

Supplementary material

Impacts of Forest Fire on Understory Species Diversity in Canary Pine Ecosystems on the Island of La Palma

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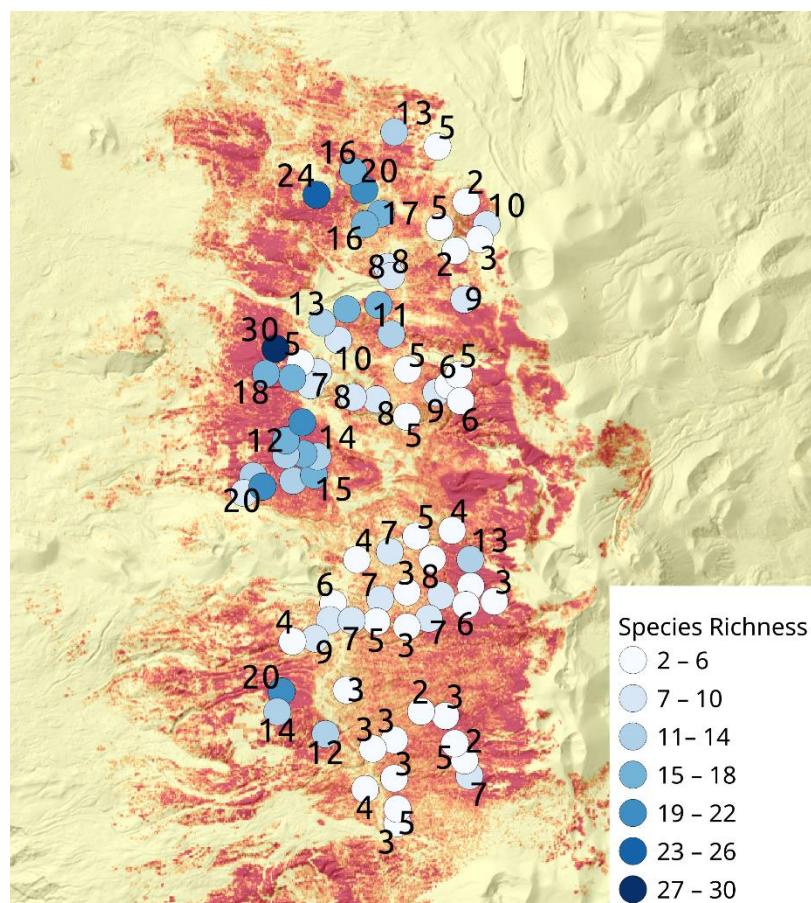


Figure S1. Detail map indicating the species richness per site. Darker blue circles represent more species. The extent of the burnt Canary pine forest is marked in red.

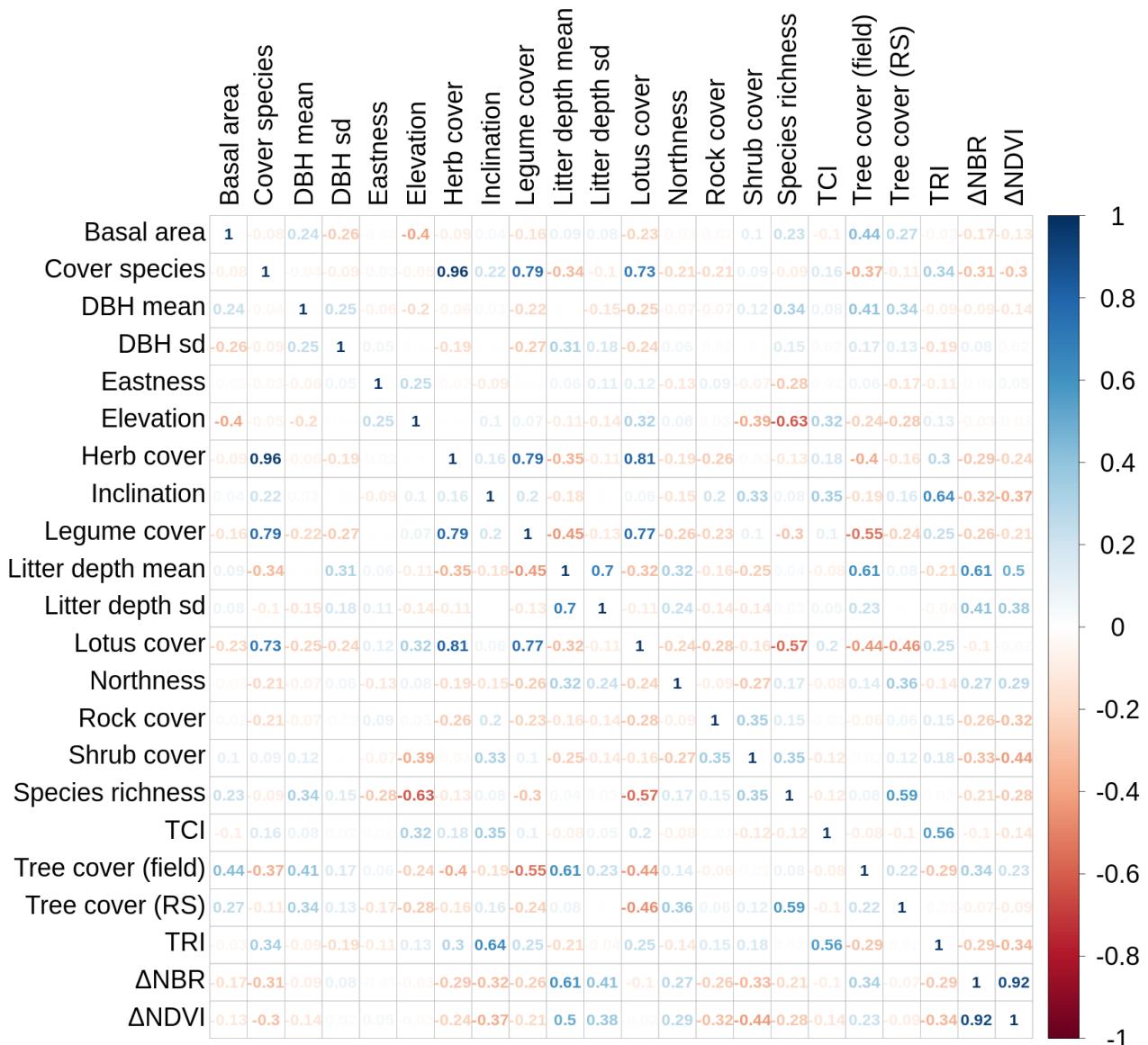


Figure S2. Correlation table of all variables. DBH sd=standard deviation of the Diameter at breast height; Lotus cover=cover of *Lotus campylocladus* ssp. *hillebrandii*; TCI=Topographic complexity index; TRI= Terrain ruggedness index; ΔNBR=difference in Normalized burn ratio between before and after the fire; ΔNDVI= difference in the Normalized difference vegetation index between before and after the fire.

Table S1. Model coefficients of the different SAR models taking spatial autocorrelation into account. The models use the same variables as the GLMs. While some variables, such as Δ NDVI were not significant the overall models all were. The last table shows a SAR model mimicking the GLM where the explanatory variables were selected by a stepwise algorithm based on AIC. DBH mean is the mean diameter at breast height of ten trees in the plot. The last column marks the level of significance of variables, with *** representing a p-value <0.001, ** below 0.01, * below 0.05 and . below 0.1.

Species richness ~	Estimate	Std. Error	z value	Pr(> z)	Significance
(Intercept)	154.67	39.81	3.89	<0.001	***
Elevation	-196.81	59.21	-3.32	<0.001	***
Elevation ²	64.76	2.97	2.97	0.003	**
R ² Nagelkerke	0.53			AIC	454.67
Species richness ~	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	1.08	6.39	0.17	0.87	
Δ NDVI	-28.80	2.55	-10.87	0.38	
Δ NDVI ²	-19.51	3.23	-6.05	0.65	
R ² Nagelkerke	0.44			AIC	469.63
Species richness ~	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	3.13	1.90	1.64	0.09	.
Tree cover (RS)	0.12	0.02	5.36	<0.001	***
R ² Nagelkerke	0.56			AIC	449.58
Species richness ~	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	12.53	7.09	1.77	0.08	.
Elevation	-0.02	0.003	-6.27	<0.001	***
Tree cover (field)	-0.009	0.1	-0.09	0.93	
Tree cover (field) ²	-0.001	0.001	-1.33	0.18	
Northness	1.81	0.70	2.59	0.009	**
Eastness	-0.61	0.66	-0.93	0.35	
DBH mean	0.14	0.06	2.38	0.017	*
Litter depth mean	0.83	0.40	2.05	0.04	*
Δ NDVI	-66.80	24.34	-2.74	0.006	**
Δ NDVI ²	-65.47	31.97	-2.05	0.04	*
Tree cover (RS)	0.09	0.02	4.38	<0.001	***
R ² Nagelkerke	0.76			AIC	417.94

Table S2. Results of the PERMANOVA with 1000 permutations for the 4 data subsets: without *Pinus canariensis* and *Lotus campylocladus* ssp. *hillebrandii*, with both, with only *Pinus* and with only *Lotus*. The first columns contain the variables used to explain the Bray–Curtis dissimilarity between plots. DBH stands for the diameter at breast height (DBH), NDVI for the normalized difference vegetation index. The other columns contain the F statistic, the partial R² of variables and the p-value. The last column marks the level of significance of variables, with *** representing a p-value <0.001, ** below 0.01, * below 0.05 and . below 0.1.

PERMANOVA	Species - Pinus - Lotus			Species + Pinus + Lotus		
	F Statistic	R ²	Pr(>F)	F Statistic	R ²	Pr(>F)
Bray-Curtis ~.						
Elevation	17.9011	0.1728	<0.001	44.7786	0.1492	<0.001
Elevation ²	3.3863	0.0327	0.007	14.0463	0.0468	<0.001
Legume cover	1.9831	0.0191	0.0599	.	91.0426	<0.001
Legume cover ²	3.8674	0.0373	0.005	15.211	0.0507	<0.001
Tree cover (field)	2.0653	0.0199	0.047	.	39.3109	<0.001
Tree cover (field) ²	0.6839	0.0066	0.7143		9.2459	<0.001
Northness	1.167	0.0113	0.2937		1.5538	0.0052
Eastness	1.0799	0.0104	0.3117		0.069	0.0002
DBH mean	1.4605	0.0141	0.1469		2.0837	0.0069
Litter depth mean	0.8402	0.0081	0.5085		0.1261	0.0004
ΔNDVI	2.5251	0.0244	0.018	*	7.15	0.0238
ΔNDVI ²	1.7851	0.0172	0.0959		5.9646	0.0199
Tree cover (RS)	1.8444	0.0178	0.0659	.	4.5211	0.0151
Residuals		0.68				0.22
Species + Pinus - Lotus						
	F Statistic	R ²	Pr(>F)	F Statistic	R ²	Pr(>F)
Elevation	47.9852	0.2062	<0.001	23.0612	0.149	<0.001
Elevation ²	6.5614	0.0282	<0.001	6.6938	0.0433	<0.001
Legume cover	24.1923	0.104	<0.001	29.6648	0.1917	<0.001
Legume cover ²	9.0229	0.0388	<0.001	9.0772	0.0587	<0.001
Tree cover (field)	44.1869	0.1899	<0.001	4.2129	0.0272	0.003
Tree cover (field) ²	13.3075	0.0572	<0.001	1.7102	0.0111	0.1159
Northness	2.5053	0.0108	0.045	*	1.0883	0.007
Eastness	1.4398	0.0062	0.2298		0.7729	0.005
DBH mean	1.2082	0.0052	0.2867		1.8156	0.0117
Litter depth mean	0.4138	0.0018	0.8052		0.9515	0.0061
ΔNDVI	7.1457	0.0307	0.002	***	3.8579	0.0249
ΔNDVI ²	5.655	0.0243	0.004	**	3.8351	0.0248
Tree cover (RS)	4.0825	0.0175	0.008	**	3.0059	0.0194
Residuals		0.28				0.42