The pollination trade-off

Supplementary information

Fernando Cagua, Hugo Marrero, Jason Tylianakis, Daniel Stouffer

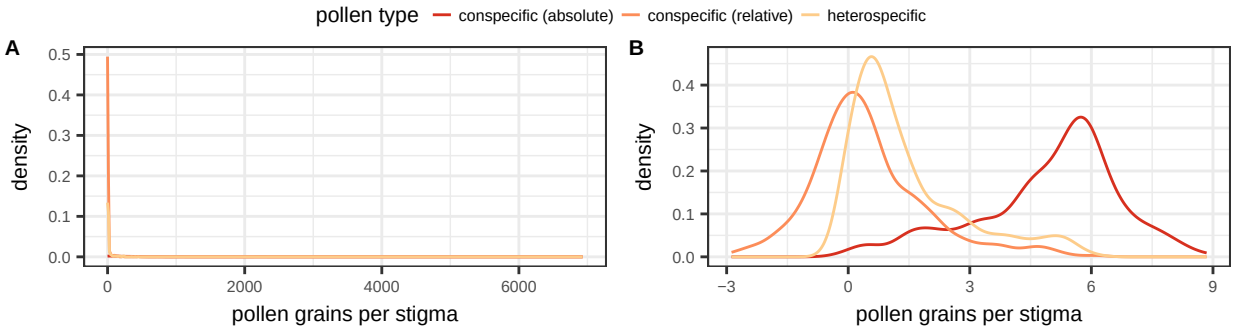

Figure S1: Distribution of the stigmatic pollen density for one of the bootstrap replicates used in the model sets. When (A) using directly the gain in pollen density and (B) when pollen density is log transormed (for the relative amount of conspecific pollen, density was log-transformed prior to calculating the gain).

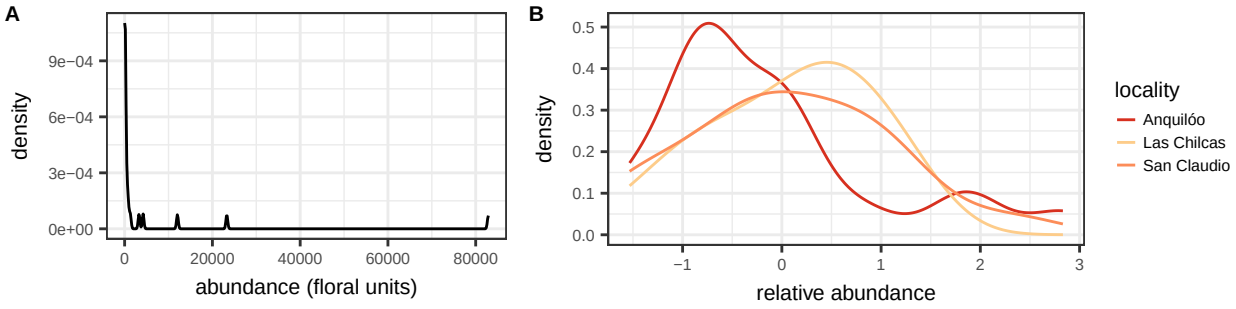

Figure S2: Distribution of plant abundance as (A) raw counts of floral units across communities, and (B) after applying a data transformation in which the counts have been log transformed and scaled to have a mean of zero and a standard deviation of one.

Table S1: Comparison of the different random structures we considered. The table shows median delta AIC values of 99 bootsrap resamples of the data. The 5th and 95th percentile are shown inside square brackets. Communities are defined by individual fragments but ignore the hierarchical arrangement of sampling sites.

pollen type	random structure	delta_AIC
conspecific (absolute)	1 | community / plant sp.	11.8 [0, 28.9]
	1 | locality / land use / fragment / plant sp.	16 [4.2, 33]
	1 | locality / land use / plant sp.	12.6 [0, 23]
	1 | locality / plant sp.	0 [0, 17.1]
	1 | plant sp.	48.9 [31.8, 71.2]
conspecific (relative)	1 | community / plant sp.	0 [0, 2.5]
	1 | locality / land use / fragment / plant sp.	4.2 [4, 6.6]
	1 | locality / land use / plant sp.	5.4 [0, 17.5]
	1 | locality / plant sp.	8.6 [0, 21.7]
	1 | plant sp.	17.5 [3.6, 41.1]
heterospecific	1 | community / plant sp.	0 [0, 0]
	1 | locality / land use / fragment / plant sp.	4.2 [4.2, 4.3]
	1 | locality / land use / plant sp.	6.5 [3.3, 14.3]
	1 | locality / plant sp.	33.1 [9.4, 59]
	1 | plant sp.	27 [2.1, 55.1]

Table S2: Results of testing the alternative hypothesis that the conspecific pollen density in open flowers is greater than the density in bagged flowers. Tests were performed at the species level (across communities).

plant species	difference	statistic	p value
Aloysia gratissima	31.6666177	9.0	0.0382613
Baccharis pingraea	2.9999531	156.0	0.0000308
Carduus acanthoides	0.0000386	1077.0	0.4953884
Cirsium vulgare	-109.7728636	82.0	0.9969050
Condalia microphylla	-8.9004993	20.0	0.7499117
Cypella herbertii	2428.2500000	20.0	0.0151515
Descurania argentina	21.5000000	61.0	0.0599151
Diplotaxis tenuifolia	198.7500000	217.0	0.1661275
Dipsacus sp.	6.7177679	28.5	0.0085552
Gaillardia megapotamica	-411.7500000	9.0	0.9999504
Glandularia hookeriana	-68.5833333	5.0	0.8690476
Hirschfeldia incana	29.5000848	9510.0	0.1014593
Lycium chilense	394.1666667	24.0	0.1969697
Mentha pulegium	1.0104167	34.0	0.2205997
Nierembergia aristata	769.7500000	70.0	0.0000514
Nothoscordum euosimum	199.4166667	44.0	0.0247752
Physalis viscosa	1074.0000000	15.0	0.0178571
Prosopidastrum globosum	3.3096971	20.0	0.2051239
Senecio pulcher	-25.0000000	6.0	0.7142857
Sisyrinchium platense	-22.2500000	49.0	0.6918285
Solanum sisymbriifolium	2195.0000000	3.0	0.2500000
Sphaeralcea crispa	5.7000000	15.0	0.0178571
Stemodia lanceolata	1261.0000000	25.0	0.0039683
Thelesperma megapotamicum	-23.3333333	4.0	0.6500000
Turnera sidioides	151.0000205	327.0	0.0000224
Verbena intermedia	87.0833333	367.0	0.0062368

Table S3: Comparison of the different fixed structures we considered. The table shows median delta AIC values of 99 bootsrap resamples of the data. The 5th and 95th percentile are shown inside square brackets.

pollen type	fixed structure	delta_AIC
conspecific (absolute)	~ abundance + share pollen	0 [0 ,0]
	~ abundance + share pollen + degree	0.6 [0.1 ,1.1]
	~ abundance + share pollen + degree + func. originality	0.7 [0 ,1.4]
	~ abundance + share pollen + func. originality	0.8 [0.5 ,1.2]
	~ share pollen + degree + func. originality	1.5 [0.8 ,2.6]
	~ share pollen + func. originality	2.3 [1.5 ,3]
	~ share pollen + degree	123.3 [90.2 ,156.9]
	~ share pollen	124.2 [91.3 ,158]
	~ abundance	199.3 [170.3 ,224.5]
	~ abundance + degree	200.9 [171.6 ,226.2]
	~ abundance + func. originality	201.1 [172.2 ,226.5]
	~ func. originality	201.9 [172.6 ,227]
	~ degree + func. originality	201.6 [172.6 ,227.3]
	~ abundance + degree + func. originality	202.5 [173.3 ,228]
	~ degree	357.1 [311.2 ,406.1]
	~ 1	375.4 [330.4 ,425.3]
conspecific (relative)	~ abundance + share pollen	0.1 [0 ,1.4]
	~ abundance + share pollen + func. originality	0.1 [0 ,1.1]
	~ abundance + share pollen + degree	1.4 [0.7 ,2.5]
	~ share pollen + func. originality	1.5 [0 ,3.3]
	~ abundance + share pollen + degree + func. originality	1.9 [1.3 ,2.6]
	~ share pollen + degree + func. originality	2.7 [1.5 ,4.5]
	~ share pollen	109.2 [92.4 ,130.1]
	~ share pollen + degree	110.1 [93 ,130.5]
	~ abundance + func. originality	211.3 [193.9 ,229]
	~ abundance	212.6 [195.7 ,229.8]
	~ func. originality	213 [195 ,229.5]
	~ abundance + degree + func. originality	213 [195.5 ,230.8]
	~ degree + func. originality	213.3 [195.7 ,230.1]
	~ abundance + degree	213.2 [196.3 ,231.2]
	~ degree	386.5 [356.7 ,408.4]
	~ 1	387.9 [358.8 ,411.3]
heterospecific	~ abundance + share pollen	0 [0 ,0]
	~ abundance + share pollen + func. originality	1.5 [1.2 ,1.8]
	~ abundance + share pollen + degree	1.9 [1.5 ,2.1]
	~ abundance + share pollen + degree + func. originality	3.5 [3.1 ,3.8]
	~ share pollen + func. originality	11 [9.5 ,12.7]
	~ share pollen + degree + func. originality	12.9 [11.4 ,14.6]
	~ share pollen	71.1 [64 ,76.7]
	~ share pollen + degree	72.8 [65.7 ,78.4]
	~ abundance + degree	202.1 [174.6 ,225.5]
	~ abundance	203.3 [178 ,227.4]
	~ abundance + degree + func. originality	204 [176.6 ,227.3]
	~ abundance + func. originality	204.7 [179.3 ,228.1]
	~ func. originality	211.1 [187.8 ,235.6]
	~ degree + func. originality	213.2 [189.9 ,237.6]
	~ 1	333.3 [303.9 ,358.4]
	~ degree	334.3 [305.3 ,359.6]

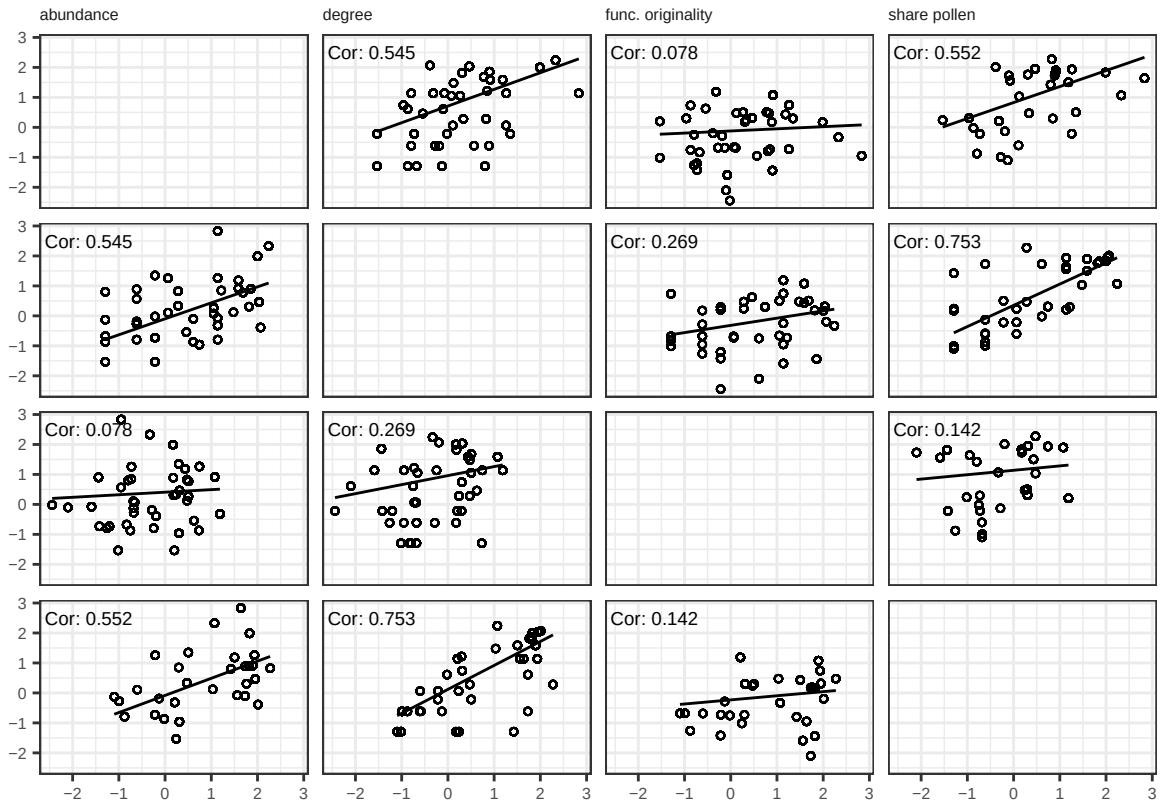

Figure S3: Corelation between the explanatory variables included in the statistical models.

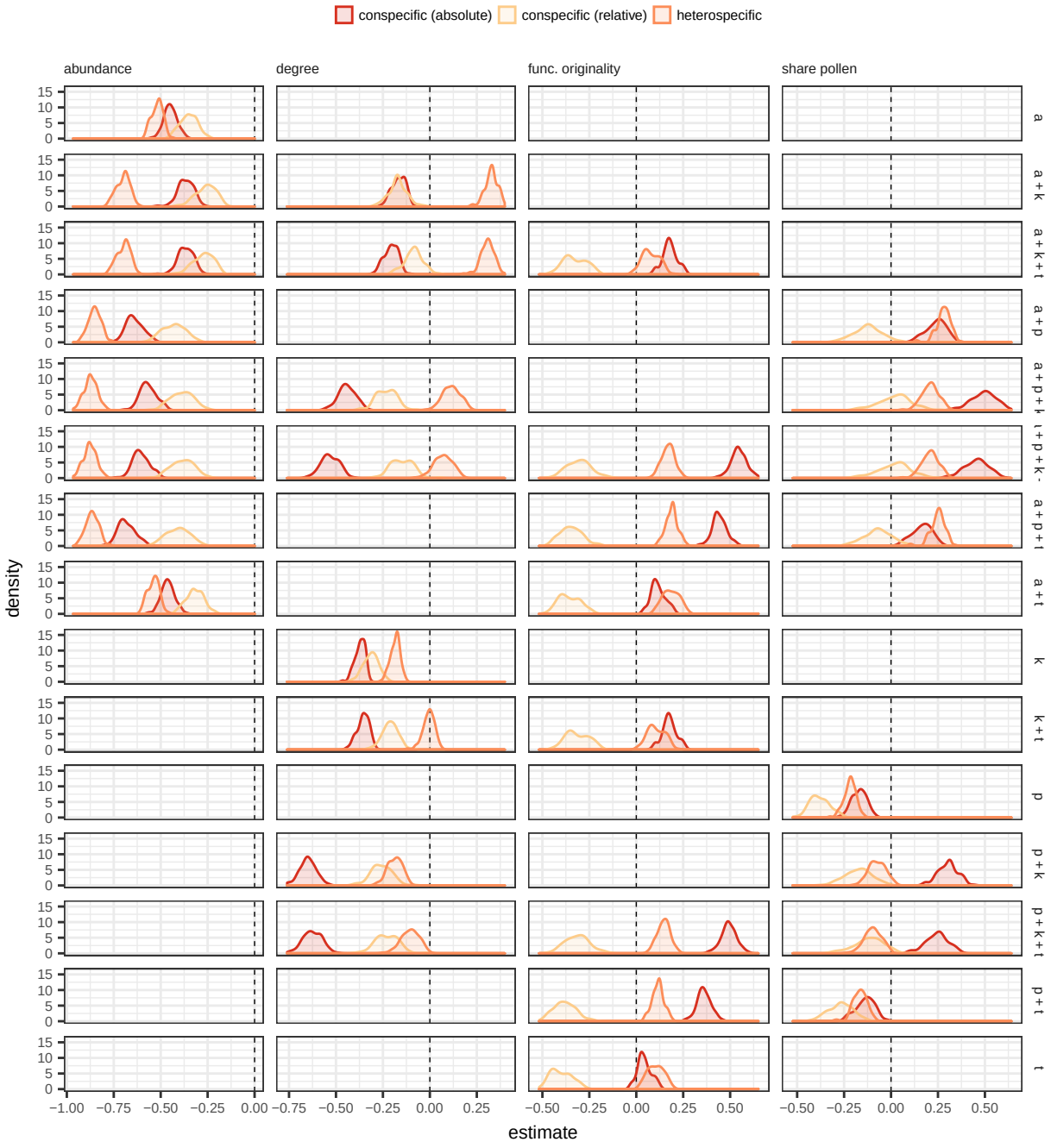

Figure S4: Distribution of effect estimates for models of conspecific and heterospecific pollen density gain. Only results for the models with the most parsimonous fixed effects.