

Ecography

ECOG-03389

Chen, L., Comita, L. S., Wright, S. J., Swenson, N. G., Zimmerman, J. K., Mi, X., Hao, Z., Ye, W., Hubbell, S. P., Kress, W. J., Uriarte, M., Thompson, J., Nyctch, C. J., Wang, X., Lian, J. and Ma, K. 2017. Forest tree neighborhoods are structured more by negative conspecific density dependence than by interactions among closely related species. – *Ecography* doi: 10.1111/ecog.03389

Supplementary material

1 Appendix 1

2 Table A1. Results of tests for phylogenetic signal in woody plant functional traits at the
 3 community-wide scale for the five study sites. Significant signal refers to the number of traits
 4 tested for which closely related species had more similar trait values than expected by chance
 5 alone, based on PIC variance with a permutation test ($\alpha = 0.05$).

Site	Traits Tested	Significant signal / Total traits tested	Reference
Changbaishan, China(CBS)	Max. Height Wood density SLA Leaf area	4 / 4	Xugao Wang, personal communication
Gutianshan, China(GTS)	Max. height Wood density SLA Leaf area Seed mass	5 / 5	Xiaojuan Liu, personal communication
Dinghushan, China(DHS)	Max. Height Wood density SLA Leaf area Leaf aspect ratio Leaf dry matter content	5 / 6	Juyu Lian, personal communication
Luquillo, Puerto Rico(LUQ)	Details can be found in the reference.	3 / 9	Uriarte et al. (2010)
Barro Colorado Island, Panama(BCI)	Details can be found in the reference.	32 / 35	Lebrija-Trejos et al. (2013)

7 Table A2. Observed relationships (estimate \pm SD, γ_{10} in Eq. 3) between focal tree size and average divergence time of neighboring trees including
8 conspecifics (ADT_all) and average divergence time of only heterospecific neighbors (ADT_hetero) for both sapling-sized neighbors (1 cm \leq DBH < 5
9 cm) and all neighbors (\geq 1 cm DBH) within various annuli in the five forest plot sites. Bold values are significantly different from zero based on 95%
10 bootstrapping credible intervals. For each mixed model, the corresponding R^2 for fixed and random effects (conditional R^2) were also computed. As
11 only temperate and subtropical forests include gymnosperms, the observed relationships were also assessed when gymnosperm species were excluded
12 (CBS_nogerm, GTS_nogerm, DHS_nogerm).

Type of neighbors	Plot	Type	Neighborhood scale (m)											
			0-5 m		5-10 m		10-15 m		15-20 m		20-25 m		25-30 m	
			Estimate (\pm SD)	Conditiona l R^2	Estimate (\pm SD)	Conditiona l R^2	Estimate (\pm SD)	Conditiona l R^2	Estimate (\pm SD)	Conditiona l R^2	Estimate (\pm SD)	Conditiona l R^2	Estimate (\pm SD)	Conditiona l R^2
Small neighbors	CBS	ADT_all	0.0153(0.0027)	0.8023	0.0059(0.0016)	0.8886	0.0028(0.0015)	0.9214	0.001(0.0017)	0.9374	0.001(0.0017)	0.9482	0.0009(0.0016)	0.9541
		ADT_he tero	0.0059(0.0025)	0.7552	0.0035(0.0023)	0.8622	0.0019(0.0022)	0.9022	0.0011(0.0022)	0.9204	0.0012(0.0021)	0.9320	0.0007(0.002)	0.9392
	CBS_nogerm	ADT_all	0.0288(0.0046)	0.4753	0.0118(0.0028)	0.6199	0.0064(0.0028)	0.7001	0.003(0.0032)	0.7505	0.0031(0.0032)	0.7879	0.0027(0.003)	0.8088
		ADT_he tero	0.0125(0.0048)	0.3389	0.0079(0.0045)	0.4878	0.0048(0.0044)	0.5772	0.0034(0.0043)	0.6345	0.0035(0.0041)	0.6757	0.0025(0.004)	0.7022
	GTS	ADT_all	0.0062(0.0021)	0.7211	0.0027(0.0014)	0.8413	0.002(0.0011)	0.8798	0.0014(0.001)	0.8955	0.0009(0.0009)	0.9062	0.0007(0.0009)	0.9134
		ADT_he tero	0.002(0.0012)	0.7762	0.0008(0.0009)	0.8709	0.0009(0.0008)	0.9004	0.0008(0.0007)	0.9143	0.0006(0.0007)	0.9224	0.0005(0.0006)	0.9294
	GTS_nogerm	ADT_all	0.0058(0.0024)	0.5110	0.0025(0.0018)	0.6610	0.0021(0.0015)	0.7183	0.0017(0.0013)	0.7419	0.0013(0.0012)	0.7624	0.0011(0.0011)	0.7797
		ADT_he tero	0.0027(0.0015)	0.5341	0.0012(0.0012)	0.6852	0.0013(0.0011)	0.7446	0.0013(0.0009)	0.7752	0.0012(0.0009)	0.7953	0.001(0.0008)	0.8140
	DHS	ADT_all	0.0068(0.0022)	0.2941	0.0045(0.0019)	0.3456	0.0035(0.0018)	0.3599	0.0032(0.0017)	0.3646	0.0031(0.0016)	0.3734	0.0029(0.0015)	0.3749
		ADT_he tero	0.0024(0.0017)	0.2721	0.0026(0.0014)	0.3633	0.0027(0.0013)	0.3972	0.0022(0.0013)	0.4139	0.0023(0.0012)	0.4359	0.0023(0.0011)	0.4482
	DHS_nogerm	ADT_all	0.0069(0.0023)	0.2421	0.0059(0.0025)	0.2819	0.0046(0.0023)	0.2882	0.0041(0.0022)	0.2880	0.004(0.0021)	0.2909	0.0037(0.002)	0.2869
		ADT_he tero	0.0021(0.0017)	0.2060	0.0031(0.0018)	0.2833	0.0032(0.0017)	0.3139	0.0026(0.0016)	0.3276	0.0027(0.0016)	0.3484	0.0028(0.0015)	0.3595
	LUQ	ADT_all	0.0139(0.0027)	0.3714	0.0019(0.0007)	0.7781	0.0034(0.0014)	0.6757	0.0023(0.001)	0.7428	0.0018(0.0007)	0.7864	0.0015(0.0008)	0.8157
		ADT_he tero	-0.0002(0.0017)	0.4399	0.0004(0.0004)	0.8638	-0.0002(0.0009)	0.7545	0.0012(0.001)	0.8165	0.0011(0.0009)	0.8471	0.0007(0.0007)	0.8658
BCI	ADT_all	0.0044(0.0014)	0.6067	0.0019(0.0007)	0.7781	0.0013(0.0005)	0.8407	0.0007(0.0004)	0.8743	0.0007(0.0004)	0.8922	0.0003(0.0004)	0.9032	
	ADT_he tero	0.0004(0.0006)	0.7389	0.0004(0.0004)	0.8638	0.0005(0.0003)	0.8991	0.0001(0.0003)	0.9196	0.0003(0.0003)	0.9319	0.0001(0.0003)	0.9412	
		ADT_all	0.0123(0.0024)	0.7588	0.0039(0.0018)	0.8819	0.0019(0.0015)	0.9184	0.0008(0.0017)	0.9372	0.0002(0.0016)	0.9472	0.0009(0.0017)	0.9540

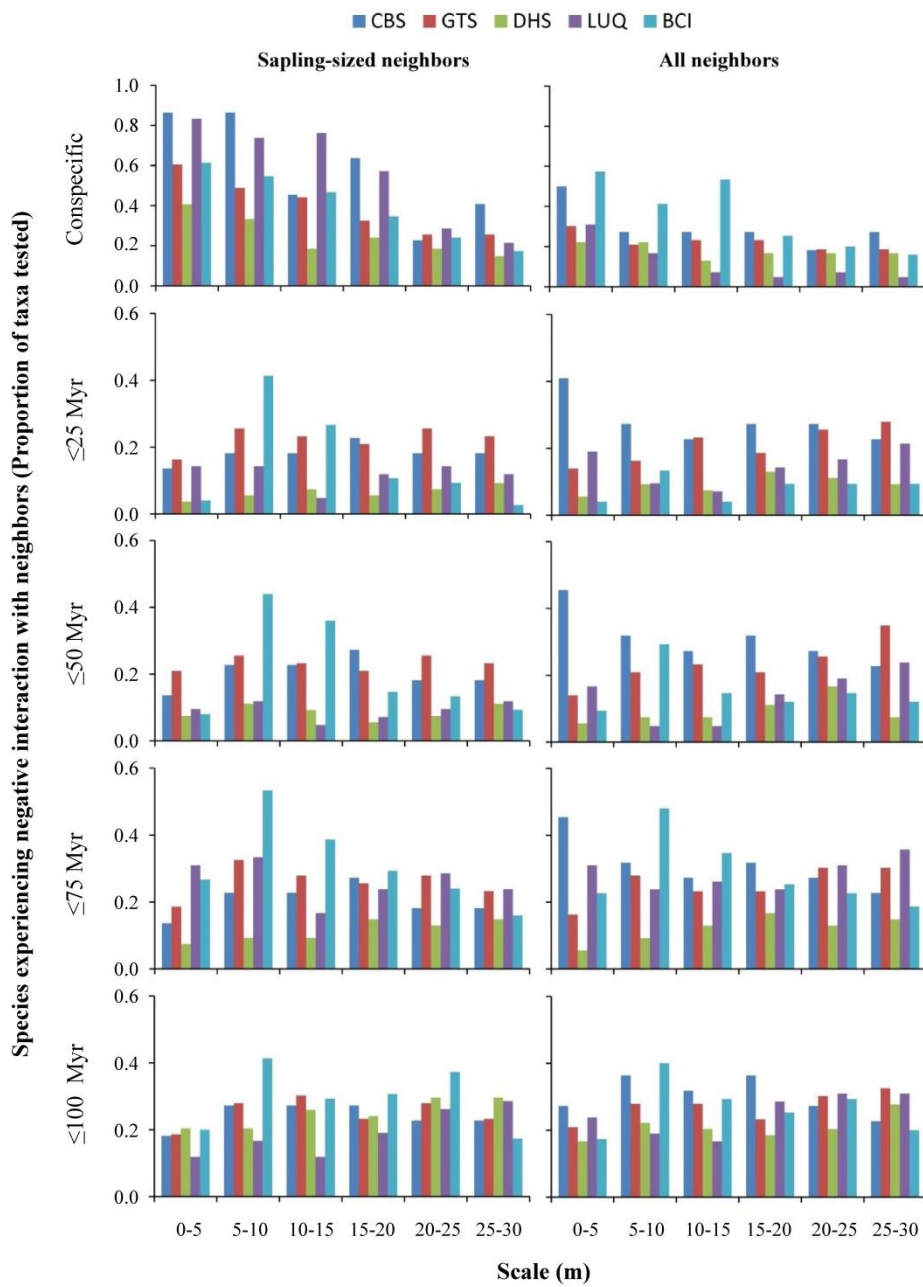
All neighbors	CBS	ADT_he tero	0.0037(0.0025)	0.7463	0.002(0.002)	0.8838	0.0013(0.0019)	0.9189	0.0007(0.0019)	0.9343	0.0003(0.0018)	0.9435	0.0009(0.0018)	0.9490
	CBS_noger m	ADT_all	0.0198(0.0035)	0.5323	0.0072(0.0033)	0.6898	0.0043(0.0032)	0.7605	0.0023(0.0035)	0.8016	0.0016(0.0033)	0.8287	0.0016(0.0034)	0.8433
		ADT_he tero	0.0061(0.0024)	0.4041	0.0061(0.0041)	0.5770	0.0045(0.0042)	0.6560	0.0031(0.0041)	0.7037	0.0026(0.0039)	0.7341	0.0023(0.0038)	0.7517
	GTS	ADT_all	0.0037(0.0019)	0.7540	0.0017(0.0013)	0.8713	0.0014(0.001)	0.9064	0.0008(0.0009)	0.9212	0.0005(0.0008)	0.9321	0.0004(0.0007)	0.9381
		ADT_he tero	0.0014(0.0009)	0.8128	0.0006(0.0007)	0.8977	0.0008(0.0007)	0.9249	0.0006(0.0006)	0.9373	0.0005(0.0006)	0.9445	0.0005(0.0005)	0.9503
	GTS_noger m	ADT_all	0.0031(0.0021)	0.5781	0.0013(0.0016)	0.7321	0.0014(0.0013)	0.7884	0.0008(0.0012)	0.8129	0.0006(0.0011)	0.8346	0.0006(0.001)	0.8500
		ADT_he tero	0.0022(0.0012)	0.5997	0.0009(0.001)	0.7450	0.0012(0.0009)	0.8016	0.0009(0.0008)	0.8315	0.0009(0.0007)	0.8501	0.0008(0.0006)	0.8668
	DHS	ADT_all	0.0034(0.0013)	0.3739	0.0021(0.001)	0.4821	0.0011(0.001)	0.5435	0.0011(0.0009)	0.5821	0.0011(0.0008)	0.6151	0.0011(0.0008)	0.6420
		ADT_he tero	0.0015(0.001)	0.5435	0.0014(0.0008)	0.6615	0.0013(0.0007)	0.7124	0.0008(0.0007)	0.7388	0.001(0.0007)	0.7587	0.001(0.0006)	0.7727
	DHS_noger m	ADT_all	0.0043(0.0017)	0.3005	0.0026(0.0014)	0.3971	0.0014(0.0013)	0.4557	0.0014(0.0012)	0.4923	0.0014(0.0011)	0.5254	0.0014(0.001)	0.5535
		ADT_he tero	0.0017(0.0013)	0.4845	0.0016(0.0011)	0.6050	0.0015(0.001)	0.6600	0.001(0.0009)	0.6890	0.0012(0.0009)	0.7119	0.0012(0.0008)	0.7278
	LUQ	ADT_all	0.0063(0.0019)	0.3695	0.0001(0.0012)	0.5892	-0.0011(0.0012)	0.6978	-0.0011(0.0009)	0.7496	-0.0008(0.0008)	0.7874	-0.001(0.0009)	0.8077
		ADT_he tero	0.0039(0.0015)	0.4749	0.0008(0.0011)	0.7082	0.0001(0.0009)	0.7900	0.0008(0.0009)	0.8272	0.0006(0.0008)	0.8514	0.0006(0.0008)	0.8729
	BCI	ADT_all	0.0038(0.0011)	0.6602	0.0015(0.0006)	0.8130	0.001(0.0004)	0.8667	0.0005(0.0004)	0.8949	0.0006(0.0004)	0.9099	0.0002(0.0003)	0.9187
ADT_he tero		0.0005(0.0005)	0.7741	0.0004(0.0004)	0.8808	0.0004(0.0003)	0.9119	0.0002(0.0003)	0.9299	0.0003(0.0003)	0.9400	0.0001(0.0003)	0.9477	

14 Table A3. Observed relationships (γ_{10} in Eq. 4) between focal tree size and proportion of neighboring trees that are conspecifics or closely related
 15 heterospecifics (≤ 25 Myr, ≤ 50 Myr, ≤ 75 Myr and ≤ 100 Myr) for both sapling-sized neighbors (1 cm \leq DBH < 5 cm) and all neighbors (≥ 1 cm DBH)
 16 within various annuli in the five forest plot sites. Bold values are significantly different from zero based on 95% confidence intervals (CI). The
 17 corresponding R^2 for both fixed and random effects of generalized linear mixed model (conditional R^2) are also provided.

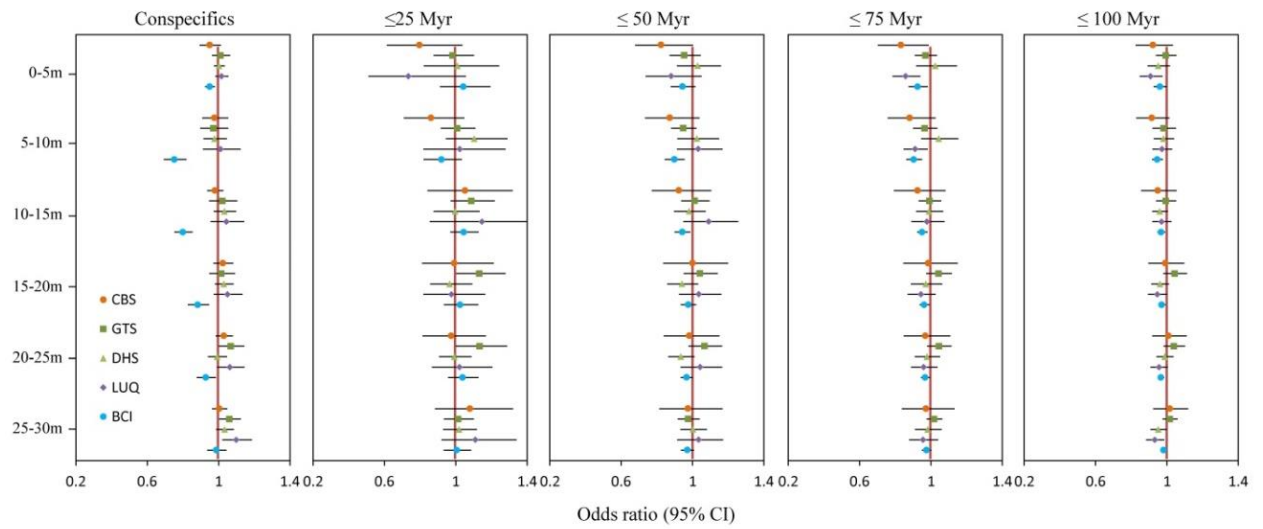
Type of neighbors	Neighborhood scale (m)	Plot	conspecifics		≤ 25 Myr		≤ 50 Myr		≤ 75 Myr		≤ 100 Myr	
			Conditiona		Condition		Conditiona		Conditio		Condition	
			Mean (95% CI)	l R ²	Mean (95% CI)	al R ²	Mean (95% CI)	l R ²	Mean (95% CI)	nal R ²	Mean (95% CI)	al R ²
Small neighbors	5m	CBS	-0.8219(-1.0026,-0.6412)	0.7049	-0.0802(-0.509,0.3486)	0.8902	-0.084(-0.3436,0.1756)	0.8729	-0.0627(-0.2897,0.1644)	0.8571	-0.0006(-0.1464,0.1452)	0.7547
		GTS	-0.6383(-0.7363,-0.5404)	0.4054	-0.0606(-0.197,0.0757)	0.8146	-0.086(-0.2135,0.0416)	0.8063	-0.0497(-0.1264,0.027)	0.6638	0.0002(-0.0638,0.0642)	0.6941
		DHS	-0.5193(-0.6086,-0.4301)	0.5598	0.109(-0.1293,0.3473)	0.8449	0.063(-0.086,0.2121)	0.786	0.0353(-0.0974,0.168)	0.7538	-0.0488(-0.1283,0.0308)	0.6285
		LUQ	-0.8424(-0.9808,-0.704)	0.543	-0.303(-0.7127,0.1066)	0.8074	-0.097(-0.2906,0.0966)	0.6821	-0.1573(-0.2819,-0.0327)	0.6128	-0.0332(-0.117,0.0506)	0.525
		BCI	-0.9656(-1.0673,-0.864)	0.4725	-0.0535(-0.2238,0.1169)	0.7536	-0.0816(-0.1718,0.0087)	0.5911	-0.0798(-0.1457,-0.0139)	0.6082	-0.036(-0.0805,0.0085)	0.3983
	10m	CBS	-0.294(-0.4031,-0.185)	0.6504	-0.0063(-0.29,0.2774)	0.9029	-0.0142(-0.2649,0.2364)	0.8845	-0.0206(-0.2366,0.1953)	0.8802	-0.0272(-0.1563,0.102)	0.7962
		GTS	-0.2333(-0.3325,-0.1341)	0.4622	-0.0602(-0.1759,0.0556)	0.849	-0.0709(-0.173,0.0312)	0.8347	-0.0741(-0.1427,-0.0054)	0.6978	-0.0116(-0.0667,0.0435)	0.7032
		DHS	-0.1443(-0.215,-0.0737)	0.5839	0.2095(0.0371,0.3818)	0.8508	0.0685(-0.0675,0.2045)	0.7836	0.0833(-0.0287,0.1953)	0.7671	-0.0219(-0.0962,0.0523)	0.6464
		LUQ	-0.3967(-0.5179,-0.2754)	0.5117	-0.0845(-0.3569,0.1878)	0.7837	-0.0663(-0.2327,0.1)	0.6858	-0.1548(-0.2572,-0.0525)	0.5964	-0.0413(-0.1092,0.0267)	0.4975
		BCI	-0.501(-0.6279,-0.3741)	0.4595	-0.23(-0.3858,-0.0741)	0.796	-0.1838(-0.2672,-0.1004)	0.6604	-0.138(-0.1996,-0.0765)	0.6821	-0.0823(-0.1232,-0.0414)	0.4657
	15m	CBS	-0.1272(-0.2189,-0.0356)	0.6516	0.1068(-0.2103,0.4238)	0.9131	-0.0438(-0.3043,0.2168)	0.8972	-0.0507(-0.2782,0.1767)	0.8927	-0.0297(-0.1662,0.1068)	0.8144
		GTS	-0.1265(-0.2235,-0.0294)	0.4705	0.0294(-0.0902,0.149)	0.8676	0.0187(-0.0896,0.1269)	0.8615	-0.0539(-0.1289,0.0211)	0.7372	-0.0147(-0.0724,0.0429)	0.7318
		DHS	-0.0624(-0.1362,0.0115)	0.585	0.0262(-0.1126,0.1649)	0.8579	-0.0293(-0.125,0.0664)	0.7949	-0.0194(-0.0963,0.0575)	0.7624	-0.0732(-0.1315,-0.0148)	0.6617
		LUQ	-0.2595(-0.351,-0.168)	0.503	0.0572(-0.2204,0.3349)	0.8268	0.0377(-0.0908,0.1662)	0.7169	-0.072(-0.1701,0.026)	0.59	-0.0381(-0.0905,0.0144)	0.5035
		BCI	-0.3626(-0.4611,-0.264)	0.443	-0.1293(-0.2448,-0.0138)	0.7925	-0.1251(-0.1903,-0.06)	0.6635	-0.0784(-0.1179,-0.0388)	0.6877	-0.0496(-0.0775,-0.0218)	0.4737
	20m	CBS	-0.1134(-0.1986,-0.0282)	0.6598	-0.0573(-0.2827,0.1681)	0.903	-0.0559(-0.2657,0.1539)	0.9019	-0.0613(-0.2455,0.1229)	0.8972	-0.0357(-0.1545,0.0831)	0.8206
		GTS	-0.1371(-0.2225,-0.0516)	0.5121	0.0302(-0.0808,0.1413)	0.8635	0.0313(-0.0689,0.1315)	0.8573	-0.0173(-0.0839,0.0493)	0.7176	0.0237(-0.0342,0.0816)	0.728
		DHS	-0.0885(-0.1668,-0.0102)	0.5778	-0.0346(-0.1563,0.0871)	0.8759	-0.0353(-0.1217,0.0512)	0.8101	-0.0074(-0.0891,0.0742)	0.7742	-0.0621(-0.1238,-0.0004)	0.6718
		LUQ	-0.2099(-0.2987,-0.121)	0.484	-0.0149(-0.1972,0.1674)	0.799	0.0247(-0.0912,0.1406)	0.7297	-0.0948(-0.1807,-0.0089)	0.6436	-0.057(-0.1101,-0.0039)	0.5377
		BCI	-0.2392(-0.3387,-0.1397)	0.4287	-0.0877(-0.2087,0.0332)	0.8093	-0.0667(-0.1257,-0.0077)	0.6884	-0.0507(-0.0861,-0.0152)	0.7053	-0.0429(-0.0685,-0.0172)	0.4933
	25m	CBS	-0.0385(-0.1003,0.0233)	0.6658	-0.021(-0.2439,0.2019)	0.9063	-0.0293(-0.225,0.1664)	0.9066	-0.0416(-0.2124,0.1291)	0.9029	-0.0074(-0.1219,0.1071)	0.8305
		GTS	-0.0611(-0.1288,0.0066)	0.5128	0.0666(-0.0568,0.1901)	0.875	0.0685(-0.0382,0.1751)	0.8613	-0.0022(-0.0648,0.0605)	0.7211	0.0298(-0.0233,0.0828)	0.7246
		DHS	-0.0744(-0.1463,-0.0025)	0.566	0.0096(-0.0806,0.0997)	0.8622	-0.022(-0.0858,0.0417)	0.8087	-0.0043(-0.0653,0.0567)	0.7907	-0.037(-0.0938,0.0199)	0.688
		LUQ	-0.1167(-0.2068,-0.0267)	0.4371	-0.004(-0.1644,0.1565)	0.8108	0.0116(-0.0921,0.1152)	0.7501	-0.0873(-0.1705,-0.0041)	0.6568	-0.0757(-0.1317,-0.0197)	0.5648
BCI		-0.0626(-0.1585,0.0333)	0.4393	0.0223(-0.0735,0.1181)	0.8237	-0.0277(-0.0709,0.0155)	0.7096	-0.0368(-0.068,-0.0055)	0.7208	-0.0425(-0.0632,-0.0218)	0.5041	
30m	CBS	-0.1082(-0.1847,-0.0318)	0.6654	0.0567(-0.1841,0.2975)	0.9019	-0.0447(-0.2643,0.1748)	0.9024	-0.048(-0.2386,0.1425)	0.8993	0.0185(-0.0929,0.13)	0.8243	
	GTS	0.0107(-0.0597,0.0811)	0.5359	-0.0075(-0.0943,0.0794)	0.869	-0.0147(-0.0946,0.0651)	0.8618	-0.0045(-0.0458,0.0369)	0.7235	0.0177(-0.0197,0.0551)	0.7231	
	DHS	0.0069(-0.0558,0.0696)	0.5822	0.0139(-0.092,0.1199)	0.8579	0.0187(-0.0567,0.0941)	0.8061	-0.0095(-0.0795,0.0606)	0.7908	-0.0696(-0.1175,-0.0218)	0.6833	
	LUQ	-0.0726(-0.1485,0.0033)	0.4168	0.0632(-0.1015,0.2278)	0.8188	0.0189(-0.0886,0.1264)	0.7505	-0.0779(-0.1556,-0.0001)	0.6438	-0.0798(-0.1314,-0.0283)	0.5239	
	BCI	-0.0285(-0.1041,0.0472)	0.4424	-0.0232(-0.1002,0.0537)	0.82	-0.0356(-0.0735,0.0023)	0.7122	-0.0268(-0.0566,0.003)	0.725	-0.0169(-0.0352,0.0015)	0.5169	
All neighbors	5m	CBS	-0.0509(-0.1132,0.0113)	0.3647	-0.2267(-0.4891,0.0357)	0.8739	-0.1938(-0.3893,0.0016)	0.8426	-0.1839(-0.355,-0.0129)	0.8378	-0.0804(-0.1939,0.0331)	0.7043
		GTS	0.0113(-0.0388,0.0615)	0.3093	-0.0182(-0.1331,0.0967)	0.8129	-0.047(-0.1381,0.0441)	0.7804	-0.0314(-0.096,0.0333)	0.639	-0.0062(-0.0644,0.052)	0.6757
		DHS	0.0031(-0.0272,0.0334)	0.3521	0.0091(-0.1992,0.2174)	0.8458	0.028(-0.092,0.1481)	0.7415	0.0241(-0.0878,0.1361)	0.7287	-0.049(-0.1153,0.0172)	0.6357
		LUQ	0.0165(-0.0197,0.0527)	0.3228	-0.3096(-0.6742,0.055)	0.7943	-0.128(-0.3061,0.0501)	0.6756	-0.1522(-0.243,-0.0614)	0.559	-0.0956(-0.1656,-0.0257)	0.4847
		BCI	-0.0511(-0.0802,-0.0219)	0.4359	0.0417(-0.0936,0.1771)	0.7681	-0.0572(-0.1306,0.0163)	0.5849	-0.0771(-0.1351,-0.0191)	0.6106	-0.0393(-0.078,-0.0006)	0.3884
	10m	CBS	-0.0232(-0.0983,0.052)	0.2821	-0.1492(-0.3447,0.0463)	0.8583	-0.1359(-0.3105,0.0387)	0.8465	-0.1267(-0.2787,0.0252)	0.8399	-0.0873(-0.189,0.0144)	0.7091
		GTS	-0.0289(-0.1098,0.052)	0.4005	0.0078(-0.0879,0.1036)	0.8451	-0.0532(-0.1283,0.0218)	0.8139	-0.0357(-0.1064,0.035)	0.6746	-0.0175(-0.0851,0.05)	0.6933
		DHS	-0.0223(-0.0897,0.045)	0.3572	0.098(-0.0586,0.2547)	0.8509	0.0242(-0.0901,0.1386)	0.7785	0.0425(-0.057,0.1421)	0.7619	-0.0187(-0.0768,0.0394)	0.6478

	LUQ	0.0109(-0.0938,0.1155)	0.3829	0.022(-0.2015,0.2455)	0.7881	0.0318(-0.0922,0.1557)	0.7061	-0.0926(-0.1671,-0.0182)	0.6033	-0.0276(-0.0844,0.0292)	0.4658
	BCI	-0.2842(-0.3679,-0.2005)	0.3762	-0.0836(-0.2002,0.033)	0.8002	-0.1075(-0.1695,-0.0455)	0.6592	-0.1005(-0.1494,-0.0517)	0.677	-0.0555(-0.0876,-0.0234)	0.4495
15m	CBS	-0.0208(-0.0677,0.0261)	0.3418	0.0511(-0.1742,0.2764)	0.8703	-0.08(-0.2601,0.1)	0.8593	-0.0777(-0.2332,0.0779)	0.8517	-0.0523(-0.157,0.0525)	0.7273
	GTS	0.0219(-0.0553,0.099)	0.4009	0.084(-0.0292,0.1973)	0.8545	0.0123(-0.0663,0.0909)	0.8273	-0.008(-0.072,0.0559)	0.6892	-0.0055(-0.0622,0.0511)	0.7051
	DHS	0.0323(-0.0285,0.0931)	0.3924	-0.0041(-0.1334,0.1251)	0.8673	-0.0195(-0.1106,0.0715)	0.7948	-0.0105(-0.0867,0.0657)	0.7628	-0.0404(-0.0858,0.005)	0.678
	LUQ	0.0432(-0.0463,0.1328)	0.4407	0.1369(-0.1582,0.432)	0.8551	0.0871(-0.0533,0.2275)	0.7532	-0.0221(-0.1173,0.073)	0.6126	-0.0304(-0.0858,0.025)	0.4824
	BCI	-0.2227(-0.2869,-0.1585)	0.3521	0.0441(-0.0323,0.1206)	0.8027	-0.0592(-0.1058,-0.0126)	0.6668	-0.0504(-0.0816,-0.0192)	0.6831	-0.0322(-0.0546,-0.0098)	0.4624
20m	CBS	0.0238(-0.0306,0.0782)	0.4194	-0.0086(-0.2101,0.1928)	0.8875	0.0007(-0.1808,0.1821)	0.8798	-0.0147(-0.1687,0.1393)	0.873	-0.0083(-0.1096,0.093)	0.7615
	GTS	0.016(-0.0548,0.0868)	0.4678	0.1241(0.0025,0.2457)	0.8689	0.0407(-0.0507,0.1321)	0.8423	0.042(-0.0272,0.1112)	0.6992	0.0433(-0.0206,0.1072)	0.7144
	DHS	0.029(-0.0219,0.0799)	0.3898	-0.0343(-0.1563,0.0878)	0.8706	-0.0614(-0.1536,0.0308)	0.8017	-0.029(-0.1192,0.0612)	0.7704	-0.0398(-0.0916,0.0121)	0.6807
	LUQ	0.0487(-0.0283,0.1257)	0.458	-0.0246(-0.2017,0.1524)	0.8145	0.0349(-0.0795,0.1494)	0.7551	-0.0571(-0.1402,0.026)	0.6425	-0.0556(-0.1125,0.0012)	0.4882
	BCI	-0.1236(-0.1912,-0.056)	0.3252	0.0246(-0.0692,0.1183)	0.8126	-0.0239(-0.0684,0.0207)	0.6813	-0.0378(-0.0664,-0.0092)	0.6918	-0.0288(-0.0491,-0.0086)	0.4689
25m	CBS	0.0292(-0.0174,0.0758)	0.4667	-0.0253(-0.2062,0.1556)	0.8789	-0.0181(-0.1768,0.1407)	0.8741	-0.0316(-0.1664,0.1031)	0.8678	0.0094(-0.0856,0.1044)	0.748
	GTS	0.0663(-0.0012,0.1339)	0.4423	0.1258(-0.0009,0.2525)	0.8762	0.0654(-0.0231,0.1538)	0.8441	0.0436(-0.0215,0.1087)	0.7054	0.0389(-0.0189,0.0967)	0.7138
	DHS	-0.0086(-0.0626,0.0455)	0.3938	-0.0078(-0.0995,0.0838)	0.8632	-0.0683(-0.1475,0.0108)	0.8075	-0.0226(-0.0951,0.05)	0.7875	-0.012(-0.0601,0.0362)	0.6969
	LUQ	0.0616(-0.0114,0.1347)	0.3469	0.021(-0.1447,0.1867)	0.8315	0.0421(-0.0698,0.1539)	0.7777	-0.0412(-0.1189,0.0365)	0.6743	-0.0452(-0.0963,0.0059)	0.5085
	BCI	-0.0742(-0.1316,-0.0168)	0.3604	0.0376(-0.0445,0.1196)	0.8263	-0.0339(-0.0687,0.0008)	0.7035	-0.0322(-0.0581,-0.0063)	0.7096	-0.0339(-0.0521,-0.0158)	0.4992
30m	CBS	0.0039(-0.0388,0.0466)	0.3861	0.0765(-0.1252,0.2782)	0.8854	-0.0259(-0.2068,0.155)	0.8819	-0.0278(-0.1795,0.1239)	0.8765	0.0164(-0.0801,0.1129)	0.7698
	GTS	0.0596(0.0025,0.1168)	0.4174	0.0134(-0.0698,0.0965)	0.8769	-0.0242(-0.0876,0.0392)	0.8509	0.0179(-0.0255,0.0613)	0.7133	0.0164(-0.0251,0.0579)	0.7113
	DHS	0.0332(-0.0149,0.0813)	0.4137	0.0186(-0.0744,0.1116)	0.862	0.003(-0.0711,0.0772)	0.8085	-0.0185(-0.0944,0.0575)	0.7902	-0.0495(-0.0969,-0.0021)	0.698
	LUQ	0.095(0.0188,0.1711)	0.3822	0.1047(-0.0839,0.2934)	0.83	0.0336(-0.0908,0.158)	0.7626	-0.0454(-0.1304,0.0396)	0.6643	-0.0698(-0.1248,-0.0148)	0.5219
	BCI	-0.0126(-0.0674,0.0421)	0.3539	0.0055(-0.0711,0.0821)	0.8204	-0.0297(-0.0673,0.008)	0.7109	-0.0252(-0.0522,0.0018)	0.7181	-0.0177(-0.0342,-0.0013)	0.5004

19 Figure A1. The proportion of tree taxa experiencing significantly negative interactions with
 20 neighboring trees at different plots and neighborhood scales. Each bar corresponds to an
 21 analysis testing a community of forest trees for the presence of negative relationships
 22 between focal tree size and proportion of neighbors that are conspecifics or closely related
 23 heterospecifics (≤ 25 Myr, ≤ 50 Myr, ≤ 75 Myr and ≤ 100 Myr) for both sapling-sized neighbors
 24 ($1 \text{ cm} \leq \text{DBH} < 5 \text{ cm}$) and all neighbors ($\geq 1 \text{ cm DBH}$).



26 Figure A2. The odds ratios ($\exp(\gamma_{10})$ in Eq. 4) and 95% confidence intervals of community-
 27 level mean relationships between focal tree size and the proportion of all neighbors ≥ 1 cm
 28 DBH in the various phylogenetic categories and at different neighborhood scales for each of
 29 the five forest sites. Odds ratios above and below unity indicate positive and negative effects,
 30 respectively.



31

32 References for appendix

33 Lebrija-Trejos, E. et al. 2014. Does relatedness matter? Phylogenetic density dependent

34 survival of seedlings in a tropical forest. — *Ecology* 95: 940–951.

35 Uriarte, M. et al. 2010. Trait similarity, shared ancestry and the structure of neighborhood

36 interactions in a subtropical wet forest: Implications for community assembly. —

37 *Ecol. Lett.* 13: 1503-1514.

38