

LANDFIRE Biophysical Setting Model

Biophysical Setting 6816840

Alaska Arctic Mesic Sedge-Dryas Tundra

- ☐ This BPS is lumped with:
☐ This BPS is split into multiple models:

General Information

Contributors (also see the Comments field)

Date 10/8/2008

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

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

Dominant Species*

DRIN4 RHLA2
SAPU15 CABI5
SARI4 CAAQ
SARE2 ERAN6

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 mesic sedge-Dryas tundra system is common on mountain and hill slopes, drained lake basins, stabilized dunes and snowbeds (Boggs et al. 2008). pH ranges from circumneutral to non-acidic (Boggs et al. 2008). Permafrost is present and the soil surface is mesic but may be saturated below 15 cm (Boggs et al. 2008).

Vegetation Description

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

This system is codominated by sedges and dwarf or low shrubs. Dryas spp. cover is >10%, and total low-shrub cover is <25%. Dryas integrifolia typically dominates or codominates with Salix richardsonii (= Salix lanata), Salix pulchra, Salix reticulata and Rhododendron lapponicum. The dominant sedges are Carex bigelowii, Carex aquatilis and Eriophorum angustifolium. Other common species are Eriophorum vaginatum and Equisetum arvense. Nonvascular species include Oncophorus wahlenbergii, Hylocomium splendens, Tomentypnum nitens and Thamnia vermicularis.

Disturbance Description

The successional status of this BpS is unclear but some communities appear to be stable (Viereck et al. 1992; II.C.2.h and II.D.1.b). Drier site conditions may lead to the development of tussock tundra while wetter site conditions may lead to the loss of shrubs and development of a wet sedge meadow community (Viereck et al. 1992; II.C.2.h.).

*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

Sedge-dryas dominated sites would likely burn with the adjacent tussock tundra, but the wetter sedge-willow dominated sites likely would not carry fire (personal communication Arctic modeling meeting April 2008).

Adjacency or Identification Concerns

This BpS may occur adjacent to tussock tundra. It could be confused with Arctic Mesic-Wet Willow Shrubland but is distinguished by the sedge component.

Native Uncharacteristic Conditions

Scale Description

Patch size is small and may be matrix forming.

Issues/Problems

Comments

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

DRIN4 Upper
 SARI4 Upper
 SAPU15 Upper
 RHLA2 Upper

Structure Data (for upper layer lifeform)

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

☐ Upper layer lifeform differs from dominant lifeform.

Description

Zero plus years

This class represents the Mesic Sedge-Dryas 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.

*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.

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****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.

*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.

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.

*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.