STRUCTURE AND DIVERSITY OF THE ARBOREAL COMPONENT IN CERRADO *SENSU STRICTO* IN NORTHERN MINAS GERAIS

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Resumo

Estrutura e diversidade do componente arbóreo em cerrado sensu stricto no Norte de Minas Gerais. Com a rápida mudança do uso da terra do norte de Minas Gerais, grande parte do cerrado já foi convertido em culturas e pouco se sabe sobre a estrutura e diversidade das comunidades remanescentes na região. Diante disso, o presente estudo objetivou caracterizar a estrutura da vegetação arbórea em uma área de cerrado *sensu stricto*. Para o estudo foram delimitadas 30 parcelas de 20m x 20m e amostrados os indivíduos arbóreos com diâmetro na altura do solo (DAS ≥ 4,8 cm). Foram amostrados 2616 indivíduos pertencentes a 76 espécies de 33 famílias botânicas. A comunidade apresentou densidade de 2181 ind/ha e área basal de 17,3 m²/ha. *Qualea grandiflora*, *Terminalia fagifolia* e *Dimorphandra mollis* destacaram-se em relação ao valor de importância. Indivíduos mortos em pé também tiveram destaque na comunidade. Quando comparado a outras comunidades, os valores de diversidade de Shannon (3,10) e equabilidade de Pielou (0,70) indicam que a comunidade se encontra em um estágio intermediário de sucessão. Mesmo com indícios de perturbação, a comunidade comporta espécies com grande importância social e econômica para a população local. O padrão florístico e estrutural dessa comunidade pode ser utilizado como referência para iniciativas de manejo extrativista, restauração e conservação de demais áreas de cerrado na região.
Palavras-chave: Fitossociologia, ecologia vegetal, savana, sucessão.

Abstract

Structure and diversity of the arboreal component in cerrado sensu *stricto in northern Minas Gerais*. Due to a rapid change in the land use in northern Minas Gerais State, southeastern Brazil, large amounts of cerrado have been converted into crops. There is little information about the structure and diversity of the remaining communities in the region. The present study aimed to characterize the structure of the tree vegetation in a cerrado *sensu stricto* area. We delimited thirty 20m x 20m plots and sampled tree individuals with diameter equal to or greater than 4.8 cm at 30 cm from the ground level (DGH_{30}). We sampled a total of 2616 individuals of 76 species and 33 botanical families. The community showed a density of 2180 ind/ha and a basal area of 17.3 m²/ha. *Qualea grandiflora, Terminalia fagifolia,* and *Dimorphandra mollis* showed high importance values. Standing dead individuals stood out in the community. The Shannon diversity index (3.10) and Pielou's evenness (0.70) indicate that the community is in an intermediate stage of succession in comparison with others. Despite the signs of disturbance, the community still includes species of great social and economic importance for the local population. This community's floristic and structural patterns can be used to reference extractive management, restoration, and conservation initiatives of other cerrado areas in the region.
Keywords: Phytosociology, plant ecology, savanna, succession.

INTRODUCTION

The Cerrado Biome covers more than 25% of the Brazilian territory, comprising 2,036 M km². However, 73% of its extension is already anthropized (INPE, 2018). This biome is likely to be modified entirely by 2030 if the occupation trends remain at an annual loss of 22 k km² (MACHADO *et al.*, 2004). In the face of this threat, the Cerrado was elevated to the category of priority global "hotspot" for biodiversity conservation (MYERS *et al.*, 2000; DURIGAN *et al.*, 2011), not only due to the diversity it harbors but also because only 8.1% of its territory is under environmental protection in Brazil.

The northern Minas Gerais State stands out ecologically as a transition of three phytogeographic domains: Cerrado, Atlantic Forest, and Caatinga. After the inclusion of this region in the Superintendence for the Development of the Northeastern Region (SUDENE, acronym in Portuguese) operational area, there was a rapid change in the natural vegetation cover, with irrigated crops, industrialization, and reforestation projects for charcoal (ESPÍRITO SANTO *et al.*, 2009). As soon as the SUDENE incentives were discontinued, many areas were abandoned, resulting in large tracts of degraded pastureland and remnants of native vegetation dominating the landscape. However, the deforestation in the Cerrado persisted for many years. Between 2000 and 2015, suppression rates exceeded natural regeneration by twice. (ESPÍRITO SANTO *et al*., 2016). Approximately 42.4% of the original cerrado cover of the region has already been converted to human use. The deforestation rate of 2.8%/year surpassed that observed in the Amazon Basin (ESPÍRITO SANTO *et al*., 2016). This threat implies diversity loss and decreased ecosystem services, such as the water supply to a region with a marked water deficit.

Conservation policies and sustainable use of cerrado resources must be strengthened to minimize such losses. A central point of this issue is the knowledge of natural vegetation and its importance for traditional populations, whose subsistence and livelihood depend on available resources. (LIMA *et al.*, 2012). In this context, several studies on the structure and diversity of the arboreal component of the cerrado *sensu stricto* (hereafter *s.s.*) are available in the literature (NETTESHEIM, 2010). However, there is little information about the communities in northern Minas Gerais State (see NERI *et al.*, 2007; COSTA *et al.*, 2010; SANTOS *et al.*, 2010). Thus, the present study aims to characterize the tree vegetation structure in the cerrado *s.s.* in northern Minas Gerais to generate support for conservation, restoration, and sustainable management strategies. Comparing this cerrado with those of other regions allows the implementation of similar restoration, conservation, and management practices (NETTESHEIM, 2010; PEREIRA *et al.*, 2016).

MATERIAL AND METHODS

Study area

The study was carried out in the municipality of Montes Claros, Minas Gerais State, southeastern Brazil in the Area of Experimentation and Training in Agroecology at the Alternative Agriculture Center (AEFA - CAA/NM, acronym in Portuguese), located at kilometer 35 of the highway BR 135 (Figure 1). The study area corresponds to a remnant of cerrado *s.s.* with over 20 years of regeneration, totaling approximately 10 ha (16°25'33.54" S and 44°02'08.11" W). The prevailing climate is tropical savanna with dry winters and humid summers (Aw *sensu* Köppen).

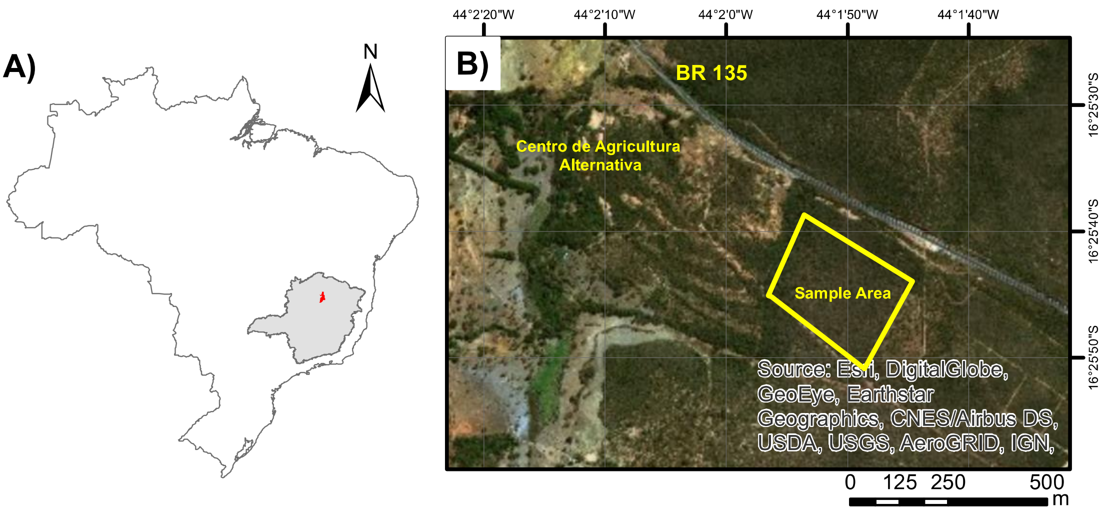

Figure 1. Location of the study area in northern Minas Gerais State (A) and satellite image of cerrado *sensu stricto* in the Area of Experimentation and Training in Agroecology at the Alternative Agriculture Center (B).

Figura 1. Localização da área de estudo no norte do estado de Minas Gerais (A) e imagem de satélite do cerrado *sensu stricto* na Área de Experimentação e Formação em Agroecologia do Centro de Agricultura Alternativa (B).

Data collection

We sampled thirty 20 x 20 m (400 m²) plots systematically spaced by 10 m, totaling 1.2 ha. We sampled all tree individuals with a trunk diameter greater than 4.8cm, including dead standing trees. We took measurements at 30 cm from the ground level. ($DGH_{30} \geq 4.8$). We used a measuring tape to measure diameters and a graduated stick to indicate tree height. We identified the species in the field or through the consultation of herbaria and specialized literature. Voucher material was deposited in the MCCA Herbarium of the Institute of Agricultural Sciences of the Federal University of Minas Gerais.

Data analysis

We calculated the tree component structure using the parameters: frequency, density, absolute and relative dominance, importance value (MORO; MARTINS, 2011), height, and abundance. We also calculated the Shannon diversity index (H ') and Pielou's evenness (J') (MAGURRAN, 2013). We used a script from Cristo and Higuch (2012) for these calculations. We plotted the rarefaction (interpolation) and prediction (extrapolation) curves to determine the sample sufficiency, simulating twice the sample of individuals (CHAO *et al.*, 2014). We used the Hill number method (q = 0; species richness) and bootstrap to calculate the standard error with 1,000 randomizations in the iNEXT package (HSIEH *et al.*, 2016). The data were processed using the R software (R CORE TEAM, 2017).

RESULTS

We sampled a total of 2,616 individuals of 76 species and 33 families (Table 1). The average density and basal area were 2,181 ind/ha and 17.3 m^2/ha, respectively. The rarefaction curve indicated sampling stability, with an increase of only 13% (10 species) if sampling was doubled (Figure 2).

Table 1. Phytosociological structure of a cerrado *sensu stricto* in northern Minas Gerais State. N- Individual numbers; BA - Basal area; AD - Absolute Density; AF – Absolute Frequency (%); ADo – Absolute Dominance (m²/ha) and IV – Importance Value (%).

Tabela 1. Estrutura fitossociológica de um cerrado *sensu stricto* no Norte de Minas Gerais. N- Número de indivíduos; BA - Área Basal; AD – Densidade Absoluta; ADo – Dominância Absoluta (m²/ha); AF – Frequência Absoluta (%); IV – Valor de Importância (%).

Species	**Family**	**N**	**BA**	**AD**	**ADo**	**AF**	**IV**
Qualea grandiflora Mart.	VOCHYSIACEAE	556	4.055	463.33	3.71	100	15.16
Dead	-	394	3.347	328.33	3.07	100	11.97
Terminalia fagifolia Mart.	COMBRETACEAE	211	2.240	175.83	2.93	100	9.4
Dimorphandra mollis Benth.	FABACEAE	122	0.446	101.67	0.69	86.67	4.11
Eriotheca pubescens (Mart. Zucc.) Schott	MALVAVCEAE	108	0.016	90	0.65	70	3.6
Eugenia sp	MYRTACEAE	118	0.057	98.33	0.44	80	3.51
Qualea parviflora Mart.	VOCHYSIACEAE	92	0.134	76.67	0.65	76.67	3.5
Hymenaea stigonocarpa Mart. Hayne	FABACEAE	42	2.010	35	0.94	80	3.42
Guapira graciliflora (Mart. Schmidt) Lundell	NYCTAGINACEAE	102	0.278	85	0.37	86.67	3.3
Caryocar brasiliense Cambess.	CARYOCARACEAE	29	2.050	24.17	0.93	56.67	2.88
Brosimum gaudichaudii Trécul	MORACEAE	87	0.286	72.5	0.23	83.33	2.81
Dalbergia miscolobium Benth.	FABACEAE	67	0.025	55.83	0.41	76.67	2.76
Bowdichia virgilioides Kunth	FABACEAE	57	0.168	47.5	0.35	76.67	2.53
Machaerium opacum Vogel.	FABACEAE	56	0.107	46.67	0.38	60	2.31
Leptolobium dasycarpum Vogel	FABACEAE	42	0.009	35	0.28	60	1.96
Aspidosperma tomentosum Mart.	APOCYNACEAE	33	0.005	27.5	0.09	66.67	1.61
Guapira noxia (Netto)	NYCTAGINACEAE	26	0.012	21.67	0.33	40	1.53
Qualea multiflora Mart.	VOCHYSIACEAE	36	0.055	30	0.12	50	1.45
Astronium fraxinifolium Schott	FABACEAE	39	0.096	32.5	0.15	40	1.39
Buchenavia tomentosa Eichler	COMBRETACEAE	28	0.153	23.33	0.27	33.33	1.34
Copaifera langsdorffi Desf.	FABACEAE	28	0.011	23.33	0.17	40	1.27
Roupala montana Aubl.	PROTEACEAE	20	0.012	16.67	0.08	40	1.01
Strychnos pseudoquina A.	LOGANIACEE	15	0.006	12.5	0.16	33.33	0.99
Tabebuia caraiba (Mart.) Bureau	BIGNONIACEAE	16	0.006	13.33	0.12	30	0.88
Duguetia furfuracea (A.St.-Hil.)	ANNONACEAE	18	0.036	15	0.04	36.67	0.87

Eugenia dysenterica (Mart.)	MYRTACEAE	15	0.050	12.5	0.05	36.67	0.85
Erythroxylum suberosum A.St.-Hil.	ERYTHROXYLACEAE	13	0.507	10.83	0.05	36.67	0.81
Pterodon pubescens (Benth.)	FABACEAE	14	0.021	11.67	0.09	26.67	0.75
Pouteria torta (Mart.)	SAPOTACEAE	15	0.053	12.5	0.14	20	0.75
Aspidosperma macrocarpon Mart. Zuc.	APOCYNACEAE	12	0.005	10	0.05	30	0.7
Tachigali aurea Tul.	FABACEAE	14	0.016	11.67	0.11	20	0.68
Miconia albicans (Sw.)	MELASTOMATACEAE	15	0.032	12.5	0.05	23.33	0.64
Plathymenia reticulata Benth.	FABACEAE	8	0.002	6.67	0.06	16.67	0.47
Magonia pubescens A.St.-Hil.	SAPINDACEAE	14	0.035	11.67	0.03	13.33	0.44
Pouteria ramiflora (Mart.)	SAPOTACEAE	7	0.056	5.83	0.05	16.67	0.43
Heteropterys byrsonimifolia A.Juss.	MALPHIGUIACEAE	10	0.028	8.33	0.03	16.67	0.43
Swartzia macrostachya Benth.	FABACEAE	6	0.012	5	0.01	20	0.41
Terminalia argentea Mart.	COMBRETACEAE	7	0.097	5.83	0.09	10	0.4
Myrsine guianensis (Aubl.) Kuntze	PRIMULACEAE	6	0.002	5	0.03	16.67	0.39
Qualea dichotoma (Mart.)	VOCHYSIACEAE	7	0.006	5.83	0.05	13.33	0.39
Callisthene microphylla Warm.	VOCHYSIACEAE	10	0.018	8.33	0.04	6.67	0.3
Machaerium sp	FABACEAE	7	0.019	5.83	0.03	10	0.3
Tocoyena formosa (Cham. Schltdl.) K.Schum.	RUBIACEAE	8	0.009	6.67	0.02	10	0.29
Enterolobium gummiferum (Mart.)	FABACEAE	4	0.044	3.33	0.01	13.33	0.28
Schefflera vinosa (Cham. Schltdl.) Frodin	ARALIACEAE	6	0.085	5	0.02	10	0.27
Pseudobombax longiflorum (Mart.)	MALVAVCEAE	5	0.066	4.17	0.02	10	0.25
Manihot caerulescens Pohl.	EUPHORBIACEAE	3	0.035	2.5	0.03	10	0.24
Hancornia speciosa Gomes	APOCYNACEAE	6	0.056	5	0.03	6.67	0.23
Ouratea hexasperma (A.St.-Hil.)	OCHNACEAE	3	0.036	2.5	0.01	10	0.21
Kielmeyera speciosa A.St.-Hil.	CALOPHYLLACEAE	4	0.022	3.33	0.03	6.67	0.2
Byrsonima ligustrifolia A.Juss	MALPHIGUIACEAE	3	0.005	2.5	0.01	10	0.2
Senna cana (Nees Mart.) H.S.	FABACEAE	3	0.023	2.5	0.01	10	0.2
Cybistax antisyphilitica (Mart.)Mart	BIGNONIACEAE	3	0.007	2.5	0.02	6.67	0.18
Vatairea macrocarpa (Benth.)	FABACEAE	3	0.023	2.5	0.02	6.67	0.18
Byrsonima laxiflora Griseb.	MALPHIGUIACEAE	3	0.007	2.5	0.02	6.67	0.17
Ind 2	MYRTACEAE	6	0.020	5	0.02	3.33	0.16
Stryphnodendron adstringens Coville	FABACEAE	3	0.014	2.5	0.01	6.67	0.16
Copaifera coriacea Mart	FABACEAE	3	0.002	2.5	0.01	6.67	0.16
Handroanthus ochraceus (Cham.) Mattos	BIGNONIACEAE	2	0.002	1.67	0.01	6.67	0.15
Agonandra brasiliensis Miers Benth. &Hook.F.	OPILIACEAE	2	0.011	1.67	0.01	6.67	0.15
Casearia sylvestris Sw.	SALICACEAE	2	0.007	1.67	0.01	6.67	0.14
Ind 1	FABACEAE	2	0.016	1.67	0	6.67	0.14
Lafoensia pacari A.St.-Hil.	LYTHRARACEAE	1	0.011	0.83	0.02	3.33	0.11
Styrax ferrugineus Nees Mart	STYRACEAE	2	0.009	1.67	0.01	3.33	0.09
Syagrus flexuosa (Mart.) Becc.	ARECACEAE	2	0.015	1.67	0.01	3.33	0.09

Byrsonima coccolobifolia Kunth	MALPHIGUIACEAE	1	0.218	0.83	0.01	3.33	0.09
Curatella americana L.	DILLENIACEAE	1	0.002	0.83	0.01	3.33	0.08
Ind 4	-	1	0.007	0.83	0.01	3.33	0.08
Ind 5	-	1	0.006	0.83	0.01	3.33	0.08
Annona crassiflora Mart	ANNONACEAE	1	0.006	0.83	0.01	3.33	0.07
Aspidosperma pyrifolium Mart. Zucc.	APOCYNACEAE	1	0.010	0.83	0.01	3.33	0.07
Amoioua sp	RUBIACEAE	1	0.004	0.83	0	3.33	0.07
Ind 3	-	1	0.002	0.83	0	3.33	0.07
Myrcia tomentosa (Aubl.) DC.	MYRTACEAE	1	0.002	0.83	0	3.33	0.07
Piptocarpha rotundifolia (Less.)	ASTERACEAE	1	0.011	0.83	0	3.33	0.07
Coccoloba brasiliensis Nees Mart.	POLYGONACEAE	1	0.005	0.83	0	3.33	0.07
TOTAL		**2616**	**17.37**	**2181**	**2217**	**16.936**	**100**

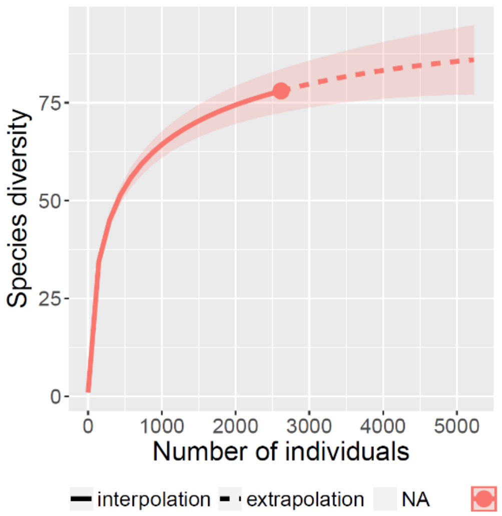

Figure 2. Rarefaction curve (interpolation – continuous line) and species prediction (extrapolation – dotted line) for a cerrado *sensu stricto* community in northern Minas Gerais State, Brazil.

Figura 2. Curva de rarefação (interpolação – linha contínua) e previsão (extrapolação – linha pontilhada) de espécies para comunidade de cerrado *sensu stricto* do Norte de Minas Gerais, Brasil.

The most representative families were Fabaceae, with 19 species, Vochysiaceae (5), Myrtaceae (4), Apocynaceae (4), Malphiguiaceae (4), Bignoniaceae (3), Combretaceae (3), Nyctaginaceae (2), Malvaceae (2), Annonaceae (2), and Sapotaceae (2); other families showed one species each. The Shannon diversity index (H’) was 3.10 nats/ind. This diversity is similar to those of other cerrado communities in the state, with values ranging from 3.1 to 4.12 nats/ind (Table 2). The Pielou’s evenness (J') was 0.70.

Table 2. Phytosociological studies in cerrado *sensu stricto* communities in northern Minas Gerais State. (S = Richness, BA = Basal area (m^2/ha), DENS = Density (ind/ha), DIV = Diversity (nats/ind), E = Evenness, AREA = Sampling area (ha), CRIT = Inclusion criterion, REF = Reference, CGH = Circumference at ground height, CBH= Circumference at breast height, DGH = diameter at ground height and DBH = diameter at breast height.

Tabela 2. Estudos fitossociológicos em comunidades de cerrado *sensu stricto* no Norte de Minas Gerais. (S = Riqueza; BA = Área Basal (m^2/ha); DENS = Densidade (ind/ha); DIV = Diversidade (nats/ind); EQ = Equabilidade; ÁREA = Área Amostral (ha); CRIT = Critério de inclusão; REF = Referência; CGH= Circunferência a altura do solo; CBH = Circunferência a altura do peito; DGH = Diâmetro a altura do solo e DBH = Diâmetro a altura do peito.

SITE	S	BA	DENS	DIV	E	AREA	CRIT	REF
Montes Claros	171	-	-	4.12	0.8	1	DGH ≥ 3	Pereira *et al.*, 2016
Senador Modestino	91	28.93	6477	3.61	0.8	0.6	CGH ≥ 10	Neri *et al.*, 2007
Montes Claros	76	17.3	2181	3.1	0.7	1.2	DGH ≥ 4.8	Present study
Uberlândia*	74	13.63	1353	3.46	-	1	CBH ≥ 15	Alves *et al.*, 2013
Grão Mogol	54	-	1580.58	3.27	0.84	-	DBH ≥ 3	Costa *et al.*, 2010
Grão Mogol	48	-	1275.51	3.13	0.87	-	DBH ≥ 3	Costa *et al.*, 2010
Carbonita	25	-	1270	-	-	0.4	CGH ≥ 15	Santos *et al.*, 2010

*Cerradão (woodland savanna)

The five species with the highest importance values represented 53% of the total number of individuals, i.e., half of the total abundance. *Qualea grandiflora* stood out for occurring in all plots, showing an absolute density of 463 ind/ha (22% of the total) and a basal area of 4.05 m²/ha.

The high proportion of standing dead trees indicated disturbances in the community. They occurred in all plots and represented 16.28% of the relative density and 3.35 m²/ha of basal area, according to the highest IV (12% of the total). The diameter distribution curve (Figure 3) corroborates the disturbance premise, presenting an inverted "J" shape, with a predominance of diameters between 5 and 10 cm. The individual height ranged from one meter (*Erythroxylum suberosum*) to approximately 13 m (*Hymenaea stigonocarpa*), with an average of 4.36 m.

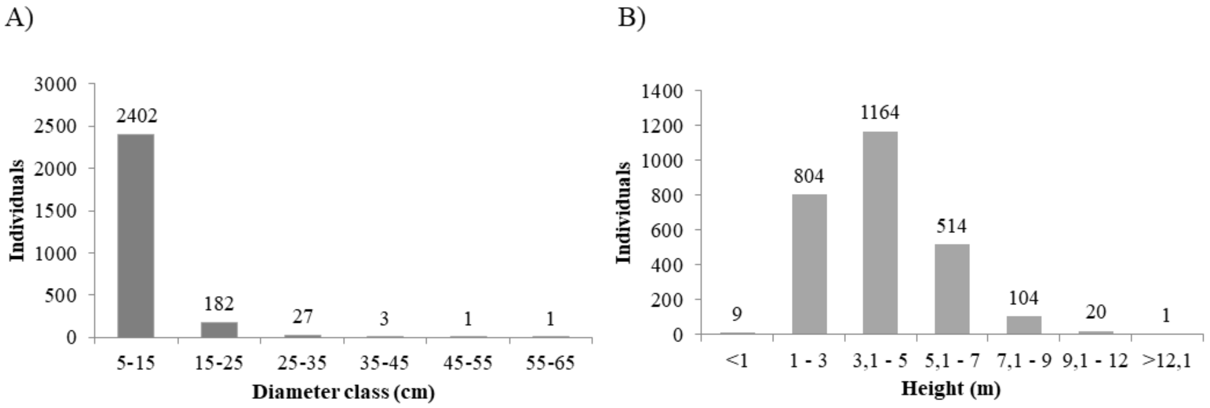

Figure 3. Diameter distribution (A) and height classes (B) of individual trees of the cerrado *sensu stricto* community in northern Minas Gerais State, Brazil.

Figura 3. Distribuição diamétrica (A) e classes de altura (B) dos indivíduos de comunidade de cerrado *sensu stricto* no Norte de Minas Gerais, Brasil.

DISCUSSION

The structural and floristic patterns of the community analyzed portrays the current context of natural landscapes in northern Minas Gerais State, with a high deforestation rate and different succession levels (ESPÍRITO-SANTO et al., 2016). This community presents diversity and structure consistent with a certain disturbance level compared to other cerrado areas in the state, but it is at an advanced succession stage and with a flora compatible with other cerrado patches.

The predominance of Fabaceae and Vochysiaceae is evident in different cerrado communities (Table 2). The appearance of Fabaceae as the richest family is common in savanna environments due to the wide plasticity and broad distribution of its species (FINGER; FINGER, 2015). The Shannon index showed an intermediate diversity level in the study area, with evidence of ecological dominance verified by evenness, which was lower than that of other studies (Table 2). *Qualea grandiflora* showed high importance in most surveys in Minas Gerais (seven out of eight articles surveyed) probably because this species accumulates aluminum and, therefore, its presence is favored in the acid soils of this phytogeographic domain (HARIDASAN, 2000).

The dominance of standing dead trees in the community surpasses that of other studies in the state. Most of these individual trees corresponded to the species *Senna canna* and *Eugenia punicifolia*, with evidence of clonal reproduction at the site (SILVA; PINHEIRO, 2007). This finding shows a post-disturbance successional stage due to succession and the thickening of vegetation, as observed by Cardoso et al. (2009), who found a complete transformation of more open savanna formations into dense cerrado or cerradão after 18 years of disturbance. The inverted “J” shape found in the diameter classes corroborates the regeneration pattern observed (FINGER; FINGER, 2015).

As for phytosociological parameters, the density value (2.181 ind/ha) was higher than those of different studies in cerrado *s.s.* (ALVES et al., 2013), but lower than that of the cerrado *s.s.* of Senador Modestino (NERI et al., 2007). The density found is higher than that estimated for cerrado *s.s.* (between 664-1396 ind/ha) and compatible with cerradão (960-2082 ind/ha) (FELFILI et al., 1994). However, the criterion adopted in the present study (DGH ≥ 4.8cm) differs from that suggested for savanna physiognomies (DGH ≥ 3cm *sensu* MORO and MARTINS, 2011). Thus, the density in the present study may have been underestimated, with values close to those found by Neri *et al.*, (2007) in cerrados of the region. Hence, we considered the cerrado *s.s.* studied here dense, distinguishing it from a cerradão by the presence of a grassy stratum and little canopy superimposition (EMBRAPA, 2019)

Among the species found, we highlight *Astronium fraxinifolium* (Gonçalo-Alves), *Copaifera langsdorffii* (Pau-d’óleo), *Plathymenia reticulata* (Vinhático), *Tabebuia aurea* (Ipê), and *Bowdichia virgilioides* (Sucupira preta) due to their structural parameters and timber importance. Other tree species stood out due to their use in local gastronomy and commerce: *Caryocar brasiliense* (pequi), *Byrsonima crassifolia* (murici), *Hancornia speciosa* (mangabeira), and *Hymenaea stigonocarpa* (Jatobá). At last, some species provide secondary metabolites that can be extracted for medicinal use as antioxidants and anti-inflammatories: *Dimorphandra mollis* (Fava d’anta), *Leptolobium dasycarpum* (locally known as unha d’anta), *Lafoensia pacari* (Pacari), *Stryphnodendron adstringens* (barbatimão) (LIMA *et al.*, 2012). These species are important for extractivism and increase the potential for conservation and proper management of the area.

CONCLUSIONS

- We found clear evidence of disturbances in the community. Nevertheless, there was a high density of individuals and species with high economic and social importance for the local population.
- This community’s floristic and structural pattern can be used to reference extractive management initiatives for restoration and conservation of other cerrado areas in the region and selection of resistant species, such as *Qualea grandiflora*.

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