng.⋆	0.55	0.79	0.28	1.63	0.18	0.28	0.09	0.54
Vismia guianensis (Aubl.) Choisy	0.83	0.39	0.35	1.57	-	-	-	-
Vochysia pyramidalis Mart. ⋆	0.28	0.39	0.87	1.54	0.18	0.28	0.70	1.15
Unonopsis sp.	-	-	-	-	0.35	0.56	0.61	1.52
Lacistema sp.	0.55	0.79	0.17	1.51	-	-	-	-
Alchornea cf discolor Poepp.	-	-	-	-	0.35	0.56	0.51	1.42
Parkia platycephala Benth.	0.28	0.39	0.68	1.35	-	-	-	-
Chrysobalanaceae sp.	-	-	-	-	0.53	0.56	0.26	1.34
Lafoensia sp.	0.28	0.39	0.65	1.32	-	-	-	-
Clusiaceae sp.	0.28	0.39	0.57	1.24	-	-	-	-
Tabebuia sp.	0.28	0.39	0.51	1.19	-	-	-	-
Trichilia sp.	0.28	0.39	0.47	1.14	-	-	-	-
Hymenaea courbaril L.	0.28	0.39	0.46	1.13	-	-	-	-
Pseudobombax sp.	0.28	0.39	0.46	1.13	-	-	-	-
Trichilia clausseni C. DC.⋆	0.55	0.39	0.17	1.12	-	-	-	-
Eriotheca gracilipes (K. Schum.) A. Robyns	-	-	-	-	0.18	0.28	0.63	1.09
Fabaceae - Caesalpinoidea sp.	-	-	-	-	0.35	0.28	0.37	1.00
Plathymenia reticulata Benth.	0.28	0.39	0.32	0.99	-	-	-	-
Inga cylindrica (Vell.) Mart.	0.28	0.39	0.3	0.97	-	-	-	-
Guatteria australis A. St. -Hil.	0.28	0.39	0.26	0.93	-	-	-	-
Cordia sp.	0.28	0.39	0.24	0.91	-	-	-	-
Sapotaceae sp.	0.28	0.39	0.23	0.90	-	-	-	-
Ouratea hexasperma (A.St.-Hil.) Baill.	0.28	0.39	0.22	0.89	-	-	-	-
Dendropanax cuneatus (DC.) Decne. & Planch.	0.28	0.39	0.17	0.84	-	-	-	-
Ormosia sp.	-	-	-	-	0.18	0.28	0.38	0.83
Tabebuia aurea (Manso) Benth. & Hook. f. ex S. Moore	0.28	0.39	0.14	0.81	-	-	-	-
Curatella americana L.	0.28	0.39	0.14	0.81	-	-	-	-
Augusta sp.	0.28	0.39	0.13	0.80	-	-	-	-
Dilodendron bipinnatum Raldk.	0.28	0.39	0.13	0.80	-	-	-	-
Simarouba versicolor A.St.-Hil.	0.28	0.39	0.09	0.76	-	-	-	-
Fabaceae - Faboidea sp.	-	-	-	-	0.35	0.28	0.12	0.75
Mezilaurus sp.	-	-	-	-	0.18	0.28	0.29	0.74
Vernonia sp.	0.28	0.39	0.07	0.74	-	-	-	-
Mabea fistulífera Mart.	0.28	0.39	0.07	0.74	-	-	-	-
Luehea cf paniculata Mart.	0.28	0.39	0.06	0.73	-	-	-	-
Chamaecrista sp.	0.28	0.39	0.06	0.73	-	-	-	-
Ormosia arborea (Vell.) Harms	0.28	0.39	0.06	0.73	-	-	-	-
Diospyros hispida A. DC.	-	-	-	-	0.18	0.28	0.27	0.73
Guatteria australis A.St.-Hil.	-	-	-	-	0.35	0.28	0.10	0.73
Casearia sylvestris Sw.⋆	0.28	0.39	0.05	0.72	0.18	0.28	0.06	0.52
Garcinia sp.	0.28	0.39	0.05	0.72	-	-	-	-
Malvaceae sp.	0.28	0.39	0.05	0.72	-	-	-	-
Annonaceae sp2.	-	-	-	-	0.35	0.28	0.09	0.72
Machaerium acutifolium Vogel	0.28	0.39	0.04	0.71	-	-	-	-
Salicaceae sp.	0.28	0.39	0.04	0.71	-	-	-	-
Exellodendron sp.	-	-	-	-	0.18	0.28	0.26	0.71
Burseraceae sp2.	-	-	-	-	0.18	0.28	0.26	0.71
Miconia sp.⋆	0.28	0.39	0.02	0.70	0.18	0.28	0.05	0.50

Continue...

...continuation

Espécie	Area 1				Area 2			
	DR	FR	DoR	IVI	DR	FR	DoR	IVI
Qualea grandiflora Mart.	0.28	0.39	0.03	0.70	-	-	-	-
Siparuna guianensis Aubl.	0.28	0.39	0.02	0.70	-	-	-	-
Miconia albicans (Sw.) Triana	0.28	0.39	0.02	0.69	-	-	-	-
undetermined 05	-	-	-	-	0.18	0.28	0.23	0.69
Meliaceae sp.	-	-	-	-	0.35	0.28	0.05	0.68
Terminalia sp.	-	-	-	-	0.18	0.28	0.22	0.67
Fabaceae - Mimosoidea sp.	-	-	-	-	0.18	0.28	0.18	0.64
undetermined 2	-	-	-	-	0.18	0.28	0.18	0.64
Ilex sp1.	-	-	-	-	0.18	0.28	0.18	0.64
Tapura amazonica Poepp. & Endl.	-	-	-	-	0.18	0.28	0.16	0.61
Buchenavia tomentosa Eichler	-	-	-	-	0.18	0.28	0.15	0.61
Pouteria cf ramiflora (Mart.) Radlk.	-	-	-	-	0.18	0.28	0.15	0.61
Burseraceae sp1.	-	-	-	-	0.18	0.28	0.15	0.61
Schefflera morototoni (Aubl.) Maguire et al.	-	-	-	-	0.18	0.28	0.13	0.59
Euplassa sp.	-	-	-	-	0.18	0.28	0.12	0.57
Cheiloclinium cognatum (Miers) A. C .Sm.	-	-	-	-	0.18	0.28	0.11	0.57
undetermined 4	-	-	-	-	0.18	0.28	0.11	0.56
undetermined 3	-	-	-	-	0.18	0.28	0.06	0.52
Casearia sp.	-	-	-	-	0.18	0.28	0.05	0.50
Myrsine sp.	-	-	-	-	0.18	0.28	0.04	0.49
Proteaceae sp.	-	-	-	-	0.18	0.28	0.03	0.49
Trichilia clausseni C. DC.*	-	-	-	-	0.18	0.28	0.03	0.48
Ilex sp.2	-	-	-	-	0.18	0.28	0.02	0.48

Nevertheless, its wide distribution contrasts with dioecy, requiring pollen transfer between different individuals and is generally associated with rarer woody plants, typical of late stages of succession (Ackerly, Rankin-De-Merona, & Rodrigues 1990; Ibarra-Manríquez & Oyama 1992, Oliveira-Filho & Ratter, 1995). Silva Júnior, Felfili, Nogueira, and Rezende (1998) emphasize the importance of this species as an element of the woody layer of forests of the Central Brazil.

Sclerolobium paniculatum is a pioneer species, colonizing marginal lands; which usually starts secondary succession in open areas (Carvalho, 1994), tolerant to water stress, and common in the cerradão and in gallery forests of the Central Plateau (Felfili et al., 1999). This species showed low density in the A2, and although showing high density in the A1, its frequency was low compared to other species of greater IVI. This result may indicate possible changes in the environment through clearings, which enables the establishment of the species.

Brosimum rubescens ranked 2nd in the IVI for the A2, but in A1, this species occupied the 8th position. There is little information available in the literature on the successional status of the species; but preliminary observations made by Marimon, Felfili, & Harisasan (2001a, b) suggest that it is secondary, with slow growth under shade and faster in clearings, according to the model proposed by Swaine and Whitmore (1988). Many monodominant forest patches of *B. rubescens* were observed in eastern Mato Grosso State, in the transition zone between the Cerrado and the Amazon rainforest. Currently, these patches are rare because of intense exploitation of the highly durable wood of this species, especially for building pillars and poles for fences (Marimon & Felfili, 2001; Marimon, Felfili, & Haridasan, 2001a, b).

When comparing the relative values of density, dominance and frequency, it was found that the species *R. grandis* has a higher dominance in the A1 compared to the A2. This is because this area holds a greater abundance of water, where at certain times of year, emerge floodable areas, showing the existence of environmental conditions favorable to its establishment as found by Guilherme and Nakajima (2007) in Sabiá Park in Uberlândia, Minas Gerais State, and in the Onça Stream (Fontes & Walter, 2011) in Brasília, and by Lopes and Schiavini (2007) in the Panga Stream, in Minas Gerais State, significantly contributing to the biomass in the region.

The Sörensen Similarity Index between the areas was 42.0%, showing a low floristic similarity. Despite the variation in the importance of species between areas (Table 1), they contain several common species, 37 species. Bertoni and Martins (1987) studied the riparian forest in the State Reserve of Porto Ferreira, São Paulo State, and recorded a similarity of 43.8%, a value considered low by the authors.

Conclusion

Gallery forests of the Taquaruçu Grande sub-basin present floristic richness and diversity similar to several gallery forests of the cerrado in Central and Southeast regions of Brazil.

Thus, considering the peculiarities and physiognomic similarities of the region as well as its importance in the natural aspects and the pressure

imposed by intensive human activities, it is essential to draw conservation strategies, not only for the maintenance of the natural characteristics of the Taquaruçu Grande river sub-basin, but also to guarantee future detailed studies for physiognomic characterization and subsequent definition and planning of conservation units that can cover the maximum floristic and structural diversity of the region.

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