

LANDFIRE Biophysical Setting Model

Biophysical Setting 7617090

Alaska Arctic Marine Beach and Beach Meadow

☐ 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*

LEMO8 POEM
EMNI HOPE
LAJAM COCH2
MEMA3 CNCN

General Model Sources

- ☐ Literature
☐ Local Data
☒ Expert Estimate

Geographic Range

This BpS is found along the coastline of arctic AK including along the Beaufort Sea, Chuckchi Sea and the Bearing Sea. In MZ76 this type is found in Nowacki ecoregions 8, 9 and 10.

Biophysical Site Description

This system consists of coastal beaches, beach dunes, and vegetation that has stabilized the sand or cobble deposits. Soils are dry to mesic (Boggs et al. 2008). Exposure to salt spray and periodic overwash is common and creates vegetation zonation.

Vegetation Description

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

Two existing vegetation types dominate the system: *Leymus mollis* and *Empetrum nigrum*; bare sand or cobble are also common. The *Leymus mollis* class may include near-monocultures of *Leymus mollis* to more species-rich associations including *Leymus mollis*, *Lathyrus japonicus* var. *maritimus*, *Mertensia maritima* and *Poa eminens*. We include the *Honckenia peploides* and *Cochlearia officinalis* plant association in this type. Older dunes support dwarf-shrubs (primarily *Empetrum nigrum*) mixed with herbaceous species. *Lathyrus japonicus* var. *maritimus*, *Conioselinum chinense*, and *Cnidium cniidiifolium* are uncommon east of Cape Lisburne.

Disturbance Description

Processes that define the system include sand deposition, wind erosion, long-shore transport, dune formation and water erosion such as overwash from storm surges. Herbaceous species stabilize the sand deposits (dunes, beaches), and the older deposits support dwarf-shrubs mixed with herbaceous species.

*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

Vegetation dynamics are driven by salinity and sand deposition both of which vary depending on distance from the water and the possibility of inundation. Beach succession is not always unidirectional; shifting sand or beach subsidence may cause less salt tolerant species to die and halophytic herbs to regain dominance.

Adjacency or Identification Concerns

This type is found adjacent to the coastline.

Native Uncharacteristic Conditions

Scale Description

Patch size is small to moderate and often linear.

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 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

LEMO8 Upper
 EMNI Upper
 LAJAM Upper
 MEMA3 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.

Dwarf shrubs can also be dominant.

Description

Zero plus years

This class represents the Marine Beach and Beach Meadow 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.

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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.

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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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