

Ecography

**ECOG-04296**

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Convergence in growth responses of tropical trees  
to climate driven by water stress. – Ecography doi:  
10.1111/ecog.04296

**Supplementary material**

1 **Appendix 1.**  
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4 **Table A1.** Geographic location of the sampling sites in the Cerrado Boliviano region. For  
 5 each site, the corresponding code is indicated.

Site	Cod.	Latitude (S)	Longitude (W)	Altitude (m)
Guarayos district				
Bajo Paragua	PAR- <i>w</i>	14°57'18.60"	61°15'31.07"	247
Makanaté	MAK- <i>w</i>	15° 29' 13.88"	62° 17' 41.57"	246
La Chonta	LCH- <i>w</i>	15°38' 33.68"	62° 46' 51.56"	250
Guarayos-Chiquitos transition				
Santa Mónica	SMO- <i>t</i>	15° 58' 3.58"	62° 13' 37.85"	420
Palestina	PAL- <i>t</i>	15°38' 20.98"	62° 24' 38.82"	290
Chiquitos distric				
Inpa	INP- <i>d</i>	16° 13' 05.66"	62° 39'42.22"	503
Puribí	PUR- <i>d</i>	16° 19' 44.53"	61° 36' 50.38"	440

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7 **Table A2.** Statistics for the *Centrolobium microchaete* chronologies from the seven  
 8 sampling sites in the biogeographic province of the Cerrado Boliviano. The Expressed  
 9 Population Signal (EPS) was calculated during the 1900-2005 interval using a 50-year  
 10 window shifted 25 years between segments  
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Site	No. of samples	Period	Standard deviation	Auto- correlation	Mean sensitivity	R- bar	EPS
PAR- <i>w</i>	26	1800-2014	0.32	0.43	0.40	0.27	0.89
MAK- <i>w</i>	26	1909-2006	0.22	0.62	0.33	0.22	0.86
LCH- <i>w</i>	24	1900-2007	0.32	0.46	0.28	0.22	0.86
SMO- <i>t</i>	50	1847-2005	0.31	0.61	0.28	0.32	0.95
PAL- <i>t</i>	42	1924-2008	0.26	0.62	0.35	0.35	0.95
INP- <i>d</i>	35	1829-2004	0.32	0.41	0.29	0.27	0.92
PUR- <i>d</i>	28	1798-2010	0.26	0.49	0.43	0.25	0.92

The mean sensitivity is a measure of the inter-annual variability in ring-width series (Fritts 1976).

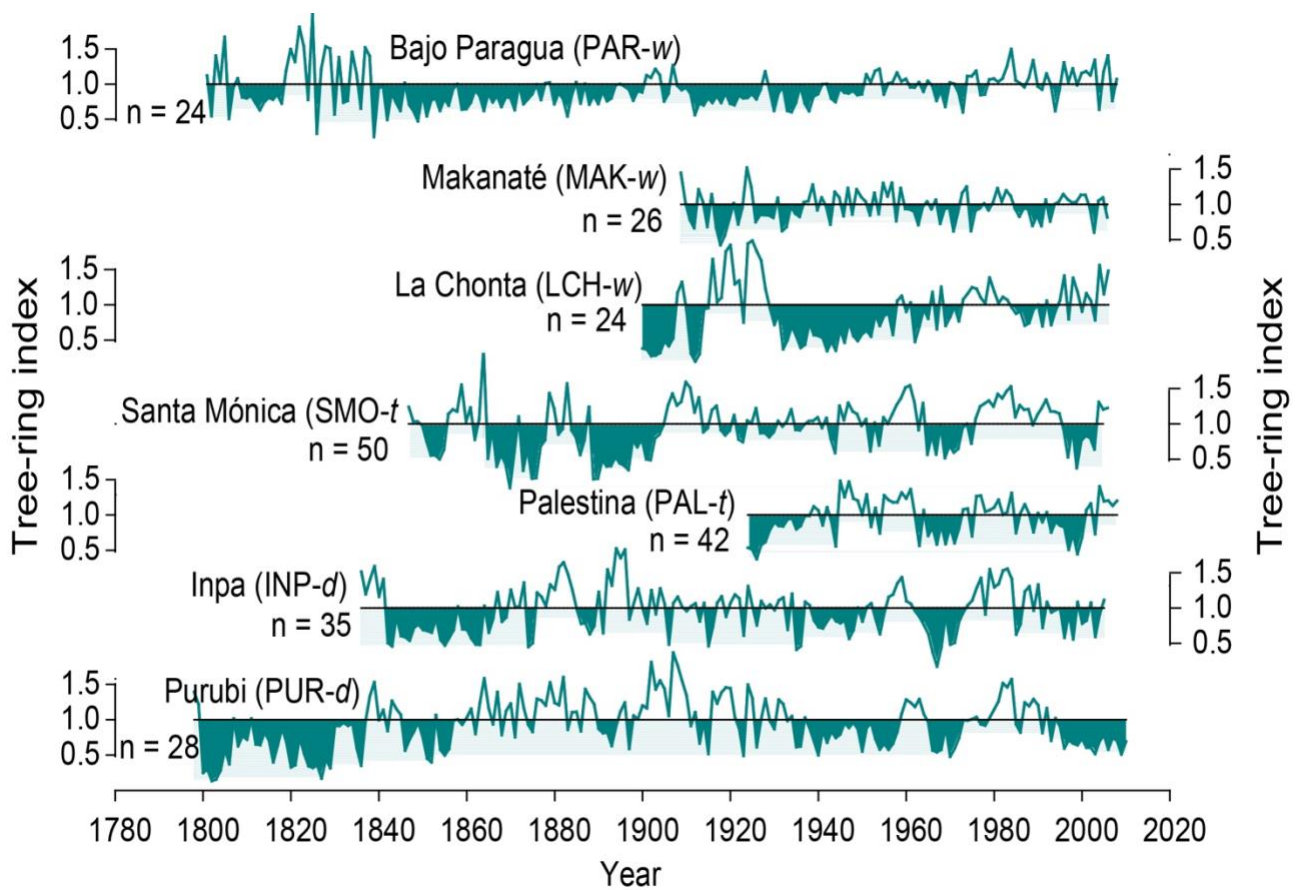
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28 **Table A3.** Statistics for regression models used to predict *Centrolobium microchaete* tree  
 29 growth from climate. Regression models were estimated using the Principal Components  
 30 of Temperature (left), Precipitation (center) and both (right). For each regression model,  
 31 the coefficient of determination ( $r^2_{adj}$ ), the  $F$  statistic, and the PCs enter in the regression  
 32 are indicated. The PC1 predictor, accounting for by the large percentage of total variance  
 33 in climate, is shown in red.

Site	Regression predictors								
	Temperature			Precipitation			Temperature + Precipitation		
	$r^2_{adj}$	$F$	predictors	$r^2_{adj}$	$F$	predictors	$r^2_{adj}$	$F$	predictors
LHC- <i>w</i>	0.17	5.15	PC1,PC2,PC3	0.03	3.07	PC1	0.23	5.05	PC8, PC1,PC6, PC2, PC13
MAK- <i>w</i>	0.08	3.87	PC6,PC5	0.12	3.94	PC5,PC1,PC4	0.11	3.55	PC9,PC8,PC10
PAR- <i>w</i>	0.14	4.34	PC4,PC5,PC1	0.15	6.6	PC1,PC3	0.15	6.76	PC1,PC4
PAL- <i>t</i>	0.17	0.34	PC1,PC2	0.06	4.54	PC5	0.34	6.38	PC1,PC2,PC10,PC9,PC14,PC12
SMO- <i>t</i>	0.32	15.29	PC1,PC2	0.14	11.27	PC1	0.41	11.87	PC1,PC2,PC15,PC14
INP- <i>d</i>	0.4	40.82	PC1	0.32	15.21	PC1,PC5	0.48	19.69	PC1,PC13,PC15
PUR- <i>d</i>	0.25	21.59	PC1	0.13	10.32	PC1	0.26	22.7	PC1

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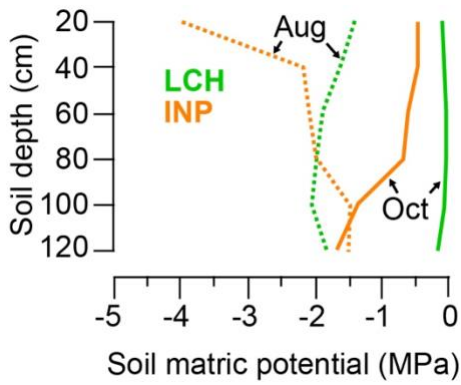
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**Figure A1.** Inter-annual variations in the growth of *Centrolobium microchaete* from seven sites in the Cerrado Boliviano. The first three chronologies are located in the wet Guarayos district whereas the next four are from the dry Chiquitos district. The sites of Palestina (PAL-t) and Santa Monica (SMO-t) are located in the transition between the two districts (See Fig. 1).

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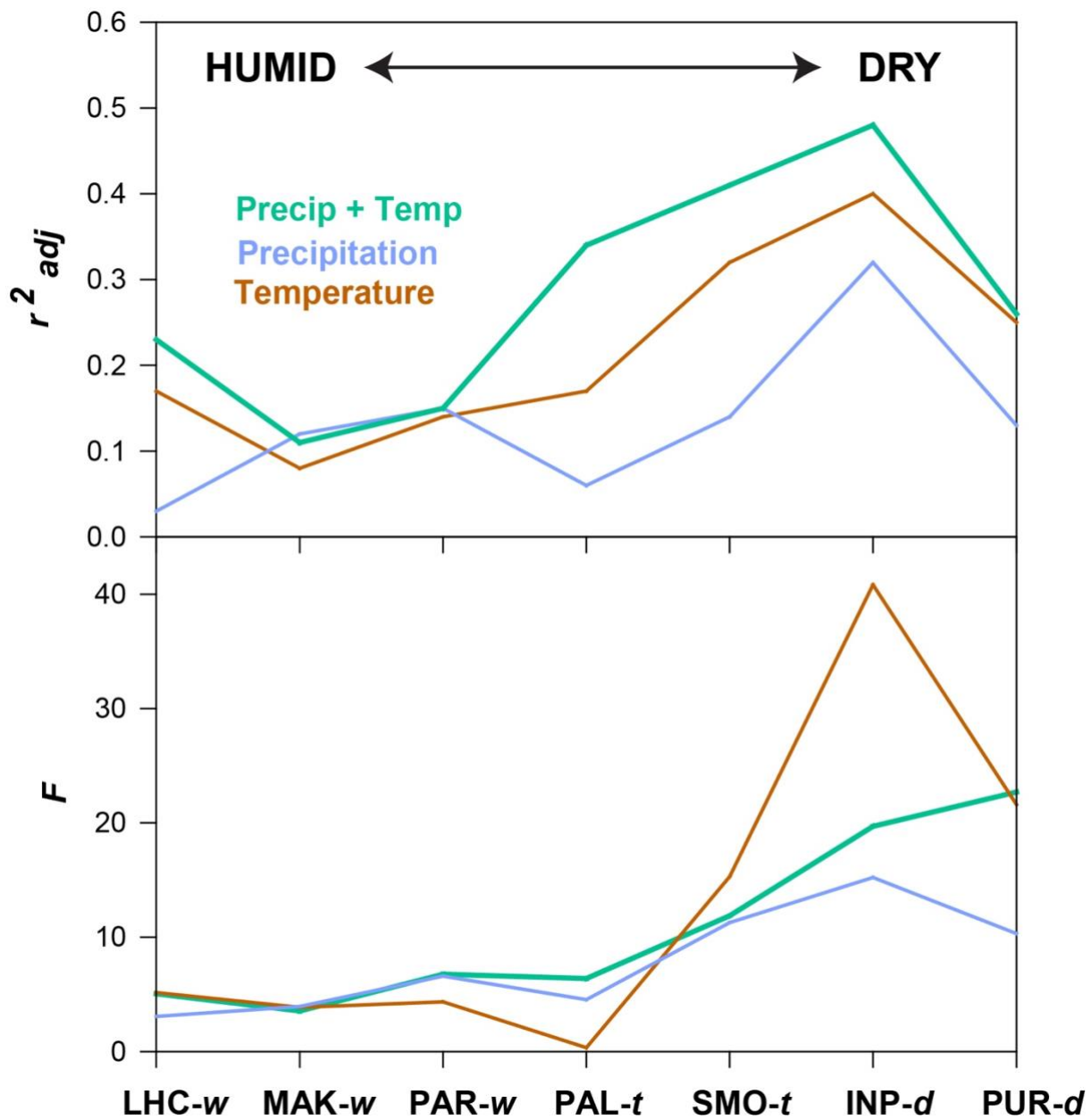


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49 **Figure A2.** Changes in soil water potential with depth at La Chonta in Guarayos (green  
50 lines) and Inpa in Central Chiquitos (orange lines). Changes in water potential are show  
51 at the peak of the dry season (August, dotted lines) and at the beginning of the wet season  
52 (October, solid lines). Modified from Markesteijn et al. (2010).

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56 **Figure A3.** Trends in climate-growth relationships along the precipitation gradient,  
 57 measured by: (a) the percentage of adjusted variance ( $r^2_{adj}$ ) in total year-to-year variations  
 58 in tree-growth explained by temperature (brown lines), precipitation (blue lines) and a  
 59 combination of temperature and precipitation (green lines), and (b) the robustness of the  
 60 regressive models evaluated through the statistic  $F$ . Positive trends from humid to dry sites  
 61 are recorded in both  $r^2_{adj}$  and  $F$ .

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