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Supplementary Material

Responses of woody Cerrado species to rising atmospheric CO₂ concentration and water stress: gains and losses

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Table S1. Leaf gas exchange traits in three woody cerrado species grown under ambient [CO₂] or in high [CO₂]

A = *Solanum lycocarpum*, B = *Tabebuia aurea*, C = *Hymenaea stigonocarpa*. P_N = maximum net photosynthesis; g_s = stomatal conductance; E = leaf transpiration rate; WUE = water use efficiency; Ψ_{leaf} = leaf water potential; Total Chl = index of total chlorophyll. WW = well watered; WS = water stressed N = 5. Different capital letters indicate differences between CO₂ treatments. The interactions are indicated in the bottom of the table. DBE = days since beginning the experiment; ns = no significant interaction

A)

60 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	7.33 ± 0.64 B	0.15 ± 0.08	1.46 ± 0.44 A	5.44 ± 1.53	- 0.92 ± 0.44 B	32.69 ± 2.56 A
700	WW	9.52 ± 2.82 A	0.33 ± 0.19	1.93 ± 0.45 A	4.99 ± 1.20	-0.21 ± 0.19 A	38.05 ± 3.75 A
150 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	9.22 ± 0.41 B	0.07 ± 0.01	1.79 ± 0.32 A	5.26 ± 0.80	-0.67 ± 0.05 B	43.33 ± 1.06 A
700	WW	16.47 ± 1.61 A	0.08 ± 0.05	1.50 ± 0.81 A	33.25 ± 47.95	-0.64 ± 0.11 A	40.72 ± 4.12 A
240 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	4.76 ± 0.25 B	0.10 ± 0.04	1.42 ± 0.50 A	4.55 ± 3.46	-0.42 ± 0.07 A	43.69 ± 1.28 A
700	WW	8.96 ± 0.63 A	0.05 ± 0.01	0.54 ± 0.14 B	17.69 ± 5.60	-0.64 ± 0.11 B	40.72 ± 4.12 A
330 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	5.97 ± 0.32 B	0.56 ± 0.08 B	1.23 ± 0.09 B	4.90 ± 0.64 A	-0.86 ± 0.02 A	36.56 ± 3.64 B
400	WS	4.99 ± 0.34 B	0.07 ± 0.01 B	0.69 ± 0.40 B	11.90 8.64 ± A	-1.36 ± 0.13 A	34.56 ± 9.65 B
700	WW	12.38 ± 1.02 A	0.72 ± 0.37 A	1.83 ± 0.24 A	6.94 ± 1.37 A	-0.7 ± 0.10 A	59.28 ± 1.74 A
700	WS	7.85 ± 0.54 A	0.08 ± 0.08 B	1.44 ± 0.30 A	5.68 ± 1.25 A	-1.6 ± 0.07 A	52.53 ± 0.63 A
420 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl

400	WW	8.32 ± 0.18 A	0.14 ± 0.01 B	1.27 ± 0.02 A	6.51 ± 0.27 B	-0.50 ± 0.04 B	28.62 ± 1.57 B
400	WS	3.05 ± 0.08 B	0.09 ± 0.07 B	0.82 ± 0.36 A	4.38 ± 1.45 B	-1.66 ± 0.10 A	20.6 ± 0.90 B
700	WW	12.05 ± 0.69 A	0.29 ± 0.01 A	0.29 ± 0.01 B	40.37 ± 2.62 A	-0.56 ± 0.01 B	53.04 ± 2.65 A
700	WS	6.96 ± 0.29 B	0.07 ± 0.01 A	0.07 ± 0.01 B	93.88 ± 11.27 A	-1.49 ± 0.22 A	45.58 ± 1.64 A
510 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	5.93 ± 0.76 B	0.06 ± 0.02 B	0.79 ± 0.36 B	11.94 ± 6.47 A	-0.5 ± 0.04 B	35.42 ± 2.06 B
400	WS	4.08 ± 0.45 B	0.01 ± 0.00 B	0.22 ± 0.04 B	18.51 ± 1.35 A	-1.68 ± 0.16 B	29.71 ± 1.11 B
700	WW	14.48 ± 0.36 A	1.69 ± 0.49 A	3.03 ± 0.19A	4.40 ± 0.37 B	-0.52 ± 0.02 A	50.7 ± 1.63 A
700	WS	12.78 ± 0.54 A	2.27 ± 0.08 A	2.50 ± 0.30 A	5.20 ± 1.25 B	-1.57 ± 0.09 A	44.52 ± 0.63 A
CO₂ x Species		*	*	*	*	*	*
CO₂ x Water		*	ns	*	*	*	ns
CO₂ x DBE		*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*
Species x Water		*	ns	ns	*	*	ns
Water x DBE		*	ns	*	*	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns

B)

60 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	6.18 ± 3.25 B	3.23 ± 3.77	3.19 ± 2.38 A	3.21 ± 3.06	-0.66 ± 0.10 A	37.19 ± 4.75 A
700	WW	7.24 ± 4.51 A	1.08 ± 0.32	4.84 ± 0.80 A	1.39 ± 0.72	-1.08 ± 0.32 B	43.28 ± 1.56 A
150 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	7.59 ± 0.40 B	0.12 ± 0.03	1.98 ± 0.42 A	4.02 ± 0.92	-0.64 ± 0.04 A	38.02 ± 9.40 A
700	WW	11.44 ± 0.45 A	0.15 ± 0.04	2.64 ± 0.68 A	4.78 ± 1.82	-0.68 ± 0.03 B	35.66 ± 6.15 A
240 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	4.62 ± 0.31 B	0.09 ± 0.02	1.31 ± 0.24 A	3.67 ± 0.87	-0.4 ± 0.02 A	34.04 ± 3.16 A
700	WW	5.49 ± 0.27 A	0.03 ± 0.01	0.52 ± 0.16 B	11.46 ± 3.45	-0.61 ± 0.09 B	39.54 ± 5.36 A
330 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	12.69 ± 0.98 B	0.66 ± 0.07 B	1.83 ± 0.24 A	7.13 ± 1.54 A	-0.7 ± 0.04 A	44.8 ± 2.80 B
400	WS	6.62 ± 1.12 B	0.29 ± 0.08 B	0.77 ± 0.40 B	12.73 ± 8.12 A	-1.11 ± 0.14 A	39.4 ± 0.74 B
700	WW	14.39 ± 0.99 A	0.80 ± 0.45 A	2.03 ± 0.40 A	7.26 ± 1.12 A	-0.55 ± 0.04 A	47.06 ± 2.86 A
700	WS	9.91 ± 2.39 A	0.39 ± 0.12 A	1.35 ± 0.19 B	7.21 ± 0.84 A	-1.08 ± 0.16 A	45.36 ± 6.59 A
420 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	7.72 ± 0.24 B	0.31 ± 0.08 B	1.34 ± 0.23 B	5.97 ± 0.86 A	-0.57 ± 0.02 B	32.00 ± 1.22 B
400	WS	4.51 ± 0.32 B	0.25 ± 0.01 B	1.71 ± 0.03 A	2.63 ± 0.24 B	-1.26 ± 0.09 A	26.55 ± 0.43 B
700	WW	13.30 ± 0.78 A	0.69 ± 0.03 A	1.83 ± 0.01 A	7.25 ± 0.38 A	-0.56 ± 0.01 B	50.07 ± 0.79 A
700	WS	6.07 ± 0.08 B	0.53 ± 0.13 A	1.67 ± 0.17 A	3.66 ± 0.31 B	-1.45 ± 0.36 A	43.36 ± 3.26 A
510 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	7.14 ± 0.77 B	0.10 ± 0.01 B	0.13 ± 0.01 B	55.85 ± 9.50 A	-0.5 ± 0.04 B	37.5 ± 0.08 B
400	WS	5.21 ± 0.62 B	0.03 ± 0.01 B	0.02 ± 0.01 B	257.73 ± 66.45 A	-1.68 ± 0.16 A	26.23 ± 3.83 B

700	WW	10.32 ± 0.14 A	0.26 ± 0.04 A	1.30 ± 0.12 B	8.02 ± 0.64 B	-0.56 ± 0.01 B	52.75 ± 1.34 A
700	WS	6.98 ± 0.69 B	0.16 ± 0.02 A	1.13 ± 0.09 B	6.25 ± 1.04 B	-1.12 ± 0.10 A	49.96 ± 0.16 A
CO₂ x Species		*	*	*	*	*	*
CO₂ x Water		*	ns	*	*	*	ns
CO₂ x DBE		*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*
Species x Water		*	ns	ns	*	*	ns
Water x DBE		*	ns	*	*	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns

C)

60 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	8.88 ± 0.67 B	1.48 ± 0.66	1.49 ± 0.45 A	6.57 ± 2.17	-0.80 ± 0.05 A	44.62 ± 3.57 A
700	WW	14.72 ± 1.24 A	0.06 ± 0.18	0.66 ± 0.21 A	24.44 ± 7.49	-0.69 ± 0.06 A	26.22 ± 2.17 B
150 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	9.61 ± 0.85 B	0.21 ± 0.05	2.23 ± 0.34 A	4.39 ± 0.74	-0.63 ± 0.13 A	37.86 ± 3.05 B
700	WW	12.28 ± 0.61 A	0.13 ± 0.06	1.94 ± 0.82 A	7.81 ± 3.88	-0.66 ± 0.06 A	38.36 ± 6.08 A
240 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	5.94 ± 0.65 B	0.09 ± 0.01	1.31 ± 0.15 A	4.62 ± 0.97	-0.37 ± 0.78 A	48.35 ± 2.36 A
700	WW	6.77 ± 0.34 A	0.08 ± 0.03	0.90 ± 0.27 B	8.13 ± 2.21	-0.66 ± 0.08 A	35.4 ± 4.31 B
330 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	13.02 ± 2.28 A	0.42 ± 0.04 A	0.9 ± 0.16 A	14.49 ± 0.43 A	-0.8 ± 0.04 A	45.4 ± 0.57 A
400	WS	12.76 ± 1.32 B	0.05 ± 0.01 A	0.98 ± 0.21 A	14.19 ± 5.21 A	-1.13 ± 0.06 A	43.1 ± 1.41 B
700	WW	13.04 ± 0.74 A	0.44 ± 0.06 A	1.61 ± 0.08 A	8.11 ± 0.42 A	-0.61 ± 0.06 A	43.5 ± 3.44 A
700	WS	10.66 ± 0.31 B	0.11 ± 0.06 A	0.37 ± 0.13 A	32.57 ± 10.31 A	-1.15 ± 0.10 A	41.4 ± 1.77 B
420 days of beginning the experiment							
CO ₂	Water	P _N (μmol m ⁻² s ⁻¹)	g _s (mol m ⁻² s ⁻¹)	E (mmol m ⁻² s ⁻¹)	WUE (mmol mmol ⁻¹)	Ψ _{leaf} (Mpa)	Total Chl
400	WW	8.16 ± 0.14 B	0.15 ± 0.02 A	0.97 ± 0.01 A	8.37 ± 0.18 A	-0.57 ± 0.02 A	28.32 ± 6.67 B
400	WS	2.53 ± 0.44 B	0.08 ± 0.02 A	0.71 ± 0.19 A	3.84 ± 1.48 B	-1.25 ± 0.10 A	23.76 ± 2.80 B
700	WW	14.21 ± 1.26 A	0.51 ± 0.03 A	1.42 ± 0.09 A	9.99 ± 0.20 A	-0.92 ± 0.08 B	45.92 ± 1.08 A

700	WS	7.51 ± 1.05 B	0.28 ± 0.06 A	1.12 ± 0.17 A	6.88 ± 1.43 B	-1.58 ± 0.28 B	47.68 ± 2.03 A
510 days of beginning the experiment							
CO₂	Water	P_N (μmol m⁻² s⁻¹)	g_s (mol m⁻² s⁻¹)	E (mmol m⁻²s⁻¹)	WUE (mmol mmol⁻¹)	Ψ_{leaf} (Mpa)	Total Chl
400	WW	7.16 ± 0.03 B	0.38 ± 0.03 A	2.11 ± 0.07 A	3.39 ± 0.13 B	-0.52 ± 0.02 B	35.92 ± 1.44 B
400	WS	6.86 ± 0.15 B	0.32 ± 0.01 A	1.86 ± 0.03 A	3.67 ± 0.11 B	-1.55 ± 0.17 B	30.56 ± 3.19 B
700	WW	9.23 ± 0.27 A	0.29 ± 0.05 A	1.55 ± 0.27 A	6.16 ± 0.89 A	-0.92 ± 0.08 A	49.44 ± 2.23 A
700	WS	6.2 ± 0.10 B	0.29 ± 0.12 A	1.07 ± 0.14 A	5.83 ± 0.65 A	-0.95 ± 0.16 A	45.58 ± 1.78 A
CO₂ x Species		*	*	*	*	*	*
CO₂ x Water		*	ns	*	*	*	ns
CO₂ x DBE		*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*
Species x Water		*	ns	ns	*	*	ns
Water x DBE		*	ns	*	*	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns

Table S2. Morphological traits in three woody cerrado species grown under ambient [CO₂] or in high [CO₂]

A = *Solanum lycocarpum*, B = *Tabebuia aurea*, C = *Hymenaea stigonocarpa*. TLA = total leaf area; ALA = average leaf area; TLDM = total leaf dry mass; ALDM = average leaf dry mass; SDM = stem dry mass; RDM = root dry mass; TDM = total dry mass (g). WW = well watered; WS = water stressed N = 5. Different capital letters indicate differences between CO₂ treatments. The interactions are indicated in the bottom of the table. DBE = days since beginning the experiment; ns = no significant interaction

A)

60 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	28.45 ± 8.53 A	6.21 ± 3.13 A	0.07 ± 0.02 A	0.04 ± 0.02 B	0.45 ± 0.19 B	0.22 ± 0.07 B	0.74 ± 0.25 B
700	WW	101.21 ± 65.58 B	16.54 ± 11.80 A	0.31 ± 0.24 A	0.06 ± 0.03 B	0.64 ± 0.26 A	0.49 ± 0.25 A	1.44 ± 0.50 A
150 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	121.45 ± 51.85 B	16.68 ± 8.86 B	0.47 ± 0.22 B	0.06 ± 0.02 B	0.48 ± 0.29 B	0.51 ± 0.18 B	1.47 ± 0.62 B
700	WW	456.62 ± 303.98 A	143.60 ± 87.54 A	4.65 ± 2.84 A	0.42 ± 0.21 A	2.64 ± 1.87 A	1.08 ± 0.73 A	8.39 ± 5.04 A
240 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	3313.72 ± 94.17A	227.00 ± 1.58 A	12.99 ± 0.49 A	1.20 ± 0.24 A	7.36 ± 0.67 B	7.25 ± 0.72 B	27.61 ± 0.98 B
700	WW	1174.70 ± 330.02 B	151.73 ± 43.78 B	6.49 ± 2.63 A	0.59 ± 0.15 A	19.41 ± 7.43 A	17.74 ± 8.20 A	43.65 ± 14.32 A
330 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	978.26 ± 522.76 A	102.05 ± 48.82 A	6.73 ± 0.33 B	0.67 ± 0.02 A	6.85 ± 2.98 B	18.3 ± 0.27 A	35.89 ± 0.22 A
400	WS	1390.10 ± 719.81 A	158.79 ± 73.67 A	3.83 ± 0.52 B	0.45 ± 0.11 A	2.90 ± 0.28 B	4.14 ± 1.45 B	10.88 ± 1.67 B
700	WW	442.86 ± 5.48 B	102.05 ± 48.82 A	9.28 ± 0.40 A	0.45 ± 0.04 A	26.39 ± 0.97 A	26.8 ± 1.76 A	62.47 ± 2.33 A
700	WS	158.79 ± 73.67 B	158.79 ± 73.67 A	7.38 ± 0.30 A	0.61 ± 0.12 A	13.23 ± 1.76 A	13.84 ± 1.23 B	34.46 ± 2.62 A
420 days of beginning the experiment								

CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	982.23 ± 541.85 B	134.72 ± 57.97 A	6.09 ± 2.26 B	0.88 ± 0.18 A	14.35 ± 2.32 A	3.91 ± 0.02 B	42.24 ± 0.89 A
400	WS	1587.21 ± 563.43 A	193.71 ± 75.70 A	3.61 ± 0.04 B	0.44 ± 0.05 A	8.23 ± 1.21 B	4.08 ± 1.27 B	28.13 ± 4.08 B
700	WW	1942 ± 402.76 A	68.77 ± 2.35 A	13.28 ± 0.40 A	0.49 ± 0.07 A	24.39 ± 2.60 A	23.3 ± 2.17 A	60.97 ± 5.18 A
700	WS	493.94 ± 280.93 B	46.66 ± 29.75 A	7.58 ± 0.35 A	0.69 ± 0.07 A	10.90 ± 0.28 B	12.84 ± 0.59 A	31.32 ± 0.87 B
510 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	862.23 ± 95.00 B	95.80 ± 10.55 A	8.59 ± 1.04 B	0.95 ± 0.11 A	19.35 ± 0.12 A	20.79 ± 0.68 A	48.74 ± 0.48 A
400	WS	450.54 ± 170.44 B	48.49 ± 6.99 A	3.27 ± 0.44 B	0.38 ± 0.08 A	6.57 ± 1.11 B	12.62 ± 0.49 B	22.46 ± 1.22 B
700	WW	2607.86 ± 129.23 A	118.45 ± 1.47 A	14.71 ± 0.76 A	0.66 ± 0.01 A	24.39 ± 2.60 A	25.7 ± 0.86 A	64.81 ± 4.23 A
700	WS	609.61 ± 104.18 B	64.61 ± 15.97 A	10.58 ± 0.75 A	1.01 ± 0.15 A	10.90 ± 0.28 B	11.40 ± 0.89 B	32.89 ± 1.41 B
CO₂ x Species		*	*	*	*	*	*	*
CO₂ x Water		*	*	*	ns	*	*	*
CO₂ x DBE		*	*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*	*
Species x Water		*	ns	*	ns	*	*	*
Water x DBE		*	ns	ns	ns	ns	*	*
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns	ns

B)

60 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	19.28 ± 3.05 A	5.98 ± 2.14 A	0.08 ± 0.01 A	0.02 ± 0.01 B	0.03 ± 0.01 A	0.17 ± 0.07 A	0.29 ± 0.06 A
700	WW	89.32 ± 32.28 A	13.76 ± 6.50 A	0.31 ± 0.04 A	0.04 ± 0.01 B	0.04 ± 0.02 A	0.48 ± 0.10 A	0.84 ± 0.14 A
150 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	20.44 ± 2.74 A	3.71 ± 0.63 B	0.09 ± 0.04 B	0.02 ± 0.01 B	0.02 ± 0.01 A	0.19 ± 0.04 A	0.31 ± 0.07 A
700	WW	30.39 ± 15.37 A	7.22 ± 1.98 A	0.12 ± 0.06 A	0.03 ± 0.01 A	0.03 ± 0.01 A	0.78 ± 0.21 A	0.95 ± 0.18 A
240 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	270.45 ± 10.12 A	32.26 ± 1.50 A	5.83 ± 0.28 A	0.55 ± 0.07 A	0.68 ± 0.17 A	3.64 ± 0.39 A	10.16 ± 0.50 A
700	WW	63.68 ± 8.07 A	31.84 ± 4.03 B	0.58 ± 0.21 A	0.22 ± 0.03A	0.04 ± 0.01 A	0.47 ± 0.30 A	1.09 ± 0.32 A
330 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	200.14 ± 26.90 B	30.58 ± 2.21 B	1.53 ± 0.23 B	0.24 ± 0.05 B	0.18 ± 0.01 B	3.65 ± 0.23 B	5.36 ± 0.01 B
400	WS	192.47 ± 143.10 B	24.05 ± 17.88 B	0.78 ± 0.12 B	0.13 ± 0.04 B	0.07 ± 0.01 B	3.27 ± 1.55 B	4.13 ± 1.56 B
700	WW	885.79 ± 378.67 A	109.67 ± 20.63 A	6.31 ± 1.55 A	0.63 ± 0.15 A	0.62 ± 0.04 A	9.62 ± 1.50 A	16.55 ± 3.09 A
700	WS	305.38 ± 146.63 A	41.93 ± 14.95 A	1.7 ± 0.94 A	0.39 ± 0.15 A	0.31 ± 0.02 A	4.06 ± 0.50 A	6.90 ± 0.97 A
420 days of beginning the experiment								
CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	200.14 ± 54.74 B	27.40 ± 8.79 B	2.73 ± 0.06 B	0.36 ± 0.02 A	0.18 ± 0.02 B	3.91 ± 0.02 B	6.83 ± 0.02 B
400	WS	262.47 ± 127.89 A	37.11 ± 12.53 B	2.15 ± 1.33 B	0.33 ± 0.19 B	0.14 ± 0.13 B	4.08 ± 1.27 A	6.38 ± 2.07 B
700	WW	1435.79 ± 256.20 A	171.68 ± 38.38 A	5.31 ± 1.55 A	0.64 ± 0.21 A	0.49 ± 0.12 A	10.62 ± 0.13 A	16.42 ± 1.29 A
700	WS	752.54 ± 201.22 A	97.01 ± 21.45 A	2.53 ± 0.39 A	0.33 ± 0.06 B	0.32 ± 0.01 A	3.06 ± 0.43 B	5.91 ± 0.83 B
510 days of beginning the experiment								

CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	300.14 ± 54.74 B	50.02 ± 9.12 B	3.23 ± 0.47 B	0.53 ± 0.07 B	0.22 ± 0.10 B	4.91 ± 0.02 B	8.37 ± 0.35 B
400	WS	227.80 ± 146.64 A	29.36 ± 17.89 B	2.49 ± 1.04 B	0.33 ± 0.16 B	0.51 ± 0.13 A	5.08 ± 2.64 B	8.08 ± 2.44 B
700	WW	1166.79 ± 136.17 A	136.58 ± 9.46 A	7.31 ± 0.73 A	0.85 ± 0.04 A	0.74 ± 0.03 A	9.73 ± 0.22 A	17.78 ± 0.54 A
700	WS	547.21 ± 123.60 A	95.38 ± 14.88 A	3.86 ± 0.89 A	0.68 ± 0.16 A	0.35 ± 0.07 B	3.86 ± 0.38 A	8.08 ± 0.47 A
CO₂ x Species		*	*	*	*	*	*	*
CO₂ x Water		*	*	*	ns	*	*	*
CO₂ x DBE		*	*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*	*
Species x Water		*	ns	*	ns	*	*	*
Water x DBE		*	ns	ns	ns	ns	*	*
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns	ns

C)

60 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	217 ± 39.97 B	39.99 ± 5.35 A	1.20 ± 0.22 A	0.22 ± 0.03 B	0.68 ± 0.12 A	2.46 ± 0.46 A	4.35 ± 0.70 B
700	WW	281.75 ± 51.07 A	67.20 ± 3.56 A	1.23 ± 0.29 A	0.29 ± 0.02 B	1.65 ± 0.37 A	1.69 ± 0.27 B	4.58 ± 0.74 B
150 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	234.92 ± 60.92 B	36.54 ± 8.82 B	1.09 ± 0.22 B	0.16 ± 0.02 B	2.81 ± 0.67 A	2.85 ± 0.83 A	6.76 ± 1.57 B
700	WW	268.27 ± 65.60 A	63.58 ± 8.14 A	1.41 ± 0.35 A	0.33 ± 0.03 A	3.11 ± 0.52 A	2.56 ± 0.65 B	7.08 ± 1.27 B
240 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	1641.76 ± 93.72 B	117.32 ± 1.25 A	8.60 ± 0.42 A	0.47 ± 0.03 A	7.17 ± 0.60 A	12.88 ± 1.01 A	28.66 ± 1.50 A
700	WW	568.99 ± 70.39 A	51.96 ± 7.45 B	2.39 ± 0.27 A	0.22 ± 0.09A	3.7 ± 0.96 A	3.78 ± 0.50 B	9.88 ± 1.08 B
330 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	762.16 ± 23.08 B	33.28 ± 1.35 B	4.52 ± 0.79 B	0.35 ± 0.05 B	4.12 ± 0.20 B	7.38 ± 0.35 B	17.03 ± 0.94 B
400	WS	664.26 ± 353.22 B	25.94 ± 4.50 B	1.91 ± 0.07 B	0.16 ± 0.07 B	5.76 ± 1.22 B	5.76 ± 1.22 B	10.56 ± 1.63 B
700	WW	4437.26 ± 86.15 A	145.11 ± 12.50 A	20.21 ± 1.06 A	0.65 ± 0.11 A	18.56 ± 1.59 A	23.97 ± 2.59 A	62.74 ± 0.06 A
700	WS	1039.19 ± 244.99 A	64.86 ± 10.66 A	4.98 ± 1.12 A	0.40 ± 0.16 A	13.93 ± 0.75 A	13.93 ± 0.75 A	26.05 ± 2.06 A
420 days of beginning the experiment								
CO ₂	Water	TLA (cm ²)	ALA (cm ²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	777.84 ± 3.22 B	37.11 ± 1.28 B	5.52 ± 0.84 B	0.26 ± 0.05 B	5.12 ± 0.61 B	8.00 ± 0.45 B	18.65 ± 0.67 B
400	WS	680.98 ± 128.95 B	43.29 ± 12.75 B	4.27 ± 1.86 B	0.28 ± 0.17 B	4.55 ± 1.37 B	7.49 ± 1.20 B	16.31 ± 2.60 B
700	WW	5212.29 ± 269.84 A	162.72 ± 4.28 A	20.21 ± 0.56 A	0.63 ± 0.01 A	24.56 ± 1.66 A	22.47 ± 0.55 A	67.24 ± 2.78 A
700	WS	2105.77 ± 818.12 A	75.22 ± 33.92 A	9.32 ± 0.40 A	0.32 ± 0.07 A	6.46 ± 0.91 A	23.93 ± 0.75 A	39.72 ± 2.00 A
510 days of beginning the experiment								

CO₂	Water	TLA (cm²)	ALA (cm²)	TLDM (g)	ALDM (g)	SDM (g)	RDM (g)	TDM (g)
400	WW	877.84 ± 3.22 B	33.80 ± 0.93 B	8.52 ± 0.84 B	0.32 ± 0.04 B	7.12 ± 0.61 B	9.50 ± 0.04 B	25.15 ± 0.26 B
400	WS	747.64 ± 81.84 B	50.29 ± 16.29 B	4.93 ± 1.58 B	0.31 ± 0.10 B	5.55 ± 1.37 B	6.82 ± 0.42 B	17.31 ± 0.48 B
700	WW	6229.79 ± 284.13 A	148.49 ± 1.89 A	23.71 ± 1.78 A	0.56 ± 0.01 A	27.06 ± 0.44 A	20.97 ± 0.14 A	71.74 ± 2.38 A
700	WS	2462.43 ± 387.67 A	90.67 ± 16.00 A	10.32 ± 0.43 A	0.38 ± 0.03 A	7.86 ± 1.21 A	19.6 ± 1.23 A	37.78 ± 1.65 A
CO₂ x Species		*	*	*	*	*	*	*
CO₂ x Water		*	*	*	ns	*	*	*
CO₂ x DBE		*	*	*	*	*	*	*
Species x DBE		*	*	*	*	*	*	*
Species x Water		*	ns	*	ns	*	*	*
Water x DBE		*	ns	ns	ns	ns	*	*
CO₂ x Water x Species x DBE		ns	ns	ns	ns	ns	ns	ns

Tables S3. Biometrical indices in three woody cerrado species grown under ambient [CO₂] or in high [CO₂]

A = *Solanum lycocarpum*, B = *Tabebuia aurea*, C = *Hymenaea stigonocarpa*. LAR = Leaf area ratio; SLA = specific leaf area; RSR = root/stem ratio. WW = well watered; WS = water stressed N = 5. Different capital letters indicate differences between CO₂ treatments. The interactions are indicated in the bottom of the table. DBE = days since beginning the experiment; ns = no significant interaction

A)

60 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	43.97 ± 26.31 B	274.91 ± 231.46	0.53 ± 0.11 B
700	WW	77.33 ± 43.44 A	285.94 ± 140.23	0.73 ± 0.24 B
150 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	84.74 ± 13.90 A	268.15 ± 28.79	1.84 ± 1.96 B
700	WW	86.79 ± 68.54 A	328.45 ± 48.47	0.51 ± 0.40 B
240 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	120.08 ± 2.92 A	195.08 ± 37.36	5.83 ± 1.99 B
700	WW	29.81 ± 12.25 A	255.03 ± 44.02	0.96 ± 0.43 B
330 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	27.39 ± 14.73 A	154.58 ± 77.09 B	1.68 ± 0.01 A
400	WS	141.22 ± 95.77A	394.40 ± 241.27 B	1.48 ± 0.62 A
700	WW	7.10 ± 0.35 A	651.96 ± 23.03 A	1.01 ± 0.02 A
700	WS	12.38 ± 0.92 A	592.47 ± 122.05 A	1.05 ± 0.06 A
420 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	22.85 ± 12.34 A	140.75 ± 36.57 A	0.95 ± 0.01 A
400	WS	60.20 ± 26.10 A	440.99 ± 158.85 A	1.17 ± 0.03 A
700	WW	31.36 ± 3.93 A	145.10 ± 25.86 A	0.95 ± 0.01 A
700	WS	16.02 ± 9.53 A	65.43 ± 36.61 A	1.17 ± 0.03 A
510 days of beginning the experiment				
CO ₂	Water	LAR (cm ² g ⁻¹)	SLA (cm ² g ⁻¹)	RSR (g g ⁻¹)
400	WW	17.72 ± 2.12 A	104.62 ± 23.72 A	1.07 ± 0.04 A
400	WS	19.95 ± 7.35 A	137.85 ± 44.96 A	1.96 ± 0.26 A
700	WW	40.30 ± 0.64 A	177.25 ± 0.41 A	1.06 ± 0.07 A
700	WS	18.54 ± 3.15 A	57.57 ± 9.01 A	1.04 ± 0.10 A
CO₂ x Species		ns	ns	*
CO₂ x Water		ns	ns	ns
CO₂ x DBE		*	ns	ns
Species x DBE		*	*	*
Species x Water		ns	ns	ns
Water x DBE		ns	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns

B)

60 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	67.34 ± 8.12 B	290.06 ± 123.40	16.32 ± 25.43 A
700	WW	107.97 ± 29.74 A	276.87 ± 68.69	11.62 ± 2.53 A
150 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	66.38 ± 10.44 A	59.06 ± 47.89	13.20 ± 78.43 A
700	WW	34.69 ± 20.98 A	246.52 ± 31.50	25.49 ± 9.97 A
240 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	26.71 ± 2.06 A	59.06 ± 9.67	5.83 ± 1.99 A
700	WW	62.60 ± 18.79 A	232.35 ± 233.52	10.45 ± 5.96 A
330 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	37.30 ± 4.98 B	168.66 ± 37.69 B	19.70 ± 0.84 A
400	WS	69.76 ± 67.83 B	163.03 ± 149.91 B	53.00 ± 38.60 A
700	WW	49.69 ± 13.57 A	177.88 ± 11.02 A	15.25 ± 1.30 B
700	WS	45.60 ± 21.20 A	146.72 ± 65.37 A	13.32 ± 2.63 B
420 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	29.22 ± 7.89 B	72.48 ± 18.17 A	21.54 ± 2.25 A
400	WS	56.05 ± 47.47 B	229.01 ± 233.77 A	60.01 ± 42.55 A
700	WW	86.37 ± 8.79 A	285.84 ± 35.26 A	23.67 ± 5.78 B
700	WS	134.55 ± 55.08 A	316.49 ± 134.11 A	9.42 ± 0.90 B
510 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	35.50 ± 5.03 B	92.04 ± 3.33 A	31.51 ± 14.19 A
400	WS	37.64 ± 34.02 B	113.84 ± 93.94 A	10.55 ± 4.89 A
700	WW	65.34 ± 5.66 A	159.22 ± 2.62 A	13.21 ± 0.88 B
700	WS	67.55 ± 14.08 A	149.09 ± 49.10 A	11.25 ± 1.15 B
CO₂ x Species		ns	ns	*
CO₂ x Water		ns	ns	ns
CO₂ x DBE		*	ns	ns
Species x DBE		*	*	*
Species x Water		ns	ns	ns
Water x DBE		ns	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns

C)

60 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	49.98 ± 6.86 B	180.05 ± 13.00	3.61 ± 0.21 B
700	WW	62.00 ± 8.40 A	231.32 ± 17.61	1.06 ± 0.18 B
150 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	36.58 ± 11.38 A	215.06 ± 41.13	1.00 ± 0.18 B
700	WW	37.82 ± 5.74 A	190.51 ± 5.43	0.82 ± 0.19 B
240 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	57.45 ± 4.72 A	248.31 ± 21.71	1.80 ± 0.20 B
700	WW	58.72 ± 11.18 A	245.84 ± 69.38	1.10 ± 0.39 B
330 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	44.84 ± 1.13 A	146.18 ± 25.31 B	0.47 ± 0.02 A
400	WS	60.24 ± 23.54 A	123.70 ± 20.26 B	0.56 ± 0.07 A
700	WW	70.72 ± 1.45 A	221.11 ± 10.10 A	0.38 ± 0.01 A
700	WS	39.61 ± 7.07 A	413.88 ± 158.05 A	0.58 ± 0.07 A
420 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	41.79 ± 1.69 A	146.13 ± 22.84 A	0.44 ± 0.02 A
400	WS	42.06 ± 5.89 A	191.56 ± 82.20 A	0.57 ± 0.15 A
700	WW	77.46 ± 0.80 A	257.64 ± 6.16 A	0.29 ± 0.01 A
700	WS	52.20 ± 18.93 A	222.43 ± 79.70 A	0.68 ± 0.07 A
510 days of beginning the experiment				
CO₂	Water	LAR (cm² g⁻¹)	SLA (cm² g⁻¹)	RSR (g g⁻¹)
400	WW	34.91 ± 0.50 A	104.61 ± 10.70 A	0.39 ± 0.01 A
400	WS	43.35 ± 6.05 A	175.75 ± 80.12 A	0.45 ± 0.03 A
700	WW	86.77 ± 1.08 A	263.64 ± 7.89 A	0.43 ± 0.01 A
700	WS	65.60 ± 12.68 A	240.60 ± 48.10 A	0.86 ± 0.11A
CO₂ x Species		ns	ns	*
CO₂ x Water		ns	ns	ns
CO₂ x DBE		*	ns	ns
Species x DBE		*	*	*
Species x Water		ns	ns	ns
Water x DBE		ns	ns	ns
CO₂ x Water x Species x DBE		ns	ns	ns