

LANDFIRE Biophysical Setting Model

Biophysical Setting 7616870

Alaska Arctic Lichen Tundra

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

Date 10/17/2008

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Vegetation Type

Upland Grassland/Herbaceous

Map Zone

76

Model Zone

☒ Alaska

☐ N-Cent.Rockies

☐ California

☐ Pacific Northwest

☐ Great Basin

☐ South Central

☐ Great Lakes

☐ Southeast

☐ Northeast

☐ S. Appalachians

☐ Northern Plains

☐ Southwest

Dominant Species*

UMBIL2 FLAVO3
RHGE60 ALOC60
CLST60 LOPR
RALA70

General Model Sources

☒ Literature

☐ Local Data

☒ Expert Estimate

Geographic Range

This BpS occurs throughout arctic AK and in MZ76, from the Bristol Bay lowlands in southwestern AK to the North Slope on the Arctic Ocean. In MZ76 this type is found in Nowacki ecoregions 8, 9 and 10.

Biophysical Site Description

This BpS is common in the hills and mountains of arctic AK on sites that are typically too harsh to support the growth of vascular plants. Common slope positions include sideslopes and exposed summits and ridges. Sites are typically acidic and dry to mesic and often rocky. It is especially common on recent volcanic deposits with little soil development (Boggs et al. 2008).

Vegetation Description

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

Lichen cover is >25%, and vascular plant species cover is <25%. Foliose and fruticose lichens dominate and include Umbilicaria spp., Rhizocarpon geographicum, Cladina stellaris, Racomitrium lanuginosum, Flavocetraria spp. and Alectoria ochroleuca. Common dwarf-shrubs include Loiseleuria procumbens, Betula nana, Ledum palustre ssp. decumbens, Empetrum nigrum and Vaccinium uliginosum.

Disturbance Description

Crustose lichen communities are likely early seral but are likely to persist indefinitely because of harsh environmental conditions that inhibit the growth of vascular plants (Viereck et al. 1992; III.C.2.a). The successional status of foliose and fruticose lichen communities is unknown (Viereck et al. 1992; III.C.2.b).

Adjacency or Identification Concerns

*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

Native Uncharacteristic Conditions

Scale Description

Small to large patch

Issues/Problems

Comments

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

This model was created by Kori Blankenship and Keith Boggs based input from experts who attended the LANDFIRE Arctic Modeling Meeting (April 2008) and 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

UMBIL2 Upper
RHGE60 Upper
CLST60 Upper
RALA70 Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	Herbaceous	Herbaceous
Height	Herbaceous	Herbaceous
Tree Size Class	None	

- ☒ Upper layer lifeform differs from dominant lifeform.

Non-vascular species dominate but dwarf shrubs may be present.

Description

Zero plus years

This class represents the Lichen 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.

Viereck, L.A., Dyrness, C.T., Batten, A.R., Wenzlick, K.J. 1992. The Alaska vegetation classification. Pacific Northwest Research Station, USDA Forest Service, Portland, OR. Gen. Tech. Rep. PNW-GTR286. 278 p.

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