

Supporting information to the paper

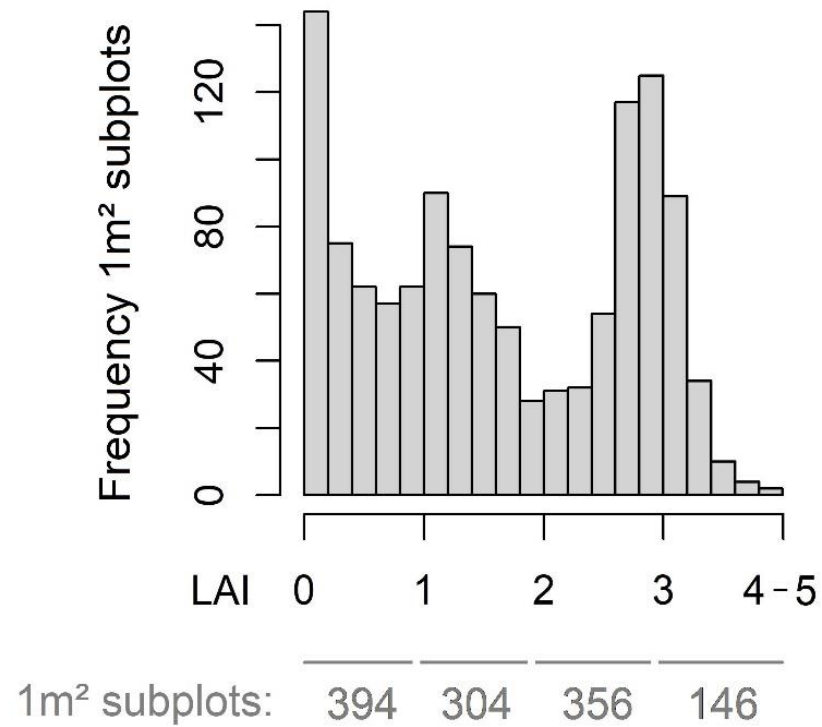
Pilon, N.A.L. et al. Shade alters savanna ground layer structure and function along a gradient of canopy cover. *Applied Vegetation Science*.



Appendix S1. Mosaic of vegetation types studied in São Paulo Cerrado area, Brazil. (A) Grass-dominated savanna (campo cerrado), (B) tree-dominated savanna (cerrado *sensu stricto*) and (C) recently formed forest (cerradão) due to encroachment (Oliveira-Filho and Ratter, 2003; Abreu et al., 2017).

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Appendix S2. Subplot distribution along the light gradient in the experimental areas. Below the histogram were represented the subplots sum at each interval of 1-LAI unit.

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Appendix S3: Grass species and functional traits sampled in Brazilian savanna. β_1 , Z-value, P-value and AIC are the GLMM parameters for grass species distribution through the light gradient.

LAI med: Leaf area index median, LAI min: Leaf area index minimum; LAI max: Leaf area index maximum; USO: underground storage organ (0= absence; 1= presence of rhizome); BP: Bud-protection (0=absence or 1=presence); C.Hmax: Maximum culm height; Hmax: Maximum height; Lwmax: maximum leaf width; Lmax: maximum leaf length. ns: not significant. ***: Species not assessed in GLMM (see methods section for more information).

Species	Sub-family	Tribe	Total	Photosynthetic type	β_1	Z-value	P-value	AIC	LAI med	LAI min	LAI max	USO	BP	C.Hmax (cm)	Hmax (cm)	Lwmax (cm)	Lmax (cm)	Architecture
<i>Agenium leptocladum</i> (Hack.) Clayton	PANICOIDEAE	ANDROPOGONEAE	64	C4 NADPme	-0.92	-3.69	<0.001	342.4	0.49	0.00	2.65	1	1	60	35	0.3	15	Cespitose
<i>Andropogon leucostachyus</i> Kunth	PANICOIDEAE	ANDROPOGONEAE	130	C4 NADPme	-0.60	-2.53	0.01	551.3	0.69	0.00	3.06	1	1	105	55	0.2	40	Cespitose
<i>Anthaenantia lanata</i> (Kunth) Benth.	PANICOIDEAE	PANICEAE	7	C4 NADPme	***	***	***	***	0.08	0.00	1.17	0	1	110	50	0.5	60	Cespitose
<i>Aristida jubata</i> (Arechav.) Herter	ARISTIDOIDEAE	ARISTIDEAE	180	C4 NADPme	-0.66	-3.37	<0.001	604.2	0.70	0.00	2.29	1	1	80	75	0.1	25	Cespitose
<i>Aristida megapotamica</i> var. <i>brevipes</i> Henrard	ARISTIDOIDEAE	ARISTIDEAE	38	C4 NADPme	-0.97	-2.63	0.01	188.0	0.12	0.00	2.61	1	0	100	40	0.4	40	Cespitose
<i>Aristida riparia</i> Trin.	ARISTIDOIDEAE	ARISTIDEAE	3	C4 NADPme	***	***	***	***	0.14	0.01	0.27	1	0	120	50	0.6	40	Cespitose
<i>Axonopus aureus</i> P. Beauv.	PANICOIDEAE	PANICEAE	52	C4 NADPme	-0.68	-2.29	0.02	283.5	0.82	0.00	2.61	1	0	70	45	0.3	15	Cespitose

<i>Axonopus marginatus</i> (Trin.) Chase	PANICOIDEAE	PANICEAE	632	C4 NADPme	-0.76	-4.71	<0.001	987.8	0.76	0.00	2.60	1	0	60	35	0.8	30	Cespitose
<i>Axonopus pellitus</i> (Nees ex Trin.) Hitchc. & Chase	PANICOIDEAE	PANICEAE	171	C4 NADPme	-0.84	-3.18	<0.001	449.6	0.90	0.00	2.60	1	1	120	65	0.4	40	Cespitose
<i>Axonopus pressus</i> (Nees ex Steud.) Parodi	PANICOIDEAE	PANICEAE	125	C4 NADPme	-0.79	-1.65	ns	243.6	0.21	0.00	1.92	1	0	150	65	1	35	Cespitose
<i>Elionurus muticus</i> (Spreng.) Kuntze	PANICOIDEAE	ANDROPOGONEAE	128	C4 NADPme	-0.49	-2.64	0.01	519.3	0.93	0.00	2.73	1	1	90	60	0.14	30	Cespitose
<i>Eragrostis leucosticta</i> Nees ex Döll	CHLORIDOIDEAE	ERAGROSTIDEAE	36	C4 NADme	-2.08	-3.07	<0.001	144.4	0.63	0.08	1.73	0	0	56	15	0.4	8	Cespitose
<i>Eragrostis polytricha</i> Nees	CHLORIDOIDEAE	ERAGROSTIDEAE	7	C4 NADme	***	***	***	***	1.16	0.11	2.04	1	1	75	50	0.5	28	Cespitose
<i>Eustachys distichophylla</i> (Lag.) Nees	CHLORIDOIDEAE	CYNODONTEAE	19	C4 NADme	-0.85	-1.44	ns	116.0	0.50	0.00	1.43	0	0	140	20	0.9	16	Cespitose
<i>Gymnopogon foliosus</i> (Willd.) Nees	CHLORIDOIDEAE	CYNODONTEAE	11	C4 NADme	-1.11	-1.14	ns	65.5	0.22	0.00	1.75	0	0	45	15	0.5	2	Cespitose
<i>Gymnopogon spicatus</i> (Spreng.) Kuntze	CHLORIDOIDEAE	CYNODONTEAE	104	C4 NADme	-1.41	-4.68	<0.001	381.2	0.33	0.00	2.27	1	0	80	25	0.8	6	Cespitose
<i>Lasiacis ligulata</i> Hitchc. & Chase	PANICOIDEAE	PANICEAE	166	C3	2.50	4.13	<0.001	174.9	2.95	1.92	3.57	1	0	300	300	2.2	14	Cespitose
<i>Loudetiopsis chrysothrix</i> (Nees) Conert	PANICOIDEAE	ARUNDINELLEAE	615	C4 PCK	-1.05	-6.68	<0.001	929.9	0.74	0.00	2.39	1	0	80	45	0.45	40	Cespitose
<i>Panicum millegrana</i> Poir.	PANICOIDEAE	PANICEAE	1241	C3	1.89	2.84	<0.001	229.4	2.91	2.36	3.90	0	0	120	40	2.7	17	Cespitose
<i>Panicum olyroides</i> Kunth	PANICOIDEAE	PANICEAE	52	C4 NADme	-0.97	-3.35	<0.001	276.5	0.50	0.00	1.95	1	0	125	40	1.9	40	Cespitose
<i>Panicum sellowii</i> Nees	PANICOIDEAE	PANICEAE	1589	C3	2.32	7.07	<0.001	383.0	2.85	1.01	3.70	0	0	100	30	2.4	16	Mat forming
<i>Paspalum ammodes</i> Trin.	PANICOIDEAE	PANICEAE	1132	C4 NADPme	-0.77	-3.62	<0.001	909.5	0.74	0.00	2.43	1	1	81	45	0.3	19	Cespitose

<i>Paspalum carinatum</i> Humb. & Bonpl. ex Flüggé	PANICOIDEAE	PANICEAE	33	C4 NADPme	-0.77	-1.79	ns	135.7	0.73	0.00	2.13	1	1	70	30	0.05	30	Cespitose
<i>Paspalum gardnerianum</i> Nees	PANICOIDEAE	PANICEAE	199	C4 NADPme	-1.16	-6.06	<0.001	651.2	0.65	0.00	2.25	1	0	100	20	0.6	30	Cespitose
<i>Paspalum guenoarum</i> Arechav.	PANICOIDEAE	PANICEAE	3	C4 NADPme	***	***	***	***	0.34	0.20	0.48	1	0	85	50	0.9	43.5	Cespitose
<i>Paspalum hyalinum</i> Nees ex Trin.	PANICOIDEAE	PANICEAE	8	C4 NADPme	***	***	***	***	0.06	0.00	0.18	1	1	58.5	25	0.7	16.4	Cespitose
<i>Paspalum lachneum</i> Nees ex Steud.	PANICOIDEAE	PANICEAE	110	C4 NADPme	-0.96	-2.29	0.02	228.3	0.16	0.00	2.78	1	1	72.8	40	0.3	22	Cespitose
<i>Paspalum pectinatum</i> Nees ex Trin.	PANICOIDEAE	PANICEAE	61	C4 NADPme	-0.79	-2.03	0.04	223.1	1.17	0.00	2.27	1	1	100	35	0.4	31	Cespitose
<i>Schizachyrium</i> <i>condensatum</i> (Kunth) Nees	PANICOIDEAE	ANDROPOGONEAE	2	C4 NADPme	***	***	***	***	0.43	0.43	0.43	0	0	110	38	0.8	25	Cespitose
<i>Schizachyrium</i> <i>microstachyum</i> (Desv. ex Ham.) Roseng., B.R. Arrill. & Izag.	PANICOIDEAE	ANDROPOGONEAE	58	C4 NADPme	-1.32	-3.48	<0.001	258.5	0.34	0.00	1.95	1	0	150	40	0.5	120	Cespitose
<i>Schizachyrium</i> <i>sanguineum</i> (Retz.) Alston	PANICOIDEAE	ANDROPOGONEAE	114	C4 NADPme	-1.66	-5.38	<0.001	381.7	0.35	0.00	1.43	1	0	80	20	0.2	17	Cespitose
<i>Setaria parviflora</i> (Poir.) Kerguélen	PANICOIDEAE	PANICEAE	16	C4 NADPme	0.52	0.65	ns	107.8	1.23	0.49	2.09	1	0	80	35	0.9	30	Cespitose
<i>Sorghastrum minarum</i> (Nees) Hitchc.	PANICOIDEAE	ANDROPOGONEAE	4	C4 NADPme	***	***	***	***	0.20	0.05	0.75	0	0	255	25	0.8	31.5	Cespitose

<i>Trachypogon plumosus</i> (Kunth) Nees	PANICOIDEAE	ANDROPOGONEAE	945	C4 NADPme	-1.29	-9.36	<0.001	911.2	0.53	0.00	2.45	1	0	181	40	0.4	45	Cespitose
<i>Tristachya leiostachya</i> Nees	PANICOIDEAE	ARUNDINELLEAE	55	C4 PCK	-1.01	-2.69	0.01	263.3	1.10	0.00	2.34	1	1	210	70	1	60	Cespitose
