

Supplementary material for

Fuel burning efficiency under various fire severities of a boreal forest landscape in north-east China

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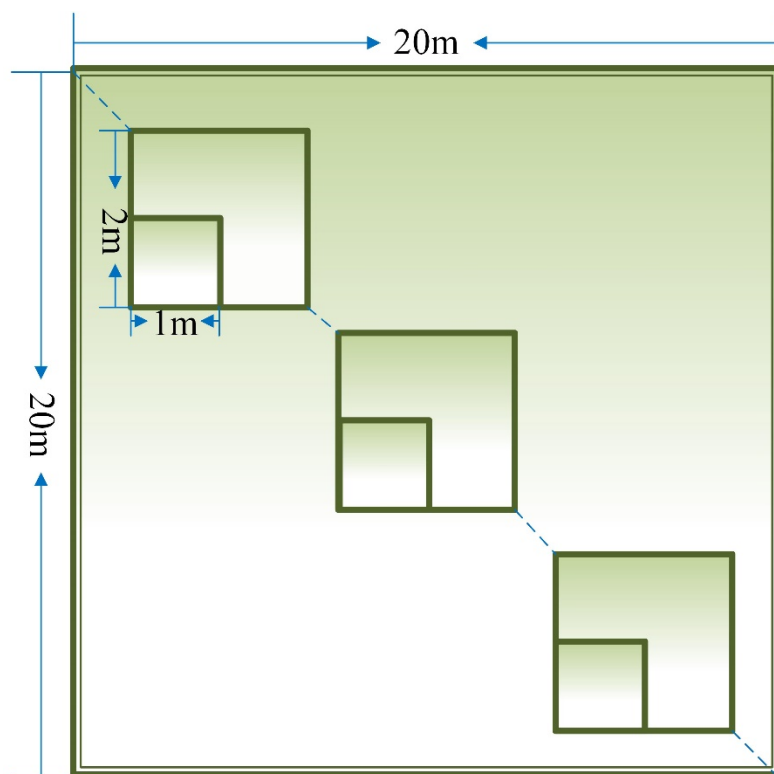


Fig. S1. Schematic diagram of setting plots during fieldwork.

Table S1. Emission factors for main carbonaceous gases from different fuel strata in the Great Xing'an Mountains (mean \pm SD, g·kg⁻¹C)

LL forest, Ledum-Larix gmelinii forest; PL forest, Pinus pumila-Larix gmelinii forest; BL forest, Betula platyphylla-Larix gmelinii forest.

Fuel stratum	Carbonaceous gas	<i>LL forest</i>	<i>PL forest</i>	<i>BL forest</i>
Tree	CO ₂	3108.2 \pm 124.8	3212.4 \pm 86.7	3168.5 \pm 97.4
	CO	301.2 \pm 16.2	221.4 \pm 5.7	397.4 \pm 19.2
	CH ₄	19.1 \pm 1.1	27.9 \pm 1.2	28.9 \pm 1.9
Shrub	CO ₂	3265.5 \pm 221.3	3056.9 \pm 78.6	3350.1 \pm 130.5
	CO	215.2 \pm 24.5	201.2 \pm 33.2	173.6 \pm 12.3
	CH ₄	22.9 \pm 2.3	9.3 \pm 1.4	16.3 \pm 2.1
Herb	CO ₂	3458.2 \pm 152.4	3320.2 \pm 110.7	3087.3 \pm 167.3
	CO	241.6 \pm 9.3	206.4 \pm 19.3	345.4 \pm 22.1
	CH ₄	8.3 \pm 1.0	17.9 \pm 2.1	18.2 \pm 1.8
Litter	CO ₂	3151.3 \pm 92.7	3244.2 \pm 143.8	3092.3 \pm 189.5
	CO	352.9 \pm 34.3	432.1 \pm 33.3	387.8 \pm 17.9
	CH ₄	11.9 \pm 1.8	7.8 \pm 1.0	11.2 \pm 0.8
Duff	CO ₂	2960.8 \pm 173.6	3149.2 \pm 147.6	3111.1 \pm 185.6
	CO	470.2 \pm 25.3	395.3 \pm 22.1	432.5 \pm 33.4
	CH ₄	11.5 \pm 0.9	10.4 \pm 1.2	10.9 \pm 1.7

Table S2. Carbon emissions from eight fires during 2017-2018

Year	Fire site	Total area (ha)	Low fire severity area (ha)	Moderate fire severity area (ha)	High fire severity area (ha)	Carbon dioxide emissions (t)	Carbon monoxide emissions (t)	Methane emissions (t)
2017	Daxigou conservation area	175.48	8.17	13.49	153.82	8275.99	640.33	32.32
2017	Huzhong forest farm	2.79	0.63	0.68	1.48	38.47	1.69	0.06
2017	Yongqing forest farm	1.78	0.14	1.02	0.62	10.52	1.07	0.06
2017	Daxigou conservation area	1.68	0.5	0.5	0.68	13.51	1.48	0.09
2018	Huzhong conservation area	6849.85	159.37	622.85	6067.63	195284.72	15345.92	850.82
2018	Huzhong forest farm	3.89	0.23	0.78	2.88	114.78	9.60	0.49
2018	Huzhong forest farm	4.46	1.31	1.35	1.8	80.56	6.50	0.32
2018	Huyuan forest farm	0.9	0.75	0.14	0.01	12.30	1.43	0.06
		Total emissions				203830.84	166008.02	884.23