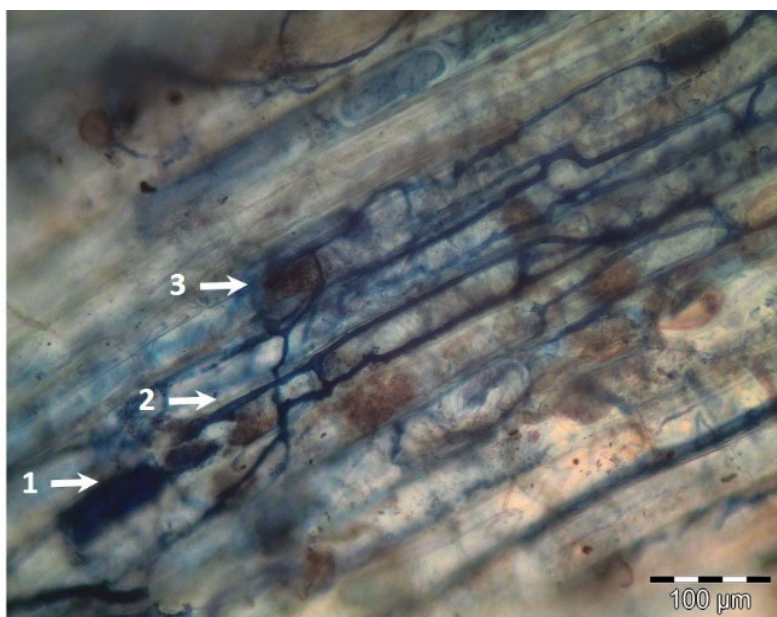
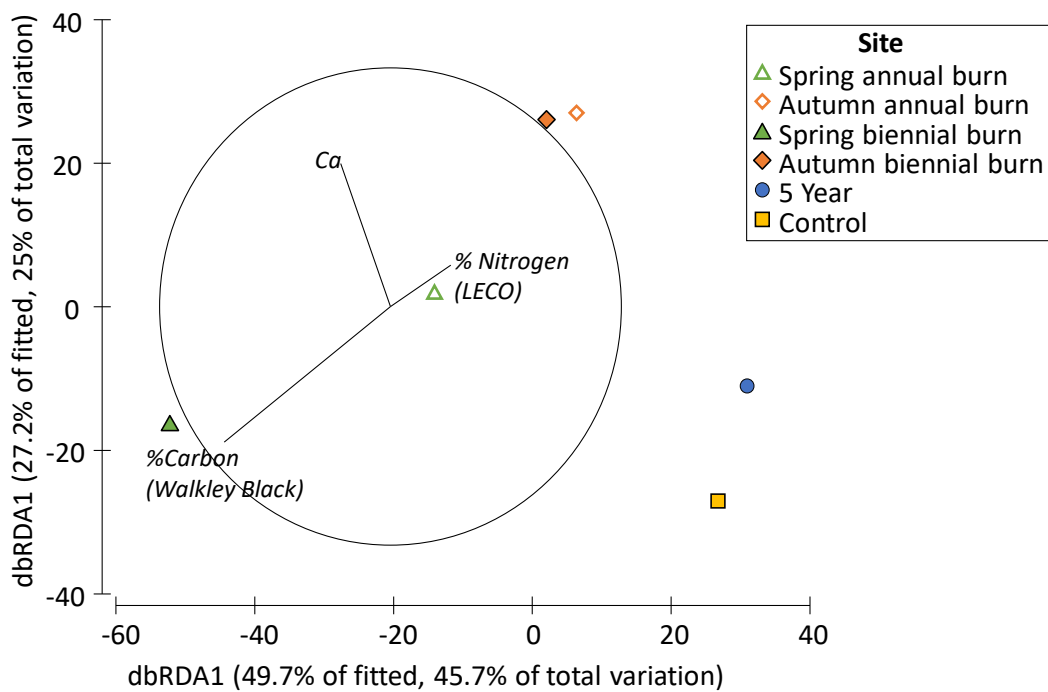


Supplementary



**Figure S1.** Mycorrhizal colonisation structures visualized by light microscopy (1: vesicle, 2: Intercellular hyphae, 3: arbuscule).

Transformation: Square root  
Resemblance: S17 Bray Curtis similarity



**Figure S2.** Distance-based RDA ordination of fungal data. Vectors indicate direction of the soil chemistry parameter effect in the ordination plot.

Supplementary Tables

Table S1. Diversity indices generated for bacteria and AM fungi on 454 and MiSeq platforms.

	Fire Regime	Total Number of Reads	Total Number of OTUs	OTU Richness (d)	Pielou's Evenness (J')	Shannon Index (H'(loge))	Simpson Index (1-λ')
Bacteria MiSeq	Control	8341	2151.5	238.15	0.89485	6.867	0.99715
	Five Year	8382	2070.5	229.1	0.89115	6.8045	0.99705
	Biennial	8365	1983	219.45	0.89145	6.7675	0.99715
	Autumn	8123	2155.5	239.35	0.8997	6.9055	0.99745
	Biennial	8123	2155.5	239.35	0.8997	6.9055	0.99745
	Spring	8430	2103.5	232.6	0.89045	6.813	0.9971
	Annual	8430	2103.5	232.6	0.89045	6.813	0.9971
	Autumn	8475	2077.5	229.6	0.88645	6.7715	0.9967
AM Fungi 454	Control	1114	82	11.55	0.512	2.256	0.7649
	Five Year	1114	85	11.97	0.6691	2.973	0.9084
	Biennial	1114	64	8.98	0.5768	2.399	0.8184
	Autumn	1114	64	8.98	0.5768	2.399	0.8184
	Biennial	1114	34	4.704	0.1329	0.4687	0.1397
	Spring	1114	34	4.704	0.1329	0.4687	0.1397
	Annual	1114	63	8.837	0.5919	2.452	0.818
	Autumn	1114	63	8.837	0.5919	2.452	0.818
Annual Spring	1114	65	9.122	0.617	2.576	0.8538	

**Table S2.** Statistical analysis at phylum level for the soil bacterial community in burn-treated soils where statistical significance is indicated by  $p \leq 0.05$ .

Phylum	Burned Soils × Control		Frequently Burned Soil Only	
	F-Value	<i>p</i> -Value	F-Value	<i>p</i> -Value
Acidobacteria	3.24	0.091	2.89	0.166
Actinobacteria	7.48	0.015*	10.97	0.021*
Bacteroidetes	7.23	0.016*	7.22	0.043*
Chloroflexi	6.85	0.018*	7.07	0.045
Planctomycetes	3.87	0.65	7.76	0.038*
Proteobacteria	23.96	0.001*	57.64	0.001*
Verrucomicrobia	2.65	0.133	5.59	0.065

**Table S3.** BLAST analysis of select dominant fungal OTUs against the NCBI nucleotide database from which the uncultured/environmental sequences were omitted.

OTU	Closest BLAST Match	Family	Accession Number	Identity (%)
1	<i>Glomus</i> sp. VTX00096	<i>Glomeraceae</i>	LN615455	98.5
2	<i>Glomus</i> sp. VTX00089	<i>Glomeraceae</i>	HE799208	98.9
3	<i>Glomus</i> sp. VTX00420	<i>Glomeraceae</i>	LN619015	99.6
4	<i>Archaeospora</i> sp. VTX00005	<i>Archaeosporaceae</i>	LN621099	98.5
5	<i>Glomus</i> sp. VTX00420	<i>Glomeraceae</i>	LN619015	100
6	<i>Glomus</i> sp. VTX00360	<i>Glomeraceae</i>	LN619084	98.9
7	<i>Glomus</i> Glo2 VTX00096	<i>Glomeraceae</i>	AY129604	99.3
8	<i>Glomus</i> sp. VTX00414	<i>Glomeraceae</i>	LN616714	100
9	<i>Glomus</i> sp. VTX00315	<i>Glomeraceae</i>	LN623303	100

**Table S4.** Marginal and sequential tests from distance-based redundancy analysis of the bacterial community.

MARGINAL TESTS							
Variable	SS (trace)	Pseudo-F	<i>p</i>	Prop.			
***Ca (mg/kg)	4517.1	3.6151	0.001	0.26552			
***Mg(mg/kg)	4223.9	3.303	0.001	0.24829			
*pH (H2O)	2875.3	2.0339	0.025	0.16902			
Time since last fire	2469.1	1.6978	0.056	0.14514			
%Nitrogen (LECO)	2121.1	1.4244	0.091	0.12468			
pH (KCl)	2109.2	1.4153	0.106	0.12398			
Na (mg/kg)	2149.3	1.4461	0.107	0.12634			
%Carbon (Walkley Black)	1798.4	1.1821	0.211	0.10571			
K (mg/kg)	1678.6	1.0947	0.27	9.87E-02			
Fire treatment	1517.5	0.97934	0.405	8.92E-02			
EC (mS/m)	1344.7	0.85828	0.569	7.90E-02			
SEQUENTIAL TESTS							
Variable	R <sup>2</sup>	SS (Trace)	Pseudo-F	<i>p</i>	Prop.	Cumul.	res.df
***+Ca (mg/kg)	0.26552	4517.1	3.6151	0.001	0.26552	0.26552	10
**+%Carbon (Walkley Black)	0.37411	1847.3	1.5614	0.003	0.10859	0.37411	9
+Time since last fire	0.46723	1584.2	1.3983	0.055	9.31E-02	0.46723	8
+pH (H2O)	0.54534	1328.7	1.2025	0.277	7.81E-02	0.54534	7
+Mg(mg/kg)	0.62016	1272.9	1.1819	0.375	7.48E-02	0.62016	6

Statistical significance: \*  $p = 0.05$ , \*\*  $p = 0.01$ , and \*\*\*  $p = 0.001$ .

**Table S5.** Marginal and sequential tests from distance-based redundancy analysis of the fungal community.

<b>MARGINAL TESTS</b>							
<b>Variable</b>	<b>SS (trace)</b>	<b>Pseudo-F</b>	<b><i>p</i></b>	<b>Prop.</b>			
pH (KCl)	3143.8	1.7891	0.094	0.30905			
pH (H2O)	3037.9	1.7032	0.117	0.29864			
Time since last fire	3235.1	1.8654	0.177	0.31803			
K (mg/kg)	2527.9	1.3227	0.279	0.2485			
%Carbon (Walkley Black)	2509.6	1.31	2.81E-01	0.24671			
Ca (mg/kg)	2150.2	1.0721	0.398	0.21138			
Na (mg/kg)	1831.9	0.87853	0.506	0.18008			
Fire treatment	1615.9	0.75539	0.545	0.15885			
Mg(mg/kg)	1830.7	0.87787	0.551	0.17997			
%Nitrogen (LECO)	1318.3	5.96E-01	0.762	0.1296			
EC (mS/m)	1.03E+03	0.45138	0.872	0.1014			
<b>SEQUENTIAL TESTS</b>							
<b>Variable</b>	<b>R<sup>2</sup></b>	<b>SS (trace)</b>	<b>Pseudo-F</b>	<b><i>p</i></b>	<b>Prop.</b>	<b>Cumul.</b>	<b>res.df</b>
+%Nitrogen (LECO)	0.81357	2788.2	2.9404	0.077	0.2741	0.81357	2
+Time since last fire	0.31803	3235.1	1.8654	0.173	0.31803	0.31803	4
+%Carbon (Walkley Black)	0.53947	2252.6	1.4425	0.231	0.22144	0.53947	3
+Ca (mg/kg)	0.91998	1082.5	1.3299	0.373	0.10641	0.91998	1

Statistical significance: \*  $p = 0.05$ , \*\*  $p = 0.01$ , and \*\*\*  $p = 0.001$ .