

LANDFIRE Biophysical Setting Model

Biophysical Setting 6916860

Alaska Arctic Non-Acidic Sparse Tundra

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

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Modeler 3 **Reviewer**

Vegetation Type

Upland Shrubland

Map Zone

69

Model Zone

- | | |
|--|--|
| ☒ Alaska | ☐ N-Cent.Rockies |
| ☐ California | ☐ Pacific Northwest |
| ☐ Great Basin | ☐ South Central |
| ☐ Great Lakes | ☐ Southeast |
| ☐ Northeast | ☐ S. Appalachians |
| ☐ Northern Plains | ☐ 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

The following information was taken from the draft Arctic Ecological Systems description (Boggs et al. 2008):

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 the soils are typically thin, stony and well-drained. Non-acidic sites are more common near floodplains, on carbonate substrates and loess deposition areas. This system does not occur on flat thaw-lake plains.

Vegetation Description

Total vascular plant cover is 10-25% and lichen cover is <25%. Common dwarf-shrubs include *Dryas octopetala*, *Dryas integrifolia*, *Saxifraga oppositifolia*, *Rhododendron lapponicum*, *Salix arctica*, *Salix reticulata*, *Cassiope tetragona* and *Arctostaphylos rubra* (Boggs et al. 2008). Herbaceous species may include *Lupinus arcticus*, *Hedysarum boreale* ssp. *mackenziei*, *Carex scirpoidea*, *Carex rupestris*, *Oxytropis nigrescens*, *Potentilla uniflora*, *Artemisia senjavinensis*, *Artemisia globularia*, *Artemisia furcata*, *Saxifraga oppositifolia* and *Equisetum* spp. (Boggs et al. 2008). Lichens such as *Thamnolia* spp. and *Cetraria islandica* also occur (Boggs et al. 2008).

Disturbance Description

This BpS occupies sites characterized by high levels of disturbance such as frost heaving, solifluction and wind. These continual disturbances combined with extremes site conditions (e.g high elevation, very late melting snow beds, sometimes on bedrock substrate, shallow soils, scree slopes and areas of active soil

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**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

development) are the dominant factors shaping this BpS.

Adjacency or Identification Concerns

This system is similar to the Alaska Arctic Non-Acidic Dwarf-Shrub Lichen Tundra but the vegetation cover is sparse. It is also similar to the Alaska Arctic Dwarf-Shrubland but that system is not split based on acidic and non-acidic substrates. For mapping, use the bedrock geology map as the mask between acidic and non-acidic types.

Native Uncharacteristic Conditions

Scale Description

Patch size is small to large.

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 (< 20 cm)	Dwarf Shrub (< 20 cm)
Tree Size Class	None	

☐ Upper layer lifeform differs from dominant lifeform.

Description

Zero plus years

This class represents the Arctic Non-Acidic Sparse Tundra system. Refer to the vegetation description for common species.

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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