11560

North Pacific Lowland Riparian Forest and Shrubland

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Woody Wetland

Map Zones

1, 2, 7

Geographic Range

Lowland riparian systems occur throughout the Pacific Northwest and are more abundant in the central and southern portions of the Pacific Northwest coast.

Biophysical Site Description

They are low-elevation alluvial floodplains confined by valleys and inlets. These forests and tall shrublands are linear in character, occurring on floodplains or terraces of rivers and streams.

Vegetation Description

Major broadleaf-dominant species are *Alnus rubra*, *Acer macrophyllum*, *Populus balsamifera* ssp*. trichocarpa*, *Salix sitchensis*, *Salix lucida* ssp*. lasiandra*, *Cornus sericea*,and *Fraxinus latifolia* (esp. in southwestern Washington and the Willamette Valley). Conifers tend to increase with succession in the absence of major disturbance. *Abies grandis*, *Pseudotsuga menziesii*, *Picea sitchensis*,and *Thuja plicata* are important. Very early successional stages can be sparsely vegetated or dominated by herbaceous vegetation. Shrubs include *Rubus spectabilis*, *Symphoricarpus albus*, and *Sambucus racemosa.*

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| ACMA3 | *Acer macrophyllum* | Bigleaf maple |
| ALRU2 | *Alnus rubra* | Red alder |
| POBAT | *Populus balsamifera ssp. trichocarpa* | Black cottonwood |
| COSE16 | *Cornus sericea* | Redosier dogwood |
| FRLA | *Fraxinus latifolia* | Oregon ash |
| THPL | *Thuja plicata* | Western red-cedar |
| RUSP | *Rubus spectabilis* | Salmonberry |

Species names are from the NRCS PLANTS database. Check species codes at http://plants.usda.gov.

Disturbance Description

Riverine flooding and the succession that occurs after major flooding events are the major natural processes that drive this system.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 755 | 100 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 755 | 100 |  |  |

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Willamette Valley is warmer and has more ash. More cedar in Willamette Valley than other conifers; but, there was more burning and agriculture, and less flooding.

Adjacency or Identification Concerns

Oak-PSME types might be adjacent in the foothills, and Willamette Valley grasslands and oak savannas could be adjacent in most of the range of this type.

Issues or Problems

Conifer-dominated types are now very rare and not well described.

Native Uncharacteristic Conditions

Comments

Map zones 1, 2, and 7 were combined during the 2015 Biophysical Setting Review.

Wind/weather/stress represent flooding in this model.

A LANDFIRE National reviewer commented that there is concern that low-elevation grand fir is being heavily impacted by the balsam woolly adelgid and that large grand firs are disappearing as a component of these stands. In sites in the Willamette Valley, balsam woolly adelgid, a non-native invasive insect, is eliminating the large grand fir in many of these stands. This may push it into a different s-class, but this is dependent on the proportion of grand fir in the stand. With lesser amounts of grand fir, the result may just be a change in stand composition. Severity may vary among stands because of variables we do not understand, but the impact on the stand is probably most dependent on the proportion of grand fir in the stand.

Succession Classes

**Mapping Rules**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Upper Layer Lifeform** | **Height (m)** | **Canopy Cover (%)** | | | | | | | | | |
| **0-10** | **11-20** | **21-30** | **31-40** | **41 - 50** | **51-60** | **61-70** | **71-80** | **81-90** | **91-100** |
| Herb | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Herb | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Herb | >1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 1.0-3.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | >3.0 | A | A | A | A | A | A | A | A | A | A |
| Tree | 0-5 | A | A | A | A | A | A | A | A | A | A |
| Tree | 5-10 | A | A | A | A | A | A | A | A | A | A |
| Tree | 10-25 | C | C | C | C | C | C | C | C | B | B |
| Tree | 25-50 | C | C | C | C | C | C | C | C | B | B |
| Tree | >50 | D | D | D | D | D | D | D | D | D | D |

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

**Description**

Class A 16 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SALIX | Salix | Willow | Middle |
| ALRU2 | Alnus rubra | Red alder | Mid-Upper |
| POBAT | Populus balsamifera ssp. trichocarpa | Black cottonwood | Upper |

Description

Immediate post-disturbance responses are dependent on pre-disturbance vegetation composition. Typically tree dominated, but shrubs may co-dominate. Composition highly variable.

*Maximum Tree Size Class*  
Pole 5-9" DBH

Class B 18 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ACMA3 | Acer macrophyllum | Bigleaf maple | Upper |
| ALRU2 | Alnus rubra | Red alder | Mid-Upper |
| POBAT | Populus balsamifera ssp. trichocarpa | Black cottonwood | Upper |

Description

Vegetation includes alder or other hardwood with mix of species. Highly dependent on the hydrologic regime. Vegetation composition includes tall trees and shrubs. Maple or cottonwood stands are transition to Class C as late as 100-200yrs. However, some stands (alder dominated) break up at 80yrs of age (modeled as alternate succession).

*Maximum Tree Size Class*  
None

Class C 19 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ACMA3 | Acer macrophyllum | Bigleaf maple | Upper |
| ALRU2 | Alnus rubra | Red alder | Mid-Upper |
| POBAT | Populus balsamifera ssp. trichocarpa | Black cottonwood | None |

Description

This class represents the mature, large bigleaf maple (especially in the coastal valleys), alder, etc. woodlands. Tree height can exceed 75ft.

*Maximum Tree Size Class*  
None

Class D 47 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| THPL | Thuja plicata | Western red-cedar | Upper |
| TSHE | Tsuga heterophylla | Western hemlock | Upper |
| PISI | Picea sitchensis | Sitka spruce | Upper |

Description

These stands could be spruce along the coast, but usually are western red-cedar or western hemlock inland.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 15 |
| Mid1:CLS | 16 | Late1:CLS | 120 |
| Late1:CLS | 120 | Late1:OPN | 220 |
| Late1:OPN | 220 | Late1:OPN | 999 |

Probabilistic Transitions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Disturbance Type** | **Disturbance occurs In** | **Moves vegetation to** | **Disturbance Probability** | **Return Interval (yrs)** | **Reset Age to New Class Start Age After Disturbance?** | **Years Since Last Disturbance** |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Early1:ALL | Early1:ALL | 0.11 | 9 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Wind or Weather or Stress | Mid1:CLS | Early1:ALL | 0.01 | 100 | Yes | 0 |
| Alternative Succession | Mid1:CLS | Late1:CLS | 0.016 | 63 | Yes | 0 |
| Wind or Weather or Stress | Mid1:CLS | Mid1:CLS | 0.1 | 10 | No | 0 |
| Wind or Weather or Stress | Late1:OPN | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Mid1:CLS | 0.01 | 100 | Yes | 0 |

References

Franklin, J.F. and C.T. Dyrness. 1988. Natural Vegetation of Oregon and Washington. Corvallis, OR: Oregon State University Press. 452 pp.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA. Data current as of 10 February 2007.