

# LANDFIRE Biophysical Setting Model

**Biophysical Setting 6816890**

**Alaska Arctic Non-Acidic Dryas Dwarf-Shrubland**

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

## General Information

**Contributors** (also see the Comments field) **Date** 10/17/2008

**Modeler 1** Kori Blankenship kblankenship@tnc.org **Reviewer** Janet Jorgenson Janet\_Jorgenson@fws.gov

**Modeler 2** Keith Boggs Ankwb@uaa.alaska.edu **Reviewer**

**Modeler 3** **Reviewer**

### Vegetation Type

Upland Shrubland

### Map Zone

68

### 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\*

DROC SAAR27  
DRIN4 SARE2  
SAOP CATE11  
RHLA2 ARRU

### General Model Sources

- ☐ Literature  
☐ Local Data  
☒ Expert Estimate

## Geographic Range

This BpS occurs throughout arctic AK, from the Bristol Bay lowlands in southwestern AK to the North Slope on the Arctic Ocean.

## Biophysical Site Description

This is a common system on non-acidic substrates (pH typically >6) in the hills and mountains of arctic Alaska. Common slope positions include valleys, sideslopes, summits and ridges. Cover is sparse due to extreme exposure, exposed bedrock or unstable substrates. Sites are typically dry to mesic and are rare on late-lying snowbeds. Non-acidic sites are more common near floodplains, on carbonate substrates, and loess deposition areas. This system may be found as small patches on river bluffs on the Beaufort Coastal Plain. It does not occur on flat thaw-lake plains. The soils are typically thin, stony, and well-drained.

## Vegetation Description

Dwarf-shrub cover is >25% and dominated by Dryas spp. Dryas octopetala and/or Dryas integrifolia codominate with Saxifraga oppositifolia and Rhododendron lapponicum. Other common dwarf-shrubs include Salix arctica, Salix reticulata, Cassiope tetragona and Arctostaphylos rubra. Herbaceous species include Lupinus arcticus, Carex scirpoidea, Carex rupestris, Oxytropis nigrescens, Potentilla uniflora, Artemisia senjavinensis, Artemisia globularia, Artemisia furcata, Hedysarum boreale ssp. mackenziei, Saxifraga oppositifolia and Equisetum spp. Lichens such as Thamnolia spp. and Cetraria islandica also occur.

## Disturbance Description

Successional relationships are unclear. Cryoturbation is the primary disturbance affecting this BpS.

\*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

## Adjacency or Identification Concerns

Species composition can not be used to separate this BpS from the Alaska Arctic Acidic Dryas Dwarf-Shrubland BpS. This type should first be mapped as Dryas Dwarf-Shrubland and then split into acidic vs. nonacidic using the bedrock geology map.

## Native Uncharacteristic Conditions

### Scale Description

Small to large patch size.

### Issues/Problems

### Comments

This model was created by Kori Blankenship and Keith Boggs based on the draft Arctic Ecological Systems description (Boggs et al. 2008).

## Vegetation Classes

### Class A 100 %

Mid Development 1 All Structures

#### Upper Layer Lifeform

- ☐ Herbaceous  
☒ Shrub  
☐ Tree

#### Indicator Species\* and Canopy Position

DROC Upper  
DRIN4 Upper  
SAOP Upper  
RHLA2 Upper

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

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

- ☒ Upper layer lifeform differs from dominant lifeform.

Herbaceous inclusions may be common in some areas.

#### Description

Zero plus years

This class represents the Non-Acidic Dryas Dwarf-Shrubland system. Refer to the vegetation description for common species. Low shrubs can occur but with less than 25% cover.

No disturbances modeled.

### 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

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**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**

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

**Historical Fire Size (acres)**

Avg 0

Min 0

Max 0

**Sources of Fire Regime Data**

- ☐ Literature  
☐ Local Data  
☒ Expert Estimate

**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.

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**Additional Disturbances Modeled**

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

***References***

Boggs et al. 2008. International Ecological Classification Standard: Terrestrial Ecological Classifications. Draft Ecological Systems Description for the Alaska Arctic Region.

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