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Supplement of

Distribution of black carbon in Ponderosa pine litter and soils following the High Park wildfire

C. M. Boot et al.

Correspondence to: C. M. Boot (claudia.boot@colostate.edu)

1 **Table S1.** Results of three-way ANOVA evaluating the effects of layer, burn intensity and
 2 slope on C and N values.

		log %C		log %N		C:N		log C stock		bulk density	
response variable	df	f-value	p-value	f-value	p-value	f-value	p-value	f-value	p-value	f-value	p-value
slope	2	1.09	0.342	0.11	0.897	3.99	0.022	0.16	0.853	0.05	0.955
burn	2	7.82	<0.001	1.46	0.239	25.87	<0.001	2.38	0.099	0.13	0.874
layer	2	273.45	<0.001	182.27	<0.001	98.14	<0.001	21.93	<0.001	2.22	0.142
slope x burn	4	0.21	0.934	0.32	0.861	0.15	0.961	0.46	0.762	0.48	0.751
slope x layer	4	0.85	0.496	0.78	0.544	0.37	0.833	0.40	0.807	0.41	0.664
burn x layer	4	5.24	<0.001	1.30	0.278	21.52	<0.001	0.89	0.476	0.19	0.827
slope x burn x layer	8	0.00	1	0.47	0.874	0.50	0.853	0.61	0.770	0.26	0.905

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 5 **Table S2.** Results of post-hoc comparisons evaluating the source of significant differences
 6 in %C, %N, C:N and C stocks by burn, layer, slope and the interaction terms, not significant
 7 (ns), not tested (nt).

		log % C		log % N		log C:N		log C stock	
post hoc comparisons		diff. means	p value	diff. means	p value	diff. means	p value	diff. means	p value
high vs. unburned		0.19	<0.001	ns	ns	7.22	<0.001	ns	ns
moderate vs. unburned		0.07	0.146	ns	ns	4.02	<0.001	ns	ns
high vs. moderate		0.13	0.017	ns	ns	3.20	0.002	ns	ns
0-5 cm vs litter		0.79	<0.001	0.58	<0.001	11.73	<0.001	0.38	<0.001
5-15 cm vs litter		1.10	<0.001	0.87	<0.001	12.40	<0.001	0.41	<0.001
0-5 cm vs 5-15 cm		0.31	<0.001	0.29	<0.001	0.67	0.501	0.03	0.696
0-5 vs 5-15 degrees		nt	nt	nt	nt	2.29	0.051	nt	nt
0-5 vs 15-30 degrees		nt	nt	nt	nt	2.63	0.031	nt	nt
5-15 cm vs 15-30 degrees		nt	nt	nt	nt	0.35	0.722	nt	nt
litter: unburned vs. moderate		0.196	0.024	0.196	0.024	13.48	<0.001	0.17	0.277
litter: unburned vs. high		0.492	<0.001	0.492	<0.001	19.96	<0.001	0.14	0.21
litter: moderate vs. high		0.296	0.001	0.296	0.001	6.48	<0.001	0.31	0.02
0-5 cm: unburned vs. moderate		0.057	0.755	ns	ns	1.55	0.609	0.02	0.831
0-5 cm: unburned vs. high		0.0562	0.511	ns	ns	0.221	0.899	0.08	0.759
0-5 cm: moderate vs. high		0.113	0.439	ns	ns	1.774	0.654	0.10	0.753
5-15 cm: unburned vs. moderate		0.0561	0.883	ns	ns	0.139	0.937	0.07	0.803
5-15 cm: unburned vs. high		0.021	0.805	ns	ns	1.483	0.78	0.09	0.808
5-15 cm: moderate vs. high		0.0351	0.893	ns	ns	1.344	0.675	0.02	0.831

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13 **Table S3.** Results of three-way ANOVA evaluating the effects of layer, burn intensity and
 14 slope on BPCA-C concentration and stocks.

response variable	BPCA C (g * kg ⁻¹ organic carbon)			BPCA C stock (g BPCA-C * m ⁻²)		
	df	f-value	p-value	df	f-value	p-value
slope	2	1.04	0.357	2	0.41	0.663
burn	2	5.37	0.007	2	4.70	0.012
layer	2	0.62	0.541	2	18.07	<0.001
slope x burn	4	1.46	0.223	4	0.27	0.894
slope x layer	4	0.52	0.724	4	0.27	0.894
burn x layer	4	7.85	<0.001	4	7.10	<0.001
slope x burn x layer	8	0.76	0.637	8	0.49	0.861

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 16 **Table S4.** Results of post-hoc comparisons evaluating the source of significant differences
 17 in BPCA-C concentration and stocks by burn, layer, and the burn by layer interaction.

post hoc comparisons	BPCA C (g BPCA-C * kg ⁻¹ organic carbon)		BPCA C stock (g BPCA-C * m ⁻²)	
	diff. means	p value	diff. means	p value
high vs. unburned	5.66	0.005	0.21	0.096
moderate vs. unburned	3.76	0.071	0.32	0.010
high vs. moderate	1.90	0.271	0.11	0.288
0-5 cm vs litter	1.83	0.655	0.58	<0.001
5-15 cm vs litter	1.50	0.632	0.50	<0.001
0-5 cm vs 5-15 cm	0.33	0.850	0.08	0.388
unburned: 0-5 cm vs litter	7.85	<0.001	1.25	<0.001
unburned: 5-15 cm vs litter	7.68	0.003	1.17	<0.001
unburned: 0-5 cm vs 5-15 cm	0.18	0.440	0.08	0.667
moderate: 0-5 cm vs litter	6.93	0.073	0.19	0.653
moderate: 5-15 cm vs litter	3.68	0.385	0.17	0.593
moderate: 0-5 cm vs 5-15 cm	3.25	0.287	0.02	0.916
high: 0-5 cm vs litter	7.85	0.028	0.30	0.263
high: 5-15 cm vs litter	7.68	0.022	0.29	0.194
high: 0-5 cm vs 5-15 cm	0.18	0.953	<0.01	0.978
litter: unburned vs. moderate	14.84	<0.001	1.06	<0.001
litter: unburned vs. high	18.38	<0.001	0.82	<0.001
litter: moderate vs. high	3.54	0.234	0.24	0.181
0-5 cm: unburned vs. moderate	1.36	0.881	0.14	0.828
0-5 cm: unburned vs. high	1.99	0.885	0.13	0.706
0-5 cm: moderate vs. high	0.63	0.832	<0.01	0.964
5-15 cm: unburned vs. moderate	2.20	0.731	0.09	0.943
5-15 cm: unburned vs. high	2.80	0.736	0.05	0.945
5-15 cm: moderate vs. high	0.60	0.844	0.04	0.828

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19 **Table S5.** Results of two way ANOVA evaluating the effects of burn and layer on the
 20 relative abundances of B6CA, B5CA, B4CA and the ratio of B4CA:B6CA and B5CA:B6CA.

response variable	df	B6CA		B5CA		B4CA		B5CA:B6CA	
		f-value	p-value	f-value	p-value	f-value	p-value	f-value	p-value
burn	2	0.30	0.918	0.05	0.95	0.82	0.444	0.13	0.876
layer	2	1.94	<0.001	27.57	<0.001	13.96	<0.001	17.563	<0.001
burn x layer	4	2.53	0.059	1.02	0.4	0.84	0.504	1.242	0.299

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 22 **Table S6.** Post hoc comparisons among layers (litter, 0-5 cm soils, and 5-15 cm soils) for
 23 relative abundance of B6CA, B5CA, B4CA and the ratio of B5CA:B6CA.

post hoc comparisons	B6CA		B5CA		B4CA		B5CA:B6CA	
	diff. means	p value	diff. means	p value	diff. means	p value	diff. means	p value
0-5 cm vs litter	<0.001	1.000	7.17	<0.001	8.21	<0.001	0.142	0.066
5-15 cm vs litter	8.98	<0.001	10.48	<0.001	2.88	0.073	0.37	<0.001
0-5 cm vs 5-15 cm	8.98	<0.001	3.31	0.024	5.33	0.002	0.228	0.001

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