

Additional file 1 Species list for the seven fires. Species that occurred on two sites or less are not listed. Lifecycle represent annual (A) and perennial (P). Origin classification includes native (N), introduced (I), and noxious (NOX). Species' fire adaptations include NS = non-survivor, OC = off-site colonizer, SR = survivor rhizomes, RC = residual colonizer, and SRCB = survivor taproot, caudex, or bulb. Shade tolerance is classified in low, moderate, and high. Sources for classification of fire adaptation (expanded from Morgan *et al.* 2015) and shade tolerance are listed, see table footnote.

Scientific name	Common name	Code	Lifecycle A, P	Origin N, I, NOX	Fire adaptation	Shade tolerance	Fire adaptation source	Shade tolerance source
Trees								
<i>Abies grandis</i> (Douglas ex D. Don) Lindl.	Grand fir	ABGR	P	N	OC	High	S&C 2000	Wikipedia
<i>Abies lasiocarpa</i> (Hook.) Nutt.	Subalpine fir	ABLA	P	N	OC	High	S&C 2000	Wikipedia
<i>Larix occidentalis</i> Nutt.	Western larch	LAOC	P	N	RC	Low	S&C 2000	USDA Plants database
<i>Picea engelmannii</i> Parry ex Engelm.	Engelmann spruce	PIEN	P	N	OC	High	S&C 2000	Wikipedia
<i>Pinus contorta</i> Douglas ex Loudon	Lodgepole pine	PICO	P	N	RC	Low	S&C 2000	Wikipedia
<i>Pinus ponderosa</i> Lawson & C. Lawson	Ponderosa pine	PIPO	P	N	OC	Low	S&C 2000	Wikipedia
<i>Populus tremuloides</i> Michx.	Quaking aspen	POTR5	P	N	SRCB	Low	S&C 2000	Wikipedia
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Douglas-fir	PSME	P	N	OC	Moderate	S&C 2000	Wikipedia
Shrubs								
<i>Acer glabrum</i> Torr.	Rocky Mountain maple	ACGL	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Alnus</i> sp. Mill.	Alder	ALNUS	P	N	SRCB	Moderate	FEIS	Wikipedia
<i>Amelanchier alnifolia</i> (Nutt.) Nutt ex M. Roem.	Saskatoon serviceberry	AMAL2	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	Kinnikinnick, bearberry	ARUV	P	N	SRCB	Moderate	Crane & Fisher 1986	FEIS
<i>Ceanothus sanguineus</i> Pursh	Redstem ceanothus	CESA	P	N	RC	Moderate	FEIS	FEIS
<i>Ceanothus velutinus</i> Douglas ex Hook.	Shinyleaf ceanothus	CEVE	P	N	RC	Moderate	FEIS	FEIS
<i>Chimaphila umbellata</i> (L.) W.P.C. Barton	Western pipsissewa	CHUM	P	N	NS	Moderate	S&C 2000	FEIS
<i>Holodiscus discolor</i> (Pursh) Maxim.	Ocean-spray	HODI	P	N	SRCB	Moderate	FEIS	FEIS
<i>Lonicera utahensis</i> S. Watson	Utah honeysuckle	LOUT2	P	N	SRCB	Moderate	Bradley <i>et al.</i> 1992	FEIS
<i>Mahonia repens</i> (Lindl.) G. Don	Creeping Oregon-grape	MARE11	P	N	SR	Moderate	FEIS	FEIS
<i>Menziesia ferruginea</i> Sm.	Fool's huckleberry	MEFE	P	N	SRCB	High	S&C 2000	FEIS
<i>Pachystima myrsinites</i> (Pursh) Raf.	Myrtle boxwood	PAMY	P	N	SRCB	Moderate	Crane & Fisher 1986	FEIS
<i>Physocarpus malvaceus</i> (Greene) Kuntze	Ninebark	PHMA5	P	N	SRCB	Moderate	S&C 2000	LBJ Wildflower Center
<i>Ribes cereum</i> Douglas	Wax currant	RICE	P	N	RC	Low	S&C 2000	FEIS
<i>Ribes lacustre</i> (Pers.) Poir.	Prickly currant	RILA	P	N	RC	Moderate	S&C 2000	Humbert <i>et al.</i> 2007
<i>Ribes viscosissimum</i> Pursh	Sticky currant	RIVI3	P	N	RC	Moderate	S&C 2000	Humbert <i>et al.</i> 2007
<i>Rosa</i> sp. L.	Rose	ROSA	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Rubus parviflorus</i> Nutt.	Western thimbleberry	RUPA	P	N	SR	Moderate	S&C 2000	FEIS
<i>Salix scouleriana</i> Barratt ex Hook.	Scouler's willow	SASC	P	N	SRCB	Moderate	FEIS	FEIS
<i>Salix</i> sp. L.	Willow	SALX	P	N	SRCB	Low	S&C 2000	Wikipedia
<i>Sambucus racemosa</i> L.	Elderberry	SARA2	P	N	RC	Moderate	S&C 2000	Humbert <i>et al.</i> 2007
<i>Shepherdia canadensis</i> (L.) Nutt.	Buffaloberry	SHCA	P	N	SRCB	Low	Crane & Fisher 1986	Humbert <i>et al.</i> 2007
<i>Sorbus scopulina</i> Greene	Mountain-ash	SOSC2	P	N	SRCB	Moderate	S&C 2000	LBJ Wildflower Center

Continued on page 2

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<i>Spiraea betulifolia</i> Pall.	Spiraea	SPBE2	P	N	SR	Moderate	S&C 2000	FEIS
<i>Symphoricarpos albus</i> (L.) S.F. Blake	Common snowberry	SYAL	P	N	SR	Moderate	S&C 2000	FEIS
<i>Vaccinium membranaceum</i> Douglas ex Torr.	Thinleaf huckleberry	VAME	P	N	SR	Moderate	S&C 2000	FEIS
<i>Vaccinium myrtillus</i> L.	Whortleberry	VAMY2	P	N	SR	Moderate	Crane & Fisher 1986	FEIS
<i>Vaccinium scoparium</i> Leiberg ex Coville	Grouse whortleberry	VASC	P	N	SR	Moderate	S&C 2000	FEIS
Forbs								
<i>Achillea millefolium</i> L.	Common yarrow	ACMI2	P	N	OC	Low	S&C 2000	FEIS
<i>Adenocaulon bicolor</i> Hook.	Pathfinder	ADBI	P	N	SR	Moderate	FEIS	Saanich Native Plants
<i>Agoseris</i> sp. Raf.	Agoseris	AGOSE	A	N	OC	Low	S&C 2000	USDA Plants database
<i>Anaphalis margaritacea</i> (L.) Benth.	Pearly everlasting	ANMA	P	N	OC	Moderate	S&C 2000	Las Pilitas Nursery
<i>Anemone piperi</i> Britton ex Rydb.	Piper's anemone	ANPI	P	N	SRCB	High	S&C 2000	Phillips 2001
<i>Antennaria microphylla</i> Rydb.	Rosy pussytoes	ANMI3	P	N	OC	Low	FEIS	FEIS
<i>Antennaria racemosa</i> Hook.	Racemose pussytoes	ANRA	P	N	OC	Low	S&C 2000	FEIS
<i>Antennaria</i> sp. Gaertn.	Pussytoes	ANTEN	P	N	OC	Low	S&C 2000	FEIS
<i>Apocynum androsaemifolium</i> L.	Spreading dogbane	APAN2	P	N	SR	Moderate	S&C 2000	FEIS
<i>Arabis</i> sp. L.	Rockcress	ARABI2	P	N	OC	Low	S&C 2000	
<i>Arenaria</i> sp. L.	Sandwort	ARENA	P	N	OC	Low	S&C 2000	FEIS
<i>Arnica cordifolia</i> Hook.	Heartleaf arnica	ARCO9	P	N	SR	Moderate	S&C 2000	FEIS
<i>Aster conspicuus</i> Lindl.	Showy aster	ASCO3	P	N	SRCB	Moderate	FEIS	FEIS
<i>Aster</i> sp. L.	Aster	ASTER	P	N	SRCB	Moderate	FEIS	FEIS
<i>Astragalus canadensis</i> L.	Canada milkvetch	ASCA11	P	N	SR	Low	L&H Seeds	L&H Seeds
<i>Campanula rotundifolia</i> L.	Common harebell	CARO2	P	N	SR	Moderate	Stevens et al. 2012	Stevens et al. 2012
<i>Castilleja miniata</i> Douglas ex Hook.	Indian paintbrush	CAMI12	P	N	OC	Low	FEIS	WNPS
<i>Castilleja</i> sp. Mutis ex L. f.	Indian paintbrush	CASP	P	N	OC	Low	FEIS	WNPS
<i>Centaurea stoebe</i> L.	Spotted knapweed	CEST8	P	NOX	OC	Moderate	FEIS	FEIS
<i>Chamerion angustifolium</i> (L.) Holub	Fireweed	CHAN9	A	N	OC	Low	S&C 2000	Humbert et al. 2007
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle	CIAR4	P	NOX	OC	Low	S&C 2000	FEIS
<i>Cirsium</i> sp. Mill.	Thistle species	CIRSI	P	NOX	OC	Low	S&C 2000	FEIS
<i>Cirsium vulgare</i> (Savi) Ten.	Bull thistle	CIVU	P	NOX	OC	Low	S&C 2000	FEIS
<i>Clintonia uniflora</i> (Menzies ex Schult. & Schult. f.) Kunth	Queen cup beadlily	CLUN2	P	N	SRCB	Moderate	FEIS	FEIS
<i>Collinsia parviflora</i> Lindl.	Small-flowered blue-eyed Mary	COPA3	A	N	OC	High	FEIS	LBJ Wildflower Center
<i>Collomia linearis</i> Nutt.	Tiny trumpet	COLI2	A	N	RC	Moderate	S&C 2000	LBJ Wildflower Center
<i>Disporum hookeri</i> (Torr.) G. Nicholson	Hooker fairy-bell	DIHO3	P	N	SR	High	WNPS	WNPS
<i>Epilobium brachycarpum</i> C. Presl	Tall annual willowherb	EPBR3	A	N	OC	Low	S&C 2000	FEIS
<i>Epilobium</i> sp. L.	Willowherb	EPILO	A	N	OC	Low	S&C 2000	Humbert et al. 2007
<i>Eriogonum</i> sp. Michx.	Buckwheat	ERIOG	P	N	NS	Low	Kershaw et al. 1998	USDA Plants database
<i>Eurybia conspicua</i> (Lindl.) G.L. Nesom	Western showy aster	EUCO36	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Fragaria vesca</i> L.	Woods strawberry	FRVE	P	N	SR	Moderate	FEIS	FEIS
<i>Fragaria virginiana</i> Duchesne	Wild strawberry	FRVI	P	N	SR	Low	FEIS	Humbert et al. 2007

Continued on page 3

Scientific name	Common name	Code	Lifecycle A, P	Origin N, I, NOX	Fire adaptation	Shade tolerance	Fire adaptation source	Shade tolerance source
<i>Frasera fastigiata</i> (Pursh) A. Heller	Clustered green gentian	FRFA	P	N	SRCB	High	USDA Plants Database	USDA Plants Database
<i>Galium boreale</i> L.	Northern bedstraw	GABO2	P	N	NS	High	FEIS	FEIS
<i>Galium triflorum</i> Michx.	Sweetscented bedstraw	GATR3	P	N	NS	High	S&C 2000	FEIS
<i>Goodyera oblongifolia</i> Raf.	Rattlesnake plantain	GOOB2	P	N	NS	High	S&C 2000	Humbert et al. 2007
<i>Hieracium albertinum</i> Farr	Western hawkweed	HIAL2	P	N	OC	Low	FEIS	FEIS
<i>Hieracium albiflorum</i> Hook.	White-flowered hawkweed	HIAL	P	N	OC	Low	FEIS	FEIS
<i>Hieracium scouleri</i> Hook.	Scouler's woollyweed	HISCA	P	N	OC	Low	S&C 2000	FEIS
<i>Hieracium</i> sp. L.	Hawkweed	HIERA	P	N	OC	Low	FEIS	FEIS
<i>Iliamna rivularis</i> (Douglas ex Hook.) Greene	Mountain hollyhock	ILRI	P	N	SRCB	Low	FEIS	FEIS
<i>Lilium</i> sp. L.	Lily	LILIU	P	N	SRCB	High	USDA Plants Database	USDA Plants Database
<i>Linnaea borealis</i> L.	Twinflower	LIBO3	P	N	NS	Moderate	S&C 2000	Humbert et al. 2007
<i>Lomatium dissectum</i> (Nutt.) Mathias & Constance	Fern-leaved lomatium	LODI	P	N	SRCB	Moderate	Kershaw et al. 1998	USDA Plants Database
<i>Lomatium triternatum</i> (Pursh) J.M. Coult. & Rose	Nine-leaved lomatium	LOTR2	P	N	SRCB	Moderate	USDA Plants Database	USDA Plants Database
<i>Lupinus sericeus</i> Pursh	Silky lupine	LUSE4	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Lupinus</i> sp. L.	Lupine	LUIPN	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Medicago falcata</i> L.	Yellow lucerne	MEFA	A	I	OC	Low	L&H Seeds	L&H Seeds
<i>Mitella</i> sp. L.	Mitrewort	MITEL	P	N	SR	High	FEIS	FEIS
<i>Mitella stauropetala</i> Piper	Smallflower miterwort	MIST3	P	N	SR	High	FEIS	FEIS
<i>Orthilia secunda</i> (L.) House	Sidebells wintergreen	ORSE	P	N	NS	Moderate	S&C 2000	USDA Plants database
<i>Osmorhiza berteroi</i> DC.	Sweet-cicely	OSBE	P	N	SRCB	High	S&C 2000	Humbert et al. 2007
<i>Penstemon glandulosus</i> Douglas	Stickystem penstemon	PEGL4	P	N	SRCB	Moderate	Kershaw et al. 1998	Burke Herbarium
<i>Penstemon</i> sp. Schmidel	Penstemon species	PENST	P	N	SRCB	Moderate	Kershaw et al. 1998	Burke Herbarium
<i>Phacelia</i> sp. Juss.	Phacelia	PHACE	P	N	SRCB	Low	S&C 2000	USDA Plants database
<i>Polemonium pulcherrimum</i> Hook.	Jacob's-ladder	POPU3	P	N	SRCB	Moderate	Kershaw et al. 1998	WNPS
<i>Polygonum douglasii</i> Greene	Douglas' knotweed	PODO4	A	N	OC	Moderate	Kershaw et al. 1998	Plants for Future
<i>Polygonum</i> sp. L.	Knotweed	POLYG4	A	N	OC	Moderate	Kershaw et al. 1998	Plants for Future
<i>Pyrola asarifolia</i> Michx.	Common pink wintergreen	PYAS	P	N	SR	High	FEIS	Humbert et al. 2007
<i>Pyrola secunda</i> (L.) House	One-sided wintergreen	PYSE	P	N	SR	High	FEIS	Humbert et al. 2007
<i>Pyrola</i> sp. L.	Wintergreen	PYROL	P	N	SR	High	FEIS	Humbert et al. 2007
<i>Sedum stenopetalum</i> Pursh	Wormleaf stonecrop	SEST2	P	N	OC	Low	Burke Herbarium	Burke Herbarium
<i>Senecio</i> sp. L.	Ragwort	SENEC	P	N	SR	Moderate	MPG North	FEIS
<i>Silene menziesii</i> Hook.	Menzies' silene	SIME	P	N	SR	Moderate	Wildflowers	Burke Herbarium
<i>Smilacina racemosa</i> (L.) Desf.	False Solomon's seal	SMRA	P	N	SR	Moderate	Crane & Fisher 1986	FEIS
<i>Smilacina stellata</i> (L.) Link	Starry Solomon's seal	SMST	P	N	SR	Moderate	Crane & Fisher 1986	FEIS
<i>Solidago canadensis</i> L.	Canada goldenrod	SOCA6	P	N	OC	Moderate	Kershaw et al. 1998	FEIS
<i>Stellaria</i> sp. L.	Starwort	STSP	A	I	OC	Moderate	Burke Museum	Burke Herbarium
<i>Taraxacum officinale</i> F.H. Wigg.	Common dandelion	TAOF	P	I	OC	Low	S&C 2000	Humbert et al. 2007
<i>Thalictrum occidentale</i> A. Gray	Western meadowrue	THOC	P	N	SRCB	High	S&C 2000	LBJ Wildflower Center
<i>Tiarella trifoliata</i> L.	Coolwort foamflower	TITR	P	N	SR	High	Real Gardens	Real Gardens

Continued on page 4

Scientific name	Common name	Code	Lifecycle A, P	Origin N, I, NOX	Fire adaptation	Shade tolerance	Fire adaptation source	Shade tolerance source
<i>Trautvetteria caroliniensis</i> (Walter) Vail	False bugbane	TRCA	P	N	SR	High	S&C 2000	Izel Native Plants
<i>Trifolium</i> sp. L.	Clover	TRIFO	P	I	OC	Moderate	S&C 2000	USDA Plants database
<i>Valeriana sitchensis</i> Bong.	Sitka valerian	VASI	P	N	SR	Moderate	USDA Plants Database	USDA Plants database
<i>Verbascum thapsus</i> L.	Common mullein	VETH	P	I	OC	Low	S&C 2000	FEIS
<i>Vicia americana</i> Muhl. ex Willd.	American vetch	VIAM	P	N	SR	Moderate	FEIS	FEIS
<i>Viola adunca</i> Sm.	Hookedspur violet	VIAD2	P	N	SR	Low	Kershaw et al. 1998	WNPS
<i>Viola glabella</i> Nutt.	Stream violet	VIGL	P	N	SR	Moderate	Kershaw et al. 1998	LBJ Wildflower Center
<i>Viola orbiculata</i> Geyer ex Holz.	Round-leaved violet	VIOR	P	N	SR	Moderate	Kershaw et al. 1998	Klinka et al. 1989
<i>Viola</i> sp. L.	Violet	VIOLA	P	N	SR	Moderate	Kershaw et al. 1998	LBJ Wildflower Center
<i>Xerophyllum tenax</i> (Pursh) Nutt.	Beargrass	XETE	P	N	SR	Moderate	FEIS	FEIS
Grasses								
<i>Bromus arvensis</i> L.	Field brome	BRAR5	A	I	OC	Low	FEIS	FEIS
<i>Bromus carinatus</i> Hook. & Arn.	California brome	BRCA5	P	N	OC	Moderate	FIES	USDA Plants database
<i>Bromus</i> sp. L.	Brome	BROMU	P	N	OC	Low	FEIS	FEIS
<i>Bromus tectorum</i> L.	Cheatgrass	BRTE	A	I	OC	Low	S&C 2000	FEIS
<i>Calamagrostis canadensis</i> (Michx.) P. Beauv.	Bluejoint reedgrass	CACA4	P	N	SR	Low	FEIS	Humbert et al. 2007
<i>Calamagrostis rubescens</i> Buckley	Pinegrass	CARU	P	N	SR	Moderate	S&C 2000	FEIS
<i>Carex geyeri</i> Boott	Elk sedge	CAGE2	P	N	RC	Moderate	S&C 2000	FEIS
<i>Carex</i> sp. L.	Sedge	CAREX	P	N	RC	Moderate	S&C 2000	Humbert et al. 2007
<i>Danthonia unispicata</i> (Thurb.) Munro ex Macoun	Onespike danthonia	DAUN	P	N	SRCB	Low	FEIS	FEIS
<i>Elymus glaucus</i> Buckley	Blue wildrye	ELGL	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Festuca idahoensis</i> Elmer	Idaho fescue	FEID	P	N	SRCB	Moderate	S&C 2000	FEIS
<i>Festuca</i> sp. L.	Fescue	FESTU	P	N	SRCB	Moderate	FEIS	FEIS
<i>Koeleria macrantha</i> (Ledeb.) Schult.	Junegrass	KOMA	P	N	SRCB	Moderate	FEIS	FEIS
<i>Poa nervosa</i> (Hook.) Vasey	Wheeler bluegrass	PONE2	P	N	OC	Low	Kershaw et al. 1998	L&H Seeds
<i>Poa pratensis</i> L.	Kentucky bluegrass	POPR	P	I	SR	Moderate	FEIS	FEIS
<i>Poa secunda</i> J. Presl	Sandberg bluegrass	POSE	P	N	SRCB	Moderate	FEIS	FEIS
<i>Poa</i> sp. L.	Bluegrass	POSP	P	N	Unknown	Unknown	FEIS	FEIS
<i>Pseudoroegneria spicata</i> (Pursh) Á. Löve	Bluebunch wheatgrass	PSPP6	P	N	SRCB	Low	FEIS	FEIS
<i>Ventenata dubia</i> (Leers) Coss.	North Africa grass	VEDU	A	I	OC	Low	FEIS	FEIS
Moss								
	Moss	MOSS	P	N	NS	High		Wikipedia

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