

Table S1. List of captured taxa excluded from analyses

Order	Type excluded	Reason for exclusion
Coleoptera	Silphidae, <i>Nicrophorus spp.</i>	Attracted to decomposition volatiles from trap
Diptera	All	Attracted to preservative liquid or color
Hymenoptera	bees and wasps	Attracted to preservative liquid or color
Lepidoptera	All	Attracted to preservative liquid or color
Thysanura	All	Attracted to preservative liquid or color
Acari	All	Commonly occur below soil surface
Collembola	All	Commonly occur below soil surface
Gastropoda	All	Not commonly sampled with pitfall traps
Isopoda	All	Not commonly sampled with pitfall traps

Table S2. Random forest results for predictions of arthropod abundance, Shannon diversity, and taxon dissimilarity

Factors considered	Retained (Y/N)*	Abundance		Shannon diversity		Dissimilarity	
		%Inc. MSE	Rank	%Inc. MSE	Rank	%Inc. MSE	Rank
Previous fire burn severity	  	5.14	7	8.14	5	9.85	5
Burn severity	  	5.96	6	12.56	2	10.65	3
1 hour fuel (mg/ha)	  	12.66	1	4.97	12	2.88	19
10 hour fuel (mg/ha)	  	3.22	15	0.16	29	1.32	25
100 hour fuel (mg/ha)	  	7.44	3	1.88	23	8.00	10
1000 hour fuel (mg/ha)	  	0.24	27	0.90	28	3.40	18
Bare soil cover	  	4.59	9	6.65	8	8.62	8
Dead tree abundance	  	3.31	14	1.76	24	10.05	4
Duff(mg/ha)	  	3.90	13	11.99	3	16.13	1
Litter cover	  	6.46	5	10.82	4	9.46	6
Litter quantity (mg/ha)	  	4.05	12	3.84	15	1.29	26
Log cover	  	7.48	2	1.13	26	9.36	7
Rock cover	  	1.50	22	8.03	6	13.53	2
<i>A. concolor</i> abundance	  	-1.35	35	2.16	20	-2.40	38
<i>A. dracunculus</i> abundance	  	2.63	17	5.26	10	8.03	9
<i>A. glabrum</i> abundance	  	0.90	23	1.25	25	2.26	21
<i>C. fendleri</i> abundance	  	-0.52	32	-0.08	33	5.62	15
<i>J. communis</i> abundance	  	0.00	28	0.00	30	0.00	31
<i>P. menziesii</i> abundance	  	0.67	25	6.84	7	0.62	29
<i>P. monogynus</i> abundance	  	-1.50	36	-0.10	34	1.09	28
<i>P. ponderosa</i> abundance	  	4.34	10	3.69	16	0.48	30
<i>P. strobiformis</i> abundance	  	4.88	8	-0.64	35	1.42	24
<i>P. tremuloides</i> abundance	  	1.61	21	4.62	13	3.63	17
<i>P. virginiana</i> abundance	  	-1.71	37	-1.00	36	2.15	22
<i>Q. gambelii</i> abundance	  	-0.52	31	4.42	14	6.37	12
<i>Quercus</i> sp. abundance	  	1.72	19	2.14	21	-2.05	37
<i>R. idaeus</i> abundance	  	-1.32	34	-1.45	37	-0.05	34
<i>R. inerme</i> abundance	  	-3.42	38	-2.59	38	-1.59	36
<i>R. parviflorus</i> abundance	  	-0.72	33	1.10	27	-1.01	35
<i>R. woodsii</i> abundance	  	2.97	16	1.97	22	1.17	27
<i>R. neomexicana</i> abundance	  	1.85	18	2.40	19	5.82	14
<i>Sambucus</i> sp. abundance	  	0.00	29	0.00	31	0.00	32
<i>T. fendleri</i> abundance	  	0.73	24	3.42	17	5.49	16
Forb cover	  	1.68	20	5.25	11	6.28	13
Graminoid cover	  	6.54	4	13.22	1	6.38	11
Moss cover	  	4.14	11	5.57	9	1.52	23
Tree trunk total	  	0.39	26	2.81	18	2.78	20
Unknown shrub abundance	  	0.00	30	0.00	32	0.00	33

Percent (%) increase in the MSE and ranks were calculated using the "randomForest" package in R. Factors which increased the MSE ≥ 2.0 % were retained for linear models; color-coded boxes after each factor indicate global models that were started with the factor prior to best-fit stepwise reductions.

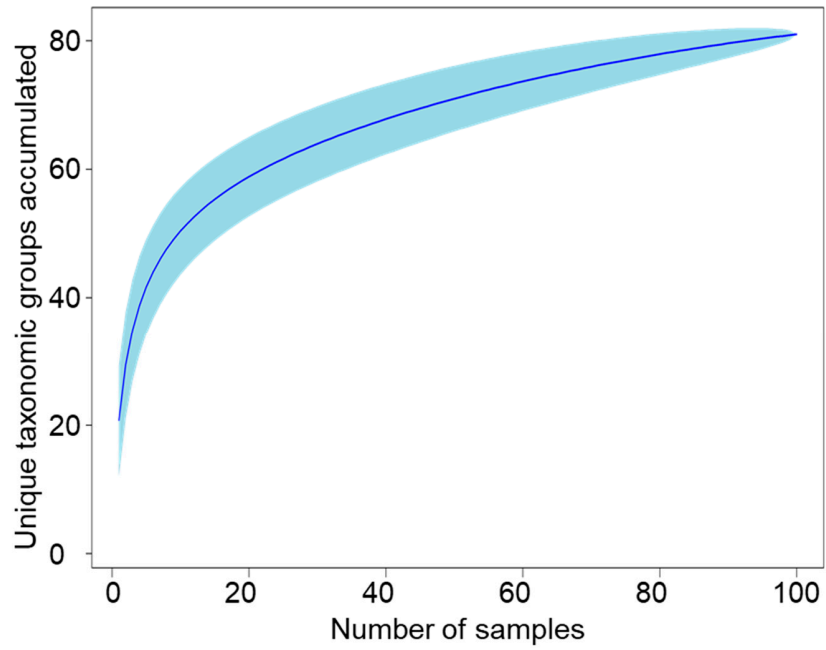


Figure S1. Taxon accumulation curve showing unique groups captured as a function of samples collected. Arthropods were sorted to the level of family with some groups further divided into genera.

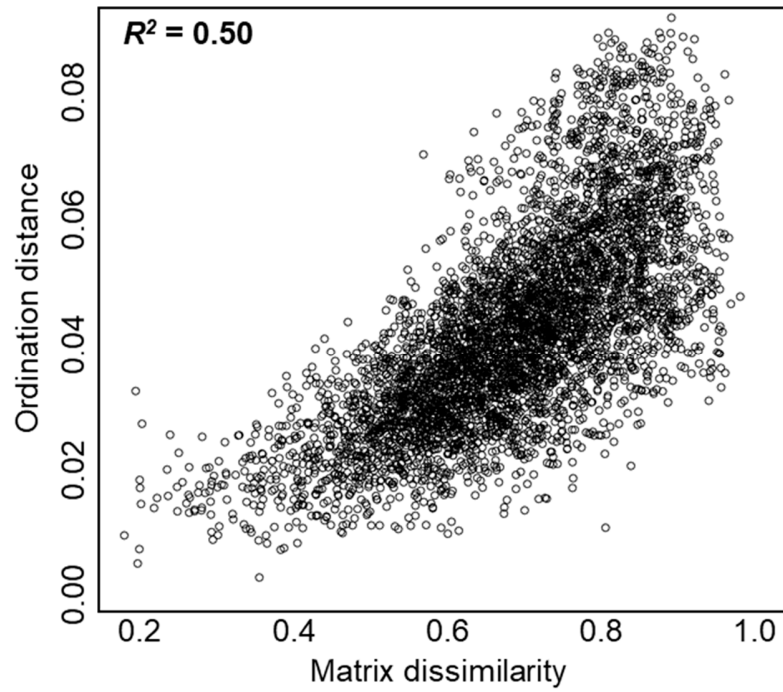


Figure S2. Fit of ordination distance from fuzzy set ordination (FSO) to dissimilarity in the original distance matrix of the ground-dwelling arthropod community.

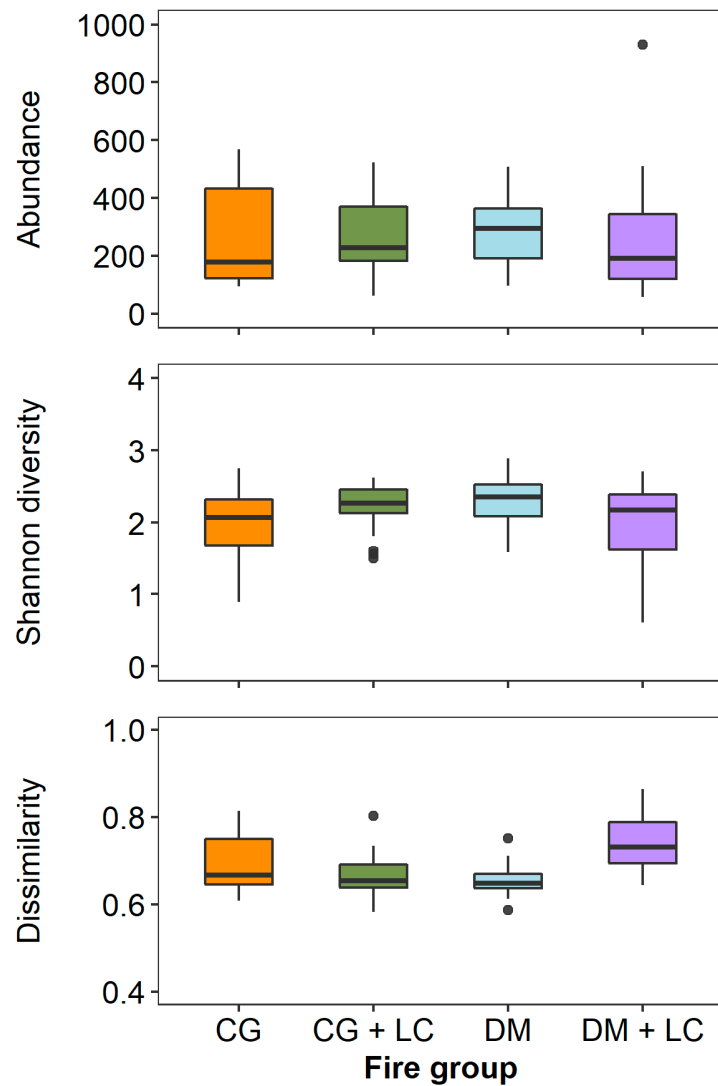


Figure S3. Unimetric measures of arthropod abundance, Shannon diversity, and mean pairwise dissimilarity (a metric of beta-diversity measured as Bray-Curtis distance) among the four fire groups: Cerro Grande fire (CG), the Dome fire (DM), the Cerro Grande + Las Conchas fires (CG + LC), and the Dome + Las Conchas fires (DM + LC).