

# The pollination trade-off

Supplementary information

*Fernando Cagua, Hugo Marrero, Jason Tylianakis, Daniel Stouffer*

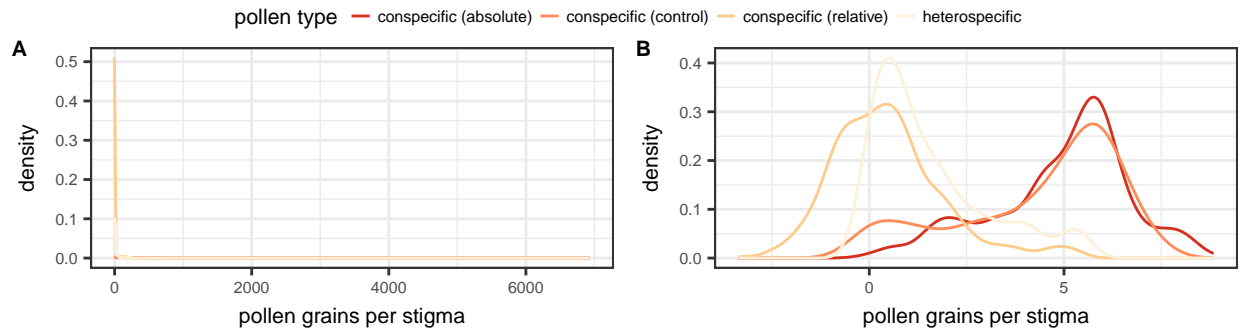


Figure S1: Distribution of the stigmatic pollen density for one of the bootstrap replicates used in the model sets. When (A) using directly the gain in pollen density and (B) when pollen density is log transformed (for the relative amount of conspecific pollen, density was log-transformed prior to calculating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

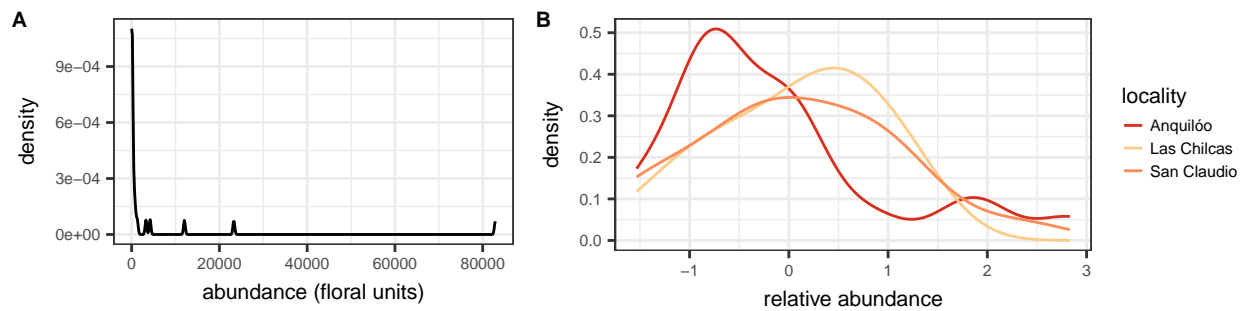


Figure S2: Distribution of plant abundance as (A) raw counts of floral units across communities, and (B) after applying a data transformation in which the counts have been log transformed and scaled to have a mean of zero and a standard deviation of one.

Table S1: Comparison of the different random structures we considered. The table shows median delta AIC values of 99 bootstrap 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
<b>conspecific (absolute)</b>	1   community / plant sp.	11.4 [0, 25.7]
	1   locality / land use / fragment / plant sp.	15 [4.2, 29.8]
	1   locality / land use / plant sp.	10.9 [0, 21.5]
	1   locality / plant sp.	0 [0, 16.8]
	1   plant sp.	45.4 [25.5, 65.3]
<b>conspecific (control)</b>	1   community / plant sp.	5 [0, 16]
	1   locality / land use / fragment / plant sp.	9.7 [4.3, 20.4]
	1   locality / land use / plant sp.	5.8 [0, 16]
	1   locality / plant sp.	9.1 [2.5, 15.1]
	1   plant sp.	0 [0, 12.4]
<b>conspecific (relative)</b>	1   community / plant sp.	0 [0, 3.5]
	1   locality / land use / fragment / plant sp.	4.2 [4.1, 7.7]
	1   locality / land use / plant sp.	5.2 [0, 21.3]
	1   locality / plant sp.	7.4 [0, 25.6]
	1   plant sp.	16.3 [5.7, 44.9]
<b>heterospecific</b>	1   community / plant sp.	1 [0, 11.5]
	1   locality / land use / fragment / plant sp.	5.1 [4, 15.6]
	1   locality / land use / plant sp.	0.1 [0, 8.5]
	1   locality / plant sp.	17.2 [4.5, 44.5]
	1   plant sp.	16.2 [0, 50.8]

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
<i>Aloysia gratissima</i>	31.6666177	9.0	0.0382613
<i>Baccharis pingraea</i>	2.9999531	156.0	0.0000308
<i>Carduus acanthoides</i>	0.0000386	1077.0	0.4953884
<i>Cirsium vulgare</i>	-109.7728636	82.0	0.9969050
<i>Condalia microphylla</i>	-8.9004993	20.0	0.7499117
<i>Cypella herbertii</i>	2428.2500000	20.0	0.0151515
<i>Descurania argentina</i>	21.5000000	61.0	0.0599151
<i>Diplotaxis tenuifolia</i>	198.7500000	217.0	0.1661275
<i>Dipsacus sp.</i>	6.7177679	28.5	0.0085552
<i>Gaillardia megapotamica</i>	-411.7500000	9.0	0.9999504
<i>Glandularia hookeriana</i>	-68.5833333	5.0	0.8690476
<i>Hirschfeldia incana</i>	29.5000848	9510.0	0.1014593
<i>Lycium chilense</i>	394.1666667	24.0	0.1969697
<i>Mentha pulegium</i>	1.0104167	34.0	0.2205997
<i>Nierembergia aristata</i>	769.7500000	70.0	0.0000514
<i>Nothoscordum euosimum</i>	199.4166667	44.0	0.0247752
<i>Physalis viscosa</i>	1074.0000000	15.0	0.0178571
<i>Prosopidastrum globosum</i>	3.3096971	20.0	0.2051239
<i>Senecio pulcher</i>	-25.0000000	6.0	0.7142857
<i>Sisyrinchium platense</i>	-22.2500000	49.0	0.6918285
<i>Solanum sisymbriifolium</i>	2195.0000000	3.0	0.2500000
<i>Sphaeralcea crispera</i>	5.7000000	15.0	0.0178571
<i>Stemodia lanceolata</i>	1261.0000000	25.0	0.0039683
<i>Thelesperma megapotamicum</i>	-23.3333333	4.0	0.6500000
<i>Turnera sidioides</i>	151.0000205	327.0	0.0000224
<i>Verbena intermedia</i>	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 bootstrap resamples of the data. The 5th and 95th percentile are shown inside square brackets.

pollen type	fixed structure	delta_AIC
<b>conspecific (absolute)</b>	~ abundance + share pollen	0.2 [0 ,1.2]
	~ abundance + share pollen + degree	0.1 [0 ,0.7]
	~ abundance + share pollen + degree + func. originality	0.3 [0 ,1.1]
	~ abundance + share pollen + func. originality	1.2 [0.6 ,2.5]
	~ share pollen + degree + func. originality	1.5 [0.5 ,2.4]
	~ share pollen + func. originality	2.6 [1.3 ,4.2]
	~ share pollen + degree	116.3 [73.4 ,176.7]
	~ share pollen	117.8 [74.7 ,178]
	~ abundance	189.4 [149.5 ,240]
	~ abundance + degree	191.1 [151.6 ,241.4]
	~ abundance + func. originality	191.4 [151.4 ,242]
	~ func. originality	192.4 [152.8 ,242.8]
	~ degree + func. originality	192.6 [153 ,242.5]
	~ abundance + degree + func. originality	193 [153 ,243.1]
	~ degree	350.2 [292.4 ,418.2]
	~ 1	370.5 [310.9 ,437.9]
<b>conspecific (control)</b>	~ share pollen + func. originality	0 [0 ,0]
	~ share pollen + degree + func. originality	1.3 [0.9 ,1.8]
	~ abundance + share pollen + func. originality	1.7 [1.2 ,2]
	~ abundance + share pollen	2 [0.4 ,3.1]
	~ abundance + share pollen + degree + func. originality	3.2 [1.4 ,3.8]
	~ abundance + share pollen + degree	4 [1.8 ,5.2]
	~ share pollen	61.2 [42.6 ,79.9]
	~ share pollen + degree	62 [43.3 ,81]
	~ func. originality	148.7 [123.6 ,180.8]
	~ abundance	149.6 [124.9 ,181.7]
	~ abundance + func. originality	150.2 [125.2 ,182.7]
	~ degree + func. originality	150.5 [125.3 ,182.8]
	~ abundance + degree	151.7 [127 ,183.7]
	~ abundance + degree + func. originality	152.3 [127.1 ,184.8]
	~ 1	274.9 [237.1 ,318.1]
	~ degree	276.8 [239.1 ,320]
<b>conspecific (relative)</b>	~ abundance + share pollen	0 [0 ,1.5]
	~ abundance + share pollen + func. originality	0.3 [0 ,1.1]
	~ abundance + share pollen + degree	1.2 [0.2 ,2.3]
	~ abundance + share pollen + degree + func. originality	1.7 [1 ,2.8]
	~ share pollen + func. originality	1.8 [0.5 ,4.3]
	~ share pollen + degree + func. originality	2.9 [1.5 ,5.4]
	~ share pollen	110.2 [91.1 ,129]
	~ share pollen + degree	111.5 [91.9 ,130.2]
	~ abundance + func. originality	211.6 [196.4 ,229.6]
	~ abundance	212.5 [198 ,229.6]
	~ func. originality	213.1 [198.4 ,231.4]
	~ abundance + degree + func. originality	213.5 [198.3 ,231.7]
	~ abundance + degree	213.6 [199.1 ,231.2]
	~ degree + func. originality	213.7 [198.8 ,232.9]
	~ degree	386 [359.6 ,408]
	~ 1	388.2 [362.4 ,410.3]
<b>heterospecific</b>	~ abundance + share pollen	0 [0 ,0]
	~ abundance + share pollen + func. originality	1.4 [0.9 ,1.8]
	~ abundance + share pollen + degree	1.6 [0.9 ,2]
	~ abundance + share pollen + degree + func. originality	2.8 [1.8 ,3.3]
	~ share pollen + func. originality	12.3 [10.1 ,14.3]
	~ share pollen + degree + func. originality	13.4 [10.9 ,15.7]
	~ share pollen	67.2 [53.4 ,87.6]
	~ share pollen + degree	67.7 [53.4 ,88.3]
	~ abundance + degree	207.4 [163.4 ,252.3]
	~ abundance	208.4 [163.4 ,252.3]
	~ abundance + func. originality	208.6 [164.8 ,253.2]
	~ abundance + degree + func. originality	208.8 [164.6 ,253.8]
	~ func. originality	214.2 [169.9 ,259.2]
	~ degree + func. originality	216.2 [171.9 ,261.2]
	~ degree	335.5 [282 ,391.5]
	~ 1	368.8 [313.1 ,425.6]

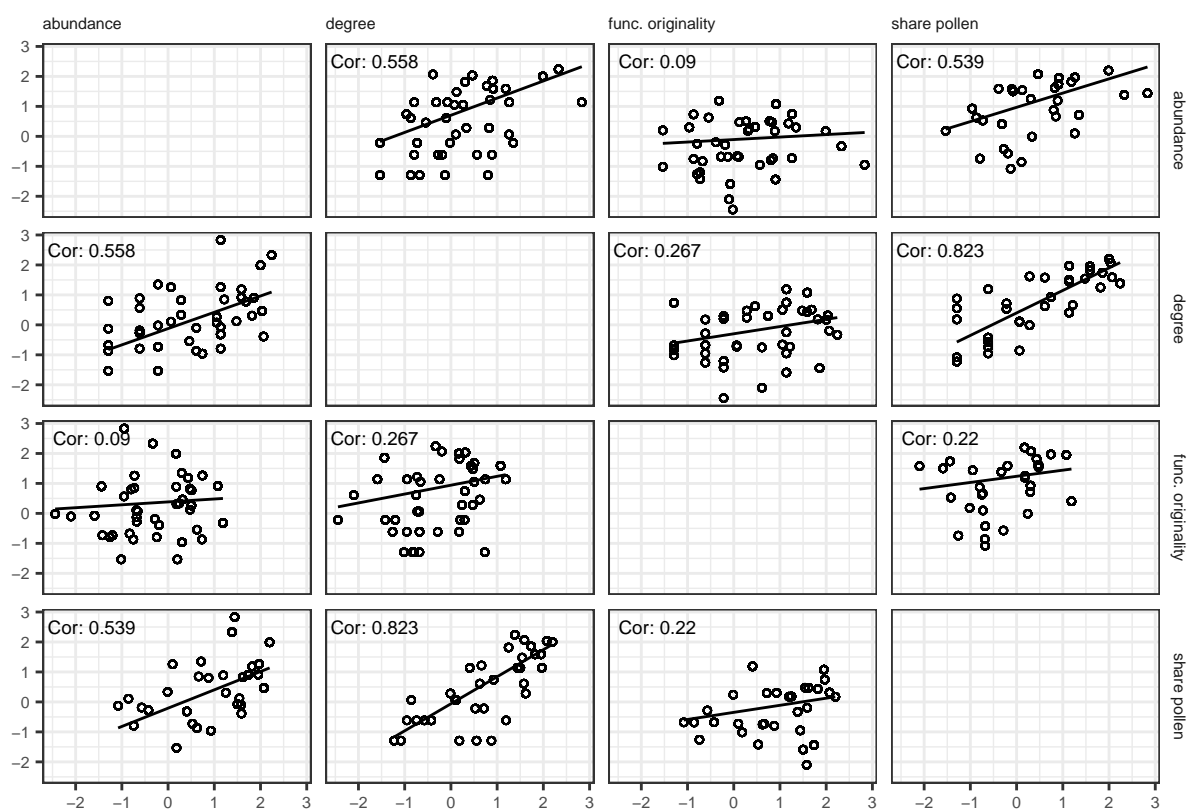


Figure S3: Correlation between the explanatory variables included in the statistical models.

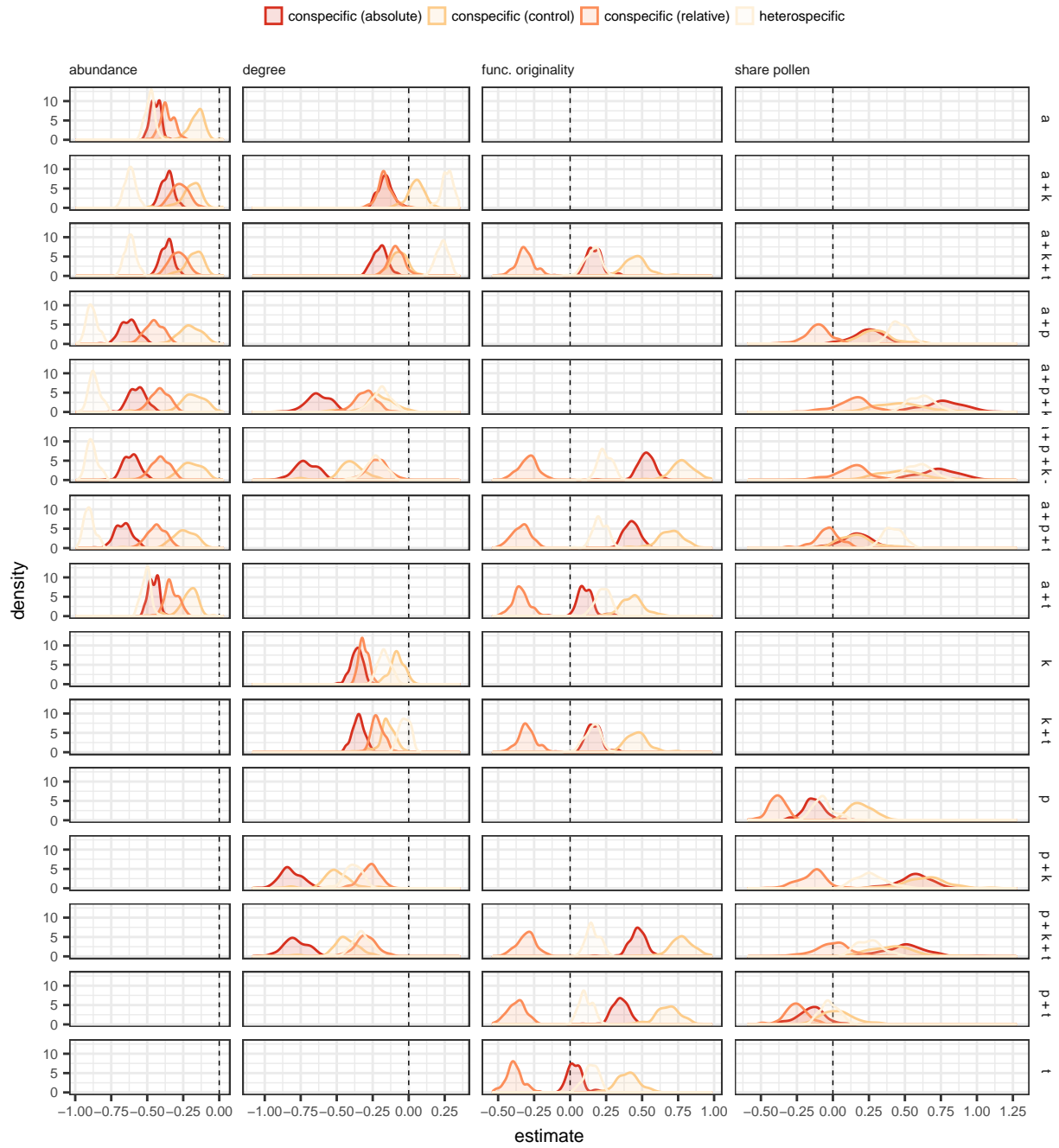


Figure S4: Distribution of effect estimates for models of conspecific and heterospecific pollen density gain. Only results for the models with the most parsimonious fixed effects.