

LANDFIRE Biophysical Setting Model

Biophysical Setting 7216880

Alaska Arctic Acidic Dryas Dwarf-Shrubland

☐ This BPS is lumped with:

☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

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Vegetation Type

Upland Shrubland

Map Zone

72

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 LOPR
EMNI SAPH
VAUL ANAL4
DRIN4 HIAL3

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 acidic substrates (pH typically <6) in the hills and mountains of arctic AK. Common slope positions include valleys, sideslopes, and summits and ridges. Sites are typically dry to mesic and are uncommon on late-lying snowbeds. Soils are thin, stony and well-drained. This system does not occur on flat thaw-lake plains.

Vegetation Description

Dwarf-shrub cover is >25% and dominated by Dryas spp. (primarily Dryas octopetala). Other common shrubs include Empetrum nigrum, Vaccinium uliginosum, Dryas integrifolia, Loiseleuria procumbens and Salix phlebophylla. Common herbaceous species include Antennaria alpina, Hierochloa alpina, Minuartia obtusiloba, Carex scirpoidea, Carex podocarpa, Carex microchaeta and Festuca altaica. Mosses such as Tortula ruralis and Polytrichum spp. may be common. Lichens include Cladonia spp., Sphaerophorus globosus, Nephroma arcticum, Flavocetraria spp. and Alectoria ochroleuca. In the Bering Land Bridge National Preserve and Cape Krusenstern National Monument (Jorgenson et al. 2004), this system differs from non-acidic Dryas by lacking the calciphilic species Saxifraga oppositifolia, Potentilla uniflora, Hedysarum boreale ssp. mackenziei and Oxytropis nigrescens.

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 Non-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

Patches are small to large and may be matrix-forming.

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

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)	Low Shrub (20 cm to 1.5 m)
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 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.

Jorgenson, M. T., J. E. Roth, M. Emers, W. Davis, S.F., Schlentner and M.J. Macander. 2004. Landcover Mapping for Bering Land Bridge National Preserve and Cape Krusenstern National Monument, Northwestern Alaska. Final report for National Park Service. ABR, Inc. Fairbanks, AK. 129 p.

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