

# Appendix G: Crosswalk Between 2018 and 2022 Plan Ecosystem Elements

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
<b>Alpine</b>			
Alpine Wetland	Vancouverian-Rocky Mountain Subalpine-Alpine Snowbed, Wet Meadow & Dwarf-shrubland Group		many-to-1
Cascade Willow / Sheep Fescue	Salix cascadensis / Festuca brachyphylla Alpine Dwarf-shrubland	Cascade Willow / Alpine Fescue Alpine Dwarf-shrubland	1-to-1
Dry Alpine Mosaic	Rocky Mountain-Sierran Alpine Turf & Fell-field Group		1-to-many
	Rocky Mountain-Sierran Alpine Dwarf-shrubland & Krummholz Group		1-to-many
	Rocky Mountain & Sierran Alpine Bedrock & Scree Group		1-to-many
Green Fescue Community	Rocky Mountain-North Pacific Subalpine-Montane Mesic Grassland & Meadow Group		1-to-1
Maritime Alpine Mosaic	North Pacific Alpine-Subalpine Tundra Group		1-to-many
	North Pacific Alpine-Subalpine Bedrock & Scree Group		1-to-many
	North Pacific Alpine-Subalpine Dwarf-shrubland & Heath Group		1-to-many
Roemer's Fescue - Spreading Phlox	Festuca roemeri - Phlox diffusa ssp. longistylis Alpine Meadow	Roemer's Fescue - Spreading Phlox Alpine Meadow	1-to-1
Yellow Mountain-heath Shrubland	Phyllodoce glanduliflora / Oreostemma alpigenum Alpine Dwarf-shrubland	Yellow Mountain-heather / Alpine Aster Alpine Dwarf-shrubland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
<b>Desert Playa and Salt Scrub Shrubland</b>			
Giant Wildrye - Alkali Saltgrass	Leymus cinereus - Distichlis spicata Alkaline Wet Meadow	Great Basin Wildrye - Saltgrass Alkaline Wet Meadow	1-to-1
Greasewood / Saltgrass	Sarcobatus vermiculatus / Distichlis spicata Wet Shrubland	Greasewood / Saltgrass Wet Shrubland	1-to-1
Low Elevation Alkali Wetland	North American Desert Alkaline-Saline Wet Scrub Group		many-to-many
	North American Desert Alkaline-Saline Marsh & Playa Group		many-to-many
Low Elevation Saline Wetland	North American Desert Alkaline-Saline Wet Scrub Group		many-to-many
	North American Desert Alkaline-Saline Marsh & Playa Group		many-to-many
Saltgrass	Distichlis spicata Alkaline Wet Meadow	Saltgrass Alkaline Wet Meadow	1-to-1
Spiny Hopsage / Sandberg's Bluegrass	Grayia spinosa / Poa secunda Shrubland	Spiny Hopsage / Sandberg's Bluegrass Shrubland	1-to-1
<b>Dunes and Strand</b>	-	-	-
Coastal Spit with Native Vegetation	North Pacific Maritime Dune & Coastal Beach Group		many-to-1
Deflation Plain	North Pacific Maritime Dune & Coastal Beach Group		many-to-1
Foredunes and Secondary Dunes	North Pacific Maritime Dune & Coastal Beach Group		many-to-1
<b>Dwarf Shrub-steppe</b>			
Arrow-leaf Buckwheat / Sandberg's Bluegrass	Eriogonum compositum / Poa secunda Dwarf-shrub Grassland	Arrow-leaf Buckwheat / Sandberg's Bluegrass Shrub Grassland	1-to-1
Bushy Buckwheat / Oregon Double Bladderpod	Eriogonum microthecum - Physaria oregona Dwarf-shrubland	Slender Buckwheat - Oregon Bladderpod Dwarf-shrubland	1-to-1
Douglas' Buckwheat / Sandberg's Bluegrass	Eriogonum douglasii / Poa secunda Dwarf-shrub Grassland	Douglas' Buckwheat / Sandberg's Bluegrass Shrub Grassland	1-to-1
Rock Buckwheat / Sandberg's Bluegrass	Eriogonum sphaerocephalum / Poa secunda Dwarf-shrub Grassland	Rock Buckwheat / Sandberg's Bluegrass Shrub Grassland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Snow Buckwheat / Sandberg's Bluegrass	Eriogonum niveum / Poa secunda Dwarf-shrub Grassland	Snow Buckwheat / Sandberg's Bluegrass Shrub Grassland	1-to-1
Stiff Sagebrush / Sandberg's Bluegrass	Artemisia rigida / Poa secunda Shrub Grassland	Stiff Sagebrush / Sandberg's Bluegrass Shrub Grassland	1-to-1
Thyme Buckwheat / Sandberg's Bluegrass	Eriogonum thymoides / Poa secunda Dwarf-shrub Grassland	Thyme Buckwheat / Sandberg's Bluegrass Shrub Grassland	1-to-1
Winter-fat / Sandberg's Bluegrass	Krascheninnikovia lanata / Poa secunda Dwarf-shrubland	Winter-fat / Sandberg's Bluegrass Dwarf-shrubland	1-to-1
<b>Eastside Canyon Shrubland</b>			
Netleaf Hackberry / Bluebunch Wheatgrass	Celtis laevigata var. reticulata / Pseudoroegneria spicata Wet Scrub	Netleaf Hackberry / Bluebunch Wheatgrass Wet Scrub	1-to-1
Smooth Sumac / Bluebunch Wheatgrass	Rhus glabra / Pseudoroegneria spicata Shrub Grassland	Smooth Sumac / Bluebunch Wheatgrass Shrub Grassland	1-to-1
<b>Eastside Grassland</b>			
Bluebunch Wheatgrass - Idaho Fescue Canyon	Pseudoroegneria spicata - Festuca idahoensis Canyon Grassland	Bluebunch Wheatgrass - Idaho Fescue Canyon Grassland	1-to-1
Bluebunch Wheatgrass - Idaho Fescue Palouse	Pseudoroegneria spicata - Festuca idahoensis Palouse Grassland	Bluebunch Wheatgrass - Idaho Fescue Palouse Grassland	1-to-1
Bluebunch Wheatgrass - Sandberg's Bluegrass	Pseudoroegneria spicata - Poa secunda Grassland	Bluebunch Wheatgrass - Sandberg's Bluegrass Grassland	1-to-1
Bluebunch Wheatgrass - Sandberg's Bluegrass Lithosol	Pseudoroegneria spicata - Poa secunda Lithosolic Grassland	Bluebunch Wheatgrass - Sandberg's Bluegrass Lithosolic Grassland	1-to-1
Idaho Fescue - Bluebunch Wheatgrass	Festuca idahoensis - Pseudoroegneria spicata Grassland	Idaho Fescue - Bluebunch Wheatgrass Grassland	1-to-1
Idaho Fescue - Common Snowberry	Festuca idahoensis - Symphoricarpos albus Grassland	Idaho Fescue - Common Snowberry Grassland	1-to-1
Idaho Fescue - Houndstounge Hawkweed	Festuca idahoensis - Hieracium cynoglossoides Grassland	Idaho Fescue - Houndstounge Hawkweed Grassland	1-to-1
Idaho Fescue - Parsnip-flower Buckwheat	Festuca idahoensis - Eriogonum heracleoides Grassland	Idaho Fescue - Parsnip-flower Buckwheat Grassland	1-to-1
Idaho Fescue / Nootka Rose	Rosa nutkana - Festuca idahoensis Grassland	Nootka Rose - Idaho Fescue Grassland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Needle-and-Thread - Sandberg's Bluegrass	Hesperostipa comata - Poa secunda Grassland	Needle-and-thread - Sandberg's Bluegrass Grassland	1-to-1
Red Threeawn - Sandberg's Bluegrass	Aristida purpurea var. longiseta - Poa secunda Grassland	Red Threeawn - Sandberg's Bluegrass Grassland	1-to-1
Rough Fescue - Idaho Fescue	Festuca campestris - Festuca idahoensis Grassland	Rough Fescue - Idaho Fescue Grassland	1-to-1
Sand Dropseed - Sandberg's Bluegrass	Sporobolus cryptandrus - Poa secunda Grassland	Sand Dropseed - Sandberg's Bluegrass Grassland	1-to-1
Sandberg's Bluegrass - One Spike Oatgrass	Danthonia unispicata - Poa secunda Wet Meadow	Few Flower Wild Oatgrass - Sandberg's Bluegrass Wet Meadow	1-to-1
<b>Eastside Mixed Conifer Forest</b>			
Douglas-fir - Grand Fir / Oceanspray	Abies grandis / Holodiscus discolor Forest	Grand Fir / Oceanspray Forest	1-to-1
Douglas-fir / Bearberry	Pseudotsuga menziesii - (Pinus contorta) / Arctostaphylos uva-ursi / Racomitrium canescens Woodland	Douglas-fir - (Lodgepole Pine) / Kinnikinnick / Silver Moss Woodland	1-to-1
Douglas-fir / Bearberry - Antelope Bitterbrush	Pseudotsuga menziesii / Arctostaphylos uva-ursi - Purshia tridentata Forest	Douglas-fir / Kinikinnick - Antelope Bitterbrush Forest	1-to-1
Douglas-fir / Big Huckleberry	Pseudotsuga menziesii / Vaccinium membranaceum Forest	Douglas-fir / Big Huckleberry Forest	1-to-1
Douglas-fir / Common Snowberry	Pseudotsuga menziesii / Symphoricarpos albus Forest	Douglas-fir / Common Snowberry Forest	1-to-1
Douglas-fir / Mallow-leaf Ninebark	Pseudotsuga menziesii / Physocarpus malvaceus Forest	Douglas-fir / Mallow-leaf Ninebark Forest	1-to-1
Douglas-fir / Mallow-leaf Ninebark - Twinflower	Pseudotsuga menziesii / Physocarpus malvaceus - Linnaea borealis Forest	Douglas-fir / Mallow-leaf Ninebark - Twinflower Forest	1-to-1
Douglas-fir / Oceanspray	Pseudotsuga menziesii / Holodiscus discolor / Carex geyeri Forest	Douglas-fir / Oceanspray / Geyer's sedge Forest	1-to-1
Douglas-fir / Pinegrass	Pseudotsuga menziesii / Calamagrostis rubescens Woodland	Douglas-fir / Pinegrass Woodland	1-to-1
Grand Fir / Big Huckleberry	Abies grandis / Vaccinium membranaceum Forest	Grand Fir / Big Huckleberry Forest	1-to-1
Grand Fir / Big Huckleberry / Vanillaleaf	Abies grandis / Vaccinium membranaceum - Achlys triphylla Forest	Grand Fir / Big Huckleberry - Vanillaleaf Forest	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Grand Fir / Elk Sedge	Abies grandis / Carex geyeri Woodland	Grand Fir / Geyer's Sedge Woodland	1-to-1
Grand Fir / Mallow-leaf Ninebark	Abies grandis / Physocarpus malvaceus Forest	Grand Fir / Mallow-leaf Ninebark Forest	1-to-1
Grand Fir / Oregongrape	Abies grandis / Mahonia nervosa Forest	Grand Fir / Cascade Oregon-grape Forest	1-to-1
Grand Fir / Pacific Yew	Abies grandis / Taxus brevifolia Forest	Grand Fir / Pacific Yew Forest	1-to-1
Grand Fir / Pinegrass	Abies grandis / Calamagrostis rubescens Woodland	Grand Fir / Pinegrass Woodland	1-to-1
Grand Fir / Queen's Cup	Abies grandis / Clintonia uniflora Forest	Grand Fir / Queen's Cup Forest	1-to-1
Grand Fir / Vanillaleaf	Abies grandis / Achlys triphylla Forest	Grand Fir / Vanillaleaf Forest	1-to-1
Grand Fir / Vine Maple	Abies grandis / Acer circinatum Forest	Grand Fir / Vine Maple Forest	many-to-1
Grand Fir / Vine Maple - Vanillaleaf	Abies grandis / Acer circinatum Forest	Grand Fir / Vine Maple Forest	many-to-1
Serpentine Barrens	Central Rocky Mountain Douglas-fir - Pine Forest Group		1-to-many
	Southern Vancouverian Shrub & Herbaceous Bald, Bluff & Prairie Group		many-to-many
	Rocky Mountain Cliff, Scree & Rock Vegetation Group		many-to-many
	G573 Southern Vancouverian Cliff, Scree & Rock Vegetation Group Group		1-to-many
Subalpine Fir / Bunchberry Dogwood	Abies lasiocarpa / Cornus canadensis Forest	Subalpine Fir / Canadian Bunchberry Forest	1-to-1
Western Hemlock / Five- Leaved Bramble	Tsuga heterophylla / Rubus pedatus Forest	Western Hemlock / Strawberry-leaf Raspberry Forest	1-to-1
Western Hemlock / Fool's Huckleberry	Tsuga heterophylla / Menziesia ferruginea Forest	Western Hemlock / Fool's Huckleberry Forest	1-to-1
Western Hemlock / Oregongrape - Bigleaf Huckleberry	Tsuga heterophylla / Linnaea borealis Forest	Western Hemlock / Twinflower Forest	1-to-1
Western Hemlock / Queen's Cup	Tsuga heterophylla / Clintonia uniflora Forest	Western Hemlock / Queen's Cup Forest	1-to-1
Western Hemlock / Wild Sarsaparilla	Tsuga heterophylla / Aralia nudicaulis Forest	Western Hemlock / Wild Sarsaparilla Forest	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Western Larch Forest	Central Rocky Mountain Mesic Grand Fir - Douglas-fir Forest Group		1-to-1
Western Redcedar - (Western Hemlock) / Devil's-club	Thuja plicata - Tsuga heterophylla / Oplopanax horridus Rocky Mountain Swamp Forest	Western Red-cedar - Western Hemlock / Devil's-club Rocky Mountain Swamp Forest	1-to-1
Western Redcedar / Queen's Cup	Thuja plicata / Clintonia uniflora Forest	Western Red-cedar / Queen's Cup Forest	1-to-1
Western Redcedar / Wild Sarsaparilla	Thuja plicata / Aralia nudicaulis Forest	Western Red-cedar / Wild Sarsaparilla Forest	1-to-1
Western White Pine / Queen's Cup	Pinus monticola / Clintonia uniflora Forest	Western White Pine / Queen's Cup Forest	1-to-1
<b>Estuarine Intertidal</b>			
Estuarine Gravel Beach	Estuarine Gravel Beach		1-to-1
Estuarine Hardpan Shore	Estuarine Hardpan Shore		1-to-1
Estuarine Mud Flat	G385 North American Pacific Intertidal Algal Flat Group		1-to-1
Estuarine Rocky Shore	Estuarine Rocky Shore		1-to-1
Estuarine Sandy Beach	Estuarine Sandy Beach		1-to-1
Gravelly Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1
High-Salinity Lagoon	High-Salinity Lagoon		1-to-1
Low-Energy Mixed-Fine Beach	Low-Energy Mixed-Fine Beach		1-to-1
Low-Salinity High Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Low-Salinity Lagoon	Low-Salinity Lagoon		1-to-1
Moderate-Salinity High Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Muddy Channel / Slough	Muddy Channel / Slough		1-to-1
Sandy, High-Salinity, Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Sandy, Low-Salinity, Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Sandy, Moderate-Salinity, Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Silty, Low-Salinity, Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Silty, Moderate-Salinity, Low Marsh	Temperate Pacific Salt Marsh Group		many-to-1
Transition Zone Wetland	Temperate Pacific Salt Marsh Group		many-to-1
<b>Estuarine Subtidal</b>			
Estuarine Deep Subtidal Cobble	Estuarine Deep Subtidal Cobble		1-to-1
Estuarine Deep Subtidal Mixed-Coarse Sediment	Estuarine Deep Subtidal Mixed-Coarse Sediment		1-to-1
Estuarine Deep Subtidal Mixed-Fine Sediment	Estuarine Deep Subtidal Mixed-Fine Sediment		1-to-1
Estuarine Deep Subtidal Rock	Estuarine Deep Subtidal Rock		1-to-1
Estuarine Mixed-Coarse Beach	Estuarine Mixed-Coarse Beach		1-to-1
Estuarine Shallow Subtidal Cobble	Estuarine Shallow Subtidal Cobble		1-to-1
Estuarine Shallow Subtidal Mixed-fine Sediment	Estuarine Shallow Subtidal Mixed-fine Sediment		1-to-1
Estuarine Shallow Subtidal Rock	Estuarine Shallow Subtidal Rock		1-to-1
Muddy, Deep Subtidal Enclosed Estuary	Muddy, Deep Subtidal Enclosed Estuary		1-to-1
Muddy, Shallow Subtidal Enclosed Estuary	Muddy, Shallow Subtidal Enclosed Estuary		1-to-1
Muddy, Shallow Subtidal Open Estuary	Muddy, Shallow Subtidal Open Estuary		1-to-1
Sandy, Deep Subtidal Enclosed Estuary	Sandy, Deep Subtidal Enclosed Estuary		1-to-1
Sandy, Deep Subtidal Open Estuary	Sandy, Deep Subtidal Open Estuary		1-to-1
Sandy, Shallow Subtidal Open Estuary	Sandy, Shallow Subtidal Open Estuary		1-to-1
Subtidal Estuarine Channel	Subtidal Estuarine Channel		1-to-1
<b>Freshwater Wetlands</b>			
Calciferous Wetland	Rocky Mountain Circumneutral-Alkaline Fen Group Group		many-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Columbia River Gorge Wetland	North-Central Pacific Lowland Riparian Forest Group		many-to-many
	Vancouverian Wet Shrubland Group		many-to-many
	Vancouverian Freshwater Wet Meadow & Marsh Group		many-to-many
	Temperate Pacific Freshwater Wet Mudflat Group		many-to-many
Forested Sphagnum Bog	North Pacific Maritime Wooded Bog & Poor Fen Group		many-to-1
Freshwater Tidal Surge Plain Wetland	Temperate Pacific Salt Marsh Group		many-to-many
	Vancouverian Wet Shrubland Group		many-to-many
	Vancouverian Freshwater Wet Meadow & Marsh Group		many-to-many
	Temperate Pacific Freshwater Wet Mudflat Group		many-to-many
	North-Central Pacific Maritime Swamp Forest Group		many-to-many
Low Elevation Freshwater Wetland	Vancouverian Wet Shrubland Group		many-to-many
	Vancouverian Freshwater Wet Meadow & Marsh Group		many-to-many
	Temperate Pacific Freshwater Wet Mudflat Group		many-to-many
	Arid West Interior Freshwater Marsh Group		many-to-many
	Western Montane-Subalpine Riparian & Seep Shrubland Group		many-to-many
	Rocky Mountain-Great Basin Swamp Forest Group		many-to-many
	North-Central Pacific Maritime Swamp Forest Group		many-to-many
Low Elevation Sphagnum Bog	Rocky Mountain Circumneutral-Alkaline Fen Group Group		many-to-many
	North Pacific Circumneutral to Alkaline Open Fen Group		many-to-many

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
	Rocky Mountain Acidic Fen Group		many-to-many
	North Pacific Acidic Open Bog & Fen Group		many-to-many
Mid-Elevation Freshwater Wetland	Vancouverian Wet Shrubland Group		many-to-many
	Arid West Interior Freshwater Marsh Group		many-to-many
	Western Montane-Subalpine Riparian & Seep Shrubland Group		many-to-many
	Rocky Mountain-Great Basin Swamp Forest Group		many-to-many
	North-Central Pacific Montane Riparian & Seepage Swamp Forest Group		many-to-many
	Vancouverian-Rocky Mountain Montane Wet Meadow & Marsh Group		many-to-many
Mid-Elevation Sphagnum Bog	Rocky Mountain Circumneutral-Alkaline Fen Group Group		many-to-many
	North Pacific Circumneutral to Alkaline Open Fen Group		many-to-many
	Rocky Mountain Acidic Fen Group		many-to-many
	North Pacific Acidic Open Bog & Fen Group		many-to-many
Raised Bog	North Pacific Maritime Wooded Bog & Poor Fen Group		many-to-many
	North Pacific Acidic Open Bog & Fen Group		many-to-many
Seep	Vancouverian-Rocky Mountain Subalpine-Alpine Snowbed, Wet Meadow & Dwarf-shrubland Group		many-to-many
	Vancouverian Freshwater Wet Meadow & Marsh Group		many-to-many
	Arid West Interior Freshwater Marsh Group		many-to-many
	Vancouverian-Rocky Mountain Montane Wet Meadow & Marsh Group		many-to-many

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Sitka Spruce / Slough Sedge - Skunkcabbage	<i>Picea sitchensis</i> / <i>Carex obnupta</i> - <i>Lysichiton americanus</i> Swamp Forest	Sitka Spruce / Salmonberry / Slough Sedge - American Skunk-cabbage Swamp Forest	1-to-1
Subalpine Freshwater Wetland	Vancouverian-Rocky Mountain Subalpine-Alpine Snowbed, Wet Meadow & Dwarf-shrubland Group		many-to-1
Subalpine Sphagnum Bog	Rocky Mountain Circumneutral-Alkaline Fen Group Group		many-to-many
	North Pacific Circumneutral to Alkaline Open Fen Group		many-to-many
	Rocky Mountain Acidic Fen Group		many-to-many
	North Pacific Acidic Open Bog & Fen Group		many-to-many
Tufted Hairgrass Meadow	<i>Deschampsia caespitosa</i> Wet Meadow	Tufted Hairgrass Wet Meadow	1-to-1
Vernal Pond	Oregon-Washington-British Columbia Vernal Pool Group		1-to-1
Western Redcedar - Western Hemlock / Skunkcabbage	<i>Tsuga heterophylla</i> - ( <i>Thuja plicata</i> , <i>Alnus rubra</i> ) / <i>Lysichiton americanus</i> - <i>Athyrium filix-femina</i> Swamp Forest	Western Hemlock - (Western Red-cedar, Red Alder) / American Skunk-cabbage - Common Ladyfern Swamp Forest	1-to-1
<b>Lodgepole Pine Forest and Woodland</b>			
Lodgepole Pine / Big Huckleberry	<i>Pinus contorta</i> / <i>Vaccinium membranaceum</i> Forest	Lodgepole Pine / Big Huckleberry Forest	1-to-1
Lodgepole Pine / Grouse Huckleberry	<i>Pinus contorta</i> / <i>Vaccinium scoparium</i> Forest	Lodgepole Pine / Grouseberry Forest	1-to-1
Lodgepole Pine / Grouse Huckleberry - Pinegrass	<i>Pinus contorta</i> / <i>Vaccinium scoparium</i> / <i>Calamagrostis rubescens</i> Forest	Lodgepole Pine / Grouseberry / Pinegrass Forest	1-to-1
Lodgepole Pine Forest	Rocky Mountain Lodgepole Pine Forest & Woodland Group		1-to-1
<b>Marine Intertidal</b>			
Boulder Field	Boulder Field		1-to-1
Cobble Beach	Cobble Beach		1-to-1
Exposed Gravel Beach	Exposed Gravel Beach		1-to-1

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Exposed Sandy Beach	Exposed Sandy Beach		1-to-1
Marine Hardpan Shore	Marine Hardpan Shore		1-to-1
Marine Mixed-Coarse Beach	Marine Mixed-Coarse Beach		1-to-1
Marine Mud Flat	Marine Mud Flat		1-to-1
Marine Protected Rocky Shore	Marine Protected Rocky Shore		1-to-1
Marine Semi-Protected Gravel Beach	Marine Semi-Protected Gravel Beach		1-to-1
Marine Semi-Protected Sandy Beach	Marine Semi-Protected Sandy Beach		1-to-1
Partially Exposed Rocky Shore	Partially Exposed Rocky Shore		1-to-1
Protected Mixed-Fine Beach	Protected Mixed-Fine Beach		1-to-1
Sand-Scoured Rocky Shore	Sand-Scoured Rocky Shore		1-to-1
Wave-Exposed Rocky Shore	Wave-Exposed Rocky Shore		1-to-1
<b>Marine Subtidal</b>			
Deep Subtidal Mud	Deep Subtidal Mud		1-to-1
Deep Subtidal Sand	Deep Subtidal Sand		1-to-1
High-Energy Deep Subtidal Cobble	High-Energy Deep Subtidal Cobble		1-to-1
High-Energy Deep Subtidal Mixed-Coarse Sediment	High-Energy Deep Subtidal Mixed-Coarse Sediment		1-to-1
High-Energy Deep Subtidal Rock	High-Energy Deep Subtidal Rock		1-to-1
High-Energy Shallow Subtidal Rock	High-Energy Shallow Subtidal Rock		1-to-1
Low-Energy Deep Subtidal Rock	Low-Energy Deep Subtidal Rock		1-to-1
Low-Energy Shallow Subtidal Mixed-Coarse Sediment	Low-Energy Shallow Subtidal Mixed-Coarse Sediment		1-to-1
Marine Deep Subtidal Mixed-Fine Sediment	Marine Deep Subtidal Mixed-Fine Sediment		1-to-1
Marine Low-Energy Shallow Subtidal Rock	Marine Low-Energy Shallow Subtidal Rock		1-to-1

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Marine Shallow Subtidal Mixed-Fine Sediment	Marine Shallow Subtidal Mixed-Fine Sediment		1-to-1
Shallow Subtidal Gravel	Shallow Subtidal Gravel		1-to-1
Shallow Subtidal Mud	Shallow Subtidal Mud		1-to-1
<b>Montane Conifer Forest</b>			
Alaska Yellow-cedar - Mountain Hemlock - Pacific Silver Fir	North-Central Pacific Mountain Hemlock - Silver Fir Woodland Group		1-to-1
Mountain Hemlock - Pacific Silver Fir / Alaska huckleberry	Tsuga mertensiana - Abies amabilis / Vaccinium alaskaense / Rubus pedatus Forest	Mountain Hemlock - Pacific Silver Fir / Alaska Blueberry / Strawberry-leaf Raspberry Forest	many-to-1
Mountain Hemlock - Pacific Silver Fir / Alaska huckleberry - Avalanche Lilly	Tsuga mertensiana - Abies amabilis / Vaccinium alaskaense / Rubus pedatus Forest	Mountain Hemlock - Pacific Silver Fir / Alaska Blueberry / Strawberry-leaf Raspberry Forest	many-to-1
Mountain Hemlock - Pacific Silver Fir / Beargrass	Tsuga mertensiana - Abies amabilis / Xerophyllum tenax Forest	Mountain Hemlock - Pacific Silver Fir / Beargrass Forest	1-to-1
Mountain Hemlock - Pacific Silver Fir / Big huckleberry	Abies amabilis - Tsuga mertensiana / Vaccinium membranaceum / Rubus lasiococcus Forest	Pacific Silver Fir - Mountain Hemlock / Big Huckleberry / Rough-fruit Berry Forest	many-to-1
Mountain Hemlock - Pacific Silver Fir / Cascade Azalea	Tsuga mertensiana - Abies amabilis / Rhododendron albiflorum Forest	Mountain Hemlock - Pacific Silver Fir / Cascade Azalea Forest	1-to-1
Mountain Hemlock - Pacific Silver Fir / Copperbush	Tsuga mertensiana - Abies amabilis / Elliottia pyroliflorus Woodland	Mountain Hemlock - Pacific Silver Fir - (Alaska-cedar) / Copperbush - Thinleaf Huckleberry Woodland	1-to-1
Mountain Hemlock / Smooth Woodrush	Tsuga mertensiana - (Abies amabilis, Abies lasiocarpa) / Luzula glabrata var. hitchcockii Woodland	Mountain Hemlock - (Pacific Silver Fir, Subalpine Fir) / Smooth Woodrush Woodland	1-to-1
Noble Fir Forest	North-Central Pacific Maritime Silver Fir - Western Hemlock Rainforest Group		1-to-1
Pacific Silver Fir / Alaska Huckleberry	Tsuga heterophylla - Abies amabilis / Vaccinium alaskaense Forest	Western Hemlock - Pacific Silver Fir / Alaska Blueberry Forest	1-to-1
Pacific Silver Fir / Alaska Huckleberry - Avalanche Lily	Tsuga heterophylla - Abies amabilis / Vaccinium alaskaense / Rubus pedatus Forest	Western Hemlock - Pacific Silver Fir / Alaska Blueberry / Strawberry-leaf Raspberry Forest	1-to-1

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Pacific Silver Fir / Alaska Huckleberry - Dwarf Oregongrape	<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> - ( <i>Pseudotsuga menziesii</i> ) / <i>Vaccinium alaskaense</i> Forest	Western Hemlock - Pacific Silver Fir - (Douglas-fir) / Alaska Blueberry Forest	1-to-1
Pacific Silver Fir / Alaska Huckleberry - Salal	<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> - <i>Pseudotsuga menziesii</i> / <i>Gaultheria shallon</i> Forest	Western Hemlock - Pacific Silver Fir - Douglas-fir / Salal Forest	many-to-1
Pacific Silver Fir / Alaska Huckleberry / Foamflower	<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> / <i>Vaccinium alaskaense</i> / <i>Tiarella trifoliata</i> var. <i>unifoliata</i> Forest	Western Hemlock - Pacific Silver Fir / Alaska Blueberry / Oneleaf Foamflower Forest	1-to-1
Pacific Silver Fir / Beargrass	<i>Abies amabilis</i> - ( <i>Pseudotsuga menziesii</i> - <i>Abies procera</i> ) / <i>Vaccinium membranaceum</i> / <i>Xerophyllum tenax</i> Forest	Pacific Silver Fir / Big Huckleberry / Beargrass Forest	1-to-1
Pacific Silver Fir / Big Huckleberry	<i>Abies amabilis</i> - ( <i>Tsuga heterophylla</i> ) / <i>Vaccinium membranaceum</i> / <i>Orthilia secunda</i> Forest	Pacific Silver Fir - (Western Hemlock) / Big Huckleberry / Sidebells Wintergreen Forest	1-to-1
Pacific Silver Fir / Cascade Azalea	<i>Abies amabilis</i> / <i>Rhododendron albiflorum</i> Forest	Pacific Silver Fir / Cascade Azalea Forest	1-to-1
Pacific Silver Fir / Devil's-club	<i>Abies amabilis</i> - <i>Tsuga heterophylla</i> / <i>Oplopanax horridus</i> Swamp Forest	Pacific Silver Fir / Devil's-club Swamp Forest	1-to-1
Pacific Silver Fir / Dwarf Blackberry	<i>Abies amabilis</i> - <i>Tsuga mertensiana</i> / <i>Vaccinium membranaceum</i> / <i>Rubus lasiococcus</i> Forest	Pacific Silver Fir - Mountain Hemlock / Big Huckleberry / Rough-fruit Berry Forest	many-to-1
Pacific Silver Fir / Foamflower	<i>Abies amabilis</i> - ( <i>Pseudotsuga menziesii</i> ) / <i>Achlys triphylla</i> - <i>Tiarella trifoliata</i> var. <i>unifoliata</i> Forest	Pacific Silver Fir - (Douglas-fir) / Vanillaleaf - Oneleaf Foamflower Forest	1-to-1
Pacific Silver Fir / Fool's Huckleberry	<i>Abies amabilis</i> / <i>Menziesia ferruginea</i> Forest	Pacific Silver Fir / Fool's Huckleberry Forest	1-to-1
Pacific Silver Fir / Oregongrape	<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> - <i>Pseudotsuga menziesii</i> / <i>Mahonia nervosa</i> Forest	Pacific Silver Fir / Cascade Oregon-grape Forest	1-to-1
Pacific Silver Fir / Pacific Rhododendron	<i>Abies amabilis</i> - ( <i>Pseudotsuga menziesii</i> , <i>Tsuga heterophylla</i> ) / <i>Rhododendron macrophyllum</i> Forest	Pacific Silver Fir - (Douglas-fir, Western Hemlock) / Pacific Rhododendron Forest	1-to-many

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
	Abies amabilis - Pseudotsuga menziesii / Rhododendron macrophyllum / Cornus unalaschensis Forest	Pacific Silver Fir - Douglas-fir / Pacific Rhododendron / Western Cordilleran Bunchberry Forest	1-to-many
	Abies amabilis / Rhododendron macrophyllum - Mahonia nervosa Forest	Pacific Silver Fir / Pacific Rhododendron - Cascade Oregon-grape Forest	1-to-many
Pacific Silver Fir / Salal	Tsuga heterophylla - Abies amabilis - Pseudotsuga menziesii / Gaultheria shallon Forest	Western Hemlock - Pacific Silver Fir - Douglas-fir / Salal Forest	many-to-1
Pacific Silver Fir / Swordfern	Abies amabilis / Polystichum munitum Forest	Pacific Silver Fir / Western Swordfern Forest	1-to-1
Subalpine Fir / Beargrass	Abies lasiocarpa / Xerophyllum tenax Forest	Subalpine Fir / Beargrass Forest	1-to-1
Subalpine Fir / Big Huckleberry	Abies lasiocarpa / Vaccinium membranaceum Forest	Subalpine Fir / Big Huckleberry Forest	1-to-1
Subalpine Fir / Cascade Azalea	Abies lasiocarpa / Rhododendron albiflorum / Rubus lasiococcus Forest	Subalpine Fir / Cascade Azalea / Rough-fruit Berry Forest	1-to-many
	Abies lasiocarpa / Vaccinium membranaceum / Lupinus arcticus ssp. subalpinus Woodland	Subalpine Fir / Big Huckleberry / Subalpine Lupine Woodland	1-to-many
Subalpine Fir / Glandular Labrador-tea	Abies lasiocarpa / Ledum glandulosum Swamp Forest	Subalpine Fir / Western Labrador-tea Swamp Forest	1-to-1
Subalpine Fir / Grouseberry	Abies lasiocarpa - Picea engelmannii / Vaccinium scoparium Forest	Subalpine Fir / Grouseberry Forest	1-to-1
Subalpine Fir / Pinegrass	Abies lasiocarpa - Picea engelmannii / Calamagrostis rubescens Forest	Subalpine Fir / Pinegrass Forest	1-to-1
Subalpine Fir / Queen's Cup	Abies lasiocarpa - Picea engelmannii / Clintonia uniflora Forest	Subalpine Fir - Engelmann Spruce / Queen's Cup Forest	1-to-1
Subalpine Fir / Sitka Valerian	Abies lasiocarpa / Valeriana sitchensis Forest	Subalpine Fir / Sitka Valerian Forest	1-to-1
Subalpine Fir / Twinflower	Abies lasiocarpa - Picea engelmannii / Linnaea borealis Forest	Subalpine Fir / Twinflower Forest	1-to-1
Thimbleberry / Fireweed	Rubus parviflorus / Chamerion angustifolium - Heracleum maximum Shrubland	Thimbleberry / Fireweed - Cow-parsnip Shrubland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Wyoming Big Sagebrush / Sandberg's Bluegrass	Artemisia tridentata ssp. wyomingensis / Poa secunda Shrubland	Wyoming Big Sagebrush / Sandberg's Bluegrass Shrubland	1-to-1
<b>Open Water - Lakes, Rivers, Streams</b>			
Alpine Lake	Alpine Lake		many-to-1
Alpine Permanent Pond	Alpine Permanent Pond		many-to-1
Backwater Area	Backwater Area		many-to-1
Low Elevation Alkali Pond / Lake	Low Elevation Alkali Pond / Lake		many-to-1
Low Elevation Lake	Low Elevation Lake		many-to-1
Low Elevation Permanent Pond	Low Elevation Permanent Pond		many-to-1
Low Elevation Saline Pond / Lake	Low Elevation Saline Pond / Lake		many-to-1
Low Elevation Stream	Low Elevation Stream		many-to-1
Mid-Elevation Lake	Mid-Elevation Lake		many-to-1
Mid-Elevation Permanent Pond	Mid-Elevation Permanent Pond		many-to-1
Mid-Elevation Serpentine Stream	Mid-Elevation Serpentine Stream		many-to-1
Mid-Elevation Stream	Mid-Elevation Stream		many-to-1
Pothole Ponds	Pothole Ponds		many-to-1
Subalpine Lake	Subalpine Lake		many-to-1
Subalpine Permanent Pond	Subalpine Permanent Pond		many-to-1
Subalpine Stream	Subalpine Stream		many-to-1
<b>Ponderosa Pine and Eastside Oak Forest and Woodland</b>			
Oregon White Oak - Ponderosa Pine	Cascadian Oregon White Oak - Conifer Forest & Woodland Group		1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Oregon White Oak / Blue Wildrye	Quercus garryana / Elymus glaucus Woodland	Oregon White Oak / Blue Wildrye Woodland	1-to-1
Oregon White Oak / Bluebunch Wheatgrass	Quercus garryana / Pseudoroegneria spicata Woodland	Oregon White Oak / Bluebunch Wheatgrass Woodland	1-to-1
Ponderosa Pine - Douglas-fir / Bitterbrush	Pinus ponderosa - Pseudotsuga menziesii / Purshia tridentata Woodland	Ponderosa Pine - Douglas-fir / Antelope Bitterbrush Woodland	1-to-1
Ponderosa Pine / Bitterbrush	Pinus ponderosa / Purshia tridentata Central Rocky Mountain Woodland	Ponderosa Pine / Antelope Bitterbrush Central Rocky Mountain Woodland	1-to-1
Ponderosa Pine / Bluebunch Wheatgrass	Pinus ponderosa / Pseudoroegneria spicata Woodland	Ponderosa Pine / Bluebunch Wheatgrass Woodland	1-to-1
Ponderosa Pine / Common Snowberry	Pinus ponderosa / Symphoricarpos albus Forest	Ponderosa Pine / Common Snowberry Forest	1-to-1
Ponderosa Pine / Idaho Fescue	Pinus ponderosa / Festuca idahoensis Woodland	Ponderosa Pine / Idaho Fescue Woodland	1-to-1
Ponderosa Pine / Mallow-leaf Ninebark	Pinus ponderosa / Physocarpus malvaceus Forest	Ponderosa Pine / Mallow-leaf Ninebark Forest	1-to-1
Ponderosa Pine / Needle-and-thread	Pinus ponderosa / Hesperostipa comata Woodland	Ponderosa Pine / Needle-and-thread Woodland	1-to-1
Ponderosa Pine / Pinegrass	Pinus ponderosa / Calamagrostis rubescens Forest	Ponderosa Pine / Pinegrass Forest	1-to-1
Ponderosa Pine / Rough Fescue	Pinus ponderosa / Festuca campestris Woodland	Ponderosa Pine / Rough Fescue Woodland	1-to-1
<b>Riparian</b>			
(Quaking Aspen) / Black Hawthorn / Common Snowberry	(Populus tremuloides) / Crataegus douglasii / Symphoricarpos albus Wet Shrubland	(Quaking Aspen) / Black Hawthorn / Common Snowberry Wet Shrubland	1-to-1
(Quaking Aspen) / Black Hawthorn / Cow Parsnip	(Populus tremuloides) / Crataegus douglasii / Heracleum maximum Wet Shrubland	(Quaking Aspen) / Black Hawthorn / Cow Parsnip Wet Shrubland	1-to-1
Black Cottonwood - Bigleaf Maple	North-Central Pacific Lowland Riparian Forest Group		many-to-1
Black Cottonwood - Oregon Ash	North-Central Pacific Lowland Riparian Forest Group		many-to-1
Black Cottonwood - Red Alder	North-Central Pacific Lowland Riparian Forest Group		many-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Black Cottonwood / Western Waterhemlock	Populus balsamifera ssp. trichocarpa / Cicuta douglasii Riparian Forest	Black Cottonwood / Western Water- hemlock Riparian Forest	1-to-1
Cold Spring	Cold Spring		1-to-1
Engelmann Spruce / Field Horsetail	Picea engelmannii / Equisetum arvense Swamp Forest	Engelmann Spruce / Field Horsetail Swamp Forest	1-to-1
Grand Fir / Ladyfern	Abies grandis / Athyrium filix-femina Riparian Forest	Grand Fir / Lady Fern Riparian Forest	1-to-1
Hot Spring	Hot Spring		1-to-1
Oregon White Oak - (Oregon Ash) / Common Snowberry	Quercus garryana - (Fraxinus latifolia) / Symphoricarpos albus Riparian Forest	Oregon White Oak - (Oregon Ash) / Common Snowberry Riparian Forest	1-to-1
Overflow Plain	North-Central Pacific Lowland Riparian Forest Group		many-to-many
	Vancouverian Wet Shrubland Group		many-to-many
Peachleaf Willow	Salix amygdaloides / Salix exigua Riparian Woodland	Peach-leaf Willow / Sandbar Willow Riparian Woodland	1-to-1
Quaking Aspen Riparian Forest	Rocky Mountain-Great Basin Montane Riparian Forest Group		1-to-1
Red Alder / Mallow-leaf Ninebark	Alnus rubra / Physocarpus capitatus - Philadelphus lewisii Swamp Forest	Red Alder / Pacific Ninebark - Lewis' Mock Orange Swamp Forest	1-to-1
Sitka Alder - Vine Maple	Alnus viridis ssp. sinuata / Acer circinatum Shrub Swamp	Sitka Alder - Vine Maple Shrub Swamp	1-to-1
Syringa Riparian Shrubland	Philadelphus lewisii Wet Shrubland	Mock Orange Wet Shrubland	1-to-1
Water Birch Riparian Shrubland	Rocky Mountain-Great Basin Lowland- Foothill Riparian Shrubland Group		1-to-1
Waterfall and Associated Spray Zone	Rocky Mountain Cliff, Scree & Rock Vegetation Group		1-to-many
	G318 North Vancouverian Montane Bedrock, Cliff & Talus Vegetation Group Group		1-to-many
White Alder	Northern Rocky Mountain Lowland- Foothill Riparian Forest Group		1-to-1
<b>Shrub-steppe</b>			
Big Sagebrush / Idaho Fescue	Artemisia tridentata / Festuca idahoensis Shrub Grassland	Big Sagebrush / Idaho Fescue Shrub Grassland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Bitterbrush / Bluebunch Wheatgrass	<i>Purshia tridentata</i> / <i>Pseudoroegneria spicata</i> Shrub Grassland	Antelope Bitterbrush / Bluebunch Wheatgrass Shrub Grassland	1-to-1
Bitterbrush / Idaho Fescue	<i>Purshia tridentata</i> / <i>Festuca idahoensis</i> Shrub Grassland	Antelope Bitterbrush / Idaho Fescue Shrub Grassland	1-to-1
Bitterbrush / Needle-and-Thread	<i>Purshia tridentata</i> / <i>Hesperostipa comata</i> Shrub Grassland	Antelope Bitterbrush / Needle-and-thread Shrub Grassland	1-to-1
Inter-Mountain Basins Active and Stabilized Dune	Intermountain Sparsely Vegetated Dune Scrub & Grassland Group		1-to-1
Low Sagebrush / Idaho Fescue	<i>Artemisia arbuscula</i> ssp. <i>arbuscula</i> / <i>Festuca idahoensis</i> Shrub Grassland	Low Sagebrush / Idaho Fescue Shrub Grassland	1-to-1
Threetip Sagebrush / Bluebunch Wheatgrass	<i>Artemisia tripartita</i> ssp. <i>tripartita</i> / <i>Pseudoroegneria spicata</i> Shrub Grassland	Threetip Sagebrush / Bluebunch Wheatgrass Shrub Grassland	1-to-1
Threetip Sagebrush / Idaho Fescue	<i>Artemisia tripartita</i> ssp. <i>tripartita</i> / <i>Festuca idahoensis</i> Shrub Grassland	Threetip Sagebrush / Idaho Fescue Shrub Grassland	1-to-1
Threetip Sagebrush / Needle-and-thread	<i>Artemisia tripartita</i> ssp. <i>tripartita</i> / <i>Hesperostipa comata</i> Shrub Grassland	Threetip Sagebrush / Needle-and-thread Shrub Grassland	1-to-1
Wyoming Big Sagebrush / Bluebunch Wheatgrass	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> / <i>Pseudoroegneria spicata</i> Shrub Grassland	Wyoming Big Sagebrush / Bluebunch Wheatgrass Shrub Grassland	1-to-1
Wyoming Big Sagebrush / Needle-and-thread	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> / <i>Hesperostipa comata</i> Shrubland	Wyoming Big Sagebrush / Needle-and-thread Shrubland	1-to-1
<b>Subalpine Parkland</b>			
Blueleaf Huckleberry Parkland	<i>Vaccinium deliciosum</i> Parkland Alpine Dwarf-shrubland	Cascade Bilberry Parkland	1-to-1
Mountain Heather / Subalpine Lupine	<i>Phyllodoce empetrifomis</i> / <i>Lupinus latifolius</i> Alpine Dwarf-shrubland	Pink Mountain-heather / Subalpine Lupine Alpine Dwarf-shrubland	1-to-1
Mountain Hemlock - Pacific Silver Fir / Pink Mountain-heather - Blueleaf Huckleberry	<i>Tsuga mertensiana</i> Krummholz Shrubland	Mountain Hemlock Krummholz Shrubland	1-to-1
Pink Mountain-heather - Blueleaf Huckleberry	<i>Phyllodoce empetrifomis</i> / <i>Vaccinium deliciosum</i> Alpine Dwarf-shrubland	Pink Mountain-heather / Cascade Bilberry Alpine Dwarf-shrubland	1-to-1
Sitka Valerian - Green False Hellebore	<i>Valeriana sitchensis</i> - <i>Veratrum viride</i> Meadow	Sitka Valerian - Green False Hellebore Meadow	1-to-1
Sitka Valerian - Showy Sedge	<i>Valeriana sitchensis</i> - <i>Carex spectabilis</i> Meadow	Sitka Valerian - Showy Sedge Meadow	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Subalpine Fir / Boxwood	<i>Abies lasiocarpa</i> / <i>Paxistima myrsinites</i> Woodland	Subalpine Fir / Oregon Boxwood Woodland	1-to-1
Subalpine Fir / Smooth Woodrush	<i>Abies lasiocarpa</i> - <i>Picea engelmannii</i> / <i>Luzula glabrata</i> var. <i>hitchcockii</i> Woodland	Subalpine Fir - Engelmann Spruce / Smooth Woodrush Woodland	1-to-1
Subalpine Fir / Subalpine Lupine	<i>Abies lasiocarpa</i> - ( <i>Pinus contorta</i> ) / <i>Lupinus arcticus</i> ssp. <i>subalpinus</i> Woodland	Subalpine Fir / Subalpine Lupine Woodland	1-to-1
Subalpine Larch Woodland	<i>Larix lyallii</i> Woodland [Provisional]	Subalpine Larch Woodland [Provisional]	1-to-1
Subalpine Sagebrush Parkland	Intermountain Mountain Big Sagebrush Steppe & Shrubland Group		1-to-1
Western Cassiope - Pink Mountain-heather	<i>Cassiope mertensiana</i> - <i>Phyllodoce</i> <i>empetriformis</i> Alpine Dwarf-shrubland	White Mountain-heather - Pink Mountain-heather Alpine Dwarf- shrubland	1-to-1
White-bark Pine	Central Rocky Mountain Whitebark Pine - Subalpine Larch Woodland Group		1-to-1
<b>Upland Aspen Forest</b>			
Quaking Aspen Forest	Rocky Mountain Subalpine-Montane Aspen Forest & Woodland Group		1-to-1
<b>Western Juniper and Mountain Mahogany Woodland</b>			
Curl-leaf Mountain-mahogany / Idaho Fescue	<i>Cercocarpus ledifolius</i> / <i>Festuca</i> <i>idahoensis</i> Woodland	Curl-leaf Mountain-mahogany / Idaho Fescue Woodland	1-to-1
<b>Westside Grassland</b>			
Montane Herbaceous Bald	Southern Vancouverian Shrub & Herbaceous Bald, Bluff & Prairie Group		many-to-1
North Pacific Herbaceous Bald and Bluff	Southern Vancouverian Shrub & Herbaceous Bald, Bluff & Prairie Group		many-to-1
Ponderosa Pine / Long-Stolon Sedge - Roemer's Fescue	<i>Pinus ponderosa</i> / <i>Carex inops</i> - <i>Festuca</i> <i>roemeri</i> Woodland	Ponderosa Pine / Long-stolon Sedge - Roemer's Fescue Woodland	1-to-1
Red Fescue - Great Camas - Oregon Gumweed	<i>Festuca rubra</i> - ( <i>Camassia leichtlinii</i> , <i>Grindelia stricta</i> var. <i>stricta</i> ) Grassland	Red Fescue - (Great Camas, Oregon Gumweed) Grassland	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Roemer's Fescue - Field Chickweed - Prairie Junegrass	Festuca roemeri - Cerastium arvense - Koeleria macrantha Grassland	Roemer's Fescue - Field Chickweed - Prairie Junegrass Grassland	1-to-1
Roemer's Fescue - White-topped Aster	Festuca roemeri - Sericocarpus rigidus Grassland	Roemer's Fescue - White-topped Aster Grassland	1-to-1
Willamette Valley Wet Prairie	Vancouverian Freshwater Wet Meadow & Marsh Group		many-to-1
<b>Westside Lowlands Conifer-Hardwood Forest</b>			
Bigleaf Maple - Red Alder / Swordfern - Fringecup	Acer macrophyllum - Alnus rubra / Polystichum munitum - Tellima grandiflora Forest	Bigleaf Maple - Red Alder / Western Swordfern - Fringecup Forest	1-to-1
Douglas-fir - (Grand Fir, Western Red-cedar) / Dwarf Oregon-grape - Salal	Pseudotsuga menziesii - (Abies grandis, Thuja plicata) / Mahonia nervosa - Gaultheria shallon Forest	Douglas-fir - (Grand Fir, Western Red-cedar) / Cascade Oregon-grape - Salal Forest	many-to-1
Douglas-fir - Western Hemlock / Cutleaf Foamflower	Pseudotsuga menziesii - Tsuga heterophylla / Tiarella trifoliata var. laciniata Forest	Douglas-fir - Western Hemlock / Cutleaf Foamflower Forest	1-to-1
Douglas-fir - Western Hemlock / Dwarf Oregongrape	Pseudotsuga menziesii - Tsuga heterophylla / Mahonia nervosa Forest	Douglas-fir - Western Hemlock / Cascade Oregon-grape Forest	1-to-1
Douglas-fir - Western Hemlock / Evergreen Huckleberry	Pseudotsuga menziesii - Tsuga heterophylla / Vaccinium ovatum Forest	Douglas-fir - Western Hemlock / Evergreen Huckleberry Forest	1-to-1
Douglas-fir - Western Hemlock / Oceanspray / Swordfern	Pseudotsuga menziesii - Tsuga heterophylla / Holodiscus discolor / Polystichum munitum Forest	Douglas-fir - Western Hemlock / Oceanspray / Western Swordfern Forest	1-to-1
Douglas-fir - Western Hemlock / Pacific Rhododendron	Pseudotsuga menziesii - Tsuga heterophylla / Rhododendron macrophyllum - Vaccinium ovatum - Gaultheria shallon Forest	Douglas-fir - Western Hemlock / Pacific Rhododendron - Evergreen Huckleberry Forest	many-to-1
Douglas-fir - Western Hemlock / Pacific Rhododendron - Evergreen Huckleberry	Pseudotsuga menziesii - Tsuga heterophylla / Rhododendron macrophyllum - Vaccinium ovatum - Gaultheria shallon Forest	Douglas-fir - Western Hemlock / Pacific Rhododendron - Evergreen Huckleberry Forest	many-to-1
Douglas-fir - Western Hemlock / Salal	Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon - Holodiscus discolor Forest	Douglas-fir - Western Hemlock / Salal - Oceanspray Forest	1-to-1

<b>2018 Ecosystem Element</b>	<b>2022 Ecosystem Element (scientific name)</b>	<b>2022 Ecosystem Element (common name)</b>	<b>Relationship</b>
Douglas-fir - Western Hemlock / Salal / Swordfern	<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i> / <i>Polystichum munitum</i> Forest	Douglas-fir - Western Hemlock / Salal / Western Swordfern Forest	1-to-1
Douglas-fir - Western Hemlock / Vanillaleaf	<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Achlys triphylla</i> Forest	Douglas-fir - Western Hemlock / Vanillaleaf Forest	1-to-1
Douglas-fir - Western Redcedar / Salal - Oceanspray	<i>Pseudotsuga menziesii</i> - ( <i>Abies grandis</i> , <i>Thuja plicata</i> ) / <i>Mahonia nervosa</i> - <i>Gaultheria shallon</i> Forest	Douglas-fir - (Grand Fir, Western Redcedar) / Cascade Oregon-grape - Salal Forest	many-to-1
Douglas-fir / Vine Maple	<i>Pseudotsuga menziesii</i> / <i>Acer circinatum</i> Forest	Douglas-fir / Vine Maple Forest	1-to-1
Hypermaritime Douglas-fir - Western Hemlock Forest	North Pacific Maritime Douglas-fir - Western Hemlock Rainforest Group		1-to-1
Lodgepole Pine - Sitka Spruce / Evergreen Huckleberry	<i>Picea sitchensis</i> - <i>Pinus contorta</i> / <i>Gaultheria shallon</i> - <i>Vaccinium ovatum</i> Forest	Sitka Spruce - Shore Pine / Salal - Evergreen Huckleberry Forest	1-to-1
Pacific Silver Fir / Oregon Oxalis	<i>Tsuga heterophylla</i> - <i>Abies amabilis</i> - <i>Pseudotsuga menziesii</i> / <i>Oxalis oregana</i> Forest	Western Hemlock - Pacific Silver Fir - Douglas-fir / Redwood Sorrel Forest	1-to-1
Pacific Silver Fir / Salal / Deer Fern	<i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Gaultheria shallon</i> / <i>Blechnum spicant</i> Forest	Western Hemlock - Western Redcedar / Salal / Deer Fern Forest	many-to-1
Paper Birch - Red Alder / Swordfern	<i>Betula papyrifera</i> var. <i>commutata</i> - <i>Alnus rubra</i> / <i>Polystichum munitum</i> Forest	Paper Birch - Red Alder / Swordfern Forest	1-to-1
Red Alder Forest	North Pacific Red Alder - Bigleaf Maple - Douglas-fir Rainforest Group		1-to-1
Sitka Spruce / Oregon Oxalis	<i>Picea sitchensis</i> - <i>Tsuga heterophylla</i> / <i>Polystichum munitum</i> - <i>Oxalis oregana</i> Forest	Sitka Spruce - Western Hemlock / Western Swordfern - Redwood Sorrel Forest	1-to-1
Sitka Spruce / Salal	<i>Picea sitchensis</i> / <i>Gaultheria shallon</i> Forest	Sitka Spruce / Salal - Oceanspray Forest	1-to-1
Sitka Spruce / Swordfern	<i>Picea sitchensis</i> - <i>Tsuga heterophylla</i> / <i>Polystichum munitum</i> Forest	Sitka Spruce - Western Hemlock / Western Swordfern Forest	1-to-1
Western Hemlock - (Western Redcedar) / Devil's-club / Swordfern	<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> - ( <i>Thuja plicata</i> ) / <i>Oplopanax</i>	Western Hemlock - (Western Redcedar) / Devil's-club / Western Swordfern Swamp Forest	1-to-1

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	horridus / Polystichum munitum Swamp Forest		
Western Hemlock / Alaska Huckleberry	Pseudotsuga menziesii - Tsuga heterophylla / Vaccinium alaskaense / Xerophyllum tenax Forest	Douglas-fir - Western Hemlock / Alaska Blueberry / Common Beargrass Forest	1-to-many
	Tsuga heterophylla - (Pseudotsuga menziesii) / Vaccinium alaskaense - Mahonia nervosa - (Gaultheria shallon) Forest	Western Hemlock - (Douglas-fir) / Alaska Blueberry - Cascade Oregon-grape - (Salal) Forest	1-to-many
	Tsuga heterophylla - (Pseudotsuga menziesii) / Vaccinium alaskaense / Cornus unalaschensis Forest	Western Hemlock - (Douglas-fir) / Alaska Blueberry / Western Cordilleran Bunchberry Forest	1-to-many
	Tsuga heterophylla - (Pseudotsuga menziesii) / Vaccinium alaskaense / Polystichum munitum Forest	Western Hemlock - (Douglas-fir) / Alaska Blueberry / Western Swordfern Forest	1-to-many
Western Hemlock / Beargrass	Pseudotsuga menziesii - Tsuga heterophylla / Vaccinium alaskaense / Xerophyllum tenax Forest	Douglas-fir - Western Hemlock / Alaska Blueberry / Common Beargrass Forest	many-to-1
Western Hemlock / Dwarf Oregongrape - Salal	Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon - Mahonia nervosa Forest	Douglas-fir - Western Hemlock / Salal - Cascade Oregon-grape Forest	1-to-1
Western Hemlock / Foamflower - Western Oakfern	Pseudotsuga menziesii - Tsuga heterophylla / Mahonia nervosa / Tiarella trifoliata Forest	Douglas-fir - Western Hemlock / Cascade Oregon-grape / Three-leaf Foamflower Forest	1-to-many
	Tsuga heterophylla - (Pseudotsuga menziesii) / Tiarella trifoliata - Gymnocarpium dryopteris Forest	Western Hemlock - (Douglas-fir) / Three-leaf Foamflower - Western Oakfern Forest	1-to-many
Western Hemlock / Oregon Oxalis	Tsuga heterophylla / Vaccinium alaskaense / Oxalis oregana Forest	Western Hemlock / Alaska Blueberry / Redwood Sorrel Forest	1-to-1
Western Hemlock / Salal	Tsuga heterophylla - Thuja plicata / Vaccinium (alaskaense, ovalifolium) / Hylocomium splendens Forest	Western Hemlock - Western Red-cedar / (Alaska Blueberry, Oval-leaf Blueberry) / Splendid Feathermoss Forest	1-to-1
Western Hemlock / Salal / Deer Fern	Tsuga heterophylla-(Abies amabilis)/Gaultheria shallon/Blechnum spicant	Western Hemlock - (Pacific Silver Fir) / Salal / Deer Fern Forest	1-to-1

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
Western Hemlock / Swordfern	<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> - <i>Abies amabilis</i> / <i>Vaccinium parvifolium</i> / <i>Achlys triphylla</i> Forest	Western Hemlock - Douglas-fir - Pacific Silver Fir / Red Huckleberry / Vanillaleaf Forest	1-to-1
Western Redcedar - Grand Fir / Swordfern	<i>Thuja plicata</i> - <i>Abies grandis</i> / <i>Polystichum munitum</i> Forest	Western Red-cedar - Grand Fir / Swordfern Forest	1-to-1
Western Redcedar - Western Hemlock / Evergreen Huckleberry Community	<i>Thuja plicata</i> - <i>Tsuga heterophylla</i> / <i>Vaccinium ovatum</i> - <i>Gaultheria shallon</i> Forest	Western Red-cedar - Western Hemlock / Evergreen Huckleberry - Salal Forest	1-to-1
Western Redcedar - Western Hemlock / Salal / Deerfern	<i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Gaultheria shallon</i> / <i>Blechnum spicant</i> Forest	Western Hemlock - Western Red-cedar / Salal / Deer Fern Forest	many-to-1
Western Redcedar / Vine Maple	<i>Thuja plicata</i> / <i>Acer circinatum</i> Forest	Western Red-cedar / Vine Maple Forest	1-to-1
<b>Westside Oak and Dry Douglas-fir Forest and Woodland</b>			
Douglas-fir - Grand Fir / Snowberry / Alaska Oniongrass	<i>Pseudotsuga menziesii</i> - <i>Abies grandis</i> / <i>Symphoricarpos albus</i> / <i>Melica subulata</i> Forest	Douglas-fir - Grand Fir / Common Snowberry / Alaska Oniongrass Forest	1-to-1
Douglas-fir - Lodgepole Pine Serpentine	Southern Vancouverian Dry Douglas-fir - Madrone Woodland Group		1-to-1
Douglas-fir - Oregon White Oak / Common Snowberry	<i>Pseudotsuga menziesii</i> - <i>Quercus garryana</i> / <i>Symphoricarpos albus</i> Woodland	Douglas-fir - Oregon White Oak / Common Snowberry Woodland	1-to-1
Douglas-fir - Pacific Madrone / Hairy Honeysuckle	<i>Pseudotsuga menziesii</i> - <i>Arbutus menziesii</i> / <i>Vicia americana</i> Forest	Douglas-fir - Pacific Madrone / Oceanspray Forest	1-to-1
Douglas-fir - Pacific Madrone / Salal	<i>Arbutus menziesii</i> - ( <i>Pseudotsuga menziesii</i> ) / <i>Gaultheria shallon</i> Forest	Pacific Madrone (Douglas-fir) / Salal Forest	1-to-1
Douglas-fir - Rocky Mountain juniper / fescue - Indian's dream	<i>Pseudotsuga menziesii</i> - ( <i>Arbutus menziesii</i> ) / <i>Aspidotis densa</i> Woodland	Douglas-fir - Rocky Mountain juniper / fescue - Indian's dream	1-to-1
Douglas-fir / Baldhip Rose - Oceanspray	<i>Pseudotsuga menziesii</i> / <i>Rosa gymnocarpa</i> - <i>Holodiscus discolor</i> Forest	Douglas-fir / Baldhip Rose - Oceanspray Forest	1-to-1
Douglas-fir / Beaked Hazel / Swordfern	<i>Pseudotsuga menziesii</i> - <i>Abies grandis</i> / <i>Corylus cornuta</i> / <i>Polystichum munitum</i> Forest	Douglas-fir - Grand Fir / Beaked Hazelnut / Western Swordfern Forest	1-to-many

2018 Ecosystem Element	2022 Ecosystem Element (scientific name)	2022 Ecosystem Element (common name)	Relationship
	<i>Pseudotsuga menziesii</i> / <i>Corylus cornuta</i> / <i>Symphoricarpos</i> ( <i>albus</i> , <i>hesperius</i> ) - <i>Polystichum munitum</i> Forest	Douglas-fir / Beaked Hazelnut / Snowberry - Western Swordfern Forest	1-to-many
Douglas-fir / Common Snowberry - Oceanspray	<i>Pseudotsuga menziesii</i> / <i>Holodiscus</i> <i>discolor</i> - <i>Symphoricarpos albus</i> Forest	Douglas-fir / Oceanspray - Common Snowberry Forest	1-to-1
Douglas-fir / Salal	<i>Pseudotsuga menziesii</i> / <i>Gaultheria</i> <i>shallon</i> - <i>Holodiscus discolor</i> Forest	Douglas-fir / Salal - Oceanspray Forest	many-to-1
Douglas-fir / Salal - Oceanspray	<i>Pseudotsuga menziesii</i> / <i>Gaultheria</i> <i>shallon</i> - <i>Holodiscus discolor</i> Forest	Douglas-fir / Salal - Oceanspray Forest	many-to-1
Oregon White Oak / Common Snowberry / Long-stolon Sedge	<i>Quercus garryana</i> / <i>Symphoricarpos albus</i> / <i>Carex inops</i> Woodland	Oregon White Oak / Common Snowberry / Long-stolon Sedge Woodland	1-to-1
Oregon White Oak / Long- stolon Sedge - Common Camas	<i>Quercus garryana</i> / <i>Carex inops</i> - <i>Camassia quamash</i> Woodland	Oregon White Oak / Long-stolon Sedge - Common Camas Woodland	1-to-1
Oregon White Oak / Oval-leaf Viburnum - Poison-Oak	<i>Quercus garryana</i> / <i>Viburnum ellipticum</i> - <i>Toxicodendron diversilobum</i> Woodland	Oregon White Oak / Oval-leaf Viburnum - Pacific Poison-oak Woodland	1-to-1
Oregon White Oak / Poison- Oak / Blue Wildrye	<i>Quercus garryana</i> / <i>Toxicodendron</i> <i>diversilobum</i> / <i>Elymus glaucus</i> Woodland	Oregon White Oak / Pacific Poison-oak / Blue Wildrye Woodland	1-to-1
Shore Pine - Douglas-fir / Salal	<i>Pinus contorta</i> var. <i>contorta</i> / <i>Gaultheria</i> <i>shallon</i> Forest	Shore Pine - Douglas-fir / Salal Forest	1-to-1

Relationship definitions:

1-to-1 = 2018 Element is the same as 2022 Element

1-to-many = 2018 Element is equal to more than one 2022 Element (e.g., the 2018 Element is a broader concept than the 2022 Elements)

many-to-1 = more than one 2018 Element is equal to the 2022 Element (e.g., the 2018 Element is a narrower concept than the 2022 Element)