# Chisana Caribou Habitat Monitoring and Assessment
# Vegetation Sampling Field Data 2015

Steward: Judy Putera
Wildlife

Description: Hardcopy data collected during July 2015 to assess Chisana caribou habitat and establish baseline vegetation monitoring. All data is digitally stored on the Wildlife drive.

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/10/15-7/11/15 | **Site:** RS5 | | **Crew:** Merkhofer/Peterson |
| **Time start:** — | **Time stop:** — | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** White Spruce | **Shrubs:** Willow Nortab blacro | **Graminoids:** Unknown | **Forbs:** Lupine |

**Slope Position:**
Ridgetop
Saddle
(Hillslope)
*Aspect:* 322° NW
*Max slope:* ~19°
*Slope length:* 45m
Shoulder
(Arm)
Toe
Colluvium
Piedmont
Terrace
Floodplain
Flat plain

**Slope X-section:**
broken by benches
concave
convex
straight, even
flat (less than 5°)
(undulating)
convex/concave

**Drainage:**
(rapid – runoff / hillslope)
rapid - coarse, permeable
impeded – low permeability
saturated soil

**Micro-relief type:**
Bedrock outcrops
Mass movement
Erosional
Depositional
Tussocks
Solifluction
(Moss hummocks)
Thermokarst
Burrows
None

**Max micro-relief size:**
N 10cm

**Parent Rock:**

**Parent Material:**
Bedrock
(Alluvium)
Till
Colluvium
Loess
(Lacustrine)
Other:

**Geomorphic Disturbance:**
Fluvial
Rapid mass wasting
Slow mass wasting
Wind scour
Deglaciation
Other: None

| | | | |
|---|---|---|---|
| **Evidence of frost-action:** None | **Evidence of fire:** Stumps / fire scar | **Evidence of wind:** None | **Wind exposure class:** 1 |

**Landcover class:**

**Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.

None

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Fruticose Lichen | coniferous | Conif. |
| **Litter Depth (cm)** | 3cm | 1cm | 4mm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/10/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** RS5 **Transect ID:** 1 (N) **Aspect:** N **Slope of Tape:** -22°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 * | 1.5 | None | | | #M | | 11.5 | blacro | | | | EastLic | 2cm |
| 1.5 | 2 | #G | | L | EL | | 12 | #S | bogblu | | | #Cetraria #Moss | 1cm |
| 2 Δ | 2.5 | #G | blacro | L | #cup L #M | 2cm | 12.5 | blacro | rhlab | | | EL | |
| | 3 | #F | | #Moss | #M fellic | 1mm | 13 | none | none | | | #M | |
| | 3.5 | blacro | | | #M | | 13.5 | | | | | | |
| | 4 | blacro | | L | | | 14 | none | none | | | Easlic | |
| | 4.5 | blacro | | Lingon | #L crater | 5mm | 14.5 | norlab | | | L | EL | |
| | 5 | blacro | | L | #M | | 15 | blaalp bear berry | | | | Cetraria | 4mm |
| | 5.5 | blacro | | L | #M | | 15.5 | none | | | | #M #Licenaria | |
| | 6 | blacro | | L | #L cup | 1cm | 16 | #G | blacrow | lingon | | EL | |
| | 6.5 | blacro | | L | #M | | 16.5 | norlab | | | | #M | |
| | 7 | blacro | | | fellic | 3mm | 17 | bogblu | picpic | | | EL | |
| | 7.5 | Lingon | | | easlic | | 17.5 | #G | norlab | blacro | | #M | |
| | 8 | Norlab | | | #M | | 18 | norlab | | | | cetraria | 1cm |
| | 8.5 | | | L | EL | | 18.5 | Salix | lingon | | | #M | |
| | 9 | bogblu | #G | | #M | | 19 | norlab | blacro | | | #M | |
| | 9.5 | #F | blacro | | #L cetraria | 4mm | 19.5 | Salix | | | L | #M | |
| | 10 | Norlab | lingon | | #Moss | | 20 | blacro | Norlab | | | EL | |
| | 10.5 | Lingon | blacro | | EL | L | 20.5 | duralbr | | | | fellic | 3cm |
| | 11 | #F | | L | EL | L | 21 | bogblu | | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**
1.5 * collected #M
2.5 collected #L (cup lichen)
3.0 collected Lichen (peltigera?) fellic?
4.5 easter lichen?
9.5 collect Lichen ~~cetraria~~ (#5 coll)
15.5 Lichen (intermixed w/ cetraria) coll-6

# Cover Transect Data Sheet

ate: _____ Observer: Merkhofer Recorder: Putera

Plot: RS-5 Transect ID: 2 Aspect: SE Slope of Tape: +22°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #G | | | L | S | | 11.5 | Salix | blacro | | | #M | |
| 2 | Whispr | #G | | L | ~~S~~ EL | | 12 | #G | | | | Fellic | 2cm |
| 2.5 | Whispr | #G | | L | ~~S~~ EL | | 12.5 | | | | WL | #M | |
| 3 | Whispr | | | | EL | | 13 | #G | | | | #M | |
| 3.5 | #G | | | | Cetraria | 3mm | 13.5 | Lupine | Lingon | | | #M | |
| 4 | Not lab | | | | EL | | 14 | #G | | | | #M | |
| 4.5 | blacrow | | | #S | cetraria | 2mm | 14.5 | Lingon | #G | blacro | | #M | |
| 5 | Lingon | | | | EL | | 15 | ~~Lingon~~ | | | | #M | |
| 5.5 | Lupine | lingon | | | EL | | 15.5 | Lingon | | | | #M | |
| 6 | #F | | | | #Cup | 2mm | 16 | Salix | blacro | | | #M | |
| 6.5 | blacrow | | | L | #L cetraria | | 16.5 | blacro | | | | #M | |
| 7 | None | | | L | #M | | 17 | Lingon | | | | #M | |
| 7.5 | Lupine | Lingon | | | #M | | 17.5 | None | | | None | #M | |
| 8 | Whispr | | | L | S | | 18 | Lupine | | | | #M | |
| 8.5 | None | | | WL | ~~S~~ EL | | 18.5 | blacro | | | | #M | |
| 9 | Whispr | | | WL | EL | | 19 | Lingon | | | | #M | |
| 9.5 | Whispr | | | WL | EL | | 19.5 | None | | | None | #M | |
| 10 | None | | | | Cup Lichen | | 20 | Lingon | | | | EL | |
| 10.5 | Salix | | | | #Moss | | 20.5 | Lupin | #F | | | #M | |
| 11 | Salix | | | | #Moss | | 21 | None | None | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** 4.5 collected shrub w/ berries

# Cover Transect Data Sheet

**Date:** 7/11/15 **Observer:** Merkhofer **Recorder:** Rutera

**Plot:** RS5 **Transect ID:** 3 **Aspect:** SW 240° **Slope of Tape:** #15

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #G | blacro | | | #M | | 11.5 | whi spr | lingon | | | Cup lic | 3mm |
| 2 | Lupne | | | | cetraria | | 12 | whi spr | WL | | | EL | |
| 2.5 | #G | bogblu | | | #M | | 12.5 | whi spr | WL | | | EL | |
| 3 | whispr | WL | blacro | | EL | | 13 | whi spr | fal? toa | WL | | EL | |
| 3.5 | whispr | blacro | | | EL | | 13.5 | whi spr | fal toa | | | #M | |
| 4 | whispr | WL | | | EL | | 14 | whi spr | fal toa | | | #M | |
| 4.5 | whispr | #G | | | EL | | 14.5 | fal toa | | | | #M | |
| 5 | whispr | L | | | EL | | 15 | #G | | | | #M | |
| 5.5 | whispr | bla cro | | | EL | | 15.5 | Salix | fal toa | Lingon | | EL | |
| 6 | whispr | bla cro | | | cetraria | 13mm | 16 | whi spr | Lupne | fal toa | | EL | |
| 6.5 | whispr | bla cro | Shrub # corrected | | EL | | 16.5 | Salix | #G | ? leaf variegated | Lipne | #M | |
| 7 | #Shrub | | | L | cetraria | 4mm | 17 | #G | lingon | | | Cetraria | 6mm |
| 7.5 | blacro | | | L | cetraria | 5mm | 17.5 | Salix | #G | | | #M | |
| 8 | #G | #Shrub | | | cetraria | 5mm | 18 | Lingon | L | | | #M | |
| 8.5 | blacro | L | | | cetraria | 3mm | 18.5 | whi spr | Lingon | L | | cetraria | 10mm |
| 9 | #Grass | bla cro | | | EL | | 19 | lingon | | | | Cetraria | 4mm |
| 9.5 | whi spr | #G | blacro | | cetraria | 4mm | 19.5 | | L | | | #M | |
| 10 | whi spr | Norlig | blacro | | #M | | 20 | Salix | Lingon | | | Cetr fellic | 15mm |
| 10.5 | #G | blacro | | | Cetraria | 17mm | 20.5 | Salix | #Grass | Lingon | | #M | |
| 11 | whi spr | blacro | | | EL | | 21 | Salix | #G | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** 6.5 shrub/narrow leaf #7 = willow

# Site Description Form

| Date: 10/11/15 | Site: SWB 9 | | Crew: LM / JP |
|---|---|---|---|
| **Time start:** | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** white spruce | **Shrubs:** dwarf birch, Net-vein willow, lab. tea, crowberry | **Graminoids:** sedges | **Forbs:** Not dom. |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>50 cm<br><br>**Parent Rock:**<br>unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: unknown<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** leaning trees | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 |
| **Landcover class:** | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>1 ♂ caribou<br>disturbed lichen. | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | moss | moss | moss |
| **Litter Depth (cm)** | 50 mm | 12mm | 11 mm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/11/15 **Observer:** Markhofer **Recorder:** Putera

**Plot:** SWB9 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -3°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist. all sedge = #G

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #G | blacro | | | EL | | 11.5 | #G | | | | #G | |
| 2 | #G | net wil | | | #M | | 12 | net wil | #G | | | #M | |
| 2.5 | #G | | | | #M | | 12.5 | net wil | | | | #M | |
| 3 | collected 3 lvl | | | L | #M | | 13 | salix | net wil | | | #M | |
| 3.5 | dwa bir | bla alp | | | EL | | 13.5 | #G | net wil | | | #M | |
| 4 | #F coll A | | | | #M | | 14 | net wil | | | L | #M | |
| 4.5 | #G | | | | #M | | 14.5 | bogblu | nor lab | blacrow | | fellic | 30mm |
| 5 | None | | | | fel lic | | 15 | norlab | bla cro | | | #M | |
| 5.5 | #G | dwa sco | | | #M | | 15.5 | carex collected | net wil | | | #M | |
| 6 | #G | net wil | | | #M | | 16 | carex | | | | #M | |
| 6.5 | dwa bir | net wil | | | #M | | 16.5 | carex | net wil | | | #M | |
| 7 | dwa bir | vacc? collect.* | | | EL | | 17 | dwa bir | carex | | | #M | |
| 7.5 | #G | #F | | | #M | | 17.5 | carex | net wil | | | #M | |
| 8 | alp swe | | | | fellic | 3mm | 18 | net wil | | | | #M | |
| 8.5 | alp swe | | | | EL | | 18.5 | carex | | | | #M | |
| 9 | net willow | | | | #M | | 19 | net wil | L | L | | mush room | |
| 9.5 | dwa bir | #G | | | EL | | 19.5 | dwa bir | carex | | | #M | |
| 10 | #G | net wil | | | EL | | 20 | carex | net wil | | | #M | |
| 10.5 | dwa bir | | | | #M | | 20.5 | carex | | | | #M | |
| 11 | net wil | | | | #M | | 21 | carex | net wil | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** * toothed narrow leaf shrub

SWBG #2 SE Merk-Obs Slope-2° Peat-Permafrost

| Dist | Top | Lower | Soil | Lichen ht |
|---|---|---|---|---|
| 1.5 | #G | | L #10 #M | L #in #M 15 mm |
| 2 | carex | boglbl | #M | |
| 2.5 | carex | | #M | |
| 3 | carex | | #M | |
| 3.5 | dwa bir | carex | #M | |
| 4 | blac cro | net willow ree | #M | |
| 4.5 | carex | | relic #M | 13 mm |
| 5 | Forb A (4 sp) | | #M | |
| 5.5 | Dwa bir | Net wil | #M | |
| 6 | None | | L #M | |
| 6.5 | #F-A | | fellic #M | |
| 7 | #Grass | blacro | EL | |
| 7.5 | #Grass | | fellic | 10 mm |
| 8 | dwa bir | carex | #M | |
| 8.5 | carex | blacro | #M | |
| 9 | Dwa bir | ~~sed~~ carex | #M | |
| 9.5 | ~~carex~~ | net wil | #M | |
| 10 | carex | | #M | |
| 10.5 | carex | | carex | |
| 11 | carex | | #M | |
| 11.5 | carex | net wil | #M | |
| 12 | nor lab | carex | #M | |
| 12.5 | carex | | L #M | |
| 13 | carex | | carex | |
| 13.5 | carex | #F-D bog ros? twig/long stem elliptical leaf | #M ~~Mnmoss~~ | |

| Dist | Top | Lower | Soil | Liverwort |
|---|---|---|---|---|
| 14 | Carex | L | #M | |
| 14.5 | carex | | carex | |
| 15 | carex | Bogbos whimoy | #M | |
| 15.5 | ~~carex~~ | | carex | |
| 16 | carex | | #M | |
| 16.5 | carex | bog Ros | #M | |
| 17 | carex | | carex | |
| 17.5 | None | | #M | |
| 18 | carex | net willow | #M | |
| 18.5 | carex | L | #M | |
| 19 | carex | | #M | |
| 19.5 | carex | net wil | #M | |
| 20 | carex | L | #M | |
| 20.5 | net wil | L | #M | |
| 21 | Carex | L | #M | |

δWB 9 #3 δW +6°



| Dist | Top | Lower | Soil | Liverwort |
|---|---|---|---|---|
| 1.5 | Carex | | fellic #M | 18mm |
| 2 | nor lab | | fellic | 11mm |
| 2.5 | None | | #M | |
| 3 | carex | | #M | |
| 3.5 | net wil | L | #M | |
| 4 | dwa bir | carex, nethwil | Rei Lic | 13mm |
| 4.5 | None | L | #M | |
| 5 | carex | bla cro, Lygon | fel lic | |
| 5.5 | carex | net wil | #M | |
| 6 | Carex | bogbln | #M | |
| 6.5 | nor lab | | #M | |
| 7 | carex | L | fel lic | 20mm |
| 7.5 | carex | net wil | M | |
| 8 | carex | | #M | |
| 8.5 | net wil | | #M | |
| 9 | none | dwa sco | fellic | |
| 9.5 | nor lab | carex | #M | |
| 10 | carex | blacro | fellic | 9mm |
| 10.5 | carex | net wil | #M | |
| 11 | dwa bir | carex | #M fellic | |
| 11.5 | dwa bir | carex | #M | |
| 12 | dwa bir | net wil | net wil | |
| 12.5 | carex | net wil | EL | |
| 13 | carex | | #M | |
| 13.5 | carex | | fel lic M | |

| | top | lower | | Soil | Wchen ht |
|---|---|---|---|---|---|
| 14.0 | carex | alpbla | | #M | |
| 14.5 | carex | | | fel lic #M | |
| 15 | carex | | | carex | |
| 15.5 | net wil | | L | #M | |
| 16 | Carex | | | #M | |
| 16.5 | carex | net wil | | #M | |
| 17 | Dwarf Bir | | L | #M | |
| 17.5 | carex | | | fel lic | 9mm |
| 18 | net wil | L | | #M | |
| 18.5 | carex | | | #M | |
| 19 | Salix | net wil | | carex | |
| 19.5 | dwarf bir | Nor lab | L | #M | |
| 20 | Nor lab | carex | | Rei Lic | 20mm |
| 20.5 | carex | | | #M | |
| 21 | Salix | | | #M | |

7/11/15 RS3 ~~update~~ plot (3rd today)

Lat: 62° 07' 49.886" N

Long: 142° 17' 58.283" W

Recorded as GPS point #71 RS3 ~~update~~

# Site Description Form

| Date: 7/11/15 | Site: RS-3 | | Crew: JP / LM |
|---|---|---|---|
| **Time start:** | **Time stop:** | **Latitude:** 62°07'49.886"N | **Longitude:** 142°17'58.283"W |
| **Elevation:** | | | |
| **Dom Trees:** White Spruce | **Shrubs:** female Salix sp. Willow | **Graminoids:** few unkn | **Forbs:** Lupine Equisetum? Vaccinium vitis-idaea? |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>20 cm<br><br>**Parent Rock:**<br>Unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: unknown<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 |
| **Landcover class:** RS | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | 0 | 0 | 3 mm herbaceous |
| **Litter Depth (cm)** | — | — | |

**Notes:**

RS-3 #1 N Slope = 0°

| Dist | Top | Lower | | Soil | Lichen ht |
|---|---|---|---|---|---|
| 1.5 | Whispta | Salix | | EL | |
| 2 | Salix | | | EL | |
| 2.5 | Salix | | L | S | |
| 3 | Salix | Fre Loc, Lupine | L | S | |
| 3.5 | Fre Loc | | | S | |
| 4 | None | None | | S | |
| 4.5 | Fre Loc | None | | S | |
| 5 | None | None | | S | |
| 5.5 | None | None | | S | |
| 6 | FreLoc | L | | S | |
| 6.5 | None | None | | S | |
| 7 | None | None | | S | |
| 7.5 | None | Nan | | S | |
| 8 | None | None | | R | |
| 8.5 | ? Forb E | None | | R | |
| 9 | F-E | None | | R | |
| 9.5 | None | None | | R | |
| 10 | None | None | | R | |
| 10.5 | None | None | | Eastie/M | |
| 11 | F-E | None | | R | |
| 11.5 | None | None | | S | |
| 12 | None | None | | #M | |
| 12.5 | None | None | | R | |
| 13 | None | " | | ~~R~~ # | 1mm |
| 13.5 | Soapb | None | | #L " | 1mm |

| Dist | Top | Lower | | Soil | Lichen |
|---|---|---|---|---|---|
| 14 | Soil | L | | S | |
| 14.5 | Soapb | Lupine | | Lupie | |
| 15 | Soapb | Forb-E | | L | |
| 15.5 | Lupine | Forb E | | L | |
| 16 | None | None | | S | |
| 16.5 | None | None | | S | |
| 17 | None | None | | R | |
| 17.5 | None | None | | S | |
| 18 | None | None | | R | |
| 18.5 | Lupine | L | | R | |
| 19 | None | None | | R | |
| 19.5 | Soil | Lupine | L | S | |
| 20 | Soil | Lupie | L | S | |
| 20.5 | None | None | | S | |
| 21 | Lupie | None | | L | |
| 21.5 | | | | | |
| 22 | | | | | |

RS3 Transect 2 (SE)

Forb F - small wet slope = O



| Dist | Top | Lower | | Soil | Lichen |
|---|---|---|---|---|---|
| 1.5 | Kinnik | | NL | M | |
| 2 | Forb F | None | | EL | |
| 2.5 | None | | WL | M | |
| 3 | Soapb | None | | M | |
| 3.5 | Soapb | None | | M | |
| 4 | Soapb | None | | M | |
| 4.5 | Soapb | Kinnik | L | S | |
| 5 | Fieloc | Kinnik Soapb | L | M | |
| 5.5 | Soapb | | | Eas Lic | 2mm |
| 6 | Soapb | L | | S | |
| 6.5 | Soapb | None | | R | |
| 7 | Fleabane? | | | Eas lic | 20mm |
| 7.5 | Cirq | None | | S | |
| 8 | None | None | | S | |
| 8.5 | None | None | | S | |
| 9 | None | None | | S | |
| 9.5 | alpsea | kinnik | | S | |
| 10 | Kinnik | L | | S | |
| 10.5 | Fieloc | Kinnik | | R | |
| 11 | None | None | | R | |
| 11.5 | None | None | | R | |
| 12 | None | None | | R | |
| 12.5 | None | None | | S | |
| 13 | Fieloc | L | | M | |
| 13.5 | None | L | | M | |

| | Top | Lower | | Soil | Lichen Ht. |
|---|---|---|---|---|---|
| 1 | Top | Lower | | Soil | Lichen Ht. |
| 14 | None | | | S | |
| 14.5 | fle/soc | | | S | |
| 15 | lupine | | | Easlic | 1mm |
| 15.5 | None | | | #M | |
| 16 | Soapb | | | eas lic | 4mm |
| 16.5 | #G | | WL | R | |
| 17 | Soapb | WL | | EL | |
| 17.5 | Soapb | L | | EL | |
| 18 | Soapb | L | | R | |
| 18.5 | Soapb | L | | #M | |
| 19 | None | L | | #M | |
| 19.5 | None | None | | R | |
| 20 | None | None | | #M | |
| 20.5 | None | None | | R | |
| 21 | None | L | | #M | |

Yellow mountain-avens Foch E - same species as white Mt avens, recorded as whitlow





| | Top | Lower | | Soil | Lichen |
|---|---|---|---|---|---|
| 1.5 | Cinque | Kinik | | eas lic | 4mm |
| 2 | Cinque | | | eas lic dog lic? | #12 |
| 2.5 | None | L | | EL | |
| 3 | None | | | #M | |
| 3.5 | Soapb | L | | #M | |
| 4 | Cinque | L | | #M | |
| 4.5 | Soapb | None | | #M | |
| 5 | Soapb | None | | #M | |
| 5.5 | Soapb | None | | #M | |
| 6 | Soapb | None | | EL | |
| 6.5 | Soapb | None | | #M | |
| 7 | Cinque | None | | Easlic | 20mm |
| 7.5 | Cinque | None | | #M | |
| 8 | Cinque | None | | #M | |
| 8.5 | Soapb | Kinik | | EL | |
| 9 | Kinik | None | | EL | |
| 9.5 | Soapb | Purple fleabane? Flowering | | #M | |
| 10 | Soapb | Kinik | | EL | |
| 10.5 | Cinque | bog Ros | | EL | |
| 11 | Salix | Cinques | Kinik | EL | |
| 11.5 | Salix | Kinik | EL | | |
| 12 | Salix | kinik | | EL | |
| 12.5 | Cinque | Kinik | | #M | |
| 13 | Cinque | None | | Cinque | |
| 13.5 | Bog Ros | None | | Bog #M | |

| Top | Lower | Soil | Veg |
|---|---|---|---|
| 14 alpine | | Moss | |
| 15 Cirque | Lupine | Cirque | |
| 15 None | L | #Moss | |
| 15.5 Cirque | None | #M | |
| 16 Cirque | None | #M | |
| 16.5 Salix | Kinik | EL | |
| 17 Salix | L | #M | |
| 17.5 WhiSpr | Salix Lupine | EL | |
| 18 WhiSpN | None | EL | |
| 18.5 WhiSpr | None | EL | |
| 19 WhiSpr | None | L | |
| 19.5 WhiSpr | L | EL | |
| 20 WhiSpr | WL | EL | |
| 20.5 WhiSpr | Lupine | EL | |
| 21 WhiSpr | WL Kinik | EL | |

# Cover Transect Data Sheet

**Date:** 7/11/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ADD9 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +1

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | None | | | | #M | | 11.5 | #G | | | | fol lic | 6mm |
| 2 | None | | | | S | | 12 | bog blue | ent mou | | | EL | |
| 2.5 | None | | | L | S | | 12.5 | alp swe | ent mou | | | EL | |
| 3 | None | | | WL | #M | | 13 | ent mou | | | | EL | |
| 3.5 | None | | | | R | | 13.5 | #G | | | | #G | |
| 4 | None | | | WL | S | | 14 | ent mou | | | | cetraria | 4mm |
| 4.5 | None | | | | R | | 14.5 | ent mou | | | | eas lic | 35mm |
| 5 | None | | | | R | | 15 | ent mou | | | | #M | |
| 5.5 | None | | | | R | | 15.5 | lupine | | | east | ~~fol~~ lic | 6mm |
| 6 | None | | | | R | | 16 | #G | net wil | | | #M | |
| 6.5 | None | | | | R | | 16.5 | net wil | | | | #M | |
| 7 | None | | | | R | | 17 | ent mou | | | | EL | |
| 7.5 | #G | ent mou | | | EL | | 17.5 | None | None | | | eas lic | 40mm |
| 8 | #G | ent mou | | | EL | | 18 | ent mou | | | | cetraria lic | 18mm |
| 8.5 | Ent mou | alp sub | | | EL | | 18.5 | net wil | alp sub | | | EL | |
| 9 | Dwa sco | | | | S | | 19 | ent mou | | | | EL | |
| 9.5 | Dwa sco | | | | #M | | 19.5 | ent mou | net wil | | | eas lic | 10mm |
| 10 | Dwa sco | | | | eas lic | 3mm | 20 | ent mou | ~~sco~~ Dwa sco | | | EL | |
| 10.5 | ent mou | | | | R | | 20.5 | net wil | Dwa sco | | | EL | |
| 11 | Ent mou | | | | R | | 21 | net wil | ent mou | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| Date: 7/11 | Site: ADD9 | | Crew: LM+JP |
|---|---|---|---|
| **Time start:** | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** Willow, Mt avens, Mt heather, dwf willow | **Graminoids:** Unknown | **Forbs:** lupin, sweetmilk vetch |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>30 cm<br><br>**Parent Rock:**<br>unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: unknown<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** solifluction | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 3 |
| **Landcover class:** ADD | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>Possible willow browse | | | |
| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
| **Litter Type:** | Shrub litter | Moss | Shrub/Mtavens, |
| **Litter Depth (cm)** | 21mm | 5mm | 11mm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/11/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ADD9 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +5°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | ENT mou | alp sue | | | #M | | 11.5 | ent mou | | | | EL | |
| 2 | None | None | | | R | | 12 | Lupine | net wil | | | EL | |
| 2.5 | None | None | | | R | | 12.5 | ~~sal~~ blacro | | | | EL | |
| 3 | " | " | | | R | | 13 | blacro | | | | EL | |
| 3.5 | " | " | | | R | | 13.5 | blacro | ENT mou | | | #L #8 | 4mm |
| 4 | " | " | | | R | | 14 | ent mou | | | | crust lichen | 3mm |
| 4.5 | " | " | | | R | | 14.5 | lupine | | | L | Easy lic | 5mm |
| 5 | " | " | | | R | | 15 | lupine | alp sue | | | #M | |
| 5.5 | None | None | | | S | | 15.5 | ~~mou~~ hea | net wil | | | EL | |
| 6 | | | | | #L #8 | 11mm | 16 | Lupine | ent mou | | | EL | |
| 6.5 | Alp sue | ENT mou | | | #M | | 16.5 | None | | | | EL | |
| 7 | alp sue | ENT mou | #F | | EL | | 17 | ENT mou | | | | L #8 | 25mm |
| 7.5 | ENT mou | net wil | | | EL | | 17.5 | Lupine | | | | EL | |
| 8 | ENT mou | | | | EL | | 18 | Lupine | ent mou | | | EL | |
| 8.5 | Lupine | ENT mou | | | EL | | 18.5 | Lupine | ent mou | | | EL | |
| 9 | #S | ~~#S~~ | | L | #M | | 19 | mou hea | #G | | | EL #8 | 3mm |
| 9.5 | mou ~~ENT~~ hea | | | | EL | | 19.5 | mou hea | | | | easter lichen | 10mm |
| 10 | net wil | | | | EL | | 20 | ~~ENT~~ ent mou | | | | EL | |
| 10.5 | Lupine | net wil | | | #M | | 20.5 | mou hea | | | | EL | |
| 11 | nor lab | ENT mou | | | EL | | 21 | net wil | | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**
crossed abandoned river channel

# Cover Transect Data Sheet

**Date:** 7/11/15 **Observer:** Markhofer **Recorder:** Putera

**Plot:** AD09 **Transect ID:** 3 **Aspect:** 240° **Slope of Tape:** ~7

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | net wil | | | | #M | | 11.5 | none | | | | S | |
| 2 | #G | | | | #M | | 12 | #G | | | | #M | |
| 2.5 | net wil | | | | EL | | 12.5 | Dwa Sco | | | | cup lic | 11mm |
| 3 | #F | | | | EL | | 13 | #G | | | | EL | |
| 3.5 | #G | ent mou | | | EL | | 13.5 | #G | | | | cet lic | 3mm |
| 4 | #G | ent mou | | | EL | | 14 | ent mou | | | | EL | |
| 4.5 | #G | | | | #M | | 14.5 | #G | net wil | | | cet lic | 15mm |
| 5 | ent mou | net wil | | | EL | | 15 | #G | | | | #8 lic | 33mm |
| 5.5 | #G | net wil | | | EL | | 15.5 | Ent mou | | | | #M | |
| 6 | #G | | | | EL | | 16 | #G | ent mou | | | EL | |
| 6.5 | #G | ent mou | | | EL | | 16.5 | mou hea | | | | Lic #9 | 13mm |
| 7 | #G | net wil | | | ~~cetcan~~ reilic | 7mm | 17 | ~~ALO~~ centmar | | | | L#9 | 20mm |
| 7.5 | #G | ent mou | | | EL | | 17.5 | ent mou | | | | L#9 | 10 |
| 8 | ent mou | net wil | | | EL | | 18 | ent mou | | | | cet lic | 7mm |
| 8.5 | #G | net wil | | | EL | | 18.5 | None | | | | L#8 | 15mm |
| 9 | #G | Ent mou | | | cetra lic | 9mm | 19 | #G | | | | L#9 | 2mm |
| 9.5 | #G | | | | EL | | 19.5 | mou hea | | | | EL | |
| 10 | #G | net wil | | | EL | | 20 | #~~S~~ | | | | L#9 | 17mm |
| 10.5 | Dwa Sco | | | | #M | | 20.5 | ent mou | | | | EL | |
| 11 | ent mou | net wil | | | EL | | 21 | ent mou | | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

correction: mouhea changed/entered as foumal (correct code)

L#8 = stereocaulon sp.

L#9 = cladina sp.

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/12 | **Site:** ATS 4 | | **Crew:** |
| **Time start:** 9:18 | **Time stop:** 11:38 | **Latitude:** 61°50'59.438"N | **Longitude:** 141°29'10.269"W |
| **Elevation:** [illegible] | | | |
| **Dom Trees:** None | **Shrubs:** whima fav mou arc wil | **Graminoids:** #grass | **Forbs:** Mt bistort narsaw |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 89° (E)<br>*Max slope:* ~25<br>*Slope length:* 800m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>70cm<br><br>**Parent Rock:**<br>Unknown. | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: unknown.<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** solifluction | **Evidence of fire:** None | **Evidence of wind:** | **Wind exposure class:** high 4 |
| **Landcover class:** ATS | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss/lichen | moss |
| **Litter Depth (cm)** | 40mm | 15 mm | 3mm |

**Notes:** dwa scou = dwarf scouring rush
fern-like = large woolly wort

# Cover Transect Data Sheet

**Date:** 7/12 **Observer:** MM JP **Recorder:** ~~JL~~ M

**Plot:** ATS4 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** ~2°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht mm | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | faumou | — | | | fellic | 2 cm | 11.5 | faumou | ~~#,L~~ | | | EL | |
| 2 | faumou | netwil | | | cetraria | 4 cm | 12 | # grass | blacrow | | | Rein. L | 28mm |
| 2.5 | #Grass | — | | | S | | 12.5 | whimou | — | | | rein. L | 12mm |
| 3 | None | — | | | #M | | 13 | whimou | — | | | cetraria | 10mm |
| 3.5 | faumou | — | | | easter lichen | 3cm | 13.5 | arcwil | lingon | | | M | |
| 4 | faumou | — | | | EL | | 14 | whimou | — | | | EL | |
| 4.5 | faumou | — | | | reindeer lichen | 2cm | 14.5 | whimou | — | | | #13 | 10mm |
| 5 | — | — | | | #M | | 15 | ~~Nar~~ saw | lingon | | | cuplichen | 10mm |
| 5.5 | faumou | — | | | ~~EL~~ | | 15.5 | whimou | | | | EL | |
| 6 | — | — | | | #13 L | 34mm | 16 | whimou | | | | EL | |
| 6.5 | faumou | — | | | cetraria | 20mm | 16.5 | whimou | blacro | | | EL | |
| 7 | whimou | — | | | EL | | 17 | whimou | | | | cetraria L | 25 mm |
| 7.5 | whimou | | | | #14 L | 30mm | 17.5 | — | — | | | S | |
| 8 | — | — | | | #13 L | 15mm | 18 | whimou | ~~M~~ | | | M | |
| 8.5 | faumou | lingon | #forb fern-like | | EM | | 18.5 | arcwil | | | | #14 L | 2mm |
| 9 | ~~faumou #forb~~ | ~~lingon~~ | — | | felt lichen | 28mm | 19 | whimou | | | | S | |
| 9.5 | whimou | — | | | easter L | 10mm | 19.5 | whimou | | | | #13 L | 30 mm |
| 10 | blacro | — | | | EL | | 20 | whimou | #forb *-shape arrange | | | EL | |
| 10.5 | whimou | — | | | EL | | 20.5 | whimou | — | | | cetrana L. | ~~9~~ 8mm |
| 11 | whimou | — | | | EL | | 21 | whimou | | | | brown cetraria | 20 mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** narsaw = narrow-leafed saw-wort
faumou = 4-8 Mt heather
lingon = lingon berry
whimou = white Mt avens
netwil = net veined willow
arcwil = arctic willow
fellic = felt lichen
cetraria = lichen
bogbly = bog bluer berry
#forb = fern-like forb
Collected lichen
* sample #13 = sparce Reindeer lichen
* sample #14 = white ~~finger~~ spaghetti lichen

Site: ATS4 Transect 2 (SE) 7/12

| TOP | Lower | Soil | Lichen ht |
|---|---|---|---|
| 1.5 Foumou | Arcwil | EL | |
| 2 whimou | – | #14 L | 1 mm |
| 2.5 Arcwil | Ligon | rein L | 15 mm |
| 3 bogblu | — | #14 L | 10 mm |
| whimou | — | rein L. | 22 mm |
| 4 lingon | | easter L | 22 mm |
| — | — | cetraria | 26 mm |
| 5 foumou | lingon | M | |
| #grass | foumou | EL | |
| 6 — | | rein L. | 20mm |
| #grass | dwasco | finger L. | 20mm |
| 7 whimou | Lingon | rein L. | 22 mm |
| bogblu | | cetraria L. | 12 mm |
| 8 — | — | Spaghetti #14 L. | 7 mm |
| bogblu | — | cetraria | 15 mm |
| 9 — | — | rein. L | 10 mm. |
| whimou | lingon | rein L. | 17 mm |
| 10 foumou | | M | |
| Netwil | — | M | |
| 11 whimou | | EL | |
| netwil | | M | |
| 12 whimou | | M | |
| whimou | #rush | EL | |
| 13 — | — | M | |

(Site: ATS 4 - Trans #2 cont.) 7/12

| Top | Lower | soil | Lich Height |
|---|---|---|---|
| 13.5 — | — | cetraria | 30 mm |
| 14 whimou | — | EL | — |
| whimou | net wil | M | — |
| 15 whimou | — | M | — |
| — | — | cetraria | 20mm |
| 16 — | — | cetraria | 18 mm |
| — | — | brown. cetraria | 18mm |
| 17 — | — | ~~cetraria~~ M | — |
| whimou | — | EL | — |
| 18 — | — | S | — |
| — | — | S | — |
| 19 whimou | — | S | — |
| whimou | — | cetraria | 5mm |
| 20 whimou | — | cetraria | 20mm |
| whimou | — | S | — |
| 21 whimou | — | S | — |

Slope #2 (SE) = -25°

Site: ATS 4 Transect #3 (SW)

| | | | | |
|---|---|---|---|---|
| 1.5 bog blu | — | easter L | 6mm | |
| 2 faimou | — | cetraria L | 20mm | |
| — | — | easter L | 8mm | |
| 3 whimou | — | S | — | |
| bog blu | lingon | loose brown cetraria | EL | 8mm |
| 4 faimou | — | spahegitti L. | | 20mm |
| ~~Spruce~~? | — | basal bit ~~Spruce~~? | — | — |
| Fir club mosses | | Fir club mo ss | | |

ATS 4 - Transect 3 (SW) cont. 7/12



| | | | |
|---|---|---|---|
| 5 — | — | easter L. | 20mm |
| faimou | — | cetraria | 17mm |
| 6 bog blue | — | M | — |
| faimou | — | M | — |
| 7 whimou | — | feet L. | 10mm |
| — | — | M | — |
| 8 arc will | — | M | — |
| lingon | — | rein L. | 10mm |
| 9 bog blu | — | M | — |
| whimou | — | S | — |
| 10 bog blu | — | S | — |
| woolly (lousewort) | bog blue | easter L. | 10mm |
| 11 faimou | — | easter L | 3mm |
| — | — | EL | — |
| 12 bog blu | — | easter L. | 8mm |
| whimou | — | EL | — |
| 13 dwasco | net wil | M | — |
| net wil | whimou | EL | |
| 14 dwasou | — | S | — |
| whimou | — | S | — |
| 15 net wil | — | S | — |
| bog blu | — | M | — |
| 16 faimou | bog blu | easter L. | 4mm |
| #grass | — | S | — |
| 17 net wil | — | S | — |
| whimou | — | M | — |

Site: ATS4 Transect 3 (SW) cont. 7/12

| | | | | | |
|---|---|---|---|---|---|
| 18 | — | — | fell L. | 2 mm | |
| | — | — | M | — | |
| 19 | uhimau | — | S | — | |
| | bagblu | lingon | reindeer L. | 8 mm | |
| 20 | uhimau | — | M | — | |
| | faimau | — | ~~M~~ | ~~two~~ | |
| 21 | uhimau | — | M | — | |

Slope transect 3: +25°

SWB-7 Transect 2 +4°



| Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 Salix | Carex fal jac, | Carex | |
| 2 Carex | Salix | Salix | |
| 2.5 Carex | ~~fiehor~~ | Carex | |
| 3 Carex | fiehor | Carex | |
| 3.5 Salix | fiehor | #M | |
| 4 Salix | Carex | Carex | |
| 4.5 Salix | fiehor | Carex | |
| 5 Carex | Salix fiehor | Carex | |
| 5.5 Salix | Carex | Carex | |
| 6 Carex | | Carex | |
| 6.5 Carex | | Carex | |
| 7 Carex | | Carex | |
| 7.5 Carex | fal jac | Carex | |
| 8 Salix | Carex fal jac | #M | |
| 8.5 Salix | Carex | #M | |
| 9 Salix | #F | #M | |
| 9.5 Salix | Carex | #M | |
| 10 Salix | fiehor | #M | |
| 10.5 Salix | Carex fiehor | S | |
| 11 Salix | fiehor Carex | S | |
| 11.5 Salix | Carex | S | |
| 12 Salix | Carex #F | S | |
| 12.5 Carex | #F fiehor f | #M | |
| 13 Carex | | Dog | 11mm |
| 13.5 Carex | fal jac | #M | |

# Site Description Form

Ophir creek ☺

| Date: 7/12 | Site: SWB7 | | Crew: LM+JP |
|---|---|---|---|
| Time start: 12:22 | Time stop: 2:00 | Latitude: | Longitude: |
| Elevation: | | | |
| **Dom Trees:** None | **Shrubs:** willow | **Graminoids:** #sedge | **Forbs:** Tall jacob's ladder, Larkspur, Monkshood, Yellow Marsh Anemone |

| **Slope Position:** | **Slope X-section:** | **Micro-relief type:** | **Parent Material:** |
|---|---|---|---|
| Ridgetop | broken by benches | Bedrock outcrops | Bedrock |
| Saddle | concave | Mass movement | Alluvium |
| Hillslope: | convex | Erosional | Till |
| *Aspect:* | straight, even | Depositional | Colluvium |
| *Max slope:* | flat (less than 5°) | Tussocks | Loess |
| *Slope length:* | undulating | Solifluction | Lacustrine |
| Shoulder | convex/concave | Moss hummocks | Other: unknown |
| Arm | | Thermokarst | |
| Toe | **Drainage:** | Burrows | **Geomorphic Disturbance:** |
| Colluvium | rapid – runoff / hillslope | None | Fluvial |
| Piedmont | rapid - coarse, permeable | **Max micro-relief size:** 50 cm | Rapid mass wasting |
| Terrace | impeded – low permeability | **Parent Rock:** Unknown | Slow mass wasting |
| Floodplain | saturated soil | | Wind scour |
| Flat plain | | | Deglaciation |
| | | | Other: |

| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** none | **Wind exposure class:** 3 moderately exposed |
|---|---|---|---|

**Landcover class:** SWB

**Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.

None, moose pellets

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | herbaceous | moss | moss |
| **Litter Depth (cm)** | 2mm | 1 cm | 30 cm |

**Notes:** Marshy

# Cover Transect Data Sheet

**Date:** 7/12 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** SWB-7 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +1°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Carex | | | | #M | | 11.5 | Yel sax | | | | #M | |
| 2 | Salix | Carex | tal jac | Fie hor | EL | | 12 | Salix | Carex | | | #M | |
| 2.5 | Salix | Carex | Fie hor | ~~Fie~~ | EL | | 12.5 | Salix | fie hor | Yel Sax | | #M | |
| 3 | Carex | tal jac | | | S | | 13 | Salix | tal jac | | | #M | |
| 3.5 | Salix | Carex | | | #M | | 13.5 | None | | | | #M | |
| 4 | Carex | Fie hor | | | M | | 14 | Carex | tal jac | | | #M | |
| 4.5 | Carex | Salix | Yel Sax | | #M | | 14.5 | Carex | tal jac | | | #M | |
| 5 | Salix | Carex | tal jac | | #M | | 15 | Carex | | | | Carex | |
| 5.5 | Salix | Carex | | | S | | 15.5 | Carex | | | | Carex | |
| 6 | Salix | Carex | | | Dog loc | 1cm | 16 | Carex | ~~Salix~~ | tal jac | fie hor | Carex | |
| 6.5 | Carex | Salix | fie hor | | #M | | 16.5 | Salix | Carex | | | #M | |
| 7 | Salix | Carex | fie hor | | #M | | 17 | Salix | Carex | #Grass | | Carex | |
| 7.5 | Salix | Carex | | | S | | 17.5 | Salix | tal jac | | | Salix | |
| 8 | Salix | Carex | Yel Sax | tal jac | S | | 18 | Salix | | | | Water | |
| 8.5 | Carex | | | | S | | 18.5 | Salix | tal jac | | | Water | |
| 9 | Carex | Salix | | | #M | | 19 | Carex | Salix | tal jac | | Carex | |
| 9.5 | Carex | Salix | Yel Sax | | #M | | 19.5 | Carex | #F | | | Carex | |
| 10 | Salix | Yel Sax | | | #M | | 20 | Salix | Carex | | | #M | |
| 10.5 | Salix | fie hor | tal jac | | #M | | 20.5 | Salix | | | | Water | |
| 11 | Salix | Yel Sax | tal jac | | #M | | 21 | Salix | | | | S | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** fiehor field horsetail
Yel sax Yellow marsh saxifrage
tal jac Tall jacobs ladder

Site: ATS4 Transect 3 (SW) cont. 7/12

| | | | | |
|---|---|---|---|---|
| 18 | — | — | fe HL. | 2 mm |
| | — | — | M | — |
| 19 | whimau | — | S | — |
| | bagblu | ringon | reindeer L. | 8 mm |
| 20 | whimau | — | M | — |
| | fawmau | — | ~~M~~ | ~~two~~ |
| 21 | whimau | — | M | — |

Slope transect 3: +25°



SWB-7 Transect 2 +4°

| Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 Salix | Carex tal jac, | Carex | |
| 2 Carex | Salix | Salix | |
| 2.5 Carex | ~~Carex~~ | Carex | |
| 3 Carex | fiehor | Carex | |
| 3.5 Salix | fiehor | #M | |
| 4 Salix | Carex | Carex | |
| 4.5 Salix | fiehor | Carex | |
| 5 Carex | Salix fiehor | Carex | |
| 5.5 Salix | Carex | Carex | |
| 6 Carex | | Carex | |
| 6.5 Carex | | Carex | |
| 7 Carex | | Carex | |
| 7.5 Carex | tal jac | Carex | |
| 8 Salix | Carex tal jac | #M | |
| 8.5 Salix | Carex | #M | |
| 9 Salix | #F | #M | |
| 9.5 Salix | Carex | #M | |
| 10 Salix | fiehor | #M | |
| 10.5 Salix | Carex fiehor | S | |
| 11 Salix | fiehor Carex | S | |
| 11.5 Salix | Carex | S | |
| 12 Salix | Carex #F | S | |
| 12.5 Carex | #F fiehor f | #M | |
| 13 Carex | | Peg | 11mm |
| 13.5 Carex | tal jac | #M | |

| top | lower | Soil | Lichen |
|---|---|---|---|
| 14 ~~Salix~~ Crowberry-yellow | Carex | #M | |
| 14.5 ~~Salix~~ | tal jac, fic hor, carex | #M | |
| 15 ~~Salix~~ | fic hor carex | Carex | |
| 15.5 Carex | Fic hor | #M | |
| 16 tal jac | carex | Carex | |
| 16.5 Carex | ? | Carex | |
| 17 ~~Carex~~ Carex | #grass #forb. #F bigleaf carex | Carex | |
| 17.5 V | | | |
| 18 Salix | tal jac, carex | carex | |
| 18.5 carex | tal jac | carex | |
| 19 carex | #F | #M | |
| 19.5 carex | | #M | |
| 20 carex | tal lar, | #M | |
| 20.5 moss val | #F carex | carex | |
| 21 Salix | Carex tal jac | carex | |

bigleaf - acrodromous venation
? groundsel = Senecio atropurpureus
brown-haired arctic groundsel



SWB # Transect 3 -2°

| top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 carex | #F tal jac | Carex | |
| 2 carex | tal jac | Carex | |
| 2.5 carex | | carex | |
| 3 carex | | carex | |
| 3.5 carex | tal jac | carex | |
| 4 carex | #F | carex | |
| 4.5 carex | | carex | |
| 5.0 carex | tal jac | carex | |
| 5.5 tal jac | carex | carex | |
| 6 tal jac | carex | #M | |
| 6.5 tal jac | carex | S | |
| 7 Salix | fic hor, tal jac, carex | S | |
| 7.5 Salix | carex | carex | |
| 8 Salix | carex, fic hor, | #M | |
| 8.5 Salix | carex | S | |
| 9 Salix | carex, fic hor, tal jac | carex | |
| 9.5 Salix | carex | carex | |
| 10 Salix | carex | carex | |
| 10.5 carex | tal jac | carex | |
| 11 carex | | carex | |
| 11.5 carex | | #M | |
| 12 carex | | Carex | |
| 12.5 carex | tal jac | carex | |
| 13 carex | #grass | carex | |
| 13.5 carex | Groundsel | carex | |

| Top | Lower | Soil |
|---|---|---|
| 14 Carex | groundcal | Carex |
| 14.5 Carex | | Carex |
| 15 Carex | | Carex |
| 15.5 Carex | tal jac | Carex |
| 16 Carex | tal jac | Carex |
| 16.5 Carex | | Carex |
| 17 Carex | tal jac | Carex |
| 17.5 Carex | | Carex |
| 18 Carex | | Carex |
| 18.5 Carex | tal jac | #M |
| 19 Carex | tal jac | #M |
| 19.5 Carex | tal jac | Carex |
| 20 Carex | fie hor, | Carex |
| 20.5 Carex | | #M |
| 21 Carex | tal jac | #M |



ASD-2 Transect 2 +10°

| Top | Lower | SE Soil | Lichen |
|---|---|---|---|
| 1.5 #Gross | Lirtyp, blacro | #M | |
| 2 blacro | none | #M | |
| 2.5 Lirtyp | | #M | |
| 3 None | | fel lic | 1mm |
| 3.5 blacro | | fel lic | 27 mm |
| 4 Nor lab | dwa sco | fel lic | 1mm |
| 4.5 whi spr | Lirtyp, dwa sco | #M | |
| 5 blacro | | fel lic | 2mm |
| 5.5 blacro | | #M | |
| 6 #Gross | | #M | |
| 6.5 Dwa bir | blacro | blacro | |
| 7 dwa bir | nor lab blacro | blacro | |
| 7.5 blacro | lirtyp + | #M | |
| 8 blacro | | blacro | |
| 8.5 blacro | bogblu WL | #M | |
| 9 Salix | | fel lic | 18mm |
| 9.5 Salix | nor lab blacro | Salix | |
| 10 Salix | nor lab blacro | blacro | |
| 10.5 Salix | bogblu blacro L | Salix | |
| 11 Salix | bogblu blacro | blacro | |
| 11.5 Salix | bogblu T.C. | Salix | |
| 12 Salix | fie hor | EL | |
| 12.5 Dwa bir | cloudb | dwa bir | |
| 13 Dwa bir | #F | EL | |
| 13.5 netwil | | #M | |

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/12/15 | **Site:** ASD 2 | | **Crew:** JP/LM |
| **Time start:** 3:33 | **Time stop:** 5:00 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** White spruce | **Shrubs:** black crowberry, wog blue, white mtn avens, Mt bramble | **Graminoids:** grass ? | **Forbs:** black alpine bearberry, lupin |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 219 (SW)<br>*Max slope:* ~27<br>*Slope length:* 100m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>60 cm<br>**Parent Rock:**<br>— | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** tilted trees | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 3 moderately exposed. |
| **Landcover class:** | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss | 3 coniferous |
| **Litter Depth (cm)** | 14cm | 12cm | |

**Notes:** Sphag Moss

# Cover Transect Data Sheet

**Date:** 7/12/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD-2 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +7°/-10°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | alpbla | whi mou | | | L | | 11.5 | bla cro | | | | fel lic | 1.5mm |
| 2 | blacro | | | | #M | | 12 | whi spr | L | | | EL | |
| 2.5 | blacro | | | | fel lic | 30mm | 12.5 | whi spr | L | | | #M | |
| 3 | blacro | dwa sco | | | eas lic | 29mm | 13 | Lingon | bla cro | | | #M | |
| 3.5 | norlab | alp bla | | | #M | | 13.5 | Dwa sco | #F | | | fel lic | 7mm |
| 4 | blacro | | | | #M | | 14 | whi mou | | | | fel lic | 17mm |
| 4.5 | None | | | L | EL | | 14.5 | | | | | #M | |
| 5 | louse wort | alpbla | | | EL | | 15 | dwa bir | lingon | dwa sco | | #M | |
| 5.5 | Dwa bir | Lingon | bog blu | | #M | | 15.5 | # Grass | whi mou | | | #M | |
| 6 | bogblu | Dwa bir | alp bla | | EL | | 16 | Lingon | whi mou | bla cro | | #M | |
| 6.5 | Salix | Dwa bir | WL | | #M | | 16.5 | Dwa bir | | | | #M | |
| 7 | Salix | Dwa bir | lingon | | #M | | 17 | Dwa bir | # Grass | | | #M | |
| 7.5 | Dwa bir | # Grass | blacro | | #M | | 17.5 | bogblu | | | | #M | |
| 8 | Dwa bir | # Grass | WL | | #M | | 18 | bog blu | | | | #M | |
| 8.5 | Dwa bir | # Grass | | | EL | | 18.5 | Dwa bir | dwa sco | | | #M | |
| 9 | whi spr | dwa bir | Salix | Lingon | #M | | 19 | Dwa sco | | | | fel lic | 15mm |
| 9.5 | whi spr | Salix | Lingon | | #M | | 19.5 | blacro | Dwa sco | | | #M | |
| 10 | whi spr | Salix | bla cro | | EL | | 20 | Salix | | | | fel lic | 2mm |
| 10.5 | Salix | bla cro | Lingon | | EL | | 20.5 | Salix | Nor lab | fou mou | | fou mou | |
| 11 | bla cro | | | | #M | | 21 | Salix | nor lab | fou mon | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**
All blaapl corrected to redalp (red alpine bearberry) 8/4/15

| Top | Lower | Soil |
|---|---|---|
| 14 Carex | groundsel | Carex |
| 14.5 Carex | | Carex |
| 15 Carex | | Carex |
| 15.5 Carex | tal jac | Carex |
| 16 Carex | tal jac | Carex |
| 16.5 Carex | | Carex |
| 17 Carex | tal jac | Carex |
| 17.5 Carex | | Carex |
| 18 Carex | | Carex |
| 18.5 Carex | tal jac | #M |
| 19 Carex | tal jac | #M |
| 19.5 Carex | tal jac | Carex |
| 20 Carex | fie hor, | Carex |
| 20.5 Carex | | #M |
| 21 Carex | tal jac | #M |

ASD-2 Transect 2 +10°



| Top | Lower | SE Soil | Lichen |
|---|---|---|---|
| 1.5 #Gross | Lingon, blacro | #M | |
| 2 blacro | none | #M | |
| 2.5 Lingon | | #M | |
| 3 None | | fel lic | 1mm |
| 3.5 blacro | | fel lic | 27 mm |
| 4 Nor lab | dwa sco | fel lic | 1mm |
| 4.5 whi spr | Lingon, dwa sco | #M | |
| 5 blacro | | fel lic | 2mm |
| 5.5 blacro | | #M | |
| 6 #Gross | | #M | |
| 6.5 Dwa bir | blacro | blacro | |
| 7 dwa bir | nor lab blacro | blacro | |
| 7.5 blacro | lingon + | #M | |
| 8 blacro | | blacro | |
| 8.5 blacro | bog blu WL | #M | |
| 9 Salix | | fel lic | 18mm |
| 9.5 Salix | nor lab blacro. | Salix | |
| 10 Salix | nor lab blacro | blacro | |
| 10.5 Salix | bog blu blacro L | Salix | |
| 11 Salix | bog blu blacro | blacro | |
| 11.5 Salix | bog blu T.C. | Salix | |
| 12 Salix | fie hor | EL | |
| 12.5 Dwa bir | cloudb | dwa bir | |
| 13 Dwa bir | #F | EL | |
| 13.5 netwil | | #M | |

| | Top | Lower Layer | Soil | height |
|---|---|---|---|---|
| 14 | fichor | #Grass | #M | |
| 14.5 | #Grass | whi mou | fel lic | 1mm |
| 15 | Salix | Lingon | #M | |
| 15.6 | whi spr | #Grass | #M | |
| 16 | whi spr | #F, WL | #M | |
| 16.5 | whi spr | blacro | #M | |
| 17 | whi spr | None | #M | |
| 17.5 | whi spr | Lingon blacro dwasco | EL | |
| 18 | whi spr | whi mou Lingon | #M | |
| 18.5 | dwa bir | #grass fichor | #M | |
| 19 | dwa bir | lingon blacro | blacro | |
| 19.5 | dwa sco | dwa bir lingon | #M | |
| 20 | Salix | fic hor, blacp | #M | |
| 20.5 | Nor lab | blacp | #M | |
| 21 | nor lab | None | #M | |



ASD-2 Transect 3 (~27°)

| | Top | Lower | Soil |
|---|---|---|---|
| 1.5 | whi spr | blacro | blacro |
| 2 | whi spr | #Grass blacro | #M |
| 2.5 | whi spr | #Grass | #M |
| 3 | whi spr | dwa sco | #M |
| 3.5 | whi spr | dwa sco | #M |
| 4 | whi spr | none | #M |
| 4.5 | whi spr | none | whi spr |
| 5 | whi spr | lupine | EL |
| 5.5 | whi spr | lingon | lingon |
| 6 | blacro | None | #M |
| 6.5 | Norlab | blacro | blacro |
| 7 | Salix | lingon | eas lic 8mm |
| 7.5 | whi mou | None | eas lic 22mm |
| 8 | blacro | None | eas lic 36mm |
| 8.5 | blacro | None | #M |
| 9 | fou mou | None | #M |
| 9.5 | whi mou | None | #M |
| 10 | None | None | rei lic 25mm |
| 10.5 | None | None | #M |
| 11 | None | None | #M |
| 11.5 | lingon | dwa sco, fou mou, | #M |
| 12 | lingon | WL | #M |
| 12.5 | fou mou | dwa sco #Grass WL | #M |
| 13 | whi spr | whi mou | #M |
| 13.5 | dwa sco | None | #M |

| | | | S |
|---|---|---|---|
| 14 | whi spr | Lrgon WL | #M |
| 14.5 | whi spr | blaalp, whimou, | #M |
| 15 | whi spr | whimou, Lrgon | #M |
| 15.5 | whi spr | Nave | whi spr |
| 16 | whi spr | #Grass, Lrgon, blacro | #M |
| 16.5 | whi spr | Lrgon, | #M |
| 17 | Lrgon | blacro | blacro |
| 17.5 | blacro | #F | blacro |
| 18 | boghlu | blacro | blacro |
| 18.5 | fou mou | Nave | fou mou |
| 19 | nor lab | blaalp, blacro, | EL |
| 19.5 | Lrgon | blacro | EL |
| 20 | whi mou | lrgon | #M |
| 20.5 | whi spr | Nave | whi spr |
| 21 | whi spr | Nave | whi spr |

SWB-10 Transect 2 (SE) 4/13/15 slope = -1°



| | top | Lower | Soil | Lucia |
|---|---|---|---|---|
| 1.5 | dwa sco | dwa spr | #M | |
| 2 | nor lab | | M | |
| 2.5 | nor lab | Lrgon | M | |
| 3 | Salix | red alp, | M | |
| 3.5 | dwa bir | lrgon | M | |
| 4 | Salix | lrgon | M | |
| 4.5 | Salix | lrgon; blacro | blacro | |
| 5 | Salix | norlab | M | |
| 5.5 | Salix | lrgon, blacro | Salix | |
| 6 | Salix | #Grass | M | |
| 6.5 | blacro | Nave | M | |
| 7 | nor lab | Lrgon | nor lab | |
| 7.5 | dwa bir | nave | M | |
| 8 | gre ald | dwa bir, Salix | EL | |
| 8.5 | gre ald | Salix, dwabir | M. Salix | |
| 9 | gre ald | dwabir, | | |
| 9.5 | gre ald | dwabir, blacro | EL | |
| 10 | gre ald | Salix | WL | |
| 10.5 | Salix | nor lab, gre ald, blacro | blacro | |
| 11 | Salix | gre ald, blacro | EL | |
| 11.5 | Salix | dwa bir, blacro, | blacro | |
| 12 | dwa bir | blacro | M | |
| 12.5 | Salix | nor lab, blacro, | M | |
| 13 | blacro | | M | |
| 13.5 | gre ald | blacro | EL | |

| Bp | Lower | Soil | Lichen |
|---|---|---|---|
| 14 GREALD | blacro | EL | |
| 14.5 greald | #grass Lingon | EL | |
| 15 greald | blacro | greald | |
| 15.5 greald | blacro | #M | |
| 16 greald | WL | EL | |
| 16.5 greald | WL | EL | |
| 17 greald | blacrow | #M | |
| 17.5 greald | blacrow | blacro | |
| 18 Salix | greald, lingon | #M | |
| 18.5 greald | Lingon, blacro | #M | |
| 19 blacro | | #M | |
| 19.5 blacro | | #M | |
| 20 greald | dwarbir blacro | #M | |
| ~~20.5~~ greald | Lingon | #M | |
| 21 greved | blacro | #M | |

7/13/15 SWB-10 Transect 3 (SW)
Slope = 40°



| Bp | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 Salix | dwarbir blacro | M | |
| 2 whispr | blacro | M | |
| 2.5 norlab | none | fellic | 13mm |
| 3 norlab | none | M | |
| 3.5 none | none | M | |
| 4 norlab | none | fellic | 18mm |
| 4.5 none | WL #F lob lingon forb twolea reflowfor | #F | |
| 5 whispr | redalp | M | |
| 5.5 whispr | norlab | fellic | 20mm |
| 6 whispr | lingon | M | |
| 6.5 Salix | norlab | M | |
| 7 Salix | norlab, lingon | M | |
| 7.5 Salix | lingon | M | |
| 8 dwarbir | blacro | M | |
| 8.5 blacro | | M | |
| 9 dwarsto | | M | |
| 9.5 ~~Grass~~ | | M | |
| 10 blacro | | M | |
| 10.5 whispr | ~~lingon~~ lingon | M | |
| 11 ~~whispr~~ | ~~lingon~~ lingon | M | |
| 11.5 whispr | blacro | M | |
| 12 whispr | formon | M | |
| 12.5 whispr | norlab blacro | M | |
| 13 whispr | blacro | M | |
| 13.5 dwarbir | lingon blacro | blacro | |

| top | Lower | Soil |
|---|---|---|
| 14 blacro | None | M |
| 14.5 dua sco | None | M |
| 15 nor lab | None | M |
| 15.5 Salix | None | M |
| 16 Salix | Lmgon | M |
| 16.5 Salix | Lmgon blacro | M |
| 17 Salix | Nor lab, bogbly, bla cro | M |
| 17.5 Salix | None | M |
| 18 Nor lab | None | M |
| 18.5 dua sir | rgd alp | M |
| 19 whi spr | lmgon blacro | blacro |
| 19.5 nor lab | dua bir | M |
| 20 dua bir | none | M |
| 20.5 lmgon | none | M |
| 21 dua bir | blacrow | blacro |



ATS-1 Transect 2 SE slope ± 280

| T Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 cap lon | whimou | whi mou | |
| 2 arc wil | | Spi lic | 9mm |
| 2.5 none | none | M | |
| 3 none | none | M | |
| 3.5 none | none | rei lic | 6mm |
| 4 whi mou | none | spagetti lichen | 10mm |
| 4.5 arc wil | none | crust lic | 2mm |
| 5 none | none | Spi lic | 11mm |
| 5.5 whi mou | none | Spi lic | 8mm |
| 6 None | None | R | |
| 6.5 None | None | S | |
| 7 whi mou | None | M | |
| 7.5 whi mou | None | M | |
| 8 whi mou | None | spagetti lic | 15mm |
| 8.5 whi mou | None | M | |
| 9 whi mou | None | M | |
| 9.5 whi mou | #Grav | M | |
| 10 #F | | M | |
| 10.5 whi mou | ?locoweed? | locoweed | |
| 11 None | None | crust lic | 1mm |
| 11.5 None | None | M | |
| 12 None | None | Eag lic | 11mm |
| 12.5 whi mou | None | whi mou | |
| 13 None | None | S | |
| 13.5 whi mou | None | fel lic | 6mm |

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/13/15 | **Site:** SWB 10 | | **Crew:** LM + JP |
| **Time start:** 9 AM | **Time stop:** 10:30 AM | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** White spruce | **Shrubs:** willow, alder, birch, blackcrow, lab tea | **Graminoids:** grass | **Forbs:** unknown toothed lobed leaf, lousewort |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 30° (N)<br>*Max slope:* transect 1<br>*Slope length:* 100m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>90cm<br><br>**Parent Rock:** | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** tilted trees | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 mostly sheltered |
| **Landcover class:** SWB | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss | Moss |
| **Litter Depth (cm)** | 4.5cm | 6cm | 1.8cm |

**Notes:**
Alpine bearberry here has red berries – revise in 7/12 SWB sites to red alpine bearberry

# Cover Transect Data Sheet *

**Date:** 7/13/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** SWB 10 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -30°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | bla cro | dwa sco | Linyon | | #M* | | 11.5 | Dwa bir | bla cro | | | #M | |
| 2 | Linyon | None | | | Spa mosM | | 12 | Dwa bir | Linyon | | | #M | |
| 2.5 | Nor lab | Linyon | | | #M | | 12.5 | Dwa bir | nor lab | Linyon | | #M | |
| 3 | dwa bir | Linyon | | | #M | | 13 | Dwa bir | bla cro | | | #M | |
| 3.5 | nor lab | bla cro | | | #M | | 13.5 | nor lab | bla cro | | | #M | |
| 4 | dwa sco | | | | #M | | 14 | dwa bir | bla cro | | | #M | |
| 4.5 | Salix | nor lab | | | #M | | 14.5 | dwa bir | none | | | #M | |
| 5 | #Grass | bla cro | | | bla cro | | 15 | nor lab | none | | | #M | |
| 5.5 | nor lab | Linyon | | | #M | | 15.5 | Salix | dwa bir | Linyon | | #M | |
| 6 | Dwa sco | Bla cro | | | #M | | 16 | dwa bir | Salix | | | #M | |
| 6.5 | Salix | bla cro | | | bla cro | | 16.5 | dwa bir | Linyon | | | #M | |
| 7 | #Grass | bla cro | | | #M | | 17 | dwa bir | none | | | #M | |
| 7.5 | whi spr | L | bla cro | | #M | | 17.5 | Salix | nor lab | | | #M | |
| 8 | whi spr | gre ald | bla cro | | bla cro | | 18 | nor lab | bla cro | | | #M | |
| 8.5 | whi spr | gre ald | bla cro | | bla cro | | 18.5 | Salix | Linyon | | | #M | |
| 9 | whi spr | gre ald | nor lab | L | EL | | 19 | Salix | nor lab | | | #M | |
| 9.5 | gre ald | nor lab | bla cro | | bla cro | | 19.5 | None | | | | #M | |
| 10 | dwa bir | linyon | | | #M | | 20 | whi spr | nor lab | for mou | | for mou | |
| 10.5 | dwa bir | nor lab | | | #M | | 20.5 | whi spr | nor lab | | | #M | |
| 11 | dwa bir | bla cro | | | #M | | 21 | whi spr | | | | M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** * Sphagnum Moss
Some small patches reindeer lichen along transect 3.

| Top | Lower | Soil | Lichen |
|---|---|---|---|
| 14 GREALD | blacro | EL | |
| 14.5 greald | #grass Lingon | EL | |
| 15 greald | blacro | greald | |
| 15.5 greald | blacro | #M | |
| 16 greald | WL | EL | |
| 16.5 greald | WL | EL | |
| 17 greald | blacrow | #M | |
| 17.5 greald | blacrow | blacro | |
| 18 Salix | greald, lingon | #M | |
| 18.5 greald | Lingon, blacro | #M | |
| 19 blacro | | #M | |
| 19.5 blacro | | #M | |
| 20 greald | dwarbir blacro | #M | |
| ~~20.5~~ greald | Lingon | #M | |
| 21 greald | blacro | #M | |

7/13/15 SWB-10 Transect 3 (SW) slope = 4°



| Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 Salix | dwarbir blacro | M | |
| 2 whispr | blacro | M | |
| 2.5 norlab | none | fellic | 13mm |
| 3 norlab | none | M | |
| 3.5 none | none | M | |
| 4 norlab | none | fellic | 18mm |
| 4.5 none | WL #F lob hoodie reflective | #F | |
| 5 whispr | redalp | M | |
| 5.5 whispr | norlab | fellic | 20mm |
| 6 whispr | lingon | M | |
| 6.5 Salix | norlab | M | |
| 7 Salix | norlab, lingon | M | |
| 7.5 Salix | lingon | M | |
| 8 dwarbir | blacro | M | |
| 8.5 blacro | | M | |
| 9 dwarsto | | M | |
| 9.5 ~~Grass~~ | | M | |
| 10 blacro | | M | |
| 10.5 whispr | ~~lingon~~ lingon | M | |
| 11 ~~whispr~~ | ~~lingon~~ lingon | M | |
| 11.5 whispr | blacro | M | |
| 12 whispr | formou | M | |
| 12.5 whispr | norlab blacro | M | |
| 13 whispr | blacro | M | |
| 13.5 dwarbir | lingon blacro | blacro | |

| | | | S |
|---|---|---|---|
| 14 | dohi spr | Lingon WL | #M |
| 14.5 | whi spru | blaalp, whimou, | #M |
| 15 | whi spru | whimou, Lingon | #M |
| 15.5 | whi spr | Nave | whi spr |
| 16 | whi spr | #Grass, Lingon blacro | #M |
| 16.5 | whi spr | Lingon, | #M |
| 17 | Lingon | blacro | blacro |
| 17.5 | blacro | #F | blacro |
| 18 | boghlu | blacro | blacro |
| 18.5 | fou mou | Nave | fou mou |
| 19 | nor lab | blaalp, blacro, | EL |
| 19.5 | Lingon | blacro | EL |
| 20 | whi mou | lingon | #M |
| 20.5 | whi spr | Nave | whi spr |
| 21 | whi spr | Nave | whi spr |

SWB-10 Transect 2 (SE) 4/13/15 slope = -1°



| | top | Lower | Soil | Lucian |
|---|---|---|---|---|
| 1.5 | dwa sco | dwa spr | #M | |
| 2 | nor lab | | M | |
| 2.5 | nor lab | Lingon | M | |
| 3 | Salix | red alp, | M | |
| 3.5 | dwa bir | lingon | M | |
| 4 | Salix | lingon | M | |
| 4.5 | Salix | lingon; blacro | bla cro | |
| 5 | Salix | norlab | M | |
| 5.5 | Salix | lingon, blacro | Salix | |
| 6 | Salix | #Grass | M | |
| 6.5 | bla cro | Nove | M | |
| 7 | nor lab | Lingon | nor lab | |
| 7.5 | dwa bir | nove | M | |
| 8 | gre ald | dwa bir, Salix | EL | |
| 8.5 | gre ald | Salix, dwabir | M. Salix | |
| 9 | gre ald | dwabir, | | |
| 9.5 | gre ald | dwabir, blacro | EL | |
| 10 | gre ald | Salix | WL | |
| 10.5 | Salix | nor lab, gre ald, blacro | bla cro | |
| 11 | Salix | gre ald, blacro | EL | |
| 11.5 | Salix | dwa bir, blacro, | bla cro | |
| 12 | dwa bir | blacro | M | |
| 12.5 | Salix | nor lab, bla cro, | M | |
| 13 | blacro | | M | |
| 13.5 | gre ald | blacro | EL | |

| Top | Lower | Soil | Leaves |
|---|---|---|---|
| 14 GREALD | blacro | EL | |
| 14.5 greald | #grass lingon | EL | |
| 15 greald | blacro | greald | |
| 15.5 greald | blacro | #M | |
| 16 greald | WL | EL | |
| 16.5 greald | WL | EL | |
| 17 greald | blacrow | #M | |
| 17.5 greald | blacrow | blacro | |
| 18 Salix | greald, lingon | #M | |
| 18.5 greald | Lingon, blacro | #M | |
| 19 blacro | | #M | |
| 19.5 blacro | | #M | |
| 20 greald | dwa bir blacro | #M | |
| 20.5 greald | Lingon | #M | |
| 21 greald | blacro | #M | |



7/13/15 SWE-10 Transect 3 (SW) Slope = +4°

| Top | Lower | Soil | Leaves |
|---|---|---|---|
| 1.5 Salix | dwa bir blacro | M | |
| 2 whi spr | blacro | M | |
| 2.5 nor lab | none | fellic | 13mm |
| 3 nor lab | none | M | |
| 3.5 none | none | M | |
| 4 nor lab | none | fellic | 18mm |
| 4.5 none | WL #F lob leaves | #F | |
| 5 whi spr | red alp | M | |
| 5.5 whi spr | norlab | fellic | 20mm |
| 6 whi spr | lingon | M | |
| 6.5 Salix | norlab | M | |
| 7 Salix | norlab, lingon | M | |
| 7.5 Salix | lingon | M | |
| 8 dwa bir | blacro | M | |
| 8.5 bla cro | | M | |
| 9 dwa sto | | M | |
| 9.5 # Gass | | M | |
| 10 bla cro | | M | |
| 10.5 whi spr | lingon | M | |
| 11 whi spr | lingon | M | |
| 11.5 whi spr | blacro | M | |
| 12 whi spr | for mou | M | |
| 12.5 whi spr | nor lab blacro | M | |
| 13 whi spr | blacro | M | |
| 13.5 dwa bir | lingon blacro | blacro | |

| | Top | Lower | Soil |
|---|---|---|---|
| 14 | blacro | None | M |
| 14.5 | dua sco nor | None | M |
| 15 | lab | None | M |
| 15.5 | Salix | None | M |
| 16 | Salix | Lingon | M |
| 16.5 | Salix | Lingon blacro bla | M |
| 17 | Salix | Nor lab, bogbly, cro | M |
| 17.5 | Salix | None | M |
| 18 | Nor lab | None | M |
| 18.5 | dua sxr | red alp | M |
| 19 | whi spr | lingon blacro | blacro |
| 19.5 | nor lab | dua bir | M |
| 20 | dua bir | none | M |
| 20.5 | lingon dua | none | M |
| 21 | bir | blacrow | blacro |

ATS-1 Transect 2 SE Slope +280



| T. Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 | cap lot whimou | whi mou | |
| 2 | arc wil | Spi lic | 9mm |
| 2.5 | none | none | M | |
| 3 | none | none | M | |
| 3.5 | none | none | vei lic | 6mm |
| 4 | whi mou | none | spagetti lichen | 10mm |
| 4.5 | arc wil | none | crust lic. | 2 mm |
| 5 | None | none | Spi lic | 11mm |
| 5.5 | whi mou | none | Spi lic | 8mm |
| 6 | None | None | R | |
| 6.5 | None | None | S | |
| 7 | whi mou | None | M | |
| 7.5 | whi mou | None | M | |
| 8 | whi mou | None | Spagetti lic | 15mm |
| 8.5 | whi mou | None | M | |
| 9 | whi mou | None | M | |
| 9.5 | whi mou | #Grav | M | |
| 10 | #= | | M | |
| 10.5 | whi mou | ? locoweed | locoweed | |
| 11 | None | None | crust lic | 1mm |
| 11.5 | None | None | M | |
| 12 | None | None | Eag lic | 11mm |
| 12.5 | whi mou | None | whi mou | |
| 13 | X ore | None | S | |
| 13.5 | whi mou | None | Fel lic | 6mm |

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/13/15 | **Site:** ATS 1 | | **Crew:** LM+JP |
| **Time start:** 11:30AM | **Time stop:** 12:47 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** White Mt avens, Arctic birch | **Graminoids:** sedge grasses | **Forbs:** -caprate lousewort -draba? |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 341°(NW)<br>*Max slope:* 80°<br>*Slope length:* 100m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>90cm<br><br>**Parent Rock:**<br>Volcanic | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** solifluction | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 3 moderately exposed |
| **Landcover class:** | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | White Mt Avens | None | Moss |
| **Litter Depth (cm)** | 23mm | None | 4cm |

**Notes:**

# Cover Transect Data Sheet

*Spi lic – spider lichen

**Date:** 7/13/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ATS-1 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -25°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | None | None | | | Spi lic | 14mm | 11.5 | whi mou | #Gras | | | M | |
| 2 | whi mou | | | | M | | 12 | None | | | | R | |
| 2.5 | whi mou | | | | M | | 12.5 | whi mou | | | | | |
| 3 | whi mou | | | | M | | 13 | #Gras | | | | M | |
| 3.5 | whi mou | | | | M | | 13.5 | #Grass | | | | M | |
| 4 | whi mou | | | | M | | 14 | whi mou | | | | whi mou | |
| 4.5 | whi mou | #Grass | | | fel lic | 1mm | 14.5 | whi mou | | | | M | |
| 5 | None | None | | | M | | 15 | whi mou | #Grass | | | whi mou | |
| 5.5 | None | None | | | eas lic | 16mm | 15.5 | arc wil | | | | M | |
| 6 | whi mou | | | | M | | 16 | #Grass | | | | M | |
| 6.5 | None | | | | Cetraria | 9mm | 16.5 | Dwa SCO | | | | M | |
| 7 | whi mou | | | | #L | 11mm | 17 | None | | | | M | |
| 7.5 | whi mou | | | | M | | 17.5 | Dwa SCO | | | | M | |
| 8 | None | | | | M | | 18 | arc wil | | | | M | |
| 8.5 | arc wil | | | | M | | 18.5 | arc wil | | | | M | |
| 9 | arc wil | | | | M | | 19 | whi mou | | | | whi mou | |
| 9.5 | arc wil | | | | M | | 19.5 | whi mou | | | | eas lic | 16mm |
| 10 | whi mou | | | | M | | 20 | whi mou | dwa SCO | | | Spaghetti Lic | 19mm |
| 10.5 | whi mou | | | | spi lic | 19mm | 20.5 | none | | | | M | |
| 11 | None | | | | M | | 21 | whi mou | | | | M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** #L long fronded/Dark tips #7 distance

| | Top | Lower | Soil |
|---|---|---|---|
| 14 | blacro | None | M |
| 14.5 | dua sco | None | M |
| 15 | nor lab | None | M |
| 15.5 | Salix | None | M |
| 16 | Salix | Lingon | M |
| 16.5 | Salix | Lingon blacro | M |
| 17 | Salix | Nor lab, bogbly, bla cro | M |
| 17.5 | Salix | None | M |
| 18 | Nor lab | None | M |
| 18.5 | dua bir | red alp | M |
| 19 | whi spr | lingon blacro | blacro |
| 19.5 | nor lab | dua bir | M |
| 20 | dua bir | none | M |
| 20.5 | lingon | none | M |
| 21 | dua bir | blacrow | blacro |

ATS-1 Transect 2 SE Slope + 28°



| T. Top | Lower | Soil | Lichen |
|---|---|---|---|
| 1.5 cap bol | whimou | whi mou | |
| 2 arc wil | | Spi lic | 9mm |
| 2.5 none | none | M | |
| 3 none | none | M | |
| 3.5 none | none | vei lic | 6mm |
| 4 whi mou | none | spagetti lichen | 10mm |
| 4.5 arc wil | none | crust lic | 2 mm |
| 5 None | none | Spi lic | 11mm |
| 5.5 whi mou | none | Spi lic | 8mm |
| 6 None | None | R | |
| 6.5 None | None | S | |
| 7 whi mou | None | M | |
| 7.5 whi mou | None | M | |
| 8 whi mou | None | Espegatti lic | 15mm |
| 8.5 whi mou | None | M | |
| 9 whi mou | None | M | |
| 9.5 whi mou | #Grav | M | |
| 10 #F | | M | |
| 10.5 whi mou | ? locoweed | locoweed | |
| 11 None | None | crust lic | 1mm |
| 11.5 None | None | M | |
| 12 None | None | Egg lic | 11mm |
| 12.5 whi mou | None | whi mou | |
| 13 None | None | S | |
| 13.5 whi mou | None | fel lic | 6mm |

| Top | Lower | Soil | height |
|---|---|---|---|
| 14 cap Toh | whimou | fel lic | 19mm |
| 14.5 # Grass | | Spag lic | 2mm |
| 15 ?locq weed | whi mou | ?Locowed | |
| 15.5 None | None | Moss | |
| 16 arc wil | None | Moss | |
| 16.5 None | None | R | |
| 17 # Grass | None | eas lic | 13mm |
| 17.5 whi mou | None | eas lic | 15mm |
| 18 whi mou | None | Cetraria | 30mm |
| 18.5 None | None | R | |
| 19 None | None | M | |
| 19.5 whi mou | None | M | |
| 20 None | None | S | |
| 20.5 # whi mou | None | M | |
| 21 # Grass | None | M | |



ATS-1 Transect 3 SW (-23°) Slope JP recorder

| TOP | LOWER | Soil | Lichen |
|---|---|---|---|
| 1.5 Carex | None | M | |
| 2 Carex. | None | M | |
| 2.5 whi mou | None | M | |
| 3 whi mou | None | spi lic | 33mm |
| 3.5 Carex | None | M | |
| 4 Carex | whi mou | fel lic | 9mm |
| 4.5 None | None | Cetraria | 2mm |
| 5 whi mou | None | M | |
| 5.5 whi mou | None | whi mou | |
| 6 whi mou | None | M | |
| 6.5 whi mou | None | Cetraria | 2mm |
| 7 whi mou | None | M | |
| 7.5 whi mou | None | whi mou | |
| 8 whi mou | None | M | |
| 8.5 whi mou | None | eas lic | 9mm |
| 9 arc wil | whimou | M | |
| 9.5 None | None | R | |
| 10 whi mou | None | whi mou | |
| 10.5 None | None | M | |
| 11 None | None | eas lic | 15mm |
| 11.5 None | None | M | |
| 12 whi mou | None | M | |
| 12.5 whi mou | NONE | Cetraria | 9mm |
| 13 whi mou | None | spi lic | 19mm |
| 13.5 whi mou | None | M | |

| Bp | Lower | Soil | Lichen |
|---|---|---|---|
| 14 whi mou | None | M | |
| 14.5 whi mou | None | M | |
| 15 * ← drasa? | None | cetraria | 5mm |
| 15.5 arc wil | None | dog lic | 1mm |
| 16 whi mou | None | M | |
| 16.5 whi mou | None | cetraria | 17mm |
| 17 whi mou | None | M | |
| 17.5 whi mou | None | M | |
| 18 whi mou | None | crust lic | 1mm |
| 18.5 whi mou | None | M | |
| 19 None | None | eas lic | 3mm |
| 19.5 None | None | cetraria | 30mm |
| 20 whi mou | None | M | |
| 20.5 whi mou | None | whi mou | |
| 21 arc wil | None | Cetraria | 4mm |

*yellow marsh saxifrage



SWB14 - transect 2 (SE) 7/13

| | F | L | | | S | H |
|---|---|---|---|---|---|---|
| 1.5 | dwabir | netwil | | | dwabir | |
| 2 | carex | — | | | M | |
| | dwabir | norlab | lingon | | EL | |
| 3 | carex | — | | | M | |
| | carex | lingon | | | willow | |
| 4 | netwil | — | | L | M | |
| | dwabir | lingon | | | M | |
| 5 | norlab | blacro | | | M | |
| | dwabir | #grass | netwil | | M | |
| 6 | whispr | carex | dwasco | | M | |
| | whispr | willow | #grass | blacro | EL | |
| 7 | whispr | willow | blacro dwabir | carex | carex | |
| | willow | dwabir | dwasco | carex | EL | |
| 8 | willow | norlab | redalp | ~~EL~~ | EL | |
| | dwabir | carex | dwasco | | M | |
| 9 | dwabir | — | | | EL | |
| | willow | blacro | | | M | |
| 10 | willow | dwasco | | | S | |
| | dwabir | (*) | carex | | M | |
| 11 | fiehor | carex | | | M | |
| | carex | | | | carex | |
| 12 | dwabir | fiehor | redalp | | EL | |
| | dwabir | carex | | | M | |
| 13 | netwil | carex | | | M | |
| | willow | dwasco | | | fert L. 3mm | |

(*) = large lobbed toothed leaf

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/13/15 | **Site:** SWB14 | | **Crew:** |
| **Time start:** 1:40 | **Time stop:** 3:14 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** white spruce | **Shrubs:** blackcrowb. willow - northern Lab dwarf birch | **Graminoids:** sedge grass | **Forbs:** groundsel ~~none~~ marsh grass of parsons |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* ~~25°~~ (W)<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>70cm<br><br>**Parent Rock:**<br>- | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: —<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 3 moderate |
| **Landcover class:** | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | M | M | M |
| **Litter Depth (cm)** | 15 cm | 7cm | 2 cm |

**Notes:**

bogros = bog rosemerry

# Cover Transect Data Sheet

**Date:** 7/13/15 **Observer:** JP **Recorder:** LM

**Plot:** SWB14 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -1

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Bogblu | netwil | | | M | | 11.5 | fiehor | | | | M | |
| 2 | carex | norlab | | | EL | | 12 | willow | carex | fiehor | net wil | M | |
| 2.5 | fiehor | — | | | M | | 12.5 | carex | blacro | | | M | |
| 3 | fiehor | carex | | | M | | 13 | carex | | | | carex | |
| 3.5 | redalp | — | | | M | | 13.5 | norlab | netwill. | dwasco | | EL | |
| 4 | fiehor | — | | | feltL | 3mm | 14 | None | — | | | EL | |
| 4.5 | netwil | fiehor | | | M | | 14.5 | carex | dwasco | | | EL | |
| 5 | fiehor | bogblu | | | EL | | 15 | carex | | | | carex | |
| 5.5 | dwabir | — | | | M | | 15.5 | fiehor | | | | M | |
| 6 | willow | | | | M | | 16 | carex | whimou | | | M | |
| 6.5 | carex | fiehor | | | M | | 16.5 | carex | — | | | M | |
| 7 | carex | — | | | M | | 17 | — | — | | | cup lichen | 10mm |
| 7.5 | willow | netwil | | | M | | 17.5 | carex | — | | | cup L. | 5mm |
| 8 | carex | dwasco | | | M | | 18 | — | | | L | M | |
| 8.5 | carex | netwil | | L | M | | 18.5 | carex | | | | EL | |
| 9 | carex | — | | | carex | | 19 | carex | dwasco | locow | | EL | |
| ~~9.5~~ | | | | | | | 19.5 | norlab | fiehor | blacro | | EL | |
| ~~10~~ 9.5 | — | L | | | S | | 20 | carex | | | | M | |
| ~~10.5~~ 10 | dwabir | carex | blacro | | M | | 20.5 | fiehor | Avens | | | EL | |
| ~~11~~ 10.5 | dwabir | carex | | | M | | 21 | Redalp | dwasco | | | M | |

11 none — M

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

Transect 2+3 in field notebook I

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

norlab = N lab tea
fiehor = field horsetail
redalp = red alpine bearberry

dwasco = dwarf scouring rush
whimou = white Mt avens
carex = sedge sp.
willow = unident willow (> 30cm)

locow = oxytrop sp.
~~Dry~~ avens = dryas
long-stemmed sp.

| Top | Lower | Soil | Lichen |
|---|---|---|---|
| 14 whi mou | None | M | |
| 14.5 whi mou | None | M | |
| 15 * ← drasa? | None | cetraria | 5mm |
| 15.5 arc wil | None | dog lic | 1mm |
| 16 whi mou | None | M | |
| 16.5 whi mou | None | cetraria | 17mm |
| 17 whi mou | None | M | |
| 17.5 whi mou | None | M | |
| 18 whi mou | None | crust lic | 1mm |
| 18.5 whi mou | None | M | |
| 19 None | None | cas lic | 3mm |
| 19.5 None | None | cetraria | 30mm |
| 20 whi mou | None | M | |
| 20.5 whi mou | None | whi mou | |
| 21 arc wil | None | Cetraria | 4mm |

*yellow marsh saxifrage

SWB14 - transect 2 (SE) 7/13



| | F | L | | S | H |
|---|---|---|---|---|---|
| 1.5 | dwabir | netwil | | dwabir | |
| 2 | carex | — | | M | |
| | dwabir | norlab | lingon | EL | |
| 3 | carex | — | | M | |
| | carex | lingon | | willow | |
| 4 | netwil | — | L | M | |
| | dwabir | lingon | | M | |
| 5 | norlab | blacro | | M | |
| | dwabir | #grass | netwil | M | |
| 6 | whispr | carex | dwasco | M | |
| * | whispr | willow | #grass blacro | EL | |
| 7 | whispr | willow blacro | dwabir carex | carex | |
| | willow | dwabir | dwasco carex | EL | |
| 8 | willow | norlab | redalp ~~EL~~ | EL | |
| | dwabir | carex | dwasco | M | |
| 9 | dwabir | — | | EL | |
| | willow | blacro | | M | |
| 10 | willow | dwasco | | S | |
| | dwabir | (*) | carex | M | |
| 11 | fiehor | carex | | M | |
| | carex | | | carex | |
| 12 | dwabir | fiehor | redalp | EL | |
| | dwabir | carex | | M | |
| 13 | netwil | carex | | M | |
| | willow → | dwasco | | fert L. 3mm | |

(*) = large lobbed toomed leaf

Plot SWB 14
transect 2 cont. (SE) 7/13

| | | | | |
|---|---|---|---|---|
| 14 | carex | fiehor | redalp | EL |
| | dwasco | | | M |
| 15 | carex | ⊛ | | EL |
| | dwabir | | | M |
| 16 | blacro | | | M |
| | redalp | blacro | | M |
| 17 | dwabir | netwil | blacro | M |
| | bogblu | norlab | | M |
| 18 | willow | L | | EL |
| | dwabir | dwasco | | M |
| 19 | grass | | | M |
| | grass | | | M |
| 20 | None | | | M |
| | None | | | S |
| 21 | dwabir | netwil | | M |

transect slope: -7°

Plot SWB 14 - transect 3 7/13



| | | | | |
|---|---|---|---|---|
| | sedge | | | EL |
| 2 | willow | | | EL |
| | sedge | blacro | | M |
| 3 | sedge | blacro | | EL |
| | willow | blacro | | M |
| 4 | — | L | | M |
| | norlab | sedge | | M |
| 5 | norlab | willow | | M |
| | norlab | willow | bogblu | M |
| 6 | willow | | | M |
| | willow | | | M |
| 7 | willow | blacro | | M |
| | norlab | bogblu | blacro | EL |
| 8 | dwasco | blacro | | M |
| | dwabir | blacro | | M |
| 9 | norlab | fiehor | dwabir L | S |
| | fiehor | 1 | | M |
| 10 | fiehor | | | M |
| | dwabir | fiehor | blacro | S |
| 11 | dwabir | dwasco | | EL |
| | norlab | carex | dwasco | EL |
| 12 | sedge | dwasco | | M |
| | dwabir | netwil | | M |
| 13 | grass | netwil | | M |
| | grass | sedge | dwasco | M |

Plot: SWB14

Transect 3 (SW) cont.. 7/13

| | | | | |
|---|---|---|---|---|
| 14 | sedge | netwil | | M |
| | sedge | | | S |
| 15 | willow | dwasro | | M |
| | fiehor | | | M |
| 16 | dwabir | fiehor | netwil | felt L. 7m |
| | willow | fiehor | netwil | EL |
| 17 | fiehor | L | | M |
| | willow | fiehor | 1 | EL |
| 18 | dwabir | fiehor | | M |
| | grass | | | M |
| 19 | grass | bogblu | | grass |
| | dwabir | carex | | ~~M~~ carex |
| 20 | bogblu | | | M |
| | carex | bogros! | | M |
| 21 | carex | lorow | bogros | M |

Transect 3 slope: +1

# Site Description Form

| Date: 7/21 | Site: ASD7 | | Crew: LM + DW |
|---|---|---|---|
| **Time start:** 1:15 PM | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |

| **Dom Trees:** | **Shrubs:** | **Graminoids:** | **Forbs:** |
|---|---|---|---|
| — | dwabir, willow, blacs, nootka | #grass, carex | # forb, lupin |

| **Slope Position:** | **Slope X-section:** | **Micro-relief type:** | **Parent Material:** |
|---|---|---|---|
| Ridgetop | broken by benches | Bedrock outcrops | Bedrock |
| Saddle | concave | Mass movement | Alluvium |
| Hillslope: | convex | Erosional | Till |
| *Aspect:* SE | straight, even | Depositional | Colluvium |
| *Max slope:* 8° | flat (less than 5°) | Tussocks 1m tall! | Loess |
| *Slope length:* 200m | undulating | Solifluction | Lacustrine |
| Shoulder | convex/concave | Moss hummocks | Other: |
| Arm | | Thermokarst | |
| Toe | **Drainage:** | Burrows | **Geomorphic Disturbance:** |
| Colluvium | rapid – runoff / hillslope | None | Fluvial |
| Piedmont | rapid - coarse, permeable | | Rapid mass wasting |
| Terrace | impeded – low permeability | **Max micro-relief size:** | Slow mass wasting |
| Floodplain | saturated soil | 1 m | Wind scour |
| Flat plain | | **Parent Rock:** | Deglaciation |
| | | volcanic | Other: |
| | | | none |

| **Evidence of frost-action:** | **Evidence of fire:** | **Evidence of wind:** | **Wind exposure class:** |
|---|---|---|---|
| patterned ground | no | no | high saddle (3) |

**Landcover class:** ?

**Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.

3 caribou visually sited.

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | moss | moss | moss |
| **Litter Depth (cm)** | 6 cm | 1.5 cm | 7 cm |

**Notes:**

110° aspect for site photo (of ravine)

# Cover Transect Data Sheet

**Date:** 7/21 **Observer:** LM **Recorder:** DW

**Plot:** AS07 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** 8°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | DWABER | | #grass | BLACRO | blacro | | 11.5 | #grass | lingen | blacro | | blacro | |
| 2 | DWABER | BLACRO | | | cetraria | 6 mm | 12 | dwabir | norlab | blacro | | blacro | |
| 2.5 | DWABER | #grass | | | moss | | 12.5 | dwabir | #grass | | | #M | |
| 3 | DWABir | | | litter | EL | | 13 | dwabir | | | | #M | |
| 3.5 | dwabir | blacro | reilic | | reilic | 8 mm | 13.5 | dwabir | norlab | | | #M | |
| 4 | dwabir | blacro | | | blacro | | 14 | dwabir | sweeal | | | #M | |
| 4.5 | dwabir | lingen | reili | | reilic | 9 mm | 14.5 | dwabir | #grass | | | #M | |
| 5 | dwabir | lupin | lingen | | reilic | 10 mm | 15 | dwabir | norlab | | | brown cetraria | 3 mm |
| 5.5 | dwabir | | | | reilic | 11 mm | 15.5 | dwabir | #grass | | | EL | |
| 6 | dwabir | blacro | | | blacro | | 16 | dwabir | blacro | | | #M | |
| 6.5 | dwabir | #grass | | | reilic | 32 mm | 16.5 | blacro | norlab | | | blacro | |
| 7 | dwabir | #grass | blacro | | blacro | | 17 | dwabir | norlab | blacro | | blacro | |
| 7.5 | Willow | #Grass | dwabir | blacro | #G | | 17.5 | dwabir | blacro | | | blacro | |
| 8 | blacro | | | | blacro | | 18 | dwabir | norlab | blacro | | blacro | |
| 8.5 | dwabir | | | | #M | | 18.5 | dwabir | #grass | blacro | | blacro | |
| 9 | dwabir | blacro | | | #M | | 19 | dwabir | blacro | | | blacro | |
| 9.5 | dwabir | blacro | | | blacro | | 19.5 | NONE | | | | reilic | 3 mm |
| 10 | dwabir | | | | EL | | 20 | dwabir | | | | #M | |
| 10.5 | dwabir | blacro | | | #M | | 20.5 | dwabir | | | | #M | |
| 11 | dwabir | blacro | | | blacro | | 21 | carex | | | | carex | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/21 **Observer:** LM **Recorder:** DW

**Plot:** ASD7 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** SE 4°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dwabir | | | | reinlic | 25mm | 11.5 | dwabir | lingon | | | EL | |
| 2 | dwabir | | | #G1 | reinlic | 35mm | 12 | dwabir | #grass | blacro | | blacro | |
| 2.5 | dwabir | ~~blacro~~ | L | #grass | blacro | | 12.5 | dwabir | blacro | | | blacro | |
| 3 | dwabir | | | #grass | ~~foster~~ lichen | 25mm | 13 | #forb1 | | | | M | |
| 3.5 | norlab | dwabir | L | | EL | | 13.5 | #grass | | | | ~~foster~~ lichen | 10mm |
| 4 | | | | L | EL | | 14 | dwabir | | | | ~~rein~~ lichen | 20mm |
| 4.5 | dwabir | | | L | EL | | 14.5 | ~~None~~ ~~dwabir~~ | | | | dwabir | |
| 5 | | | | L | EL | | 15 | dwabir | blacro | | | M | |
| 5.5 | dwabir | blacro | lingon | | EL | | 15.5 | dwabir | #grass | | | rein lichen | 65 mm |
| 6 | #grass | blacro | lingon | dwabir | dwabir | | 16 | blacro | | | | #grass | |
| 6.5 | #grass | dwabir | blacro | | EL | | 16.5 | #grass | dwabir | blacro | | blacro | |
| 7 | dwabir | #grass | blacro | | EL | | 17 | #dwabir | norlab | | | felt lichen | 30 mm |
| 7.5 | dwabir | lingon | blacro | | EL | | 17.5 | norlab | #grass | | | EL | |
| 8 | ~~dwabir~~ willow | | | | M | | 18 | dwabir | | | | dwabir | |
| 8.5 | dwabir | norlab | blacro | | EL | | 18.5 | — | | | | M | |
| 9 | dwabir | norlab | blacro | | EL | | 19 | #grass | | | | rein lic | 15 mm |
| 9.5 | dwabir | #grass | blacro | | EL | | 19.5 | — | | | | M | |
| 10 | dwabir | | | | EL | | 20 | #grass | | | | felt lichen | 5mm |
| 10.5 | dwabir | #grass | blacro | | M | | 20.5 | #grass | | | | M | |
| 11 | dwabir | blacro | | | rein lic | 50mm | 21 | #grass | | | | rein lic | 30 mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**
#forb = skinny toothed leaf



#grass



# Cover Transect Data Sheet

**Date:** 7/21 **Observer:** LM **Recorder:** DW

**Plot:** ASD7 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** +|0

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | willow | #grass | blacro | | blacro | | 11.5 | dwabir | blacro | | | blacro | |
| 2 | dwabir | blacro | | | blacro | | 12 | dwabir | #grass | blacro | | blacro | |
| 2.5 | dwabir | #grass | | | EL | | 12.5 | dwabir | blacro | | | blacro | |
| 3 | dwabir | #grass | lingen | | #M | | 13 | dwabir | #grass | | | EL | |
| 3.5 | dwabir | #grass | | | EL | | 13.5 | dwabir | | | | ~~EL~~ #M | |
| 4 | norlab | | | | #M | | 14 | none | | | | reilic | 3mm |
| 4.5 | dwabir | | | | #M | | 14.5 | #grass | | | | #grass | |
| 5 | norlab | | | | EL | | 15 | dwabir | #grass | blacro | | blacro | |
| 5.5 | willow | #grass | | | #M | | 15.5 | dwabir | blacro | | | blacro | |
| 6 | dwabir | #grass | | | EL | | 16 | dwabir | blacro | | | EL | |
| 6.5 | dwabir | | | | reilic | 4cm | 16.5 | dwabir | blacro | | | blacro | |
| 7 | norlab | dwabir | #grass | | #grass | | 17 | willow | #grass | blacro | | blacro | |
| 7.5 | blacro | | | | blacro | | 17.5 | willow | blacro | | | blacro | |
| 8 | dwabir | | | | felt lich | 15mm | 18 | dwabir | blacro | | | blacro | |
| 8.5 | dwabir | #grass | | | reilic | 11mm | 18.5 | dwabir | lingen | | | #M | |
| 9 | #grass | norlab | | | #grass | | 19 | dwabir | blacro | | | blacro | |
| 9.5 | norlab | dwabir | #grass | | #grass | | 19.5 | dwabir | | | | #M | |
| 10 | dwabir | norlab | blacro | | reilic | 20 | 20 | dwabir | #grass | lingen | | #M | |
| 10.5 | dwabir | blacro | | | #m | | 20.5 | dwabir | #grass | | | #grass | |
| 11 | ~~reilic~~ | | | | reilic | 5 | 21 | dwabir | | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

#grass = arctic bluegrass
arcblu

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/26 | **Site:** ASD5 | | **Crew:** |
| **Time start:** 1:30 | **Time stop:** 3:00 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** blackcrow willow dwarf birch netwil | **Graminoids:** sedge arctic blue grass | **Forbs:** lupin |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>70 cm<br><br>**Parent Rock:**<br>volcanic | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** tussocks | **Evidence of fire:** None | **Evidence of wind:** windy | **Wind exposure class:** 3 |
| **Landcover class:** ASP | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss | Moss |
| **Litter Depth (cm)** | 5cm | 1cm | 4 cm |

**Notes:**
Photo 54° NE

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD-5 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -2°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Arc lup | Lous sp. | | | #M | | 11.5 | dwa bir | carex | net wil | | EL | |
| 2 | Dwa bir | bla cro | | | bla cro | | 12 | dwa bir | carex | net wil | bla cro | EL | |
| 2.5 | Dwa bir | arc blu | | L | #M | | 12.5 | dwa bir | carex | arc lup | | carex | |
| 3 | bla cro | | | | M | | 13 | dwa bir | arc lup | net wil | carex | carex | |
| 3.5 | dwa bir | bla cro | | | #M | | 13.5 | dwa bir | astral sp. | net wil | | #M | |
| 4 | Salix | carex | | | #M | | 14 | dwa bir | carex | astral sp | | #M | |
| 4.5 | carex | #F | | | Rei lic | 11mm | 14.5 | dwa bir | astral sp. | #F | net wil | carex EL | |
| 5 | carex | net wil | | | carex | | 15 | dwa bir | arc lup | dryas sp. | | EL | |
| 5.5 | arc lup | | | L | EL | | 15.5 | dwa bir | arc lup | astral sp | | EL | |
| 6 | dwa bir | carex | net wil | | EL | | 16 | Nor lab. | Carex | | | #M | |
| 6.5 | dwa bir | carex | bla cro | | EL | | 16.5 | arc lup | net wil | #F carex | | #F | |
| 7 | dwa bir | dryas sp. | | | #M | | 17 | carex | arc lup | net wil | | net wil | |
| 7.5 | dwa bir | carex | bla cro | | bla cro | | 17.5 | dwa bir | carex | net wil | | EL | |
| 8 | dwa bir | net wil | | | EL | | 18 | dwa bir | arc lup | dryas sp. | | EL | |
| 8.5 | dwa bir | astragalus sp | net wil | | EL | | 18.5 | cinque | astral | net wil | | #M | |
| 9 | dwa bir | arc lup | astralagus sp. | | EL | | 19 | WT Salix | arc lup | #F | carex | EL | |
| 9.5 | dwa bir | nor lab | arc lup | carex net wil | EL | | 19.5 | Salix | Carex | astral sp. | #F | carex | |
| 10 | dwa bir | carex | astral sp. | carex | carex | | 20 | dwa bir | carex | | | carex | |
| 10.5 | dwa bir | bog blu | carex | | #M | | 20.5 | carex | net wil | #F | | carex | |
| 11 | dwa bir | carex | arc lup | bla cro | #M | | 21 | carex | dryas sp. | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** arc blu = artic bluegrass

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD-5 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** ~5°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | carex | | | carex | | 11.5 | bla cro | | | | cup lic | 10 mm |
| 2 | dua bir | carex | | | EL | | 12 | carex | dryas | | | dryas | |
| 2.5 | carex | dua bir | red alp | | EL | | 12.5 | dua bir | carex | #F | | EL | |
| 3 | dua bir | carex | net wil | | carex | | 13 | carex | red alp | | | #M | |
| 3.5 | dua bir | carex | net wil | | carex | | 13.5 | dua bir | carex | | | carex | |
| 4 | dua bir | carex | astral sp. | | EL | | 14 | carex | | | | #M | |
| 4.5 | carex | astral | arc lup | | carex | | 14.5 | carex | net wil | | | #M | |
| 5 | dua bir | carex | net wil | | EL | | 15 | carex | L | | | carex | |
| 5.5 | carex | | | | #M | | 15.5 | carex | | | | Fel lic | 1mm |
| 6 | carex | dryas | | | fel lic | 3cm | 16 | carex | dryas | | | carex | |
| 6.5 | carex | net wil | astral | | EL | | 16.5 | dua bir | carex | net wil | L | EL | |
| 7 | dua bir | carex | | | #M | | 17 | carex | | | L | #M | |
| 7.5 | dua bir | bla cro | carex | | bla cro | | 17.5 | carex | net wil | | | #M | |
| 8 | dua bir | bla cro | | | bla cro | | 18 | carex | #F | dua sco | | carex | |
| 8.5 | astral | dryas | carex | | dryas | | 18.5 | carex | dua bir | net wil | bog bla | #M | |
| 9 | arc lup | carex | | | carex | | 19 | dua bir | carex | | | #M | |
| 9.5 | carex | | | | rei lic | 6mm | 19.5 | sue col | dua bir | | | #M | |
| 10 | carex | dua sco | | | carex | | 20 | carex | bog bir | | | #M | |
| 10.5 | carex | red alp | bla cro | | rei lic | 10mm | 20.5 | dua bir | carex | | | #M | |
| 11 | dua bir | bla cro | | | #M | | 21 | dua bir | carex | net wil | | carex | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD-5 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** +13°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dwa bir | carex | | | carex | | 11.5 | dwa bir | carex | net wil | | #M | |
| 2 | dwa bir | | | | #M | | 12 | bog blu | dwa bir | bla cro | | bla cro | |
| 2.5 | dwa bir | carex | | | carex | | 12.5 | dwa bir | bla cro | | | #M | |
| 3 | carex | dwa bir | bla cro | | bla cro | | 13 | arc blu | dwa bir | bla cro | | bla cro | |
| 3.5 | dwa bir | bla cro | | | bla cro | | 13.5 | carex | arc lup | | | carex | |
| 4 | dwa bir | red alp | bla cro | | EL | | 14 | dwa bir | arc lup | | | #M | |
| 4.5 | dwa bir | bla cro | | | bla cro | | 14.5 | dwa bir | bog blu | bla cro | | bla cro | |
| 5 | dwa bir | bla cro | | | bla cro | | 15 | carex | | | | eas lic | 25mm |
| 5.5 | carex | net wil | | | #M | | 15.5 | dwa bir | dwa sco | | | EL | |
| 6 | dwa bir | carex | | | carex | | 16 | dwa bir | carex | | | #M | |
| 6.5 | dwa bir | carex | | | EL | | 16.5 | dwa bir | | | | #M | |
| 7 | dwa bir | carex | | | EL | | 17 | ~~carex~~ | | | | #M | |
| 7.5 | dwa bir | carex | | | #M | | 17.5 | carex | | | | #M | |
| 8 | carex | #F | | | #M | | 18 | carex | arc lup | | L | EL | |
| 8.5 | dwa bir | carex | | | #M | | 18.5 | salix | dwa bir | dwa sco | L | #M | |
| 9 | ~~dwa bir~~ | | | | #M | | 19 | salix | dwa bir | | | #M | |
| 9.5 | dwa bir | dwa sco | | | #M | | 19.5 | net wil | | | | #M | |
| 10 | dwa bir | carex | | | rel lic | 10mm | 20 | salix | carex | | | #M | |
| 10.5 | dwa bir | arc lup | | | #M | | 20.5 | dwa bir | bog blu | | | #M | |
| 11 | dwa bir | net wil | | | moose lic | 2mm | 21 | dwa bir | lingon | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/26 | **Site:** SWB 12 | | **Crew:** |
| **Time start:** 3:45 PM | **Time stop:** 4:50 PM | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** willow dwarf birch net willow | **Graminoids:** carex arc. blu | **Forbs:** dandelion? horsewort s grass of Parnass s |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>70 cm<br><br>**Parent Rock:**<br>unknown. | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** thermokarst | **Evidence of fire:** None | **Evidence of wind:** windy | **Wind exposure class:** 3 |
| **Landcover class:** SWB | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>Moose pellets | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Carex / Forb | Moss |
| **Litter Depth (cm)** | 9cm | 9cm | 1cm |

**Notes:**
Photo 274° NW

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Mekhopen **Recorder:** Rubera

**Plot:** SWB 12 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +3°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | carex | | | | carex | | 11.5 | red alp | net wil | | | #M | |
| 2 | dua bir | carex | | | carex | | 12 | carex | net wil | | | #M | |
| 2.5 | dua bir | carex | | | carex | | 12.5 | carex | | | | #M | |
| 3 | salix | cinque | carex | | carex | | 13 | dua bir | red alp | carex | | #M | |
| 3.5 | salix | carex | | | carex | | 13.5 | salix | dua bir | bog blu | | #M | |
| 4 | salix | cinque | fie hor | swe col | EL | | 14 | salix | net wil | | | #M | |
| 4.5 | salix | carex | fie hor | | EL | | 14.5 | carex | bog blu | | | #M | |
| 5 | salix | dua bir | carex | | EL | | 15 | carex | | | | #M | |
| 5.5 | dua bir | carex | | | EL | | 15.5 | carex | bog blu | | | #M | |
| 6 | salix | carex | | | EL | | 16 | carex | bog blu | Lingon | | #M | |
| 6.5 | salix | | | | #M | | 16.5 | carex | | | | #M | |
| 7 | salix | dua bir | carex | | #M | | 17 | carex | bog blu | | | #M | |
| 7.5 | salix | swe col | carex | | ~~#M~~ carex | | 17.5 | carex | bog blu | | | #M | |
| 8 | carex | net wil | | | #M | | 18 | carex | | | | carex | |
| 8.5 | swe col | carex | | | carex | | 18.5 | carex | | | | #M | |
| 9 | dua bir | carex | swe col | | carex | | 19 | carex | | | | #M | |
| 9.5 | dua bir | carex | fie hor | | #M | | 19.5 | bog blu | dua sco | | | #M | |
| 10 | dua bir | swe col | net wil | | #M | | 20 | carex | ner lab | | | #M | |
| 10.5 | carex | swe col | net wil | | carex | | 20.5 | dua bir | carex | net wil | | #M | |
| 11 | carex | net wil | red alp | | carex | | 21 | carex | Lingon | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

transect 1

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Markofsen **Recorder:** Putra

**Plot:** SWB 12 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +8°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Dua bir | carex | fic hor | | EL | | 11.5 | fic hor | net wil | | | #M | |
| 2 | dua bir | carex | bla cro | | bla cro | | 12 | dua bir | carex | | | #M | |
| 2.5 | dua bir | net wil | #F | | #M | | 12.5 | arc blu | fic hor | swe col | | #M | |
| 3 | dua bir | whi mou | net wil | | EL | | 13 | NONE | | | | #M | |
| 3.5 | dua bir | whi mou | | | #M | | 13.5 | carex | fic hor | | | #M | |
| 4 | dua bir | carex | | | S | | 14 | fel wil | fic hor | swe col | | #M | |
| 4.5 | dua bir | arc blu | | | EL | | 14.5 | fel wil | dua bir | fic hor | | EL | |
| 5 | arc blu | | | | #M | | 15 | fel wil | swe col | WL | | #M | |
| 5.5 | dua bir | net wil | bog blu | | EL | | 15.5 | fel wil | carex | | | carex | |
| 6 | dua bir | carex | | | carex | | 16 | fel wil | carex | astral eqis | | carex | |
| 6.5 | carex | | | | EL | | 16.5 | dua bir | carex | | | #M | |
| 7 | carex | net wil | | | EL | | 17 | dua bir | carex | | | #M | |
| 7.5 | dua bir | carex | net wil | | #M | | 17.5 | Salix | carex | | | carex | |
| 8 | dua bir | carex | | | #M | | 18 | Salix | carex | | | #M | |
| 8.5 | carex | net wil | | | carex | | 18.5 | Carex | swe col | | | carex | |
| 9 | dua bir | carex | dua sco | | #M | | 19 | Carex | net wil | | | Carex | |
| 9.5 | carex | net wil | | | carex | | 19.5 | Carex | dua bir | | | Carex | |
| 10 | carex | net wil | | | EL | | 20 | Carex | dua bir | | | carex | |
| 10.5 | Salix | carex | net wil | clover forb | carex | | 20.5 | dual hor | carex | swe col | | #M | |
| 11 | Salix | dua bir | fic hor | net wil | carex | | 21 | Carex | dua bir | | | carex | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

#F spikey lanceolate leaf forb (2.5)

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Pberk **Recorder:** Putera

**Plot:** SWB 12 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** -6°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | are blu | carex | | carex | | 11.5 | dua bir | carex | #F | | carex | |
| 2 | carex | | | | carex | | 12 | dua bir | carex | | | #M | |
| 2.5 | dua bir | net wil | carex | | carex | | 12.5 | dua bir | carex | bog blu | | carex | |
| 3 | dua bir | carex | net wil | fic hor | carex | | 13 | carex | fic hor | | | #M | |
| 3.5 | dua bir | carex | spike leaf fab | | carex | | 13.5 | dua bir | carex | | | #M | |
| 4 | dua bir | carex | | | #M | | 14 | carex | dua bir | | | #M | |
| 4.5 | dua bir | carex | | | #M | | 14.5 | carex | | | | #M | |
| 5 | #F | carex | | | carex | | 15 | dua bir | fic hor | net wil | | #M | |
| 5.5 | dua bir | carex | bog blu | | carex | | 15.5 | dua bir | carex | | | #M | |
| 6 | dua bir | carex | | | carex | | 16 | dua bir | bog blue | carex | | bog blue | |
| 6.5 | Spikey forb F | dua birch | carex | | #M | | 16.5 | dua bir | carex | net wil | | carex | |
| 7 | dua bir | carex | | | carex | | 17 | carex | fic hor | | | #M | |
| 7.5 | dua bir | carex | bog blu | | carex | | 17.5 | carex | bog blu | | | #M | |
| 8 | dua bir | carex | fic hor | | carex | | 18 | carex | dryas | | | #M | |
| 8.5 | carex | | | | #M | | 18.5 | Salix | carex | fic hor | | #M | |
| 9 | carex | dryas | | | carex | | 19 | Carex | L | | | #M | |
| 9.5 | dryas | | | | carex | | 19.5 | Carex | net wil | L | | #M | |
| 10 | carex | dua bir | | | carex | | 20 | Carex | net wil | | | Carex | |
| 10.5 | carex | dua bir | bog blu | | EL | | 20.5 | Carex | | | | Carex | |
| 11 | dua bir | net wil | carex | | carex | | 21 | dua bir | carex | fic hor | | carex | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/27/15 | **Site:** ADD 10 | | **Crew:** |
| **Time start:** 11:00 | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** dwarf birch, blacro willow, bog blu | **Graminoids:** arctic | **Forbs:** lousewort s |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>20 cm<br><br>**Parent Rock:**<br>VOLC VOL | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** solifluc | **Evidence of fire:** none | **Evidence of wind:** windy | **Wind exposure class:** 3 |
| **Landcover class:** ADD | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>1 visual<br>pellets along transect | | | |
| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
| **Litter Type:** | Moss | Moss/lichen | unknown |
| **Litter Depth (cm)** | 1cm | 1cm | 0.5 cm |

**Notes:** Photo Pt. 10°

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Merkhofer **Recorder:** Rutera

**Plot:** ADD 10 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +8°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | arc blu | bog bir | | EL | | 11.5 | dua bir | net wil | | | M | |
| 2 | dua bir | net wil | | | M | | 12 | dua bir | none | | | fol lic | 2mm |
| 2.5 | dua bir | None | | | M | | 12.5 | dua bir | none | | | M | |
| 3 | dua bir | arc blu | | | arc blu | | 13 | dua bir | arc blu | | | eas lic | 15mm |
| 3.5 | arc blu | dua bir | | | M | | 13.5 | dua bir | arc blu | | | cetrari | 30mm |
| 4 | dua bir | None | | | cetrari lic | 15mm | 14 | dua bir | arc blu | net wil | | eas lic | 5mm |
| 4.5 | dua bir | None | | | moose lic | 30mm | 14.5 | whi mou | none | | | cetrari lic | 5mm |
| 5 | dua bir | whi mou | arc blu | | EL | | 15 | whi mou | None | | | whi mou | |
| 5.5 | dua bir | whi mou | #F | | rei lic | 5mm | 15.5 | dua bir | None | | | M | |
| 6 | dua bir | arc blu | | | cetrari lic | 20mm | 16 | dua bir | arc blue | | | arc blu | |
| 6.5 | dua bir | None | | | M | | 16.5 | arc blue | None | | | Spaf lic | 3mm |
| 7 | dua bir | None | | | M | | 17 | dua bir | whi mou | | | eas lic | 5mm |
| 7.5 | dua bir | arc blu | net wil | | rei lic | 30mm | 17.5 | arc blu | net wil | whi mou | | M | |
| 8 | dua bir | None | | | M | | 18 | arc blu | whi mou | | | cetrari lic | 5mm |
| 8.5 | dua bir | arc blu | | | M | | 18.5 | arc blu | none | | | M | |
| 9 | dua bir | arc blu | | | M | | 19 | whi mou | None | | | eas lic | 20mm |
| 9.5 | dua bir | arc blu | | | moose lic | 35mm | 19.5 | None | None | | | M | |
| 10 | none | None | | | M | | 20 | arc blu | whi mou | | | eas lic | 25mm |
| 10.5 | arc blu | dua bir | | | rei lic | 10mm | 20.5 | dua bir | None | | | M | |
| 11 | dua bir | None | | | cetrari lic | 25mm | 21 | dua bir | None | | | moose lic | 15mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** _____ **Observer:** _____ **Recorder:** Putera

**Plot:** ADD 10 **Transect ID:** 2 **Aspect:** _____ **Slope of Tape:** -9°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dwa brr | are blue | | | M | | 11.5 | dwa brr | are blu | | | are blu | |
| 2 | dwa brr | are blue | | | M | | 12 | dwa brr | are blu | | | gas lic | 5mm |
| 2.5 | are blue | None | | | gas lic | 20mm | 12.5 | are blu | None | | | are blu | |
| 3 | are blue | whi mou | | | ostr lic | 10mm | 13 | are blu | net wil | | | cas lic | 5mm |
| 3.5 | whi mou | none | | | cas lic | 10mm | 13.5 | dwa brr | are blue | net wil | | cet. lic | 10mm |
| 4 | are blue | whi mou | | | M | | 14 | dwa brr | are blue | spikey leaf forb | | M | |
| 4.5 | are blu | whi mou | | | M | | 14.5 | dwa brr | are blue | net wil | | M | |
| 5 | none | None | | | moss lic | 25mm | 15 | dwa brr | are blue | | | are blu | |
| 5.5 | dwa brr | none | | | gas lic | 5mm | 15.5 | dwa brr | are blu | | | EL | |
| 6 | are blue | dwa brr | | | M | | 16 | dwa brr | are blu | | | vag lic | 20 mm |
| 6.5 | are blue | dwa brr | | | M | | 16.5 | dwa brr | are blu | | | M | |
| 7 | dwa brr | None | | | EL | | 17 | dwa brr | are blu | | | EL | |
| 7.5 | dwa brr | net wil | | | spag lic | 2mm | 17.5 | dwa brr | are blu | | | fel lic | 20mm |
| 8 | dwa brr | are blue | | | M | | 18 | dwa brr | are blu | | | M | |
| 8.5 | dwa brr | None | | | fel lic | 1mm | 18.5 | Salix | dwa brr | | | M | |
| 9 | white mou | | | | M | | 19 | Salix | dwa brr | are blu | | EL | |
| 9.5 | are blu | whi mou | | | whi mou | | 19.5 | Salix | are blu | | | M | |
| 10 | are blu | whi mou | | | are blu | | 20 | are blu | dwa brr | | | M | |
| 10.5 | dwa brr | swe col | | | M | | 20.5 | dwa brr | swe col | are blu | | M | |
| 11 | dwa brr | | | | M | | 21 | dwa brr | are blu | | | M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:** caribou poop

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Merk **Recorder:** Putera

**Plot:** AISD10 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** 15°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | arc blu | | | spag lic | 1mm | 11.5 | whi mou | | | | M | |
| 2 | Salix | arc blu | | | cet lic | 5mm | 12 | whi mou | | | | whi mou | |
| 2.5 | arc blu | none | | | vei lic | 10mm | 12.5 | arc blu | whi mou | | | whi mou | |
| 3 | dua bir | bog blu | arc blu | | EL | | 13 | whi mou | | | | M | |
| 3.5 | Salix | bog blu | arc blu | | Rei lic | 20mm | 13.5 | arc blu | tim astral gus * | | | spag lic | 2mm |
| 4 | dua bir | arc blu | | | M | | 14 | arc blu | | | | whi moy | |
| 4.5 | dua bir | ~~cetrar~~ | | | cetr lic | 5mm | 14.5 | whi mou | none | | | cet lic | 5mm |
| 5 | dua bir | arc blu | | | M | | 15 | None | | | | S | |
| 5.5 | dua bir | bog blu | | | M | | 15.5 | whi mou | | | | cet lic | 1mm |
| 6 | dua bir | none | | | REI LIC | 25mm | 16 | sic mil | | | | cet lic | 25mm |
| 6.5 | dua bir | None | | | M | | 16.5 | None | | | | cet lic | 3mm |
| 7 | dua bir | arc blu | | | Rei lic | 20mm | 17 | arc blu | None | | | spag lic | 5mm |
| 7.5 | dua bir | Louse | arc blu | | arc blu | | 17.5 | whi mou | | | | cet lic | 2mm |
| 8 | arc blu | None | | | cet lic | 20mm | 18 | whi mou | | | | whi mou | |
| 8.5 | dua bir | net wil | | | cet lic | 15mm | 18.5 | whi mou | | | | cet lic | 3mm |
| 9 | dua bir | arc blu | | | M | | 19 | arc blu | whi mou | | | cet lic | 2mm |
| 9.5 | dua bir | None | | | cet lic | 25mm | 19.5 | None | | | | Rock | |
| 10 | dua bir | arc blu | | | arc blu | | 20 | arc blu | None | | | S | |
| 10.5 | whi mou | | | | whi mou | | 20.5 | whi mou | None | | | M | |
| 11 | None | | | | M | 1 | 21 | whi mou | None | | | spag lic | 1mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

* Sickle milkvetch

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/27/15 | **Site:** ADD14 | | **Crew:** Markhofer / Peterson |
| **Time start:** 9:15 AM | **Time stop:** 10:30 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** dwarf birch, blueberry willow, labrea | **Graminoids:** sedge, rush | **Forbs:** cloudberry |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>60 cm<br><br>**Parent Rock:**<br>Unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: Unknown<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** tussocks | **Evidence of fire:** None | **Evidence of wind:** windy | **Wind exposure class:** 3 |
| **Landcover class:** Lots of sedge for ADD - check? | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss/Sedge | Moss / Relic | Moss |
| **Litter Depth (cm)** | 5.5 cm | 4.5 cm | 13 cm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/27 **Observer:** Merkhofer **Recorder:** Rutera

**Plot:** ADD 14 **Transect ID:** ~~ADD~~ 1 **Aspect:** N **Slope of Tape:** ~8°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | carex | nor lab | | carex | | | 11.5 | dua bir | carex | | | W | |
| 2 | dua bir | lingon | nor lab | | #M | | 12 | dua bir | blacro | rush | | bla cro | |
| 2.5 | carex | bla cro | | | carex | | 12.5 | dua bir | carex | bla cro | | cetraria lic | 9mm |
| 3 | carex | lingon | nor lab | | #M | | 13 | carex | rush | lingon | | carex | |
| 3.5 | dua bir | carex | | | carex | | 13.5 | clouds | rush | | | #M | |
| 4 | carex | | | | carex | | 14 | dua bir | carex | cloudy | | #M | |
| 4.5 | carex | lingon | | | cetraria lic | 15mm | 14.5 | rush | | | | rush | |
| 5 | carex | bla cro | | | carex | | 15 | carex | | | | carex | |
| 5.5 | carex | | | | #W | | 15.5 | carex | lingon | | | #M | |
| 6 | carex | | | | #W | | 16 | carex | lingon | | | #M | |
| 6.5 | carex | | | | #M | | 16.5 | carex | | | | carex | |
| 7 | nor lab | carex | | | #M | | 17 | rush | | | | rush | |
| 7.5 | carex | | | | #M | | 17.5 | carex | | | | #M | |
| 8 | UNK rush | | | | unk rush | | 18 | dua bir | | | | #W | |
| 8.5 | rush | carex | | | S | | 18.5 | carex | nor lab | | | carex | |
| 9 | rush | carex | | | rush | | 19 | carex | bla cro | | | carex | |
| 9.5 | carex | | | | #M | | 19.5 | carex | lingon | | | carex | |
| 10 | rush | | | | rush | | 20 | rush | | | | fellic | 5mm |
| 10.5 | carex | | | | carex | | 20.5 | carex | | | | carex | |
| 11 | carex | | | | carex | | 21 | rush | | | | rush | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

Photo 10° N aspect

#W=water

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Markham **Recorder:** Putna

**Plot:** ADD 14 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** SE +6°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Carex | | | | W | | 11.5 | Rush | | | | Rush | |
| 2 | Carex | | | | #M | | 12 | Carex | Rush | | | Carex | |
| 2.5 | Rush | Carex | | | Carex | | 12.5 | Carex | | | | Carex | |
| 3 | Carex | | | | W | | 13 | dwarf bir | nor lab | Rush | | #M | |
| 3.5 | Carex | nor lab | | | M | | 13.5 | dwarf bir | Rush | Ivgon | | Rush | |
| 4 | Carex | | | | Carex | | 14 | Rush | nor lab | Rush | | | |
| 4.5 | Carex | | | | Soil | | 14.5 | Carex | | | | Carex | |
| 5 | Carex | | | | Carex | | 15 | Rush | | | | M | |
| 5.5 | nor lab | Carex | | | M | | 15.5 | nor lab | [illegible] | Rush | | M | |
| 6 | Rush | bla cro | | | Rush | | 16 | Rush | clouds | | | Rush | |
| 6.5 | Rush | nor lab | | | Rush | | 16.5 | Rush | nor lab | Ivgon | | Cetraria lic | 11mm |
| 7 | Carex | | | | Carex | | 17 | Carex | | | | Cetraria lic | 18mm |
| 7.5 | Carex | | | | W | | 17.5 | dwarf bir | nor lab | carex | | Carex | |
| 8 | Rush | dwarf bir | | | Rush | | 18 | Carex | | | | #M | |
| 8.5 | Rush | | | | Rush | | 18.5 | Carex | | | | Carex | |
| 9 | Rush | bla cro | | | M | | 19 | Carex | | | | rei lic | 20mm |
| 9.5 | Rush | | | | M | | 19.5 | Carex | | | | Carex | |
| 10 | Rush | dwarf bir | | | M | | 20 | Salix | Rush | bla cro | | bla cro | |
| 10.5 | Carex | | | | Carex | | 20.5 | Rush | bla cro | | | bla cro | |
| 11 | Carex | | | | Carex | | 21 | Dwarf bir | ~~lichen~~ Ivgon | | | cetraria lic | 5mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Markham **Recorder:** Pintera

**Plot:** ADD14 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** +5°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Carex | nor lab | | | Carex | | 11.5 | Carex | bla cro | | | carex | |
| 2 | Carex | nor lab | | | #M | | 12 | Carex | bla cro | lingon | | #M | |
| 2.5 | Carex | bla cro | | | Carex | | 12.5 | Carex | bouse sp. | lingon | | #M | |
| 3 | Carex | bla cro | | | Rei lic | 30mm | 13 | Dwa bir | carex | nor lab | | #M | |
| 3.5 | Carex | | | | #M | | 13.5 | Carex | | | | carex | |
| 4 | Carex | nor lab | | | Carex | | 14 | Carex | | | | Carex | |
| 4.5 | Rush | | | | Rush | | 14.5 | Carex | nor lab | | | nor lab | |
| 5 | Carex | bla cro | | | #M | | 15 | Rush | | | | Rush | |
| 5.5 | Rush | | | | Rush | | 15.5 | nor lab | | | | #M | |
| 6 | Carex | nor lab | | | M# | | 16 | Rush | | | | Rush | |
| 6.5 | Dwa bir | nor lab | bla cro | | bla cro | | 16.5 | Rush | | | | Rush | |
| 7 | Dwa bir | nor lab | | | nor lab | | 17 | Carex | | | | Carex | |
| 7.5 | Carex | nor lab | bla cro | | carex | | 17.5 | bla cro | | | | #M | |
| 8 | dwa bir | clouds | lingon | | #M | | 18 | Carex | nor lab | | | #M | |
| 8.5 | carex | nor lab | bla cro | | #M | | 18.5 | Salix | Carex | dwa bir | | Rei lic | 15mm |
| 9 | dwa bir | carex | nor lab | | #M | | 19 | Carex | | | | #M | |
| 9.5 | ~~Rush~~ | Clouds | | | Rush | | 19.5 | nor lab | lingon | # | | rei lic | 35mm |
| 10 | Carex | | | | #M | | 20 | nor lab | | | | #M | |
| 10.5 | Carex | | | | Carex | | 20.5 | none | | | | #M | |
| 11 | Carex | Dwa bir | | | Carex | | 21 | nor lab | dwa bir | bla cro | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/27/15 | **Site:** ADD 7 | | **Crew:** |
| **Time start:** 4:50 | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** willow hotwail dwarfbir norlab blacro | **Graminoids:** sedge | **Forbs:** monkshood sweetcoltsfoot |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 120 E<br>*Max slope:* 24<br>*Slope length:* 400m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>90 cm<br><br>**Parent Rock:**<br>unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: none |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** windy | **Wind exposure class:** 3 |
| **Landcover class:** very shrubby, prob not ADD - SWB or ASD? | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>1 caribou nearby | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Ac Mnt/Avens | MOSS | MOSS |
| **Litter Depth (cm)** | 2cm | 8cm | 2cm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/27/17 **Observer:** Merk **Recorder:** Peters

**Plot:** ADD7 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +4°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | net wil | bla cro | | | #M | | 11.5 | Salix | carex | net wil | | EL | |
| 2 | willow | red alp | bla cro | | EL | | 12 | Salix | swe col | carex | net wil | carex | |
| 2.5 | dua bir | red alp | | | #M | | 12.5 | Salix | fie hor | red alp | carex | carex | |
| 3 | bog bla | carex | | | #M | | 13 | Salix | swe col | fie hor | net wil | #M | |
| 3.5 | carex | | | | #M | | 13.5 | Carex | fie hor | net wil | | carex | |
| 4 | Carex | dua bir | | | #M | | 14 | dua bir | net wil | carex | | carex | |
| 4.5 | nor lab | carex | | | carex | | 14.5 | Salix | carex | net wil | | #M | |
| 5 | dua bir | net wil | swe col | | #M | | 15 | Salix | fie hor | carex | astral sp. | carex | |
| 5.5 | dua bir | carex | nor lab | | #M | | 15.5 | Salix | fie hor | | | EL | |
| 6 | Carex | | | | Carex | | 16 | Salix | fie hor | | | #M | |
| 6.5 | Carex | | | | Carex | | 16.5 | Salix | nor lab | | | EL | |
| 7 | swe col | carex | | | carex | | 17 | Salix | carex | | | EL | |
| 7.5 | Salix | swe col | carex | | carex | | 17.5 | Salix | dua bir | carex | | #M | |
| 8 | fel wil | nor lab | swe col | | #M | | 18 | Salix | | | | #M | |
| 8.5 | salix | carex | | | #M | | 18.5 | Salix | net wil | fie hor | | Carex | |
| 9 | Salix | carex | net wil | | carex | | 19 | Carex | fie hor | net wil | | carex | |
| 9.5 | carex | | | | #M | | 19.5 | dua bir | astral spp | fie hor | | #M | |
| 10 | fie hor | carex | | | carex | | 20 | fie hor | dua bir | net wil | | #M | |
| 10.5 | carex | net wil | | | carex | | 20.5 | fie hor | | | | S | |
| 11 | carex | swe col | | | carex | | 21 | fie hor | astral spp | | | S | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/26/15 **Observer:** Merkhofer **Recorder:** Dutra

**Plot:** ADD 7 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** -24°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | None | | | #M | | 11.5 | dua bir | carex | | | carex | |
| 2 | dua bir | Lupin | Carex | | carex | | 12 | Salix | carex | | | #M | |
| 2.5 | dua bir | carex | | | carex | | 12.5 | dua bir | carex | | | #M | |
| 3 | dua bir | bla cro | | | bla cro | | 13 | Salix | dua bir | carex | | #M | |
| 3.5 | Salix | dua bir | bla cro | | bla cro | | 13.5 | dua bir | sur col | carex | | #M | |
| 4 | Salix | ast aqu | bla cro | | bla cro | | 14 | Salix | carex | | | carex | |
| 4.5 | dua bir | arc blu | | | #M | | 14.5 | Salix | sur col | carex | | #M | |
| 5 | Salix | carex | bla cro | | carex | | 15 | Salix | carex | | | #M | |
| 5.5 | Salix | dua bir | bla cro | | bla cro | | 15.5 | Salix | hor lab | | | #M | |
| 6 | Salix | arc blu | bla cro | | bla cro | | 16 | Salix | hor lab | | | #M | |
| 6.5 | dua bir | Salix | lupin | bla cro carex | bla cro | | 16.5 | Salix | carex | fie hor | | carex | |
| 7 | Salix | dua bir | | | #M | | 17 | dua bir | fie hor | | | #M | |
| 7.5 | Salix | dua bir | | | EL | | 17.5 | None | | | | W | |
| 8 | Salix | None | | | #M | | 18 | Salix | fie hor | | | W | |
| 8.5 | Salix | bog blu | | | EL | | 18.5 | Salix | carex | | | carex | |
| 9 | dua bir | fie hor | bog blu | | EL | | 19 | Salix | fie hor | sur col | carex | carex | |
| 9.5 | dua bir | carex | | | carex | | 19.5 | Salix | None | | | #M | |
| 10 | Salix | carex | | | EL | | 20 | Salix | None | | | #M | |
| 10.5 | Salix | carex | | | #M | | 20.5 | Salix | None | | | #M | |
| 11 | dua bir | Salix | fie hor | | EL | | 21 | Salix | fie hor | red alp | carex | carex | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Markhofer **Recorder:** Putera

**Plot:** ABA 7 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** +15°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Salix | dwa bir | | | M | | 11.5 | dwa bir | bog blu | lingon | | EL | |
| 2 | Salix | bog blu | Carex | | M | | 12 | dwa bir | arc blu | | | #M | |
| 2.5 | Carex | | | | Carex | | 12.5 | dwa bir | arc blu | | | #M | |
| 3 | Carex | | | | Carex | | 13 | dwa bir | carex | | | #M | |
| 3.5 | bog blu | Carex | | | Carex | | 13.5 | arc blu | dwa bir | carex | net wil | #M | |
| 4 | Carex | | | | Carex | | 14 | net wil | | | | #M | |
| 4.5 | Carex | | | | Carex | | 14.5 | bog blu | carex | net wil | | #M | |
| 5 | dwa bir | | | L | #M | | 15 | Carex | lingon | | | #M | |
| 5.5 | dwa bir | swe col | carex | | #M | | 15.5 | Carex | | | | Carex | |
| 6 | dwa bir | swe col | carex | | #M | | 16 | dwa bir | net wil | | | #M | |
| 6.5 | dwa bir | arc blu | | | arc blu | | 16.5 | dwa bir | carex | | | #M | |
| 7 | Salix | dwa bir | fie hor | | EL | | 17 | carex | dwa bir | | | #M | |
| 7.5 | Salix | fie hor | | | EL | | 17.5 | carex | dwa bir | | | carex | |
| 8 | Salix | fie hor | | | EL | | 18 | net wil | carex | | | carex | |
| 8.5 | Salix | fie hor | | | EL | | 18.5 | carex | | | | #M | |
| 9 | Salix | dwa bir | nor lab | | #M | | 19 | Carex | | | | #M | |
| 9.5 | nor lab | | | | #M | | 19.5 | Carex | net wil | | | #M | |
| 10 | dwa bir | nor lab | carex | | #M | | 20 | Carex | dwa bir | | | Carex | |
| 10.5 | Carex | bog blu | | | #M | | 20.5 | dwa bir | arc blu | | | #M | |
| 11 | dwa bir | carex | fie hor | lingon | carex | | 21 | dwa bir | carex | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/27/15 | **Site:** ADD13 | | **Crew:** |
| **Time start:** 2:40PM | **Time stop:** | **Latitude:** | **Longitude:** |
| **Elevation:** 6150m | | | |
| **Dom Trees:** None | **Shrubs:** Willow | **Graminoids:** sedge | **Forbs:** Saussurea |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 20°<br>*Max slope:* 30°<br>*Slope length:* 1600m?<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>10 cm<br><br>**Parent Rock:**<br>Volcanic | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** Heave | **Evidence of fire:** None | **Evidence of wind:** wind | **Wind exposure class:** 3 |
| **Landcover class:** Barren | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>5 caribou together — 3 cows, yearling + calf | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Lichen/Moss | None | sedge |
| **Litter Depth (cm)** | 1 cm | | 3 mm |

**Notes:**

Photo 220°
transect 2 in notebook

# Cover Transect Data Sheet

**Date:** 7/27/13 **Observer:** JP **Recorder:** LM

**Plot:** ADD13 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** ~30°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | whimau | | | | whimau | | 11.5 | None | | | | S | |
| 2 | whimau | | | | whimau | | 12 | None | | | | M | |
| 2.5 | whimau | | | | spag lic | 3mm | 12.5 | whimau | | | | ~~whit~~ cetraria | 5mm |
| 3 | whimau | | | | whimau | | 13 | None | | | | S | |
| 3.5 | whimau | | | | whimau | | 13.5 | whimau | | | | S | |
| 4 | None | | | | R | | 14 | None | | | | S | |
| 4.5 | whimau | | | | ~~whimau~~ M | | 14.5 | None | | | | S | |
| 5 | oxy? tropis | whimau | | | whimau | | 15 | whimau | | | | R | |
| 5.5 | oxy? | | | | S | | 15.5 | None | | | | S | |
| 6 | whimau | | | | whimau | | 16 | None | | | | R | |
| 6.5 | whimau | | | | whimau | | 16.5 | None | | | | S | |
| 7 | whimau | | | | whimau | | 17 | whimau | | | | whimau | |
| 7.5 | willow? | #G | | | #G | | 17.5 | None | | | | R | |
| 8 | #G | | | | S | | 18 | None | | | | M | |
| 8.5 | whimau | | | | whimau | | 18.5 | None | | | | R | |
| 9 | whimau | | | | whimau | | 19 | None | | | | R | |
| 9.5 | None | | | | R | | 19.5 | None | | | | R | |
| 10 | #G | | | | #G | | 20 | None | | | | M | |
| 10.5 | whimau | | | | ~~whimau~~ S | | 20.5 | None | | | | R | |
| 11 | whimau | | | | R | | 21 | None | | | | R | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

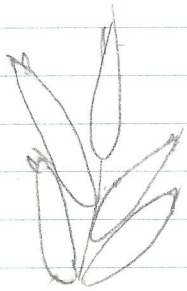
**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**
collected oxy?: blue flower upright hairy seed pods, larger leaves — also smaller leafed variety = scammon's toccoweed
ID #G = carex
2) willow?: very small entire leaves
3) Unbranched reilic = straight w/ 2 branches at top = cladonia sp

## 5. Altai Fescue

purplish bronze



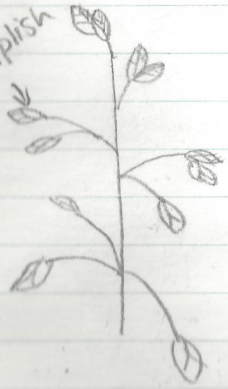


- 30-100 cm tall
- densely tufted bunch grass
- old leaf sheaths persistant
- inflorences spindly, often bent down

- dry meadows > tundra

## 6. Arctic bluegrass

purplish





- 10-50 cm tall
- blades flat to somewhat enrolled
- inflorescence open, pyramid to egg shaped, sparse
- mesic to wet meadows streambanks, rocky slopes tundra.



ADP 13 7/27/13

Transect 2 Layer — Soil surface/m

| | | |
|---|---|---|
| | whimou | S |
| 2 | whimou | S |
| | None | spaglic 2mm |
| 3 | None | M |
| | None | R |
| 4 | None | R |
| | None | reinlic 10mm |
| 5 | whimou | whimou |
| | None | ~~spiderlic~~ R ~~R~~ to |
| 6 | None | reinlic |
| | None | spiderlic 10mm |
| 7 | None ~~festuria~~ | cetrana 5mm |
| | None | M |
| 8 | None | M |
| | None | M |
| 9 | None | M |
| | None | M |
| 10 | None | M |
| | None | M |
| 11 | None | M |
| | None | M |
| 12 | None | unbranched Reinlic 2 |
| | None | M |
| 13 | None | R |
| | None | R |

| | | | |
|---|---|---|---|
| — | None | M | |
| 15 | None | Reinlic | 8 |
| | None | easterlic | |
| 16 | None | Reinlic | 5 |
| | None | cetraria | 5 |
| 17 | None | cetraria | 1 |
| | None | R | |
| 18 | None | reindec | 15 |
| | None | M | |
| 19 | None | R | |
| | None | R | |
| 20 | None | R | |
| | None | reinlic | 10 |
| 21 | None | R | |

litter = 0 - Rock (None)

Transect slope -

Plant ID

1) "White heather"/whihea = arctic sandwort. Minuartia obtusiloba

2) Oxy? = Scammon's locoweed

Oxytropis scammaniana > black hairy pods born upright in pairs of 2 - blue/purple flower



ASD1

1

N

# Cover Transect Data Sheet

**Date:** 7/27/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ADD 13 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** 45°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | whi mou | carex | | | whi mou | | 11.5 | None | | | | R | |
| 2 | carex | whi mou | | | carex | | 12 | purple carex | | | | S | |
| 2.5 | None | | | | S | | 12.5 | None | | | | #M | |
| 3 | carex | | | | carex | | 13 | willow? #S | | | | #M | |
| 3.5 | red sm carex | | | | R | | 13.5 | carex | | | | #M | |
| 4 | None | | | | S | | 14 | None | | | | #M | |
| 4.5 | #S willow? | | | | #S willow? | | 14.5 | None | | | | S | |
| 5 | carex | #S willow? | | | #S willow? | | 15 | None | | | | S | |
| 5.5 | carex | #S willow? | | | #M | | 15.5 | carex | whi mou | | | S | |
| 6 | None | | | | R | | 16 | whi hea | | | | finger lic | 5mm |
| 6.5 | None | | | | S | | 16.5 | whi mou | carex | | | whi mou | |
| 7 | willow? | | | | spag lic | 2mm | 17 | whi mou | | | | whi mou | |
| 7.5 | carex | | | | R | | 17.5 | carex | whi mou | | | #M | |
| 8 | None | | | | R | | 18 | carex | | | | spag lic | 2mm |
| 8.5 | None | | | | S | | 18.5 | #S willow? | whi mou | | | finger lic | 5mm |
| 9 | whi hea | | | | #M | | 19 | None | | | | R | |
| 9.5 | None | | | | #M | | 19.5 | None | | | | R | |
| 10 | None | | | | R | | 20 | Carex | | | | finger lic | 3mm |
| 10.5 | whi mou | | | | whi mou | | 20.5 | Whi mou | | | | whi mou | |
| 11 | None | | | | #M | | 21 | None | | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** #S small tiny shrub willow? = not willow, #S
whi hea = white heather = arctic sandwort

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/28/15 | **Site:** ATS 2 | | **Crew:** JP+LM |
| **Time start:** 5:00 PM | **Time stop:** 6:00 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** willow dwarf birch blueberry | **Graminoids:** alt fescue | **Forbs:** None ? |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>20cm<br><br>**Parent Rock:**<br>~~LAKE~~<br>volc | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** windy | **Wind exposure class:** 4 |
| **Landcover class:** | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss | Moss/Lichen |
| **Litter Depth (cm)** | 4.5cm | 3cm | 2cm |

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/28 **Observer:** Merkhofer **Recorder:** Futara

**Plot:** ATS2 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -2°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | dua bir | alt fes | | | fel lic | 45mm | 11.5 | dua bir | | | | eas lic | 5mm |
| 2 | Salix | dua bir | | | #M | | 12 | none trail | | | | S | |
| 2.5 | Salix | none | | | #M | | 12.5 | #trail Grass | | | | S | |
| 3 | dua bir | None | | | #M | | 13 | dua bir | alt fes | | | EL | |
| 3.5 | dua bir | Lrgon | | | #M | | 13.5 | dua bir | alt fes | | | fel lic | 5mm |
| 4 | dua bir | Lrgon | | | #M | | 14 | dua bir | lrgon | | | #M | |
| 4.5 | dua bir | | | | #M | | 14.5 | dua bir | | | | #M | |
| 5 | dua bir | alt fes | | | #M | | 15 | dua bir | | | | cup lic | 20mm |
| 5.5 | dua bir | alt fes | | | fel lic | 5mm | 15.5 | dua bir | alt fes | | | #M | |
| 6 | dua bir | bla cro | | | #M | | 16 | alt fes | lrgon | | | EL | |
| 6.5 | Salix | bla cro | | | bla cro | | 16.5 | dua bir | alt fes | lrgon | | #M | |
| 7 | dua bir | alt fes | | | fel lic | 5mm | 17 | dua bir | alt fes | | | #M | |
| 7.5 | dua bir | alt fes | | | #M | | 17.5 | dua bir | alt fes | | | #M | |
| 8 | None | | | | Rei lic | 20mm | 18 | dua bir | alt fes | | | #M | |
| 8.5 | None | | | | #M | | 18.5 | None | | | | #M | |
| 9 | alt fes | dua bir | lrgon | | #M | | 19 | alt fes | dua bir | | | #M | |
| 9.5 | None | lrgon | | | lrgon | | 19.5 | dua bir | lrgon | | | EL | |
| 10 | ~~dua bir~~ | lrgon | | | fel lic | 10mm | 20 | dua bir | | | | #M | |
| 10.5 | Salix | alt fes | | | #M | | 20.5 | dua bir | alt fes | | | Rei lic | 25mm |
| 11 | dua bir | | | | #M | | 21 | dua bir | alt fes | | | #M | |

dua bir

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

Photo at 270°(W)

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Mark Hopen **Recorder:** Putera

**Plot:** ATS-2 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +2°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | alt fes | dua bir | | | #M | | 11.5 | dua bir | lingon | | | #M | |
| 2 | dua bir | #Gram | | | fol lic | 2mm | 12 | None | | | | #M | |
| 2.5 | dua bir | ag fes | | | #M | | 12.5 | dua bir | | | | cet lic | 25mm |
| 3 | dua bir | alt fes | | | Rei Lic | 30mm | 13 | alt fes | | | | rei lic | 15mm |
| 3.5 | dua bir | Salix | | | #M | | 13.5 | None | | | | #M | |
| 4 | alt fes | dua bir | | | #M | | 14 | Carex | lingon | | | #M | |
| 4.5 | dua bir | alt fes | | | #M | | 14.5 | dua bir | carex | | | #M | |
| 5 | None | | | | #M | | 15 | dua bir | | | | #M | |
| 5.5 | lingon | alt fes | | | #M | | 15.5 | dua bir | | | | #M | |
| 6 | #Gram | | | | Rei lic | 25mm | 16 | dua bir | lingon | | | lingon | |
| 6.5 | #Gram | | | | cet Lic | 15mm | 16.5 | dua bir | | | | Rei lic | 35mm |
| 7 | None | | | | #M | | 17 | dua bir | | | | #M | |
| 7.5 | None | | | | Rei Lic | 30mm | 17.5 | None | | | | Rei lic | 25mm |
| 8 | Carex | | | | Rei Lic | 10mm | 18 | dua bir | Alt fes | | | #M | |
| 8.5 | Carex | | | | Rei Lic | 20mm | 18.5 | dua bir | Alt fes | | | Alt fes | |
| 9 | None | | | | #M | | 19 | Alt fes | | | | #M | |
| 9.5 | Carex | | | | Eas lic | 20mm | 19.5 | Alt fes | dua bir | | | #M | |
| 10 | None | | | | Rei Lic | 20mm | 20 | dua bir | lingon | | | #M | |
| 10.5 | dua bir | lingon | | | #M | | 20.5 | dua bir | | | | #M | |
| 11 | None | | | | #M | | 21 | dua bir | lingon | | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)

R = rock (> 5 mm fragment)

BR = bedrock

S = soil

EL= embedded litter

**Unknown species codes:**

#T = tree

#S = shrub

#F = forb

#G = graminoid

#L = lichen

#M = moss

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Merhoff **Recorder:** Rubio

**Plot:** ATS-2 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** ~11°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | None | | | cet lic → | | 5mm | 11.5 | dua bir | lingon | | | Rei lic | 35mm |
| 2 | ~~None~~ lingon | | | | lingon | | 12 | dua bir | alt fes | bla cro | | bla cro | |
| 2.5 | None | | | | rei lic | 25mm | 12.5 | Salix | dua bir | bla cro | | bla cro | |
| 3 | alt fes | | | | cet lic | 40mm | 13 | dua bir | bla cro | | | bla cro | |
| 3.5 | lingon | | | | lingon | | 13.5 | dua bir | lingon | | | lingon | |
| 4 | None | | | | Rei lic | 20mm | 14 | alt fes | | | | #M | |
| 4.5 | alt fes | | | | #M | | 14.5 | dua bir | lingon | | | Rei lic | 10mm |
| 5 | None | | | | #M | | 15 | dua bir | lingon | | | #M | |
| 5.5 | None | | | | cet lic | 3mm | 15.5 | Carex | | | | Rei lic | 10mm |
| 6 | alt fes | | | | #M | | 16 | dua bir | | | | #M | |
| 6.5 | lingon | | | | lingon | | 16.5 | carex | | | | Rei lic | 25mm |
| 7 | lingon | | | | lingon | | 17 | dua bir | lingon | | | Rei lic | 5mm |
| 7.5 | None | | | | Rei lic | 35mm | 17.5 | dua bir | alt fes | | | #M | |
| 8 | Kinik | | | | Rei lic | 20mm | 18 | dua bir | | | | #M | |
| 8.5 | None | | | | #M | | 18.5 | #Gram | | | | rei lic | 30mm |
| 9 | alt fes | kinnik | | | Rei lic | 25mm | 19 | dua bir | alt fes | | | #M | |
| 9.5 | None | | | | #M | | 19.5 | alt fes | | | | Rei lic | 30mm |
| 10 | bla cro | | | | #M | | 20 | alt fes | | | | Rei lic | 5mm |
| 10.5 | None | | | | Rei lic | 30mm | 20.5 | None | | | | Rei lic | 20mm |
| 11 | dua bir | lingon | | | lingon | | 21 | dua bir | | | | Rei lic | 30mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/28/15 | **Site:** ASD1 | | **Crew:** JP+LM |
| **Time start:** 0934 | **Time stop:** 10:59 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** willow whispr | **Shrubs:** kinnik | **Graminoids:** bluegra many sedge | **Forbs:** fireweed |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* E<br>*Max slope:* trans?<br>*Slope length:* 800m<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>30cm<br><br>**Parent Rock:**<br>unk | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** maybe dead trees shrubs | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 |
| **Landcover class:** ASD | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |
| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
| **Litter Type:** | NO PIC | | |
| **Litter Depth (cm)** | | | |

**Notes:**

Photo to 162° S

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD 1 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +16°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #Gram | kmnik | | | kmnik | | 11.5 | arc blu | kmnik | | | #M | |
| 2 | kmnik | lingon | | | lingon | | 12 | #Grass | kmnik | | | #M | |
| 2.5 | kmnik | | | | #M | | 12.5 | Salix | kmnik | #Grass | | #M | |
| 3 | kmnik | | | | #M | | 13 | arc blue | kmnik | | | kmnik | |
| 3.5 | blacro | kmnik | | | #M | | 13.5 | lingon | kmnik | | | #M | |
| 4 | None | | | | #M | | 14 | Alt fes | fireweed | | | #M | |
| 4.5 | #Gram | kmnik | | | #M | | 14.5 | arc blu | lingon | | | felric | 2mm |
| 5 | kmnik | | | | EL | | 15 | #Grass | kmnik | | | kmnik | |
| 5.5 | kmnik | bla cro | | | bla cro | | 15.5 | #Grass | kmnik | | | kmnik | |
| 6 | #Grass | kmnik | lingon | | #M | | 16 | fireve | #Grass | whi mou | | whi mou | |
| 6.5 | bla cro | | | | #M | | 16.5 | #G | whi mou | kmnik | | kmnik | |
| 7 | None | | | | cupfic | 25mm | 17 | kmnik | | | | kmnik | |
| 7.5 | bla cro | | | | bla cro | | 17.5 | Alt fes | kmnik | | | #M | |
| 8 | lingon | | | | #M | | 18 | kmnik | | | | kmnik | |
| 8.5 | kmnik | lingon | | | #M | | 18.5 | bla cro | | | | #M | |
| 9 | Alt fes | kmnik | | | #M | | 19 | #Grass | bla cro | | | bla cro | |
| 9.5 | kmnik | lingon | | | #M | | 19.5 | kmnik | | | | kmnik | |
| 10 | #Grass | kmnik | | | #M | | 20 | kmnik | | | | kmnik | |
| 10.5 | kmnik | bla cro | | | #M | | 20.5 | kmnik | | | | #M | |
| 11 | Alt fes | kmnik | | | #M | | 21 | kmnik | | | | kmnik | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** arc blu - unknown

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Markgren **Recorder:** Peter

**Plot:** ASD-1 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** ~35°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Alt fes | Kinnik | | | #M | | 11.5 | bla cro | | | | #M | |
| 2 | #Grass | kinnik | | | #M | | 12 | Alt fes | bla cro | | | bla cro | |
| 2.5 | Alt fes | | | | #M | | 12.5 | Alt fe | kinik | bla cro | | bla cro | |
| 3 | Kinnik | | | | #M | | 13 | Alt fes | Kinnik | | | eas lic | ~6 mm |
| 3.5 | Alt fes | Cinque | | | #M | | 13.5 | Alt fes | Kinnik | | | #M | |
| 4 | #Grass | Cinque | | | #Grass | | 14 | kinnik | | | | Kinnik | |
| 4.5 | Alt fes | | | | Alt fes | | 14.5 | kinnik | lingon | | | kinnik | |
| 5 | Alt fes | | | | #M | | 15 | kinnik | | | | Kinnik | |
| 5.5 | kinnik | | | | #M | | 15.5 | kinnik | | | | Kinnik | |
| 6 | #Grass | lingon | | | #M | | 16 | Cinque | #F lily | #Grass | | #Grass | |
| 6.5 | Alt fes | kinnik | | | EL | | 16.5 | kinnik | | | | kinnik | |
| 7 | fireweed | kinnik | | | #M | | 17 | Kinnik | | | | #M | |
| 7.5 | #Grass | Kinnik | | | #Grass | | 17.5 | fireweed | Kinnik | | | Kinnik | |
| 8 | #Grass | bla cro | | | bla cro | | 18 | Alt fes | kinnik | lingon | | lingon | |
| 8.5 | #Grass | bla cro | | | bla cro | | 18.5 | #Grass | kinnik | | | Kinnik | |
| 9 | Kinnik | | | | #M | | 19 | fireweed | alt fes | Kinnik | | #M | |
| 9.5 | #Grass | kinnik | | | Kinnik | | 19.5 | Salix | #Grass | #F | | Kinnik | |
| 10 | #F lily | | | | #M | | 20 | Salix | #Grass | Kinnik | | #Grass | |
| 10.5 | bla cro | | | | bla cro | | 20.5 | Salix | kinnik | | | Kinnik | |
| 11 | bla cro | kinnik | | | bla cro | | 21 | Alt fes | | | | S | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** #F - lily like Forb = death camas

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Merkhofer **Recorder:** Putera

**Plot:** ASD-1 **Transect ID:** 3 **Aspect:** SW **Slope of Tape:** ~40

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | bla cro | # Grass | Kinnik | | #M | | 11.5 | dwa bir | | | | fel lic | 7mm |
| 2 | bla cro | Alt fes | | | bla cro | | 12 | dwa bir | | | | #M | |
| 2.5 | # Grass | bla cro | | | bla cro | | 12.5 | Salix | dwa bir | | | EL | |
| 3 | Empe | # lilyF | bla cro | | bla cro | | 13 | Salix | dwa bir | Ingon | | EL | |
| 3.5 | Kinnik | | | | Kinnik | | 13.5 | dwa bir | nor lab | Ingon | | EL | |
| 4 | # Grass | Kinnik | | | #M | | 14 | nor lab | dwa bir | Ingon | | #M | |
| 4.5 | fireweed | # Grass | Kinnik | | #M | | 14.5 | Salix | dwa bir | | | #M | |
| 5 | dwa bir | # Grass | Ingon | | fel lic | 35mm | 15 | Salix | # Grass | Ingon | | EL | |
| 5.5 | # Grass | Kinnik | | | # Grass | | 15.5 | Dwa bir | Salix | bla cro | | bla cro | |
| 6 | Salix | alt fes | Kinnik | | Kinnik | | 16 | Dwa bir | # Grass | bla cro | | bla cro | |
| 6.5 | Salix | # Gras | dwa bir | bla cro | bla cro | | 16.5 | Ingon | | | | #M | |
| 7 | Salix | alt fes | | | alt fes | | 17 | Dwa bir | Ingon | | | Ingon | |
| 7.5 | Salix | not wil | | | #M | | 17.5 | Dwa bir | | | | #M | |
| 8 | Salix | L | " | | EL | | 18 | # Grass | | | | #M | |
| 8.5 | Salix | # Grass | | | #M | | 18.5 | Nor lab | Ingon | | | #M | |
| 9 | Salix | Alt fes | | | #M | | 19 | # Grass | dwa bir | bla cro | | bla cro | |
| 9.5 | Salix | dwa bir | | | EL | | 19.5 | None | | | | Rei lic | 25mm |
| 10 | Salix | dwa bir | # Grass | bla cro | bla cro | | 20 | None | | | | Rei lic | 30mm |
| 10.5 | dwa bir | bla cro | | | bla cro | | 20.5 | nor lab | # Grass | | | Rei lic | 15mm |
| 11 | dwa bir | # Grass | | | #M | | 21 | Salix | nor lab | dwa sco | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

easter c reindeer lichen off transect

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/28/15 | **Site:** SWB2 | | **Crew:** |
| **Time start:** 2:41 | **Time stop:** 4:00 PM | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** white spruce willow | **Shrubs:** bog blu lingon | **Graminoids:** sedge | **Forbs:** saxy cold foot |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:* 210°<br>*Max slope:* transect 1<br>*Slope length:* 800<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>30 cm<br><br>**Parent Rock:**<br>volc | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: rockfall/talus<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 |
| **Landcover class:** SWB | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Herbaceous lichen | herbaceous |
| **Litter Depth (cm)** | 6cm | 4cm | 1cm |

**Notes:**

Photo to N

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Merkhofer **Recorder:** Putnam

**Plot:** SWB-1 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** +30°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Salix | bog blu | | | EL | | 11.5 | bog blu | dwa bir | carex | | #M | |
| 2 | Salix | bog blue | | | EL | | 12 | carex | | | | #M | |
| 2.5 | bog blu | | | | #M | | 12.5 | nor lab | carex | | | #M | |
| 3 | bog blu | | | | EL | | 13 | Salix | carex | bog blu | | carex | |
| 3.5 | fireweed | carex | bog blu | | EL | | 13.5 | cinque | bog blu | carex | | EL | |
| 4 | dwa bir | bog blu | | | crust | 20mm | 14 | bog blu | dwa bir | | | #M | |
| 4.5 | dwa bir | carex | bog blu | | EL | | 14.5 | Salix | bog blu | #F | | EL | |
| 5 | Salix | bog blu | | | EL | | 15 | dwa bir | bog blu | carex | | #M | |
| 5.5 | Salix | bog blu | carex | | EL | | 15.5 | carex | bog blu | | | #M | |
| 6 | carex | bog blu | | | #M | | 16 | carex | bog blu | | | carex | |
| 6.5 | bog blu | net wil | | | #M | | 16.5 | dwa bir | carex | bog blu | | #M | |
| 7 | dwa bir | bog blu | | | EL | | 17 | dwa bir | carex | bog blu | | #M | |
| 7.5 | dwa bir | carex | | | fol lic | 5mm | 17.5 | dwa bir | carex | fie hor | | #M | |
| 8 | Salix | bog blu | carex | | #M | | 18 | dwa bir | carex | bog blu | | carex | |
| 8.5 | Salix | bog blu | carex | | #M | | 18.5 | dwa bir | red alp | | | #M | |
| 9 | Salix | dwa bir | carex | | carex | | 19 | Salix | dwa bir | bog blu | nor lab | #M | |
| 9.5 | bog blue | nor lab | carex | | carex | | 19.5 | Salix | nor lab | red alp | | EL | |
| 10 | carex | | | | carex | | 20 | Salix | carex | bla cro | | EL | |
| 10.5 | Salix | bog blu | carex | | carex | | 20.5 | Salix | bog blu | carex | | EL | |
| 11 | dwa bir | carex | | | EL | | 21 | Salix | dwa bir | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Merkhofer **Recorder:** Pretera

**Plot:** SWB-1 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +4°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | nor lab | bog blu | | | #M | | 11.5 | Salix | bog blu | | | EL | |
| 2 | bog blu | None | | | EL | | 12 | Salix | bog blu | carex | | carex | |
| 2.5 | Salix | bog blu | Kmik | | Kmik | | 12.5 | Carex | bog blu | | | carex | |
| 3 | Salix | ~~bog~~ fivewe | alt fes | lingon | lingon | | 13 | Carex | None | | | #M | |
| 3.5 | Salix | ~~fivewe~~ alp swe | fivewe | | EL | | 13.5 | Kimik | None | | | #M | |
| 4 | Salix | alt fes | | | EL | | 14 | alt fes | Kmik | | | #M | |
| 4.5 | Salix | alp swe | carex | | EL | | 14.5 | alt fes | alp swe | Kmik | | Kmik | |
| 5 | Salix | nor lab | bog blu | | R | | 15 | Salix | lingon | | | #M | |
| 5.5 | Salix | bog blu | carex | | EL | | 15.5 | Salix | alt fes | alp swe | Kmik | R | |
| 6 | Salix | bog blu | fivewe | lingon | EL | | 16 | None | None | | | R | |
| 6.5 | Salix | Carex | Kmik | | EL | | 16.5 | Salix | None | | | #M | |
| 7 | Salix | bog blu | carex | | M | | 17 | dwa bir | Salix | bog blu | | EL | |
| 7.5 | Linnae | None | | | EL | | 17.5 | Salix | linnae | carex | bog blu | #M | |
| 8 | Alt fes | Carex | | | carex | | 18 | Salix | bog blu | | | #M | |
| 8.5 | dwa bir | carex | Lingon | | EL | | 18.5 | Salix | bog blu | | | #M | |
| 9 | nor lab | alt fes | bog blu | | #M | | 19 | Salix | alt fes | bog blu | | EL | |
| 9.5 | fivewe | alt fes | nor lab | | #M | | 19.5 | Salix | bog blu | carex | | #M | |
| 10 | dwa bir | nor lab | carex | | #M | | 20 | Salix | bog blu | alt fes | | #M | |
| 10.5 | Salix | dwa bir | bog blu | nor lab | fel dic | 1cm | 20.5 | nor lab | None | | | R | |
| 11 | dwa bir | Salix | bog blu | | #M | | 21 | fivewe | lingon | | | lingon | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover transect datasheet

Date: 7/28/15 Observer: Markhofer Recorder: Putnam

Plot: SWB-1 Transect ID: 3 Aspect: SW Slope of tape: 22°

| Dist | TOP | LOWER | soil | ht | Dist | TOP | LOWER | soil | ht |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | carex | net wil | carex | | 11½ | carex | bog blu net wil | #M | |
| 2 | carex | net wil | EL | | 12 | Carex | | Carex | |
| 2½ | bogblu | carex | EL | | 12½ | Carex | bog blu | Carex | |
| 3 | whi spr | bog blu | EL | | 13 | Carex | bog blue | Carex | |
| 3½ | carex | bog blu | EL | | 13½ | Carex | bog blu | Carex | |
| 4 | rosalp | | #M | | 14 | Carex | bog blu | Carex | |
| 4½ | Salix | bog blu net wil | EL | | 14½ | Carex | bogblu alp swc | Carex | |
| 5 | bog blu | red alp | #M | | 15 | carex | bog blu | EL | |
| 5½ | carex | bog blu | #M | | 15½ | #Grass | bog blue | M | |
| 6 | bogblu | carex | EL | | 16 | #Grass | bog blu | #Grass | |
| 6½ | crique | carex bla cro | M | | 16½ | whi spr | red alp bog blu | #M | |
| 7 | Salix | bog blu | #M | | 17 | Carex | Nvc | Carex | |
| 7½ | bog blu | carex | #M | | 17½ | bog blu | | #M | |
| 8 | Salix | bog blu | EL | | 18 | net wil | carex | EL | |
| 8½ | Carex | bog blu red alp | #M | | 18½ | carex | bogblu | Soil | |
| 9 | dua liv | nov lab red alp carex | carex | | 19 | carex | net wil bog blu | #M | |
| 9½ | whi spr | dua liv bog blu red alp | EL | | 19½ | dua liv | bog blu carex | #M | |
| 10 | dua liv | bog blu | EL | | 20 | Ast fes | bog blu | #M | |
| 10½ | bog blu | carex | EL | | 20½ | dua liv | bog blue | #M | |
| 11 | bog blu | Swe col | EL | | 21 | carex | bog blu | EL | |

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/28/15 | **Site:** WSP1 | | **Crew:** |
| **Time start:** 12:00 PM | **Time stop:** 1:09 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** white spruce | **Shrubs:** dwarf birch, salix, black crowberry | **Graminoids:** sedge, rush | **Forbs:** yellow marsh saxifrage, swamp laurel |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>50 cm<br><br>**Parent Rock:**<br>unk | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other: unknown<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** tilted trees | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 1 |
| **Landcover class:** WSP | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc. None | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | Moss | Moss | Moss |
| **Litter Depth (cm)** | 12cm | 9cm | 10cm |

**Notes:**

photo 330° N
used CX garmin GPS -

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Markhofer **Recorder:** Rieter

**Plot:** ~~3~~ WSP-1 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -1°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #Rush | Lrgon | | | M | | 11.5 | carex | nor lab | lrgon | | Carex | |
| 2 | #Rush | | | | #L | 25mm | 12 | #Rush | lrgon | | | #Rush | |
| 2.5 | Carex | nor lab | | | #L | 30mm | 12.5 | #Rush | | | | #M | |
| 3 | #Rush | nor lab | | | #Rush | | 13 | #Rush | | | | #Rush | |
| 3.5 | Carex | | | | #M | | 13.5 | Carex | nor lab | | | #M | |
| 4 | #Rush | | | | #Rush | | 14 | Carex | | | | #M | |
| 4.5 | Carex | nor lab | | | Carex | | 14.5 | Rush | | | | Rush | |
| 5 | Carex | lrgon | | | Carex | | 15 | Carex | | | | #M | |
| 5.5 | Carex | | | | #M | | 15.5 | Rush | | | | Rush | |
| 6 | Carex | WL | Ret lrl | | Carex | | 16 | nor lab | lrgon | | | #M | |
| 6.5 | Carex | bla cro | | | #M | | 16.5 | Rush | dua sp | bla cro | | fel lic | 20mm |
| 7 | #Rush | | | | #Rush | | 17 | Rush | lrgon | | | M | |
| 7.5 | Carex | dua sp | lrgon | bla cro | Carex | | 17.5 | Rush | | | | Rush | |
| 8 | Carex | [illegible] | | | #M | | 18 | Rush | nor lab | lrgon | | M | |
| 8.5 | Carex | Salix | | | #M | | 18.5 | nor lab | Rush | lrgon | | EL | |
| 9 | Carex | Lrgon | | | #M | | 19 | Salix | lrgon | | | #L | 30mm |
| 9.5 | whi spr | #Rush | | | #Rush | | 19.5 | Rush | bla cro | | | M | |
| 10 | #Rush | | | | Cet lic | 25mm | 20 | Salix | nor lab | | | #L | 20mm |
| 10.5 | Carex | | | | #M | | 20.5 | Rush | nor lab | | | Cet lic | 20mm |
| 11 | Nor lab | | | | #M | | 21 | Carex | nor lab | | | rei lic | 60 mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**

Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**

#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

#L unbranched reindeer lichen

# Cover Transect Data Sheet

**Date:** 7/28/15 **Observer:** Markhofer **Recorder:** Putera

**Plot:** WSP-1 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +15°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | nor lab | carex | | | #M | | 11.5 | Carex | | | | Rei lic | 40 mm |
| 2 | nor lab | Salix | net wil | | #M | | 12 | Carex | lingon | bla cro | | bla cro | |
| 2.5 | nor lab | Carex | | | #M | | 12.5 | whi spr | carex | bla cro | | bla cro | |
| 3 | Carex | lingon | | | M | | 13 | whi spr | nor lab | bla cro | | bla cro | |
| 3.5 | Carex | | | | Carex | | 13.5 | net wil | bla cro | | | bla cro | |
| 4 | dwarf bir | Carex | | | M | | 14 | Carex | | | | Rei lic | 30 mm |
| 4.5 | Carex | nor lab | | | Carex | | 14.5 | Carex | net wil | | | #M | |
| 5 | Salix | Carex | lingon | | #M | | 15 | Carex | | | | #M | |
| 5.5 | Carex | net wil | | | #M | | 15.5 | Carex | whi spr | | | Rei Lic | 25mm |
| 6 | Carex | net wil | | | #M | | 16 | bog bir | nor lab | net wil | | #M | |
| 6.5 | Carex | | | | #M | | 16.5 | bog bir | lingon | | | cet lic | 5mm |
| 7 | whi spr | dwarf bir | carex | | carex | | 17 | carex | Carex | | | cet lic | 10mm |
| 7.5 | whi spr | Carex | | | #M | | 17.5 | Carex | nor lab | net wil | | #M | |
| 8 | Carex | | | | carex | | 18 | Carex | | | | M | |
| 8.5 | Carex | nor lab | | | M | | 18.5 | nor lab | ent/moss | | | REI LIC | 40 mm |
| 9 | Carex | | | | Rei Lic | 30mm | 19 | Carex | | | | Rei lic | 40 mm |
| 9.5 | Carex | | | | fel. lic | 10mm | 19.5 | nor lab | carex | net wil | | cet lic | 20 mm |
| 10 | Carex | bla cro | lingon | | Rei lic | 30mm | 20 | carex | nor lab | | | Rei lic | 75 mm |
| 10.5 | Carex | nor lab | net wil | | Carex | | 20.5 | carex | lingon | | | carex | |
| 11 | Carex | | | | M | | 21 | carex | nor lab | net wil | | #M | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

# cover transect datasheet

Date: 7/28/15 Observer: Meikhiya Recorder Rubio

Plot: WSP-1 Transect ID 3 Aspect: SW Slope of Tape: 8°

| Dist | TOP | Lower | soil | ht | Dist | TOP | Lower | soil | ht |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Salix | Carex bla cro | #M | | whi spr | 11.5 | Lygon | Lygon | |
| 2 | Carex | dun bar | #M | | Rush | 11.2 | | #M | |
| 2.5 | Carex | Salix lygon | #M | | Carex | 12.5 | | #M | |
| 3 | Salix | Lygon | #M | | Carex | 13 | Lygon | #M | |
| 3.5 | Rush | | #M | | Carex | 13.5 | Lygon nor lab | #M | |
| 4 | Rush | | Rush | | Carex | 14 | nor lab | EL | |
| 4.5 | Carex | | #M | | Carex | 14.5 | Lygon | Rai lic | 30mm |
| 5 | Carex | Netwil | #M | | Carex | 15 | Norlab Lygon | #M | |
| 5.5 | Carex | SwcCol | #M | | Rush | 15.5 | | #M | |
| 6 | Carex | | Carex | | Carex | 16 | Lygon | #M | |
| 6.5 | Salix | Carex | #M | | Carex | 16.5 | nor lab | carex | |
| 7 | whi spru | Salix Carex Swe Col | #M | | Rush | 17 | | Rush | |
| 7.5 | whi spru | Carex Lygm Dwa Sco | #M | | Rush | 17.5 | | Rush | |
| 8 | carex | Lygon | #M | | Rush | 18 | | Rush | |
| 8.5 | Rush | dun bar | #M | | Rush | 18.5 | | fal lic | 3mm |
| 9 | Rush | #F | Rush | | Rush | 19 | nor lab bla cro | bla cro | |
| 9.5 | nor lab | lygon | #M | | Carex | 19.5 | | Carex | |
| 10 | Rush | | Rush | | Carex | 20 | | #M | |
| 10.5 | nor lab | | #L | 20mm | whi spr | 20.5 | Salix Carex | Carex | |
| 11 | whi spra | Rush Lygon | Rush | | whi spr | 21 | | #M | |

Notes:

# Site Description Form

| | | | |
|---|---|---|---|
| **Date:** 7/29/15 | **Site:** RS4 | | **Crew:** |
| **Time start:** 11:00 | **Time stop:** 12:20 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** None | **Shrubs:** willow, dwarf birch, cinque, blacktop, lemmon | **Graminoids:** bluree, alfas | **Forbs:** sweetvetch |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>50cm<br><br>**Parent Rock:**<br>Unknown | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium ?<br>Loess<br>Lacustrine ?<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: None |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 2 |
| **Landcover class:** RS | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>Caribou footprints on river bed | | | |
| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
| **Litter Type:** | herbaceous | herbaceous | graminoid |
| **Litter Depth (cm)** | 3mm | 1mm | 1mm |

**Notes:**

Photo 120° (SE)

# Cover Transect Data Sheet

**Date:** 7/29/15 **Observer:** Markhoffer **Recorder:** Peterson

**Plot:** RS 4 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** ± 12°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | Carex | alp bis? #F | | | Carex | | 11.5 | ~~spec bist~~ Salix | | | | #M | |
| 2 | Carex | | | | Carex | | 12 | Salix | unk stem | carex | | EL | |
| 2.5 | whi mon | | | | cet lic | 10mm | 12.5 | Salix | carex | | | #M | |
| 3 | Carex | | | | Carex | | 13 | Salix | carex | | | EL | |
| 3.5 | Carex | | | | EL | | 13.5 | Carex | Salix | | | EL | |
| 4 | Alt tes | ent mon | | | ent mon | | 14 | dua bir | | | | #M | |
| 4.5 | carex | ent mon | | | ent mon | | 14.5 | carex | ent mon | | | #M | |
| 5 | Alt tes | net wil | | | #M | | 15 | ent mon | | | | #M | |
| 5.5 | Alt tes | net wil | | | EL | | 15.5 | cinque | net wil | | | EL | |
| 6 | whi mon | | | | whi mon | | 16 | none | | | | #M | |
| 6.5 | carex | net wil | | | EL | | 16.5 | alt tes | ent mon | | | ent mon | |
| 7 | nor lab | carex | | | carex | | 17 | alt tes | astral apo | | | #M | |
| 7.5 | carex | whi mon | | | cet lic | 10mm | 17.5 | #F Stripe? | | | | #M | |
| 8 | dua bir | dua sco | | | cup lic | 15mm | 18 | none | | | | cup lic | 5mm |
| 8.5 | dua bir | ant mon | net wil | | ent mon | | 18.5 | net wil | | | | #M | |
| 9 | nor lab | | | | #M | | 19 | alt tes | ent mon | | | ent mon | |
| 9.5 | dua bir | carex | | | #M | | 19.5 | ent mon | | | | ent mon | |
| 10 | carex | | | | carex | | 20 | alt tes | dua bir | | | alt tes | |
| 10.5 | dua bir | carex | | | #M | | 20.5 | alt tes | dua bir | | | alt tes | |
| 11 | carex | | | | carex | | 21 | dua bir | #F | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

alp bistort - pink flower – correction meadow bistort = meabis

very short willow / dark leaves

# Cover Transect Data Sheet

**Date:** 7/29/15 **Observer:** Madelynn **Recorder:** Paula

**Plot:** RS-4 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** ~18°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | act fes | net wil | | #M | | | 11.5 | ent mon | | | | ent mon | |
| 2 | None | | | #M | | | 12 | blu ree? | carex | | | carex | |
| 2.5 | net wil | | | #M | | | 12.5 | None | | | | #M | |
| 3 | ent mon | | | ent mon | | | 13 | Carex | ent mon | | | ent mon | |
| 4 ~~3.5~~ | cirque | net wil | | #M | | | 13.5 | None | | | | #M | |
| 4.5 | net wil | carex | | #M | | | 14 | carex | | | | #M | |
| 3.5 ~~4.5~~ | carex | ent mon | | #M | | | 14.5 | carex | ent mon | | | ~~carex~~ | |
| 5 | ent mon | | | S | | | 15 | Carex | | | | carex | |
| 5.5 | carex | dua sco | | #M | | | 15.5 | fvm mon | | | | wh mon | |
| 6 | astral agus | carex | | S | | | 16 | act fes | wh mon | | | #M | |
| 6.5 | Carex | astral agus | ent/dua net wil | ~~dua~~ | ent mon | | 16.5 | ent mon | | | | #M | |
| 7 | Red Alp | | | | S | | 17 | lab tea | carex | | | carex | |
| 7.5 | Carex | | | | #M | | 17.5 | carex | ent mon | | | net wil | |
| 8 | dua sco | carex | | | EL | | 18 | act fes | ent mon | | | ent mon | |
| 8.5 | net wil | | | | S | | 18.5 | ent mon | | | | cup lic | 20mm |
| 9 | nop lab | carex | | | carex | | 19 | ent mon | | | | fol lic | 20mm |
| 9.5 | None | | | | S | | 19.5 | ent mon | | | | fol lic | 20mm |
| * 10 | carex | | | | #M | | 20 | astral | dua sco | ent mon | | ent mon | |
| 10.5 | Carex | | | | Carex | | 20.5 | astrag | ent mon | | | ent mon | |
| 11 | Carex | | | | cet lic | 3mm | 21 | act fes | ent mon | | | fol lic | 10mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:**

Transect #1 northside astral

12 - blue joint reed grass ? confirmed

# Cover datasheet

Date: 7/29/15 Plot: RS-4 Recorder: Rutan

Observer: Markham Transect ID: 3 Aspect: SW Slope of tape: +/2°

| # | TOP | Lower | soil | ht | # | TOP | Lower | soil | ht |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | alt fes | astral | #M | | alt fes | 11.5 | ~~alt~~ | alt fes | |
| 2 | dwa bir | ent mon | ent mon | | alt fes | 12 | | #M | |
| 2.5 | alt fes | net uni ent mon | ent mon | | ent mon | 12.5 | | #M | |
| 3 | alt fes | | #M | | dwa bir | 13 | lab tea | #M | |
| 3.5 | ent mon | | #M | | dwa bir | 13.5 | | #M | |
| 4 | alt fes | red alp | red alp | | dwa bir | 14 | net uni | cet lic | 25mm |
| 4.5 | red alp | | S | | alt fes | 14.5 | dwa bir ent mon | ent mon | |
| 5 | none | | S | | ent mon | 15 | | ent mon | |
| 5.5 | None | | #L | | dwa bir | 15.5 | alt ent fes, mon | ent mon | |
| 6 | ent mon | | #M | | dark | 16 | dwarbir ent mon | ent mon | |
| 6.5 | ent mon | | ent mon | | dwa bir | 16.5 | #F | #M | |
| 7 | #F aster? | net uni dwa sco | EL | | dwa bir | 17 | alt fes ent mon | ent mon | |
| 7.5 | None | | #M | | dwa bir | 17.5 | alt fes | #M | |
| 8 | ent mon | net uni | ent mon | | alt fes | 18 | red alp | #M | |
| 8.5 | lab tea | ent mon | #M | | Salif | 18.5 | | EL | |
| 9 | dwa bir | alt fes | #M | | Salif | 19 | alt fes | EL | |
| ~~9.5~~ | | | | | Smit | 19.5 | red alp | #M | |
| 9.5 | alt fes | ~~alt~~ | alt fes | | Salif | 20 | cinque | EL | |
| 10 | ent mon | | ent mon | | cinque | 20.5 | Sal short | #M | |
| 10.5 | alt fes | ent mon | ent mon | | dwa bir | 21 | cinque alt fes | #M | |
| 11 | None | | cet lic | 10mm | | | | | |

lichen = dark green/veiny/deeply lobed #L

*not analogous alpine sweetvetch

# Site Description Form

| Date: 7/29 | Site: ATS 6 | | Crew: |
|---|---|---|---|
| **Time start:** 9:00 | **Time stop:** 10.30 | **Latitude:** | **Longitude:** |
| **Elevation:** | | | |
| **Dom Trees:** willow | **Shrubs:** bla cro dua bir | **Graminoids:** arcalu # grass - collected all for | **Forbs:** moss campris |
| **Slope Position:**<br>Ridgetop<br>Saddle<br>Hillslope:<br>*Aspect:*<br>*Max slope:*<br>*Slope length:*<br>Shoulder<br>Arm<br>Toe<br>Colluvium<br>Piedmont<br>Terrace<br>Floodplain<br>Flat plain | **Slope X-section:**<br>broken by benches<br>concave<br>convex<br>straight, even<br>flat (less than 5°)<br>undulating<br>convex/concave<br><br>**Drainage:**<br>rapid – runoff / hillslope<br>rapid - coarse, permeable<br>impeded – low permeability<br>saturated soil | **Micro-relief type:**<br>Bedrock outcrops<br>Mass movement<br>Erosional<br>Depositional<br>Tussocks<br>Solifluction<br>Moss hummocks<br>Thermokarst<br>Burrows<br>None<br><br>**Max micro-relief size:**<br>10 cm<br><br>**Parent Rock:**<br>volc | **Parent Material:**<br>Bedrock<br>Alluvium<br>Till<br>Colluvium<br>Loess<br>Lacustrine<br>Other:<br><br>**Geomorphic Disturbance:**<br>Fluvial<br>Rapid mass wasting<br>Slow mass wasting<br>Wind scour<br>Deglaciation<br>Other: |
| **Evidence of frost-action:** None | **Evidence of fire:** None | **Evidence of wind:** None | **Wind exposure class:** 1 |
| **Landcover class:** ATS | | | |
| **Caribou sign:** pellets, stripped vegetation, fragmented lichen, tracks, visual sign, etc.<br>pellets! collected | | | |

| **Soil Samples** | **N transect** | **SE transect** | **SW transect** |
|---|---|---|---|
| **Litter Type:** | herbaceous | herbaceous | Graminoid |
| **Litter Depth (cm)** | 2mm | 1mm | 3mm |

**Notes:**

Photo 120° (E)

# Cover Transect Data Sheet

**Date:** 7/29/15 **Observer:** Markhoper **Recorder:** Rivera

**Plot:** ATS6 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** ~80°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | whi mou | | | | whi mou | | 11.5 | Saex | carx | whi mou | | whi mou | |
| 2 | cragus | dua sco | | | EL | | 12 | Sorpb | carx | whi mou | | whi mou | |
| 2.5 | dua shr | # Gram | fou mou | net wil | EL | | 12.5 | Carex | whi mou | | | whi mou | |
| 3 | fou mou | # Gram | | | cet lic | 5mm | 13 | dua fir | carx | #F | | EL | |
| 3.5 | fou mou | dua sco | whi mou | | whi mou | | 13.5 | carx | net wil | | | #M | |
| 4 | dua shr | dua sco | bla cro | | bla cro | | 14 | carx | net wil | #F | | EL | |
| 4.5 | are blu | bla cro | | | bla cro | | 14.5 | are blu | | | | #M | |
| 5 | whi mou | | | | EL | | 15 | carx | | | | #M | |
| 5.5 | # Gram | | | | EL | | 15.5 | carx | net wil | | | EL | |
| 6 | None | | | | EL | | 16 | Carx | bla cro | whi mou | | blacro | |
| 6.5 | whi mou | near lab | | | whi mou | | 16.5 | fel wil | ent mou | | | ent mou | |
| 7 | dua shr | whi mou | | | whi mou | | 17 | Sorpb | | | | #M | |
| 7.5 | # Gram | dua sco | | | #M | | 17.5 | nonlab | notwil | | | EL | |
| 8 | dua shr | whi mou | | | whi mou | | 18 | #Gram | net wil | ent mou | | ent mou | |
| 8.5 | carex | | | | #M | | 18.5 | astral agus | carx | net wil | | EL | |
| 9 | alt fes | ~~dua fir~~ | net wil | | alt fes | | 19 | net wil | | | | net wil | |
| 9.5 | Sorpb | dua fir | | | #M | | 19.5 | are blu | net wil | | | EL | |
| 10 | alt fes | | | | #M | | 20 | alt fes | astral agus | | | fel lic | 15mm |
| 10.5 | Alt fes | bla cro | | | bla cro | | 20.5 | alt fes | | | | #M | |
| 11 | dua fir | whi mou | | | whi mou | | 21 | Sorpb | are blu | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** #Graminoid = carex

# Cover Transect Data Sheet

**Date:** 7/29/15 **Observer:** Merkhofer **Recorder:** Future

**Plot:** ATS 6 **Transect ID:** 2 **Aspect:** SE **Slope of Tape:** +12°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | cary | | | | eas lic | 20mm | 11.5 | arc blu | | | | #M | |
| 2 | bla cro | | | | bla cro | | 12 | bla cro | lingon | | | bla cro | |
| 2.5 | dwa bir | bla cro | | | eas lic | 10mm | 12.5 | dwa bir | dwa fire | whi mou | | fel lic | 2mm |
| 3 | dwa bir | bla cro | | | bla cro | | 13 | alt fes | bla cro | | | bla cro | |
| 3.5 | arc blu | | | | #M | | 13.5 | alt fes | bla cro | | | #M | |
| 4 | ~~#arc blu~~ | cary | | | #M | | 14 | alt fes | | | | #M | |
| 4.5 | net wil | | | | Kri lic | 10mm | 14.5 | dwa bir | bla cro | | | bla cro | |
| 5 | dwa bir | for mat | | | #M | | 15 | dwa bir | net wil | bla cro | | bla cro | |
| 5.5 | dwa bir | alt fes | bla cro | | Moose lic | 5mm | 15.5 | nov lab | whi mou | | | whi mou | |
| 6 | dwa bir | alt fes | | | EL | | 16 | arc blu | bla cro | | | bla cro | |
| 6.5 | dwa bir | cary | | | eas lic | 20mm | 16.5 | arc blu | nov lab | dwa bir | | EL | |
| 7 | lingon | | | | #M | | 17 | dwa bir | nov lab | bla cro | | moose lic | 10mm |
| 7.5 | bla cro | | | | cet lic | 5mm | 17.5 | arc blu | nov lab | dwa sco | | EL | |
| 8 | fel wil | whi mou | | | whi mou | | 18 | arc blu | lingon | | | #M | |
| 8.5 | alt fes | bla cro | | | alt fes | | 18.5 | dwa bir | bla cro | whi mou | | #M | |
| 9 | alt fes | bla cro | | | bla cro | | 19 | whi mou | net wil | | | EL | |
| 9.5 | lingon | bla cro | | | bla cro | | 19.5 | dwa bir | cary | bla cro | | bla cro | |
| 10 | nov lab | dwa sco | bla cro | | bla cro | | 20 | dwa bir | bla cro | | | bla cro | |
| 10.5 | nov lab | bla cro | | | bla cro | | 20.5 | cary | bla cro | | | bla cro | |
| 11 | arc blu | | | | moose lic | 5mm | 21 | dwa bir | | | | eas lic | 20mm |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Notes:**

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

# Cover Transect Data Sheet

**Date:** 7/29/15 **Observer:** Markhoper **Recorder:** Duncan

**Plot:** ATS6 **Transect ID:** 1 **Aspect:** N **Slope of Tape:** -8°

**Note:** Dist. is distance (m) from plot center; 20 m transect begins at 1 m dist.

| Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht | Dist. | Top layer | Lower layers | | | Soil surface | Lichen ht |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | whi mou | | | | whi mou | | 11.5 | Salix | carex | whi mou | | whi mou | |
| 2 | cirque | dua sco | | | EL | | 12 | Sorpb | carex | whi mou | | whi mou | |
| 2.5 | dua bir | #Gram | fou mou | net wil | EL | | 12.5 | carex | whi mou | | | whi mou | |
| 3 | fou mou | #Gram | | | cet lic | 5mm | 13 | dua fir | carex | #F | | EL | |
| 3.5 | fou mou | dua sco | whi mou | | whi mou | | 13.5 | carex | net wil | | | #M | |
| 4 | dua bir | dua sco | bla cro | | bla cro | | 14 | carex | net wil | #F | | EL | |
| 4.5 | are blu | bla cro | | | bla cro | | 14.5 | are blu | | | | #M | |
| 5 | whi mou | | | | EL | | 15 | carex | | | | #M | |
| 5.5 | #Gram | | | | EL | | 15.5 | carex | net wil | | | EL | |
| 6 | None | | | | EL | | 16 | Carex | bla cro | whi mou | | ~~EL~~ blacro | |
| 6.5 | whi mou | nar lab | | | whi mou | | 16.5 | fel wil | ent mou | | | ent mou | |
| 7 | dua bir | whi mou | | | whi mou | | 17 | Sorpb | | | | #M | |
| 7.5 | #Gram | dua sco | | | #M | | 17.5 | nar lab | net wil | | | EL | |
| 8 | dua bir | whi mou | | | whi mou | | 18 | #Gram | net wil | ent mou | | ent mou | |
| 8.5 | carex | | | | #M | | 18.5 | astral agus | carex | net wil | | EL | |
| 9 | alt fes | ~~dua fir~~ | net wil | | alt fes | | 19 | net wil | | | | net wil | |
| 9.5 | Sorpb | dua fir | | | #M | | 19.5 | are blu | net wil | | | EL | |
| 10 | alt fes | | | | #M | | 20 | alt fes | astral agus | | | fel lic | 15mm |
| 10.5 | Alt fes | bla cro | | | bla cro | | 20.5 | alt fes | | | | #M | |
| 11 | dua fir | whi mou | | | whi mou | | 21 | Sorpb | are blu | | | EL | |

**Top Layer:** species code or NONE

**Lower Layer**: species code, L (herbaceous litter), WL (woody litter, > 5 mm diameter)

**Soil surface (do not use litter):**
Species code = base OR living mat (moss, lichen)
R = rock (> 5 mm fragment)
BR = bedrock
S = soil
EL= embedded litter

**Unknown species codes:**
#T = tree
#S = shrub
#F = forb
#G = graminoid
#L = lichen
#M = moss

**Notes:** #Graminoid = carex

# Cover transect datasheet

Date 7/29/15 Observer: Markhoff Recorder: Peters

Plot AT56 Transect ID: 3 Aspect: SW Slope of tape: +12°

| Dist | Top | Lower | soil | ht | Dist | Top | Lower | soil | ht |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | #Grass | BlaCro | #M | | arcdiv | 11.5 | None | arc blue | |
| 2 | dwa bir | blacro | eas lic | 20mm | bagdiv | 12 | | eas lic | 5mm |
| 2.5 | #Grass | blacro | #M | | whi mou | 12.5 | lirgon | whi mou | |
| 3 | blacro | | #M | | whi mou | 13 | lirgon | #M | |
| 3.5 | arc blue | | rei lic | 25mm | None | 13.5 | ~~None~~ | EL | |
| 4 | dwa bir | blacro | bla cro | | None | 14 | | Rei lic | 5mm |
| 4.5 | dwa bir | blacro lirgon | #M | | whi mou | 14.5 | | eas lic | 5mm |
| 5 | bla cro ← dwa bir → | | bla cro | | dwa bir | 15 | | #M | |
| 5.5 | lirgon | blacro | #M | | #Grass | 15.5 | dwa bir | eas lic | 35mm |
| 6 | None | | eas lic | 10mm | dwa bir | 16 | | fel lic | 1mm |
| 6.5 | dwa bir | lirgon mos cam | mos camp | | dwa bir | 16.5 | ~~eas~~ ~~lic~~ | eas lic | 20mm |
| 7 | #Grass | dwabir blacro | blacro | | dwa bir | 17 | | #M | |
| 7.5 | blacro | | rei lic | 20mm | dwa bir | 17.5 | | #M | |
| 8 | alt fes | arcdiv; dwabir | alt fes | | dwa bir | 18 | | rei lic | 30mm |
| 8.5 | dwa bir | carex | #M | | bag blu | 18.5 | | eas lic | 15mm |
| 9 | dwa bir | | rei lic | 15mm | #Grass | 19 | | mos lic | 5mm |
| 9.5 | None | | #M | | #Grass | 19.5 | | eas lic | 15mm |
| 10 | dwa bir | | eas lic | 10mm | None | 20 | | frag lic | 25mm |
| 10.5 | #Grass | bag blu | eas lic | 25mm | dwa bir | 20.5 | bag blu whi mou | whi mou | |
| 11 | dwa bir | lirgon | fel lic | 35mm | #Grass | 21 | | #Grass | |

collected caribou fecal pellets