11581

North Pacific Montane Riparian Woodland and Shrubland - Wet

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
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| None | None | None | None |

Vegetation Type

Woody Wetland

Map Zones

1, 2, 7

Model Splits or Lumps

This Biophysical Setting (BpS) is split into multiple models. This model was split into a wet and a dry version. The wet type (BpS 11581) is primarily found on the western side of the Cascade crest and is characterized by a longer fire return interval (FRI). The dry type (BpS 11582) is found mostly on the eastern side of the Cascade crest and has a shorter FRI.

Geographic Range

This type occurs in the north and central coast range, westside Oregon Cascades, and westside Washington Cascades.

Biophysical Site Description

This ecological system is found within a broad elevation range from ~150m (500ft) to >1,000m (3,000ft). Related upper montane communities occur above this, up to about 1,200-1,500m (3,600-4,500ft). The montane riparian forested floodplains are maintained by flooding. They are found in narrow valleys with cobbly substrates. Sites are subject to temporary flooding during winter high flow. Soils are typically alluvial deposits of silts and loams on gravels and cobbles that are highly stratified with depth due to flood scour and deposition. Beaver play a minor role in these relatively steep systems.

Vegetation Description

This ecological system occurs as a mosaic of communities that are sometimes tree-dominated, depending on disturbance history. Understory components are more constant on typical geomorphic surfaces than the tree component. Surfaces are frequently reset before conifers grow moderate or large diameter.

In the Oregon Coast Range and western Cascades, dominant trees may include *Acer macrophylla*, *Alnus rubra*, *Populus balsamifera* ssp. *trichocarpa* (on the larger, lower reaches), *Pseudotsuga menziesii*, *Thuja plicata*, and *Tsuga heterophylla*. Dominant shrubs include *Acer circinatum*, *Ribes bracteosum*, and *Rubus spectabilis*. Herbaceous layers are forb- and fern-dominated; typical species include *Athyrium felix-femina*, *Oxalis*, *Petasites frigidus*, *Polystichum munitum*, *Stachys cooleyae*, and *Tolmeia menziesii*. In the upper montane riparian zones in the Cascades, dominant trees may include *Abies amabilis*, *Alnus rubra* (less than in lower elevations), and *Tsuga heterophylla*. *Menziesia ferruginea*, *Ribes lacustre*, and *Vaccinium alaskaense* are added to the *Ribes bracteosum* and *Rubus spectabilis*. *Tiarella trifoliata unifoliata*, *Achllys triphylla*, and *Boykinia major* become more common.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| ALRU2 | *Alnus rubra* | Red alder |
| ACMA3 | *Acer macrophyllum* | Bigleaf maple |
| RUSP | *Rubus spectabilis* | Salmonberry |
| ACCI | *Acer circinatum* | Vine maple |
| THPL | *Thuja plicata* | Western red cedar |
| PSME | *Pseudotsuga menziesii* | Douglas-fir |
| SASI2 | *Salix sitchensis* | Sitka willow |

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

Disturbance Description

This type is dominated by hydrologic disturbances rather than fire. Within a forest matrix, these riparian zones usually act as a noticeable fire break. Most of this system is wet or very wet and might not burn in a conflagration event (i.e., with high winds) although plants might still die due to heat or smoke from fires in adjacent BpS. However, above the ABAM zone, the effect may disappear. Much of the lower reaches of this type have now been converted to agriculture, urban or rural housing, or reservoirs.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 1893 | 46 |  |  |
| Moderate (Mixed) | 1605 | 54 |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 868 | 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

None

Adjacency or Identification Concerns

This type occurs within forested types in western Oregon and Washington. Along the coast, in the fog drip zone, the surrounding forest is Sitka spruce. (The fire regime for the Sitka spruce would apply rather than this BpS fire frequency.) Inland, the types could be PSME-TSHE types and ABAM types in the Cascades.

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones (MZs) 01, 02, and 07 were combined during 2015 BpS Review.

This type was split into a dry and a wet type after mapping because the model no longer fit the mapped distribution of the system. Kori Blankenship split the original model (BpS 11580) into a wet (BpS 11581) and a dry (BpS 11582) type. The dry type is similar to the original model with only minor descriptive changes. The wet type was altered to have a longer FRI, which made it more similar to the adjacent vegetation types. These changes were made with input from Jan Henderson, Rex Crawford, and Jimmy Kagan. K. Blankenship was unable to get feedback on how species composition might differ between these two types. Future iterations of this model should consider species and other descriptive changes to the description.

Models for MZ02 and MZ01 are the same. As a result of national QC for MZ02, the VDDT model was altered: Class C start age was changed from 50yrs to 85yrs to make the ages line up along the main successional pathway and comply with LANDFIRE rules. This change did not alter the model results.

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 | B | B | B | B | B | B | B | B | B | B |
| Tree | 5-10 | B | B | B | B | B | B | B | B | B | B |
| Tree | 10-25 | B | B | B | B | B | C | C | C | C | C |
| Tree | 25-50 | B | B | B | B | B | C | C | C | C | C |
| Tree | >50 | B | B | B | B | B | C | C | C | C | C |

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 12 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ALRU2 | Alnus rubra | Red alder | Upper |
| SASI2 | Salix sitchensis | Sitka willow | Upper |
| RUSP | Rubus spectabilis | Salmonberry | Upper |

Description

Immediate post-disturbance responses are dependent on preexisting vegetation composition. Sediment deposits, woody debris, or variable scour may be common. Composition is highly variable.

*Maximum Tree Size Class*  
None

Class B 73 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ALRU2 | Alnus rubra | Red alder | Upper |
| ACMA3 | Acer macrophyllum | Bigleaf maple | Upper |
| RUSP | Rubus spectabilis | Salmonberry | Lower |
| ACCI | Acer circinatum | Vine maple | Lower |

Description

Highly dependent on the hydrologic regime. Vegetation composition includes tall shrubs and small trees (alder, maple, conifers).

*Maximum Tree Size Class*  
Medium 9-21" DBH

Class C 15 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ALRU2 | Alnus rubra | Red alder | Middle |
| ACMA3 | Acer macrophyllum | Bigleaf maple | Mid-Upper |
| PSME | Pseudotsuga menziesii | Douglas-fir | Upper |

Description

The class represents the mature large alder, maple, conifer, etc., woodland/forest.

*Maximum Tree Size Class*  
Large 21-33" DBH

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:OPN | 4 |
| Mid1:OPN | 5 | Late1:CLS | 84 |
| Late1:CLS | 85 | Late1:CLS | 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** |
| Wind or Weather or Stress | Early1:ALL | Early1:ALL | 0.2 | 5 | Yes | 0 |
| Replacement Fire | Mid1:OPN | Mid1:OPN | 0.0006 | 1667 | No | 0 |
| Mixed Fire | Mid1:OPN | Mid1:OPN | 0.0007 | 1429 | No | 0 |
| Wind or Weather or Stress | Mid1:OPN | Early1:ALL | 0.02 | 50 | Yes | 0 |
| Wind or Weather or Stress | Mid1:OPN | Mid1:OPN | 0.2 | 5 | No | 0 |
| Replacement Fire | Late1:CLS | Mid1:OPN | 0.0006 | 1667 | Yes | 0 |
| Mixed Fire | Late1:CLS | Late1:CLS | 0.0007 | 1429 | No | 0 |
| Wind or Weather or Stress | Late1:CLS | Early1:ALL | 0.01 | 100 | Yes | 0 |
| Wind or Weather or Stress | Late1:CLS | Mid1:OPN | 0.0133 | 75 | Yes | 0 |

References

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