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EVALUATION OF THE INITIAL TREE COMMUNITY ESTABLISHED ON A GRAVEL MINE IN THE BRAZILIAN FEDERAL DISTRICT

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INTRODUCTION

Mining activities for urbanization purposes have been practiced in the Brazilian Federal District for the last fifty years. Exploitation of sand, clay, stones, calcareous rocks, and gravel deposits resulted in 0.6% of the territory degraded by mining. Deposits explored in the last ten years have been reclaimed as demanded by local laws.

The natural restoration of areas degraded by mining exploitation is unpracticable, because the seed-bed and seedlings-bed is very injured. Also the superficial layers of soil are taken off, causing loss of microorganism like fungi, which contributes for environmental's quality improvement for the vegetation reestablishment (Vargas & Hungria, 1997). Fortunately, environmental laws oblige miners to replace these superficial layers of soil (CREA-DF Cursos, 2004).

The recovering of a degraded area doesn't necessarily mean restoration. Restoration only happens when the damage is minimal, for example, a glade opened by the death of a tree (Fonseca *et al.*, 2001). When an area is hardly damaged, the vegetal climax community, resulting from secondary succession, will never be the same as the one stood there before (CREA-DF Cursos, 2004; Fonseca *et al.*, 2001). In the case of areas degraded by mining, human intervention is necessary, because the vegetation has lost its resilience, and is not able to commence a secondary succession by itself.

This work aims to evaluate the initial tree community implanted on a gravel pit. The 20 hectare exploited area was reforested with four thousands native trees by the Department of Parks and Gardens of Brasília - DPJ/NOVACAP. The substract was scarified, the land embanked, the pits were adubated and a stick put beside every tree, as a tutorial.

MATERIAL AND METHODS

The studied area was a gravel mine in Cerrado's soil, located next to BR-060 highway, Km 14,5. Four plots (50 x 20 m) of 100 trees each were located in the area and 400 trees were labeled and identified for species and family. Measures of height and diameter (at 10cm above the ground) of each plant were taken, using metric tape and paquimeter, respectively. This measurements were accomplished in July 2004, in the beginning of the "drought season" in Cerrado.

Species richness and diversity (Index of Shannon) were calculated for each plot. Importance Value Index - IVI and values for plant cover - IVC of each species were calculated, as suggested by Felfili & Rezende (2003).

RESULTS AND DISCUSSION

In the studied area, 15 species were sampled. *Astronium urundeuva*, *Genipa americana*, Sp. 2 and Sp.3 were the species found in all of the plots, indicating that this species are well distributed in the area, and their were preferential in the revegetation project. Some species like *Caryocar brasiliense*, Sp. 4 and Sp. 5 were found in only one plot.

Table 1 – Species found in the plots, their common names, the numbers of individuals in each plot, and total number of individual of each specie.

SPECIE	COMMON NAME	IND / PLOT				TOTAL IND / SP
		1	2	3	4	
<i>Anadenanthera</i> sp.	Angico	20	4		28	52
<i>Astronium urundeuva</i>	Aroeira	9	1	23	6	39
<i>Dypterix alata</i>	Barú	6		7		13
<i>Terminalia argentea</i>	Capitão-do-Cerrado	1		30	2	33
<i>Genipa americana</i>	Jenipapo	18	16	6	20	60
<i>Pseudobombax longiflorum</i>	Imbiruçú				8	8
<i>Inga marginata</i>	Ingá	11	6			17
<i>Enterolobium contortisiliquum</i>	Jacarandá			12		12
<i>Hymenea stilbocarpa</i>	Jatobá		5	14	2	21
<i>Calophyllum brasiliense</i>	Landim	12	11		1	24
<i>Caryocar brasiliensis</i>	Pequi			1		1
Sp. 1		8	7			15
Sp. 2		10	3	2	13	28
Sp. 3		5	33	2	12	52
Sp. 4			9			9
Sp. 5			1			1
Sp. 6			4		2	6
Sp. 7				1	1	2
Sp. 8				2	5	7
TOTAL		100	100	100	100	400

Table 2 – Importance Value Index and Cover Value Index for each specie.

SPECIE	IVI(%)	IVC(%)
<i>Anadenanthera</i> sp.	27,17	20,50
<i>Astronium urundeuva</i>	28,64	19,75
<i>Dypterix alata</i>	12,69	8,25
<i>Terminalia argentea</i>	22,42	15,75
<i>Genipa americana</i>	33,89	25,00
<i>Pseudobombax longiflorum</i>	6,72	4,50
<i>Inga marginata</i>	13,69	9,25
<i>Enterolobium contortisiliquum</i>	7,72	5,50
<i>Hymenea stilbocarpa</i>	19,42	12,75
<i>Calophyllum brasiliense</i>	20,17	13,50
<i>Caryocar brasiliensis</i>	4,97	2,75
Sp. 1	13,19	8,75
Sp. 2	25,89	17,00
Sp. 3	31,89	23,00
Sp. 4	6,97	4,75
Sp. 5	4,97	2,75
Sp. 6	10,94	6,50
Sp. 7	9,94	5,50
Sp. 8	11,19	6,75

Genipa Americana accounted the highest IVI, followed by Sp. 3, *Astronium urundeuva* and *Anadenanthera* sp. This data confirms the affirmation of Felfili *et al.* (2002a) that forestry species develop well in areas of cerrado *sensu stricto*.

The Index of Shannon found for the plots 1, 2, 3 and 4 were, respectively, 2,14 bel, 1,88 bel, 1,91 bel e 2,04 bel. These results are under the values found by Felfilli *et. al* (2002b) and Felfili & Felfili (2001), who found Index of Shannon for cerrado varying from 2,5 to 3,69. However, considering that there measurements were done only 1 year after the plantation of the seedlings, the richness of the area is reasonable.

Another problem in this area recovering is that most of the used species are forestry species from cerrado, but the natural vegetation of the area was cerrado *sensu stricto*. This means that, in terms of rehabilitation, the project implanted is until now reasonable, but, in terms of restoration, or recover the natural vegetation the project is far from the expected yet.

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