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Supplementary Material

Importance of internal refuges and the external unburnt area in the recovery of rodent populations after wildfire

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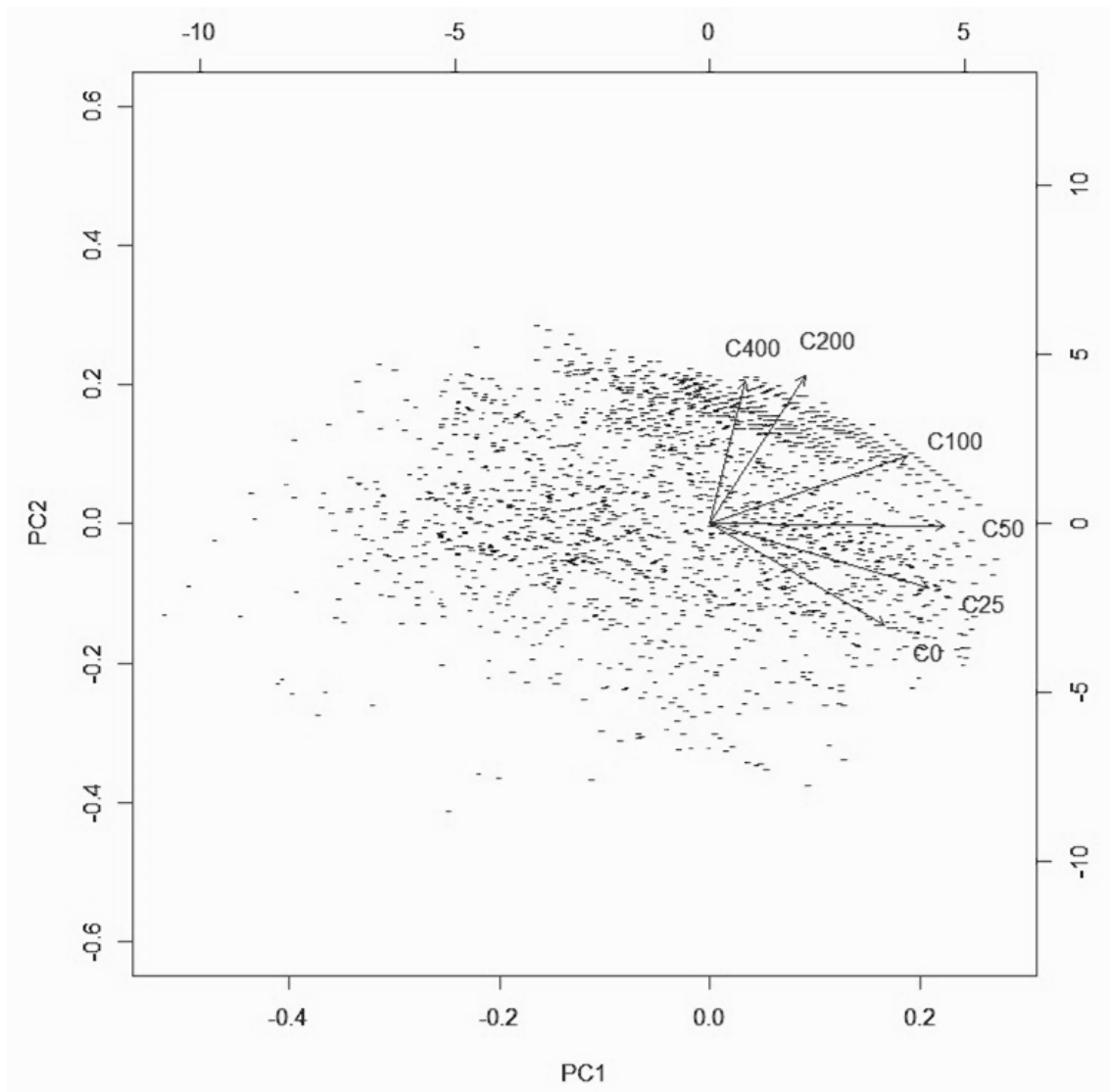


Fig. S1. Principal component analysis (PCA) where the first component (PC1; percentage of explained variance = 45) corresponds to the plant cover and the second component (PC2; percentage of explained variance = 26) separates the different vegetation into low (0 to 1 m), medium (1 to 2 m) and high (2 to more than 4 m) layers.

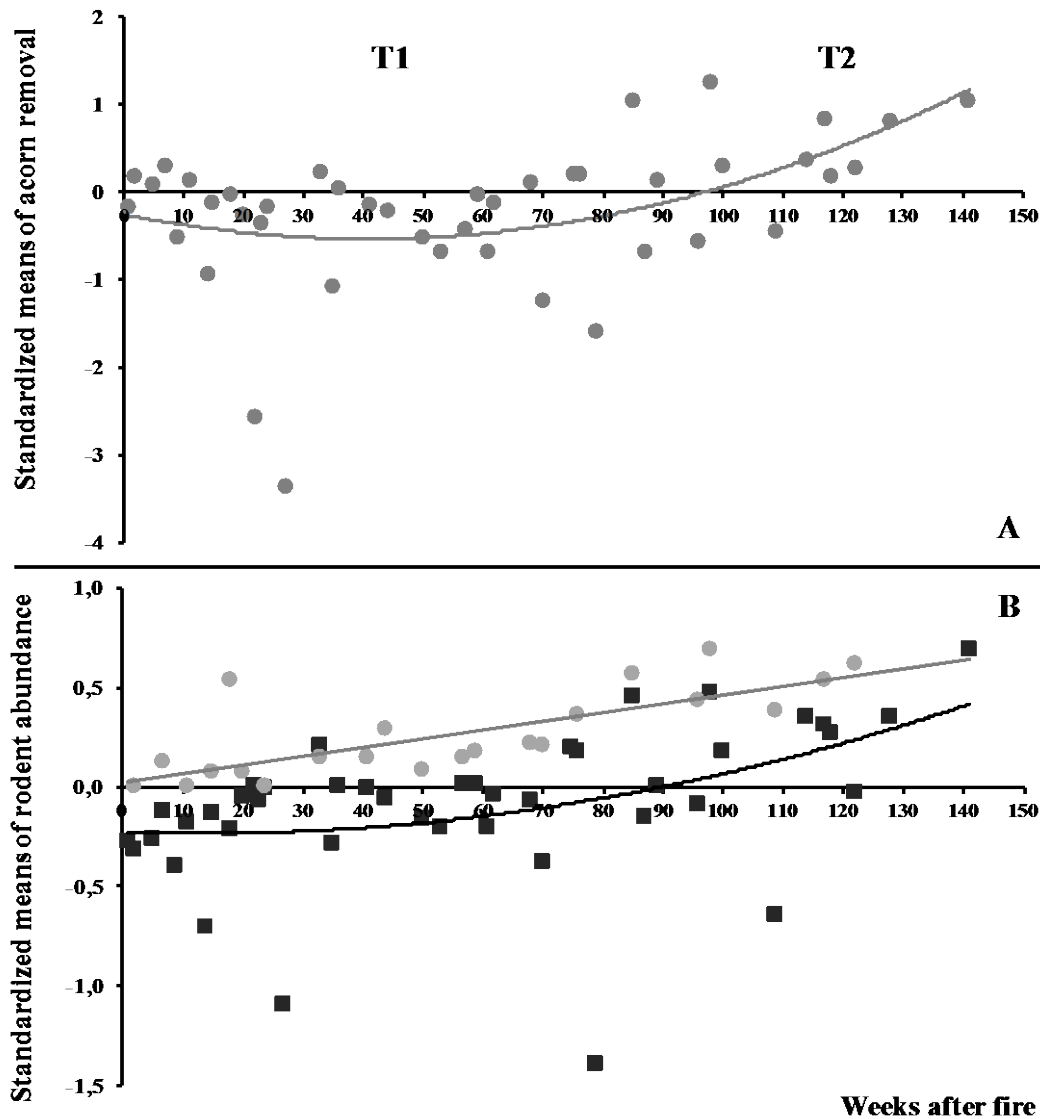


Fig. S2. Variability of acorn removal (A) and rodent relative abundance (B; wood mouse = black squares; Algerian mouse = grey circles) along time since fire with standardized means. The adequate trend lines are added (in B, black = wood mouse and grey = Algerian mouse) to determinate the point when the trend line of the quadratic variables (acorn removal and wood mouse) crosses the X axis. Using the equation of the trend lines by acorn removal ($y = 0.0002x^2 - 0.0138x - 0.2533$) and Wood mouse ($y = 0.00004x^2 - 0.001 - 0.227$) this point corresponds to 84.07 and 88.86, respectively. The threshold used to avoid quadratic terms in subsequent analyses was 86 weeks. The sampling period up to 86 weeks after fire was defined as T1 (are shown under the grey area) and the following sampling period as T2.

Table S1. Summary of generalized linear mixed models (GLMM) analysing the influence of Region, Season, Time-since-fire and its quadratic term on acorn removal and rodent relative abundance (wood mouse and Algerian mouse)

Slope (*b*), standard error (s.e.) and *P*-values (*P*) are shown for each relationship. Unimportant ($P > 0.01$) quadratic terms were excluded from the models and *P*-values of the removed terms are shown in parentheses. The season results (winter, spring and autumn) are compared with the summer

Variables	Acorn removal		Wood mouse		Algerian mouse	
	<i>b</i> (s.e.)	<i>P</i>	<i>b</i> (s.e.)	<i>P</i>	<i>b</i> (s.e.)	<i>P</i>
Intercept	4.42±0.9	< 0.01	0.12±0.03	< 0.01	-0.02±0.02	0.2
Time-since-fire	-0.07±0.009	< 0.01	-0.0004±0.0007	0.57	-0.00006±0.0006	0.92
Quadratic Time-since-fire	-1.24±0.26	< 0.01	0.00002±0.000006	< 0.01	0.00001±0.000005	(0.02)
Winter	1.6±0.27	< 0.01	-0.04±0.02	0.09	0.04±0.02	0.07
Spring	0.31±0.23	0.21	0.08±0.02	< 0.01	0.09±0.02	< 0.01
Autumn	0.0008±0.00007	< 0.01	-0.001±0.02	0.96	0.03±0.01	0.06

Table S2. Summary of combinations of environmental variables used in the GLMM analysing acorn removal on burnt areas. In the analysis of rodent relative abundance, the combination of variables is the same, but excluding rodent abundance itself

TSF = time since fire (weeks). Season = Sampling season (Winter, Spring; Summer; Autumn). Region (Mediterranean or Pyrenees). D_PER = Distance from burnt area perimeter (m). D_REF = Distance from closest internal refuge (m). PC1 = Plant cover. PC2 = Height of vegetation. Seed = Seed availability

Time since fire	Sampling season	Region	Rodent abundance	Distance to perimeter	Distance to refuges	Habitat structure	Seeds
TSF	Season	Region	Rodent				
TSF	Season	Region	Rodent	D_PER			
TSF	Season	Region	Rodent		D_REF		
TSF	Season	Region	Rodent			PC1+PC2	
TSF	Season	Region	Rodent				Seed
TSF	Season	Region	Rodent	D_PER		PC1+PC2	
TSF	Season	Region	Rodent		D_REF	PC1+PC2	
TSF	Season	Region	Rodent	D_PER			Seed
TSF	Season	Region	Rodent		D_REF		Seed
TSF	Season	Region	Rodent			PC1+PC2	Seed
TSF	Season	Region	Rodent	D_PER		PC1+PC2	Seed
TSF	Season	Region	Rodent		D_REF	PC1+PC2	Seed
TSF	Season	Region					
TSF	Season	Region		D_PER			
TSF	Season	Region			D_REF		
TSF	Season	Region				PC1+PC2	
TSF	Season	Region					Seed
TSF	Season	Region		D_PER		PC1+PC2	
TSF	Season	Region			D_REF	PC1+PC2	
TSF	Season	Region		D_PER			Seed
TSF	Season	Region			D_REF		Seed
TSF	Season	Region				PC1+PC2	Seed
TSF	Season	Region		D_PER		PC1+PC2	Seed
TSF	Season	Region			D_REF	PC1+PC2	Seed
TSF	Season		Rodent				
TSF	Season		Rodent	D_PER			
TSF	Season		Rodent		D_REF		
TSF	Season		Rodent			PC1+PC2	
TSF	Season		Rodent				Seed
TSF	Season		Rodent	D_PER		PC1+PC2	
TSF	Season		Rodent		D_REF	PC1+PC2	
TSF	Season		Rodent	D_PER			Seed

TSF	Season		Rodent		D_REF		Seed
TSF	Season		Rodent			PC1+PC2	Seed
TSF	Season		Rodent	D_PER		PC1+PC2	Seed
TSF	Season		Rodent		D_REF	PC1+PC2	Seed
TSF	Season						
TSF	Season			D_PER			
TSF	Season				D_REF		
TSF	Season					PC1+PC2	
TSF	Season						Seed
TSF	Season			D_PER		PC1+PC2	
TSF	Season				D_REF	PC1+PC2	
TSF	Season			D_PER			Seed
TSF	Season				D_REF		Seed
TSF	Season					PC1+PC2	Seed
TSF	Season			D_PER		PC1+PC2	Seed
TSF	Season				D_REF	PC1+PC2	Seed

Table S3. Most parsimonious models, those with Akaike information criterion (AIC) within 2 units of the lowest AIC, for each response variable (acorn removal, wood mouse and Algerian mouse), as a function of sampling time T1 (first 86 weeks after fire) and T2 (from 86 weeks after fire to the end of the sampling)

The most appropriate model (bold) was selected following a criterion of less AIC, less complexity (degrees of freedom= Df) and greater AIC weight. Region (Mediterranean or Pyrenees). TSF = time since fire (weeks). Season = Sampling season (Winter, Spring, Summer or Autumn). Rodent = Rodent relative abundance. D_PER = Distance from burnt area perimeter (m). D_REF = Distance from closest internal refuge (m). PC1 = Plant cover. PC2 = Height of vegetation. Seed = Seed availability

		Df	AIC	Δ AIC	AIC weight	Model structure
Acorn removal	T1	11	2005.9	0	0.92	TSF + Season + Region + D_PER+ Rodent
		14	2011.6	5.7	0.05	TSF + Season + Region + D_PER + PC1 + PC2 + Seed+ Rodent
	T2	12	1128.1	0	0.37	TSF + Season + D_REF + PC1 + PC2 + Rodent
		13	1128.3	0.2	0.31	TSF + Season + D_REF + PC1 + PC2 + Seed + Rodent
		13	1129.8	1.7	0.16	TSF + Season + Region + D_REF + PC1 + PC2 + Rodent
Wood mouse	T1	12	435.1	0	0.52	TSF + Season + D_PER + PC1 + PC2 + Seed
		11	437.0	0.9	0.19	TSF + Season + PC1 + PC2 + Seed
		12	437.1	2.0	0.19	TSF + Season + Region + PC1 + PC2 + Seed
	T2	11	445.8	0	0.48	TSF + Season + D_REF + PC1 + PC2
		12	447.4	1.6	0.22	TSF + Season + D_REF + PC1 + PC2 + Seed
Algerian mouse		11	1105.7	0	0.32	TSF + Season + D_PER + PC1 + PC2
		10	1106.4	0.7	0.23	TSF + Season + PC1 + PC2
		11	1107.3	1.6	0.14	TSF + Season + D_REF + PC1 + PC2
		12	1107.5	1.8	0.13	TSF + Season + D_PER + PC1 + PC2 + Seed