

DENALI NATIONAL PARK AND PRESERVE

CENTRAL ALASKA NETWORK

Vegetation Monitoring Program

Summary Trip Report: Middle McKinley Mini-grid

30 June to 5 July, 2008



Photo 1. A view of majestic Denali in the morning, viewed to the south from the camp site. A channel of the McKinley River is seen in the foreground.

Lead Author: Richard Tate
Contributors: Jennifer Mitchell, Peter Nelson
Photos by Peter Nelson unless otherwise noted

July, 2008

PURPOSE:

The intention of this trip was to install permanent markers at each of the 25 points of the mini grid and, in accord with the protocols of the LTEM program, to collect vascular and nonvascular plant, soils, and tree data from each plot. Only 10 of the 25 were sampled and had point markers installed, however, as our sampling trip was curtailed due to a wildlife encounter (described below in the “Daily Activities” section for July 4th, 2008). We had originally planned to remain at the mini-grid site until July 9, 2008, but were extracted on the 5th. Other wildlife sightings are included in the “Daily Activities” section.

PERSONNEL:

Peter Nelson -- Crew lead, navigation, plot setup, nonvascular plant species composition and collections, transect cover, nonvascular cover estimates, aided with soil depths and tree coring.

Jennifer Mitchell -- grid point data collection, transect cover, tree and sapling data, aided with vascular plant cover estimates, soil depths, and tree coring.

Richard Tate -- Vascular plant species composition and collections, plot setup, soils data, vascular plant cover estimates, aided with soil depths and tree coring.

ACCESS TO MINI GRID AND CAMPING POSSIBILITIES:

This mini grid, located approximately 25 km northwest of the Kantishna airstrip, is accessible only by helicopter. On June 30, the vegetation crew flew via fixed wing aircraft from the McKinley Park airstrip, located at the east end of the park near the train depot, to Kantishna airstrip, at the western terminus of the park road. Due to load considerations, two trips were made: R. Tate departed with the majority of the gear and supplies in the morning (~1030), followed by P. Nelson, J. Mitchell, and the remaining sampling gear in the afternoon (~1530). The crew overnighted in the NPS Friday Creek Campground at Kantishna. Future crews staying in these lodgings are advised to select the wall tents or the least gaseous-smelling cabin or duplex, as some of the permanent buildings have appliances that seem to leak propane. The next day, July 1st, Green Team was helicoptered from Kantishna Airstrip to the minigrid, again in two trips- Mitchell, Nelson, and some of the gear first, at approximately 1200, followed by Tate and the rest of the gear shortly thereafter.

A quick aerial survey of the area exposed a lack of adequate campsites within the borders of the minigrid. Although the topographical map and even some of the aerial photos show what seem to be a series of fair sized streams flowing through the grid, observations from the air and ground proved these to be dry or ephemeral watercourses. During our sampling bout, we witnessed no standing or flowing water within the grid, aside from some shallow puddles around and in point 21. Additionally, thick forest or burned areas with copious downed wood and debris precluded a helicopter landing in the grid.



Photo 2. Our base camp, looking south.

With this information, it was pertinent to place camp close to an acceptable helicopter landing zone and with easy access to water. We chose a gravel bar next to the easternmost side channel of the McKinley River system for a campsite (GPS Coordinates: 62° 36' 25.46442"N, -151° 27' 17.8422"W), where the helicopter could easily set down (photo 2). Unfortunately, this location placed us outside of the grid, approximately 800 m south of the southernmost row of points. Camp was roughly halfway between points 4 and 5, but again, 800 m south of the grid. We placed our tents on a gravel bar covered with patches of *Dryas drummondii*. A kitchen area was established 60 m north of the tent area, across a flowing stream channel, and we hid our bear barrel stash in a copse of *Populus balsamifera* and *Alnus viridus*, some 50 m to the west of our tents.

Placement of a campsite at this grid proved to be somewhat of a Catch-22. Placing a campsite near water and a helicopter landing zone meant a long transit to the furthest points (upwards of 3 km) and being based in an area also hospitable to animals. Campsite location was perhaps a factor contributing to our run-in with feisty wildlife (please refer to “Wildlife Encounter,” below), as rivers and waterways are natural wildlife corridors.

Not having prior knowledge of the water situation at the grid, we carried 10 US gallons (37.9 liters) of fresh water with us. Upon emptying the first 5-gallon jug, we began to fill this receptacle with river water from the McKinley as a nightly chore. This water, though initially murky with suspended glacial silt, would clear somewhat after a day, and could then be used for cooking or filtered for drinking. We carried a “Dromedary” water bladder for camp use that we filled with filtered water and used for storage.

HIKING:

Hiking in this grid is easy to moderate- the 1:24000 scale topographical map is marred by a solitary topo line. A 20+ year old burn comprises perhaps 45%-50% of the northeastern portion of the grid, with the remainder situated in an open, mature *Picea glauca* woodland and riparian brush land. Despite this lack of incline, periodic inclusions of alder thickets within the unburned portion can make navigation difficult. We encountered this problem as we attempted to return to camp from point 25 (far northwestern corner of grid), running into heavy alder in the vicinity of points 14, 15, 19, and 20 (refer to Mini Grid Map in the “Maps”

section below). In transit, we ended up skirting this area by moving to the east and into less difficult ground cover. Thick brush is also encountered for the first 200 m adjacent to the river banks. Hiking in the burned areas was challenging in its own right, with many downed logs and snags. Fortunately, many areas of the fire appear to have burned with much intensity, and thus are clear of smaller-order debris and sticks. All in all, walking in the burn is a rapid and hassle free enterprise.

An additional caveat to all this is that fact that we did not explore the southwestern portion of the grid extensively (points 4, 5, 9, and 10), and thus the hiking conditions in this area remain somewhat of a mystery. Judging from this region's proximity to the river and its' unburned condition, however, one could likely expect thick brush in a closed *Picea glauca* forest.

WEATHER AND ENVIRONMENTAL CONDITIONS

We had immaculate weather for the duration of our sampling bout. It should be noted, however, that the mosquitoes were pretty fierce as well, necessitating withdrawal into Bug Shirts and even gloves, which made for pretty sweaty conditions. It is suggested that, if one is not morally or physically averse to the wearing of DEET repellent, an adequate supply of this substance be brought along. Risk of dehydration was a definite possibility, and taking adequate water for the day a concern. On the warmest days in the full exposure of the burned areas of the grid, we all drank at least 3 liters of water.

SAFETY CONSIDERATIONS:

See end of report "Conclusion and Future Considerations".

ACTIVITIES:

Monday, June 30

R. Tate went to the airstrip at approximately 1030, flying out via fixed-wing aircraft for Kantishna shortly thereafter. Most of the sampling gear went with him on this trip. Once on the ground at Kantishna, he transported the gear (with the help of the Westside ranger) to the Friday Creek Campground and claimed housing in one-half of the Duplex, dutifully guarding the equipment and awaiting the arrival of J. Mitchell and P. Nelson, who arrived about 1645 in the airplane. We headed for Friday Creek and called it a day at 1700.

Weather: AM: Sunny and clear, some high clouds. Weather building. PM: Overcast, windy, rain began to fall ~1930.

Tuesday, July 1

We were helicoptered from Kantishna airstrip to the grid at ~1200. Mitchell, Nelson, and the majority of the gear went in the first flight, with Tate and the remainder of the gear following soon thereafter. We set up camp south of the grid as stated above in the "Campsite location" section, had lunch, and headed out to sample at around 1400.

Plot 2 was chosen as the first sampling point (photo 3). It was located in an unburned section of the grid, with mature *Picea glauca* trees; sporadic *Populus balsamifera*; patchy shrubs including *Sheperdia canadensis*, *Rosa acicularis*, *Juniperis communis*, and *Salix* sp.; a thick mat of *Hylocomium splendens* covered the ground. Common forbs in the plot included *Aster sibiricus*, *Pyrola grandiflora*, *Hedysarum alpinum*, and *Solidago multiradiata*.



Photo 3. Plot 2, looking NW at plot center.

Weather: AM: Some light rain showers with periodic sun breaks. PM: Nice, more sun, some light squalls in the afternoon.

Wednesday, July 2

We completed points 16, 21, and 22 on this day. Point 16 fell within the burned area of the grid, and exhibited mid-successional vegetation, void of large living trees (photo 4). Many fallen dead logs and snags were scattered around the premises. *Populus tremuloides* and *P. balsamifera* saplings, *Salix* shrubs, and young *Picea glauca* seedlings dominated the young overstory, with a mosaic of lichens (*Cladonia* sp.), forbs and graminoids (mostly *Elymus innovatus*) populating the ground. Mineral soils were, for the most part, easily obtained from this plot and others in the burn.



Photo 4. Plot 16, looking N at quadrat D. Typical quadrat of the burned areas.

We proceeded from point 16 to point 21. Eating lunch in the vicinity of point 21, we noted a group of hawk owls, 2 adults and at least 3 juveniles, calling to each other and sitting in the large trees nearby. Point 21 was interesting and very different from the others points encountered in this mini-grid (photo 5). It fell on slightly higher, water-retaining ground out of the burned area. *Picea glauca* was present, along with scattered *Picea mariana* individuals, although none of this last species fell within the plot. *Larix laricina* was present as well. Shrubs included a variety of *Salix* species, *Vaccinium uliginosum*, and blooming *Ledum groenlandicum*. The influence of water contributed to some interesting forbs growing in the plot, including *Equisetum arvense*, *Wilhelmsia physodes* and quite possibly *Ranunculus lapponicus* (although this collection was lost). A few species of *Carex*, *Calamagrostis canadensis*, and *Arctogrostis latifolia* comprised the graminoid contingent. The burrow and “tailings” of a small burrowing mammal were found at the eastern soil sample location.



Photo 5. Plot 21, looking W into plot from perimeter.

Point 22 was a plot in the open burn, and appeared as though it was in a high intensity area. Hardly any organic ground cover remained, exposing the cobbles of this former channel of the McKinley River. Vascular plant species present included *Arctostaphylos uva-ursi*, *Juniperus communis*, *Sherperdia canadensis*, and the omnipresent *Elymus innovatus*. Many saplings of *Populus tremuloides* and *P. balsamifera* were found in the plot. *Pyrola grandiflora* and *Orthilia secunda* were growing in the southern half of the plot. Also, a collection of *Botrychium lunaria* was made at plot 22. Soils were somewhat difficult to collect, as the finer-grained mineral soil had to be fished out of the crevices between large cobbles and rocks.

Weather: AM: Clear with high stratus clouds. PM: Remained clear through afternoon and evening.

Thursday, July 3

We began this warm day with plot 23, a very straight-forward plot within the burn. Vegetation was typical of the of the open, higher intensity burn- please reference descriptions of points 16 and 22 above. Plot 23 was completed very quickly.

Plot 24 offered more complexity, as the vegetation did not seem as direly affected by the burn as in other areas (photo 6). Large snags were still standing in and around the plot. Mature thickets of *Salix bebbiana* and *Alnus viridus* featured in the plot, along with a dense groundcover of *Ledum groenlandicum*. Other shrubs present were *Rosa acicularis* and *Potentilla fruticosa*. Thick miniature lichen forests, composed mainly of various species of *Cladonia*, made up a large percentage of the ground cover of this plot. They were extremely delicate in their dessicated state, and we took care not to tread upon them excessively. *Epilobium angustifolium* and *Lycopodium annotinum* were noteworthy forbs here.



Photo 6. Plot 24, looking east from plot center.

Our last plot of the day, point 25, offered a view of what the surrounding forest was like in its unburned state: a dense, closed canopy of large *Picea glauca* trees, thick groundcover of the feather moss *Hylocomium splendens*, scattered forbs (*Hedysarum alpinum*, *Orthilia secunda*,

Geocaulon lividum, *Senecio lugens*) and shrubs (*Juniperus communis*, *Viburnum edule*, *Sheperdia canadensis*)(photo 7). The orchid *Goodyera repens* turned up in quadrat B, and there was a patch of *Dryas integrifolia* growing out of the moss mat as well.



Photo 7. Looking NW at point 25 plot center.

Weather: AM: Sunny and very nice. Few high clouds. PM: Day remained hot (up to 30°C) and clear throughout afternoon and evening.

Friday, July 4

We did three plots in the burned area of the on this day: points 11, 6, and 01. They were all very similar in landscape, burn intensity (high!) and plant assemblages, so one description should suffice for all three. All the plots exhibited large amounts of fallen logs and snags, many *Populus balsamifera* saplings (many of which had dead tops), scattered *Populus tremuloides* seedlings, large amounts of the *Elymus* grass, *Juniperus communis*, *Epilobium angustifolium*, *Hedysarum alpinum*, etc. The plots went like clockwork. We returned to our camp to enjoy a lovely, relaxing holiday evening. We'd just retired to our tents when there occurred a tragic wildlife encounter.



Photo 8. The offending Black Bear exploring our kitchen area. Photo by Jen Mitchell.

At approximately 2230, Jen Mitchell alerted Rich and Peter that a bear was in the kitchen area (photo 8). Exiting our tents, we saw that, indeed, an adult black bear was rummaging around in our kitchen area, about 60 m north of our tents. Intending to run it off, we approached with Bear Spray and shotgun (carried by Peter) in hand, calling loudly. The bear disappeared into the thick shrubbery near the kitchen. Inspecting the area, we found that the bear hadn't damaged anything. Still calling and beating a monument cap to make noise, we tried to make sure the bear had run off. It slipped into the thick brush and out of sight. Suddenly, Peter saw it in the bushes, perhaps 7 meters distant. We entered the brush, trying to run the bear off, but lost track of it again. Coming to a dry drainage, we proceeded northwards away from our camp, thinking we were driving the bear in front of us. Satisfied that the bear had been chased off, we turned around and headed back to camp only to find the bear rummaging in Jen's tent. It had knocked down the front of the structure and tore a hole in the nylon (photo 9). Again we chased it into the brush and lost sight of it. Deciding it was too dangerous to pursue a bear with zero visibility, we returned to our camp. And there was the bear, again in Jen's tent!

Having decided that this bear definitely wasn't getting the point, we rapidly approached, yelling and waving. The bear slinked off slowly, but gave no indication of leaving the area. We finally came to within about 15 meters of it, and it was not giving any ground. Peter decided to try a warning shot with the shotgun to spook it. Aiming over the bear's back, Peter fired. The bear hardly exhibited a response. Jen urged Peter to try another shot and again the bear was unresponsive.



Photo 9. Jen's bear-ravaged tent.

At this juncture, the bear had crossed a small flowing side channel of the river and turned around to face us. We three humans were standing in a picket on the other side, less than 10 meters from the bear, still yelling and waving. The bear was sniffing the air, moving his head from side to side, and pawing the ground. Then it lurched quickly forward in a mock charge. Peter stated that if the bear made as though to charge again, he was going to have to shoot it.

The bear pounced forward. In this same instant, Jen discharged her bear spray at the bear. Almost directly, Peter fired. The bear whirled around, likely hit, and Peter fired again. The creature charged off, out of sight, into the thick brush of the riverbank. The bear spray was not ineffective, but did not have time to dissuade the bear before the shot was taken. The entire incident escalated quickly: the time elapsed from initial sighting to the shooting was perhaps 15-20 minutes.

Following the shooting, we immediately alerted dispatch of the incident. We also took photo documentation of Jen's tent, and investigated the substantial blood trail until it went into the thick brush, but were careful to leave the area largely undisturbed, pending further investigation. Rich and Jen went to sleep after a time, and Peter stood a lonesome vigil throughout the night, wary of the hazardous return of a possibly injured bear.

Weather: AM: Sunny with high clouds. PM: 30°C+ in afternoon. Thunderstorms to the south, skirting us.

Saturday, July 5

We learned in the morning that, due to the gravity of the bear incident and the unknown status of the bear, we were to be extracted via helicopter from the mini-grid. The morning was spent breaking down camp and preparing for the arrival of the helicopter, slated to arrive at approximately 1300. The "Llama" mountain rescue helicopter showed up shortly after this

time, dropping off the park bear biologist, Pat Owen, and a law enforcement ranger. They questioned the vegetation crew about the incident, and remained at the sight to look for the bear (or its' remains) in the woods nearby. Meanwhile, we were helicoptered to Kantishna and drove the park road back to headquarters, where another debriefing interview awaited us. The day, as well as the Middle McKinley minigrid experience, ended at 2230.

We learned later that the searchers followed the blood trail about 200 m before losing track of it in the thick brush. Unfortunately, aerial and ground searches failed to turn up any evidence of the animal, and thus its status remains unknown.

Weather: Bright sun, good visibility, with some moderate wind.

CONCLUSION AND FUTURE CONSIDERATIONS:

The Middle McKinley mini-grid offers a unique view into the successional processes that occur after a fire. Although the area burned more than 20 years previously, the landscape is still recovering. Many early and mid-colonizer species of vascular plant and lichen were found in the areas affected by the burn. Moreover, the unburned plots allow for some comparison of the state of the grid prior to its' immolation.

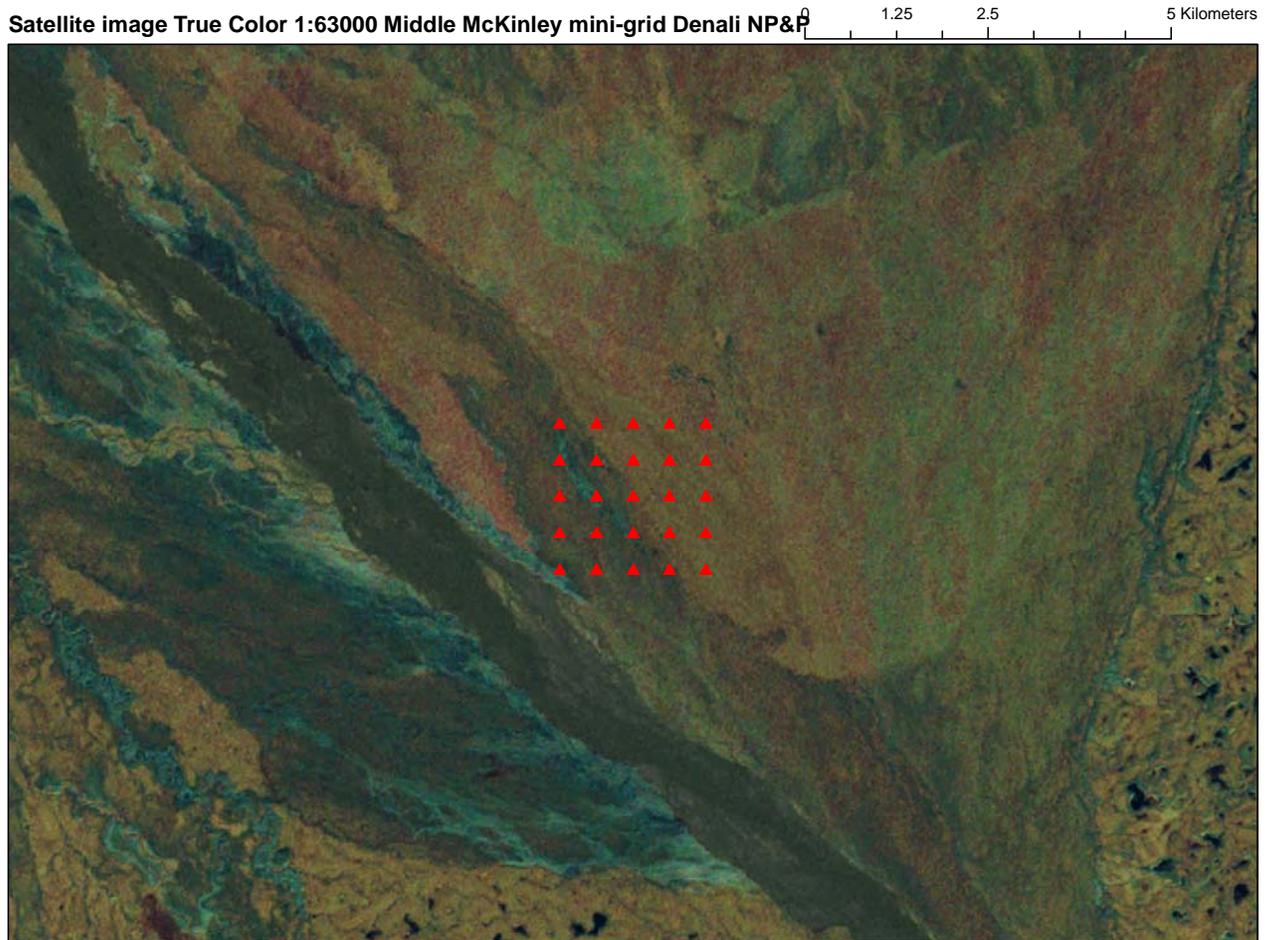
The campsite locality is an important factor to consider while making a plan of attack. As always, doing the farthest points from camp early on in the trip makes the most sense, but that importance is magnified in the case of this grid. Transit from camp to the most distant points is more than 3 km and takes upwards of an hour to walk there, even over the flat topography. Beginning the work day a half-hour or even 15 minutes early worked well for us, allowing us to finish three distant points and still get back to camp at a decent hour.

Work can proceed quickly in the burned areas of the grid, despite the downed wood and debris. Lack of topography makes for easy, fast walking- quite a boon, considering the distance from the far side of the grid to an acceptable campsite. Aside from the thick alder groves, mentioned in the "Hiking Conditions" section above and which should be avoided, even the unburned areas of the minigrid offered easy hiking.

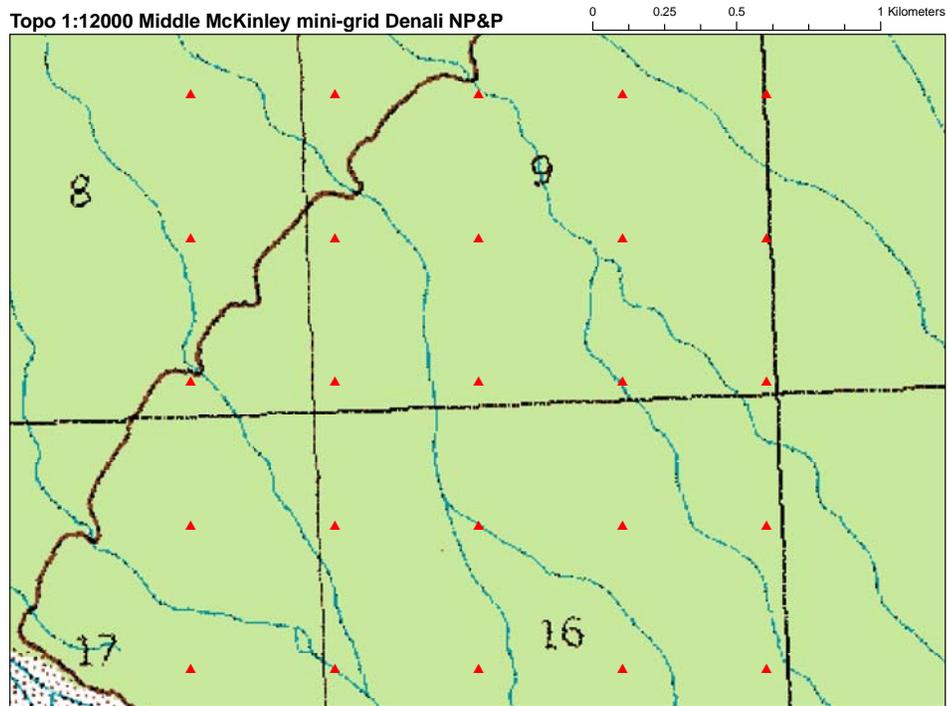
Lack of shade in the burned areas can make for hot, sweaty conditions if the weather is nice. Being prepared by having adequate water and salty foods to replace electrolytes would be a good idea. Taking four 10-gallon jugs of water to the campsite would be a time-saver, eliminating the need to settle the turbid water of the McKinley before pumping it. The physical and mental stress imposed by the biting insect factor was definitely amplified by having to wear hot bug-proof clothing. DEET, for all its plastic-melting and lipid bilayer-altering effects, can be your friend, allowing one to enjoy the sunny days that (during the summer of 2008, at least) were far too infrequent. Read the Material Safety Data Sheet (MSDS) for the substance and decide for yourself.

Finally, the dreadful shooting of the black bear that ended our sampling trip early highlights some important points about being prepared for a wildlife incident. Being vigilant and maintaining a clean camp, especially in a wildlife corridor such as a river valley, is very important. It should be noted that we'd done well on this front, and a messy kitchen area is not what lured the bear to our camp. Making sure that no smelly substances- including non-

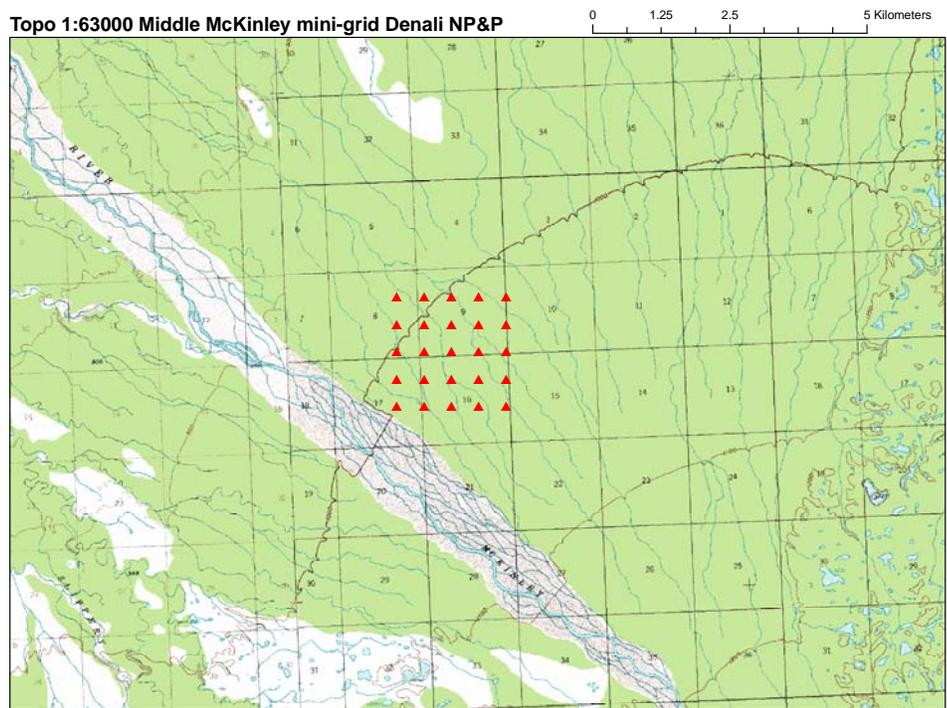
food items such as sun lotion, toiletries, or flavored beverages- are kept in tents or backpacks overnight is a necessity. Future teams surveying the area should be sure to have unexpired, operable bear sprays. Black bears are unpredictable and wily, and the bear training given at the beginning of the season perhaps does not emphasize enough the differences in behavior between grizzly and black bears. A main lesson taken away from this bear encounter is that no two incidents of this nature are alike: they depend on the individual conditions and psychologies of the humans and animals involved, and thus there is no surefire, catchall way to defuse a bear situation. Taking time, maintaining a cool head and not rushing to the denouement could mean the difference between a dangerous meeting with a bear and one in which no one, man nor beast, is harmed.



Map 1. Satellite Image True Color 1:63K of Middle McKinley mini-grid.



Map 2. Topo map 1:12K of Middle McKinley mini-grid.



Map 3. Topo map 1:63K of Middle McKinley mini-grid.