

# LANDFIRE Biophysical Setting Model

**Biophysical Setting 7516760**

**Alaskan Pacific Maritime Alpine Floodplain**

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

## General Information

**Contributors** (also see the Comments field)

**Date** 9/15/2008

**Modeler 1** Rick Turner rltturner@fs.fed.us

**Reviewer** Tom DeMeo tdemeo@fs.fed.us

**Modeler 2**

**Reviewer** Tina Boucher antvb@uaa.alaska.edu

**Modeler 3**

**Reviewer**

### Vegetation Type

Wetlands/Riparian

### Map Zone

75

### Model Zone

- |                                            |                                            |
|--------------------------------------------|--------------------------------------------|
| <input checked="" type="checkbox"/> Alaska | <input type="checkbox"/> N-Cent.Rockies    |
| <input type="checkbox"/> California        | <input type="checkbox"/> Pacific Northwest |
| <input type="checkbox"/> Great Basin       | <input type="checkbox"/> South Central     |
| <input type="checkbox"/> Great Lakes       | <input type="checkbox"/> Southeast         |
| <input type="checkbox"/> Northeast         | <input type="checkbox"/> S. Appalachians   |
| <input type="checkbox"/> Northern Plains   | <input type="checkbox"/> Southwest         |

### Dominant Species\*

CHLA13 ALVIS  
CHAN9 SAST2  
SAAL SACA14  
LUNO

### General Model Sources

- ☐ Literature  
☐ Local Data  
☒ Expert Estimate

### Geographic Range

This type is found in alpine environments throughout southeast AK.

### Biophysical Site Description

This system includes active alpine and subalpine floodplains and consists of a complex of riparian vegetation including gravel bars, herbaceous vegetation and dwarf, low, or tall shrub (NatureServe 2008). These are often glacially fed systems that are characterized by high energy flooding, shifting channels, and transport and deposition of alluvium (NatureServe 2008). Tall and low shrubs reach their maximum elevation extent in riparian zones. This may be due to protection from climatic extremes in valley bottoms and the deeper winter snowpack or the favorable growing conditions of the riparian zone. Flooding regime and soil moisture control the pattern of vegetation cover (NatureServe 2008).

### Vegetation Description

Common species occurring in frequently flooded areas include *Chamerion latifolium*, *C. angustifolium*, *Lupinus nootkatensis*, *Alnus viridis* ssp. *sinuata* and *Salix alaxensis*. Species occurring in more stabilized areas of the floodplain may include *Salix reticulata*, *S. alaxensis*, *S. stolonifera*, *Phyllodoce aleutica*, *Harrimanella stelleriana*, *Luetkea pectinata*, *Petasites frigidus* and *Sanguisorba canadensis*.

### Disturbance Description

Frequent flooding is the dominant disturbance factor and serves to maintain the alpine riparian community.

### Adjacency or Identification Concerns

This type occurs adjacent to other alpine herbaceous and shrub communities.

### Native Uncharacteristic Conditions

\*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

\*\*Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100-year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity

## Scale Description

Linear. Alpine floodplain riparian areas tend to be narrow, maybe up to 100ft wide.

## Issues/Problems

This system is represented by a one-box model because the successional dynamics are unclear and it is unlikely that seral stages could be identified for mapping, even if defined, due to the narrow, linear nature of this community.

Some feedback from southeast AK experts indicated that this BpS was uncommon or too small for mapping. Mapping its component parts might be more feasible.

## Comments

This system was created for the maritime region and did not receive review for other regions in the state.

This model was developed based on the draft Maritime Ecological Systems description (NatureServe 2008) and input from Rick Turner. Alpine floodplains were treated differently in the AK Sub-Boreal region where a lower and a higher elevation alpine floodplain were modeled. Due to lack of information and the narrow, linear nature of this system in southeast AK, a one-box model is used to represent all alpine floodplains in the AK maritime region. A reviewer suggested that this model should have herbaceous and shrub seral stages but did not recommend changing the model because it was probable that this type could not be mapped.

## Vegetation Classes

### Class A 100%

Mid Development 1 All Structures

#### Upper Layer Lifeform

- ☐ Herbaceous  
☒ Shrub  
☐ Tree

#### Indicator Species\* and Canopy Position

CHLA13 Upper  
LUNO Upper  
PEFR5 Upper  
SAAL Upper

#### Structure Data (for upper layer lifeform)

| Min             |                                 | Max                              |
|-----------------|---------------------------------|----------------------------------|
| Cover           | Open Shrub (25-74% shrub cover) | Closed Shrub (> 75% shrub cover) |
| Height          | Dwarf Shrub (< 20 cm)           | Tall Shrub (>1.5 m)              |
| Tree Size Class | None                            |                                  |

☐ Upper layer lifeform differs from dominant lifeform.

Herbs or shrubs may dominate.

#### Description

Zero years plus

This class represents the Alpine Floodplain community. Species composition is variable. See the Vegetation Description for a list of common species.

This community will persist under appropriate hydrological conditions. Flooding (represented by Option 1 in the model) is included in the model to represent this important disturbance but its probability (0.1) is only included as a placeholder. Some flooding occurs annually but flood frequency and severity varies by location.

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**Class B 0 %**

[Not Used] [Not Used]

**Upper Layer Lifeform**

- ☐ Herbaceous  
☐ Shrub  
☐ Tree

**Indicator Species\* and  
Canopy Position****Structure Data (for upper layer lifeform)**

|                 | Min | Max |
|-----------------|-----|-----|
| Cover           |     |     |
| Height          |     |     |
| Tree Size Class |     |     |

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class C 0 %**

[Not Used] [Not Used]

**Upper Layer Lifeform**

- ☐ Herbaceous  
☐ Shrub  
☐ Tree

**Indicator Species\* and  
Canopy Position****Structure Data (for upper layer lifeform)**

|                 | Min | Max |
|-----------------|-----|-----|
| Cover           |     |     |
| Height          |     |     |
| Tree Size Class |     |     |

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class D 0 %**

[Not Used] [Not Used]

**Upper Layer Lifeform**

- ☐ Herbaceous  
☐ Shrub  
☐ Tree

**Indicator Species\* and  
Canopy Position****Structure Data (for upper layer lifeform)**

|                 | Min | Max |
|-----------------|-----|-----|
| Cover           |     |     |
| Height          |     |     |
| Tree Size Class |     |     |

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class E 0 %**

[Not Used] [Not Used]

**Upper Layer Lifeform**

- ☐ Herbaceous  
☐ Shrub  
☐ Tree

**Indicator Species\* and  
Canopy Position****Structure Data (for upper layer lifeform)**

|                 | Min | Max |
|-----------------|-----|-----|
| Cover           |     |     |
| Height          |     |     |
| Tree Size Class |     |     |

☐ Upper layer lifeform differs from dominant lifeform.**Description****Disturbances**

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**Fire Regime Group\*\*:** NA

**Historical Fire Size (acres)**

Avg 0

Min 0

Max 0

**Sources of Fire Regime Data**

- ☐ Literature  
☐ Local Data  
☒ Expert Estimate

**Additional Disturbances Modeled**

- ☐ Insects/Disease      ☐ Native Grazing      ☒ Other (optional 1) Flooding  
☐ Wind/Weather/Stress      ☐ Competition      ☐ Other (optional 2)

**Fire Intervals**

|             | Avg FI | Min FI | Max FI | Probability | Percent of All Fires |
|-------------|--------|--------|--------|-------------|----------------------|
| Replacement |        |        |        |             |                      |
| Mixed       |        |        |        |             |                      |
| Surface     |        |        |        |             |                      |
| All Fires   |        |        |        |             |                      |

**Fire Intervals (FI):**

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class.

**References**

NatureServe. 2008. International Ecological Classification Standard: Terrestrial Ecological Classifications. Draft Ecological Systems Description for the Alaska Maritime Region.

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