APPENDIX S1: Output from linear mixed models

Table S1.1 Plant partner similarity: Output from linear mixed models covering all possible combinations of the fixed parameters and all with 'species' as random factor due to the non-independence of the multiple entries of each species. Both random slopes and intercepts were allowed. Provided are non-standardized parameter estimates of the fixed parameters, log-likelihood values, bias-corrected Akaike Information Criterion (*AICc*), Δ*AICc* and Akaike weights (*wAIC*)

Fixed parameters in linear mixed models								
Intercept	**Geographical distance**	**Change in linkage level**	**Geographical distribution**	**Change in relative abundance†**	**logLik**	***AICc***	***Δ AICc***	***wAIC***
0.3943	-0.0801	-0.1027			299.4	-559.2	0.0	0.375
0.3797	-0.0805	-0.1016		0.0142	300.4	-559.0	0.2	0.337
0.3756	-0.0849				297.2	-557.0	2.3	0.120
0.3907	-0.0838		-0.0024		297.7	-555.7	3.5	0.065
0.4247	-0.0800	-0.0991	-0.0040	-0.0136	299.8	-555.6	3.6	0.061
0.3717	-0.0851			-0.0016	297.2	-554.8	4.5	0.040
0.4216	-0.0796	-0.0926	-0.0041		293.9	-545.9	13.3	0
0.4435	-0.0860		-0.0059	-0.0498	292.2	-542.5	16.7	0
0.4103			-0.0067	-0.3347	286.5	-533.4	25.8	0
0.2520		-0.2094			283.5	-529.6	29.6	0
0.2053			-0.0058		282.7	-527.9	31.4	0
0.4282				-0.4038	282.4	-527.4	31.8	0
0.3299		-0.2008		-0.1753	281.4	-523.2	36.1	0
0.3083					278.5	-521.8	37.5	0
0.3065		-0.3867	0.0093		280.6	-521.6	37.7	0
0.4134		0.0457	-0.0124	-0.1365	277.6	-513.3	45.9	0

† Abundance of plant species was obtained by counting the number of individuals belonging to each species along irregular transects within each site and. From these numbers a relative measure was calculated.

Table S1.2 Pollinator partner similarity: Output from linear mixed models covering all possible combinations of the fixed parameters and all with 'species' as random factor due to the non-independence of the multiple entries of each species. Both random slopes and intercepts were allowed. Provided are non-standardized parameter estimates of the fixed parameters, log-likelihood values, bias-corrected Akaike Information Criterion (*AICc*), Δ*AICc* and Akaika weights (*wAIC*)

Fixed parameters in linear mixed models								
Intercept	**Geographical distance**	**Change in linkage level**	**Geographical distribution**	**Change in relative abundance†**	**logLik**	***AICc***	***Δ AICc***	***wAIC***
0.5065	-0.0808	-0.0897		-0.1566	-9.7	60.5	0.0	0.836
0.5044	-0.0793		-0.0042	-0.1963	-11.6	64.2	3.7	0.133
0.4742	-0.0781			-0.1781	-14.3	67.6	7.1	0.024
0.4085	-0.0805		-0.0101		-16.1	71.1	10.6	0.004
0.4754	-0.0816	-0.0895	0.0035	-0.1583	-14.5	72.2	11.7	0.002
0.4518	-0.0876	-0.2003			-18.9	76.7	16.2	0
0.3488	-0.0741				-21.8	80.4	20.0	0
0.3934		-0.1213		-0.1606	-22.6	84.1	23.6	0
0.4325		-0.0346	-0.0063	-0.2203	-22.7	86.5	26.0	0
0.4845			-0.0108	-0.2797	-25.3	89.5	29.0	0
0.4118				-0.2632	-29.1	94.9	34.5	0
0.3147			-0.0170		-29.6	96.0	35.5	0
0.3443	-0.0874	-0.2194	0.0255		-27.9	96.9	36.4	0
0.4279		-0.1153	-0.0325		-30.5	99.9	39.4	0
0.2740					-37.9	110.5	50.0	0
0.2663		-0.1232			-40.8	118.5	58.0	0

† The relative abundance estimates of pollinators were obtained by weighing the number of visits paid to the different plant species with the relative abundance of the visited plant species. From these weighted abundances we calculated relative abundance estimates.

APPENDIX S2: Partner fidelity and the similarity of the entire partner community

When including the overall pollinator similarity between the pairwise communities as a fixed effect (and leaving out geographical distribution because it did not have an effect at all, and because we wanted to minimize the number of fixed parameters and not overstretch the modelling procedure), then 'geographical distance' and 'change in linkage level' still had a significant effect upon partner fidelity of plant species (figure S2a). Doing the same when examining pollinator fidelity (i.e. including the overall plant similarity between the pairwise communities and leaving out geographical distribution), then 'geographical distance' and the 'weighted abundance estimate' of pollinators remained significant explanatory variables (figure S2b).

Thus, even when taking the similarity of the entire potential partner community into account geographical distance still had a significant negative impact upon partner fidelity of both plants and pollinators. Moreover, the fixed parameters that were judged significant before remained significant after including the similarity of the entire partner-community.

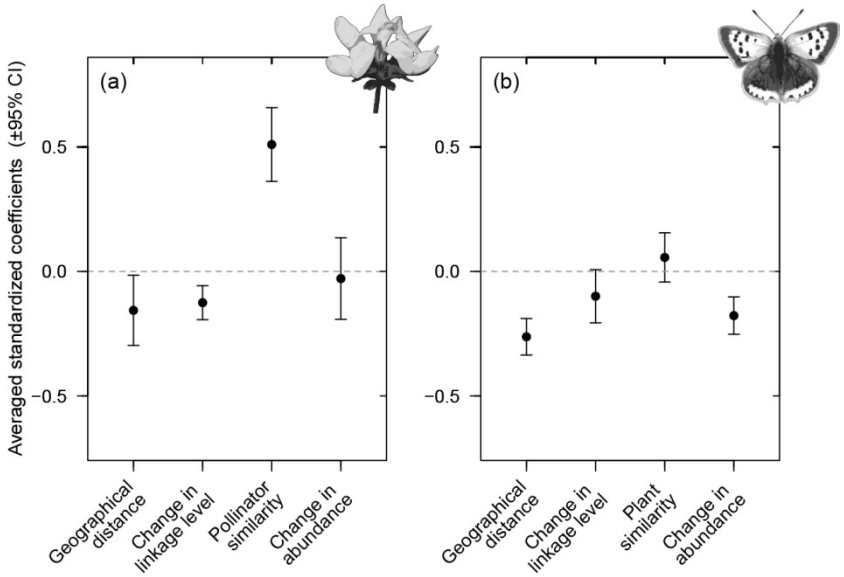

Figure S2. Averaged standardized coefficients and their 95% confidence intervals of fixed parameters obtained from linear mixed models applying a multi-model inference and model averaging procedure based on *AICc*. Species-specific partner similarities of plant (a) and pollinator species (b) between two sites were the response variables and geographical distance, change in linkage level, similarity of partner community, and change in relative abundance were fixed effects; 'species' was included as a random factor in all models due to the non-independence of the multiple entries of each species and we allowed both random slopes and intercepts. Parameters having coefficients with confidence limits not covering zero, were considered having a significant impact on partner fidelity.

APPENDIX S3: Mantel correlograms

Mantel correlograms (Legendre & Legendre, 1998) were performed in VEGAN *v*2.0-8 (Oksanen *et al.*, 2013) for R (R Development Core Team, 2013) using 5000 permutations. 5000 permutations produced consistent results at consecutive runs.

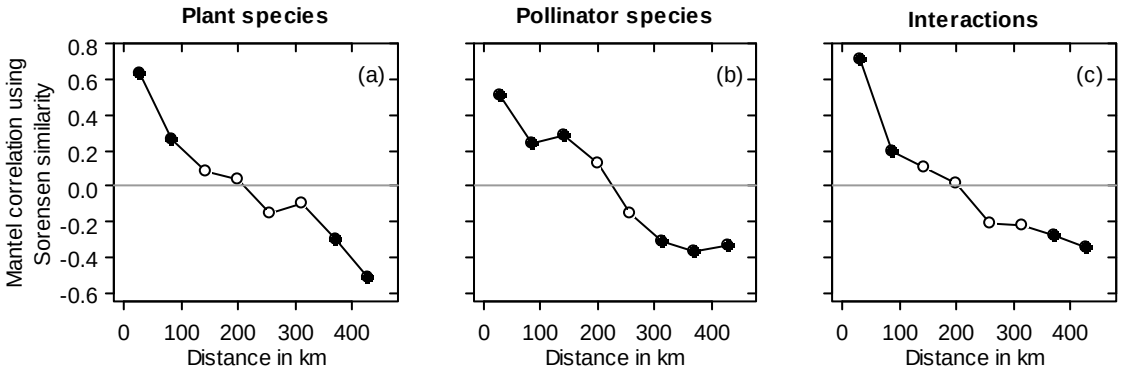

Figure S3 Mantel correlograms based on the Sorensen dissimilarity measure, for plant species composition (a), pollinator species composition (b) and interaction composition (c). Positive and negative values represent positive and negative spatial autocorrelation, respectively. Full circles visualize classes with significant positive/negative spatial autocorrelation.

References

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