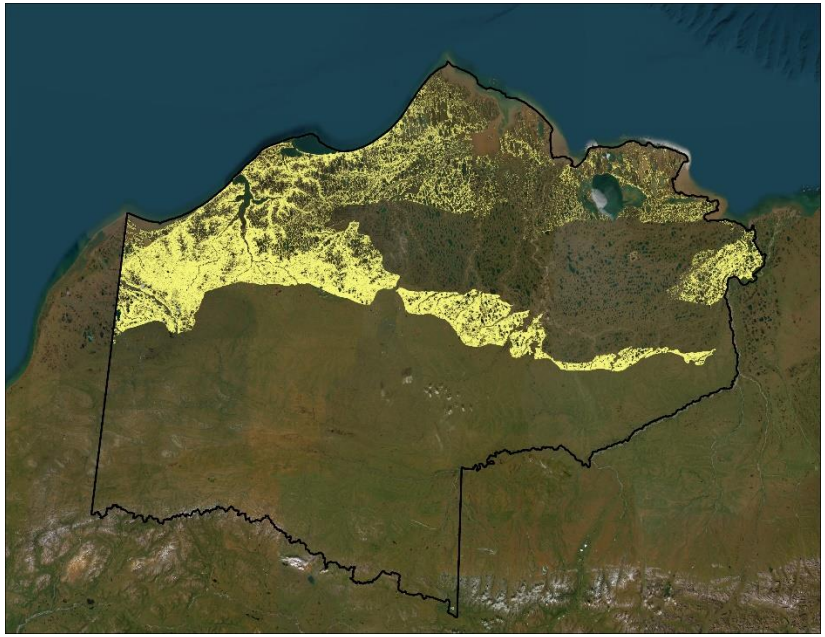
Coastal Plain Moist Tundra



Stratum code: CPHCP

Number of plots sampled: 41

Physiography: upland (Coastal Plain physiographic unit)

Geomorphology: coastal plain

Landforms: flat to high-center polygons, non-patterned tundra

Hydrology: mesic to hydric, moderately drained

Classification: An arctic tundra type. Vegetation composition is typically a mosaic of moist tundra and wet sedge with tussock forming sedges and dwarf shrubs occurring on microtopogaphical highs (such as raised polygon centers) and wet sedges occurring microtopographical lows (such as polygon troughs). Average cover of tussock forming sedges is 32.3%; average cover of obligate wetland plants is 26.9%; average shrub cover is 42.5%.

Site characteristics: Occurs at low elevations over relatively flat ground. Developing on portions of the Arctic Coastal Plain that are characterized by ice-rich permafrost, yet not underlain by Pleistocene sands. Depth of seasonal thaw is shallow on polygon tops and comparatively deep over ice wedge troughs with an average active layer thickness of 32.5 cm (ranges from 20.0 to 50.5 cm). While community composition can vary significantly between polygon tops and troughs, the pattern is homogenous at the landscape scale.

Soil characteristics: Average thickness of moss and duff combined is 5.2 cm. Organic soil thickness averages 16.6 cm and typically overlies a silty mineral horizon. A thin A horizon may be present at the transition from organic to mineral soils. Average soil water pH measured at 10 cm depth is 5.9.

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Vegetation: The tussock forming sedge, *Eriophorum vaginatum* dominates the type and strongly indicates tundra habitat. Tundra types are also indicated by the dwarf to low shrubs *Rhododendron tomentosum* ssp*. decumbens, Vaccinium vitis-idaea, Betula nana,* and *Salix pulchra*. Together, mosses and lichens comprise 45% cover with species in the *Aulacomnium, Dicranum, Hylocomium, Cladonia,* and *Flavocetraria* genera indicating the type. The forb, *Rubus chamaemorus* is not abundant but shows high fidelity to tundra habitat. Obligate wetland sedges such as *Carex aquatilis* and *Eriophorum angustifolium* and aquatic mosses in the *Scorpidium* genus are common in polygon troughs and differentiate* the stratum from other types of tundra. Mean richness of vascular plants is 24 taxa.

Dominant species (greater than 25% average cover):

- *Eriophorum vaginatum*

Indicator species Taxa with significant potential ($p<0.0002$) to indicate tundra (listed in decreasing order of indication) include:

- *Eriophorum vaginatum*
- *Rhododendron tomentosum* ssp. *decumbens*
- *Vaccinium vitis-idaea*
- *Betula nana*
- *Salix pulchra*
- *Aulacomnium* moss
- *Dicranum* moss
- *Cladonia* lichen
- *Rubus chamaemorus*

Differential species: taxa with significant potential to differentiate the Coastal Plain Moist Tundra stratum from other tundra strata include:

- *Eriophorum angustifolium**
- *Carex aquatilis**
- *Scorpidium* aquatic moss*
- *Blepharostoma* liverwort*

*high value of indication (>20) but not significant

Succession and disturbance: A late-successional type where permafrost dynamics are the main disturbance. Polygon degradation; thermokarst lake cycle.

Indicators of change: Change in structure (height of dominant shrubs) or composition; change in hydrologic regime (standing water); change in active layer; change in permafrost features (polygonal troughs and thermokarst).

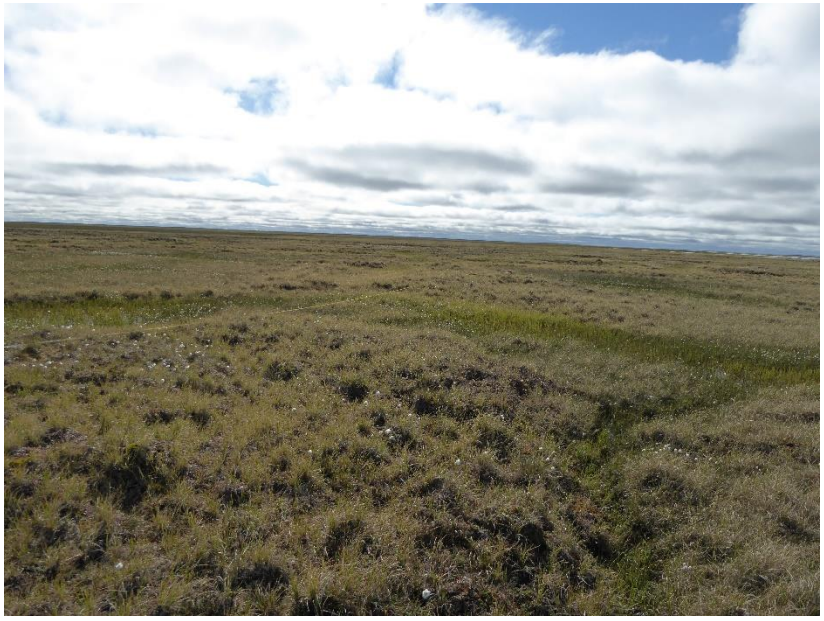

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Table 4. Cover and constancy of plant taxa occurring in the Coastal Plain Moist Tundra stratum. Species listed by habit, in decreasing order of percent cover.

Habit	Scientific Name	Average Cover (%)	Standard Deviation (%)	Minimum Cover (%)	Maximum Cover (%)	Constancy (%)
tall shrub	*Betula nana*	8.6	6.0	1.3	20.0	78
	Salix pulchra	6.3	4.7	1.3	20.8	80
low shrub	*Rhododendron tomentosum* ssp. *decumbens*	9.8	7.7	2.0	31.3	90
	Salix arctica	3.3	na	3.3	3.3	2
	Salix fuscescens	2.1	0.7	1.3	3.3	12
dwarf shrub	*Vaccinium vitis-idaea*	15.0	7.1	2.0	31.3	95
	Cassiope tetragona	6.0	4.1	1.3	18.7	76
	Dryas integrifolia	3.6	3.2	1.3	10.0	27
	Salix phlebophylla	3.6	0.8	2.7	4.0	7
	Diapensia obovata	2.7	na	2.7	2.7	2
	Salix reticulata	2.3	1.0	1.3	4.7	20
	Andromeda polifolia	1.8	0.8	1.3	2.7	7
	Empetrum nigrum	1.6	0.4	1.3	2.0	7
	Salix rotundifolia	1.3	na	1.3	1.3	2
graminoid	*Eriophorum vaginatum*	32.8	16.3	4.7	73.3	95
	Eriophorum angustifolium	16.3	14.2	1.3	58.0	80
	Carex aquatilis	12.6	10.6	1.3	42.7	85
	Carex bigelowii ssp. *ensifolia*	8.1	5.3	1.3	27.3	61
	Carex concolor	8.0	na	8.0	8.0	2
	Calamagrostis inexpansa	6.7	na	6.7	6.7	2
	Carex chordorrhiza	5.0	5.7	1.3	18.7	20
	Luzula nivalis	4.7	na	4.7	4.7	2
	Eriophorum russeolum	4.6	1.0	3.3	6.0	15
	Carex rotundata	4.4	4.3	1.3	13.3	20
	Poa arctica	4.2	3.2	1.3	8.7	10

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Habit	Scientific Name	Average Cover (%)	Standard Deviation (%)	Minimum Cover (%)	Maximum Cover (%)	Constancy (%)
	Eriophorum chamissonis	4.0	3.8	1.3	6.7	5
	Eriophorum scheuchzeri	3.7	1.5	1.3	5.3	17
	Carex holostoma	3.3	na	3.3	3.3	2
	Carex stylosa	2.7	na	2.7	2.7	2
	Eriophorum brachyantherum	2.7	na	2.7	2.7	2
	Arctagrostis latifolia	2.3	0.8	1.3	3.0	10
	Calamagrostis neglecta	2.0	1.0	1.3	2.7	5
	Carex rariflora	2.0	na	2.0	2.0	2
	Luzula arcuata	2.0	na	2.0	2.0	2
	Luzula confusa	1.8	0.4	1.5	2.0	5
	Carex bicolor	1.3	na	1.3	1.3	2
	Dupontia fisheri	1.3	0.0	1.3	1.3	5
	Carex vaginata	1.3	na	1.3	1.3	2
forb	*Rubus chamaemorus*	4.6	4.2	1.3	15.3	27
	Pyrola grandiflora	2.4	0.8	1.3	3.3	12
	Petasites frigidus	2.0	na	2.0	2.0	2
	Saussurea angustifolia	1.8	0.7	1.3	2.7	10
	Bistorta vivipara	1.5	0.3	1.3	2.0	10
	Pedicularis albolabiata	1.3	na	1.3	1.3	2
	Pedicularis interior	1.3	na	1.3	1.3	2
	Bistorta plumosa	1.3	na	1.3	1.3	2
	Papaver hultenii	1.3	na	1.3	1.3	2
	Stellaria longipes	1.3	na	1.3	1.3	2
	Tephroseris frigida	1.3	na	1.3	1.3	2
moss	*Dicranum*	7.6	5.2	1.3	23.3	100
	Tomentypnum	7.2	4.8	2.0	16.7	27
	Hylocomium	6.1	6.0	1.3	24.0	68

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Habit	Scientific Name	Average Cover (%)	Standard Deviation (%)	Minimum Cover (%)	Maximum Cover (%)	Constancy (%)
	Scorpidium	5.8	5.3	1.3	20.0	46
	Sphagnum	5.0	7.4	1.3	41.3	85
	Aulacomnium	4.2	2.8	1.3	13.3	100
	Polytrichum	4.0	3.1	1.3	12.7	59
	Brachythecium	3.3	0.0	3.3	3.3	5
	Drepanocladus	3.2	1.7	1.3	5.3	10
	Oncophorus	2.9	1.8	1.3	6.0	20
	Sanionia	2.9	1.4	1.3	5.3	15
	Campylium	2.9	1.3	1.3	4.7	17
	moss	2.7	0.8	2.0	3.3	10
	Hamatocaulis	2.3	1.6	1.3	4.7	10
	Rhytidium	2.0	0.7	1.3	2.7	7
	Bryum	2.0	na	2.0	2.0	2
	Rhizomnium	2.0	na	2.0	2.0	2
	Rhytidiopsis	2.0	na	2.0	2.0	2
	Loeskypnum	1.3	na	1.3	1.3	2
	Timmia	1.3	na	1.3	1.3	2
	Calliergon	1.3	0.0	1.3	1.3	5
	Distichium	1.3	na	1.3	1.3	2
	Plagiomnium	1.3	na	1.3	1.3	2
lichen	*Bryocaulon*	4.4	1.7	2.7	6.7	10
	Peltigera	3.2	2.2	1.3	9.3	32
	Flavocetraria	3.2	1.5	1.3	6.0	85
	Thamnolia	3.1	1.7	1.3	8.7	56
	Cladonia	2.8	2.0	1.0	8.9	100
	Sphaerophorus	2.7	na	2.7	2.7	2
	Dactylina	2.4	1.0	1.3	4.0	27

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	Cetraria	2.1	0.9	1.3	4.0	39
	Alectoria	1.3	0.0	1.3	1.3	7
	Stereocaulon	1.3	na	1.3	1.3	2
liverwort	liverwort	11.6	6.2	2.0	26.0	41
	Blepharostoma	7.1	5.3	1.3	16.7	32
	Ptilidium	2.9	2.2	1.3	10.0	39
	Lophozia	2.0	1.0	1.3	2.7	5
	Scapania	2.0	1.0	1.3	2.7	5
	Tritomaria	1.7	0.5	1.3	2.0	5
	Fuscocephaloziopsis	1.3	0.0	1.3	1.3	5
fungus	fungus	1.3	na	1.3	1.3	2