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Supporting Information associated with the manuscript:

Wildfire alters the structure and seasonal dynamics of nocturnal pollen-transport networks

Paula Banza[a,b], Callum J. Macgregor[c,d,e,f,1], Anabela D.F. Belo[g], Richard Fox[e], Michael J.O. Pocock[d] & Darren M. Evans[c]

[a]: Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Instituto de Investigação e Formação Avançada, Universidade de Évora, Núcleo da Mitra, Ap. 94, 7006-554, Évora, Portugal.

[b]: A Rocha Portugal, Mexilhoeira Grande, Portugal

[c]: School of Natural and Environmental Sciences, Newcastle University, Newcastle upon Tyne, NE1 7RU, UK.

[d]: Centre for Ecology and Hydrology, Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB, UK.

[e]: Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset, BH20 5QP, UK.

[f]: Department of Biology, University of York, Wentworth Way, York, YO10 5DD, UK.

[g]: Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Departamento de Biologia, Escola de Ciências e Tecnologia, Universidade de Évora, Núcleo da Mitra, Ap. 94, 7006-554, Évora, Portugal.

[1]: corresponding author. Current address: Department of Biology, University of York, Wentworth Way, York, YO10 5DD, UK. Email: callumjmacgregor@gmail.com. Tel: (+44) 01904 328623. No fax available.

Supporting Information contains:

Tables S1 – S14

Figures S1 – S15

Table S1 Locations of the six study sites. Latitude, longitude and altitude are given for the centre of each 40 x 40 m study plot. Latitude and longitude are given in decimal degrees to 5 decimal places, and therefore are accurate to within approximately 1 m. Aspect and slope were calculated from Intermap NEXTMap 5 data, accessed through Strava.

Site	Treatment	Latitude	Longitude	Altitude (m above sea level)	Aspect	Slope
F1	Burned	37.17713	-7.86082	261	E	20%
F2	Burned	37.19641	-7.86006	372	WNW	30%
F3	Burned	37.19848	-7.85699	449	W	22.5%
NF1	Unburned	37.16919	-7.86516	340	NE	14%
NF2	Unburned	37.17334	-7.86506	317	W	12%
NF3	Unburned	37.18149	-7.86588	245	NW	10%

Table S2 R packages used during analysis. Packages were loaded into at least one script during the analytical process but may not have formed part of the final analysis.

Package	Citation
AICcmodavg	Mazerolle, M.J. (2016) AICcmodavg: Model selection and multimodel inference based on (Q)AIC(c). R package version 2.1-0. https://cran.r-project.org/package=AICcmodavg.
arm	Gelman, A. & and Su, Y.-S. (2015) arm: Data Analysis Using Regression and Multilevel/Hierarchical Models. R package version 1.8-6. https://CRAN.R-project.org/package=arm.
bipartite	Dormann, C.F., Gruber B. & Fruend, J. (2008) Introducing the bipartite Package: Analysing Ecological Networks. *R News*, **8**, 8–11.
car	Fox, J. & Weisberg, S. (2011) *An {R} Companion to Applied Regression.* Second Edition. Sage, Thousand Oaks, CA, USA.
data.table	Dowle, M., Srinivasan, A., Short, T., Lianoglou, S., Saporta, R. & Antonyan, E. (2015) data.table: Extension of Data.frame. R package version 1.9.6. https://CRAN.R-project.org/package=data.table.
effects	Fox, J. (2003) Effect Displays in R for Generalised Linear Models. *Journal of Statistical Software*, **8**, 1–27.
ggmap	Kahle, D. & Wickham, H. (2013) ggmap: Spatial Visualization with ggplot2. *The R Journal*, **5**, 144–161.
ggplot2	Wickham, H. (2009) *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag, New York, USA.
glmmADMB	Fournier, D.A., Skaug, H.J., Ancheta, J., Ianelli, J., Magnusson, A., Maunder, M., Nielsen, A. & Sibert, J. (2012) AD Model Builder: using automatic differentiation for statistical inference of highly parameterized complex nonlinear models. *Optimization Methods and Software*, **27**, 233–249.
gridExtra	Auguie, B. (2016) gridExtra: Miscellaneous Functions for "Grid" Graphics. R package version 2.2.1. https://CRAN.R-project.org/package=gridExtra.
lme4	Bates, D., Maechler, M., Bolker, B. & Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, **67**, 1–48.
MASS	Venables, W. N. & Ripley, B. D. (2002) *Modern Applied Statistics with S*. Fourth Edition. Springer, New York, USA.
plyr	Wickham, H. (2011) The Split-Apply-Combine Strategy for Data Analysis. *Journal of Statistical Software*, **40**, 1–29.
RColorBrewer	Neuwirth, E. (2014) RColorBrewer: ColorBrewer Palettes. R package version 1.1-2. https://CRAN.R-project.org/package=RColorBrewer.

reshape2	Wickham, H. (2007) Reshaping Data with the reshape Package. *Journal of Statistical Software*, **21**, 1–20.
RVAideMemoire	Hervé, M. (2016) RVAideMemoire: Diverse Basic Statistical and Graphical Functions. R package version 0.9-56. https://CRAN.R-project.org/package=RVAideMemoire.
scales	Wickham, H. (2016) scales: Scale Functions for Visualization. R package version 0.4.1. https://CRAN.R-project.org/package=scales.
svglite	Wickham, H., Henry, L., Luciani, T.J., Decorde, M. & Lise, V. (2016) svglite: An ‘SVG’ Graphics Device. R package version 1.2.0. https://CRAN.R-project.org/package=svglite.
tidyr	Wickham, H. (2016) tidyr: Easily Tidy Data with \`spread()\` and \`gather()\` Functions. R package version 0.5.0. https://CRAN.R-project.org/package=tidyr.
vegan	Oksanen, J., Blanchet, F.G., Kindt, R., Legendre, P., Minchin, P.R., O'Hara, R.B., Simpson, G.L., Solymos, P., Stevens, M.H.H. & Wagner, H. (2016) vegan: Community Ecology Package. R package version 2.3-5. https://CRAN.R-project.org/package=vegan.

Table S3 Summary of families of captured moths, with the number of morphotypes, the number of those which were identified to species level, and the total number of individuals.

Family	No. morphotypes	No. identified species	No. individuals
Autostichidae	4	4	72
Blastobasidae	1	0	6
Choreutidae	1	1	3
Coleophoridae	2	0	35
Cosmopterigidae	2	2	2
Cossidae	1	1	1
Crambidae	27	24	233
Depressariidae	4	3	50
Drepanidae	1	1	84
Elachistidae	2	1	3
Erebidae	22	19	307
Gelechiidae	12	9	36
Geometridae	72	64	724
Gracillariidae	1	0	16
Lasiocampidae	3	3	21
Lecithoceridae	2	2	22
Limacodidae	1	1	3
Lymantriidae	2	2	4
Noctuidae	85	76	937
Nolidae	2	2	2
Notodontidae	2	2	2
Oecophoridae	4	3	19
Plutellidae	2	1	3
Psychidae	1	0	1
Pterolonchidae	1	1	2
Pterophoridae	7	3	11
Pyralidae	36	32	644
Thaumetopoeidae	1	1	5
Tineidae	5	4	13
Tortricidae	15	11	118
Yponomeutidae	2	1	7
Unidentified	4	0	20

Table S4 Summary of the plant families identified on transects, with the number of species and the total number of 1 x 1 m squares on transects in which each family was recorded. Apiaceae includes one flower type not identified beyond family level, and therefore was represented by *at least* four species.

Family	No. species	No. transects
Adoxaceae	1	4
Amaryllidaceae	2	17
Apiaceae	4*	29
Asparagaceae	2	3
Asteraceae	14	379
Boraginaceae	2	39
Brassicaceae	1	3
Campanulaceae	2	25
Caprifoliaceae	2	16
Caryophyllaceae	2	8
Cistaceae	4	167
Ericaceae	3	26
Euphorbiaceae	1	4
Fabaceae	10	285
Gentianaceae	1	36
Geraniaceae	1	2
Iridaceae	2	11
Lamiaceae	3	200
Linaceae	1	1
Orchidaceae	1	1
Papaveraceae	1	2
Plantaginaceae	1	30
Primulaceae	1	24
Ranunculaceae	2	30
Resedaceae	2	23
Rosaceae	2	12
Solanaceae	1	39
Thymelaeaceae	1	8

Table S5 Summary of analyses of the effects of burning and season over consecutive sampling periods on the abundance and species richness of moths and plants in flower. Intercept value represents unburned sites in autumn, sampling period 0, and is the natural logarithm of the estimate, so $e^{(\text{intercept})}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(\text{intercept})}$ x e^{ES}, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Dependent variable	Model χ^2 effect (*P* value)				Parameter effect size (standard error)									
	Burning	Season	Burning x Season	Sampling period	Intercept (autumn, unburned)	Burned	Season			Sampling period	Interaction terms			
							Winter	Spring	Summer		Burned x Winter	Burned x Spring	Burned x Summer	Burned x Sampling period
Abundance of moths	-	-	36.24 (*<0.001*)	188.17 (*<0.001*)	4.13 (0.19)	-0.78 (0.25)	-0.55 (0.09)	0.65 (0.07)	1.28 (0.07)	-0.11 (0.01)	-0.28 (0.17)	-0.29 (0.12)	-0.67 (0.12)	-
Estimated species richness of moths	9.39 (*0.002*)	41.71 (*<0.001*)	N.S.	4.84 (*0.028*)	3.40 (0.31)	-0.77 (0.22)	-0.76 (0.27)	0.50 (0.29)	1.16 (0.28)	-0.09 (0.04)	-	-	-	-
Abundance of flowers	-	-	34.81 (*<0.001*)	91.42 (*<0.001*)	0.001 (0.13)	0.19 (0.16)	0.75 (0.13)	1.59 (0.13)	0.01 (0.13)	0.13 (0.01)	0.51 (0.18)	-0.23 (0.18)	-0.44 (0.19)	-
Estimated species richness of flowers	1.88 (0.170)	17.96 (*<0.001*)	N.S.	0.04 (0.841)	0.72 (0.24)	0.28 (0.19)	-0.04 (0.21)	0.68 (0.20)	0.33 (0.21)	0.01 (0.03)	-	-	-	-

† Significant interaction between treatment and sampling period: χ^2 and *P* values are given for Burning:Sampling period interaction term in Sampling period column.

Table S6 Summary of analyses testing for effects of burning and season on community composition at family level of moths and flowers, and at species level of moths, flowers and interactions.

Level	Community	Fixed effects	Model *F* (interaction effect)	*P*	Model *F* (treatment effect)	*P*	Model *F* (season effect)	*P*
Family	Moths	Treatment x Season	1.31	0.157	2.27	*<0.001*	6.71	*<0.001*
	Flowers	Treatment x Season	2.09	*0.002*	6.74	*<0.001*	12.46	*<0.001*
Species	Moths	Treatment x Season	0.72	0.164	0.86	*0.039*	0.35	0.063
	Flowers	Treatment x Season	0.21	0.664	1.34	*0.012*	0.40	0.063
	Interactions	Treatment x Season	0.78	0.121	0.84	*0.027*	2.26	0.063

Table S7 Summary of analyses of the effects of burning and season over consecutive sampling periods on pollen transport. Intercept value represents unburned sites in autumn, sampling period 0, and is the natural logarithm of the estimate, so $e^{(intercept)}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(intercept)} \times e^{ES}$, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Threshold of 5 pollen grains	Dependent variable	Model χ^2 effect (*P* value)				Parameter effect size (standard error)									
		Burning	Season	Burning x Season	Sampling period	Intercept	Burned	Season			Sampling period	Interaction terms			
								Winter	Spring	Summer		Burned x Winter	Burned x Spring	Burned x Summer	Burned x Sampling period
Threshold not applied	Proportion of moths carrying pollen	-	-	33.21 (*<0.001*)	20.23 (*<0.001*)	1.76 (0.19)	0.47 (0.27)	-0.97 (0.20)	1.34 (0.22)	-1.37 (0.15)	-0.10 (0.02)	-1.50 (0.39)	-0.32 (0.43)	0.31 (0.29)	-
	Total pollen load per pollen-carrying moth	-	-	8.84 (*0.032*)	7.99 (*0.005*)	2.73 (0.12)	0.03 (0.16)	-1.28 (0.14)	-0.32 (0.10)	-1.82 (0.10)	-0.04 (0.01)	-0.41 (0.32)	-0.03 (0.17)	0.34 (0.17)	-
	No. pollen types per pollen-carrying moth	-	-	11.17 (*0.011*)	11.27 † (*<0.001*)	0.69 (0.07)	-0.21 (0.12)	-0.003 (0.09)	0.77 (0.06)	-0.23 (0.06)	0.05 (0.01)	-0.34 (0.23)	-0.08 (0.10)	0.15 (0.11)	0.05 (0.02)
	Total pollen count per sample	11.82 (*<0.001*)	44.28 (*<0.001*)	N.S.	8.93 (*0.003*)	9.05 (0.58)	-1.68 (0.37)	-3.79 (0.51)	-1.86 (0.55)	-2.38 (0.53)	0.23 (0.08)	-	-	-	-
	No. pollen types per sample	-	-	9.65 (*0.022*)	14.84 (*<0.001*)	2.12 (0.17)	-0.08 (0.21)	-0.07 (0.19)	1.01 (0.17)	0.41 (0.18)	-0.07 (0.02)	-0.99 (0.34)	-0.29 (0.24)	-0.19 (0.26)	-
Threshold applied	Proportion of moths carrying pollen	-	-	20.55 (*<0.001*)	6.30 † (*0.012*)	-0.49 (0.22)	-0.16 (0.36)	-1.42 (0.22)	0.63 (0.15)	-2.28 (0.17)	0.01 (0.03)	-1.53 (0.59)	-0.09 (0.28)	0.65 (0.29)	0.13 (0.05)
	Total pollen load per pollen-	-	-	8.38 (*0.039*)	5.01 (*0.025*)	4.56 (0.15)	-0.62 (0.19)	-1.52 (0.21)	-1.66 (0.11)	-1.57 (0.15)	-0.04 (0.02)	-0.003 (0.57)	0.45 (0.19)	0.59 (0.24)	-

carrying moth														
No. pollen types per pollen-carrying moth	2.79 (0.095)	79.04 (*<0.001*)	N.S.	4.90 (*0.027*)	0.30 (0.10)	-0.16 (0.09)	0.15 (0.17)	0.51 (0.08)	-0.09 (0.11)	-0.03 (0.01)	-	-	-	-
Total pollen count per sample	10.49 (*0.001*)	40.79 (*<0.001*)	N.S.	7.46 (*0.006*)	9.22 (0.74)	-1.74 (0.47)	-4.59 (0.66)	-2.65 (0.70)	-3.16 (0.68)	-0.27 (0.10)	-	-	-	-
No. pollen types per sample	7.49 (*0.006*)	28.82 (*<0.001*)	N.S.	3.52 (0.061)	1.69 (0.27)	-0.50 (0.18)	-0.93 (0.29)	0.52 (0.24)	-0.20 (0.25)	-0.07 (0.04)	-	-	-	-

† Significant interaction between treatment and sampling period: χ^2 and *P* values are given for Burning:Sampling period interaction term in Sampling period column.

Table S8 Summary of analyses of the effects of burning and season over consecutive sampling periods on quantitative, pollen load-weighted, pollen-transport networks (n = 9 pairs). Intercept value represents unburned sites in autumn, sampling period 0, and is the natural logarithm of the estimate, so $e^{(intercept)}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(intercept)}$ x e^{ES}, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Threshold of 5 pollen grains	Dependent variable	Model χ^2 effect (*P* value)				Parameter effect size (standard error)									
		Burning	Season	Burning x Season	Sampling period	Intercept	Burned	Season			Sampling period	Interaction terms			
								Winter	Spring	Summer		Burned x Winter	Burned x Spring	Burned x Summer	Burned x Sampling period
Threshold not applied	Linkage density	2.15 (0.168)	10.20 (*0.001*)	N.S.	4.68 (0.051)	4.82 (1.23)	-1.17 (0.80)	-0.17 (1.21)	4.67 (1.09)	3.93 (1.21)	-0.35 (0.16)	-	-	-	-
	Generality of plants	1.85 (0.199)	5.60 (*0.012*)	N.S.	1.87 (0.197)	7.07 (2.46)	-2.17 (1.59)	-1.34 (2.41)	5.17 (2.18)	6.91 (2.41)	-0.44 (0.32)	-	-	-	-
	Generality of pollinators	0.09 (0.766)	12.20 (*<0.001*)	N.S.	5.13 (*0.043*)	2.58 (0.87)	-0.17 (0.56)	1.00 (0.85)	4.16 (0.77)	0.95 (0.85)	-0.25 (0.11)	-	-	-	-
	Robustness	5.03 (*0.045*)	4.68 (*0.022*)	N.S.	3.40 (0.090)	0.83 (0.04)	-0.06 (0.03)	-0.11 (0.04)	0.004 (0.04)	0.02 (0.04)	-0.01 (0.01)	-	-	-	-
	Niche overlap	0.38 (0.550)	1.82 (0.198)	N.S.	0.35 (0.564)	0.29 (0.11)	-0.04 (0.07)	-0.15 (0.11)	0.08 (0.10)	-0.01 (0.11)	0.01 (0.01)	-	-	-	-
Threshold applied	Linkage density	0.93 (0.356)	3.92 (*0.040*)	N.S.	4.76 (0.052)	4.54 (1.23)	-0.80 (0.83)	-0.33 (1.33)	3.02 (1.09)	0.66 (1.20)	-0.36 (0.16)	-	-	-	-
	Generality of plants	0.85 (0.377)	2.38 (0.125)	N.S.	1.71 (0.218)	6.38 (2.38)	-1.48 (1.60)	-1.67 (2.56)	4.07 (2.11)	1.42 (2.33)	-0.41 (0.32)	-	-	-	-
	Generality of pollinators	0.09 (0.771)	7.03 (*0.007*)	N.S.	14.47 (*0.003*)	2.70 (0.59)	-0.12 (0.40)	1.01 (0.64)	1.97 (0.53)	-0.10 (0.58)	-0.30 (0.08)	-	-	-	-
	Robustness	4.09 (0.068)	3.99 (*0.038*)	N.S.	2.79 (0.123)	0.84 (0.05)	-0.06 (0.03)	-0.13 (0.05)	-0.05 (0.04)	-0.13 (0.05)	-0.01 (0.01)	-	-	-	-
	Niche overlap	1.07 (0.323)	1.22 (0.348)	N.S.	0.16 (0.693)	0.38 (0.16)	-0.11 (0.10)	-0.23 (0.17)	0.06 (0.14)	-0.04 (0.15)	0.01 (0.02)	-	-	-	-

Table S9 Summary of analyses of the effects of burning and season over consecutive sampling periods on quantitative, interaction frequency-weighted, pollen-transport networks (n = 9 pairs). Intercept value represents unburned sites in autumn, sampling period 0, and is the natural logarithm of the estimate, so $e^{(intercept)}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(intercept)} \times e^{ES}$, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Threshold of 5 pollen grains	Dependent variable	Model χ^2 effect (*P* value)				Parameter effect size (standard error)									
		Burning	Season	Burning x Season	Sampling period	Intercept	Burned	Season			Sampling period	Interaction terms			
								Winter	Spring	Summer		Burned x Winter	Burned x Spring	Burned x Summer	Burned x Sampling period
Threshold not applied	Linkage density	4.77 (*0.049*)	6.83 (*0.006*)	N.S.	7.34 (*0.019*)	10.13 (1.70)	-2.41 (1.10)	-1.67 (1.67)	2.84 (1.51)	5.39 (1.67)	-0.60 (0.22)	-	-	-	-
	Generality of plants	4.10 (0.066)	7.10 (*0.005*)	N.S.	3.60 (0.082)	14.66 (3.20)	-4.20 (2.07)	-3.47 (3.14)	1.33 (2.84)	10.66 (3.14)	-0.79 (0.42)	-	-	-	-
	Generality of pollinators	0.97 (0.344)	13.13 (*<0.001*)	N.S.	10.19 (*0.008*)	5.60 (0.99)	-0.63 (0.64)	0.13 (0.97)	4.35 (0.88)	0.11 (0.97)	-0.41 (0.13)	-	-	-	-
	Robustness	5.04 (*0.044*)	4.69 (*0.022*)	N.S.	3.40 (0.090)	0.83 (0.04)	-0.06 (0.03)	-0.11 (0.04)	0.004 (0.04)	0.02 (0.04)	-0.01 (0.01)	-	-	-	-
	Niche overlap	0.87 (0.370)	2.44 (0.115)	N.S.	0.06 (0.813)	0.40 (0.09)	-0.05 (0.06)	-0.20 (0.09)	-0.01 (0.08)	-0.06 (0.09)	0.003 (0.01)	-	-	-	-
Threshold applied	Linkage density	0.84 (0.379)	2.05 (0.165)	N.S.	3.93 (0.073)	5.74 (1.61)	-0.99 (1.08)	-0.44 (1.73)	2.81 (1.42)	0.63 (1.57)	-0.42 (0.21)	-	-	-	-
	Generality of plants	0.67 (0.431)	1.33 (0.316)	N.S.	1.84 (0.202)	8.33 (3.05)	-1.68 (2.06)	-1.79 (3.30)	3.79 (2.71)	1.63 (2.99)	-0.55 (0.41)	-	-	-	-
	Generality of pollinators	0.34 (0.572)	4.23 (*0.032*)	N.S.	8.43 (*0.014*)	3.16 (0.76)	-0.30 (0.51)	0.91 (0.82)	1.82 (0.68)	-0.37 (0.75)	-0.30 (0.10)	-	-	-	-
	Robustness	4.16 (0.066)	3.99 (*0.038*)	N.S.	2.78 (0.124)	0.84 (0.05)	-0.06 (0.03)	-0.13 (0.05)	-0.05 (0.04)	-0.13 (0.04)	-0.01 (0.01)	-	-	-	-
	Niche overlap	1.16 (0.305)	1.37 (0.302)	N.S.	0.13 (0.724)	0.38 (0.15)	-0.11 (0.10)	-0.22 (0.16)	0.08 (0.13)	-0.04 (0.15)	0.01 (0.02)	-	-	-	-

Table S10 Summary of the causes of interaction turnover between networks from burned and unburned treatments within the same sampling period (Fig. 4).

Threshold of 5 pollen grains	Sampling period	No. interactions present in both networks	No. interactions only in burned network	No. interactions only in unburned network	β (change in flowers and pollinators)	β (change in flowers)	β (change in pollinators)	β (interaction rewiring: no change in flowers and pollinators)	Jaccard β-diversity (total change in interactions)
Threshold not applied	Spring_1	94	84	780	0.121	0.073	0.503	0.198	0.902
	Summer_1	50	159	206	0.063	0.065	0.412	0.340	0.880
	Autumn_2	23	45	64	0.023	0.045	0.538	0.220	0.826
	Winter_2	2	10	58	0.471	0.157	0.214	0.129	0.971
	Spring_2	65	70	206	0.070	0.067	0.460	0.211	0.809
	Summer_2	21	52	161	0.051	0.038	0.594	0.226	0.910
	Autumn_3	19	58	42	0.025	0.025	0.613	0.176	0.840
	Winter_3	2	7	68	0.377	0.195	0.299	0.104	0.974
	Spring_3	7	17	33	0.070	0.053	0.491	0.263	0.877
Threshold applied	Spring_1	29	35	268	0.136	0.120	0.476	0.181	0.913
	Summer_1	7	26	33	0.167	0.061	0.561	0.106	0.894
	Autumn_2	6	14	21	0.024	0.024	0.610	0.195	0.854
	Winter_2	0	1	6	1.000	0	0	0	1.000
	Spring_2	28	26	87	0.156	0.163	0.355	0.128	0.801
	Summer_2	0	6	18	0.167	0.042	0.750	0.042	1.000
	Autumn_3	7	23	16	0.130	0.043	0.652	0.022	0.848
	Winter_3	1	2	26	0.552	0	0.379	0.034	0.966
	Spring_3	0	4	8	0.167	0.250	0.417	0.167	1.000

Table S11 Sampling completeness of species and interactions for each of 18 networks.

Year	Season	Treatment	Observed insect species	Insect species % sampling completeness	Observed plant species	Plant species % sampling completeness	No. pollen transporting insect species	Weighted mean % interaction completeness of species
1	Spring	Fire	35	47.3	36	68.9	33	52.4
1	Spring	No fire	118	51.5	27	81.9	116	62.5
1	Summer	Fire	87	45.9	3	78.3	77	66.1
1	Summer	No fire	94	51.5	4	82.8	82	63.6
2	Autumn	Fire	28	34.6	4	51.6	27	72.7
2	Autumn	No fire	40	59.4	1	100.0	33	82.7
2	Winter	Fire	20	36.0	15	72.5	8	64.3
2	Winter	No fire	38	51.9	7	79.7	29	75.4
2	Spring	Fire	26	13.8	28	88.1	26	75.5
2	Spring	No fire	61	41.0	16	82.2	59	74.4
2	Summer	Fire	52	58.6	5	48.4	36	71.2
2	Summer	No fire	127	59.9	4	69.2	80	65.7
3	Autumn	Fire	34	42.7	9	46.4	29	84.3
3	Autumn	No fire	33	66.7	4	82.8	30	88.0
3	Winter	Fire	7	36.8	9	81.8	7	93.0
3	Winter	No fire	25	23.1	6	93.1	21	60.7
3	Spring	Fire	6	49.0	13	90.3	6	94.7
3	Spring	No fire	8	100.0	9	51.9	8	75.2

Table S12 Summary of analyses of the effects of burning and season over consecutive sampling periods on the abundance and species richness of plants in flower, for two subsets of the data: annuals and biennials only (‘annuals’), and all other flowers (‘perennials’, also including bulbs, shrubs and trees). Intercept value represents unburned sites in autumn, sampling period 0, and is the natural logarithm of the estimate, so $e^{(intercept)}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(intercept)} \times e^{ES}$, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Dependent variable	Model χ^2 effect (*P* value)				Parameter effect size (standard error)									
	Burning	Season	Burning x Season	Sampling period	Intercept	Burned	Season			Sampling period	Interaction terms			
							Winter	Spring	Summer		Burned x Winter	Burned x Spring	Burned x Summer	Burned x Sampling period
Abundance of annuals	-	-	47.14 (*<0.001*)	13.30 (*0.004*)	1.69 (0.18)	0.06 (0.28)	-0.81 (0.20)	-0.45 (0.18)	0.40 (0.28)	0.12 (0.02)	-0.26 (0.38)	0.47 (0.30)	-0.55 (0.52)	-
Species richness of annuals	-	31.08 (*<0.001*)	N.S.	5.99 † (*0.014*)	0.37 (0.15)	0.38 (0.12)	-0.08 (0.12)	0.28 (0.11)	-0.20 (0.15)	0.01 (0.02)	-	-	-	-0.05 (0.02)
Abundance of perennials	-	-	8.20 (*0.042*)	125.86 (*<0.001*)	1.91 (0.24)	-0.34 (0.27)	0.15 (0.23)	0.18 (0.23)	-0.21 (0.25)	0.12 (0.01)	0.28 (0.26)	0.06 (0.26)	0.56 (0.32)	-
Species richness of perennials	0.004 (0.952)	5.17 (0.160)	N.S.	6.87 (*0.009*)	0.48 (0.07)	-0.002 (0.04)	-0.06 (0.06)	-0.05 (0.06)	-0.17 (0.08)	0.01 (0.005)	-	-	-	-

† Significant interaction between treatment and sampling period: χ^2 and *P* values are given for Burning:Sampling period interaction term in Sampling period column.

Table S13 Summary of analyses of the effects of burning and season in winter on floral abundance and pollen transport in winter, with the dataset divided in two: data concerning *Ulex argenteus* only, and all other data. Intercept value represents unburned sites, sampling period 0, and is the natural logarithm of the estimate, so $e^{(intercept)}$ gives the true estimated value. For other levels of each variable, estimated value = $e^{(intercept)}$ x e^{ES}, where ES = effect size for that level from the statistical model, so e^{ES} is the multiplicative effect of the parameter in question. Test statistics are for Likelihood Ratio Test, and significant *P*-values (<0.05) are italicized.

Dependent variable	Model χ^2 effect (*P* value)			Parameter effect size (standard error)			
	Burning	Sampling period	Burning x Sampling period	Intercept	Burned	Sampling period	Burned x Sampling period
Floral abundance of *U. argenteus*	-	-	6.52 (*0.011*)	2.60 (0.12)	-0.32 (0.15)	0.08 (0.02)	0.05 (0.02)
Floral abundance of other flowers	4.99 (*0.026*)	4.63 (*0.031*)	N.S.	0.77 (0.27)	0.62 (0.28)	0.07 (0.03)	-
Proportion of moths carrying *U. argenteus* pollen	11.04 (*<0.001*)	14.02 (*<0.001*)	N.S.	-2.67 (0.53)	-3.31 (1.09)	0.32 (0.09)	-
Proportion of moths carrying other pollen	0.87 (0.352)	38.26 (*<0.001*)	N.S.	-2.39 (0.44)	-0.44 (0.42)	0.44 (0.08)	-
Total pollen load per moth of *U. argenteus*	5.27 (*0.022*)	13.14 (*<0.001*)	N.S.	-0.32 (0.39)	2.04 (0.90)	0.23 (0.06)	-
Total pollen load per moth of other species	-	-	4.03 (*0.045*)	-0.34 (0.32)	1.13 (0.79)	0.24 (0.05)	-0.24 (0.12)
Total pollen count per sample of *U. argenteus*	4.06 (*0.044*)	0.10 (0.750)	N.S.	1.86 (1.52)	-1.83 (0.93)	0.07 (0.23)	-
Total pollen count per sample of other species	8.33 (*0.004*)	2.52 (0.112)	N.S.	2.33 (0.93)	-1.84 (0.57)	0.22 (0.14)	-

Table S14 Summary of analyses testing for effects of burning on degree distribution of moths and plants. D value obtained from a one-tailed Kolmogorov-Smirnov test, for which the null hypothesis was that the cumulative frequency distribution of degree was not greater for unburned sites than burned sites.

Level	Season	Mean burned degree (standard error)	Mean unburned degree (standard error)	D value	*P*
Moths	Overall	3.74 (0.31)	5.63 (0.36)	0.190	*<0.001*
	Overall (threshold applied)	1.04 (0.13)	1.78 (0.16)	0.147	*0.007*
	Spring	5.52 (0.64)	6.97 (0.45)	0.130	0.250
	Summer	2.36 (0.20)	2.42 (0.21)	0.052	0.689
	Autumn	2.48 (0.28)	2.25 (0.25)	0.044	0.899
	Winter	0.75 (0.20)	2.21 (0.32)	0.429	*0.001*
Plants	Overall	10.76 (1.74)	24.58 (3.45)	0.274	*0.007*
	Overall (threshold applied)	3.00 (0.77)	7.79 (1.58)	0.273	*0.007*
	Spring	4.67 (0.99)	16.26 (2.71)	0.303	*0.002*
	Summer	4.15 (1.26)	5.98 (1.72)	0.061	0.785
	Autumn	1.95 (0.71)	1.94 (0.78)	0.030	0.941
	Winter	0.32 (0.11)	1.88 (0.49)	0.258	0.013

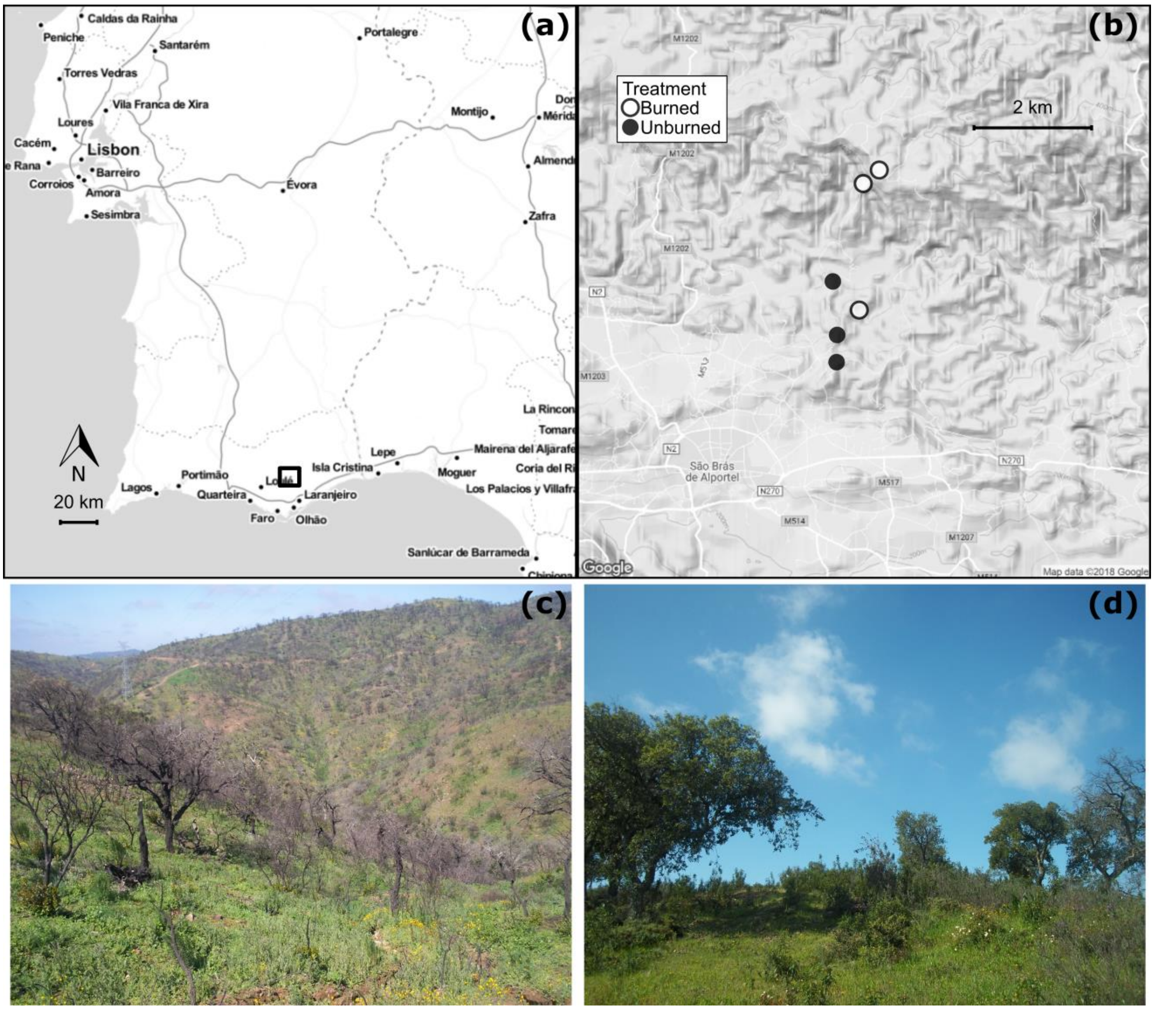

Figure S1 Location of the study sites within southern Portugal. Box on map (a) indicates the location of map (b). Points on map (b) indicate the location of the six study sites. Photographs depict typical burned (c) and unburned (d) sites and were both taken on 31st March 2013, shortly before the commencement of fieldwork. Map data © 2018 Google.

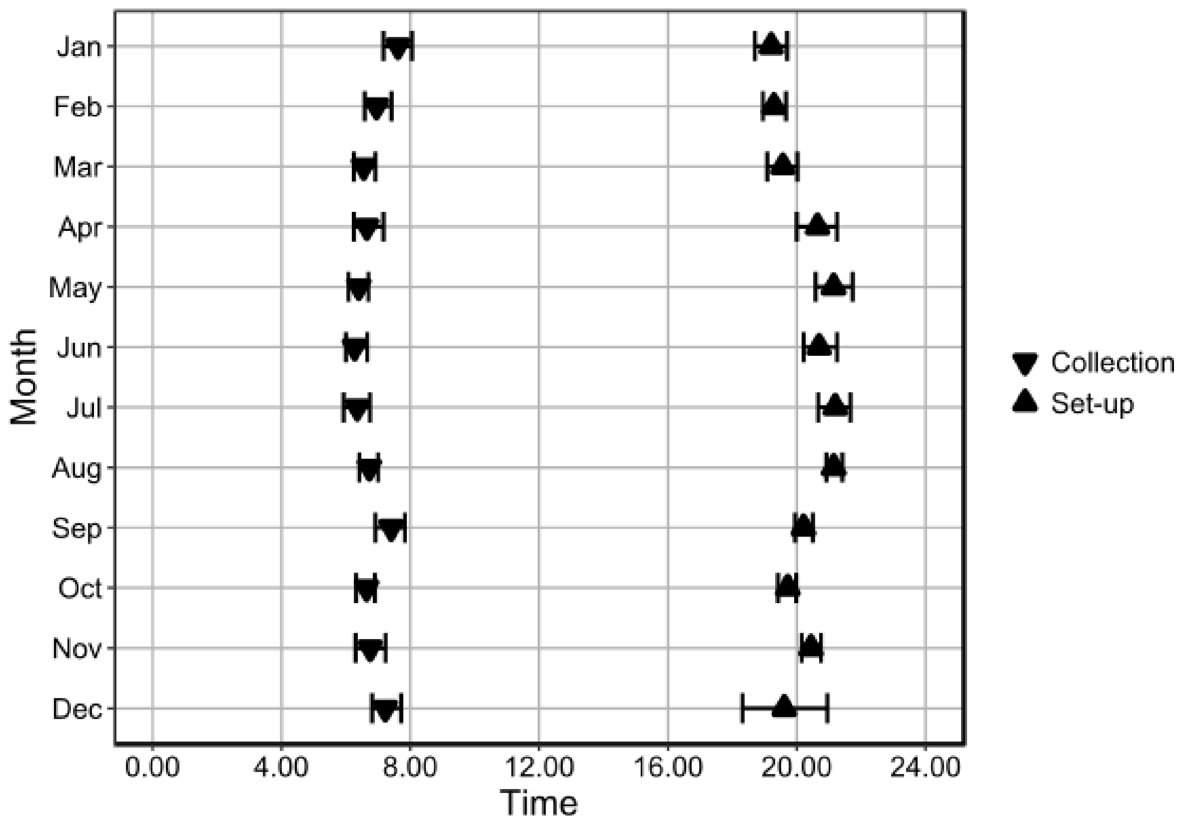

Figure S2 Monthly variation in set-up and collection time for light traps. Points show the mean monthly time for set-up and collection of light traps across all sites, treatments and years. Error bars show the range of times.

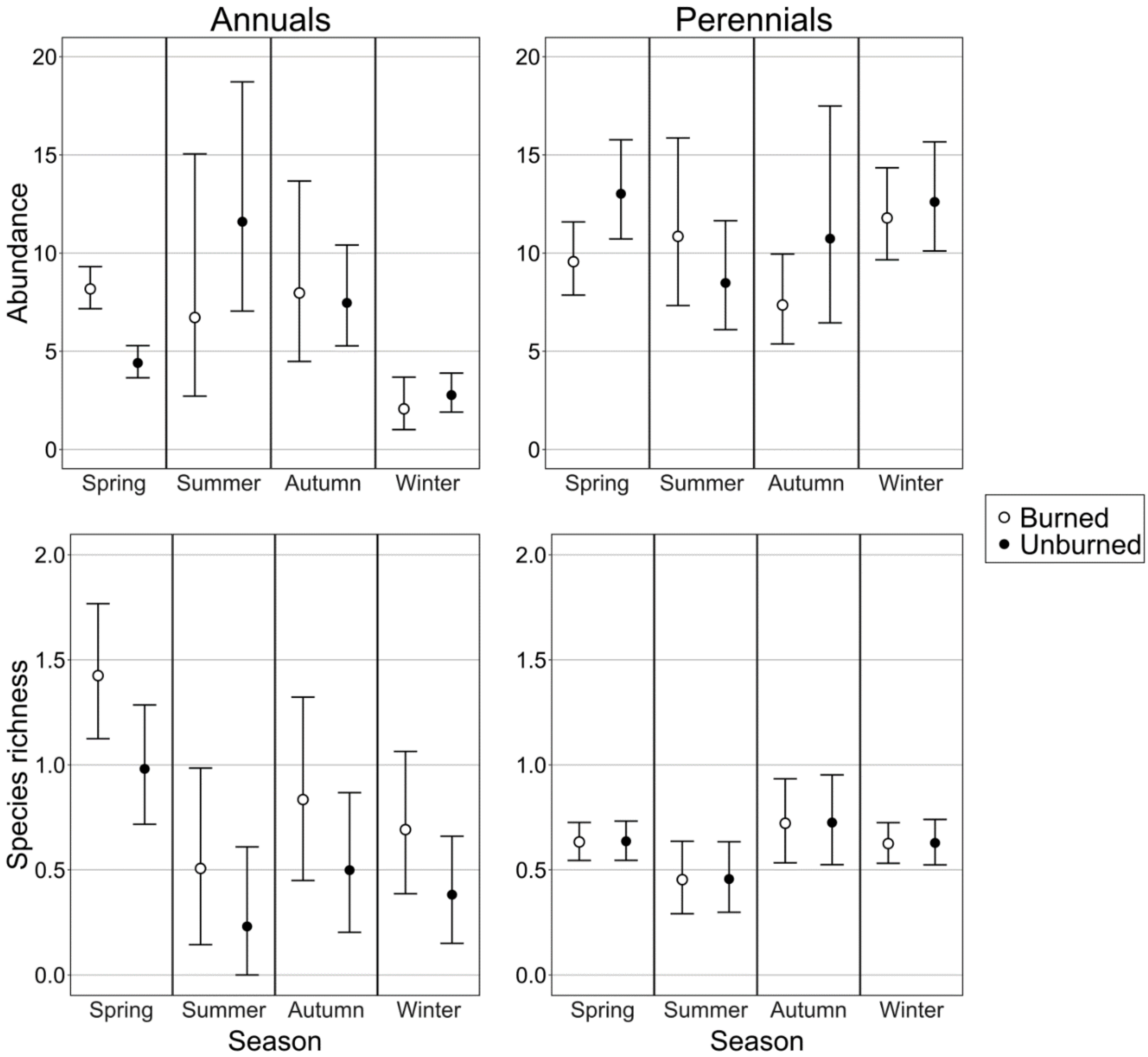

Figure S3 The effects of fire on abundance and species richness of flowers, accounting for different life-histories (Table S12). Graphs in the left-hand column show analyses for a subset of the data containing annuals and biennials only, and graphs in the right-hand column show the same analyses for a subset of the data containing all other flowers (perennials, bulbs, shrubs and trees). Stars show significance; *: $P < 0.05$, **: $P < 0.01$, ***: $P < 0.001$.

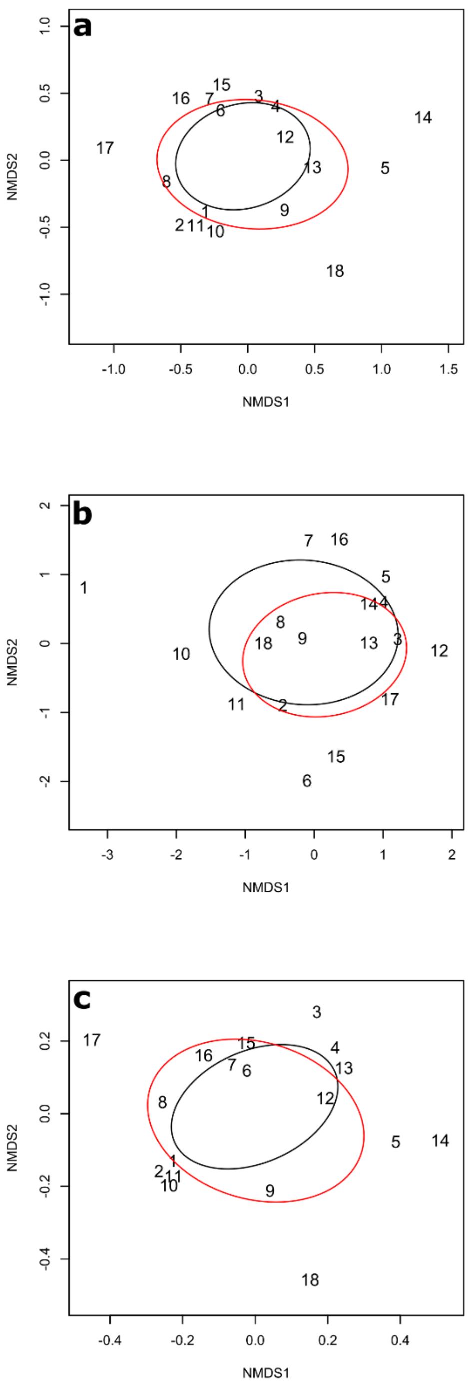

Figure S4 The effects of fire on community composition of moths (a), flowering plants (b) and interactions (c), represented by non-metric multidimensional scaling (Table S6). Each network in the study (n = 18, one burned and one unburned network sampling period) is indicated on the NMDS axes by a number; numbers 1-9 indicate unburned networks and numbers 10-18 indicate burned networks. Ellipses indicate clustering of networks within treatments: black ellipses show unburned networks and red ellipses show burned networks.

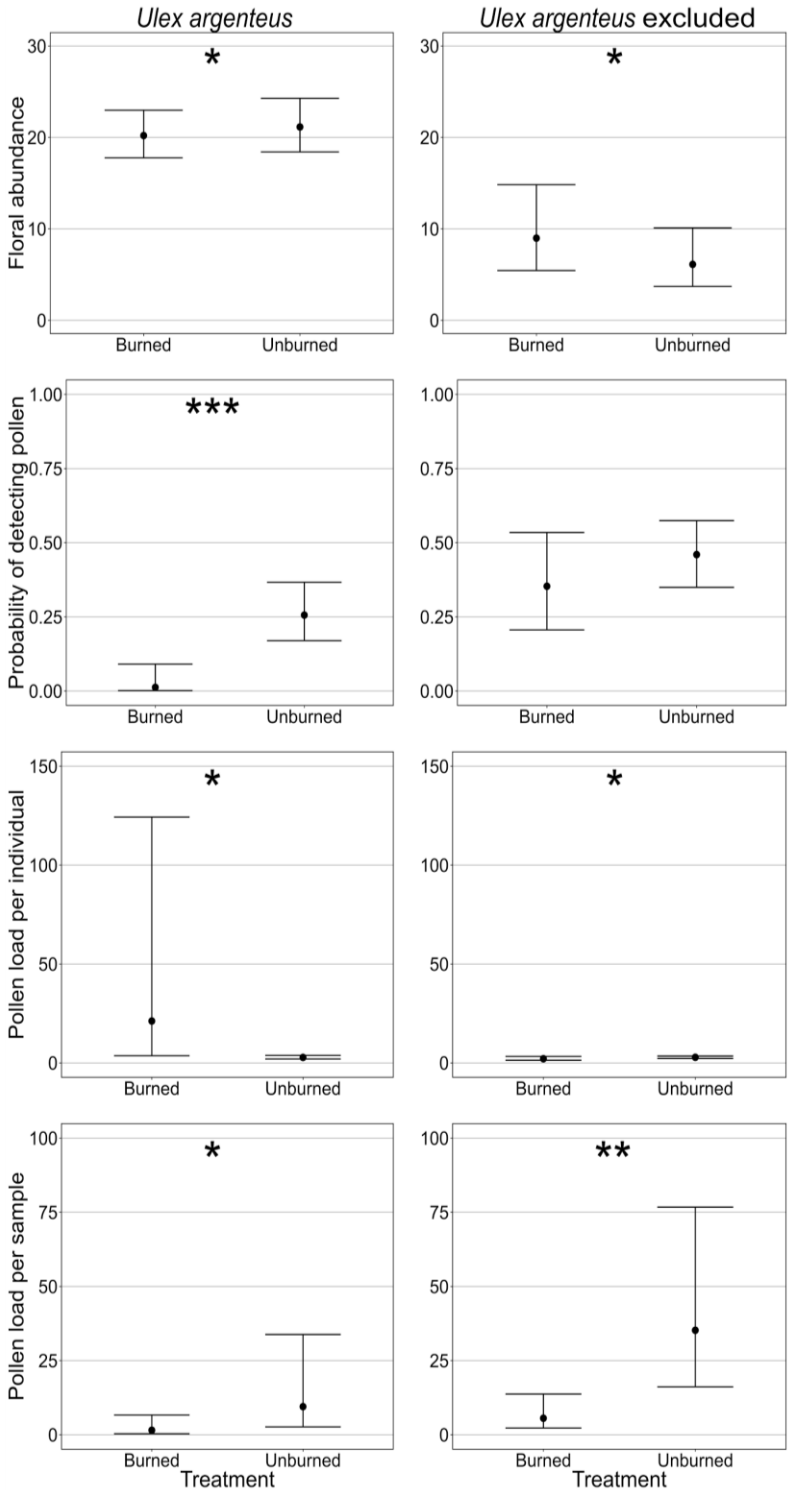

Figure S5 The effects of fire on floral abundance and pollen transport in winter, accounting for the influence of the most abundant flower, *Ulex argenteus* (Table S13). The dataset was divided in two: data concerning *U. argenteus* only, and all other data. The same analyses were conducted on each dataset. Graphs in the left-hand column show analyses for *U. argenteus* only, and graphs in the right-hand column show the same analyses for all other flowers combined. Stars show significance; *: $P < 0.05$, **: $P < 0.01$, ***: $P < 0.001$.

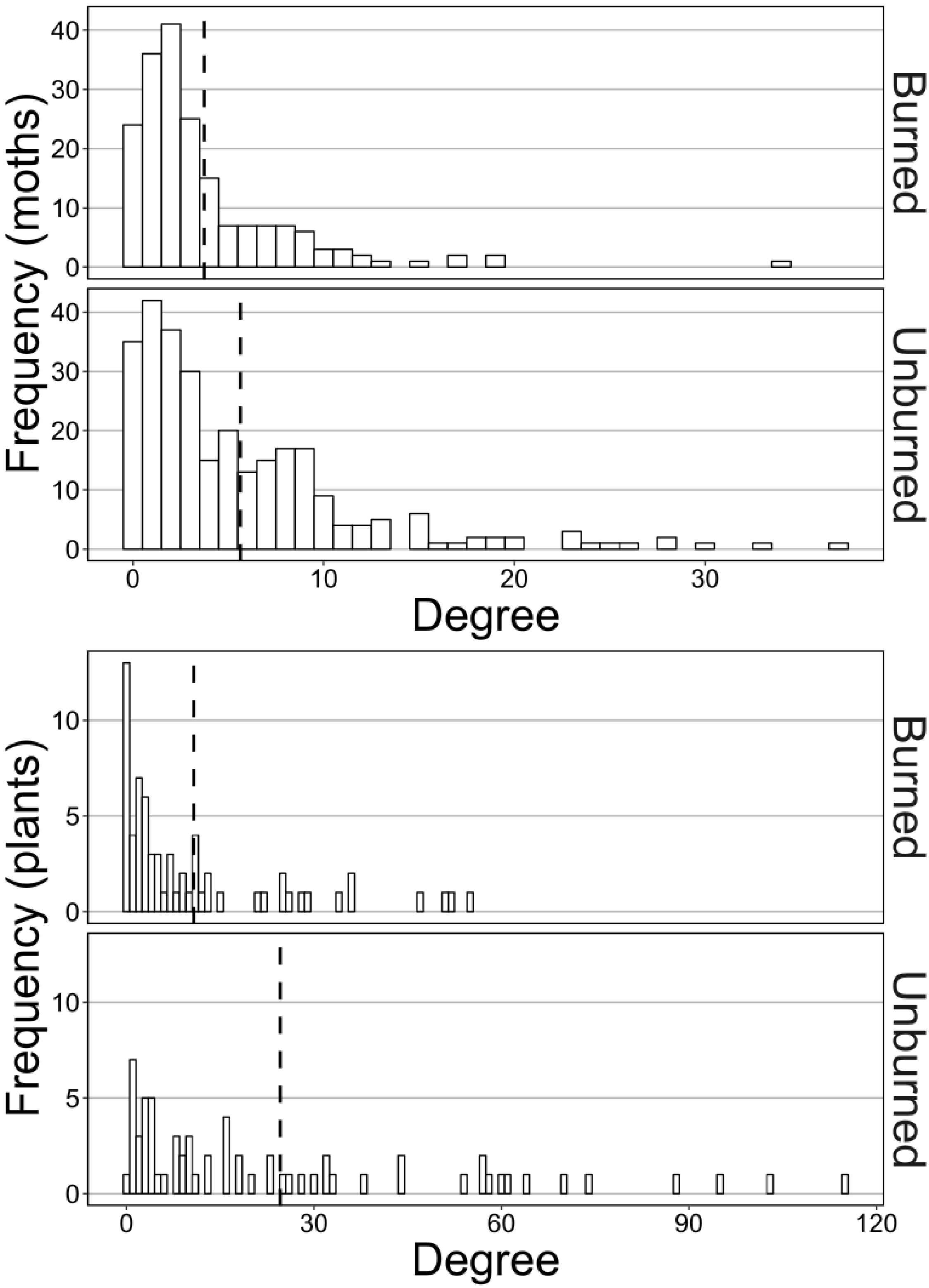

Figure S6 Degree distributions of insect and plant species in burned and unburned treatments (Table S14). Dashed lines show mean degree.

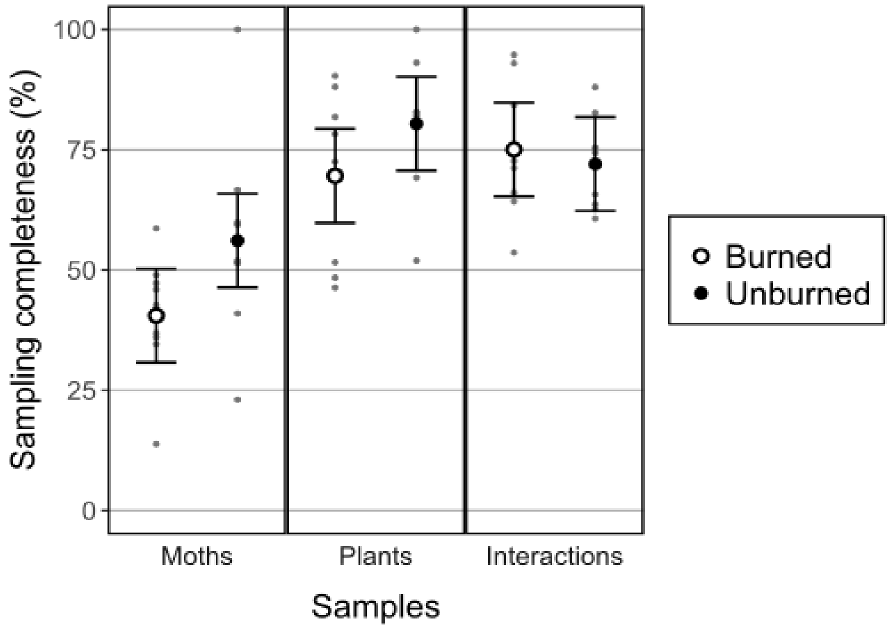

Figure S7 The level of sampling completeness for each of the 18 networks for moths, plants and interactions, separated by burning treatment (Table S11). Points in grey are the values for individual networks. Circles are the model-predicted mean values (open = burned sites, closed = unburned sites), and error bars the 95% confidence intervals.

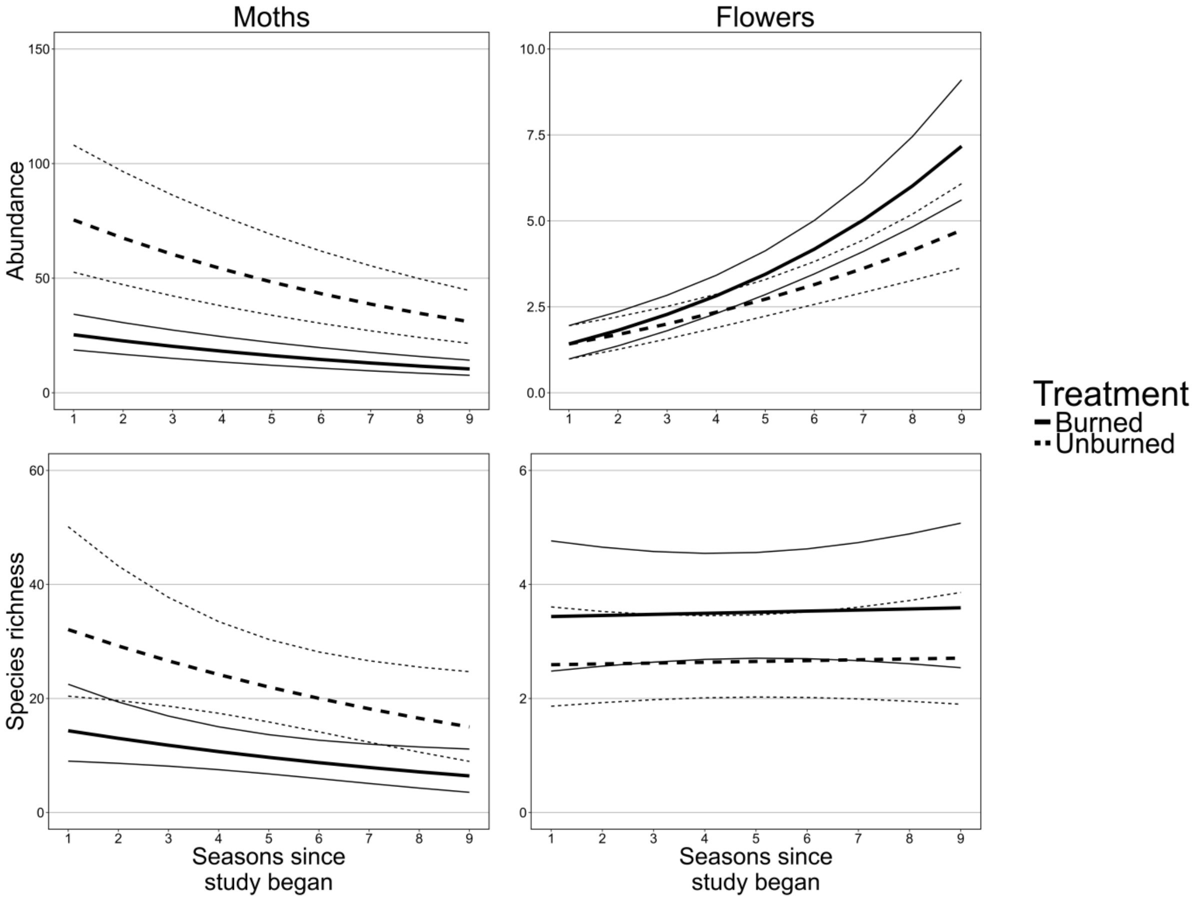

Figure S8 The effects of fire and sampling period (seasons since the study began) on the abundance and species richness of moths and flowers. For moths, lines represent the model-predicted abundance and species richness per trap; for flowers, lines represent the model-predicted percentage cover and species richness per transect. Quantile lines show 95% confidence intervals. For clarity, the effect of season was omitted when making predictions, so lines effectively show the trend if all seasons were autumn; however, no significant interactions were found between season and sampling period in any analysis, so trends are expected to be the same in all seasons. Analyses of moth abundance and species richness were based on moth-trap samples (n = 73); analyses of floral abundance and species richness were based on 1 x 1 m quadrats (n = 1260).

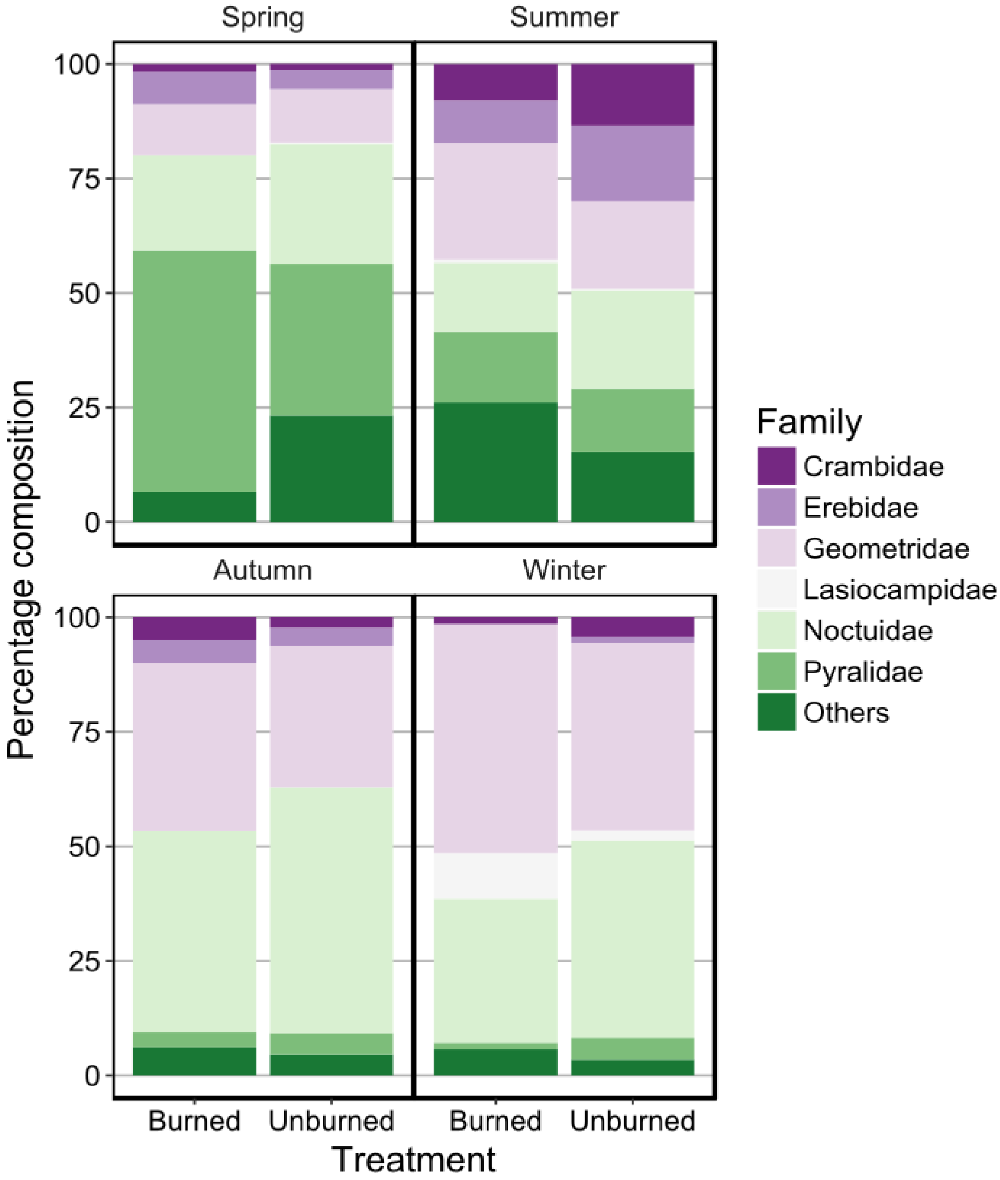

Figure S9 Assemblage composition by family of moths for each treatment and season. Families never comprising >10% of individuals in any combination of season and treatment are grouped as “Others”, and all other families are shown independently.

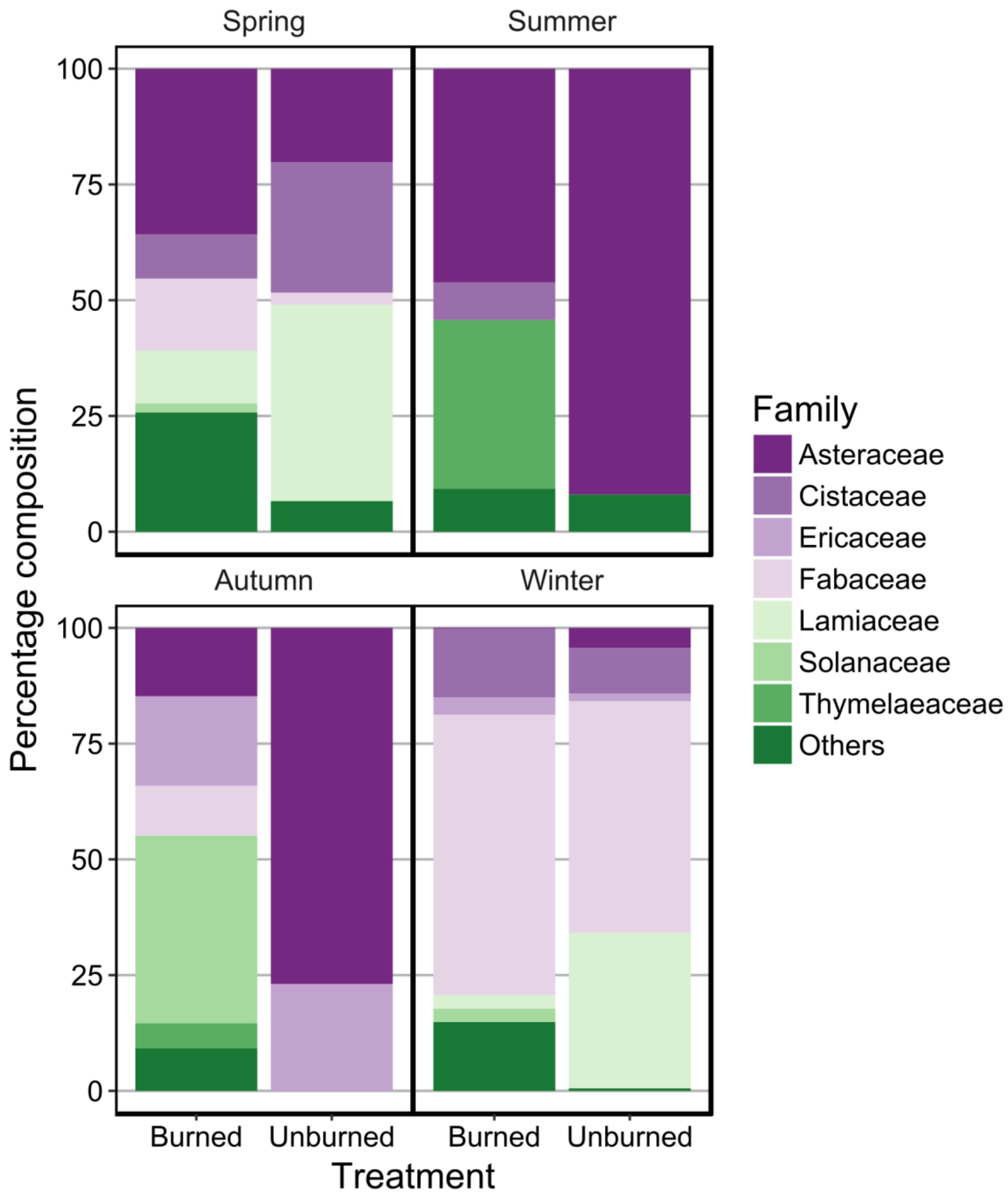

Figure S10 Assemblage composition by family of flowering plants for each treatment and season. Families never comprising >10% of individuals in any combination of season and treatment are grouped as "Others", and all other families are shown independently.

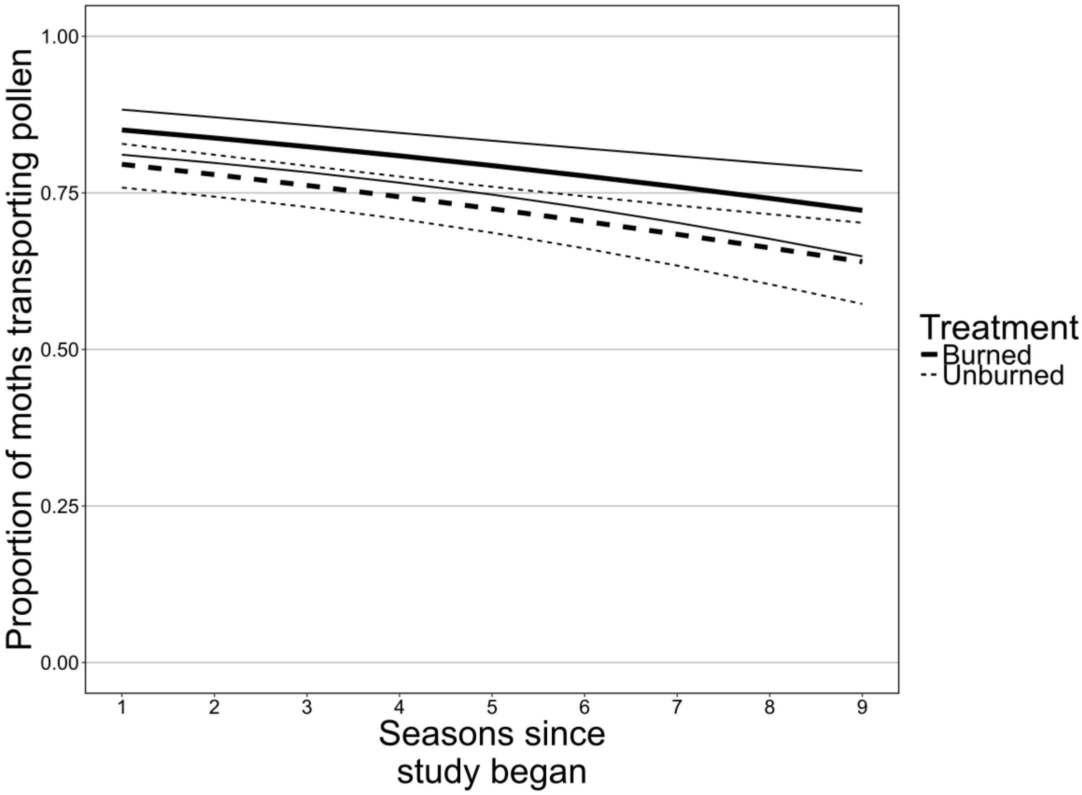

Figure S11 The effects of fire and sampling period (seasons since the study began) on the likelihood of detecting pollen on a moth. Lines represent the model-predicted proportion of moths found to be carrying pollen. Quantile lines show 95% confidence intervals. For clarity, the effect of season was omitted when making predictions, so lines effectively show trends if all seasons were autumn; however, no significant interaction was found between season and sampling period, so trends are expected to be the same in all seasons. Analyses were based on individual moths (n = 3406).

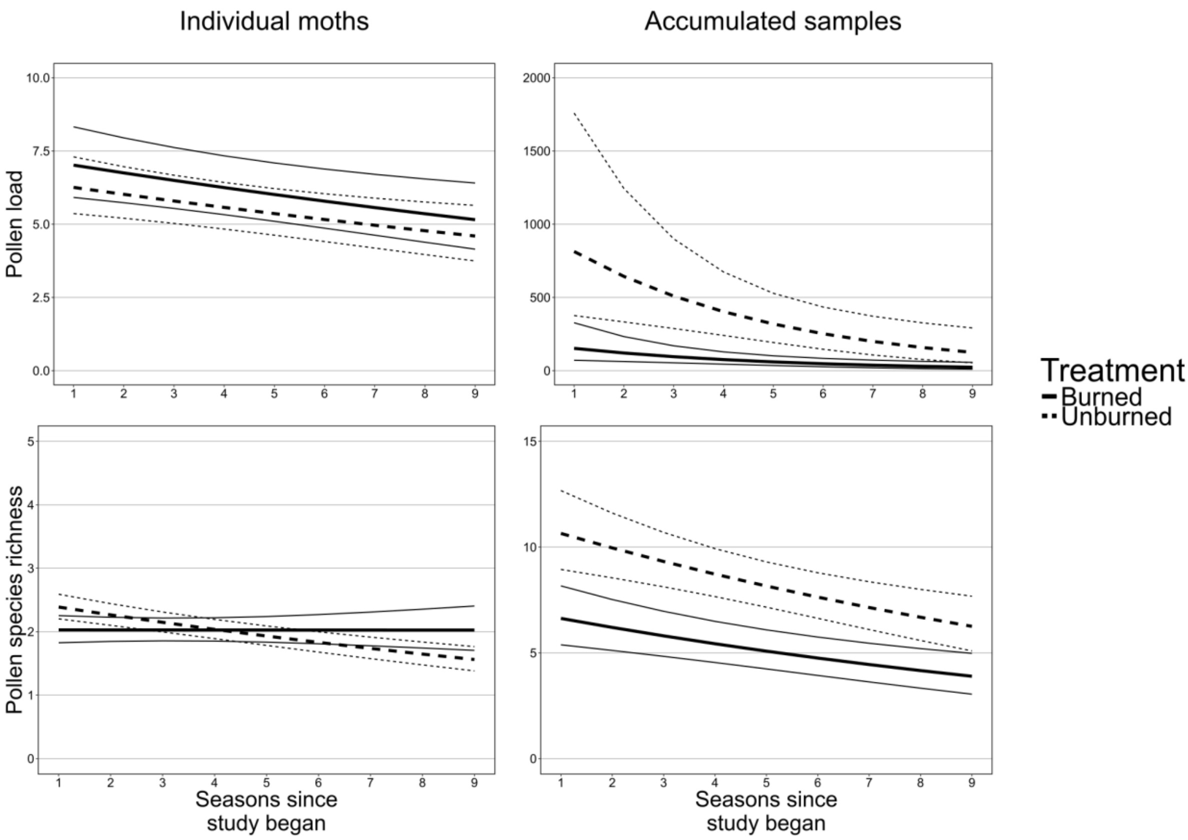

Figure S12 The effects of fire and sampling period (seasons since the study began) on the pollen loads of moths. Lines represent the model-predicted pollen load and species richness of pollen of individual moths and the cumulative pollen load and richness of all moths in a sample. Quantile lines show 95% confidence intervals. For clarity, the effect of season was omitted when making predictions, so lines effectively show trends if all seasons were autumn; however, no significant interactions were found between season and sampling period in any analysis, so trends are expected to be the same in all seasons. Analyses of the pollen loads of individual moths were based on pollen-carrying moths (n = 2394); analyses of accumulated samples of pollen were based on moth-trap samples (n = 73).

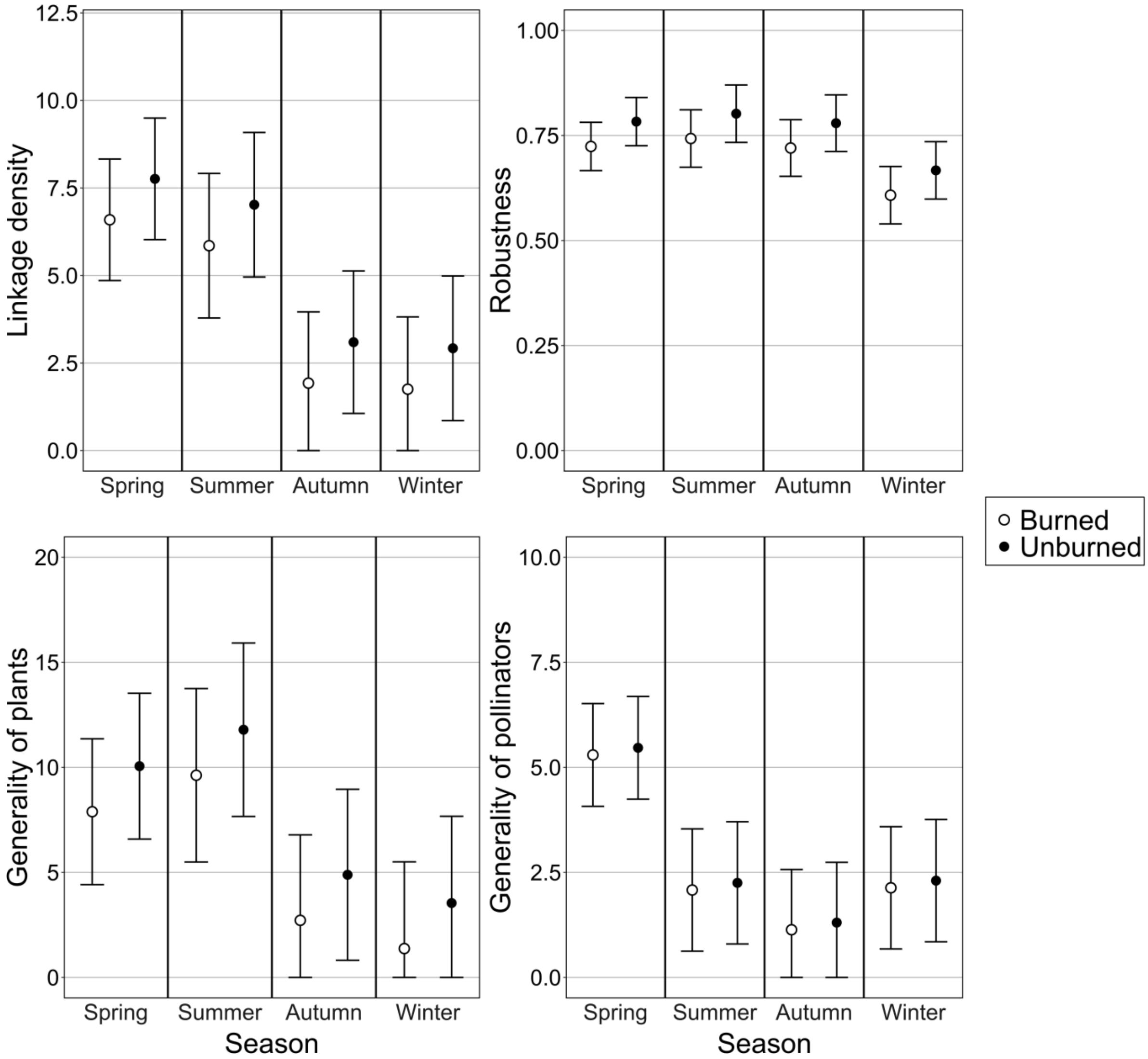

Figure S13 The effects of fire and season on a selection of network metrics (linkage density, robustness, generality of plants and of pollinators) calculated for quantitative, pollen load-weighted, pollen-transport networks. Circles represent the model-predicted network metrics (open = burned networks, closed = unburned networks) and error bars show 95% confidence intervals. Analyses were based on one burned network and one unburned network for each sampling period in the study (n = 18).

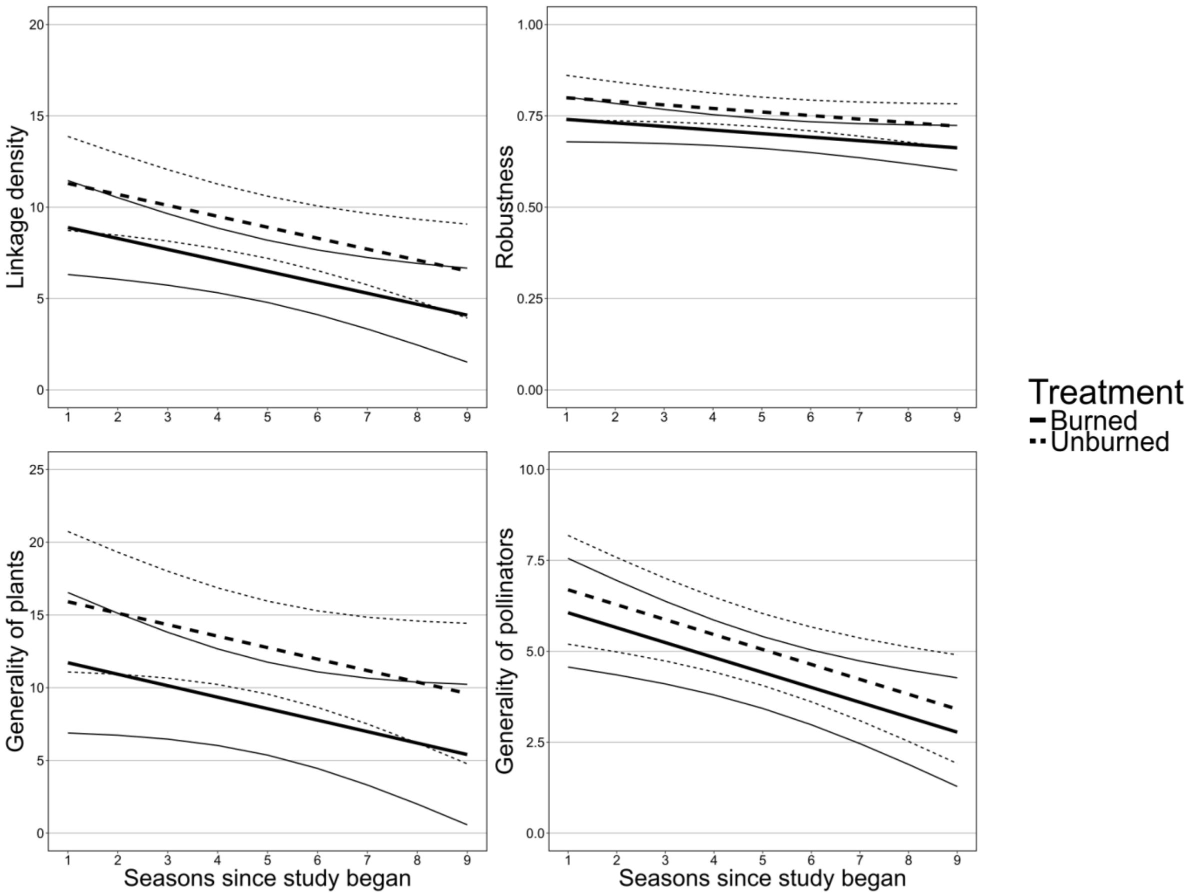

Figure S14 The effects of fire and sampling period (seasons since the study began) on quantitative, interaction frequency-weighted, pollen-transport network metrics. Lines represent the model-predicted network metrics. Quantile lines show 95% confidence intervals. For clarity, the effect of season was omitted when making predictions, so lines effectively show trends if all seasons were autumn; however, no significant interactions were found between season and sampling period in any analysis, so trends are expected to be the same in all seasons. Analyses were based on one burned network and one unburned network for each sampling period in the study (n = 18).

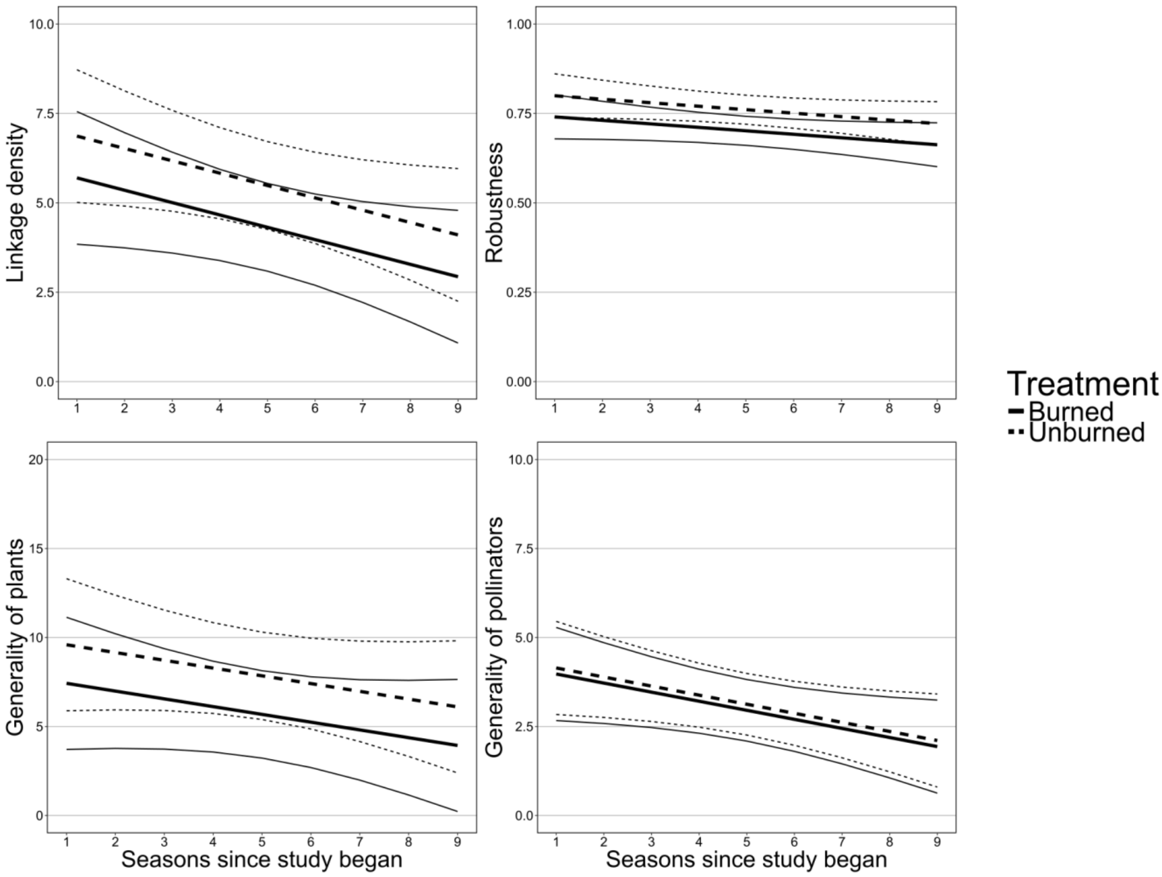

Figure S15 The effects of fire and sampling period (seasons since the study began) on quantitative, pollen load-weighted, pollen-transport network metrics. Lines represent the model-predicted network metrics. Quantile lines show 95% confidence intervals. For clarity, the effect of season was omitted when making predictions, so lines effectively show trends if all seasons were autumn; however, no significant interactions were found between season and sampling period in any analysis, so trends are expected to be the same in all seasons. Analyses were based on one burned network and one unburned network for each sampling period in the study (n = 18).