FINAL REPORT
26 May 1999

VEGETATION AND LAND COVER IN THE POINT THOMSON UNIT AREA, ALASKA 1998

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MEMO

DATE: 18 November 2002

TO: Bryan Trimm, ExxonMobil Production Corp.

FROM: Lynn Noel, LGL Alaska Research Associates, Inc LEN

SUBJECT: Point Thomson Vegetation Map

CC: Bill Streever, BP Exploration (Alaska) Inc.

Response to request #1, from Bruce Hollen, CH2MHILL for information on the Point Thomson vegetation map. Map production methods are presented in our project report, as are complete descriptions of vegetation categories. A copy of this report is included with the data deliverable.

- Ground-based data were collected, and used to produce the map. An accuracy assessment based on this same data is also presented in the project report. Accuracy at Level B was 93%, and accuracy at Level C was 85%. Please note that independent data was not collected for an assessment of map accuracy. All coastal areas covered by the original mapping were visited, and delineations for habitats not clearly visible in the aerial photography (extents of *Arctophila fulva*, and *Carex/Puccinellia* salt marshes) were drawn in the field. No ground-based data were collected for the area of the map extension along the proposed pipeline corridor to the Badami Development.
- Emergent *Arctophila fulva* is represented by Class IIb and Class IId. Because these classes may also contain emergent *Carex aquatilis*, a conservative approach is to assume that either of these cases may represent emergent *Arctophila fulva* wetlands.
- Salt-affected habitats are represented by Classes IIIb, IXh, and IXi (yellow and orange on the map). All arctic salt marsh habitats are contained within either Class IIIb (Wet Tundra) or IXh (Partially Vegetated) depending on the amount of total vegetation cover at the area.

File Name PTUVegSites_asp_point.dbf

Column	Primary Key	Description	Data Type	Required	Indexed
Longitude		Decimal (15,9) degrees West Longitude (Projection Cylindrical Equidistant, Longitude/Latitude Datum: World Geodetic System 1984 (WGS 84) Worldwide)			
Latitude		Decimal (15,9) degrees North Latitude (Projection Cylindrical Equidistant, Longitude/Latitude Datum: World Geodetic System 1984 (WGS 84) Worldwide)	Number		
Site		Character (10), Site Reference to Field Data Sheets/map	Text		
Class_M		Character (10), Classification from vegetation map polygon	Text		
Class_F		Character (10), Classification from field data	Text		
File		Character (12), original GPS data file with coordinates.	Text		
Positions		Float, Number of GPS recorded locations used in differential correction and location averaging.	Number		
Corr_Type		Character (12), Type of Differential Correction, Differential=3D Differential Correction, Uncorrected=No Differential Correction, Repositioned=Point Moved, not GPS Position, No GPS=No GPS Position Available Location was Digitized.	Text		
GPS_Date		Date, GPS Recorded Date, mm/dd/yyyy, 08/05/97--5 August 1997	Date		
GPS_Time		Character (10), 00:00:00, hours:minutes:seconds Alaska Standard Time, recorded by GPS.	Text		
Std_Dev		Float, Standard Deviation of Averaged Position (accuracy of position)	Number		
Elevation		Float, GPS Elevation in Feet.	Number		
Horz_Prec		Float, Horizontal Precision for GPS Position in meters	Number		
Vert_Prec		Float, Vertical Precision for GPS Position in meters.	Number		
VEG		Character (5), Estimated vegetation cover by species. See definitions for codes. * means present, but not significant to cover.	Text		

Comments:

Data structure for MapInfo table SDsitesfinal.TAB. SDsitesfinal.TAB requires files SDsitesfinal.DAT (database), SDsitefinal.ID (links database to objects), SDsitesfinal.MAP (graphical objects),SDsitesfinalTAB (description of data structure). Projection: Longitude/Latitude. Datum: World Geodetic System 1984.

Plant taxa/Ground cover	Code
Alopecurus alpinus	ALAL
Artemisia arctica	ARAR
Artemisia borealis	ARBO
Artemisia glomerata	ARGL
Arctophila fulva	ARFU
Arctogrostis latifolia	ARLA
Astragalus alpinus	ASAL
Aulacomnium sp.	AULA
Bare Ground	BARE
Bare rock	ROCK
Bryum pseudotriquetrum	BRPS
Carex aquatilis	CAAQ
Carex atrofusca	CAAT
Carex bigelowii	CABI
Calamagrostis holmii	CAHO
Carex membranacea	CAME
Carex misandra	CAMI
Caltha palustris	CAPA
Carex rupestris	CARU
Carex saxatilis	CASA
Carex sp.	CASP
Carex subspathaceae	CASU
Cassiope tetragona	CATE
Carex ursina	CAUR
Cerastium beeringianum	CEBE
Cetraria sp.	CETR
Chrysanthymum arcticum	CHAR
Chrysanthymum integrifolia	CHIN
Cladonea sp.	CLAD
Cochlearia officinalis	COOF
Crustose Lichen	CRLI
Dactylina arctica	DAAR
Distichium sp.	DISP
Drepanocladus sp.	DREP
Dryas integrifolia	DRIN
Dupontia fischeri	DUFI
Elymus arenaius	ELAR
Empetrum nigricans	EMNI
Equisetum arvense	EQAR
Epilobium latifolium	EPLA
Equisetum variegatum	EQVA
Eriophorum angustifolium	ERAN
Eritrichum aretioides	ERAR
Eriophorum russeolum	ERRU
Eriophorum scheuchzeri	ERSC
Eriophorum vaginatum	ERVA
Festuca vivipara	FEVI
Funaria hygrometrica	FUHY
Geum glaciale	GEGL
Geum rossii	GERO
Grass	GRAS

Plant taxa/Ground cover	Code
Honckenya peploides	HOPE
Hypnum bambergeri	HYBA
Juncus biglumis	JUBI
Lepraria neglecta	LENE
Lichens	LICH
Litter	LITT
Liverwort	LIVE
Luzula confusa	LUCO
Melandrium apetalum	MEAP
Minuarta obtusiloba	MIOB
Moss	MOSS
Mud	MUD
Oxyria digyna	OXDY
Papaver macunii	PAMA
Papaver laponicum	PALA
Pedicularis sudetica	PESU
Poa arctica	POAR
Polygonum bistorta	POBI
Polytrichum commune	POLY
Polygonum viviparum	POVI
Primula borealis	PRBO
Puccinellia arctica	PUAR
Puccinellia langeana	PULA
Puccinellia phryganodes	PUPH
Pyrola grandiflora	PYGR
Ranunculus nivalis	RANI
Salix arctica	SAAR
Saxifraga cernua	SACE
Saxifraga foliosa	SAFO
Saxifraga hirculus	SAHI
Salix lanata	SALA
Saxifraga oppositifolia	SAOP
Salix ovalifolia	SAOV
Salix phlebophylla	SAPH
Salix pulchra	SAPU
Salix reticulata	SARE
Salix rotundifolia	SARO
Sasauria angustifolia	SAAN
Salix sp.	SASP
Scorpidium scorpioides	SCSC
Senicio atropurpureus	SEAT
Silene acaulis	SIAC
Standing Dead	STDE
Stellaria humifusa	STHU
Thamnolia sp.	THAM
Tomentypnum nitens	TONI
Vaccinium vitis-idea	VAVI
Standing Water	WATER
Unidentified forb	FORB

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ABSTRACT

Vegetation in a portion of the Point Thomson Unit Area was classified and mapped from aerial photographs to assist with placement of facilities and to assess potential impacts to the vegetation from construction. Land cover/vegetation was classified using a hierarchical scheme designed specifically for the North Slope of Alaska. Vegetation type, soil moisture regime, and landform data collected from 322 ground reference sites between 27 July 1998 and 7 August 1998 were used to construct the map. Cover types were identified and delineated from 1:7,200-scale color infrared aerial photographs taken by Aeromap U.S., Inc. on 3 July 1993. Overlays were projected, scaled and fit to 1:6,000-scale basemaps. A total area of 32,750.6 acres was mapped.

Key Words: land cover map, hierarchical classification system, polygonal habitat map, tundra vegetation, arctic tundra, Flaxman Island Quadrangle, Alaska.

INTRODUCTION

Vegetation along the coast from Point Hopson to the Staines River and south along a corridor paralleling the river (including the Sourdough #2 and Sourdough #3 exploration sites) within the Point Thomson Unit area was classified and mapped to assist with facilities placement and impact assessment from development (Figure 1). Aerial photographs were used to delineate land-cover/vegetation according to a hierarchical scheme designed specifically for the North Slope of Alaska (Walker 1983). Ground-reference vegetation data collected at 326 sites between 24 July and 7 August 1998 was used to construct the map.

METHODS

Walker's (1983) classification scheme describes vegetation and land-cover at four levels: Level A—for very small scale maps, Level B—for cover units that can be consistently classified from LANDSAT data, Level C—for photo-interpreted maps with ground truth data, and Level D—for individual plant communities as determined by ground surveys (Table 1). Sites are categorized with respect to site moisture regime and dominant plant growth forms (landform type is used when plant cover is sparse or non-existent). Site moisture is determined at the end of the growing season using the subjective categories of dry, moist, wet, or aquatic. Dominant plant growth forms depend on site moisture and landform type. Many North Slope sites consist of complexes of landforms, which result in complexes of site moisture and vegetation types. In

such sites, moisture and plant-growth-form terms are combined to more accurately describe the area.

Vegetation types were identified and delineated from 1:7,200-scale color infrared aerial photographs taken by Aeromap U.S., Inc. on 19 July 1997. Natural-color 1:18,000-scale aerial photographs taken by Aeromap U.S. 3 July 1993, were used to assist with classification. Cover types were delineated on acetate overlays of the photos, then projected and scaled to basemaps using a Kargl Reflecting Projector (Keuffel & Esser Co.). Delineations were transferred to acetate overlays referenced to 1:6,000-scale basemaps. Polygons and line work for lakes, ponds and streams were copied from the 1:6,000-scale digital basemaps, which were augmented or corrected where necessary. Cover types were then digitized, polygons and regions constructed, and classifications added to a Geographic Information System (GIS) database. Areas covered by each vegetation type were calculated with the GIS.

Ground-reference data were collected at 322 sites in the project area between 24 July and 7 August 1998 (Figure 1). Data consisted of three cover estimates of the dominant plant taxa using a one-half m^2 circle (Mueller-Dombois and Ellenberg 1974) and descriptions of the site moisture regime and landform. Bryophyte and lichen taxa were identified to species when possible (Vitt et al. 1988). Plant nomenclature follows Hultén (1968) except for *Salix planifolia* sp. *pulchra*. For continuity with Walker's classifications, *Dryas integrifolia* is considered a shrub, although Hultén (1968) categorizes it as a forb. All mapped areas were visited and reference sites were positioned near the center of vegetation communities. Global positioning system (GPS) locations were recorded with a minimum objective of 300 positions. GPS positions were corrected differentially, by post-processing, using base station data from the Central, Alaska or Fairbanks, Alaska, Continuously Operating Reference Station (CORS), National Geodetic Survey, National Oceanic and Atmospheric Administration (NOAA). Positions were then averaged to give the site location. GPS was not available for a few sites and these were registered and digitized from field drawn acetate overlays.

Ground-reference data were compared to color infrared and natural color photographs to assist in photo-interpretation. Land cover categories were determined by fitting field descriptions of plant communities and landforms into the land cover/vegetation categories described for the North Slope as a whole by Walker (1983; 1985a,b) and Walker and Acevedo (1987). Land cover types were mapped and labeled at Level C (Table 1).

RESULTS

The hierarchical vegetation and land cover categories for the PTUA vegetation/land cover map (pocket) are listed in Table 1 and on the map legend. Vegetation types were mapped at Level C. Detailed information for all ground reference sites in the PTUA is presented in Appendix A. A description of the landforms and dominant vascular plant taxa commonly found in each category in the PTUA map area is given below.

Ia. Water

Depicts all the open water that could be reasonably mapped at the 1:6000 scale including ponds, lakes, rivers, streams, and saltwater. This category includes water of all depths, usually without emergent vegetation (see IIb below). Water covers 14518.8 acres or 44.3% of the mapped area (Table 2).

IIb. Aquatic Graminoid Tundra

Depicts areas of permanent fresh water where emergent vegetation is present (Figure 2a). In deeper water these simple plant communities are dominated by *Arctophila fulva*, and in shallower water by *Carex aquatilis* with lesser amounts of *Eriophorum angustifolium* and *E. scheuchzeri*. This category grades continuously into wet sedge tundra vegetation (IIIa), but is distinguished by the presence of permanent water. Aquatic graminoid tundra is common in the shallow waters of ponds and lakes, and slow moving streams. It is especially common in lakes and ponds with complex, irregular shorelines. It also occurs in very wet low-centered polygon basins. On aerial photographs aquatic graminoid tundra is often difficult to distinguish from both open water (when the density of plants is low), and from wet sedge tundra (at the edges of ponds and lakes). Therefore only the relatively obvious and/or large occurrences of this vegetation type were mapped. This type covers 174.8 acres or 0.5% of the mapped area (Table 2). This vegetation type is considered high-value bird habitat and is used extensively for nesting and brood-rearing. Many bird species eat *Arctophila fulva* and the nearby open water provides important escape habitat for young and adults.

IId. Water/Tundra Complex

Depicts areas where ponds/lakes are interconnected to form a complex of water and intervening tundra (not pictured). Water is the dominant land cover category but large areas of emergent vegetation occur in the water bodies. Intervening tundra is usually wet, but moist

microsites also occur. Plant communities are primarily those listed in (IIb), with lesser amounts of those listed in (IIIa) and (Va). In the mapped area, this type covers 163.1 acres or 0.5% of the mapped area (Table 2). As in class IIb this landcover type is used extensively by birds for nesting and brood-rearing.

IIIa. Wet Sedge Tundra

This category depicts tundra areas that have poor drainage and standing water during the early part of the summer (Figure 2b). These sites typically drain or evaporate by the end of the season. Soils remain saturated throughout the summer and standing water may remain in wet summers. The sedges *Carex aquatilis*, C. *rotundata*, C. *saxatilis*, *Eriophorum angustifolium*, and *E. russeolum* dominate these areas. Along the coast the grass *Dupontia fischeri* is often co-dominant with the sedges. Common forbs in this type include *Pedicularis sudetica*, *Saxifraga hirculus*, and *Melandrium apetalum*. Wet sedge tundra commonly occurs on non-patterned ground, in low-centered polygon basins, and in troughs between strangmoor ridges. It is also common at the edges of ponds and lakes, along streams, in drained lake basins. As a mapped unit wet sedge tundra was used only in areas where patterned ground was non-existent or poorly developed (i.e., where moist microsites are not prominent in the unit). Wet sedge tundra covers 980.4 acres or 3.0% of the mapped area (Table 2). This type is used by tundra nesting birds and provides foraging habitat for caribou in the area.

IIIb. Wet Graminoid Tundra

This category represents the low-growing, coastal saltmarsh vegetation (Figure 2c). The plant cover is dominated by salt tolerant graminoid species such as *Puccinellia phryganodes*, *Carex subspathacea*, and *C. ursina*. The forbs, *Stellaria humifusa* and *Cochlearia officinalis*, are also common, and the grass *Dupontia fischeri* occurs in less wet microsites. Wet graminoid tundra is most commonly found at the mouths of streams and rivers, but also occurs in low lying areas frequently inundated by saltwater. Salt marsh covers 380.9 acres or 1.2% of mapped area (Table 2). This type is considered high-value wildlife habitat. It is particularly important for geese who feed extensively on the *Puccinellia* plants and for shorebirds that feed on a multitude of invertebrate species found in these areas.

IIIc. Wet Sedge Tundra/Water Complex

This category is similar to (IId), depicting areas where ponds/lakes are interconnected to form a complex of water and intervening tundra (not pictured). However, wet sedge tundra (IIIa)

is the dominant land cover category, and there is typically little or no emergent vegetation in the water bodies. Intervening tundra is primarily wet, but moist sites also occur. Plant communities present are primarily those listed in (IIIa), but those listed in (Va) may also occur. Small patches of vegetation type (IIb) may also occur sporadically. This complex covers 173.5 acres or 0.5% of the mapped area (Table 2). Like types IIb and IId this vegetation type provides nesting habitat near open water which is favored as escape habitat.

IIId. Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex

This category depicts areas dominated by wet sedge tundra (IIIa) where prominent patterned ground features like low-centered polygons and strangmoor create abundant moist sites (Figure 2d). The better-drained polygon rims and strangmoor ridges are dominated by moist sedge, dwarf shrub tundra (Va). In the PTUA map area there are also occasional small patches of aquatic graminoid tundra (IIb) in this category. Many of these are too small to map at the 1:6000 scale. This vegetation type is common in drained lake basins and on poorly drained river terraces, covering 5,610.1 acres or 17.1% of the mapped area (Table 2).

IIIe. Wet Sedge/Moist Sedge/Barren Complex (wet frost-scar tundra complex)

This category depicts areas dominated by wet sedge and moist sedge tundra that have extensive barren areas caused by frost-scarring. Like IIId the better-drained areas are dominated by moist sedge, dwarf shrub tundra (Va). Wetter areas are similar in vegetation to type IIb. Plant taxa are similar to category (Va), but within the frost boils barren areas or dry partially vegetated communities occur dominated by species such as *Saxifraga oppositifolia, Dryas integrifolia, Chrysanthemum integrifolium, Petasites frigidus*, and *Arctagrostis latifolia* (Walker and Acevedo 1987). This vegetation type covered 158.4 acres or 0.5% of the mapped area.

IVa. Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex

This category depicts areas of patterned ground dominated by moist sedge, dwarf shrub tundra (Va), with abundant low-lying areas dominated by wet sedge tundra (IIIa) (Figure 2e). In the PTUA map area this category represents large areas of mixed high- and low-centered polygons often with extensively thermokarsted polygon troughs, occurring with numerous small ponds and lakes. It also refers to areas of weakly developed strangmoor where the moist ridges are dominant. Also within this category are areas of high-centered polygons dominated by dry, dwarf shrub, fruticose lichen tundra (Vd), especially among clusters of ponds and lakes. As in category (IIId) there are occasional small patches of aquatic graminoid tundra (IIb) within this

category. This vegetation type covers large expanses of open tundra in the PTUA map area, and is common in the drier portions of drained lake. This complex covers 3,366.2 acres or 10.3% of the mapped area (Table 2). This type covers large areas of the PTUA and provides habitat for tundra-nesting birds and foraging areas for caribou.

Va. Moist Sedge, Dwarf Shrub Tundra

This category depicts areas of typical high-centered polygons with distinct polygon troughs, as well as areas of rather subtle high-centered and low-centered polygons with very little development of the polygon troughs (i.e. flat-topped polygons) (Figure 2f). Wet microsites occur in polygon troughs, but overall drainage is good and the dominant landform is the moist polygon centers. *Eriophorum angustifolium*, *Carex misandra*, *C. aquatilis*, *C. bigelowii*, and *C. atrofusca* dominate these sites in the PTUA. Tussock forming *Eriophorum vaginatum* occurs sporadically, especially inland, but is not common enough for a separate tussock sedge designation. The common dwarf shrubs are *Salix pulchra*, *S. arctica*, *S. reticulata*, and *Dryas integrifolia*. Common forbs include *Polygonum viviparum*, *Pedicularis kanei*, *Stellaria laeta*, and *Saxifraga hirculus*. Toward the coast *Poa arctica*, *Eriophorum angustifolium*, *Carex aquatilis*, *Luzula arctica*, *Salix rotundifolia, S. phlebophylla*, *S. pulchra*, and *Saxifraga cernua* dominate this land cover type. Moist sedge, dwarf shrub tundra typically occurs across broad expanses of open tundra above the level of water bodies and drained lake basins. This type covers 3,773.5 acres or 11.5% of the mapped area (Table 2). This type provides foraging for caribou particularly in areas dominated by *Eriophorum vaginatum*.

Vc. Dry Dwarf Shrub, Crustose Lichen Tundra

This category depicts well-drained areas that are often blown free of snow during the winter (Figure 2g). The vegetation is typical of pingos on the North Slope and is characterized by a conspicuous mat of *Dryas integrifolia*, with other dominants such as *Salix rotundifolia, S. phlebophylla*, *S. reticulata*, *Carex rupestris*, *Oxytropis nigrescens*, *Saxifraga oppositifolia*, *Papaver lapponicum*, *Astragalus umbellatus*, *Pedicularis kanei*, and *Silene acaulis* (Walker and Acevedo 1987). This vegetation type has high species diversity and typically has a large proportion of exposed mineral soil covered with crustose lichens. This type covers 639.0 acres or 2.0% of the mapped area (Table 2). Landforms (pingos) associated with this vegetation type provide denning habitat for small mammals and depending upon the amount of relief, large mammal dens may also be present. The large number of forbs makes these areas important foraging sites for many animal species.

Vd. Dry Dwarf Shrub, Fruticose Lichen Tundra

This category depicts areas of well-drained, dry, high-centered polygons with well-developed polygon troughs (not pictured). There are often moist and wet microsites in the polygon troughs, but the dominant landform is the dry polygon centers. The category also refers to well-drained sloping banks with reticulate patterned ground. The dwarf shrubs *Salix rotundifolia, S. phlebophylla, S. reticulata, S. pulchra, Dryas integrifolia, Cassiope tetragona,* and *Vaccinium vitis-idea* dominate these acidic sites in the PTUA. Common graminoids include *Carex misandra, C. membranacea, C. bigelowii, Eriophorum angustifolium, Luzula arctica,* and *Poa arctica.* Forbs are also common including *Saxifraga punctata, S. hieracifolia, Pedicularis kanei, Polygonum bistorta, Pyrola grandiflora, Papaver macounii,* and *Senecio atropurpureus.* Like category (Vc) these sites have high species diversity and a large proportion of exposed soil covered with lichens. However, in this category the exposed soil is primarily peat and many of the lichens are fruticose. In the PTUA, this type grades continuously into typical moist sedge, dwarf shrub tundra (category Va), but in general (Vd) occurs in the better-drained and drier sites. This type (Vd) is common on tundra plateaus above stream and river channels, at the margins of drained lake basins, and on reticulate patterned slopes where snow-banks occur during the winter. This type covers 92.9 acres or 0.3% of the mapped area (Table 2). Stream and river plateaus are used extensively as denning habitat by fox, bear, weasel and small mammals (ground squirrels, lemmings, and voles). Many animals use riparian habitat for foraging and as travel corridors, particularly along the major stream courses.

Ve. Moist Graminoid, Dwarf Shrub Tundra/Barren Complex

This category depicts areas of typical moist sedge, dwarf shrub tundra (Va) that have numerous frost boils or frost scars (Figure 2h). Plant taxa are similar to category (Va), but within the frost boils barren areas or dry partially vegetated communities occur dominated by species such as *Saxifraga oppositifolia, Dryas integrifolia, Chrysanthemum integrifolium, Petasites frigidus,* and *Arctagrostis latifolia* (Walker and Acevedo 1987). This vegetation type is common in the PTUA in open tundra near stream and river terraces. This type covers 1,190.9 acres or 3.6% of the mapped area (Table 2).

IXb. Dry Barren/Dwarf Shrub, Forb Grass Complex

This category represents partially vegetated river bars with gravel substrates elevated slightly above the active river channels (Figure 2i). The substrates are flooded very infrequently. These areas are floristically diverse, perhaps even surpassing the dry vegetation types (Vc) and

(Vd) in species number. Common taxa include *Dryas integrifolia, Salix rotundifolia, S. phlebophylla, S. reticulata, S. ovalifolia, Astragalus alpinus, Potentilla biflora, Arnica frigida, Artemisia arctica, Papaver lapponicum, Epilobium latifolium, Aster sibiricus, Deschampsia caespitosa, Alopecurus alpinus, Poa glauca, Arctagrostis latifolia*, and *Trisetum spicatum*. The threatened vascular plant, *Thlaspi arcticum*, occurs in this vegetation type along the Kuparuk River to the west of Prudhoe Bay (Walker 1985b). In the PTUA map area 167.0 acres or 0.5% of the land cover is designated IXb. Partially vegetated river bars are used extensively by caribou, moose and bear for foraging and may also (depending upon location) provide insect relief habitat for caribou.

IXf. Dry Barren/Dwarf Shrub, Grass Complex

This category represents a partially vegetated sand dune steppe community. A typical community description is dry *Artemisia borealis, A. glomerata, Deschampsia caespitosa, Trisetum spicatum* dwarf shrub, grass tundra. This sand dune community was found in a limited area on Flaxman Island and is 4.7 acres or <0.1 % of the mapped area.

IXh. Wet Barren/Wet Sedge Tundra Complex

This category depicts arctic saltmarsh with only partial plant cover (as compared to category IIIb) (Figure 2j). Typically large patches of open wet mud are interspersed with salt tolerant plants. This complex covers 205.4 acres or 0.6% of the mapped area (Table 2). As described in class IIIb these areas are used extensively by wildlife (particularly geese and shorebirds) and form part of the saltmarsh complex that is considered "high-value" habitat.

IXi. Dry Barren/Forb, Graminoid Complex

This coastal complex is subject to intermittent inundation by saltwater (Figure 2k). The original tundra vegetation has been killed and these sites are now dominated by a sparse cover of salt tolerant species including *Stellaria humifusa, Cochlearia officinalis, Puccinellia andersonii, P. phryganodes*, and *Carex ursina. Salix ovalifolia, Sedum rosea*, and *Artemisia arctica*, which are typical of disturbed tundra sites, are also commonly present. This vegetation type is commonly found in close association with arctic saltmarsh (vegetation types IIIb and IXh), but usually on higher better-drained ground. This complex covers 551.8 acres or 1.7 % of the mapped area (Table 2).

Xa. River Gravels/Beaches

This category represents unvegetated gravels in active river channels and on beaches (Figure 21). However, there can be a very sparse plant cover (< 30 percent) of vegetation type IXc. This category grades continuously into category IXc, and covers 163.3 acres or 0.5% of the mapped area (Table 2). While this landcover type is unvegetated river gravel bars are often used as insect avoidance habitat by caribou.

Xc. Barren Gravel Outcrops

This category depicts partially vegetated gravel spill areas with plant cover less than 30%. Class Xc in the PTUA map area includes washout zones next to exploratory pads. A total of 4.8 acres or <0.1% of the map area is classed as barren gravel outcrops (Table 2).

Xe. Gravel Roads and Pads

This category refers to exploratory pads constructed in the Point Thomson Area. These areas are mostly devoid of vegetation. A total of 66.6 acres or 0.2% of the map area is gravel roads and pads (Table 2).

XIa. Wet Mud

This category depicts drained lakes and ponds (not pictured). In some areas the mud surface is actually dry. These areas are usually unvegetated but may contain scattered individuals of species such as *Deschampsia caespitosa* and *Senecio congestus*. Wet mud covers 351.1 acres or 1.1% of the mapped area (Table 2).

XIc. Bare Peat

This category refers to areas of peat soils devoid of vegetation. These are usually barren coastal areas caused by storm surges or lake-margins where erosional processes have scoured the peat. Bare peat covers 13.3 acres or <0.1% of the mapped area.

DISCUSSION

The PTUA map area is located primarily on the ancient Canning River alluvial fan. It is the physical environment that controls most plant growth and establishment. Geomorphic processes are responsible for initiating open habitats for colonization and succession. Wind oriented lakes dominate the Canning River coastal zone and the area west of the alluvial fan which starts at the southern limit to Mikkelsen bay. Thaw lakes are less common on the Canning River inland fan zone where the dominant soil types are coarser.

The shallow thaw-lakes of the northern coastal plain follow a cyclic pattern of formation and drainage. Thaw-lakes originate from low-center polygons and tundra ponds by wind-driven thermokarst erosion during the warm season (Britton 1957, Carson and Hussey 1961, Billings and Peterson 1980). Lakes grow and coalesce until they are captured by a stream and drain. Following drainage the wet basins are colonized, within a few years, by pioneer graminoid plant and moss species (Ovendon 1986). Through time the floristic composition of the basins changes gradually while the ice-wedge polygonization in the permafrost of the underlying sediments re-asserts itself near the surface. One result of this reassertion is the appearance of low center polygons, which is followed by erosion of the polygon rims and the beginning of a new cycle. Initial plant invaders and successional sequences vary within and between regions due to localized aspects of the physical environment. For instance the degree of drainage varies considerably between individual basins and even within a single basin.

The project area has been described as lowland loess with wet minerotrophic tundra (Carter 1988, Walker and Everett 1991). Calcareous loess (pH 6.0 to 8.4) downwind of the Canning River favors the development of minerotrophic plant communities (Walker and Everett 1991). The soils in this region have a relatively high silt content, high pH and lower organic material content when compared with acidic regions of the coastal plain (Tedrow 1977, Gersper et al. 1980). As a consequence of the lowered organic content of the soil, water retention increases downwind from the river. The higher mineral content increases bulk density in the soils, which in turn decreases the insulating capacity of the soil and generally results in a greater summer depth of thaw. Loess deposition also influences soil nutrient availability directly by mineral additions and indirectly by altering the cation exchange capacity (CEC). The high deposition of loess downwind from the Canning River acts to maintain the vegetation in an early successional state (Walker and Everett 1991).

Vegetation and soils in the area are strongly controlled by microscale topographic variation. Dry sites occur on stabilized dunes, pingos and some well drained river terraces.

These sites typically have mineral soils, which thaw to depths greater than 1 meter and are rarely saturated at 30 cm depths (Walker and Everett 1991). A discontinuous mat of prostrate shrubs and cushion plants (*Dryas integrifolia, Saxifraga opositifolia, Oxytropis nigrescens*), a few sedges (mostly *Carex rupestris*) and erect dicots (like *Draba alpina, Chrysanthemum integrifolium,* and *Papaver lapponicum*) characterize the vegetation on the driest, snow-free sites. Slightly moister sites or those with more disturbance are more species rich in sedges (particularly *Eriophorum angustifolium* and *Carex biglowii*). In areas of intense disturbance the soil may be lacking vegetation or be covered with crustose lichens (particularly *Lepraria neglecta*).

Moist tundra microsites are polygon rims, tops of poorly developed high-centered polygons, low hummocks and strangs in wet areas and well-drained terrain along streams and the lower gentle slopes of pingos. Moist sites drain of water soon after spring runoff. These sites are dominated by sedges (*Eriophorum angustifolium var. triste*, and/or *Carex aquatilis, C. bigelowii C. membranacea, and C. misandra)* and dwarf shrubs (*Dryas integrifolia, Salix arctica, and S. reticulata*). The primary erect dicotyledons are *Chrysanthemum integrifolium, Senecio atropurpureus, Pedicularis lanata, P. capitata, Polygonum viviparum and Papaver macounii.*

Wet sedge tundra is associated with poorly drained areas that usually have standing water for at least the early part of the summer. Typical microsites for wet tundra include the basins and troughs of low-centered polygons, the margins of ponds, lakes and streams, and the intermittent wet areas of drained thaw-lake basins. While some sites drain during dry periods late in the summer the soils remain saturated at all times. *Carex aquatilis* is the most common sedge in the wet site vegetation but *Eriophorum angustifolium, Dupontia fisheri, C. rontundata, C. atrofusca, C. saxatilis* and *E. russeoleum* are also common. There are relatively few scattered dwarf-shrubs (*Salix lanata, S. arctica*) and forbs (*Pedicularis sudetica, Saxifraga hirculis, Silene acaulis*, and *Cardamine pratensis*). Walker (1985) also recognizes a somewhat wetter sedge tundra, which has up to 10 cm of standing water throughout the summer and is transitional between the wet and aquatic tundra types. *Carex aquatilis, C. rotundata* and *Eriophorum angustifolium* as well as the blue-green alga *Nostoc commune* dominate this type.

Communities of emergent vegetation are found in areas that are covered with 10 -100 cm of water throughout the summer. Microsites typical of aquatic tundra include protected embayments of lakes and ponds, small beaded ponds in tundra streams and deep low centered polygon basins. *Carex aquatilis, Eriophorum scheuchzeri*, and *Caltha palustris* dominate sites with up to 30 cm of water. These sites occur in the shallow margins of lakes, and especially in the partially drained lake basins with complex terrain of polygon rims, islands and strangmoor. In water up to 1 meter deep a distinct community composed almost exclusively of the grass

Arctophila fulva occurs. This community is especially common in partially drained thaw-lake basins with protected embayments.

Along the coast extensive areas of salt marsh are dominated by salt tolerant graminoids including *Puccinellia phryganodes, Carex subspathaceae, Carex ursina*, and *Puccinellia langeana*. Salt-tolerant forbs are also present in these areas (primarily *Cerastium beringianum* and *Chochlearia officinalis*). Species diversity increases in areas that are less salt effected with stands of early successional tundra grasses like *Dupontia fischeri*.

The PTUA Development Project area is characterized by large expanses of moist sedge, wet sedge, and dwarf shrub dominated tundra (primarily *Carex*, *Eriophorum*, and *Salix* spp.) interrupted by areas of drier, well-drained tundra, thaw-lakes and ponds, drained lake basins, and several small streams. Along the coast, 1 to 2 m high eroding bluffs and beaches alternate with lower tundra areas influenced by occasional saltwater intrusion. Smaller areas of sand dunes and sandy spits also occur along with estuaries at the mouths of streams and rivers. Along the streams are wet and moist tundra types (on terraces), and dry, partially vegetated gravel bars. Barren gravels are present in active stream channels. Drier vegetation types typically occur on well-drained plateaus above streams, at the margins of drained lake basins, and in small patches scattered throughout the area. Thaw-lakes and ponds, particularly those with irregular shorelines, support emergent vegetation (dominated by *Arctophila fulva* and *Carex aquatilis*) in the shallow water margins. Drained lake basins may contain non-patterned ground, low-centered ice-wedge polygons, and strangmoor in complex mosaics that can include smaller thaw-lakes and ponds all within a single larger drained basin.

The PTUA Development land cover map is based on photo-interpretation supported by ground-reference data. The accuracy of this vegetation map has not been assessed, all ground-reference data was used to construct and correct the current map. Independent ground-reference data are required to assess map accuracy. In a few cases a combination of narrow polygon delineations and inaccurate GPS positions (suspected reflectance interference in one case) led to discrepancies between the ground-reference site and the map classification. These sites were repositioned.

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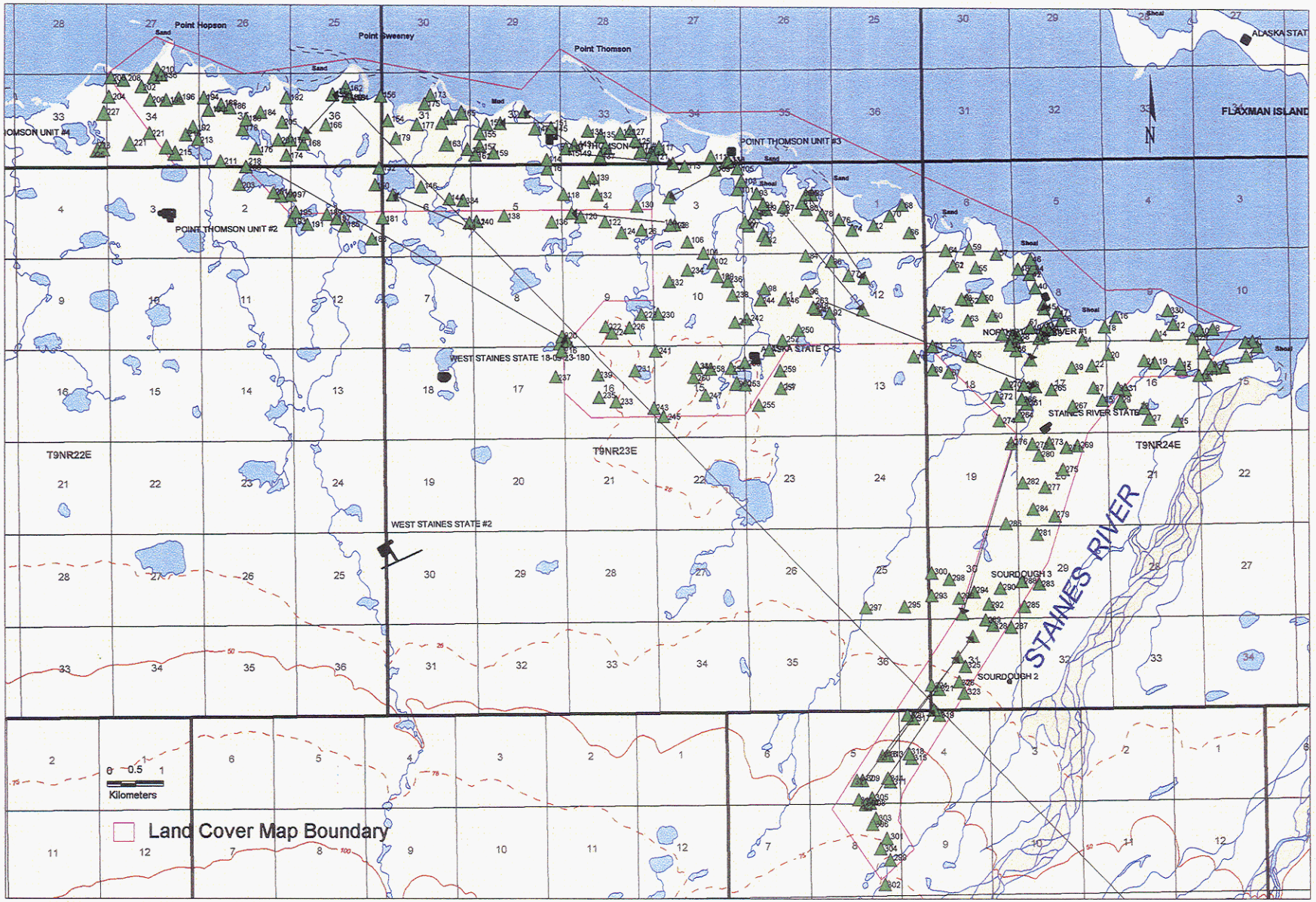
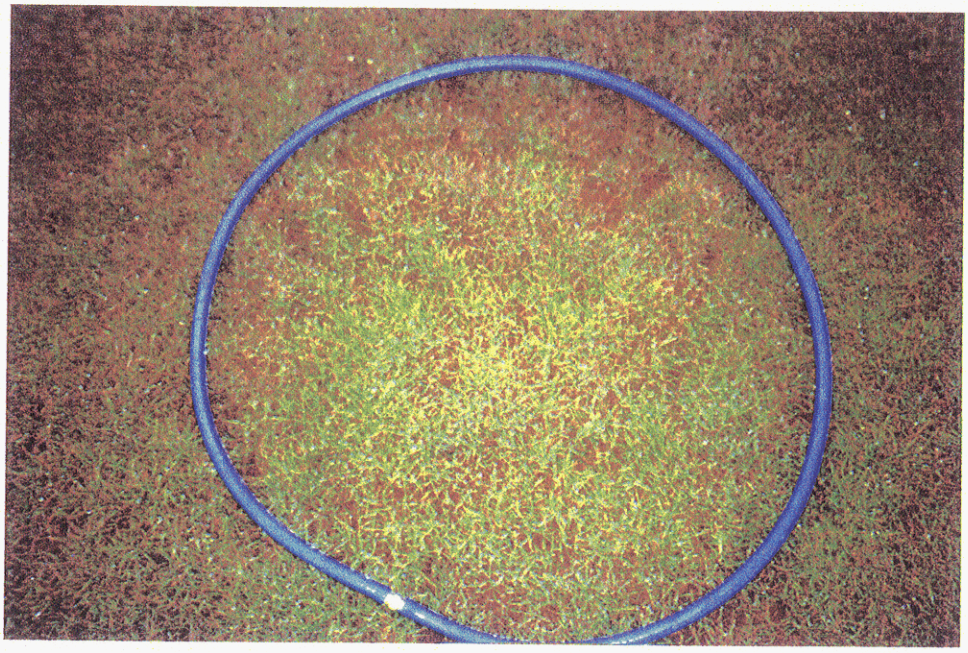


Figure 1. Ground reference sites used to prepare the Point Thomson Unit Area land cover/vegetation map, Alaska, July and August 1998.

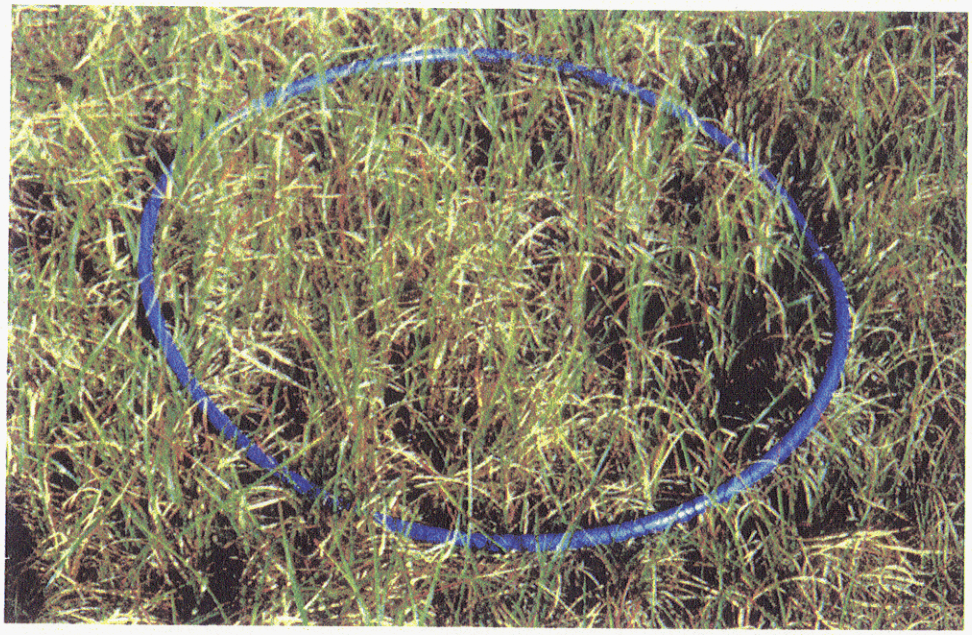
2a. Class IIb. Aquatic Graminoid Tundra

2b. Class IIIa. Wet Sedge Tundra

Figure 2. Examples of vegetation within Level C land cover classes (Table 1, Walker 1983) for the Point Thomson Unit area vegetation map.

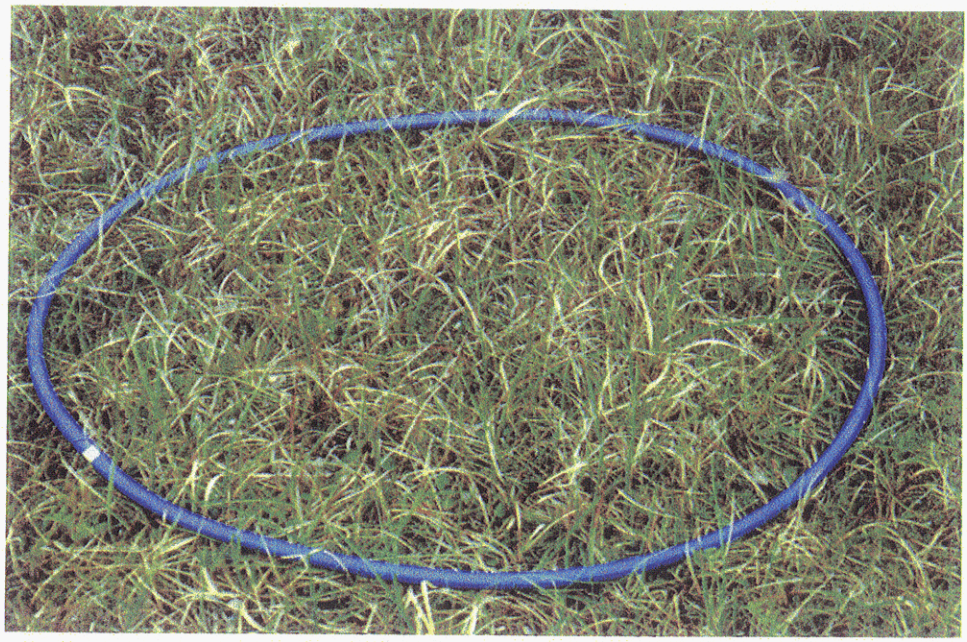


2c. Class IIIb. Wet Graminoid Tundra



2d. Class IIId. Wet Sedge/Moist Sedge Dwarf Shrub Tundra Complex

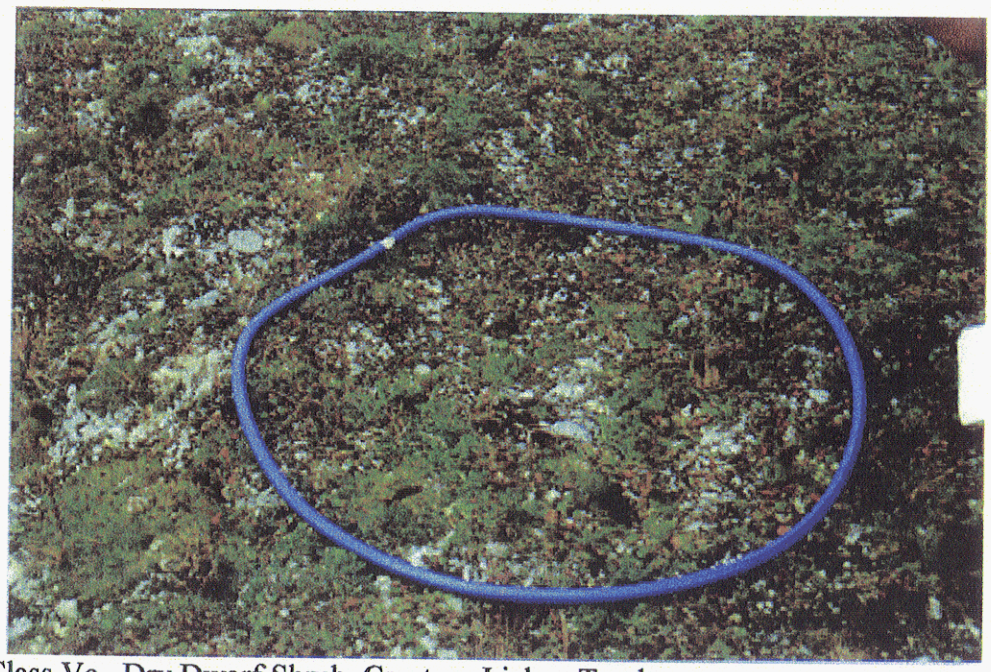
Figure 2. Continued.



2e. Class IVa. Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex

2f. Class Va. Moist Sedge, Dwarf Shrub Tundra

Figure 2. Continued.

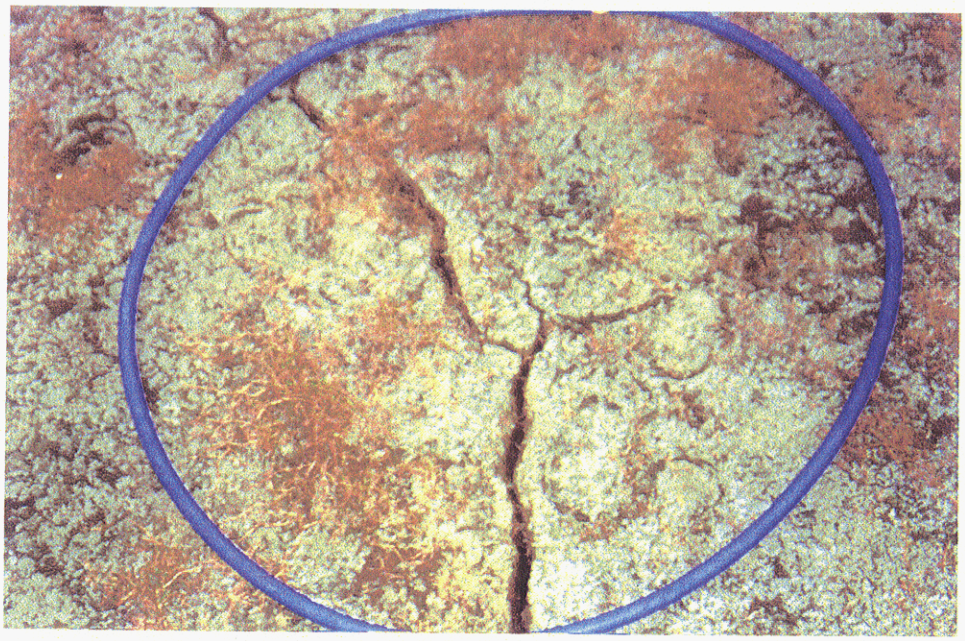


2g. Class Vc. Dry Dwarf Shrub, Crustose Lichen Tundra

2h. Class Ve. Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (frost scar tundra)

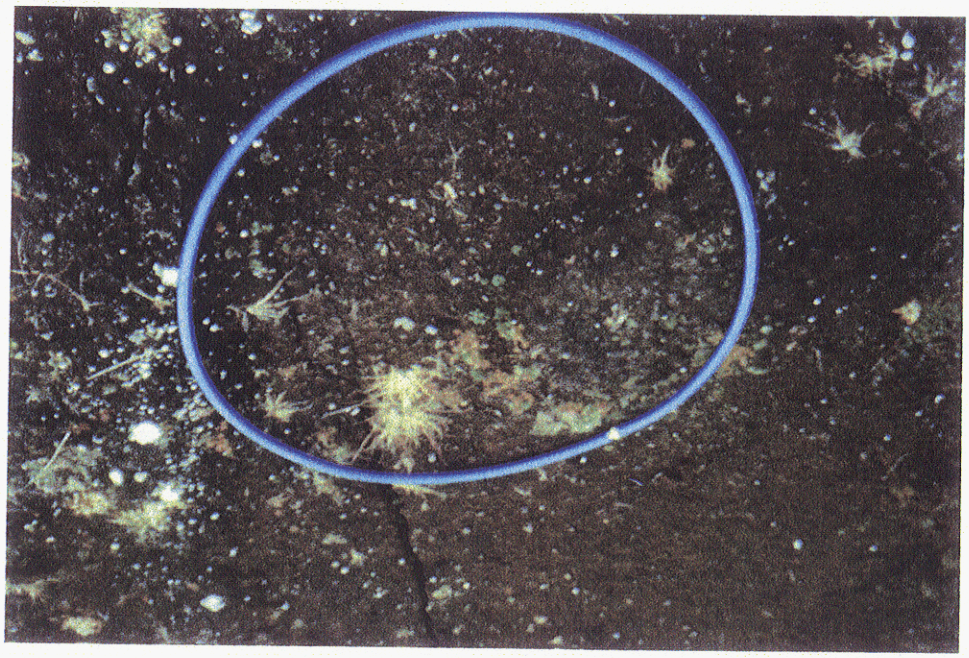
Figure 2. Continued.

2i. Class Ixb. Dry Barren/Dwarf Shrub, Forb Grass Complex



2j. Class IXh. Wet Barren/Wet Sedge Tundra Complex

Figure 2. Continued.



2k. Class IXi. Dry Barren/Forb, Graminoid Complex

2l. Class Xa. River Gravels

Figure 2. Continued.

Table 1. Hierarchical vegetation categories for the Point Thomson Area Vegetation/Land Cover Map, based on Walker's (1983) vegetation classification. Vegetation types were mapped and labeled at Level C.

LEVEL A SMALL-SCALE UNITS	LEVEL B LANDSAT-SCALE UNITS	LEVEL C PHOTO-INTERPRETED MAP UNITS	LEVEL D TYPICAL PLANT COMMUNITIES
A. Water	I. Water	Ia. Water (ponds, lakes, rivers, streams, saltwater)	No vegetation
B. Wet Tundra	II. Very Wet Tundra	IIb. Aquatic Graminoid Tundra (emergent vegetation)	Aquatic *Arctophila fulva* Grass Tundra
			Aquatic *Carex aquatilis* Sedge Tundra
		IId. Water/Tundra Complex (pond complex with emergent vegetation)	Typical communities listed in IIb, IIIa, and Va
	III. Wet Tundra	IIIa. Wet Sedge Tundra	Wet *Carex aquatilis, Scorpidium scorpioides* Sedge Tundra (wettest facies of wet alkaline tundra)
			Wet *Carex aquatilis, Eriophorum angustifolium, Pedicularis sudetica, Drepanocladus brevifolius* Sedge Tundra (wet alkaline tundra)
			Wet *Eriophorum angustifolium, Dupontia fisheri, Campylium stellatum* Graminoid Tundra (wet acidic tundra, coastal areas)
		IIIb. Wet Graminoid Tundra (wet saline tundra, saltmarsh)	Wet *Carex subspathacea, Puccinellia phryganodes, Stellaria humifusa, Cochlearia officinalis* Sedge Tundra
		IIIc. Wet Sedge Tundra/Water Complex (pond complex, no emergent vegetation)	Typical communities listed in IIIa and Va
		IIId. Wet Sedge/Moist Sedge, Dwarf Shrub Tundra Complex (wet patterned-ground complex)	Typical communities listed in IIIa and Va, and sometimes IIb
		IIIe. Wet Sedge/Moist Sedge/Barren complex (wet frost-scar tundra complex)	Typical communities listed in IIIa , Va and Ve
C. Moist Tundra	IV. Moist/Wet Tundra Complex	IVa. Moist Sedge, Dwarf Shrub/Wet Graminoid Tundra Complex (moist patterned ground complex)	Typical communities listed in IIIa and Va
	V. Moist or Dry Tundra	Va. Moist Sedge, Dwarf Shrub Tundra	Moist *Carex bigelowii, Eriophorum angustifolium, Dryas integrifolia, Salix reticulata, Tomenthypnum nitens, Thamnolia subuliformis* Sedge, Dwarf Shrub Tundra (moist alkaline tundra)
			Moist *Luzula arctica, Poa arctica, Saxifraga cernua, Salix planifolia, Dicranum elongatum, Ochrolechia frigida* Graminoid, Dwarf Shrub, Crustose Lichen Tundra (moist acidic tundra)

Table 1. Continued

LEVEL A SMALL-SCALE UNITS	LEVEL B LANDSAT-SCALE UNITS	LEVEL C PHOTO-INTERPRETED MAP UNITS	LEVEL D TYPICAL PLANT COMMUNITIES
C. Moist Tundra (continued)	V. Moist or Dry Tundra (continued)	Va. Moist Sedge, Dwarf Shrub Tundra (continued)	Moist *Carex aquatilis, Eriophorum angustifolium, Salix planifolia, Campylium stellatum* Sedge, Dwarf Shrub Tundra (moist acidic tundra, wetter facies)
		Vc. Dry, Dwarf Shrub, Crustose Lichen Tundra (*Dryas* tundra, pingos, river bars)	Dry *Dryas integrifolia, Carex rupestris, Oxytropis nigrescens, Salix reticulata, Ditrichum flexicaule, Lecanora epibyron* Dwarf Shrub, Forb, Crustose Lichen Tundra (*Dryas* tundra, pingos)
			Dry *Dryas integrifolia, Astragalus alpinus, Oxytropis borealis, Salix reticulata, Distichium capillaceum, Lecanora epibyron* Dwarf Shrub, Forb, Crustose Lichen Tundra (*Dryas* tundra, river bars)
		Vd. Dry, Dwarf Shrub, Fruticose Lichen Tundra (dry acidic tundra)	Dry *Salix rotundifolia, Pedicularis kanei, Luzula arctica, Ploytichum* sp., *Alectoria nigricans, Cetraria islandica* Dwarf Shrub, Fruticose Lichen Tundra (dry acidic tundra near coast)
		Ve. Moist Graminoid, Dwarf Shrub Tundra/Barren Complex (frost-scar tundra complex)	Typical communities listed in Va plus either completely barren frost scars or communities such as: Dry *Saxifraga oppositifolia, Dryas integrifolia, Chrysanthemum integrifolium, Juncus biglumis, Arctagrostis latifolia, Ochrolechia frigida* Barren (alkaline frost scars)
E. Partially Vegetated and Barren	IX. Partially Vegetated	IXb. Dry Barren/Dwarf Shrub, Forb Grass Complex (forb rich river bars)	Typical communities listed in Vc, and mixed forb, grass and dwarf shrub communities such as:
			Dry *Bromus pumpellianus, Festuca rubra, Astragalus alpinus, Androsace chamaejasme, Salix ovalifolia* Grass, Forb, Dwarf Shrub Tundra (forb rich river bars)
			Dry *Dryas integrifolia, Artemisia borealis, A. glomerata, Salix ovalifolia, Androsace chamaejasme* Dwarf Shrub, Forb Tundra (*Dryas* river bars near arctic coast)
		IXe. Dry Barren/Grass Complex (coastal sand dune grassland)	Dry *Elymus arenarius* Grass Tundra (coastal sand dune grassland)
		IXf. Dry Barren/Dwarf Shrub Grass complex (sand dune steppe)	Dry *Artemisia borealis, A. glomerata, Deschampsia caespitosa, Trisetum spicatum* Dwarf Shrub, Grass Tundra (sand dune steppe)
		IXh. Wet Barren/Wet Sedge Tundra Complex (barren/saline tundra complex, saltmarsh)	Typical communities listed in IIIb

Table 1. Continued

LEVEL A SMALL-SCALE UNITS	LEVEL B LANDSAT-SCALE UNITS	LEVEL C PHOTO-INTERPRETED MAP UNITS	LEVEL D TYPICAL PLANT COMMUNITIES
E. Partially Vegetated and Barren (continued)	IX. Partially Vegetated (continued)	IXi. Dry Barren/Forb, Graminoid Complex (coastal barrens)	Dry *Cochlearia officinalis, Stellaria humifusa, Puccinellia phryganodes, P. andersonii, Salix ovalifolia, Potentilla pulchella* Forb, Graminoid Tundra (coastal saline barrens)
	X. Light- colored Barrens (ground cover <30%)	Xa. River Gravels	Completely barren or with communities listed under IXb and IXc.
		Xc. Barren Gravel Outcrops	Typical communities listed under Vd or IXe or the following among many others; Dry *Dryas octopetala, Lupinus arcticus, Potentilla biflora, Smelowski calycina,Saxifraga tricusoidata, Salix phlebophylla, Silene acaulis* Dwarf Shrub Barren (gravel outcrops)
		Xe. Gravel Roads and Pads	Completely barren or partially vegetated with communities similar to IXb and IXc.
	XI. Dark-colored Barrens (ground cover <30%)	XIa. Wet Mud (drained lakes and ponds)	Completely barren or occasionally wtih colonizing species such as *Deschampsia caespitosa* and *Senecio congestus.*
		XIc. Bare Peat (mostly barren coastal areas caused by storm surges)	Completely barren or with sparse communities similar to IIIa, Va, and IXi.

Table 2. Area (acres) covered by land cover classifications for vegetation and land cover map, Point Thomson Unit Area, Alaska, with percent occurrence for each classification.

Vegetation Category	Number of Polygons	Total Area (acres)	Total Area (percent)	Number of Reference Sites
Ia	5608	14518.8	44.3	0
IIb	136	174.8	0.5	8
IId	63	163.1	0.5	1
IIIa	211	980.4	3.0	41
IIIb	147	380.9	1.2	27
IIIc	35	173.5	0.5	0
IIId	368	5610.1	17.1	76
IIIe	101	158.4	0.5	2
IVa	171	3366.2	10.3	40
Va	160	3773.5	11.5	63
Vc	192	639.0	2.0	19
Vd	20	92.9	0.3	1
Ve	92	1190.9	3.6	16
IXb	62	167.0	0.5	3
IXf	1	4.7	0.0	0
IXh	126	205.4	0.6	5
IXi	91	551.8	1.7	12
Xa	146	163.3	0.5	1
Xc	16	4.8	0.0	0
Xe	17	66.6	0.2	0
XIa	3903	351.1	1.1	1
XIc	3	13.3	0.0	0
TOTAL	11669	32750.6	100	316

Table 3. Error matrix comparing vegetation and land cover map classification to ground reference site classifications, data collected 24 July to 7 August 1998 in the Point Thomson Unit Area, Alaska. Rectangles enclose Level B vegetation

Map Classification	Reference Site Classification																	
	Ia	IIb	IId	IIIa	IIIb	IIId	IIIe	IVa	Va	Vc	Vd	Ve	IXb	IXh	IXi	Xa	XIa	TOTAL
Ia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
IIb	0	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8
IId	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
IIIa	0	0	0	24	1	8	0	0	0	0	0	0	0	0	0	0	0	33
IIIb	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	23
IIIc	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
IIId	0	0	0	6	2	62	0	2	1	0	0	1	0	0	0	0	0	74
IIIe	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
IVa	0	0	0	2	0	0	0	38	3	0	0	0	0	0	0	0	0	43
Va	0	0	0	2	0	1	0	0	56	0	0	0	0	0	0	0	0	59
Vc	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	19
Vd	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Ve	0	0	0	1	0	4	0	0	3	0	0	15	0	0	0	0	0	23
IXb	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
IXh	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
IXi	0	0	0	0	1	0	0	0	0	0	0	0	0	1	12	0	0	14
Xa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
XIa	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
TOTAL	0	8	1	41	27	76	2	40	63	19	1	16	3	5	12	1	1	316
Agreement Level C	0	7	1	24	23	62	2	38	56	19	1	15	3	4	12	1	1	269[1]
Agreement Level B	0	9		132				38	94				20			1	1	295[2]

[1]Agreement Level C = (269/316) or 85%

[2]Agreement Level B = (295/316) or 93%

Appendix A

Table A-1. Ground-reference site descriptions collected 27 July through 7 August 1998 in the Point Thomson Unit Area, Alaska. See Figure 1 for site locations and Table A-2 for plant taxa.

Site Number	Map Classification	Field Classification	Site Description	
1	IXh	IXh	Sand at edge of peninsula - mud further in, Moist/dry	
2	IXh	IXh	Soil is dry sand, coastal salt affected	
3	IXi	IIIb	Salt marsh	
4	IXi	IXi	Coastal barrens	
5	IIIa	IIIa	Across stream ~50m from edge of salt marsh/moist	
6	Va	Va	HCPs	
7	IIIb	IIIb	Moist/wet	
8	IVa	IVa	Polygon rim, dry soil	
9	Vc	Vc	Dry/moist, partially barren	
10	IIIa	IIIa	Small basin rim, moist sedge meadow	
11	Va	Va	Downstream from 7/9, just out of salt marsh veg moist	
12	IIIb	IIIb	Salt marsh, soil: wet, salt affected	
13	IIIa	IIIa	Moist/wet	
14	Vd	Vd	Moist sedge meadow	
15	IId	IId	Wet/aquatic?	
16	IXi	IXi	Dry barren top of very HCP along coast	
17	IVa	IVa	LCP moist - some space in center	
18	Va	Va	Moist sedge meadow	
19	IId	IIb	Wet/aquatic	
20	IVa	IVa	Moist/wet sedge meadow	
21	IVa	IVa	Moist/wet, mud centers, trough	
22	IVa	IVa	Moist sedge meadow	
23	Va	Va	LCP -vegetated - little relief, shallow margin	
24	IVa	IVa	Moist sedge tundra	
25	Va	Va	Moist/dry - gradual slope, unpatterned	
26	IIIb	IIIb	Wet salt marsh	
27	IVa	IVa	Between lakes, LCP <0.5m relief, moist/wet	
28	IIb	IIIa	Wet sedge meadow	
29	Ve	Ve	HCP dry/moist	
30	IVa	IVa	Moist sedge meadow	
31	Vc	Vc	HCP along beaded stream, CAAQ thick along stream	
32	IIIa	IIIa	Moist sedge meadow, moist soil	
33	IVa	IVa	Wet - LCP with margins heaved and broken	
34	Va	IIIa	Moist sedge meadow	
35	IIIc	IIIa	Wet/aquatic in drained lake basin just east of ARFU	
36	Va	Va	Moist sedge meadow, moist soil	
37	IVa	IVa	Moist LCP/wet?	
38	Vc	Vc	Dry soil, almost barrens looking	
39	IVa	IVa	Wet/moist LCP and strangs	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
40	Va	Va	Moist sedge meadow, moist soils	
41	IVa	IVa	Moist HCP med. trough	
42	IIb	IIb	Wet, but not inundated	
43	Va	Va	S of gravel pad within extension, FTP (slightly depressed) moist	
44	XIa	IIIa	Moist sedge meadow	
45	Va	Va	Still S of pad within pad extension area, moist FTP (not as depressed more lush veg)	
46	IIIb	IIIb	Coastal salt marsh	
47	IXi	IXi	FTP/HCP - Partial barrens, moist/dry	
48	Va	IIIa	Moist/wet sedge meadow	
49	IVa	IVa	Moist indistinct FTP, slope to stream	
50	Va	Va	Moist sedge tundra	
51	XIa	XIa	Wet/saturated, partial barrens and hummocks	
52	Va	Va	Moist sedge meadow	
53	IIId	IIId	Wet strangmoor - soil saturated	
54	IVa	Va	Moist sedge meadow	
55	Vc	Vc	Dry/moist ridge above lake basin	
56	IIIb	IIIb	Salt marsh	
57	IIId	IIId	Wet strangmoor in lake basin	
58	Va	IIId	Wet/moist sedge meadow with strangmoors	
59	Va	Va	Moist/dry with hummocks	
60	Va	Va	Moist sedge tundra	
61	Va	Va	HCP with hummocks/ moist	
62	IXb	IXb	Very old basin and fairly barren, probably >30% cover in general	
63	IVa	IVa	FTP moist/wet troughs in spots with hummocks	
64	IVa	IVa	Moist sedge meadow, polygons with deep troughs	
65	Va	Va	FTP with scattered frost boils/moist	
66	IIIb	IIIb	Salt marsh	
67	Vc	Vc	Moist FTP with scattered tussocks	
68	Vc	Vc	Dry barrens, tops of polygons with drier moist meadow between	
69		IIId	Wet strangmoor	
70	Ve	Va	Moist sedge meadow	
71	IId	IIId	Wet strangmoor	
72	IVa	IVa	Moist sedge meadow, top of high center with wetter troughs	
73	IIIa	IIIa	Wet unpatterned, scattered hummocks	
74	IVa	IVa	Moist sedge meadow	
75	IVa	IVa	Wet low CP	
76	Vc	Vc	Streambank bluff community	
77	IIb	IIb	Aquatic	
78	Va	Va	Moist sedge meadow	
79	Va	Va	Moist sedge meadow	
80	Va	Va	Moist sedge meadow	
81	IXi	IXi	Moist salt marsh	
82	IIId	Va	Moist sedge meadow	
83	IIIb	IIIb	Wet salt marsh	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
84	IVa	IVa	Moist sedge meadow	
85	IXi	IXi	Dry coastal barrens with frost boils	
86	IVa	IVa	Moist/wet sedge meadow	
87	Va	Va	FTP with strangs, wet/moist	
88	IVa	IIIa	Moist/wet sedge meadow	
89	Va	Va	Moist FTP with strangs, few barren spots at rim	
90	Va	Va	Moist sedge meadow	
91	IXi	IXi	Moist LCP with strangs - partial barren	
92	IIb	IIb	Wet sedge meadow	
93	IIb	IIb	Wet/aquatic	
94	Va	Va	Moist/wet sedge meadow	
95	Ve	Ve	Just S of stream crossing corridor between DLB and stream channel	
96	Va	Va	Moist sedge meadow	
97	Xa	Xa	Gravel bar at road crossing	
98	IIId	IIId	Moist sedge meadow in old basin complex, lots of strangs present	
99	IIIa	IIIa	On peninsula in lake basin, wet/aquatic	
100	Vc	Vc	Stream bluffs, drier soils, disturbed (naturally)	
101	IIIa	IIIa	Wet LCP	
102	Ve	Ve	Dry snowbed community	
103	Va	Va	SE corner of pad at Pt. Thomson, moist with hummocks FTP?	
104	Va	Va	Moist sedge grass meadow	
105	IIIa	IIIa	NW corner of pad at Pt. Thomson, wet/moist, FTP with strangs	
106	Vc	Vc	Stream bank bluff community, dry soils, a lot of bare area	
107	Vc	Vc	Dry/wet, HCP partial barren on top	
108	IIIa	IIIa	Wet/moist sedge meadow	
109	IIIe	IIIe	Moist - transition to barren below stand line	
110	Va	Va	Moist/wet sedge meadow	
111	IIIa	IIIa	FTP by lake, moist	
112	IIIa	IIIa	Wet sedge meadow	
113	Va	Va	Ridge by lake, moist - ARFU land at margin	
114	IIb	IIb	Very wet	
115	IXi	IXi	Coastal barrens - Dry/moist	
116	Va	Va	Moist sedge meadow	
117	IIIb	IIIb	Salt marsh, moist	
118	Va	Va	Moist sedge meadow	
119	IIIa	IIIa	Wet/moist	
120	IIId	IIId	Wet sedge meadow	
121	Ve	Ve	Moist frost scar tundra	
122	IIId	IIIa	Wet sedge meadow	
123	IIId	IIId	Wet/moist strangmoor between 2 lakes	
124	Vc	Vc	Moist/dry polygon, tops somewhat barren	
125	IIId	IIId	Wet LCP	
126	Va	Va	Moist sedge meadow	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
127	IIIb	IIIb	Moist salt veg	
128	IIId	IIId	Moist/wet meadow	
129	IIIb	IIIb	Moist sedge meadow	
130	IVa	IVa	Moist sedge meadow	
131	IIIb	IIIb	Wet salt marsh	
132	IIIa	IIIa	Wet/moist meadow (stream bank)	
133	IXh	IXh	Moist salt marsh	
134	Va	Va	Moist sedge meadow	
135	Va	Va	Moist FTP with widely scattered bare area	
136	Va	Va	Moist sedge meadow	
137	IVa	IVa	Wet/moist strangmoors in LCP	
138	IIIa	IIIa	Wet/Moist sedge meadow	
139	Va	Va	Moist/wet strangmoor in LCP	
140	IXb	IXb	Dry rocky barrens (part of old basin rim)	
141	Va	Va	Moist FTP with some bare ridges	
142	Va	Va	Moist sedge meadow, some frost scars	
143	IXi	IXi	Moist coastal barrens	
144	IIId	IIId	Wet sedge meadow, LCPs	
145	IIIb	IIIb	Wet salt marsh	
146	IXb	IXb	Dry barrens community	
147	IXi	IXi	Moist/wet FTP with frost boils	
148	Ve	Ve	Moist sedge meadow	
149	Va	Va	Wet/ Moist faint FTP with overgrown FB	
150	Ve	Ve	Moist sedge meadow	
151	IIIb	IIIb	Wet saltmarsh	
152	Va	Va	Moist sedge meadow	
153	IXi	IXh	Moist/dry barrens	
154	IIIb	IIIb	Salt marsh	
155	IVa	IVa	Moist sedge meadow	
156	IIIc	IIIa	Basin complex with wet soils	
157	IVa	IVa	FTP with strangs, wet, looks like pad site - toward middle staked	
158	IIIb	IIIb	Salt marsh, wet soils in old Basin complex	
159	IIId	IIId	Wet LCP	
160	IXi	IXi	Barrens, frost scar with some vegetation	
161	Vc	Vc	HCP moist/dry	
162	Va	Va	Moist sedge meadow	
			Moist LCP<0.5m trough with frost boils	
164	IVa	IVa	Moist sedge meadow	
165	IIIb	IIIb	Moist salt marsh	
166	Va	Va	Moist sedge meadow	
167	IXi	IXi	Coastal barrens	
168	Vc	Vc	HCPs with more or less barren tops, some veg cover	
169	IVa	IVa	Moist/wet LCP with strangs	
170	IIIa	IIIb	Bottom of salt marsh area on stream	
171	Ve	Ve	Wet coastal grassland with frost boils	
172	IIId	IIId	Wet sedge meadow, LCPs	
173	IIIb	IIIb	Wet salt marsh	
174	Ve	Ve	Dry barrens frost scar with moist sedge meadow in between	
175	IIIa	IIIa	Moist wet	
176	Va	Va	Moist sedge meadow	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
177	IIb	IIb	Wet/ aquatic	
178	IXi	IXi	Mud basins around salt marsh, some sorted areas with gravel, bare mud and gravel	
179	IVa	IVa	Moist FTP <0.5m trough with a few hummocks	
180	IIIb	IIIb	Typical salt marsh	
181	Ve	Ve	Moist frost boils, FTP weak	
182	IXh	IXh	Salt marsh, quite a bit of gravel mixed in with vegetated areas	
183	Ve	Ve	Moist/dry frost boils with hummock	
184	IVa	IVa	Basin edge near lake moist meadow	
185	IIb	IIb	Partially dried lake with ARFU	
186	IVa	IVa	HCP, top vegetated in moist sedge grass meadow. Other polygons mostly barren w/ mud & some salix & lichen in places there is CAUR in low lying spots w/in the mud dominated polygons; may be salt-affected during storm surges.	
187	Va	Va	Moist FTP with scattered frost boils	
188	IIIb	IIIb	Salt marsh, very wet interspersed w/ sorted stone polygons; salt intrusion is up to the lake that's next to the site.	
189	IIId	IIId	Moist Strangmoor in LCP	
190	Va	Va	Moist sedge meadow	
191	Va	Va	Moist/wet FTP with frost boils	
192	IIIb	IIIb	Salt marsh	
193	Ve	Ve	Frost boils, lots of gravel in boils, moist/dry	
194	IVa	Va	Moist sedge meadow	
195	IIId	IIId	Wet LCP with strangs	
196	IIIa	IIIa	Wet sedge meadow	
197	Vc	Vc	Circle formation in basin, start of pingo?	
198	IIIe	IIIe	Wet strangmoor, strang tops have ERAN and CAMI	
199	IIId	IIId	Moist wet LCP	
200	Va	Va	Moist sedge meadow	
201	IIId	IIId	wet nonpatterned	
202	IIIb	IIIb	Salt marsh	
203	Ve	Va	Moist sedge meadow, nonpatterned	
204	IIIb	IIIb	Salt Marsh	
205	IIId	IIId	Moist/wet sedge meadow with some LCPs/mudbasins with CAAQ and scorpidium and bare mud	
206	Va	Va	Wet/moist sedge meadow	
207	IIId	IIId	Moist/wet sedge meadow with some LCPs/mudbasins with CAAQ and scorpidium and bare mud, moist sedge meadow outside of the mud basins	
208	IIId	IIIb	Salt marsh w/ fairly large areas that are higher and less salt-affected	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
209	Ve	Ve	Slightly moist sedge meadow with frost scars/boils (more barren and gravely inside boils	
210	IIId	IIId	Moist sedge meadows w/ some strangs	
211	Vc	Vc	Moist/dry river bluffs	
212		IIId	Moist sedge meadow with strangs	
213	IIId	IIId	Moist sedge meadow-strangs and frost boils	
214		IIId	Moist/wet sedge meadow with strangs	
			Large area of matted down dead grass - dead for more than one season	
216	IIId	IIId	Wet/moist sedge meadow, standing water in part of site	
217	Va	Va	Moist sedge meadow, strangs present	
218		IIId	Moist/wet sedge meadow with strang	
219	IVa	IVa	Moist sedge meadow, HCPs and LCPs and strangs	
220	IIId	IIId	Wet sedge meadow with some strangs	
221	Va	Va	moist sedge meadow with strangs	
222	IIId	IIId	wet meadow tundra	
223	IIId	IIId	Moist sedge meadow - HCPs and strangs	
224	IIId	IIId	Wet/ moist sedge meadow with strangs. Strangs are more numerous than previous areas	
225	IIId	IIId	Moist sedge meadow - frost scars/boils and some strangs	
226	IIIa	IIIa	Wet sedge meadow	
227	IIIb	IIIb	salt-affected basin, large patches of gravel at S end of basin	
228	IIIe	IIIa	Moist/wet sedge meadow, somewhat less wet than previous site	
229	IIId	IIId	Moist sedge meadow - a few strangs present	
230	Va	Va	Moist sedge meadow	
231	IIId	IIId	Moist sedge meadow	
232	Va	Va	HCPs, fully vegetated although some areas appear more barren, moist sedge meadow	
233	IIId	IIId	Moist sedge meadow, strangs	
234	Va	Va	Moist sedge meadow	
235		IVa	Moist sedge meadow - strangs, HCPs	
236	Va	Va	Moist sedge meadow	
237	IIId	IIId	Moist sedge meadows, strangs	
238	Va	Va	Moist sedge meadow	
239	IVa	IVa	Moist sedge meadow - HCPs and some strangs	
240	Ve	Va	Moist sedge meadow, virtually identical to previous site	
241	IVa	IVa	Moist sedge meadow with fairly deep (standing water) troughs, HCPs	
242	IIId	IIId	Wet sedge meadow	
243	IIId	IIId	Moist/wet sedge meadow, some strangs	
244	IIId	IIId	Wet/moist sedge meadow	
245	IIId	IIId	Moist sedge meadow, some strangs	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
246	IIId	IIId	Wet sedge meadow	
247	IIId	IIId	Moist sedge meadow, some strangs	
248	IVa	IIIa	Wet Sedge meadow	
249	IVa	Va	Moist sedge meadow - mostly non-patterned (a few frost scars)	
250	IVa	IVa	Moist sedge meadow, polygon tops, troughs are CAAQ and ERAN	
251	IIIa	IIIa	Wet sedge meadow (standing water)	
252	IIIa	IIIa	Wet sedge meadow, small flowing stream	
253	IIId	IIId	Moist/wet sedge meadow	
254	IVa	IVa	Wet/moist sedge meadow	
255	IIId	IIId	Moist sedge meadow, some strangs	
256	IIId	IIId	Moist sedge meadow	
257	IIId	IIId	Moist sedge meadow - HCPs, strangs	
258	IIId	IIId	Wet/moist meadow	
259	IIIa	IIIa	Moist/wet sedge meadow (near stream bluffs	
260	Vc	Vc	Site is on top of disturbed gravel bluff near pad site, site is variable with many scattered weedy species	
261	IIIa	IIIa	Moist/wet sedge meadow, some strangs (basin area)	
262	IIIa	IIIa	Moist sedge meadow	
263	IVa	IVa	Moist sedge meadow - HCPs and LCPs mixed	
264	Va	Va	Moist/dry polygon tops some more, barren areas from late lying snow	
265	IIIc	IIIa	Wet sedge meadow with large basin	
266	IIIa	IIIa	Moist sedge meadow	
267	Vc	Vc	Bluffs along basin ridge	
268	Va	Va	moist grassland/sedge meadow	
269	IVa	IVa	Moist sedge meadow - HCPs some strangs	
270	Vc	Vc	Dry barrens, barren tops of small mounds with DRIN and SAOV in between	
271	Ve	Ve	Moist sedge meadow, HCPs, a few frost boils	
272	IIId	IIId	Moist/wet sedge meadow, LCPs, Troughs are CAAQ and ERAN	
273	IIId	IIId	Moist sedge meadow, LCPs with wet troughs	
274	Ve	IIIa	Wet sedge meadow	
275	IIId	IIId	Moist sedge meadow, HCPs some small strangs	
276	Va	Va	Wet sedge meadow, start of road corridor	
277	IIId	IIId	Moist sedge meadow, LCPs some small strangs water-filled troughs	
278	Ve	Ve	Moist/wet sedge meadow with some strangmoor	
279	IIId	IIId	Moist sedge meadow - LCP (a few strangs)	
280	IIId	IIId	Wet Strangmoor	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
281	IIId	IIId	Moist/wet sedge meadow, some strangs, LCPs (HCPs also in area)	
282	Ve	IIId	Wet sedge meadow LCPs, wide troughs of CAAQ and ERAN	
283	IIId	IIId	Moist sedge meadow, LCP with strangs	
284	IIIa	IIId	Wet sedge meadow, dispersed strangs with CABI and CAMI	
285	IIId	IIId	Moist sedge meadow, HCPs, some strangs	
286	IIId	IIId	Wet sedge meadow LCPs, troughs are CAAQ and ERAN	
287	IIId	IVa	Moist sedge meadow, HCPs	
288	IIIa	IIId	Wet sedge meadow LCPs	
289	IIId	IVa	Moist sedge meadow, HCPs, strangs	
290	IIIa	IIIa	Wet/moist sedge meadow	
291	IIId	IIId	Moist sedge meadow, HCPs	
292	IVa	IVa	Moist sedge meadow	
293		IIId	Moist sedge meadow, strangs	
294	IIIa	IIId	Wet sedge meadow, tundra	
295		Va	Moist sedge meadow, nonpatterned	
296	IIId	IIId	Wet/moist sedge meadow	
297	Vc	Vc	Moist sedge meadow, HCPs near stream bluffs	
298	Ve	Ve	Wet/moist sedge meadow	
299	IIId	IIId	Moist sedge meadows, strangs	
300	IVa	IVa	Moist sedge meadow, HCPs	
301	IIId	IIId	Moist sedge meadow, LCPs, small strangs	
302	IIId	IIId	Moist sedge meadow	
303	IIId	IIId	Moist sedge meadow, LCPs, strangs	
304	IIId	IIId	Wet strangmoors	
305	Ve	IIId	Moist sedge meadow	
306	IIId	Ve	Moist sedge meadow, old frost scars	
307	IIId	IIIa	Moist sedge meadow, non-patterned	
308	IIId	IIId	moist sedge meadow	
309	IIId	IIId	Moist sedge meadow, LCPs, some strangs	
310	IIId	IIIa	Moist sedge meadow	
311	IIId	IIId	Moist sedge meadow, LCPs, strangs	
312	IIId	IIIa	Moist sedge meadow, LCPs	
313	Ve	IIId	Moist/wet sedge meadow, LCPs	
314	IIId	IIIb	Moist sedge meadow, some strangs with CALR	
315	IIId	IIIa	Moist sedge meadow, nonpatterned	
316	Ve	IIId	Wet sedge strangmoor	
317	IIIa	IIId	Moist sedge tundra, strangs, LCPs	
318	IIId	IIId	Moist sedge meadow, strangs low centers troughs CAAQ and ERAN, tops CAMI, rims form strangs in some cases	
319	IIId	IIId	Moist sedge meadow, LCPs, strangs	
320	IIIa	IIId	Wet/moist sedge meadow	
321	IIIa	IIId	Moist/wet sedge meadow, LCPs, strangs	
322	IIIa	IIId	Moist sedge meadow, LCPs with rims having CABI and CAMI more ERAN	

Table A-1 (continued)

Site Number	Map Classification	Field Classification	Site Description	
323	IIIa	IIId	Moist sedge meadow, strangs	
324	IIId	IIId	Wet sedge meadow, LCPs with strangmoors	
326	IIId	IIIa	Moist sedge meadow	
328	IIIa		Wet sedge meadow	

Table A-2. Estimated percent cover of vegetation at ground reference sites in the Point Thomson Area, Alaska July/August 1998. * indicates <1% cover

Plant taxa/Ground cover	Code	Site Number																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																1							
Arctophila fulva	ARFU										15													
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE	35	52	13	29	3	9	13		23			10									17		
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																					7		
Carex aquatilis	CAAQ													60		78				67	42		8	7
Carex atrofusca	CAAT																							
Carex bigelowii	CABI																							
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI				*		17		37			*					5	*	18		2	16	35	
Caltha palustris	CAPA											*												
Carex rupestris	CARU																			1				
Carex saxatilis	CASA																				3			5
Carex sp.	CASP																					2		
Carex subspathaceae	CASU	29	25	7	*			83					87											
Cassiope tetragona	CATE																							
Carex ursina	CAUR			*																				
Cerastium beeringianum	CEBE	7		1				1																
Cetraria sp.	CETR								4						*			*				*	1	
Chrysanthymum arcticum	CHAR									4														
Chrysanthymum integrifolia	CHIN				*		2										5							
Cladonea sp.	CLAD								4															
Cochlearia officinalis	COOF	2		1																				
Crustose Lichen	CRLI				20												27						1	
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	Site Number																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Distichium sp.	DISP																							
Drepanocladus sp.	DREP											1									10			1
Dryas integrifolia	DRIN				6				27						7		28	17	5			7	5	5
Dupontia fischeri	DUFI					6						9				2					5			
Elymus arenaius	ELAR			47																				
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA				2					11														
Eriophorum angustifolium	ERAN					77	55				30	80			48			57	48	2	20	43	23	47
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC										35													
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS															2								
Honckenya peploides	HOPE			1				*																
Hypnum bambergeri	HYBA															16								
Juncus biglumis	JUBI									*		1												
Lepraria neglecta	LENE																							
Lichens	LICH									13														
Litter	LITT			20		14	10	3			12		3		17			20	18	8		7	19	16
Liverwort	LIVE															2								
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP					*	*				3													
Minuarta obtusiloba	MIOB																							
Moss	MOSS			3		*						3									3			
Mud	MUD																							
Oxyria digyna	OXDY																							
Papaver macunii	PAMA									1														
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU				*						2			6		*	7	*			3		2	

Plant taxa/Ground cover	Code	Site Number																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI											1		4			2	*	1		*	*	*	2
Primula borealis	PRBO				3					3														
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH	27	23	7									*											
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR				23				8			2		8	21			5			10		3	12
Saxifraga cernua	SACE									*		*											*	
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI									*	3	3											*	1
Salix lanata	SALA																					1		
Saxifraga oppositifolia	SAOP								12	8							17							
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH				17		7		4					2			8	1	7			*		3
Salix pulchra	SAPU																							
Salix reticulata	SARE																		3			*	2	
Salix rotundifolia	SARO									37					7									
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																				2			
Scorpidium scorpioides	SCSC																							
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC									*		*												
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM				*				4								*	*					1	
Tomentypnum nitens	TONI									*				20										1
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																			22				
Unidentified forb	FORB																							
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL								2															
Arctophila fulva	ARFU																			65				
Arctogrostis latifolia	ARLA		10													*			3					
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE		3	12		17	38		1				13			*	10			23	5			5
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	1				43	2	9			*		74	7	12		3	25			7	35	12	
Carex atrofusca	CAAT				4																			
Carex bigelowii	CABI					*				13														
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI	15			3				3	7	15	25			20		27	17			13	12		
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA		11		*																	4		
Carex sp.	CASP								2		3						*		2					
Carex subspathaceae	CASU			85																				94
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE			1																				
Cetraria sp.	CETR	*						*		*											*			
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF						2																	*
Crustose Lichen	CRLI								1							42								
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Distichium sp.	DISP																				2			
Drepanocladus sp.	DREP	3	*		2						3						2							
Dryas integrifolia	DRIN	10	30		10		24	5	57	8	13	2				50			27		8			
Dupontia fischeri	DUFI							10		25		28		15									13	1
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA										*	1						*			*		*	
Eriophorum angustifolium	ERAN	39	15		47	30		38		22	38	27		40	23	*	27	30	60		47	22	17	
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																			12		18		
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																						2	
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA														13						1		3	
Juncus biglumis	JUBI						*											*	2		2	3		
Lepraria neglecta	LENE																							
Lichens	LICH						2												1					
Litter	LITT	18			22			2			8	2	13		15		23	12			10		5	
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP					*																*		
Minuarta obtusiloba	MIOB																							
Moss	MOSS									1	3					3						4		
Mud	MUD																							
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																		*					
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU				*	2	*			1	*				2	2	*	*				2			

Plant taxa/Ground cover	Code	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI	1			*							3		2	2			*						
Primula borealis	PRBO						2																	
Puccinellia arctica	PUAR																						*	
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH			2																				
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	2	2		2			18		18	3	7		15	12		3	15			3	2	33	
Saxifraga cernua	SACE						10		3		7	1												
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI							3				2				*	2						1	
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP															3								
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH		8				8	12						16		*		1	2		*			
Salix pulchra	SAPU																							
Salix reticulata	SARE	8	7		10							1			1		3							
Salix rotundifolia	SARO	3					7			2		1											*	
Sasauria angustifolia	SAAN																							
Salix sp.	SASP								7															
Scorpidium scorpioides	SCSC					8																		
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC						5		22		7													
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM	*							2															
Tomentypnum nitens	TONI		14					3		3				5					3				14	
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																							
Unidentified forb	FORB																							
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Alopecurus alpinus	ALAL																		1			2		
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																		1			2	2	
Astragalus alpinus	ASAL									7												3		
Aulacomnium sp.	AULA																							
Bare Ground	BARE	22				73				8	6	11	5	3			68				7		7	7
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS							2																
Carex aquatilis	CAAQ	5	42		2	18		7				12	44						6					45
Carex atrofusca	CAAT							2		*								2		3				
Carex bigelowii	CABI				25		13		2	7		3			15					10		2		
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI	10		4	27		22	23	10			20	3	27		40		13	11	1		12	8	
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP																							
Carex subspathaceae	CASU										7										61			
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																				*			
Cetraria sp.	CETR				*					5				3			*		1				7	
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN	1																		1			7	
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI									5							*		2				7	
Dactylina arctica	DAAR				*														1				7	

Plant taxa/Ground cover	Code	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Distichium sp.	DISP	2								3		2												
Drepanocladus sp.	DREP	3		*		7	1	8				7	7	3										
Dryas integrifolia	DRIN			2	3		4			30		2		22		5	19	18	18	17		28	22	
Dupontia fischeri	DUFI	3																		3				
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA	*					*		*				*		*									
Eriophorum angustifolium	ERAN	5	35	50	20	2	23	20	60	8		20	32	23	50	33		30	37	33		30	8	25
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC		5																					
Eriophorum vaginatum	ERVA																					2		
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA							3																
Juncus biglumis	JUBI							3		2			*											
Lepraria neglecta	LENE																							
Lichens	LICH																							
Litter	LITT		10	10	15		13	7	27	*		13	5	12	16	10		20	13	10		7		5
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP	*		*											*				*					
Minuarta obtusiloba	MIOB																							
Moss	MOSS						2													3				
Mud	MUD					*																		
Oxyria digyna	OXDY																							
Papaver macunii	PAMA									1														
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU				1		1	2	1	*		7	2				*	2	*			2	*	1

Plant taxa/Ground cover	Code	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI	3		1	*		3	3		*				1	1				1	3			1	
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																				3			
Puccinellia phryganodes	PUPH										87										29			
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	17		20	6		15	8				*		2	*	7		7	2	3		1	4	
Saxifraga cernua	SACE													2										
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI	17		1			2			*			*		4									
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP	*															*			1				
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH				1			5					2				12	3	6				1	
Salix pulchra	SAPU																							
Salix reticulata	SARE	3												2									5	
Salix rotundifolia	SARO	7		5			1	5		12					7	5				10		6		
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC		8									3												17
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																1							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM	2			*					5							*		1				7	
Tomentypnum nitens	TONI			7				2		7					7			5		2		3	7	
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																							
Unidentified forb	FORB																							
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Alopecurus alpinus	ALAL							12																
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL												25				7							
Arctophila fulva	ARFU								20															
Arctogrostis latifolia	ARLA							2														*		
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE		17		3		4	11					38		30	1	40	17	3		3		43	
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	*	17	18	30	13	20				2							40	7	29	3		8	50
Carex atrofusca	CAAT																							
Carex bigelowii	CABI									10		23		30		30		11				38		
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI			14		1	10			20	18	7		*		2			17		31	6	17	
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA		23		33		13																	
Carex sp.	CASP																							
Carex subspathaceae	CASU																							
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																3							
Cetraria sp.	CETR															1						*		
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN							3																
Cladonea sp.	CLAD																					*		
Cochlearia officinalis	COOF												3											
Crustose Lichen	CRLI							11					3			2								
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Distichium sp.	DISP																							
Drepanocladus sp.	DREP						2				3								1				3	
Dryas integrifolia	DRIN					10		2		5	13	7		15		6					3	14		
Dupontia fischeri	DUFI												3				27							
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR							3														*		
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	78	40	15	20	47	30	1		30	42	15		25		37	7	32	45	21	33	25	15	
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI																8	*						
Lepraria neglecta	LENE																							
Lichens	LICH																						2	
Litter	LITT	10		15	10	12	15			20		30		5		6			10	45	7	10	3	
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																2			*				
Minuarta obtusiloba	MIOB																							
Moss	MOSS															1						2		
Mud	MUD																							50
Oxyria digyna	OXDY							12																
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU				2			*			2							*	2	1				

Plant taxa/Ground cover	Code	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI	1		*		*		10		*		*				2			2					
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA												18											
Puccinellia phryganodes	PUPH														43									
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	8		33		7	3			10	10	*		5		*		*	3		7	1	2	
Saxifraga cernua	SACE					*												*		1				
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI							*												3				
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP																							
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH	3				*		13			1	*		*		2						4		
Salix pulchra	SAPU																						7	
Salix reticulata	SARE			2		10	3				5	17		10		7					13			
Salix rotundifolia	SARO							13						5					7					
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC		3		2														1					
Senicio atropurpureus	SEAT																					*		
Silene acaulis	SIAC							7				1				2								
Standing Dead	STDE																							
Stellaria humifusa	STHU										2		8				1							
Thamnolia sp.	THAM												2			1			2					
Tomentypnum nitens	TONI			3		*				5	2			5										
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER								80						27									
Unidentified forb	FORB																5							
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Alopecurus alpinus	ALAL																					4		
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO										2													
Artemisia glomerata	ARGL															3								33
Arctophila fulva	ARFU																						55	
Arctogrostis latifolia	ARLA															3								
Astragalus alpinus	ASAL														2									
Aulacomnium sp.	AULA																							
Bare Ground	BARE	8		15			22			5	13			27		17		33						37
Bare rock	ROCK					97									8									
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	50	45		3		3	33		23				5			47	27	61		37			
Carex atrofusca	CAAT																							
Carex bigelowii	CABI				12																			
Calamagrostis holmii	CAHO																							2
Carex membranacea	CAME																							
Carex misandra	CAMI			30	45		28				8			25		10	8	3			3			3
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP																							
Carex subspathaceae	CASU									22														
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE								1															3
Cetraria sp.	CETR		*						*		13				*							1		
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN										7													
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF																							3
Crustose Lichen	CRLI				*				20		13				23	2								
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Distichium sp.	DISP																							
Drepanocladus sp.	DREP			5				15		2				3										
Dryas integrifolia	DRIN		7	2			2		17		23		13		47		7							
Dupontia fischeri	DUFI							8		18		8	35	2		27	7	5		23	17	7		4
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI								*															
Equisetum arvense	EQAR																						8	
Epilobium latifolium	EPLA					3																		
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	34	25	35	14		28	35	10	30		57	14	23		8	10	23	11	55	28	33		
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							3
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL										1													
Geum rossii	GERO								1						10									
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI			2																				3
Lepraria neglecta	LENE																							
Lichens	LICH																							4
Litter	LITT	8	12		23		17					13	17			3	10			8	13	10		
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							
Minuarta obtusiloba	MIOB																							
Moss	MOSS																					5		
Mud	MUD																							
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU		*				*		3							2					*			

Plant taxa/Ground cover	Code	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Poa arctica	POAR																					25		
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI		*		*				2		*	3	1				*		*		*	*		
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							1
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR		5	5	2		*	7				17		7		8	3	7	16	12	2	10		
Saxifraga cernua	SACE																				*			
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI				*		*					2							*	2		2		
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP			3					1		1				2									
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH		6						43		6		15		7		1	2	3					
Salix pulchra	SAPU																							
Salix reticulata	SARE				1		*									2	7							
Salix rotundifolia	SARO			3										8		15			6					
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC																							
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC								2						1									
Standing Dead	STDE																							
Stellaria humifusa	STHU																					2		2
Thamnolia sp.	THAM								*		13				*							1		
Tomentypnum nitens	TONI							2					5						3					
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																						37	
Unidentified forb	FORB																							2
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR	*																						
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA	2					7														*			
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE				2	10	17		5	9	3		17	1			5	6	53				2	3
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							8
Carex aquatilis	CAAQ	35		23	48	43	2	30	3		16	8		27		20		42			8	5	10	47
Carex atrofusca	CAAT									2	3													
Carex bigelowii	CABI	7		1			2					22		6						28	5	18		
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI			*	*		2		10		2	7		17		3						2	10	
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																						6	
Carex sp.	CASP																							
Carex subspathaceae	CASU		55										29				95							
Cassiope tetragona	CATE	2																						
Carex ursina	CAUR												20		6				7					
Cerastium beeringianum	CEBE		17												2				8					
Cetraria sp.	CETR	*								10										*	1			
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF														7		*							
Crustose Lichen	CRLI									10														
Dactylina arctica	DAAR			*																*				

Plant taxa/Ground cover	Code	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
Distichium sp.	DISP																							
Drepanocladus sp.	DREP				7	3												*				5		7
Dryas integrifolia	DRIN	8		2			22		3	10						5				12		2	5	
Dupontia fischeri	DUFI			8				25	2		13	20	4	11	20	17	*				10	7		18
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR											*												
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	23		12	32	34	23	18	63	5	53	13		7	40	18		28		15	43	13	30	3
Eritrichum aretioides	ERAR									*														
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																				*			
Geum glaciale	GEGL									3		2												
Geum rossii	GERO																							
Grass	GRAS									6														
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																				3			
Juncus biglumis	JUBI				*		5		3															
Lepraria neglecta	LENE																							
Lichens	LICH						5																	
Litter	LITT	5		15	10	10		3			8	12		7	3	19		7		32		43	13	13
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP				*							1											*	
Minuarta obtusiloba	MIOB																							
Moss	MOSS							9	2			6				5								
Mud	MUD																							
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU			*			*	*	2									1			2			1

Plant taxa/Ground cover	Code	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
Poa arctica	POAR														17						4			
Polygonum bistorta	POBI																							
Polytrichum commune	POLY			2																				
Polygonum viviparum	POVI			3				*				*			3	*						1	2	
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																		5					
Puccinellia phryganodes	PUPH		28										30						27					
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR			22			5	12			2	3		3	2	8		1		3	3	4		
Saxifraga cernua	SACE																							
Saxifraga foliosa	SAFO																						*	
Saxifraga hirculus	SAHI				1			*				*						*			2		2	
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP									2														
Salix ovalifolia	SAOV			*																	3			
Salix phlebophylla	SAPH			3						23				6		*		1		2			5	
Salix pulchra	SAPU								5															
Salix reticulata	SARE	8		7				3	2							5		14		8			13	
Salix rotundifolia	SARO	10			*		8							8							13			
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC																						2	
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM	*							*	10										*	1		*	
Tomentypnum nitens	TONI						2			10		6		7							2			
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																							
Unidentified forb	FORB			2																				
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL															4								
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA			2	2					3		*	*					*						
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA			3																				
Bare Ground	BARE	3	20			53		16	37	2				30		85	5				5	7	45	
Bare rock	ROCK		57						40															
Bryum pseudotriquetrum	BRPS																					2		
Carex aquatilis	CAAQ	16		2	10	3	53			3	25	3	12		23			1	10	23		55		
Carex atrofusca	CAAT																	12						
Carex bigelowii	CABI	7								2	1		8					3						3
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							17
Carex misandra	CAMI	10	3		15				3									*		3		3	5	7
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP																							
Carex subspathaceae	CASU							25						40			86				62			
Cassiope tetragona	CATE				2																			
Carex ursina	CAUR					*								17		*								
Cerastium beeringianum	CEBE			*		10								2			*							
Cetraria sp.	CETR			*	3													*						*
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF					*										1	*							
Crustose Lichen	CRLI				3	5				2														*
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161
Distichium sp.	DISP																	2						
Drepanocladus sp.	DREP									*			3					2		7		2		
Dryas integrifolia	DRIN	23	10		2				10	*		3	6					2		10				
Dupontia fischeri	DUFI					10	*			5	21	8	27	8		2	7		57	2	28		5	*
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA	*																						
Eriophorum angustifolium	ERAN	22	3	53	26	2	*		3	50	19	47	22		27			47	23	42		22	15	
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																		*					
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							20
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS	*								*														
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA	2																		*				
Juncus biglumis	JUBI	2			5																			*
Lepraria neglecta	LENE																							
Lichens	LICH		7						7														15	
Litter	LITT			5	8			2		10	8	7	6	3	30	3		5	10	5		7		2
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP					*				*														
Minuarta obtusiloba	MIOB																							
Moss	MOSS	2				2											2				5			
Mud	MUD						39																	
Oxyria digyna	OXDY																							15
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU	3								*	2									*				

Plant taxa/Ground cover	Code	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161
Poa arctica	POAR			2																			10	*
Polygonum bistorta	POBI																							
Polytrichum commune	POLY			3																*				1
Polygonum viviparum	POVI			*	*					*	*	2	*					*						2
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA					10										2								
Puccinellia phryganodes	PUPH							57								1								
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	3		12	7					18	19	16	4		18			10		3				
Saxifraga cernua	SACE																							
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI											2												
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP																							
Salix ovalifolia	SAOV					5				2					2			2				2	5	
Salix phlebophylla	SAPH	3		18						3	*		5											
Salix pulchra	SAPU																							
Salix reticulata	SARE	2			4						5		7					1		2				
Salix rotundifolia	SARO				10							10						13		3				33
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC						8																	
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM	2		*	3					*								*						*
Tomentypnum nitens	TONI											2								*				
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																							
Unidentified forb	FORB															2								
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL													*										
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA		7													2					2			
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE			9	1		82	60		10	2			10				55		38	13	27	13	
Bare rock	ROCK																	30						
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	7		28		5			42			17		2			70	10	8		13		15	7
Carex atrofusca	CAAT																							
Carex bigelowii	CABI		1									15		5							*			
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI	15		3					2					7				5			7		17	
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP									15														
Carex subspathaceae	CASU				97															8		5		
Cassiope tetragona	CATE																							
Carex ursina	CAUR									30	2		85							17		35		
Cerastium beeringianum	CEBE				2										2							2		
Cetraria sp.	CETR																		*					
Chrysanthymum arcticum	CHAR													*										
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF						4								1									
Crustose Lichen	CRLI	*		*			2							9							5		7	
Dactylina arctica	DAAR	*		1										10										

Plant taxa/Ground cover	Code	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184
Distichium sp.	DISP										6								7					
Drepanocladus sp.	DREP								3					3		2			2					
Dryas integrifolia	DRIN			3										19		*					8		10	
Dupontia fischeri	DUFI	18	23	22		40					60	10	10		35	33								23
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA								*												2		1	
Eriophorum angustifolium	ERAN	35	30	17		19			27		17	18			53	25	*		40		33		8	27
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																						2	33
Funariahygrometrica	FUHY																				*			
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS														*									
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																10							
Juncus biglumis	JUBI																				2			
Lepraria neglecta	LENE																							
Lichens	LICH																		*					
Litter	LITT	15	2	8		13			7		10				2	13			10		4			
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							
Minuarta obtusiloba	MIOB																							
Moss	MOSS			2											*				10		*			
Mud	MUD											20												
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU	*							*					*		*							1	

Plant taxa/Ground cover	Code	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184
Poa arctica	POAR		2																					
Polygonum bistorta	POBI																							
Polytrichum commune	POLY		1										5						2					
Polygonum viviparum	POVI		2						*						2				*		*			
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA						2				3											3		
Puccinellia phryganodes	PUPH									45										37		28		
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	7	12	3		23		15	17							10			15		7		7	
Saxifraga cernua	SACE																							10
Saxifraga foliosa	SAFO																						2	
Saxifraga hirculus	SAHI					*									2									
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP													14										
Salix ovalifolia	SAOV	2					10		2															
Salix phlebophylla	SAPH		10	*				15						12		5								
Salix pulchra	SAPU																							
Salix reticulata	SARE	1		3											1	5			6					
Salix rotundifolia	SARO		7																		2		10	
Sasauria angustifolia	SAAN																							
Salix sp.	SASP														*									
Scorpidium scorpioides	SCSC											20					10							
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU														2									
Thamnolia sp.	THAM	*	*	1										9					*		*			
Tomentypnum nitens	TONI		3													5					2		7	
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																10							
Unidentified forb	FORB							10																
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Alopecurus alpinus	ALAL													17										
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU	27																						
Arctogrostis latifolia	ARLA							15																
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE				6	2		12	8	8							3		5		7		4	
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ					7	22				17	12	53		78	27	*	57		18		23	33	46
Carex atrofusca	CAAT																							
Carex bigelowii	CABI									12							22			10				*
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI					37	7	17		30					2	1				*				8
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA											*												
Carex sp.	CASP																							
Carex subspathaceae	CASU				93														83		83			
Cassiope tetragona	CATE			2																*				
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE				*				20					*							3			
Cetraria sp.	CETR			*				*		2														
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD																							
Cochlearia officinalis	COOF				1																3			
Crustose Lichen	CRLI					3		*																
Dactylina arctica	DAAR										*													

Plant taxa/Ground cover	Code	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Distichium sp.	DISP					1																		
Drepanocladus sp.	DREP					2						2				13								
Dryas integrifolia	DRIN			10		20		13		10	10									2				*
Dupontia fischeri	DUFI		22				17				18	2					25	2	2	24	4		17	12
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA									*						10								
Eriophorum angustifolium	ERAN		33	68		5	16	25		8	20	65			5	8	30	15		8			23	7
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY									1														
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI															2								
Lepraria neglecta	LENE																							
Lichens	LICH							*						2										
Litter	LITT		22	8		5	30	*			7	10				3	3	3	8	17			4	5
Liverwort	LIVE															*								
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP															*								
Minuarta obtusiloba	MIOB																							
Moss	MOSS													38		17		15						
Mud	MUD												24		10							39		
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU					*	*			*		3		*		5		3					*	*

Plant taxa/Ground cover	Code	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
Poa arctica	POAR													25		*								
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI									*						*				*				
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH								72															
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR		6	2		12	8	2		10	18	3					12			13			10	5
Saxifraga cernua	SACE		17																2					
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI											*		*									*	
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP							1																
Salix ovalifolia	SAOV															2		3					9	*
Salix phlebophylla	SAPH						*					3				3				1				*
Salix pulchra	SAPU																							
Salix reticulata	SARE					3				7	10													4
Salix rotundifolia	SARO			3				7		7				18		4	5							
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC												23		5			*				38		
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM					3		*		2														*
Tomentypnum nitens	TONI							8		3						5				7				13
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER	73		7														2						
Unidentified forb	FORB																							
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL				7																			
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE	10		6	15	9		14					1	6		11	11	9		6	10	2		14
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ		6	23		32	3	18		37	7	37	5	22	10	15		15	45	46		15	32	
Carex atrofusca	CAAT																							
Carex bigelowii	CABI		*				*	17		10	2	10		8	7		15	8	*			20		37
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI		44	13		2	22						22	10		3	18					15		2
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA													7		3								
Carex sp.	CASP																							
Carex subspathaceae	CASU	63																						
Cassiope tetragona	CATE																							
Carex ursina	CAUR																				*			
Cerastium beeringianum	CEBE																							
Cetraria sp.	CETR				*																			
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD					*																		
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI				15		2						*											
Dactylina arctica	DAAR																							

Plant taxa/Ground cover	Code	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230
Distichium sp.	DISP																							
Drepanocladus sp.	DREP							7						8				3		15			*	
Dryas integrifolia	DRIN		1		27	10					2		3					7					*	
Dupontia fischeri	DUFI	15	16	23			12	10		15	30	15	22	15	33	35	15	20	15	10	32	17	15	12
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	12	8	29		10	18	20		20	18	20	17	17	12	22	15	25	17	12	45	23	18	18
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI																							
Lepraria neglecta	LENE																							
Lichens	LICH																			5				
Litter	LITT		9	6		9	22	14			23		18	7	12	11		8	9	6	10	1	13	14
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							*
Minuarta obtusiloba	MIOB																							
Moss	MOSS					3													*					
Mud	MUD						4			18		18			13		11		2				10	
Oxyria digyna	OXDY				12																			
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU		*		*								*	*	*							*	2	

Plant taxa/Ground cover	Code	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY				*								*		3				*					
Polygonum viviparum	POVI										*		*		*				*				*	
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR		5			2	6				5		10	*	3		7	5	7			5	*	3
Saxifraga cernua	SACE																				3			
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI												*								*			
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP				*																			
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH		1		8														*					
Salix pulchra	SAPU																							
Salix reticulata	SARE		7			22	6				13		2		5		5	*	*			2		
Salix rotundifolia	SARO				3	1																		
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC						4																10	
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC				8																			
Standing Dead	STDE								100															
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM		*		*																			
Tomentypnum nitens	TONI		3		5		1				*				2		3		5			*		
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER																							
Unidentified forb	FORB																							
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2. Estimated percent cover of

Plant taxa/Ground cover	Code	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253
Alopecurus alpinus	ALAL																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE		10		7		3		*		*		20		7		4		4					
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	14	18	28	27	7	22	22	7	8	7	8	60	30	13	20	71	13	53			33	68	25
Carex atrofusca	CAAT																							
Carex bigelowii	CABI	3	18		10	5	11	10	15	7	15	9		11	23	7		10		3	15			25
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI	18	8	9	10	7		1		12		5				18		5			20			
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP																							
Carex subspathaceae	CASU																							
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																							
Cetraria sp.	CETR			*								*												
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD	*		*		*				*		*				*								
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI	*		*								3												
Dactylina arctica	DAAR																				*			

Plant taxa/Ground cover	Code	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253
Distichium sp.	DISP																							
Drepanocladus sp.	DREP															*	15		13				12	*
Dryas integrifolia	DRIN	4		7		1	2		3	5	3	7									10			
Dupontia fischeri	DUFI	13	17	17	27	32	27	22	22	22	22	18		12	20	20	7	23	14	43	20	2	5	
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	17	17	18	13	17	15	25	11	20	11	19	*	25	29	17	*	27	12	34	15	27	3	25
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	FUHY																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI			3																				
Lepraria neglecta	LENE																							
Lichens	LICH																							
Litter	LITT	11	10	13	6	25	3	12	*	18	*	20		5	6	12	3	20	4	8				8
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							
Minuarta obtusiloba	MIOB																							
Moss	MOSS					2			10	*	10													
Mud	MUD	6		3				4						5		3							12	6
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU	*						*		*					2	*	*	*	*			*	*	*

Plant taxa/Ground cover	Code	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253
Poa arctica	POAR																							
Polygonum bistorta	POBI																							
Polytrichum commune	POLY																							
Polygonum viviparum	POVI	*		*		*		*	*	*	*					*				2				
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	*	2			3	12	*	12	*	12					1		2		5	2			
Saxifraga cernua	SACE				*																			
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI					*																		
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP																							
Salix ovalifolia	SAOV			*						*														
Salix phlebophylla	SAPH								5		5	*												
Salix pulchra	SAPU																							
Salix reticulata	SARE	5					5		15	8	15	11									18			
Salix rotundifolia	SARO					1														3				
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC	6		2				4					20	6		2								5
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM	*		*								*												
Tomentypnum nitens	TONI	3				*				*		*								2				
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER													6								38		6
Unidentified forb	FORB																							
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2 (continued)

Plant taxa/Ground cover	Code	Site Number																						
		254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276
Alopecurus alpinus	ALOP							5																
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL														8									
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																	*						
Aulacomnium sp.	AULA																							
Bare Ground	BARE	4		12		5		39		9		12		1	8	6	3	32		7	3	6		5
Bare rock	ROCK							5																
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	36	21	27	12	50	23		26	15	9		58	8		*	15		8	38	8	38	13	53
Carex atrofusca	CAAT																							
Carex bigelowii	CABI	5	17			10	20		25			17	*			30			7	10			9	4
Calamagrostis holmii	CAHO												*											
Carex membranacea	CAME																							
Carex misandra	CAMI			12	32				*		5	27					20		3		40			
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA																							
Carex sp.	CASP														2									
Carex subspathaceae	CASU																							
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																							
Cetraria sp.	CETR										*				1			9			*			
Chrysanthymum arcticum	CHAR							5																
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD										*				*				*		*			
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI																	9			*			
Dactylina arctica	DAAR																							
Distichium sp.	DIST																							
Drepanocladus sp.	DREP					2			1								1		*	20	*	13	5	3

Table A-2 (continued)

Plant taxa/Ground cover	Code	Site Number																						
		254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276
Dryas integrifolia	DRIN	*								2	10	1		10	60	10	2	35	8		*			
Dupontia fischeri	DUFI	17	17	18	13	10	10			33	20			33		28	15		28	10	23	18	18	13
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA							10																
Equisetum variegatum	EQVA											*												
Eriophorum angustifolium	ERAN	22	17	18	22	13	20		25	17	25	22		33		17	18		28	8	8	18	23	15
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	GEGL																							
Geum glaciale	GEGL							5																
Geum rossii	GERO							5																
Grass	GRAS							7																
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI																							
Lepraria neglecta	LENE																							
Lichens	LICH																							
Litter	LITT	4	7	13	16	5	12	5	5	8	23	13	4	2		6	22		13	7	12	7	27	6
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP				*																			
Minuarta obtusiloba	MIOB																							
Moss	MOSS																							
Mud	MUD		11		3		5		9														2	
Oxyria digyna	OXDY														18									
Papaver macunii	PAMA							3																
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU	3	*	*		2	5		*					*			*	*				*	*	1
Poa arctica	POAR							2																
Polygonum bistorta	POBI																							

Table A-2 (continued)

Plant taxa/Ground cover	Code	Site Number																						
		254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276
Polytrichum commune	POLY																				4			
Polygonum viviparum	POVI							2				*					*				*		*	
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	2			*	3	*			5	*	8				3	3		3		*		2	
Saxifraga cernua	SACE				*																			
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI			*	*																			
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP														*								*	
Salix ovalifolia	SAOV																	3						
Salix phlebophylla	SAPH													13	*			3						
Salix pulchra	SAPU																							
Salix reticulata	SARE	7								10	4				*		*				2			
Salix rotundifolia	SARO																							
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC		10		2				9												*		1	
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																*							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM										*				1			9						
Tomentypnum nitens	TONI									1	4				2		1		2		*			
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER						5						38											
Unidentified forb	FORB							7																
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2 (continued)

Plant taxa/Ground cover	Code	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
Alopecurus alpinus	ALOP																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																					*		
Aulacomnium sp.	AULA																							
Bare Ground	BARE		5		9		9		5		5		9		7		4		5		5		11	
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	20	30	17	10	15	35	10	27	12	37	17	23	8	18	27	13	20	27		23	*	18	2
Carex atrofusca	CAAT																					13		
Carex bigelowii	CABI	15	25	3	20	13	2	9	7	13	22	18	22	13	30	10	12	13	22	27	15		25	10
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI			13	13	13	3	15	3					19				5				10		
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA			2		2																		
Carex sp.	CASP																							
Carex subspathaceae	CASU																							
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																							
Cetraria sp.	CETR			*								*		*		*						*		
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD			*								*		*		*								
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI					1																		
Dactylina arctica	DAAR																							
Distichium sp.	DIST																							
Drepanocladus sp.	DREP			*	8	*	2		2	*	5							*		*	15	5		*

Table A-2 (continued)

Plant taxa/Ground cover	Code	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
Dryas integrifolia	DRIN			7		*						13		10		*	22	3		3		23		*
Dupontia fischeri	DUFI	18	13	10	15	10	17	15	23	9	12	13	12	8	22	10	12	8	18	15	28	9	17	17
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA																							
Eriophorum angustifolium	ERAN	25	15	20	17	27	22	23	22	28	13	19	25	17	15	18	8	33	20	38	8	22	18	33
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	GEGL																							
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI	*				1				8		*				5								
Lepraria neglecta	LENE																							
Lichens	LICH																							
Litter	LITT	18	6	15	8	8	8	28	6	27	6	12	9	9	8	12	4	5	6	7	6	6	11	18
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							
Minuarta obtusiloba	MIOB																							
Moss	MOSS											*		*		*								2
Mud	MUD	1		3		1				2								6						
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU	*	3		*			*	*	*			*		*			*	*		*	*	*	*
Poa arctica	POAR																							
Polygonum bistorta	POBI																							

Table A-2 (continued)

Plant taxa/Ground cover	Code	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299
Polytrichum commune	POLY																							
Polygonum viviparum	POVI	*						*		*		*		*						*		*		
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	*	3	2	*	2	2	*				8		5		5	10	*						10
Saxifraga cernua	SACE																	*						
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI	*								*								*		*				*
Salix lanata	SALA																							
Saxifraga oppositifolia	SAOP																							
Salix ovalifolia	SAOV			3										*								*		
Salix phlebophylla	SAPH																							*
Salix pulchra	SAPU																							
Salix reticulata	SARE	2		3								*		8		13	12	*	2	10		12		5
Salix rotundifolia	SARO																					*		
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC	1		2						1														
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM			*		*						*		*		*						*		
Tomentypnum nitens	TONI			*								*		3		*	3					*		3
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER					7			5									7						
Unidentified forb	FORB																							
SUM		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table A-2 (continued)

Plant taxa/Ground cover	Code	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322
Alopecurus alpinus	ALOP																							
Artemisia arctica	ARAR																							
Artemisia borealis	ARBO																							
Artemisia glomerata	ARGL																							
Arctophila fulva	ARFU																							
Arctogrostis latifolia	ARLA																							
Astragalus alpinus	ASAL																							
Aulacomnium sp.	AULA																							
Bare Ground	BARE	2		5		7				6		1		11		12		7		11		11		7
Bare rock	ROCK																							
Bryum pseudotriquetrum	BRPS																							
Carex aquatilis	CAAQ	2	12	3	22	17	2		2	3	12		23		15		20	28	30	15	17	22	25	33
Carex atrofusca	CAAT	12								17														
Carex bigelowii	CABI	22	3	17	22	15	18	20	8	18	5	27	17	23	25	25	18	5	17	10	8	9	23	5
Calamagrostis holmii	CAHO																							
Carex membranacea	CAME																							
Carex misandra	CAMI		18	3	1	3			28		12					2		2		8	17			
Caltha palustris	CAPA																							
Carex rupestris	CARU																							
Carex saxatilis	CASA		17								*					2					7			
Carex sp.	CASP																							
Carex subspathaceae	CASU																							
Cassiope tetragona	CATE																							
Carex ursina	CAUR																							
Cerastium beeringianum	CEBE																							
Cetraria sp.	CETR																							
Chrysanthymum arcticum	CHAR																							
Chrysanthymum integrifolia	CHIN																							
Cladonea sp.	CLAD				*																			
Cochlearia officinalis	COOF																							
Crustose Lichen	CRLI																				*			
Dactylina arctica	DAAR																							
Distichium sp.	DIST																							
Drepanocladus sp.	DREP		*		2		2		2		*				*		2		*	2				

Table A-2 (continued)

Plant taxa/Ground cover	Code	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322
Dryas integrifolia	DRIN	1		5	2	5	5	7	2	3	1	12							*		*			
Dupontia fischeri	DUFI	20	12	27	7	18	13		12	10	8	30	12	17	9	27	8	17	15	23	10	32	7	30
Elymus arenaius	ELAR																							
Empetrum nigricans	EMNI																							
Equisetum arvense	EQAR																							
Epilobium latifolium	EPLA																							
Equisetum variegatum	EQVA	*											*					*	*				*	
Eriophorum angustifolium	ERAN	23	15	13	25	22	30	22	27	10	23	17	20	28	34	17	35	22	25	12	15	15	25	17
Eritrichum aretioides	ERAR																							
Eriophorum russeolum	ERRU																							
Eriophorum scheuchzeri	ERSC																							
Eriophorum vaginatum	ERVA																							
Festuca vivipara	FEVI																							
Funariahygrometrica	GEGL																						•	
Geum glaciale	GEGL																							
Geum rossii	GERO																							
Grass	GRAS																							
Honckenya peploides	HOPE																							
Hypnum bambergeri	HYBA																							
Juncus biglumis	JUBI																						2	
Lepraria neglecta	LENE																							
Lichens	LICH																							
Litter	LITT	3	15	5	11	6	20		13	7	30	2	22	11	8	13	8	8	8	12	18	11		8
Liverwort	LIVE																							
Luzula confusa	LUCO																							
Melandrium apetalum	MEAP																							
Minuarta obtusiloba	MIOB																							
Moss	MOSS				*																			
Mud	MUD		2								1		3		3		3		*					
Oxyria digyna	OXDY																							
Papaver macunii	PAMA																							
Papaver laponicum	PALA																							
Pedicularis sudetica	PESU		*		*	*					*		*		*	2	2		*	*	*	*		*
Poa arctica	POAR																							
Polygonum bistorta	POBI																							

Table A-2 (continued)

Plant taxa/Ground cover	Code	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322
Polytrichum commune	POLY																							
Polygonum viviparum	POVI		*		*				*	*	*		*								*			
Primula borealis	PRBO																							
Puccinellia arctica	PUAR																							
Puccinellia langeana	PULA																							
Puccinellia phryganodes	PUPH																							
Pyrola grandiflora	PYGR																							
Ranunculus nivalis	RANI																							
Salix arctica	SAAR	2	3	15	2		2		3		7	3	1	5		*			2	7	1			
Saxifraga cernua	SACE																							
Saxifraga foliosa	SAFO																							
Saxifraga hirculus	SAHI		*																					
Salix lanata	SALA																				5			
Saxifraga oppositifolia	SAOP						*																	
Salix ovalifolia	SAOV																							
Salix phlebophylla	SAPH						*		*						*									
Salix pulchra	SAPU																							
Salix reticulata	SARE	13	2	7	5	7	1		1	23		5							3		2			
Salix rotundifolia	SARO							17		3														
Sasauria angustifolia	SAAN																							
Salix sp.	SASP																							
Scorpidium scorpioides	SCSC		1						*		1		2		3		2		*					
Senicio atropurpureus	SEAT																							
Silene acaulis	SIAC																							
Standing Dead	STDE																							
Stellaria humifusa	STHU																							
Thamnolia sp.	THAM								*															
Tomentypnum nitens	TONI				1		7	34	2		*	3		5				3						
Vaccinium vitis-idea	VAVI																							
Standing Water	WATER														3		2	8	*				18	
Unidentified forb	FORB																							
SUM		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table A-2 (continued)

Plant taxa/Ground cover	Code	323	324	325	326
Alopecurus alpinus	ALOP				
Artemisia arctica	ARAR				
Artemisia borealis	ARBO				
Artemisia glomerata	ARGL				
Arctophila fulva	ARFU				
Arctogrostis latifolia	ARLA				
Astragalus alpinus	ASAL				
Aulacomnium sp.	AULA				
Bare Ground	BARE		8	11	8
Bare rock	ROCK				
Bryum pseudotriquetrum	BRPS				
Carex aquatilis	CAAQ	13	27	5	24
Carex atrofusca	CAAT				
Carex bigelowii	CABI	20	7	8	8
Calamagrostis holmii	CAHO				
Carex membranacea	CAME				
Carex misandra	CAMI	5			
Caltha palustris	CAPA				
Carex rupestris	CARU				
Carex saxatilis	CASA	*			
Carex sp.	CASP				
Carex subspathaceae	CASU				
Cassiope tetragona	CATE				
Carex ursina	CAUR				
Cerastium beeringianum	CEBE				
Cetraria sp.	CETR	*			
Chrysanthymum arcticum	CHAR				
Chrysanthymum integrifolia	CHIN				
Cladonea sp.	CLAD				
Cochlearia officinalis	COOF				
Crustose Lichen	CRLI				
Dactylina arctica	DAAR				
Distichium sp.	DIST				
Drepanocladus sp.	DREP	*	2		

Table A-2 (continued)

Plant taxa/Ground cover	Code	323	324	325	326
Dryas integrifolia	DRIN	7		*	
Dupontia fischeri	DUFI	8	25	23	26
Elymus arenaius	ELAR				
Empetrum nigricans	EMNI				
Equisetum arvense	EQAR				
Epilobium latifolium	EPLA				
Equisetum variegatum	EQVA	*			
Eriophorum angustifolium	ERAN	28	13	13	23
Eritrichum aretioides	ERAR				
Eriophorum russeolum	ERRU				
Eriophorum scheuchzeri	ERSC				
Eriophorum vaginatum	ERVA				
Festuca vivipara	FEVI				
Funariahygrometrica	GEGL				
Geum glaciale	GEGL				
Geum rossii	GERO				
Grass	GRAS				
Honckenya peploides	HOPE				
Hypnum bambergeri	HYBA				
Juncus biglumis	JUBI	*			
Lepraria neglecta	LENE				
Lichens	LICH				
Litter	LITT	9	8	12	9
Liverwort	LIVE				
Luzula confusa	LUCO				
Melandrium apetalum	MEAP				
Minuarta obtusiloba	MIOB				
Moss	MOSS				
Mud	MUD	4			
Oxyria digyna	OXDY				
Papaver macunii	PAMA				
Papaver laponicum	PALA				
Pedicularis sudetica	PESU	*	*		2
Poa arctica	POAR				
Polygonum bistorta	POBI				

Table A-2 (continued)

Plant taxa/Ground cover	Code	323	324	325	326
Polytrichum commune	POLY				
Polygonum viviparum	POVI		*		
Primula borealis	PRBO				
Puccinellia arctica	PUAR				
Puccinellia langeana	PULA				
Puccinellia phryganodes	PUPH				
Pyrola grandiflora	PYGR				
Ranunculus nivalis	RANI				
Salix arctica	SAAR		5	23	
Saxifraga cernua	SACE				
Saxifraga foliosa	SAFO				
Saxifraga hirculus	SAHI	*			
Salix lanata	SALA				
Saxifraga oppositifolia	SAOP				
Salix ovalifolia	SAOV			5	
Salix phlebophylla	SAPH				
Salix pulchra	SAPU				
Salix reticulata	SARE	3			
Salix rotundifolia	SARO				
Sasauria angustifolia	SAAN				
Salix sp.	SASP				
Scorpidium scorpioides	SCSC	3			
Senicio atropurpureus	SEAT				
Silene acaulis	SIAC				
Standing Dead	STDE				
Stellaria humifusa	STHU				
Thamnolia sp.	THAM				
Tomentypnum nitens	TONI		5		
Vaccinium vitis-idea	VAVI				
Standing Water	WATER				
Unidentified forb	FORB				
SUM		**100**	**100**	**100**	**100**