

## Supplementary material for

### Effects of fuel morphology on ember generation characteristics at the tree scale

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**Table S1. Per-test values used for ember and char mark regression analysis**

DF, Douglas-fir; GF, grand fir; PP, ponderosa pine; WJ, western juniper; MC, moisture content; N/A, data not available for specified test

Test	Species	Average MC	Number of trees	Sum mass loss (kg) <sup>A</sup>	Percentage mass loss <sup>A</sup>	Char mark flux (m <sup>-2</sup> )	Ember flux (m <sup>-2</sup> )	Specific char flux (m <sup>-2</sup> kg <sup>-1</sup> )	Specific ember flux (m <sup>-2</sup> kg <sup>-1</sup> )	Average wind speed (m s <sup>-1</sup> )
1	DF	16.7%	1	0.99	19.5%	31.15	277.62	31.61	281.70	0.89
2	DF	14.6%	1	3.71	38.1%	14.44	86.80	3.89	23.40	1.02
3	DF	19.5%	1	2.89	24.6%	17.48	522.18	6.05	180.89	1.14
4	GF	35.9%	1	3.68	36.2%	7.22	58.56	1.96	15.92	N/A
5	GF	74.6%	1	2.89	19.7%	176.65	925.87	61.06	320.03	N/A
6	GF	25.9%	3	7.35	36.3%	47.49	183.24	6.46	24.94	N/A
7	DF	23.6%	3	7.65	37.0%	107.51	947.22	14.05	123.75	N/A
9	GF	27.2%	5	10.93	31.9%	27.73	225.96	2.54	20.66	N/A
10	DF	22.8%	5	5.79	27.0%	7.60	143.29	1.31	24.75	N/A
11	DF	17.0%	5	12.87	38.0%	4.18	62.00	0.32	4.82	N/A
12	GF	15.8%	3	10.68	45.5%	180.83	711.62	16.93	66.61	N/A
13	DF	14.0%	3	6.77	36.3%	30.39	225.96	4.49	33.39	N/A
14	GF	11.2%	1	6.75	38.3%	248.46	866.62	36.82	128.44	N/A
15	GF	35.6%	5	20.27	41.3%	23.55	96.44	1.16	4.76	N/A
16	DF	28.6%	5	12.46	38.7%	49.77	238.36	3.99	19.12	N/A
17	GF	28.3%	5	20.10	42.1%	0.38	6.20	0.02	0.31	N/A
18	DF	20.7%	3	10.63	38.4%	29.63	343.76	2.79	32.34	N/A
19	GF	25.1%	3	12.26	34.8%	83.20	296.22	6.78	24.15	N/A
20	WJ	45.1%	1	3.07	10.6%	41.79	292.09	13.63	95.24	N/A
21	WJ	68.4%	3	9.76	29.3%	176.65	395.42	18.09	40.50	N/A
22	PP	76.0%	3	5.82	9.6%	20.51	236.29	3.52	40.58	N/A
23	WJ	43.0%	5	16.43	32.0%	0.00	423.67	0.00	25.79	N/A
24	PP	82.7%	5	8.29	12.5%	11.02	219.76	1.33	26.51	0.67
25	PP	159.3%	3	2.25	4.6%	3.04	84.73	1.35	37.72	1.14
26	PP	36.7%	1	3.11	15.6%	0.76	264.53	0.24	85.06	0.17

27	WJ	39.7%	5	24.32	37.5%	153.48	345.13	6.31	14.19	0.72
28	WJ	42.0%	1	6.73	31.6%	72.18	148.80	10.73	22.12	0.42
29	PP	65.9%	1	1.93	8.6%	6.84	134.33	3.55	69.65	0.46
30	WJ	33.9%	3	16.32	41.0%	0.00	506.33	0.00	31.03	0.46
31	PP	108.8%	1	1.41	7.2%	0.38	26.87	0.27	19.02	0
32	WJ	25.3%	3	21.05	42.3%	8.74	36.51	0.42	1.73	0.13
33	WJ	33.8%	5	24.23	40.7%	161.84	783.96	6.68	32.36	1.01
34	PP	126.1%	5	4.87	8.5%	9.88	162.58	2.03	33.38	0.63
35	PP	74.3%	5	5.29	6.7%	10.64	143.29	2.01	27.10	0
37	WJ	28.2%	1	6.28	26.5%	87.76	359.60	13.98	57.28	0.25
38	PP	96.0%	3	1.99	4.7%	6.08	39.96	3.05	20.08	0.21

<sup>A</sup>Corrected for moisture content. See *Data analysis* section in the main paper for details.

**Table S2. Tree measurements**

DF, Douglas-fir; GF, grand fir; PP, ponderosa pine; WJ, western juniper; MC, moisture content

Test no.	Tree no.	Species	MC (% dry weight)	Corrected initial mass (kg) <sup>A</sup>	Corrected mass loss (kg) <sup>A</sup>	Height (m)	DBH (mm)
1	1	DF	17%	4.33	0.99	3.73	36
2	1	DF	15%	8.51	3.71	3.71	53
3	1	DF	20%	9.83	2.89	4.72	61
4	1	GF	36%	7.47	3.68	4.50	49
5	1	GF	75%	8.42	2.89	3.56	65
6	1	GF	24%	3.39	1.29	3.94	40
6	2	GF	19%	7.63	3.94	3.61	44
6	3	GF	35%	4.53	2.12	3.78	36
7	1	DF	27%	5.93	2.67	3.99	49
7	2	DF	25%	5.67	2.19	4.62	44
7	3	DF	18%	5.28	2.79	3.71	36
9	1	GF	40%	4.00	1.78	4.29	44
9	2	GF	17%	7.85	2.57	4.32	61
9	3	GF	25%	5.91	2.63	3.61	44
9	4	GF	41%	5.40	2.49	4.06	53
9	5	GF	13%	4.11	1.46	3.73	36
10	1	DF	37%	4.21	1.17	4.60	49
10	2	DF	19%	4.25	1.94	3.61	32
10	3	DF	20%	2.53	0.79	3.94	32
10	4	DF	18%	3.18	1.23	3.78	32
10	5	DF	20%	3.13	0.67	4.04	36
11	1	DF	15%	4.64	1.69	3.86	44
11	2	DF	13%	7.73	3.93	2.95	44
11	3	DF	18%	6.42	2.81	3.40	40
11	4	DF	24%	5.59	3.09	2.97	40
11	5	DF	15%	3.71	1.35	3.30	40
12	1	GF	19%	7.61	3.66	4.47	49
12	2	GF	15%	4.29	2.17	3.73	36
12	3	GF	13%	8.21	4.86	3.63	44
13	1	DF	16%	3.71	1.64	3.91	32
13	2	DF	13%	7.56	4.60	4.17	49
13	3	DF	13%	2.74	0.53	3.10	28
14	1	GF	11%	15.83	6.75	4.09	73
15	1	GF	26%	9.43	6.10	4.29	49
15	2	GF	17%	11.21	6.93	4.47	57
15	3	GF	48%	4.32	2.43	3.58	40
15	4	GF	38%	5.04	2.76	4.27	49
15	5	GF	49%	5.54	2.05	4.04	57
16	1	DF	22%	5.67	2.96	3.23	44
16	2	DF	15%	4.39	2.92	3.78	36
16	3	DF	24%	5.58	2.59	3.68	36
16	4	DF	59%	5.11	2.26	4.11	49
16	5	DF	23%	5.15	1.74	4.67	44
17	1	GF	21%	16.08	8.35	3.96	57
17	2	GF	31%	7.06	4.69	3.76	44
17	3	GF	21%	4.91	3.05	4.37	40

17	4	GF	54%	5.18	2.91	4.57	49
17	5	GF	14%	3.29	1.10	3.18	36
18	1	DF	21%	8.58	3.23	4.45	49
18	2	DF	23%	6.00	3.12	4.17	44
18	3	DF	18%	8.68	4.28	4.32	53
19	1	GF	15%	15.89	9.39	4.42	65
19	2	GF	21%	4.82	1.44	3.73	44
19	3	GF	39%	3.66	1.44	3.61	44
20	1	WJ	45%	19.95	3.07	4.45	77
21	1	WJ	54%	11.33	4.86	4.19	73
21	2	WJ	115%	3.47	2.00	2.95	44
21	3	WJ	36%	6.40	2.90	2.77	32
22	1	PP	146%	9.28	2.77	3.91	81
22	2	PP	57%	10.33	1.33	3.56	69
22	3	PP	25%	16.29	1.72	3.66	77
23	1	WJ	37%	12.09	7.38	2.84	49
23	2	WJ	57%	5.90	3.00	3.35	36
23	3	WJ	51%	5.59	2.95	3.05	44
23	4	WJ	28%	4.36	1.91	2.74	32
23	5	WJ	42%	5.92	1.20	3.53	49
24	1	PP	75%	11.97	2.84	3.76	73
24	2	PP	97%	6.97	1.72	3.68	69
24	3	PP	92%	5.36	1.74	3.71	57
24	4	PP	60%	7.14	0.91	3.71	65
24	5	PP	90%	5.03	1.08	3.63	57
25	1	PP	155%	8.22	1.21	3.38	69
25	2	PP	193%	4.40	0.60	3.99	69
25	3	PP	129%	5.59	0.44	3.71	65
26	1	PP	37%	14.56	3.11	3.94	77
27	1	WJ	39%	19.33	9.59	3.81	73
27	2	WJ	35%	10.51	5.83	2.64	40
27	3	WJ	28%	7.95	4.31	2.92	44
27	4	WJ	32%	4.17	2.08	2.82	40
27	5	WJ	65%	5.05	2.51	2.29	40
28	1	WJ	42%	15.00	6.73	3.89	73
29	1	PP	66%	13.56	1.93	3.84	77
30	1	WJ	25%	17.44	9.30	3.35	44
30	2	WJ	13%	9.03	4.60	2.79	49
30	3	WJ	63%	4.20	2.42	2.29	36
31	1	PP	109%	9.41	1.41	3.71	81
32	1	WJ	31%	22.23	10.41	4.22	93
32	2	WJ	23%	7.65	3.86	2.82	49
32	3	WJ	22%	11.12	6.77	2.44	32
33	1	WJ	34%	16.83	7.54	2.90	61
33	2	WJ	33%	10.03	5.24	3.66	53
33	3	WJ	37%	10.97	5.67	3.30	49
33	4	WJ	34%	3.57	2.12	2.11	32
33	5	WJ	31%	5.77	3.67	2.18 <sup>B</sup>	32 <sup>B</sup>
34	1	PP	85%	9.57	2.27	3.84	65
34	2	PP	186%	6.04	0.25	3.76	77
34	3	PP	172%	6.17	1.09	3.78	77
34	4	PP	153%	2.61	0.59	3.71	49
34	5	PP	35%	3.85	0.67	2.90	40

35	1	PP	66%	9.35	1.53	3.91	65
35	2	PP	87%	9.10	0.59	3.73	65
35	3	PP	52%	11.27	2.14	3.66	73
35	4	PP	92%	6.68	0.37	3.78	65
35	5	PP	75%	7.49	0.66	3.71	57
37	1	WJ	28%	18.48	6.28	4.50	69
38	1	PP	52%	8.40	0.33	3.68	65
38	2	PP	156%	5.33	1.13	3.71	65
38	3	PP	80%	9.15	0.53	4.17	73

<sup>A</sup>Corrected for moisture content. See *Data analysis* section in the main paper for details.

<sup>B</sup>Values estimated based on neighbouring trees. Actual measurements unavailable.