

Supporting Information

Table S1. The parameter estimates and 95% confidence intervals (95% CI) for individual-level general and mycorrhizal models with random intercepts are shown. Non-zero confidence intervals indicate significant effects on survival and are highlighted in bold. Log (DBH), the log-transformed diameter at breast height (DBH); Con, conspecific neighbor density; AM, EcM, and ErM, the density of heterospecific AM, EcM, and ErM tree neighbors, respectively.

Life stage	Parameter estimates (95% CI)				
	Log (DBH)	Con	AM	EcM	ErM
General models					
All	0.5787	0.0262	0.1027	0.1296	0.0757
	(0.5221 – 0.6346)	(-0.0317 – 0.0851)	(0.0559 – 0.1494)	(0.0782 – 0.1815)	(0.0216 – 0.1300)
Sapling	0.2229	-0.0092	0.0757	0.0732	0.0834
	(0.1493 – 0.2979)	(-0.764 – 0.0577)	(0.0051 – 0.1485)	(-0.0004 – 0.1475)	(0.0026 – 0.1640)
Juvenile	0.8729	-0.0441	0.1979	0.1311	0.0854
	(0.6198 – 1.1379)	(-0.1843 – 0.1139)	(0.0716 – 0.3280)	(0.0112 – 0.2513)	(-0.0325 – 0.2063)
Adult	0.6278	0.0729	0.1324	0.2337	0.0701

	(0.4921 – 0.7660)	(-0.0471 – 0.2099)	(0.0596 – 0.2084)	(0.1549 – 0.3186)	(-0.0073 – 0.1523)
Mycorrhizal models (AM species)					
All	0.5145	0.0646	0.1053	0.1645	0.0847
	(0.4466 – 0.5843)	(-0.0213 – 0.1616)	(0.0495 – 0.1626)	(0.1047 – 0.2260)	(0.0210 – 0.1513)
Sapling	0.3723	-0.0334	0.0956	0.1276	0.0988
	(0.2752 – 0.4692)	(-0.1114 – 0.0506)	(0.0086 – 0.1841)	(0.0380 – 0.2190)	(0.0031 – 0.1986)
Juvenile	0.8894	0.1330	0.1777	0.1749	0.0859
	(0.5745 – 1.1972)	(-0.1192 – 0.4353)	(0.0485 – 0.3118)	(0.0436 – 0.3118)	(-0.0417 – 0.2131)
Adult	0.5828	0.2054	0.1025	0.2281	0.0740
	(0.4130 – 0.7533)	(0.0124 – 0.4347)	(0.0185 – 0.1891)	(0.1339 – 0.3224)	(-0.0183 – 0.1681)
Mycorrhizal models (EcM species)					
All	0.8366	-0.0221	0.0882	-0.0269	0.0595
	(0.7076 – 0.9705)	(-0.1518 – 0.1153)	(-0.0229 – 0.1995)	(-0.1375 – 0.0836)	(-0.0733 – 0.1971)
Sapling	-0.0030	-0.0139	0.0403	-0.0513	0.0506
	(-0.1190 – 0.1139)	(-0.1527 – 0.1229)	(-0.0874 – 0.1710)	(-0.1776 – 0.0765)	(-0.0945 – 0.2021)

Juvenile	0.2944 (-0.2105 – 0.8081)	-0.4158 (-0.9479 – 0.0259)	0.6541 (0.0462 – 1.4099)	-0.2993 (-0.7927 – 0.1832)	0.1236 (-0.4413 – 0.7516)
Adult	0.5641 (0.2147 – 0.8979)	0.0377 (-0.2800 – 0.3851)	0.3666 (0.0418 – 0.7187)	0.3099 (-0.0333 – 0.6941)	0.0822 (-0.2422 – 0.4375)
Mycorrhizal models (ErM species)					
All	0.4234 (0.2819 – 0.5671)	0.1214 (-0.0432 – 0.3039)	0.1694 (0.0195 – 0.3255)	0.1301 (-0.0089 – 0.2817)	0.1014 (-0.0410 – 0.2478)
Sapling	-0.2275 (-0.7198 – 0.2581)	0.9968 (0.2434 – 1.9454)	-0.4523 (-0.7109 – 0.2991)	-0.1917 (-0.7109 – 0.2991)	0.3703 (-0.1562 – 0.9349)
Juvenile	0.1179 (-0.5717 – 0.8253)	0.9688 (-0.1801 – 2.3744)	0.2038 (-0.7445 – 1.2522)	-0.2268 (-0.9216 – 0.4265)	0.2121 (-0.7071 – 1.2389)
Adult	0.3302 (0.1785 – 0.4851)	0.0752 (-0.0979 – 0.2575)	0.2287 (0.0678 – 0.3991)	0.2268 (0.0524 – 0.4171)	0.0444 (-0.1217 – 0.2156)

Table S2. The parameter estimates and standard error (SE) for the relationship between the strength of neighborhood effects and sprouting ability (Sprout/main stem ratio), log-transformed abundance and their interaction terms for each species are shown. $\gamma_3 \sim \gamma_5$, extracted from species-level general models or mycorrhizal-specific models, represent neighborhood effects mediated by AM, EcM, and ErM trees, respectively. Significant results are highlighted in bold. $P < 0.05$, *; $P < 0.01$, **; $P < 0.001$, ***.

Life stages	Parameter estimates (SE)								
	Sprout/main stem ratio			Log (Abundance)			Interaction		
	AM (γ_3)	EcM (γ_4)	ErM (γ_5)	AM (γ_3)	EcM (γ_4)	ErM (γ_5)	AM (γ_3)	EcM (γ_4)	ErM (γ_5)
General models									
All	0.0166	0.0124	-0.0160	-0.0027	0.0039	-0.0041	-0.0162	-0.0037	-0.0058
	(0.0196)	(0.0186)	(0.0245)	(0.0096)	(0.0091)	(0.0120)	(0.0210)	(0.0199)	(0.0262)
Sapling	0.0808 **	0.0427 *	0.0326	0.0333 *	0.0205 *	0.0109	-0.0896 **	-0.0481 *	-0.0670
	(0.0304)	(0.0173)	(0.0531)	(0.0146)	(0.0083)	(0.0255)	(0.0325)	(0.0185)	(0.0566)
Juvenile	-0.0147	0.0074	-0.0002	-0.0024	0.0101	0.0085	0.0133	-0.0282	-0.0208
	(0.0535)	(0.0433)	(0.0688)	(0.0288)	(0.0234)	(0.0371)	(0.0585)	(0.0474)	(0.0754)
Adult	0.0106	0.0015	0.0007	0.0083	0.0070	0.0062	-0.0209	-0.0067	-0.0116
	(0.0118)	(0.0109)	(0.0176)	(0.0056)	(0.0052)	(0.0084)	(0.0127)	(0.0118)	(0.0190)

Mycorrhizal models (AM species)									
All	0.0412	0.0070	0.0223	0.0123	0.0064	0.0183	-0.0513 *	-0.0115	-0.0548
	(0.0213)	(0.0099)	(0.0441)	(0.0092)	(0.0043)	(0.0189)	(0.0226)	(0.0105)	(0.0466)
Sapling	0.1139 *	0.0026	-0.0310	0.0369	0.0031	-0.0268	-0.1072 *	-0.0002	-0.0050
	(0.0520)	(0.0097)	(0.0935)	(0.0229)	(0.0043)	(0.0411)	(0.0523)	(0.0097)	(0.0939)
Juvenile	-0.0098	0.0077	0.0131	0.0145	0.0038	0.0108	-0.0254	-0.0358	-0.0321
	(0.0593)	(0.0482)	(0.0493)	(0.0359)	(0.0292)	(0.0298)	(0.0635)	(0.0517)	(0.0528)
Adult	0.0066	-0.0012	0.0015	0.0046	0.0015	0.0088	-0.0117	-0.0018	-0.0292
	(0.0092)	(0.0072)	(0.0037)	(0.0407)	(0.0037)	(0.0207)	(0.0099)	(0.0078)	(0.0439)
Mycorrhizal models (EcM species)									
All	-0.0539	0.0720	-0.2837	-0.0293	-0.0063	-0.0972	0.0695	-0.0577	0.3229
	(0.1136)	(0.1704)	(0.1716)	(0.0396)	(0.0594)	(0.0599)	(0.1278)	(0.1918)	(0.1932)
Sapling	0.0044	0.0438	0.0109	-0.0089	0.0112	0.0199	0.0087	-0.0193	0.0153
	(0.0746)	(0.1801)	(0.0926)	(0.0577)	(0.1393)	(0.0716)	(0.0804)	(0.1942)	(0.0998)
Juvenile	-0.0036	-0.2270	-1.4082	0.0722	-0.1075	-0.3160	-0.0288	0.2831	1.5107
	(0.4635)	(0.2600)	(1.0053)	(0.1633)	(0.0916)	(0.3543)	(0.5421)	(0.3041)	(1.1757)

Adult	-0.4086 (0.8110)	-0.6705 (0.5826)	-3.7463 (3.8818)	-0.0185 (0.1164)	-0.0232 (0.0836)	-0.3925 (0.5569)	0.4567 (0.8573)	0.7804 (0.6159)	3.8908 (4.1035)
Mycorrhizal models (ErM species)									
All	-0.1718 (0.1816)	0.0600 (0.7369)	0.4336 (0.1907)	-0.0351 (0.0570)	0.1817 (0.2314)	0.0542 (0.0599)	0.1535 (0.1868)	-0.0474 (0.7578)	-0.3997 (0.1962)
Sapling	-0.0462 (0.0723)	1.6992 (0.9528)	-0.5180 (0.0931)	0.0482 (0.0323)	0.7968 (0.4255)	-0.0392 (0.0416)	-0.0062 (0.0698)	-1.9129 (0.9207)	0.6809 (0.0900)
Juvenile	1.5667 (3.5188)	4.0460 (21.0261)	-0.7675 (3.3311)	-0.0548 (1.1316)	0.4623 (6.7614)	-0.6205 (1.0712)	-1.3519 (3.6039)	-3.9193 (21.5346)	1.0744 (3.4116)
Adult	-0.1630 (0.4075)	0.0987 (0.7808)	0.5211 (0.3353)	0.0096 (0.1232)	0.1973 (0.2360)	0.0798 (0.1013)	0.1169 (0.4091)	-0.0513 (0.7839)	-0.4836 (0.3366)