**Ground Cover Photos and % Estimates**

* To be done every 1-1 ½ weeks, every two weeks after Caroline leaving in 2010(last completed 6/25/10 before Caroline left). Allot about 3 hours to complete including travel time to/from the field site.
* These observations and photos should always be completed by the same individual if possible, variation in the observer can lead to inconsistent photos and large variation in ground cover estimates.
* Observations and photos to be done for all mantis monitored plots-total of 20.
* Equipment needed:
	+ Blank data sheets
	+ Data sheet from previous estimate for reference
	+ Ground cover frame and extra rubber bands as needed (both stored in action packer at site)
	+ Camera
* Before heading the to field be sure that the camera battery is charged and you have all needed equipment

Control Plots (non-OTC)

* Place ground cover frame on the ground with the tent stakes at the four corners.
	1. Complete ground cover estimate for the 1 m sq area within the frame
		1. Look down on plot area from directly above and observe ground cover that can be seen from above, the purpose of these estimates is to categorically quantify what the mantis sensors are “seeing”
		2. Try to remain on the boardwalk while making observations to minimize impact to the tundra.
	2. Take photos of the plot area with the frame still in place on the ground.

OTC plots

* Using the edge of the OTC as your plot area border (ground cover frame is not needed):
	1. Complete ground cover estimates for the entire area within the OTC
		1. Look down on the plot area from above to complete estimate
		2. Be sure to also look in the corners and around the inner edge of the OTC which is not entirely visible from a single vantage point on the boardwalk.
	2. Take photos of the plot area using the OTC as the boundary of the plot.

Ground Cover Estimates

* 1. Observe % ground cover of (typically categories 1-5 account for all the ground cover):
		+ 1. Green Leaf area-active photosynthesizing vegetation
			2. Dead and other non-photosynthesizing vegetation (such as dead leaf cover and birch and will stems)
			3. Moss and Lichens
			4. Red Vegetation (including red moss and red vaccinium cover)
			5. Bright Inflorescences or other brightly colored things
			6. Bare Ground or other dark material
			7. Area of Standing water
	2. The total percentage of the area of observed categories should always add to 100%, the observations should account for all visible ground cover when looking from above.
		1. Record the observations in the blank data sheet, you can refer to the observations of the previous date if it helps.
		2. Keep in mind that the observed ground cover percentages should be representative of the total area and proportional to what you are seeing, if a plot is half moss/lichens and half green leaf cover be sure your recorded percentage reflect this
		3. You can revise your estimates of different categories as you are making observations to be sure that the recorded percentages are proportional to the amount of ground cover between categories that you are seeing.

Photos

* Photos should be taken to be as consistent as possible over all dates
	1. The position from which the photo was taken, area included in the photo, and angle of the camera should be the same across all dates.
* To denote what plot you are photographing, prior to taking the plot photos, take one photo of your hand with fingers indicating the plot number and a second photo of your hand indicating either A for accelerated or C for control (I have been using the American sign language alphabet letters for A and C). It is obvious which of the two photos are the OTC and non-OTC so this does not need to be indicated
* Always take the photos from the uphill side of the plot, the side near the mantis “body”
* Try to take the photos centered looking down on the plot as much as possible, it is difficult to take photos centered looking directly down as you cannot see what you are taking a picture of
* Reference the previous photos to try to replicate them as closely as possible
* The photos should be taken so that the plot fills the entire picture frame but the boundaries of the plot area (the ground cover frame for non-OTC plots, or the OTC itself) are entirely visible in the photo.