

**DENALI NATIONAL PARK AND PRESERVE**

**CENTRAL ALASKA NETWORK**

**Vegetation Monitoring Program**

**Summary Trip Report: Polychrome Mini-grid**

**16 July to 24 July, 2007**



Photo 1. Looking east at point 4 and area.

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**Contributors: James Walton and Brian Dykstra**

**September, 2007**

## **PURPOSE:**

The purpose of this work was to install permanent plot stakes and to collect data for the CAKN Long Term Ecological Monitoring Program. There were 2 half days of travel at either end of the trip and 8 full days of field work.

## **PERSONNEL:**

James Walton - crew leader, species composition data (non-vascular plants), soil data and transect cover.

Brian Dykstra - quadrat and species composition data (vascular plants), quadrat variable estimates, plot photos and transect cover.

Larissa Lasselle - grid point data, meta-plot data, plot variable estimates, transect cover and trip report record.

Jay Scelza - species composition data (non-vascular plants), soil data and transect cover  
*(Note that Jay Scelza from the Yukon Charley Crew was with us for this mini-grid).*

## **ACCESS TO MINI-GRID AND CAMPING POSSIBILITIES:**

In order to carry all of our gear out to the mini-grid we had Jay Scelza on our crew for the week. In addition we had help carrying gear from Rob Lieberman and one backcountry ranger.

From the bridge just before Polychrome Pass we took a social trail (there is an opening in the brush just after the bridge heading in the direction of the pass) down to the flood plane. We followed the flood plane for about 1 and a half hours until we reached a campsite that was located just inside the grid between points 21, 22, 17 and 16 next to the creek. Make sure when the river forks to stay to the right fork. Camp was located about 50 meters east of the river bar and between points 22, 21, 17 and 16.

The Park Rd. was visible from almost every point. There was heavy air traffic almost every day. On the 22<sup>nd</sup>, at point 13 four backpackers to the south and about 500 meters away passed by.

## **HIKING:**

Hiking within this mini-grid is relatively easy. The elevation change is minimal and there is only a moderate amount of bushwhacking.

## **WEATHER AND ENVIRONMENTAL CONDITIONS:**

We had fairly good weather while sampling this mini-grid. It was mainly breezy and overcast to sunny with a day or two of rain.

## SAFETY CONSIDERATIONS:

Hiking is not a safety issue since the mini-grid contains no rocky climbs or difficult stream crossings. Though it is possible the streams could be much higher and potentially cause some difficulty in crossings. Our main safety issue was bears; we encountered one sow with cubs and diverted our path to avoid them.

## PHENOLOGY OBSERVATIONS:

The majority of the following vascular plants were setting seed: *Lupinus arcticus*, *Dryas drumondii*, *Dryas octopetala*, *Anemone narcissiflora*, *Empetrum nigrum*, *Dryas octopetala*, *Vaccinium vitis-idaea*, *Vaccinium uliginosum*, *Hierochloe alpina*, *Carex* spp. and *Festuca altaica*, *Aster sibiricus*, *Arctostaphylos rubra*, *Lupinus arcticus*, *Mertensia paniculata*, *Empetrum nigrum*, *Salix glauca*, *Salix pulchra*, and *Salix richardsonii*.

Some plants were still flowering, but starting to set seed: *Polygonum bistorta*, *Epilobium latifolium*, *Arnica grisea*, *Aconitum delphinifolium*, *Epilobium latifolium*

Several plant species were still mostly flowering: *Artemisia arctica*, *Castilleja elegans* and *Campanula lasiocarpa*, *Gentianella propinqua*, *Valeriana capitata*, *Arnica lessingii*.

See “activities” section for more detail.

## GENERAL NOTES ON PLOT-WORK AND PLOT OBSERVATIONS

**Table 1. Collection series for the Polychrome mini-grid.**

Collector	Identifier	Series
Dykstra	Vascular plants	BD07-180 to BD07-304 100-0001 to 101-0158, 100-0001 to 101-0127, 100-0075 to 100- 0105, 101-0120 to 101-0182, 100-0001 to 100-0021
Dykstra Walton and Scelza	Digital Photos Nonvascular collections	Non –sequential
Walton and Scelza	Soils	27 samples

## ACTIVITIES:

### Monday, July 16

*Poly\_06*: From camp we followed the flood plane south and east to the plot. It was an easy and quick walk. Plot located on the second terrace above the creek. The ground is mostly flat for about 150 meters west to a hill and ridgeline (elevation not that much greater than on plot). The edge of the terrace is about 10 meters east of the eastern edge of the plot. The creek (that we walked up to get to plot) is about 120 meters east of the eastern edge of the

plot. To the south about 1 to 2 km the creek continues and the elevation on either side of the creek continues to rise (from here the slopes look barren).

There were caribou in the vicinity of plot. There were ground squirrel holes in plot and they were vocalizing in the vicinity of plot.

*Lupinus arcticus*, *Dryus drumondii*, *Polygonum bistorta* gone to seed. There were catkins on *Salix* spp.

Weather: Overcast

## Tuesday, July 17



Photo 2. Looking north at point 03.

*Poly\_03*: We headed to point 10 first but about 500 meters from the point we could see a sow and cub in proximity of our plot so we headed to point 03. Plot was about 100 to 150 meters west of the creek. To the south there is a drainage curving to the north and ending at the creek.

Caribou scat was found in plot. Ground squirrel vocalizations in vicinity of plot. Grizzly bear sow and cub about 1.5 meters west of plot.

*Dryas octopetala*, *Arnica griscomii* sp., *Anemone narcissiflora* sp., and some *Epilobium latifolium* (some were flowering) gone to seed. *Epilobium latifolium*, *Castilleja elegans* and *Campanula lasiocarpa* flowering.

*Poly\_02*: From point 03 we headed east, downhill to creek and then crossed creek and then headed up the opposite hill to point 02. Plot located on a ridgeline running mostly north to south. Plot center is basically on top of ridge. From the top of transect 6A to the end of 6B

the slope is 2 degrees. From plot center to the start of the 16 meter transect the slope is 20. From plot center to the end of the 16 meter transect the slope is 5.

There was caribou fur and scat in plot. Grizzly bear and ground squirrel scat found in plot as well in plot. Gulls were vocalizing in vicinity of plot.

*Castilleja elegans* and *Artemisia arctica* in bloom and *Arnica grisea* (some gone to seed) in bloom. *Dryas octopetala* gone to seed.

*Poly\_01*: From point 02 the hike to point 01 was a direct route east. Plot on third terrace about 100 meters from creek. From the creek there are 4 terraces. The ground is relatively flat.

Ground squirrel burrow in plot and vocalizations in vicinity of plot. Bear and caribou scat in plot. Evidence of moose browse on vegetation.

*Potentilla fruticosa* (off plot) in bloom. *Dryas octopetala* and *Polygonum bistorta* gone to seed. Catkins on *Salix glauca* and *Salix reticulata*.

Weather: It was sunny in the morning and clouds were building by noon. By the time we got to our second plot the sky sunny and there was a breeze.

### Wednesday, July 18



Photo 3. Point 10 looking south at Quadrat A

*Poly\_10*: The hike over here from camp took about 1 hour. We had to cross two creeks. Plot located west of ridge. About 300 meters west of plot is a steep drop-off to a drainage. In plot there are shallow, wet depressions. To the west of plot there is cryoturbation on the north

facing slope. There was bear scat in plot, but no other sign of the sow and cub at this point on this day!

*Empetrum nigrum*, *Dryas octopetala*, *Vaccinium vitis-idaea*, *Vaccinium uliginosum* gone to seed. *Artemisia arctica* in bloom.

*Poly\_05*: Hike was on a direct open route north from point 10. Plot located on a ridgetop between 2 higher ridges to the north and south. There are a significant number of priorturbation scars on plot, but not enough to consider the plot a severely frost disturbed plot. Caribou scat in plot. Ground squirrel midden in plot and vocalizations in the vicinity of plot.

*Polygonum bistorta*, *Saxifraga bronchialis*, *Minuartia arctica* (collected), *Artemisia arctica* and *Aconitum delphiniifolium* (off plot) in bloom. *Dryas octopetala* and *Anemone narcissiflora* gone to seed. Catkins on *Salix reticulata*. Seedheads on *Carex* spp., *Festuca altaica* and *Hierochloe alpina*.

*Poly\_04*: We hiked east from point 05 down to creek and then crossed creek and hiked up to point 04. Plot located on a steep slope that drops down to the creek about 150 meters away. Scree slopes to the south. Caribou scat in plot. Ground squirrel midden in plot and vocalizations in the vicinity of plot.

*Polygonum bistorta*, *Aconitum delphiniifolium*, *Arnica griscomii*, *Epilobium latifolium* in bloom. *Dryas octopetala*, *Anemone narcissiflora* gone to seed. Seedheads on *Hierochloe alpina*, *Carex* spp. and *Festuca altaica*.

Weather: In the morning the sky was mostly sunny with a light breeze. At our second plot it was sunny but clouds were building.

### **Thursday, July 19**

*Poly\_15*: There was a lot of bushwhacking en route to plot and we had to cross two creeks. Northern edge of plot on alluvium and is an old river terrace now vegetated. The rest is on colluvium on a toe slope. Bear scat in plot. Evidence of moose and snowshoe hare browse in plot.

*Aster sibiricus*, *Aconitum delphiniifolium*, *Arctostaphylos rubra* (collected), *Gentianella propinqua*, *Arnica lessingii*, *Valeriana capitata* and *Epilobium latifolium* in bloom. *Lupinus arcticus*, *Anemone narcissiflora*, *Mertensia paniculata*. *Empetrum nigrum* gone to seed. Catkins on *Salix glauca*, *Salix pulchra* and *Salix richardsonii* (collected).



Photo 4. Looking west at point 20.

*Poly\_20*: From point 15 we headed east back out to river bar and walked north along bar for about 150 meters and then headed north and west to point 20. Plot located on an old valley bottom, colluvium terrace. Too far from a slope to be considered a toe slope. Evidence of moose browse and moose scat in plot.

There are catkins on *Salix reticulata* and *Salix pulchra*. *Aconitum delphiniifolium* in bloom. Some *Potentilla fruticosa* in bloom. *Saussurea angustifolia*, *Dryas integrifolia* gone to seed.

*Poly\_25*: Quick hike through flat ground with *Betula nana* and *Salix pulchra* scrub. Plot is west of creek (about 150 meters) on a valley bottom flat on colluvium. *Sphagnum* spp., grass and sedge tussocks cover ground. The eastern edge of plot is more wet (there is a puddle of water) than the western side of plot. Live caribou in vicinity of plot. Evidence of moose browse in plot.

*Petasites frigidus* gone to seed. *Aconitum delphiniifolium*, *Epilobium angustifolium* and *Eritrichium nanum* (off plot) in bloom.

*Poly\_24*: The hike from point 25 was fast. We had to cross a creek and we stopped to pump water. Plot is located on a valley bottom and creek terrace on colluvium. Some frozen ground. Caribou in vicinity of plot. Ptarmigan scat in plot. Evidence of moose and snowshoe hare browse in plot.

Catkins on *Salix glauca*. *Betula nana* and *Arctostaphylos rubra* leaves turning red.

Weather:

**Friday, July 20**

James left today at around 3 pm.



Photo 5. Point 11 looking south from center.

*Poly\_11*: Quick hike from camp heading northeast up river bar. Plot located about 25 meters from creek on first stream terrace on alluvium. At the 4 meter mark on the west transect and running to the 12 meter point for 6B the ground takes a steep slope up to about 22 degrees. The rest of the plot has a slope of 0 to 3 degrees. There was bear scat and evidence of moose browse in plot.

*Dryas integrifolia* and *Epilobium latifolium* gone to seed. Catkins *Salix reticulata*. *Aster sibiricus* in bloom.

*Poly\_16*: From point 11 we crossed a creek and headed east uphill to point 16. Plot located on a middle to lower slope gently dropping down to creek. Evidence of moose browse in plot.

There are catkins on *Salix glauca*, *Salix arctica* and *Salix reticulata*. *Saxifraga* spp. (collected), *Aconitum delphiniifolium* and *Polygonum bistorta* in bloom. *Dryas octopetala* gone to seed.

*Poly\_21*: From point 16 we traversed over, heading north to plot. Plot located about 250-300 meters east of creek and on toe slope. The ground was wet with tussocks and standing pools of water. Evidence of moose browse in plot.

*Saxifraga* sp. in bloom.

Weather: The weather was overcast and raining by 11 am. It was rainy all morning until about 3 pm and the sky began to clear.

### Saturday, July 21

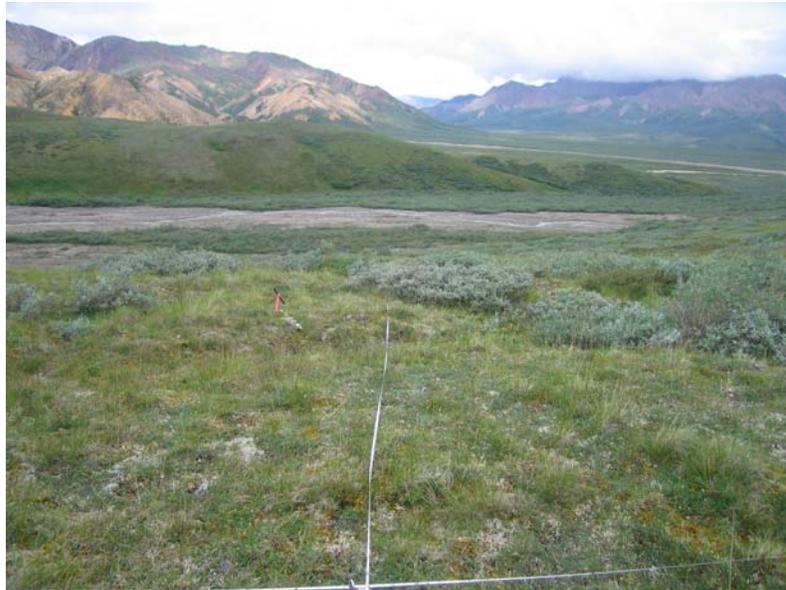


Photo 6. Point 09 looking west from center

*Poly\_09*: We had to cross a running creek and we stopped to pump water. Lower toe slope above creek. Some frost action. Ground has low tussocks. Spotted a caribou in the vicinity of plot. There was caribou scat in plot. There was a grizzly bear dig in vicinity of plot.

*Aconitum delphiniifolium*, *Arnica griscomii*, *Artemisia arctica*, *Epilobium latifolium* in bloom. *Dryas octopetala* and *Anemone narcissiflora* gone to seed.

*Poly\_14*: The hike over from point 9 was easy and quick. Plot located on a ridge sloping north. The plot itself is concave. The 16 meter transect is on a 1 degree slope. The 6A transect rises slightly from plot center to the last 3 to 4 meters of the transect and reaching into Quadrant A. At the place where the elevation changes there is also heavy frost action and Viereck code changes. The 6B transect also rises slightly to an 8 degree slope.

*Lupinus arcticus*, *Dryas octopetala* gone to seed. *Polygonum bistorta*, *Aconitum delphiniifolium* and *Artemisia arctica* in bloom. Catkins on *Salix glauca*.

*Poly\_19*: The hike from point 14 was a quick walk south and down hill. The ground on plot is mostly flat on a valley bottom on colluvium. There was evidence of moose and snowshoe hare browse on plot vegetation. Ptarmigan and bear scat found on plot.

There were catkins on *Salix glauca* and *Betula nana*. *Potentilla fruticosa* (also some gone to seed), *Stellaria longipes* and *Aconitum delphiniifolium* in bloom. *Lupinus arcticus* gone to seed.

Weather: The sky was overcast in the morning. It started to rain when we got to our second plot. When we arrived at the last plot the sky was partly sunny and there were no rain clouds building.

### Sunday, July 22

*Poly\_08*: From camp we headed southwest up ridge then walked down other side of ridge and crossed a clear running creek (it is possible to pump water here). We then continued uphill and side-sloped southwest to plot. About 125 meters west and uphill from creek. The ground is undulating with a number of frost boils that have left bare ground, gravel and rocks. Considerably steep slope. To the south of plot edge about 2 meters there is a drainage. More frost action in surrounding area.

There were Caribou in the vicinity of plot. Ptarmigan feathers and a live animal was in the vicinity of plot. Ground squirrel and ground squirrel vocalizing in vicinity of plot.



Photo 7. Point 08 looking east from center.

*Aconitum delphiniifolium ssp. paradoxum*, *Epilobium latifolium*, *Artemesia arctica*, *Campanula lasiocarpa* and *Gentiana prostrata* in bloom. *Arnica griscomii* (collected), *Dryas octopetala*, *Castilleja elegans* gone to seed. Few catkins on *Saix glauca*.

*Poly\_13*: Very quick hike over from point 8 (10 to 20 minutes). Very close to ridgetop. Water north to northeast but slope also drops directly east. Ground is covered with gram/moss tussocks. Pools of standing water. Caribou hair and scat on plot. Evidence of moose and snowshoe hare browse on plot.

*Aconitum delphiniifolium ssp. paradoxum*, *Saxifraga* spp. in bloom. Some catkins on *Saix glauca* and *Salix arctica*. *Polygonum bistorta* going to seed. *Dryas octopetala* gone to seed.

*Poly\_18*: Quick hike downhill from point 13. Moss and gramminoid tussocks cover ground. To the west of plot about 30 meters there is a small creek. Evidence of moose browse and scat in plot.

*Dryas octopetala*, *Petasites frigidus* gone to seed. Catkins on *Salix reticulata* and *Salix glauca*. *Aconitum delphiniifolium ssp. paradoxum* and *Metensia paniculata* in bloom.

Weather:

**Monday, July 23**



Photo 8. Looking northeast at point 07 and landscape.

*Poly\_07*: Another quick hike from camp. From camp we headed west up to ridge then followed the ridge for about 1 km to plot. Can see our camp to the north. Overall plot slope is consistent with what is written in database. Check plot map to see where there are slight decreases in plot slope. In Quadrant D plot drops off to 22 degree slope and in Quad A plot drops off to a 14 degree slope. See map. Significant amount of frost action on plot and in surrounding area leaving rocks, gravel and bare ground. Plot is convex shaped and elevation decreases to the west and then to the east. Plot overall slope (the direction that water would drain) is northeast. At the northern edge of plot there is a bear dig. Caribou scat in plot. Ground squirrel midden in plot.

*Dryas octopetala* and *Arnica griscozii* had gone to seed. *Artemisia arctica* in bloom.

*Poly\_12*: Quick hike traversing north to plot from point 07. Plot is on the middle slope of a low elevation ridgetop. There is a dry creek at bottom of the slope. There is a major creek east about 400 to 500 meters.

Caribou hair and scat was found in plot. Bear scat was found in plot. There was a ground squirrel in plot and vocalizing.

*Vaccinium uliginosum*, *Lupinus arcticus*, *Dryas alaskensis* (collected), *Pedicularis* spp., *Polygonum bistorta* gone to seed. Catkins on *Salix arctica* and *Salix glauca*. On and just outside of plot were *Epilobium latifolium*, *Aconitum delphiniifolium* ssp. *Paradoxum*, *Mertensia paniculata*, *Gentiana prostrata* and *Campanula* sp. in bloom.

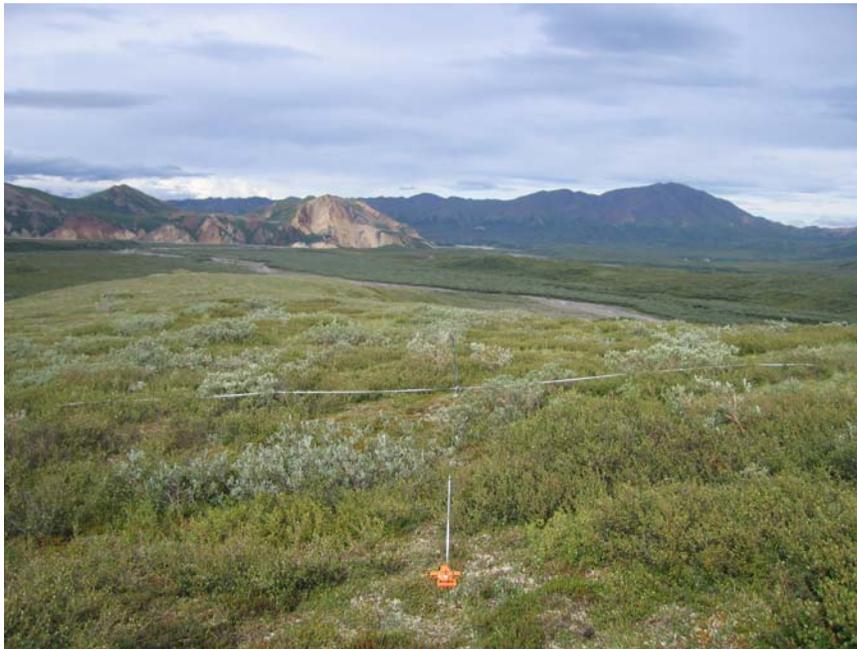


Photo 9. Looking north at point 17.

*Poly\_17*: Plot is on a ridgetop gently sloping to the north, northwest. Ridge sides drop east and west. Caribou scat was found in plot.

*Vaccinium vitis-idaea*, *Empetrum nigrum* and *Dryas octopetala* gone to seed. Catkins on *Salix glauca* and *Betula nana*.

Weather: Weather is very windy and cold. By the time we arrived at our last plot for the day the wind started to die down and the sky was partly sunny.

### **Tuesday, July 24**

*Poly\_23*: Plot is about 700 meters west of camp. It was a quick hike. We had to cross two creeks (very easy to jump over) that have clear and pumpable water. About 14 meters east of plot edge is creek running south to north. The surrounding area is flat, and on a valley bottom on colluvium.

Evidence of moose and snowshoe hare browse in plot as well as in vicinity. Snowshoe hare scat in plot.

*Dryas integrifolia* and *Lupinus arcticus* gone to seed. *Gentiana* sp. in bloom



Photo 10. Looking north at point 22.

*Poly\_22*: A quick hike over from point 23. Crossed 2 creeks. Also, plot is about 150 meters from camp. Plot is on the toe slope at bottom of ridgeline. There are small (about 10 cm tall) moss hummocks covering the ground.

Ptarmigan scat, red fox and snowshoe hare scat in plot. Evidence of moose and snowshoe hare browse in plot. Moose trail through plot.

*Gentiana* sp. (off plot) and *Aconitum delphiniifolium* ssp. *paradoxum* in bloom. Catkins on *Salix glauca*.

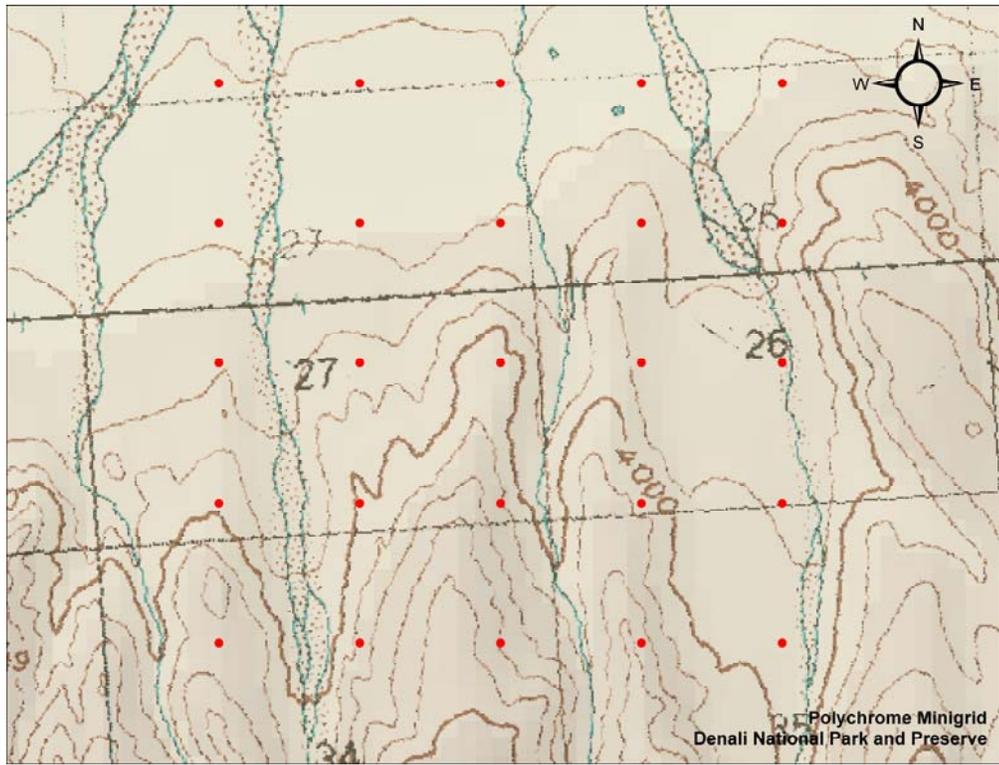
Weather: Perfect weather, sunny with blue sky and light breeze.

#### **CONCLUSION AND FUTURE CONSIDERATIONS:**

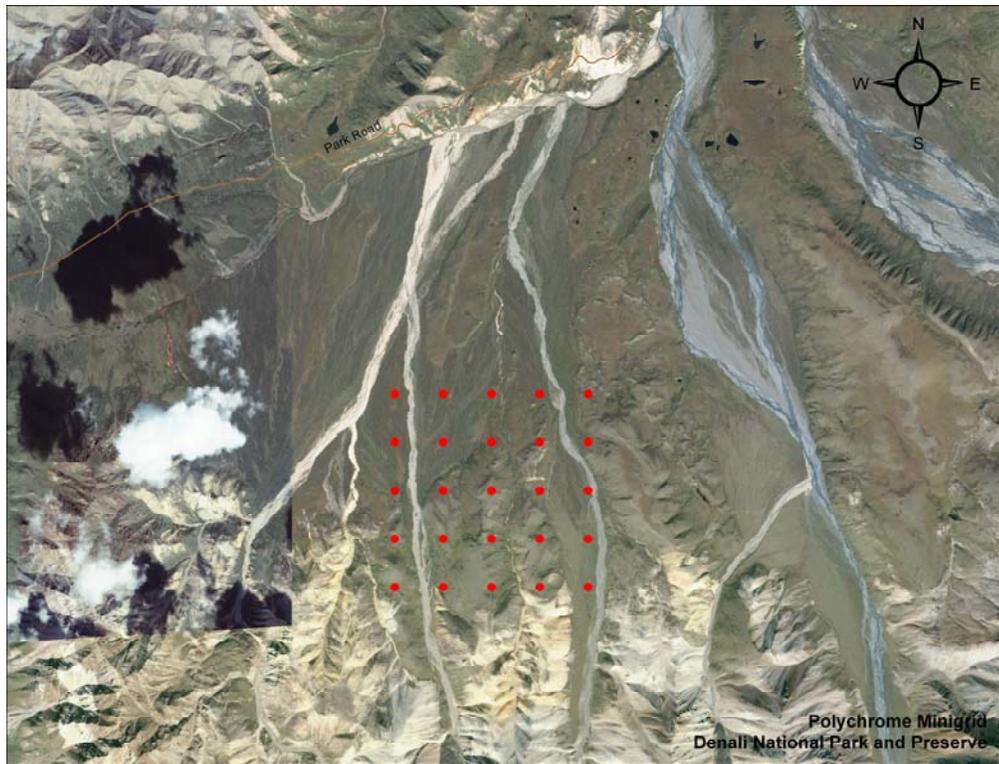
Peter, Fleur and James hiked out to our campsite and carried back most of our gear. When we got back to camp at around 3:00 pm Jay, Brian and I packed up the rest of our gear and then hike out. Peter, Fleur and James were waiting for us at the bridge. We then drove back to Park Headquarters.



Photo 11. From point 10, panoramic view looking from the north to the south



Map 1. Polychrome mini-grid.



Ortho-image 1. Polychrome mini-grid