Frontiers of Biogeography

Supplementary Material: Table S1 & Figures S1, S2, S3

Article: Co-occurrence frequency in vegetation patches decreases towards the harsh edge along an arid volcanic elevational gradient.

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Table S1: List of the 15 most frequent species in the co-occurrence analysis. Number of partners and co-occurring partner details refer to the results of the co-occurrence network analysis, and partners are only listed where significant positive co-occurrences were detected.

Species	Family	Number of occurrences in patches	Number of positive co-occurrences	Number of partners	Co-occurring partners
Aeonium davidbramwellii H. Y. Liu	Crassulaceae	47	55	3	Klei.neri.(22), Micr.herp.(26), Reich.ting.(7)
Astydamia latifolia (L.f.) Baill.	Apiaceae	171	0	0	
Bituminaria bituminosa (L.) C. H. Stirt.	Fabaceae	57	83	3	Micr.herp.(18), Rum.lun.(40), Tod.aur.(25)
Bystropogon origanifolius L`HÉR	Lamiaceae	19	0	0	
Echium brevirame Sprague & Hutch	Boraginaceae	621	91	2	Euph.lam.(11), Klei.neri.(80)
Euphorbia balsamifera Aiton	Euphorbiaceae	33	7	1	Schi.ser.(7)
Euphorbia lamarckii Sweet	Euphorbiaceae	13	26	2	Ech.brev.(11), Klei.neri.(8), Schi.ser.(7)
Kleinia neriifolia HAW.	Asteraceae	108	217	9	Aeon.dav.(22), Ech.brev.(80), Euph.lam.(8), Micr.herp(29), Peri.laev.(10), Phag.umb.(9), Reich.ting.(8), Rum.lun.(43), Tod.aur.(8)
Micromeria herpyllomorpha Webb & Berthel.	Lamiaceae	176	114	7	Aeon.davi.(26), Bitu.bitu.(18), Klei.neri.(29), Peri.laev(9), Phag.umb.(9), Reich.ting.(14), Tod.aur(9)
Periploca laevigata Aiton	Asclepiadaceae	16	19	2	Klei.neri.(10), Micr.herp.(9)
Phagnalon umbelliforme (L.) Cass.	Asteraceae	19	18	2	Klei.neri.(9), Micr.herp.(9)
Reichardia tingitana (L.) Roth	Asteraceae	39	29	3	Aeon.dav.(7), Klei.neri.(8), Micr.herp.(14)
Rumex lunaria L.	Polygonaceae	410	105	3	Bitu.bitu(40), Klei.neri(43), Tod.aur.(22)
Schizogyne sericea (L.f.) DC.	Euphorbiaceae	133	14	2	Euph.bal.(7), Euph.lam.(7)
Todaroa aurea Parl.	Apiaceae	32	64	4	Bitu.bitu.(25), Klei.neri.(8), Micr.herp.(9), Rum.lun.(22)

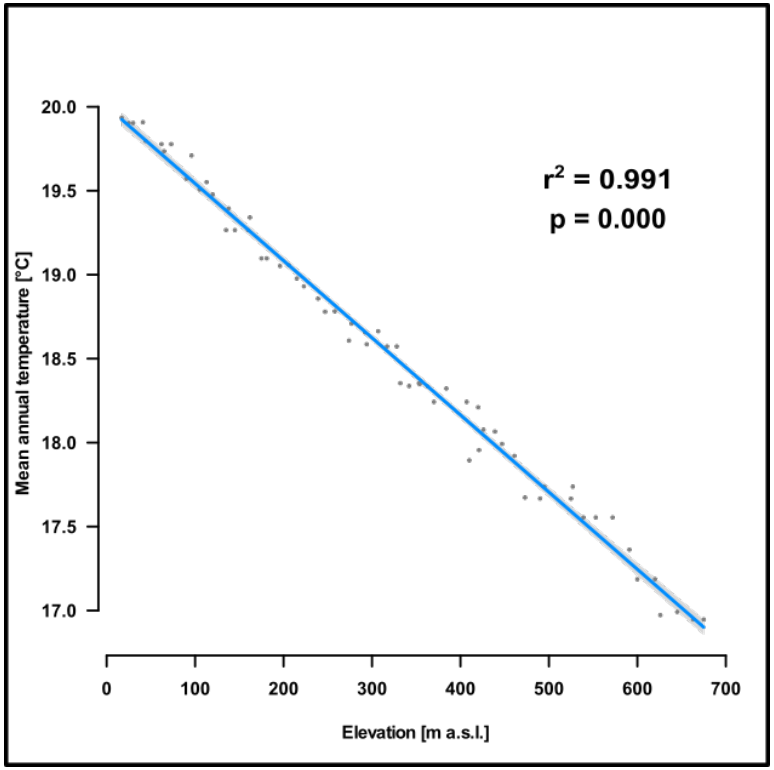

Figure S1: Mean annual temperature decreases significantly with elevation along our study gradient. However, please note that data on temperature and elevation are colinear. Also, the interpolation algorithm for temperature depends strongly on temperature.

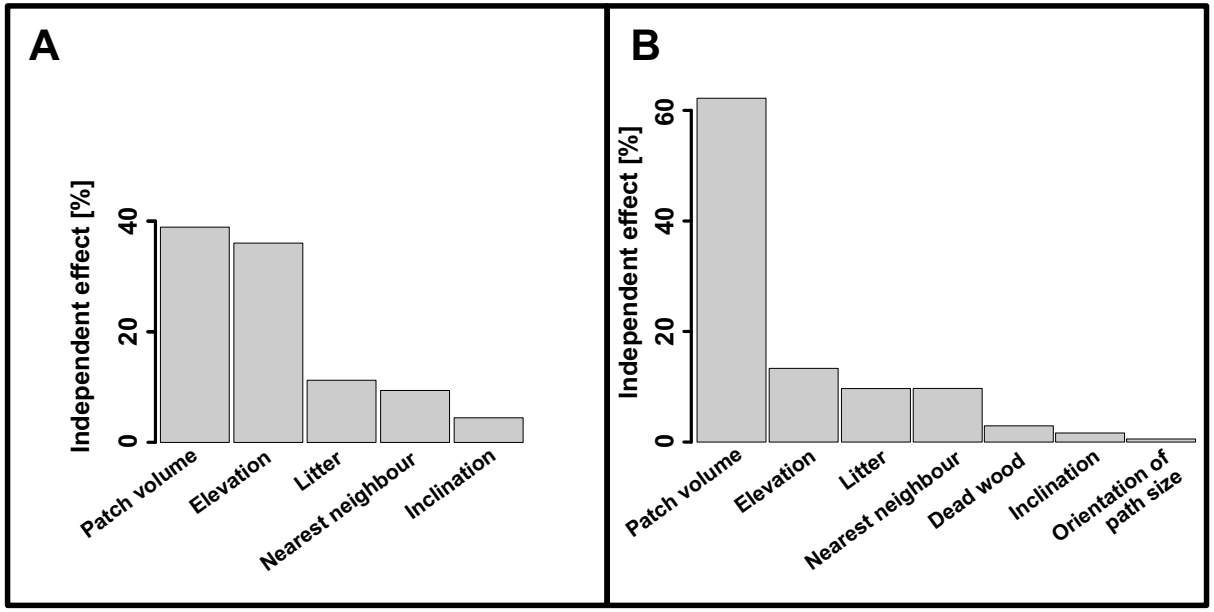

Figure S2: Hierarchical partitioning of the explanatory variables of the final multi-predictor generalized linear models for A) species richness in patches (n=1277, pseudo-R^2 = 0.187, p = 0.000) and B) number of individuals in patches (n=1277, pseudo-R^2 = 0.914). Hierarchical partitioning quantifies the independent and joint contributions of each explanatory variable, shown are the independent effects in % only. Patch volume and elevation explained a similar proportion of the total variance for A) species richness. B) Number of individuals was mainly explained by patch volume (see Table 3 for detailed model statistics).

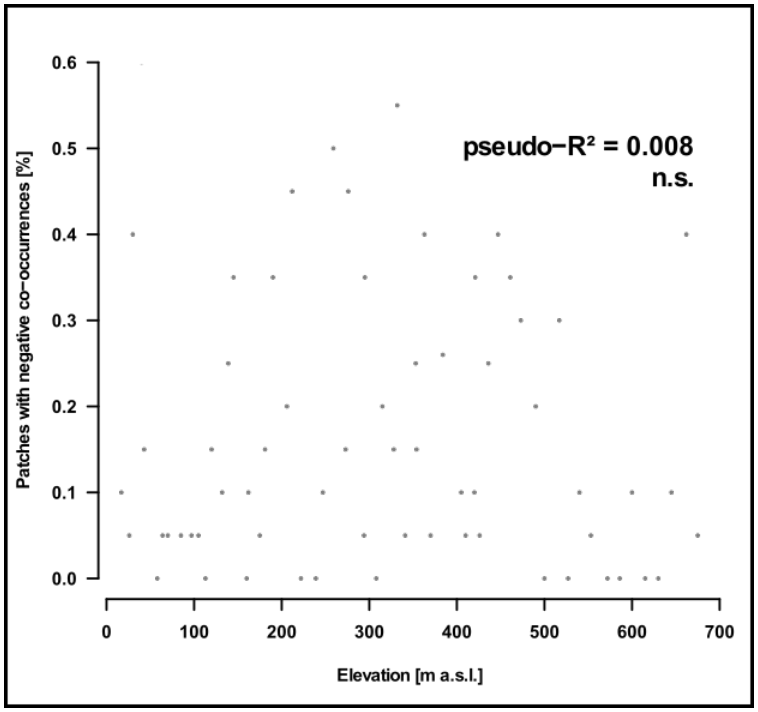

Figure S3: No significant change of the percentage of patches containing negative interactions along the elevational gradient could be detected (n = 64). However, species pairs were identified as negative if observed co-occurrences were lower than the expected co-occurrences by a null model (see method section 2.3 co-occurrence analysis). Thus, negative species pairs are by definition not co-occurring, which explains the low amounts of patches containing negative species pairs.