

Additional file 2. Species with canopy cover among the top ten in a severity class and state. Life forms include trees, shrubs, grasses, forbs, and moss. Strategies include annual (A) and perennial (P) life cycles. Origin includes native (N), introduced (I), and noxious (NOX) species. Species average canopy cover and standard deviation (in parenthesis) are listed by state (MT = Montana, ID = Idaho, WA = Washington) for unburned, low-severity, moderate-severity, and high-severity burn sites.

Life form	Strategy A, P	Origin N, I, NOX	Species	State	Average canopy cover by burn severity (%)			
					Unburned	Low	Moderate	High
Tree	P	N	<i>Abies grandis</i> (Douglas ex D. Don) Lindl.	MT	0	0	0.05(0.1)	0
				ID	0	0.2(0.6)	0	0
				WA	0.4(0.4)	5.8(8.2)	1.1(2.0)	3.8(6.9)
Tree	P	N	<i>Abies lasiocarpa</i> (Hook.) Nutt.	MT	0.5(0.7)	0	0.7(2.2)	0.2(0.4)
				ID	1.4 (3.1)	0.7(1.9)	0.3(1.0)	0
Tree	P	N	<i>Larix occidentalis</i> Nutt.	MT	0	0.5(0.8)	0.9(1.5)	0
				WA	0	0.1(0.1)	0.5(1.2)	0
Tree	P	N	<i>Pinus contorta</i> Douglas ex Loudon	MT	0.75(0.21)	0.4(1.0)	1.8(4.5)	12.5(19.2)
				ID	2.3(3.5)	3.4(5.1)	0.02(0.4)	2.0(3.5)
				WA	0	0	0.2(0.5)	0
Tree	P	N	<i>Picea engelmannii</i> Parry ex Engelm.	MT	0.4(0.6)	0.2(0.3)	2.2(4.1)	1.7(4.2)
				ID	0.2(0.4)	0.02(0.06)	0.07(0.14)	0
				WA	0	0	0.7(1.6)	0
Tree	P	N	<i>Pinus ponderosa</i> Lawson & C. Lawson	ID	0	0	0.02(0.07)	0.03(0.08)
				WA	0	0.5(0.7)	1.3(1.8)	5.8(10.1)
Tree	P	N	<i>Populus tremuloides</i> Michx.	MT	0.075(0.21)	0.5(0.8)	0.2(0.3)	0.6(0.8)
				ID	0	0	0	0.1(0.3)
Tree	P	N	<i>Pseudotsuga menziesii</i> (Mirb.) Franco	MT	0.025(0.07)	1.2(1.4)	0.3(0.7)	0.4(1.0)
				ID	0.2(0.3)	0.04(0.08)	0	0
				WA	0.6(1.0)	3.6(4.8)	1.1(1.6)	0.6(1.1)
Shrub	P	N	<i>Acer glabrum</i> Torr.	MT	0.8(2.2)	1.7(3.2)	0.5(1.4)	0.2(0.4)
				ID	0	1.1(3.6)	0	0
				WA	0.1(0.2)	0	2.5(6.1)	0.05(0.1)
Shrub	P	N	<i>Amelanchier alnifolia</i> (Nutt.) Nutt ex M. Roem.	MT	1.4(2.0)	0.6(1.4)	1.9(3.9)	0.4(0.8)
				ID	0	0.6(1.3)	0.3(0.8)	0.5(1.3)
Shrub	P	N	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	WA	1.0(1.8)	0	0.2(0.3)	0
				MT	1.2(3.3)	2.2(6.2)	0.5(1.5)	0.02(0.07)
Shrub	P	N	<i>Ceanothus sanguineus</i> Pursh	WA	0	0.2(0.3)	0	0
				MT	0	0	0.2(0.4)	0
				ID	0	0.4(1.6)	4.2(12.3)	0
Shrub	P	N	<i>Ceanothus velutinus</i> Douglas ex Hook.	WA	0	13.5(19.1)	6.0(9.5)	3.4(4.8)
				MT	0	0	0.1(0.6)	1.2(2.7)
Shrub	P	N	<i>Menziesia ferruginea</i> Sm.	ID	0	0	0	2.4(6.3)
				MT	0.9(1.8)	0.1(0.3)	1.1(3.5)	1.9(3.8)
Shrub	P	N	<i>Pachystima myrsinites</i> (Pursh) Raf.	ID	0	0.1(0.2)	0	0
				MT	3.9(7.2)	2.1(4.8)	1.6(4.0)	0.9(1.9)
Shrub	P	N	<i>Physocarpus malvaceus</i> (Greene) Kuntze	MT	6.2(17.7)	1.2(2.6)	1.3(3.2)	0.4(1.1)
				ID	0	1.0(3.4)	4.3(12.0)	0
				WA	0	1.2(1.1)	1.5(3.7)	2.2(4.5)
Shrub	P	N	<i>Ribes viscosissimum</i> Pursh	MT	0	0	0.4(1.1)	0.1(0.3)
				ID	0	0.1(0.4)	0	0
				WA	0	0.2(0.3)	4.2(8.4)	1.8(2.5)
Shrub	P	N	<i>Rubus parviflorus</i> Nutt.	MT	10.1(12.8)	3.6(5.8)	3.2(6.8)	0.8(1.8)
				ID	0	0.5(1.4)	0	0
Shrub	P	N	<i>Salix</i> sp. L.	MT	0.075(0.21)	2.2(3.2)	5.3(6.5)	3.0(2.7)
				ID	0	1.2(2.2)	1.0(2.0)	0.9(1.1)
Shrub	P	N	<i>Salix scouleriana</i> Greene	WA	0	12.4(15.3)	8.5(12.4)	19.0(6.7)
				MT	3.5(3.3)	7.7(5.6)	3.2(4.7)	3.0(4.1)
Shrub	P	N	<i>Spiraea betulifolia</i> Pall.	ID	0.3(0.5)	0.5(0.7)	0.6(1.0)	0.1(0.3)
				WA	0.05(0.1)	2.2(2.5)	2.3(2.8)	3.1(4.9)

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Life form	Strategy A, P	Origin N, I, NOX	Species	State	Average canopy cover by burn severity (%)			
					Unburned	Low	Moderate	High
Shrub	P	N	<i>Symphoricarpos albus</i> (L.) S.F. Blake	MT	2.2(4.1)	0.4(0.7)	0.3(0.7)	0.02(0.07)
				ID	0.2(0.5)	0.3(1.1)	2.3(6.9)	0
				WA	0.6(0.7)	8.8(12.4)	8.6(11.0)	1.0(2.0)
Shrub	P	N	<i>Vaccinium membranaceum</i> Douglas ex Torr.	MT	2.7(4.6)	2.8(3.5)	1.9(2.6)	5.0(3.4)
				ID	5.2(10.2)	6.7(13.5)	0.7(1.4)	0.4(1.1)
				WA	0.2(0.4)	0	0	0.8(1.5)
Shrub	P	N	<i>Vaccinium scoparium</i> Leiberg ex Coville	MT	0	0	0.3(1.1)	1.8(5.0)
				ID	4.4(8.5)	2.8(4.8)	5.0(8.9)	3.1(4.5)
Forb	P	N	<i>Achillea millefolium</i> L.	MT	0	0.7(1.0)	0.3(0.4)	0.05(0.09)
				ID	0.4 (0.9)	1.3(1.8)	0.6(0.8)	1.0(1.0)
				WA	0.8(1.1)	1.0(1.1)	1.3(1.7)	2.4(2.1)
Forb	P	N	<i>Anaphalis margaritacea</i> (L.) Benth	MT	0.02(0.07)	0.1(0.3)	0.9(1.2)	0.5(1.1)
				ID	0	0.4(1.2)	0.3(0.3)	1.2(0.7)
				WA	0	0.3(0.4)	0.8(1.1)	0.5(0.9)
Forb	P	N	<i>Anemone piperi</i> Britton ex Rydb.	MT	0.02(0.07)	0	0	0
				ID	0	0.2(0.4)	0	0
				WA	1.3(1.4)	0.2(0.3)	0.1(0.1)	0.5(0.3)
Forb	P	N	<i>Arnica cordifolia</i> Hook.	MT	9.8(13.0)	2.9(4.0)	3.0(5.3)	0.9(1.4)
				ID	0.2 (0.4)	3.0(4.8)	1.9(3.6)	1.3(2.7)
				WA	1.0(1.3)	4.8(6.8)	1.8(2.4)	1.8(1.2)
Forb	P	N	<i>Astragalus canadensis</i> L.	WA	0	1.3(1.8)	0.2(0.4)	3.0(3.9)
Forb	P	N	<i>Campanula rotundifolia</i> L.	MT	0	0	0.02(0.07)	0
				WA	0.1(0.1)	0.5(0.7)	0.7(1.3)	1.9(3.7)
Forb	P	NOX	<i>Centaurea stoebe</i> L.	MT	0	0.6(1.1)	0.1(0.6)	1.2(3.3)
Forb	A	N	<i>Chamerion angustifolium</i> (L.) Holub	MT	0	1.8(1.4)	3.6(3.8)	2.4(1.5)
				ID	0	1.8(2.3)	2.3(4.0)	6.2(6.3)
				WA	0.1(0.2)	0.9(1.3)	1.8(2.7)	1.5(1.1)
Forb	P	NOX	<i>Cirsium arvense</i> (L.) Scop.	MT	0	0.05(0.14)	0	0
				WA	0	0.1(0.1)	0.5(1.2)	0.6(0.9)
Forb	P	NOX	<i>Cirsium</i> sp. Mill.	MT	0	0	0	0.05(0.09)
				ID	0	0.02(0.06)	0.02(0.07)	0.06(0.15)
Forb	P	NOX	<i>Cirsium vulgare</i> (Savi) Ten.	MT	0	0	0.02(0.1)	0
				WA	0	0	0.1(0.2)	0.1(0.2)
Forb	P	N	<i>Clintonia uniflora</i> (Menzies ex Schult. & Schult. f.) Kunth	MT	1.9(2.5)	0.3(0.8)	0.6(1.0)	0
				ID	0	0.2(0.8)	0	0
				WA	0.05(0.10)	0	0	0
Forb	P	N	<i>Fragaria vesca</i> L.	MT	0.1(0.3)	0	0.06(0.1)	0
				WA	2.2(2.3)	3.0(3.1)	1.5(1.6)	0
Forb	P	N	<i>Fragaria virginiana</i> Duchesne	MT	0.2(0.2)	1.1(2.6)	0.6(1.4)	0.3(0.7)
				ID	0	2.5(4.7)	0.3(0.9)	0.9(2.0)
Forb	P	N	<i>Hieracium albiflorum</i> Hook.	MT	0.05(0.14)	0.1(0.2)	0.1(0.2)	0.05(1.32)
Forb	P	N	<i>Hieracium albertinum</i> Farr	MT	0	0.8(0.9)	1.4(1.5)	1.0(1.3)
				WA	0.2(0.4)	0	0	0
Forb	P	N	<i>Hieracium</i> sp. L.	MT	0.02(0.07)	0	0	0
				ID	0.2(0.3)	1.6(1.9)	0.6(1.0)	0.5(0.6)
Forb	P	N	<i>Linnaea borealis</i> L.	MT	6.3(14.3)	0.2(0.6)	0.4(0.7)	0.5(1.4)
				ID	0	0.9(1.9)	0	0
				WA	2.0(2.5)	2.8(4.0)	0	0
Forb	P	N	<i>Lupinus</i> sp. L.	MT	0.4(1.2)	0.05(0.14)	0.2(0.7)	0.1(0.2)
				ID	0.6(1.1)	1.1(2.7)	0.7(1.5)	3.2(5.8)
				WA	0.4(0.7)	0	0.2(0.3)	0.2(0.3)
Forb	A	I	<i>Medicago falcata</i> L.	MT	0	3.1(8.7)	0.04(0.15)	0.02(0.07)
Forb	P	N	<i>Mitella stauropetala</i> Piper	WA	1.3(1.4)	0.9(1.3)	0.1(0.2)	0.3(0.4)
Forb	P	N	<i>Penstemon</i> sp. Schmedel	MT	0.025(0.07)	0.25(0.07)	0.1(0.2)	0.1(0.4)
				ID	0.4(0.7)	1.2(2.0)	0.2(0.3)	1.3(3.4)
Forb	P	N	<i>Polemonium pulcherrimum</i> Hook.	MT	0	0	0	0.08(0.21)
				ID	0	0	0	0.1(0.2)
				WA	0	0	0.1(0.2)	0

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Life form	Strategy A, P	Origin N, I, NOX	Species	State	Average canopy cover by burn severity (%)			
					Unburned	Low	Moderate	High
Forb	P	I	<i>Taraxacum officinale</i> F.H. Wigg.	MT	0	0.4(0.5)	0.2(0.3)	0.2(0.2)
				ID	0	0	0.1(0.2)	0.3(0.3)
				WA	0.1(0.1)	0	0.03(0.08)	0.2(0.3)
Forb	P	N	<i>Thalictrum occidentale</i> A. Gray	MT	2.4(2.3)	1.6(3.1)	0.9(1.5)	0
				ID	0	0.6(1.2)	0.04(0.13)	0
				WA	0.6(0.8)	0.4(0.6)	0	0
Forb	P	I	<i>Trifolium</i> sp. L.	MT	0	0	0.01(0.05)	0
				ID	0	1.3(4.2)	0.1(0.4)	0
				WA	9.6(11.0)	0.1(0.1)	0	0.05(0.1)
Forb	P	N	<i>Xerophyllum tenax</i> (Pursh) Nutt.	MT	3.4(9.2)	4.3(8.4)	2.8(5.1)	7.2(8.2)
				ID	0.9(2.1)	1.1(2.7)	1.5(3.2)	3.6(8.2)
Grass	A	I	<i>Bromus tectorum</i> L.	MT	0	0.2(0.5)	0.02(0.07)	0
				ID	0	0.02(0.06)	0.2 (0.7)	0
				WA	1.4(2.4)	6.0(8.5)	1.7(3.2)	0.2(0.3)
Grass	P	N	<i>Carex geyeri</i> Boott	MT	0	0.2(0.4)	1.0(1.7)	1.8(3.4)
				ID	0	0	0	0.3(0.9)
				WA	1.0(1.7)	0.5(0.7)	1.8(4.1)	1.2(2.4)
Grass	P	N	<i>Carex</i> sp. L.	MT	0.6(1.5)	0.9(1.3)	0.4(0.9)	0.08(0.15)
				ID	5.0(4.9)	3.1(4.3)	5.3(6.3)	3.3(3.3)
Grass	P	N	<i>Calamagrostis rubescens</i> Buckley	MT	0.1(0.4)	4.6(5.8)	3.8(7.3)	8.9(8.6)
				ID	4.7(7.1)	3.9(2.9)	8.5(7.8)	5.8(6.1)
				WA	0.3(0.6)	0.8(1.1)	4.8(11.7)	1.6(2.0)
Grass	P	N	<i>Elymus glaucus</i> Buckley	MT	0	0.4(0.5)	1.4(3.2)	0.05(0.14)
				ID	0	0.1(0.2)	0	0.5(1.0)
				WA	0	0	0.1(0.2)	0
Grass	P	N	<i>Festuca idahoensis</i> Elmer	MT	0	0.3(0.8)	0.06(0.14)	0
				ID	1.3(1.9)	0.55(1.4)	0.4(1.3)	0.1(0.3)
				WA	2.5(4.1)	1.2(1.7)	3.8(5.0)	0.4(0.5)
Grass	P	I	<i>Poa pratensis</i> L.	MT	0	0	0	0
				WA	0.2(0.3)	0.3(0.4)	4.7(11.4)	1.0(2.0)
Grass	P	N	<i>Poa secunda</i> J. Presl	MT	0	0.05(0.09)	0	0
				ID	0.04(0.09)	0	0	0
				WA	0.2(0.4)	0	0.1(0.3)	0
Grass	P	N	<i>Pseudoroegneria spicata</i> (Pursh) Á. Löve	MT	0	0.02(0.07)	0.05(0.15)	0
				ID	0	0.6(2.1)	0.7(2.1)	0
				WA	3.2(6.4)	0	3.2(6.2)	0
Grass	A	I	<i>Ventenata dubia</i> (Leers) Coss.	WA	1.5(3.0)	0	0.03(0.08)	0.2(0.4)
Moss	P	N		MT	6.5(4.5)	10.0(13.0)	11.0(11.6)	15.8(15.1)
				ID	2.1(2.4)	5.0(6.5)	9.3(9.3)	10.9(12.6)
				WA	2.2(2.0)	0.4(0.6)	3.8(4.6)	4.0(3.5)