

USA - AK: North Star Borough; Fairbanks,

Arctic-NWR Field Office, 10 July 2017.

(Suzie + Chandalar Rivers Small Mammal
+ Parasite Sampling) 10 July → 25 August 2017

(AGH)

(SWL)

(AJS)

Andrew G. Hope, Schuyler Liphardt, Alfredo
Soto, Jeremy Nesbitt, (JTN).

This trip is to complete a sampling transect
~ N → S across the Arctic-NWR and importantly
across the boreal/tundra ecotone. Most comprehensive
five sampling to this point was carried out by
Robert Rausch in the 1960's with few other
small mammal surveys since. These samples
will constitute a time series of change in distrib.
and community turnover, and host-parasite
dynamics, responding to long term environmental
change.

AGH + JTN flew MCI → SEA, SEA → ANC, and
ANC → FAI. SWL flew ABQ → SEA → ANC →
FAI. We all arrived at ~ 19:00 in FAI and
picked up bags and waited for AJS to arrive.

Then all drove to Fred Meyers for food/beer and
to set up camp in Alfredo's back yard. Bed by
22:30. A long day after leaving Kansas City @
07:00 ~~22~~ Central Time...

11 July 2017 - Woke at 07:00. Rained through
the night but not hard. Wet/drizzle in the
morning and smoky/co/fires to the northeast.
Stopped for coffee at Safeway before heading to
the field office. (101 N 12th Ave.) and unloading
all field gear except personal stuff and food.
Sorted prep gear, kitchen, camp, boots. Had

most of what we needed, given our previous trip on the Canning. Boats were mostly in good shape. Needed to buy pump hoses/values. Also salvaged action packers, totes, boxes, etc. from other available gear since some of our stuff was taken by other crews. - Left boats inflated overnight in the shop to check for leaks. Checked frame and got extra bolts. Adjusted cars to help keep my bad elbows working... Got most of the gear packing done by ~16:00. Back to Alfredo's house for moose burgers after a beer or two at Food Factory where we all sat to put together a food shopping list for the trip. Bed at ~22:00.

12 July 2017 - Wake at 06:30. Coffee stop at Safeway before returning to the field office. JTN had bear safety training all day so dropped him off then deflated and rolled boats and finished closing up first shipment of gear, packed it in the trucks and headed to Wright Arr on the east ramp @ the airport to freight up to Arctic Village. Ended up packing 3 action packers, 2 boats, cars/paddles, boat frame, one box of resupply lab gear, 2 small tables, prep tent, clamshower and auger, and pitfalls. All this weighed ~450 lbs. Then we went to Sam's Club to buy what we could as bulk then went to Fred Meyer to buy rest of food and consumable supplies. All supplies total cost almost exactly \$1,000. Then headed back to the field office and spent the rest of the afternoon consolidating and packing food. JTN finished training at ~15:30 so we all loaded up a second shipment and drove it out to Wright Arr @ ~16:00, then returned to

(2nd shipment
@ ~500 lbs)

Journal

Katage 3.

field office. Alfredo was informed that the ~~water~~ ^{water} level on the Tunjik near our first site and drop-off was too low to float so we had to adjust our plans to put-in further down the Tunjik and adjust the second site to just below confluence w/ Chandalar. Still seems OK (fingers crossed) but too bad to have to skip most of the tundra section in the foothills.

JTW met up with his buddy (army) and they went to hang out for a few hours. The rest of us headed to Safeway for food then back to Alfredo's house to sort personal gear. Bed @ 22:00. JTW was dropped off @ ~23:30.

Shopping Supplies.

Consumables:- grill grate - 1.

- baby wipes - 5 packets.
- table - 1. medium folding.
- card stock (manilla folders x4)
- lighters - 5-pack.
- clorex wipes - ~100.
- paper towels - 3 rolls
- aluminium foil - 2 rolls
- hand soap - 2 bottles.
- ziplocks - 1000 sandwich, 50 quart, 75 gallon
- flagging - 4 rolls.
- white gas - 3 gallons.
- batteries - 24 AA, 6 AAA.
- sunscreen
- bug repellent
- tarps, 1. 10x12, 1. 6x8.

Staples:- salt, pepper, olive oil, butter (6 lbs),
pilot bread (6 sleeves), sriracha hot sauce, tabasco,
instant potatoes (6 packs), powdered milk (6 packs)

Journal Altitude 4.

dill, garlic powder, old bay, 2 gals. rolled oats
coffee (8 12oz. packs), green tea (100 bags),
black tea (100 bags), onions (8), garlic (20),
carrots (12), honey (3 bears), nutella (1 jar),
hot chocolate (100 packets), lemonade powder
(6), emergenC (1 box), peanut butter (6, sm.,
2 lg.), pancake mix (1 box), loose granola (3 gals.)

Breakfast: - instant oatmeal (250 packets)
- granola bars (160)
- trail mix (total 6.5 gallons full)
- peanuts, chocolate chips, peanut butter chips,
butterscotch chips, mt mis, cashews, almonds,
cranberries (all bulk).

Lunch: - ramen noodles - (125 packets)
- tortillas (100 total)
- summer sausage (7-8 inch.)
- cheese (6 lg. blocks)

Dinner: - mac + cheese (20 boxes)
- chicken (16 lg cans)
- rice packets (12)
- pasta packets (12)
- Thai dinner (2): - rice noodles (2), coconut
milk (2), canned shrimp (2), peanut sauce
(2)
- ~~tortilla~~ merit pizza (2): mozzarella cheese (2),
pepperoni (1 packet), pasta sauce (2), tortillas
(20)
- ~~merit~~ frito pie (2): Fritos (2 packets), homed
chili (2 cans), beans (2 cans)

All food was for 42 days of B, L, D. This is
6 sites of 5 B, 5 L, 5 D, plus 12 travel days.
(low on dinners, but high on snacks.)

Journal Kottape 5.

13 July 2017 - Woke @ 06:30 and then coffee @ Fred Meyers before heading to field office. Dropped off JTD for firearms training and AJS for paperwork stuff. Gave a list of emails of family to be notified daily of progress via the "inreach" ~~to~~ satellite messenger device. Arbl and SWL went shopping for stuff. Got some whiskey/vodka/rum then bought a solar charger, some carabiners, personal supplies etc. I called Lydia and we spent some time in a coffee shop doing emails etc.

@ noon

Headed back to pick up AJS, then to the USFWS hangar @ east ramp of airport to talk with pilot about size and weight of gear. In particular there was worry that the nitrogen shipper in the large blue barrel was too big to fit into a cub plane, but it fit just fine. It will likely take several flights from Arctic Village to get all, and everything out to the site.

Freight Items :- 15. small bear barrels.

3. lg. boxes for resupply
4. action packers
2. boats
1. bundle oars/paddles
1. bundle clam shovels (2), pitfall auger
1. bundle raft frame parts
3. tables (2. small, 1. medium)
1. prep tent
1. bag pitfalls
4. lg. dry bags
2. shot guns.
2. sm. dry bags
4. personal bags.
1. nitrogen shipper
1. bucket
1. water jug
4. people!!

The plan for tomorrow is to drop AJS at USFWS hangar to be flown to Arctic Village with some stuff. Today pilots will collect freight @ Arctic Village and begin to haul it out to our first site. Then tomorrow Alfredo will arrive and help with getting it out there. The rest of us have firearm recertification on the range in the morning then fly via Wright Air to Arctic Village in the afternoon and hopefully out to first site that evening.

After airport we returned to field office to wait for JTW to finish firearms training, which went on late, till 16:00 then the three of us went to Wal-Mart for JTW to buy supplies while Alfredo did office work. Then back to field office to sign out firearms, cleaning kits, and ammo, then back to AJS house. Drank beer, organized gear and packed for the trip. Bed @ 23:00.

14 July 2017 - Woke @ 06:30 then packed tents and all gear, loaded up the truck, then coffee and off to the airport USFWS hangar to drop Alfredo off @ 08:00. Weather was good. Wind changed from the east to from the west, meant to blow the fire smoke out of the region but bring in clouds and maybe rain. ~ Highs have been ~85°F. Lows ~55°F. We then headed down to the range at the end of east ramp for our firearms cert. We all passed. Schuyler bested the others marginally. We took a while, 08:45 → 12:00, then went for a quick refreshment then back to Wright Air @ 12:45. Checked in for flights, weighed all gear plus ourselves. Got a call from Alfredo @ Arctic Village to say that all gear freighted up was already

Flown out to the site, except for one resupply box that hadn't shown up so I went to Wright Freight and asked and they found it and put it with our other gear. Apparently it went up and back, stayed on the plane by mistake. Then met with Kathy Stenberg from USFWS with a Fed credit card to pay for extra gear weight, cost ~ \$250. Then we made calls to family and loaded and flew out on a grand caravan to Arctic Village @ 13:50. Arrived at ~ 15:15. Good flight but low visibility due to smoke. Flew over the airstrip (take-out) @ Venetie and just east of the East Fork Chandalar. The river was flowing clear. Braided but big!

Landed in Arctic Village and unloaded. Met Brett (USFWS law enforcement / pilot) and then carted gear to the super cub and husky planes next to the visitor center. Hollis and Dan (pilots) suited up and then packed the two planes. Alfredo had already been taken out to the site so Schuyler went w/ Hollis and I went with Dan in the super cub and we took off again for our site only 20 mins after arriving. I asked Jeremy to stay so I could organize a camp. He hung out and talked to Brett about their military service, etc. It was a quick turn-around w/ a 15 min. flight to the gravel bar air strip on Tunjik ~ 13 miles north. Flight up ~~Once we landed and unloaded~~ was awesome flying over east fork Chandalar and then Tunjik. Very meandering around confluence and then very braided further up Tunjik. Dan pointed out good and bad channels and I marked mental benchmarks. Looked a bit bonny but ok.

Once we landed and unloaded, planes took off back to Arctic Village and we scouted the site looking for best place for tents, prep tent, and kitchen.

★ Site #1

Journal

AG Hope

8.

USA: AK: ~~North Slope~~ Arctic-NWR; 9 mi. N, 3.5 mi. W. confluence
Junjik and East fork Chandalar: $68.33460^{\circ}N$,
 $-145.58926^{\circ}W$, 661 m. 14-18 July 2017.

Within ~40 mins Dan returned in plane w/ Jeremy. Unloaded then took off back to A.V. then Fairbanks. Weather was warm, partly cloudy and v. little wind. Temp ~80°F. Smoky. Threatening rain in the northwest w/ some thunder so we set up personal tents first then prep tent. The camp is on a gravel bar in the middle of south and middle channels of the Junjik. All water to banks is at least wader deep. Unfortunately, but not too bad. 3 out of us had waders. Alfredo only rubber boots. Schuyler tried his waders and they leaked with rotted rubber. He patched them w/ boat patch tape and gorilla tape and they work so far. The gravel bar has lower gravel level for kitchen, middle level of equisetum where prep tent went and a higher level w/ bigger willows and equisetum where we put our tents. All around are mountains. Great views. To the north of the river is black spruce tundra. A high bench. To the south is a hillside of tundra but with a seeping broad creek just west of camp and an open bank area where surface builds up in the winter. The tundra is fairly open with thick moss but not much structure beneath. The creek has alder in the bottom, areas of thick sphagnum moss and upwelling water, willow, dwarf birch and blueberry cinquefoil, etc - Both rocky and muddy and silty. Further upslope the spruce gives way to open tussock tundra overlaid on permafrost. One or two small mesic areas around ponds. Lots of small mammal sign in equisetum on gravel bar, all the way up to tussock tundra. Good looking site.

There has been little rain up here in the last couple months so the moss is dry and generally dry all round with low river flow. I expected best trapping results in the wet areas.

We went to set traps @ ~18:00; 30 snaps each plus 52 pits for me, for the first night... Rain started steadily but not hard as we set out but quit by ~19:00. A good wetting. SWH and AJS set traps in willow and equisetum on the gravel bar so they didn't have to cross the river without waders. JTN set snaps on a line in tundra parallel to the river south of camp. I set pits up the broad marshy creek to SW of camp, both across the south channel. Then back to camp for dinner of mac + cheese before bed @ ~22:00.

15 July 2017 - Up at 07:00, coffee and granola bar then out to check traps. Not too much but a good number to start with for getting us all in the groove for prepping. Had some oatmeal for breakfast then prepped till ~13:00.

Trapping captures: 15 July 2017, site #1; Jungik.

- 3. *Sorex cinereus* - pits
- 4. *Microtus oeconomus* - pits
- 1. *Microtus murus* - equisetum, gravel bar
- 1. *Myodes rutilus* - tundra.

Total = 9 captures, DIVERSITY = 4 species

Had some lunch and then went to set more traps. I tacked on another 52 pits up the creek along alder, willow, and sparse tussock tundra.

JTN took 70 snaps further south up the hill to the edge of targa near the upper strip of willow out of the creek area. SWL mended his waders and set 70 snaps across the river to south up the very wet mossy creek area near my pits. ATS set 70 snaps in two lines, 40 along the open ~~rocky~~ area (post-ice-melt) on the south bank east of camp and 30 up the rocky patch and into targa. I also hiked up to the open tussock tundra over permafrost to the south and slightly east west of the creek. Up on a shelf. Great views from up here! Good weather with partly cloudy and soft breeze. Mosquitos not too bad. I don't seem to react to any of them anymore, after so many years... All back in camp by ~19:00. We had set up the SOAR boat earlier in the day and JTN and I went to scout the north bank of the willow, looking for habitat, and a good way over. Many small channels. The middle and north channels bigger than south channel near camp. Still patches of auf ice around. A great looking fishing hole in an eddy next to a ~8ft. rock face, straight north of camp on north bank... Scouting found nothing better habitat-wise than south bank and a fair hike, so we'll concentrate on the south side.

Had dinner of tortilla pizzas with mozzarella cheese and tomato sauce and pepperoni. V. good. Bed by 21:30. Rain held off. Beautiful evening.

16 July 2017 - Woke @ 07:00. Coffee, granola bar, then checked traps. No shrews on laser lines but 2 S. hays, and 1 S. ugnunak upon tussock tundra. The ugnunak was fairly definitive. Great news! Fairly low numbers. Out by 15... Oh well.

Trapping totals: 16 July 2017: Site #1: Junjik.

- | | |
|----------------------------|--|
| 1. <i>Sorex ugyunak</i> | Total = <u>13</u> captures
Diversity = <u>4</u> species |
| 2. <i>Sorex hoyi</i> | |
| 5. <i>Myodes rutilus</i> | |
| 5. <i>Microtus murus</i> | |
| (1. yellow capped warbler) | |
| 1. redpoll | |
| 1. gray jay | |

Prepped specimens after breakfast until ~13:00. Then had lunch and off to set more traps. AJS moved 30 snaps to the south tundra/open area. JTW moved 30 snaps to a pond above the tundra with lots of sign. SWL moved 30 snaps to the tussock tundra near my line of pits, and I tacked on another 64 pits in this area with an additional 30 set by SWL.

Finished setting by ~17:00. Weather was nice again. Dry, cloudy, breezy, warm. Overnight was partly cloudy, warm till sun behind mountains ~~then~~ @ ~midnight then cooled off. Dewy morning. When back at camp, had a break, snacks, then I took my fishing pole and threw a cast in slackwater just to SE of camp. Pulled in a nice grayling (~14in) on my first cast! Schuyler went to fish a hole behind a boulder at the creek mouth SW of camp and caught a couple. I then went and scouted the river down from camp to pick the best line. Looked good mostly. A couple maneuvers early then we'll hit a good channel. Left first down the narrow but deep channel, then left cut into the next channel over. Should be fine.

JTW and AJS hiked up the small mountain south of camp and back. Clear views. Perfect conditions for it. They had a good time. Back within 2 hrs. Jeremy then caught a good 18in grayling.

Fish for dinner over coals, wrapped in foil, w/ cheesy mashed potatoes. Great stuff. Had a toast to the first fish. Then bed early by 21:00. Tired.

17 July 2017 - Woke @ 07:00 to a cloudy looming sky. Thought it might blow off... Coffee and g.b. before checking traps. I caught a small M. xanthognathus and a small L. trimucronatus in pits and a couple more shags. Again a relatively low catch. It's been dry. Not sure how the water was here, but, good diversity -- Plus, a Sorex minutissimus! (End-record for the Archiz-Nupku)

Trapping totals: 17 July 2017: Site #1: Junjik.

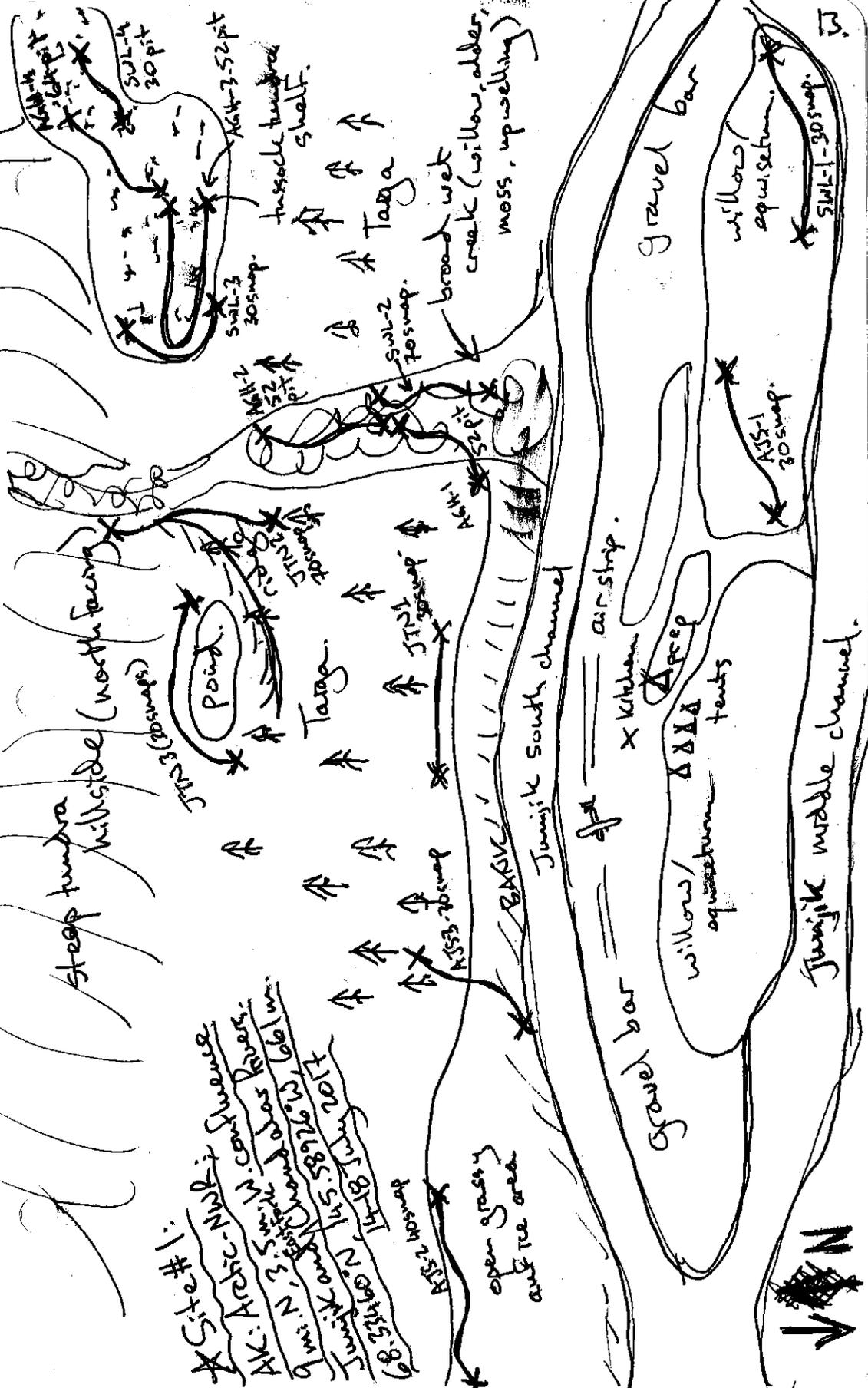
1. Sorex minutissimus
1. Sorex cinereus
1. Sorex hoyi
1. Microtus xanthognathus
1. Lemmus trimucronatus
8. Myodes rutilus
2. Microtus murus

Total: 15 captures, diversity - 7 species.

Spitting rain in the morning. Then on and off through the day, sometimes hard. Hoping the rain will bring out the animals... Prepped until ~13:00 after breakfast. Then lunch. Then set up the raft. All looks good with the boats. Schuster then went to catch up on data. Alfredo went to tent for a while then with GPS trap lines. Jeremy donned waterproofs and went to hunt squirrels for a couple hours. I've seen one, but did not have a gun. They are very quiet up here but present in low numbers. He struck out at this point but we might still get one here. I sat to catch up on notes.

steep tundra
hillside (north facing)

Site # 1:
Arctic - Nurb-i-Suener
AK: Arctic - N. conifer Rivers.
9 mi N. 3.5 mi W. of Was River.
Junjik camp 145.58976°W, 66.61°N
68.23845°N, 145.58976°W
14-18 July 2017
AR52 140504P



Trapping Tallies: Site 1: Tunjick River; 14-18 July 2017

$$\begin{aligned} \text{Snaps} &= (30 \times 3 \times 2) + (70 \times 3 \times 2) + (30 \times 3 \times 2) \\ &= 180 + 420 + 180 \\ &= 780 \end{aligned}$$

$$\begin{aligned} \text{Pits} &= (52 \times 4) + (104 \times 3) + (94 \times 2) \\ &= 208 + 312 + 188 \\ &= 708 \end{aligned}$$

$$\text{Total} = \underline{\underline{1488}} \text{ trap nights.}$$

18 July 2017 - Wake @ 07:00, coffee etc. then to check and collect traps. Clear morning with a few clouds. Another low catch despite the rain. I guess densities are truly low... Prepped after breakfast then packed up the lab, then personal gear and tents, then lunch, then packed kitchen and moved all gear to the shoreline.

Trapping totals: 18 July 2017: Site #1; Tunjick.

1. *Sorex ugyunak*
1. *Sorex cinereus*
1. *Sorex hoyi*
5. *Myodes rutilus*

Total = 8 captures Diversity = 4 species

Schuyler caught another *S. ugyunak* up on the tundra shelf and I got another *hoyi*. Good. No squirrels at this site though. Prepped until ~12:30 then packed until ~15:00. Took some pictures then pushed off down river. Although I had scouted the first $\frac{1}{2}$ mi. or so of river we had little idea of the rest. Made the first couple cuts to left then kept right right right... Shallows and bony. Entered some mild ripples. Somewhat technical with small slots between rocks.

Certainly nothing dangerous to contend with but did not want to wrap or get grounded. I led in the raft and w/ Alfredo and SWL and JTN followed in SOAR. Their boat was difficult to maneuver and took on water. Need to fix. - My raft was a tank but floated pretty high and was fine. We had great weather for the float. No wind, sunny, warm ~75°F. Too much sun actually - We floated slow the first 3 mi. through shallow riffles then hit a single channel that flowed fast but meandered! We had 7.5 mi. direct to next site, ended up ~~pull~~ floating ~1.5 mi. of winding rivers. Not hard going. ~3 mph. Deep aquamarine water. Lots of grayling, some huge ~20 in. + and I saw 1 salmon. We floated from 15:30 → 20:00, reaching Site #2.

★ Site #2: AK: Arctic-NWR; 1 mi. N, 1 mi. W, confluence
 Jungik & Chandalar Rivers; 68.22729° N, -145.49600° W
 629 m.; 18-23 July 2017

N.B. Slightly tricky getting here for future reference cause it's just past a fork in the Jungik around a medium sized island. Need to take the right fork which is the main flow so not too difficult. Then floated to the second gravel bar. Stopped at top to scout. Nice bar but not huge and very little beach above high water. We are distantly removed from hills here. All flat permafrost, broad historic floodplain, apart from low spruce ridges. Mountains to north and west, distance and hills to east. Buggy, and I had a feeling it would be a tough site but we pulled up the boats and unloaded in the center of the gravel bar.

Capture Totals: Site #1, Tuzigak; 14-18 July 2017

- 5. *Sorex cinereus*
- 4. *Sorex hoyi* (+3 birds)
- 2. *Sorex ugnaticus*
- 1. *Sorex minutissimus*
- 4. *Microtus oeconomus*
- 8. *Microtus mordax*
- 1. *Microtus xanthognathus*
- 19. *Myodes rutilus*
- 1. *Lemmus trimucronatus*

Total: 45 captures (+3) Diversity: 9 species (+3)

Site #2 is basically a broad flat plain of boreal tundra growing on permafrost. Stunted black spruce well spaced on flats with some areas of higher ground, ridges with bigger spruce and lichen/moss understorey. Multiple small ponds and wet meadows with low grasses. Plenty of dwarf birch and willow in medium wet places. Tussock grasses around edges of meadows and through the flat areas. Ice ~ 6-15 inches deep making pitfall digging less easy. Lots of standing water. But, generally open and a pleasant site beyond the willow lining the river front. A good creek flowing into the Tuzigak just south of camp. Lots of blueberry and bearberry.

So we arrived and unloaded all the gear. Set up our tents. Schuyler made rice packets with a couple cans of meat for dinner. After eating we set up the prep tent and locked down camp. Bed @ ~22:00.

19 July 2017 - Wake @ 07:00 and coffee and breakfast. A full day of setting traps in store. I set 52 pits along the bank of the creek among slumped banks with abundant cracks. Then set another line of 52

pits through dwarf willow at the outlet of a small wet meadow just SW of camp. Good structure but very wet. Struggle to keep pits down. Lunch, then set another 52 pits through deep tussocks over permafrost and through thin tundra. Schuyler set ~100 snaps near my pit lines. JTN set traps in various spots to NW of camp. Same with AJS.

Before setting traps we all went to explore the site on our own. I walked back to a low ridge ~ 3/4 mi. W of camp with dry ground and native spruce. Lots of red squirrel signs. I finally spotted one but lost it running. Heard another and walked north. Stood for a while and it popped up on the ground so I shot it w/ 8-shot. Also heard SWL shoot another nearer camp.

Managed to get 300 snaps set and 156 pits. SWL processed the squirrels while I was out with pits. We had dinner @ ~18:00, mac & cheese. A long, tiring day. Hot, sunny, and little wind. I was drained by the end, we all were. I set up the prep tent before bed @ ~21:00. I discovered I had lost my cable linking speaker to my ipods so we're now limited to iphones with bluetooth to use the speaker. At least I have a mini-usb to charge the speaker, but ipods don't have bluetooth. Damn! I had a lot of good stuff to listen to. At least I can still charge the ipods and use headphones. I bought a good solar charger so folks can charge devices, provided it's sunny since I don't have a battery pack... But I also have a AA charger if needed, with a usb port (standard).

20 July 2017 - Woke @ 07:00, coffee, granddabon, then to check traps. A very low catch! WTF... Had breakfast oatmeal then prepped until ~12:30.

Trapping Results: Site # 2: 20 July 2017; Lower Imvik

2. *Tamiasciurus hudsonicus* (firearm), 19 Jul 2017
 5. *Sorex cinereus*
 1. *Sorex ugnunak* (+ 1. gajjay)
 5. *Myodes rutilus*
 2. *Microtus minorus*
~~1. *Microtus oeconomus*~~
 1. *Microtus pennsylvanicus*
 TOTAL = 18 captures Diversity = 7 species (+1)

I was excited to catch a *S. ugnunak* in a pit along the creek bank, set under an overhang, in a slump. It was odd and large, thought maybe it was a *S. tundrensis*, but it seems to be an *S. ug...*

After prepping we had lunch. Then I went out to set 64 more pits in tussocks, west of camp. It rained after lunch for a while so we sat in tents until it finished at ~15:00. Both JTW and AJS also each set 20 pits, JTW back behind the ridgeline W of camp, a fair distance. There's another sloping tussock plain back there. AJS set his pits near a meadow north of camp. Jeremy saw a muskrat in a pond but didn't get a shot. He'll try for it again. Weather was cooler, and overcast, breezy and threatening rain. We covered back at camp around 18:00. I had gone through and put water in all my pits (~1-2 m.) to try and increase captures of voles etc... ~~etc~~ While doing so, I picked up a meadow vole along the slumps on the creek bank and a couple more shrews. Very cool to get a *M. pennsylvanicus* so far north. A range extension?? Will have to check.. So, we prepped the additional specimens before dinner of pasta shells and mashed potatoes. Started to rain as we ate and continued for ~3 hrs., sometimes hard. Bed at ~21:00.

21 July 2017 - Woke at 07:00. Coffee etc., then checked traps. An even lower catch today, only 9... At least woke to a mostly clear but very cool morning. A northern brisk breeze made it colder. Many of my pits were either popped up or under water. Had breakfast, then prepped until ~noon. At least it's sunny if cool.

Trapping Results. Site #2: 21 July 2017; Lower Tuzik

4. *Sorex cinereus*

1. *Microtus pennsylvanicus*

3. *Myodes rutilus*

(1. Savanna sparrow

2. White crowned sparrows

Total = ~~10~~¹¹ captures, Diversity = 3 species (+2)

Although captures are low, we are getting really good endoparasite samples from ~2/3 of all captures, plus pretty good ectoparasite samples. I have never seen such high prevalence of endo's, normally more like ~20% infected hosts. My guess is that this indicates a recent population crash in everything following a population high and possibly due to a cold snap before good snow cover...?? Anyway, what we're getting are at least great samples.

After prepping we ate lunch. Then, went to pull some traps and set new lines. SWL set 50 snaps up at the base of the far west ridge. AJS set 60 snaps around tussock and meadow north and west of camp, with 20 pits. JTN set 50 snaps and 20 pits in tussock habitat WNW of camp. I got pulled the 52 pits in dwarf birch and reset them with an additional 24 around the small pond directly W of camp. AJS saw a snowshoe hare to NW of camp. Apparently pops. are at a high in the interior but this is the first

Sign of them here. No scat pellets even. Lots of recent caribou sign and heard them at night, along with red fox but no sightings. Very old bear sign. Nothing recent.

At ~16:30 I sat to catch up on notes. The others are trying to patch some minor holes in the base of the SOAR. It is set up to be either a self-bailer or a bucket boat but has patch over bailing holes, but the patch leaks. So they're trying to close it up. ~~Also~~ The floor at table floor at least does not leak, but it does on the raft, slowly. I'll see if I can fix that too. Unlikely, cause our glue is crap... Alfredo caught one more *M. rutilus* so SWH and I prepped it while AJG and JTW cooked up some pizza quesadillas. Good stuff. Sat for a while before early bed at ~20:00. I hate sitting idle, but low catches and not much for hiking/exploring here. Anyway, good book reading time. Night was mostly clear and cool ~50°F. Cloudy towards morning with some breeze but no rain.

22 July 2017 - Woke @ 07:00, coffee and g.b., The morning was overcast and dreary with some sprinkling rain that quit by the time we checked our lines. I had a comparatively good sample of shrews today, all likely *S. cinereus* though possibly another *S. ugyunak* by the creek.

Trapping Results: Site # 2: 22 July 2017: Lower Junjok.

11. *Sorex cinereus* (possibly 2. *S. ugyunak*)
3. *Myodes rutilus*
1. *Microtus minus*

TOTAL = 15 captures, Diversity = 3/4 species

Weather turned nice by late-morning. Partly cloudy, breezy, cool, with some afternoon sun. I saw a moose and young calf crossing the creek this morning. We prepped until ~ noon. I went to put water in my last pitfall line from yesterday and picked up a couple of fresh shrews. SWL and I prepped them. Full of parasites! I then caught up on notes and data. I'm gonna go fishing after. Jeremy found an old fishing camp at the fork in river north of camp. I'll head that way...

Headed to the fork, found a small fishing hole with a couple of good size grayling that were interested in the rooster tail but wouldn't take it. Tough with a back current so I changed to a big minnow fly and jugged it and caught both fish. Then headed back towards camp and spotted a huge grayling in a small eddy behind a slumped patch of tundra and caught it on the fly too. Back to camp, filleted the fish and battered them with creole seasoning and pancake mix (+ S+P) then fried them in butter and olive oil. Rice packets on the side. Delicious. Ate @ ~ 19:00. Sprinkling rain in evening and overnight. Cool evening ~ 50°F. Bed by ~ 22:00.

23 July 2017 - Moving day, site #2. Woke @ 07:00 and coffee, then out to collect all traps. Cool and wet but not raining. Cloudy too. Got a reasonable number of shrews plus a few voles. We had some breakfast then processed until ~ noon. Packed up the prep tent to increasing wind. Almost blew the tent over by the time we were almost done. Threatening rain too so we stuffed the tent away and rushed to take our own tents down and pack personal gear. Everything covered in

fine dust from wind ... Then had a quick snack for lunch and packed kitchen and then boats. Not looking good for boating with a strong wind from the south. Started out down-river @ 14:30. Had going. Jeremy helped me with rowing. Paddlers on the SARR had a hard time keeping the boat straight. Tail wind around bends was worst as it blew the boat sideways. Made ~ 7 miles. Stopped for a break in very strong wind and showers. Decided to call a halt and paddled on until we found a good beach with wind shelter on river right. (vicinity of our break site @ 68.18504, 145.46680, 626m.; ~~so~~ stopover camp was ~ 1 mi further down river). Had a quick dinner of ~~mac & cheese~~ ^{ramen packets}

Trapping Results: site #2: 23 July 2017; Lower Junik

- 9. *Sorex cinereus*
- 2. *Microtus pennsylvanicus*
- 3. *Myodes rutilus*
- 1. *Microtus minor*

TOTAL = 15 captures. Diversity = 4 species

Capture Totals: Site #2 ^{Lower} Junik; 19-23 July 2017

*Site #2

- 2. *Tamiasciurus hudsonicus*
- 29. *Sorex cinereus*
- 1. *Sorex ugyunak*
- 14. *Myodes rutilus*
- 4. *Microtus minor*
- 1. *Microtus oeconomus*
- 4. *Microtus pennsylvanicus*

TOTAL = 55 captures (+4 birds) Diversity = 7 species (+3)

with meat and then set up tents and went to bed @ ~ 20:00. Still windy and with showers. Overnight was with periodic rain. Cool to ~ 50°F

Trapping Totals: Site #2: Lower Tunjik; 19-23 July 2017

$$\text{pits: } (52 \times 4) + (52 \times 2) + (52 \times 3) + (64 \times 3) + (76 \times 2) \\ + (30 \times 2) + (20 \times 2) = 208 + 104 + 156 + 192 + 152 + 60 \\ + 40 = 912$$

$$\text{snaps: } (100 \times 2 \times 3) + (50 \times 2 \times 2) + (50 \times 2 \times 2) + (40 \times 2) \\ + (60 \times 2) = 600 + 200 + 200 + 80 + 120 = 1200$$

$$\text{TOTAL} = \underline{\underline{2112}} \text{ trap nights}$$

24 July 2017 - Woke @ 06:00. to try and make miles. Worried about more wind. Gentle breeze in the morning and partly cloudy but packed away wet tents and loaded boats to head on down @ 07:30. Weather for the day was overall nice except for continued wind which picked up by mid morning and basically was present, sometimes strong, until evening. Made slow and heavy progress to Arctic Village, arriving @ ~12:30. Packed in past town by ~1 mi. at the gravel pit near the airstrip. All were tired from paddling. Alfredo went to find Mildred Allen, our liaison for the Arctic Refuge in Arctic Village. I went to wait at the airstrip shed with Alfredo until Mildred showed up with an ATV and trailer. We loaded up our resupply and drove back to the boats. I decided to just pack everything on the boats and sort it all out at the next site. We still have a lot of food and prepping supplies, considering the low captures. I guess we packed more food this trip after running short on the Canning in 2015. - Loaded up, making the boats very heavy, then headed down river @ ~14:30. Made ~13 miles to Arctic Village, then another 14 miles to our next predetermined site. The river was flat, slow and meandering up to A.V., plus wind, but after A.V. the current picked up so

we made better time. Decided to try and make camp instead of another stopover, despite everyone was very tired, all were "onboard". Arrived at the site I had chosen before the trip (68.04330° , 145.78349°) but there was no beach on the river right and we could not camp on Venetie land on river left. So we struggled and moved on. I was concerned about finding a site soon as everyone was exhausted but we kept going. Checked out a couple places but ~~no~~ no good. Instead of silt floodplain to this point, it's now rocky with limited options. After ~ 4 mi. more of paddling we found a cobble beach with good sandy banks, nice mossy areas for camping in the ~~two~~ targes and good looking habitat with a creek running through the middle of the site. I called it camp and we all set to unloading the boats at $\sim 20:00$. Set up our tents, had a big dinner of oriental rice and pulled pork (canned), then went to bed by $\sim 22:00$. We are ahead of schedule and I suggested we sleep in, then spend the next day setting up camp and setting some traps.

25 July 2017 - Woke up @ $\sim 07:45$. Alfredo had a good sleep in but the rest of us were up anyway. Had rained overnight a little. The day was mostly clear, partly cloudy, warm at $\sim 70^{\circ}\text{F}$. After some breakfast we set up camp and prep tent. All were still fatigued from the windy boating and long float. After setting up we went to explore. Both JTN and AJS shot a red squirrel. Lots of them around this site. The river bank was dry tundra/targa, but behind camp was an open broad creek drainage (field of grasses, slumped banks, and dwarf birch). Behind was thick targa/spruce forest.

The tundra sloped gently uphill to the north. I walked along the river bank up-river and the bank quickly rose to steep gravel slopes. I hiked over to another creek up river then headed NE up into the tundra looking for good pit-falling habitat in addition to near camp. Eventually reached a flat plateau of ~~the~~ sparse spruce and bog. Mostly dry but got wetter in the headwater areas between the two creeks. Great looking tussocks here and freeze heave sniks. Abundant well worn rodent sign. After a while I heard the peeping that signified *Microtus sibiricus*. A huge colony, bigger than I have seen before, covering several acres in size. Very active looking. Great find!

We all recovered at ~ noon for lunch, after we set up the preptent and processed the two squirrels.

★ Site #3: AK: Arctic National Wildlife Refuge; 6.5 mi. S, 9 mi. W. Arctic Village; 68.63339°N, 145.88541°W, 611m.; 24-28 July 2017.

Spent the afternoon setting traps. SWL set 40 snags west of camp transitioning from birch meadow to tundra. JTN set 40 snags heading north up the creek. AJS set 40 snags in tundra to NE of camp. I set 84 pits along the branches of the creek in the open birch meadow. Wore me out.. That evening had dinner of mac + cheese and built a fire on the beach to burn the trash from previous site. With extra days, we may stay here for 5 nights... Headed to bed by ~ 21:00. Saw tracks around of moose, a small grizzly bear and also mink and fox. No sightings of any so far. Cool overnight with rain showers in evening and overnight it rained on and off, sometimes hard.

26 July 2017 - Woke @ 07:00. Checked traps and had 15 captures from less than half of our traps so were feeling good about the site. Low diversity though. Had breakfast then prepped.

Trapping results: site #3; Lower Arctic Village; 26 July 2017

4. *Tamiasciurus hudsonicus*

2. *Sorex cinereus*

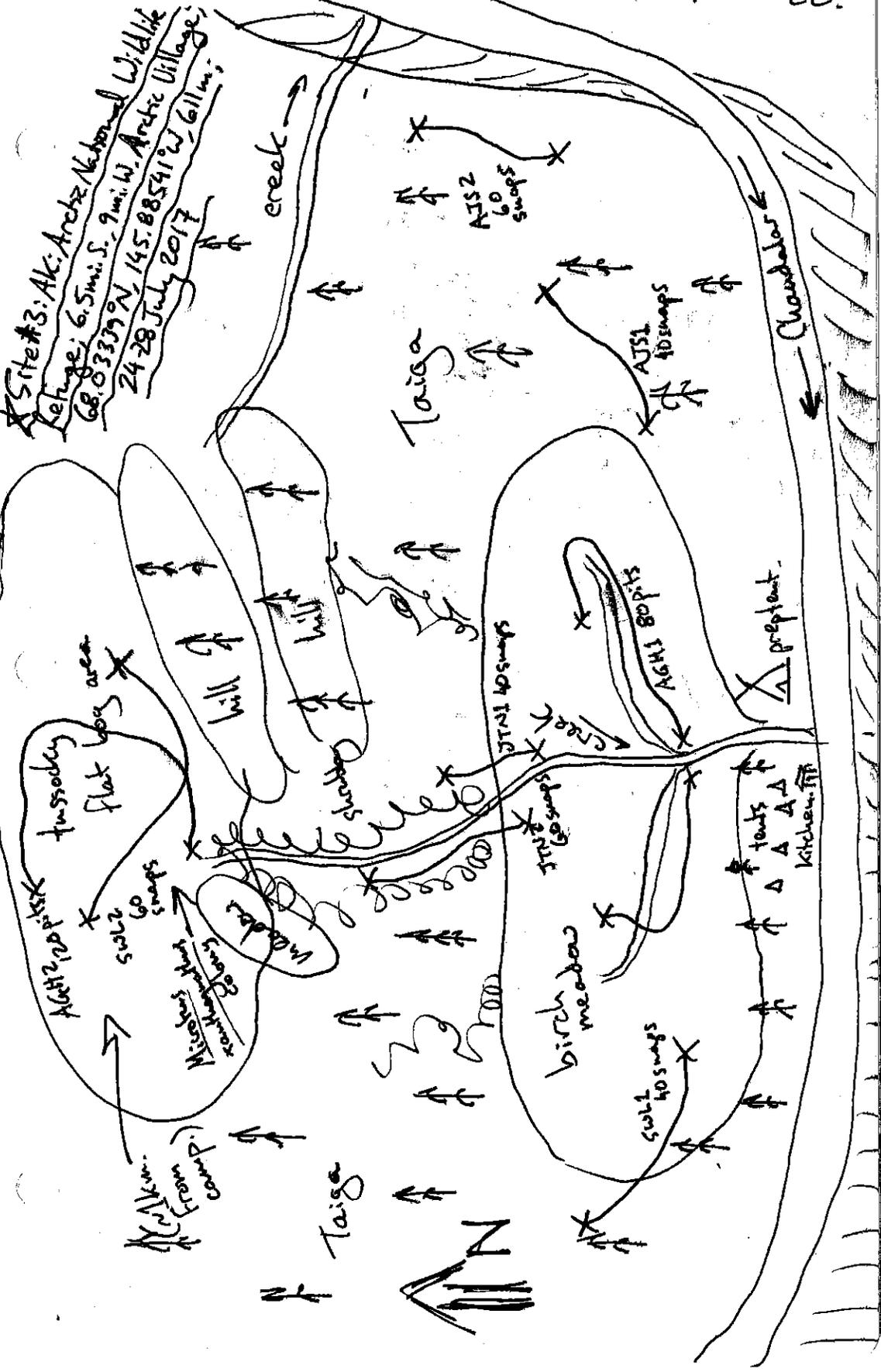
13. *Myodes rutilus*

TOTAL = 19 captures Diversity = 3 species.

After prepping we had lunch @ noon, then went to set more traps. JTN extended his first line both directions along the central creek fork. AJS set 60 snags too up to the NE of camp in tundra. SWL brought 60 snags up to the *M. saxatilis* colony with me. I set 120 pits ~~in~~ through the colony with great structure. I did not return until 16:00. JTN shot 2 more red squirrels (both females) and they were prepping them when I showed up. A ~~big~~ boat trip of ~10 boats and 20+ people, part of a youth trip from Portland, OR, had stopped by while I was away. Alfredo and Schuyler gave a brief interp. talk on the Arctic Refuge (AJS) and background on the science we're doing here (SWL). Apparently it went over great. But, they were ma hurry so it was only a 20 min. visit. They were trying to get from Arctic Village to Venetie between 25 July and 1 August. Lots of miles in a short time...

Once again, we're all tired, still from the boating & setting traps. Warm day @ ~75°F, with sun at times and some afternoon and evening showers. After dinner AJS headed to bed early. The rest of us tried fishing until ~21:00 then bed. JTN caught 1 grayling and 1 whitefish.

* Site #3: Ak. Arctic National Wildlife
 Refuge; 6.5 mi. S, 9 mi. W, Arctic Village,
 68° 03' 39" N, 145° 08' 54" W, 611 mi;
 24-28 July 2017



27 July 2017 - Woke at 07:00, coffee, g.b., then checked traps. More rain overnight. But, woke to a cloudless sky and no wind. Warm and getting up to $\approx 85^\circ\text{F}$ during the day. A hot shadeless day. A big catch too. Got lots of young *M. xanthognathus* in my top pitfall line and a couple shrews. 1 *M. xanthognathus* in my bottom pits too. Will be a busy day prepping with 44 animals! Buggy in the morning but and muggy but not bad. We pretty much moved our permit for taiga voles so more likely we'll stay 1 more night then move down river and add an extra site. We have plenty of dogs to work with...

Trapping Results: Site #3: 27 July 2017; Lower Arctic Village

4. *Sorex cinereus*

24. *Microtus xanthognathus* (+1 sparrow)

15. *Myodes rutilus*

TOTAL = 43 captures (+1) diversity = 3 species (+1)

Amazing to find such a large and active colony of taiga voles when everything else is seemingly at low densities. Plus everything (adults) are loaded with parasites. Again, never seen such high prevalence of infection. Loads of stomach nematodes in red-backed voles greatly swell the stomach and need 2-2 dram vials to store from a single stomach, plus other nematodes and cestodes in small intestine. *Microtus xanthognathus* had many (sometimes 6 or more per animal) bot fly larvae around genitals. Large, 1-2 cm long each. These voles also had lots of cestodes. Crazy. I've not seen bot flies in northern Atk, but my experience isn't sufficient to suggest anything unusual...?

We prepped from $\sim 10:00 \rightarrow 16:30$ ~~then~~ with a shifted lunch break, then sat to catch up on tube labeling, tags, etc. And, I wrote notes..

Schuyler cooked up Thai food dinner which was great. Then we talked plans for the morning. Will collect all traps and process then pack camp and head down river, looking for another site within ~10 miles.

Site #3

Trapping Tables: Site #3: Lower Arctic Village; 24-28 July 2017

$$\begin{aligned} \text{pits: } & (80 \times 3) + (120 \times 2) = 240 + 240 = 480 \\ \text{snaps: } & (40 \times 3 \times 3) + (60 \times 3 \times 2) = 360 + 360 = 720 \\ \text{TOTAL} & = \underline{1,200} \text{ trap nights.} \end{aligned}$$

The others looked at patching the bailerholes on the SOAR again while I wrote notes. It's still leaking and filling with water making paddling tougher. We'll see if it works without having good glue...
Beb by ~22:00. Chward tomorrow!

28 July 2017 - Woke to a sunny morning. No clouds and still. Coffee then out to collect traps. Then process.

Trapping Results: Site #3: 28 July 2017; Lower Arctic Village

- 2. *Sorex cinereus*
- 1. *Sorex hoyi*
- 2. *Microtus xanthognathus*
- 4. *Myodes rutilus*

TOTAL = 9 captures, Diversity = 4 species.

Caught very few tundra voles today. Perhaps caught all the young in the area? Didn't go over and permit allowance for the site (30 Peromyscus species)... But the colony is immense, so not a dent to population.

After processing we packed up prep gear then had some lunch. Hot day ~80+°F. Packed our own stuff then loaded boats and were headed down river by 14:30. SW and I were in the raft, other

two were in the SOAR. The river picked up pace and we shot along. The SOAR went over a big rock and luckily ~~did~~ not tip, going sideways... This is a river unlike either the Kobuk (which was bigger, flatter, and slower), or the Canning (which was smaller, slower, more braided). The Chandelier at this point is a constant rattle. Lots of small holes over boulders and a steady current. Sun to south in our face made it hard to read at times. We need to beware! I got in front with the raft, just in case SOAR flipped. Graue Schuyler a shot on the oars. He did well reading the water. Good experience. We did get a small wrap on a boulder and were stuck for ~ 5 mins. I took over for the rest. It would be fine if we were without all the precious samples and added weight, but I'm worried now about the steep river gradient and non-expert paddlers. Will be careful. Both boats have a very heavy load though I tried to put as much weight on the Aire raft as I could...

* Site #3 - Capture ~~Trapping~~ Tallies: Site #3: Lower Arctic Village:
24-28 July 2017.

4. *Tamiasciurus hudsonicus*

8. *Sorex cinereus*

32. *Myodes rutilus*

26. *Microtus xanthognathus*

1. *Sorex hoyi*

TOTAL = 71 captures Diversity = 5 species

(+1 bird)

Made ~ 11 miles in ~ 3 hours. I had picked out a place on my GPS unit near Crow Nest Creek which looked good so we stopped to scout at the top of the second island, just where the river sweeps to the west. SWL and I walked along the island down river ~ 0.25 mi. to the mouth of

the creek. It's a large creek running well. Just on the down river corner of the creek is a very nice camp. Footprints all over suggested the folks from Portland stayed there. But, it was accessed by a narrow and shallow side channel that I did not think we could get through. The island gravel bar extended down river meaning no access from the main channel. Looked ~~that~~ likely the best camp on this river, but we didn't risk it in heavy boats at this water level and so decided to stay at our scout site.

★ Site #4: AK: Arctic National Wildlife Refuge; 0.3 mi. E. Mouth of Crow Nest Creek; 67.95447°N, 146.00087°W 567m. 28-31 July 2017.

Not a terrible spot, though.. There is a river channel to north of the island just down river that is mostly dry, then the small slot channel to south of the island, then the main channel. The island is well established willows, though not thick, with a good soil layer. Bear digging in evidence. Our camp was on the corner of entrance to the dry channel. Very lumpy but we eked out places for kitchen, prep tent and our own tents, just fine. Arrived at ~17:45. Unpacked boats, and set up personal tents. Then went to scout the site, the others with 30-40 sugars in tow. I took my GPS and trap bag but left pits for now. Our camp is on a floodplain corner of the river in tundra, but with tiered hills behind (shelves really). At the base of the first tier is an old river channel that has formed a wet narrow meadow along the length of the site. Climb up to the second tier and there's another flat meadow, with salty deposit. Slightly tussocked but didn't look great. Up onto a third shelf and to the NNW brought me through dry dwarf birch and ~~birch~~ lichen

tundra/targa (some black spruce), out to another flat shelf with well developed tussocks, frost-heave and dispersed spruce. Evidence of another *Microtus xanthognathus* colony here, and active. Looked really good for pits, though smaller by far than the last site. I hiked up further and towards crow nest creek but it was crunchy dry targa with little soil or structure. Widespread birch (dwarf) and solid black spruce. A few rocky outcrops around. Saw a caribou shed. SWL saw some ferns growing. No ground jumper here that I saw but I did see some at the last site. Also poplar along the river banks round Arctic Village. The habitat is changing as we move south. Overall a good looking site.

I headed back to camp to pick up pit falls and auger and went to set a line of 64 pits in the wet slough just to NW of camp. SWL set a line of 30 snaps parallel to my pits on the far side. AJS set 40 snaps on the first tier through meadow and salty / alkali?? flat. JTN put 30 snaps along the river to north of camp in lumpy targa. After setting we finished setting up camp (well, the others did while I was setting pits..). Also did some fishing off the bank by camp. JTN caught a couple medium grayling. When I got back ~~cooked~~ JTN cooked up some canned chicken with garlic pasta packets and we went to bed @ ~22:00. Very tired. A long hot sunny day.

29 July 2017 - Night was clear and very cool, maybe 40°F. Woke to another clear morning. Coffee, then checked traps. I got (finally) 2 *Sorex tundricus* in the meadow and 2 *Sorex hoyi*. Plus several captures from snaps. Processed until ~noon, lunch, then spent the rest of the day setting out all our traps. I went up with 128 pits to

the good tussock area on third tier. SWL also took 60 Snaps up there along my line. AJS split 60 Snaps, 1 line of 30 along with bank West of camp and 1 line of 30 through targa up the hill towards crow nest creek. JTN put 70 Snaps perpendicular to the shelves, starting in wet meadow, up through targa into tussock. (SWL set an additional 10 Snaps along his first line the following afternoon). Finished at ~17:00. Hot, still, sunny day again. All were drained by sun. Did some relaxing in the evening on the mebank with fishing etc. It's a pretty site. I cooked a dinner of ramen packets added to caramelized onions/garlic/carrots. Went to bed pretty early at ~20:00.

Trapping Results: Site #4: 29 July 2017; Crow Nest Creek

- 2. *Sorex tundrensis*
- 2. *Sorex hoyi*
- 2. *Microtus pennsylvanicus*
- 1. *Sorex cinereus*
- 1. *Tamiasciurus hudsonicus*
- 5. *Myodes rutilus*

TOTAL = 13 captures Diversity = 6 species

30 July 2017 - Woke @ 07:00. Had coffee then out to check traps. Had a reasonable catch, though very few targa vdes. I should say, low numbers but ok... Another cool clear night and another clear hot day. Prepped our 22 animals until lunch then after eating the sky got cloudy and stormy w/ thunder/lightning. Took a while for it to hit camp but we prepared for rain then sat in tents for a while reading or napping. ~~later~~ After rain, we checked traps. Many Snaps set off in the rain. Processed 3. *Myodes* (all w/ fly eggs and nasty after the hot day).

then set to collecting wood and building a fire. Plenty of dead and down spruce around, and plenty of old trash (from prepping and kitchen at this and last site) to burn. I sat to write notes before the evening prepping, and while folks prepared for dinner. It'll be roasted garlic (we still have many heads) and mac + cheese. Then trash burning before bed. Sprinkles of rain in the evening after a good but brief rain-storm.

Trapping Results: Site #4: 30 July 2017; Crow Nest Creek.

1. *Sorex tundrensis*
1. *Sorex hoyi*
2. *Sorex cinereus*
1. *Microtus xanthognathus*
2. *Microtus pennsylvanicus*
17. *Myodes rutilus*

TOTAL = 24 captures Diversity = 6 species.

Lots of parasites again at this site. The one female targa vole we caught had lots of ectos, including bot flies, and a gut packed with cestodes and a single nematode plus a liver cyst. Jese... Had a meadow vole yesterday with masses of trematodes (looked like frog's eggs) in ~~the~~ between skin and muscle, all over body including jaw, abdomen etc...

Site #4

Trapping tallies: Site #4: Crow Nest Creek; 28-31 July 2017

$$\begin{aligned} \text{snaps: } & (30 \times 2 \times 3) + (40 \times 3) + (10 \times 1) + (60 \times 2) + \\ & (70 \times 2) + (30 \times 2 \times 2) = 180 + 120 + 10 + 120 + 140 \\ & + 120 = 690 \end{aligned}$$

$$\begin{aligned} \text{pits: } & (64 \times 3) + (128 \times 2) = 192 + 256 \\ & = 448 \end{aligned}$$

$$\text{TOTAL} = \underline{1138} \text{ trap nights}$$

* site #4: AK: Arctic National Wildlife
 Refuge; 0.3 mi. E Crow Nest Creek;
 67.9547° N, 146.0087° W
 28-31 July 2017.



will

dry tundra

AHT 128 pits

Wetish Salty meadows
AJS 40 snaps

Hillside shelf

Slough (grassy meadows)
SWL 30 snaps (110)

AHT 64 pits

Tundra

JTN 20 snaps

Chadash River

CAMP
 EAT kitchen

AJS 30 snaps

great slough

slot side channel

island

island of gravel

books

N

Had a fire to roast garlic with our dinner then burnt all the trash. ~~Had~~ Headed down river tomorrow.. Bed @ ~21:00.

31 July 2017 - Woke to a slightly hazy morning. A few wispy clouds and perhaps some smog from southern fires. Night was cool. Had coffee then out to collect traps. Took a while and all for only another measly catch. Had some breakfast and processed quickly, then set to packing up camp. Breeze picked up by noon and we were all packed and loaded by 12:30. Then set off down river. Fast flowing water. Riffle after riffle with lots of boulders to avoid. Partly cloudy, though windy, but at least no glare on the water. All went smoothly but some pretty big waves. The river has also altered course significantly. We floated through a new channel with lots of braiding. Cool, but difficult to choose the best path. Part of the fun of a wild river!

Trapping Results: Site #4; 31st July 2017; Crow Nest Creek

2. *Sorex cinereus*

3. *Microtus pennsylvanicus*

5. *Myodes rutilus* (+1 sparrow)

TOTAL = 10 captures (+1) Diversity = 3 species (+1)

* Site #4
Capture Tallies: Site #4: Crow Nest Creek: 28-31 July 2017

3. *Sorex tundrensis*

3. *Sorex hoyi*

5. *Sorex cinereus*

7. *Microtus pennsylvanicus*

1. *Tamiasciurus hudsonicus*

1. *Microtus xanthognathus*

27. *Myodes rutilus*

TOTAL = 47 (+1) captures Diversity = 7 species (+1)

Weird that we only got a single targa vole from the colony. Maybe they smell dead or stressed animal scent from the last site? Or maybe their numbers are simply low here. Anyway, we approached our next site by ~15:00.

* Site #5: AK: Arctic National Wildlife Refuge; ~~500~~ Mouth of Smoke Creek, 67.87918°N, 146.06689°W, 505m
31 July - 4 July 2017.
 August

We pulled out in a small baddy near the center of a very broad gravel delta fan of Smoke Creek. This is a large tributary to the Chandalar River and stretches far back into the mountains to NW. Several small creek channels limit our access to good habitat without crossing water and ~~but~~ none are shallow enough for rubber boots, so waders or sandals will be needed. It's unfortunate but the corners of the creek are not amenable to setting up camp. So, we settle on the main gravel bar. Tie up boats, then unload everything, then choose prep and kitchen sites, haul gear, then set up our own tents. We find good enough plots on the southern edge. Then set up the prep tent, had some snacks and set out to explore. The habitat to south of camp looks to be solid spruce-targa. Good condition, a thick bed of large blueberries everywhere. Caribou trails throughout, with lots of scat. I suspect they use Smoke Creek as a migration corridor. Also some bear sign. Looks like good bear habitat. A 14ft canoe sits on the bank overturned, but has bite marks in it. Not sure, but maybe abandoned. Alfredo said there's an airstrip near but doesn't know ~~where~~ where. No evidence of recent visitation. SWH put a line of 40 snags along the spruce shoreline south of camp. JTN put a line of 40 snags through spruce running west on the south side of the creek.

To the north of camp I hiked in through low willow to a huge flat old flood plain area. It's marked as a big bay on my GPS map but it's been at least marshy for a long time with good soil and lots of vertical structure. I reckon it rarely gets flooded except by rain. I was excited. This is an excellent looking spot. The willow ~~is~~ areas grow among grass tussocks and deep muddy labyrinth. Small islands of spruce targa throughout. Wet grassy meadows formed over old ponds. Dwarf birch and grass tussocks. Areas of linear banks of tundra (~2-4ft wide, 12-20ft long) interspersed among a plain of wetter meadow. All variations in between. Spruce grows in a strip northward along the Chandalar and AJS set 40 traps through this area. I also hiked across the varied plain to WNW to the edge of spruce targa forest and up along a ^{high} cut bank of the creek. Good forest here too, especially along the verge of the bay and forest.

I returned to camp to pick up some pitfalls and head back out. The weather since we arrived had turned ominous with heavy cloud and storm cells. While I was out scouting, a large storm moved through just to the south of camp. Very dramatic weather. Sprinkles on us, breezy. Low ceiling. The others had finished setting snaps so I took 64 pits and headed back north across the creek. Weather looked like maybe it would hold off... My mistake. I ~~set up~~ dug in pits starting in willow/birch/meadow to east of the bay area and heading west. It started to rain after ~20 pits, then started dumping on me. I had left my waterprofs but was soaked so quick I just kept going. Got in 40 pits before I quit and headed back to camp @ ~19:00. The others were in the shelter of the prep tent cooking up mac cheese. I went to my tent to change and put on waterprofs then

Had for dinner. Felt good to be dry. Of course, the rain stopped right after dinner to stormy skies mixed with sun and rainbows. Very pretty site with low, but jagged, mountains framing the NW. I managed to wring out and hang my clothes to dry. Hopefully it doesn't rain solid from here on out... But good to make an example of what not to do.. Several comments to the effect of keeping waterproofs with them at all times..

Bed following dinner by ~ 22:00. The night got very cool due to wet and breeze ~ 40-45°F but stayed cloudy. We woke to another low ceiling and mostly cloudy sky, moving briskly with small holes of sun, peeking through. Breezy and chilly all day, but no rain. My clothes therefore dried. And good for drying carcasses. We had a couple ravens swoop down on them though, so something to beware! They'll steal..

1 August 2017 - After coffee and cigarettes we went to check traps. A small number, but considering the small number of traps set and that many were set off by rain, I was encouraged. This day is for setting out lots of traps. If we still catch low numbers tomorrow - we'll move after 3 nights but if we do well, we'll stay here 4 nights, carry out the last 3 sites as planned and if need be take on another short site at the end. And, plans could change...

Trapping Results: Site #5: 1 August 2017; Smoke Creek

1. *Sorex cinereus*
2. *Microtus pennsylvanicus*
5. *Myodes rutilus*

TOTAL = 8 captures Diversity = 3 species

I do have a good feeling about this site to north of creek. Had a quick lunch and then out to set more traps,

SWL set 60 snaps perpendicular to my first set of 40 pits. JTN set 60 snaps along the forest verge to the west of the bay flats. ~~SW~~ AJS set 60 snaps within grassy and other habitats to the NE of the area near his first line. Schuyler's traps were mostly in brush/tusssock/meadow. I set another 164 pits as a long, mostly westward projection of my initial 40, setting to sample in good structure, and variable vegetation. Mostly seemed really good.

The others finished by ~15:00. Schuyler took time catching up on data. Jeremy entered his GPS coordinates and did some fishing. Alfredo had a tent break then prepared tubes and filled in data I took a while to set all those pits. I returned around 17:30, very tired. It was a good day for setting though. Cool, breezy, overcast, but no rain. Some low shifting clouds, from the west. We hung out for a while, relaxing, watching the river. Had a great dinner of frito pie with beans, and chili then hit the sack at ~19:30. I was exhausted. I woke at midnight however, to read till 03:30 then tossed and turned till ~05:00. Woke up late at 07:25. I wasn't but a few minutes behind the others though... Night was not cold ~55°F but and still overcast and breezy.

August
 2 ~~July~~ 2017 - Another cool morning. Had coffee then went to check traps. As I suspected, and hoped, I had a lot. Many shrews and a few voles. Others had good captures too. Ended up with 47 captures for the morning. Would be a busy day. Took a while for everybody to get back but started processing a.s.a.p. to get shrews done. Took turns at lunch around noon and finished processing by ~16:00. Again LOTS of parasites, all adults infected. Whoa...

Trapping Results: Site #5: 2 August 2017; Smoke Creek

20. *Sorex cinereus*
 3. *Sorex hoyi*
 20. *Myodes rutilus*
 7. *Microtus pennsylvanicus*
 1. *Microtus xanthognathus*
 TOTAL = ~~44~~⁵¹ captures Diversity = 5 species (c.f.)

Some of the shrews were very large for *S. cinereus*. I suspect some may be *monticolus*?? Hard to tell from teeth. We need a definitive one. — After finishing, I wrote notes while the others moved their first line of 40 traps, all to the good area to N of camp. They picked up another 4 *Myodes* which we processed before making dinner at ~19:00. Dinner was sautéed carrots, onions and garlic on top of spiced mashed potatoes with a tortilla. Rain held off but overcast and cool. Bed at ~21:00.

3 August
~~2~~ 2017 - Woke at 07:00. Well, we all woke at 05:00 to the noise of a cow moose walking through the creek bed near our tents. It got startled by Alfredo getting up and trotted towards Jeremy's tent. We all got out to see. Then back to bed until 7. Lots of other tracks around too. Bear sign, lots of caribou sign, wolf tracks, fox tracks. This morning was brighter with the sun peeking through occasionally but still mostly overcast. A warm night, maybe 55-60° and a warmer morning although it cooled off and got darker with some rain in the afternoon. We had some coffee then went to check traps. Another good day. Pitz did well again and Jeremy picked up 9, Schuyler with 4, totaled 25 plus a bird. Had some breakfast then prepped until ~13:30. This morning I caught our first definitive *Sorex monticolus*. Much longer tail and bigger foot.

Trapping Results: Site #5: 3 August 2017; Smoke Creek1. *Sorex hoyi*1. *Sorex monticolus*9. *Sorex cinereus*8. *Microtus pennsylvanicus*6. *Myodes rutilus* (+1. Hermit Thrush)Total = 25 (+1) Diversity = 5 species (+1)

We have various chores to do this afternoon. I sat to finish up to date on notes after lunch. Alfredo was data keeper today and is finishing all the labelling, etc. We need to enter all our capture ~~and~~ coordinates onto the NK pages. My crappy plastic spoon broke so I'll try to fix that. Also now both of my flip flops are broken at the front of the thong so I'll try to repair with paracord. Then some fishing ~~later~~ later on. We have not been eating tons of fish this trip and were low on dinners so it would be good to supplement. The bank next to the boats drops off into a deep eddy so I'll try there at least. Jeremy has had no luck so far.

*Site #5Trapping Tallies: Site #5: Smoke Creek; 31 July - 4 August 2017

$$\text{snaps: } (40 \times 3 \times 2) + (60 \times 3 \times 3) + (40 \times 3 \times 2) = 240 + 540 + 240 = 1020$$

$$\text{pits: } (40 \times 4) + (164 \times 3) = 160 + 492 = 652$$

$$\text{TOTAL} = \underline{1,672} \text{ trap nights}$$

Three of us went fishing once all was done. I ~~was~~ managed to repair a hole ripped in my waders using goop-like glue, plus fixed the spoon, though it broke in a different place 3 days later. N.B. invest in some cheap metal cutlery for these trips! Anyway, I had no luck fishing on a medium spoon but Schuyler got a smallish grayling on a small spoon and Jeremy

caught 2 large grayling on a small silver spoon. They cleaned, 1 filleted, then breaded them again with pancake mix and spices and fried for dinner with instant potatoes. Great stuff! Another overcast day, threatening showers, but mostly low cloud and breeze. Cool. Down to $\sim 55^\circ\text{F}$ overnight. Went to bed at $\sim 20:30$.

4 August 2017 - Woke @ 07:00 then coffee and out to collect traps. A reasonable catch for the last day. The morning was mostly clear after 4 days of cloud and showers. Good for boating... Prepped in good time, packed up camp and then boats and headed down river by $\sim 14:00$. Very swift river. A few boulders to dodge but the hardest thing was picking the right braid. The river has carved a very different channel than the GPS map. Many new channels and lots of braids. Some sweeping trees to watch out for but the volume was big so no dragging. Hit good speeds of ~ 9 mph which is fast. Floated in a relaxed manner. Wanted to stop over somewhere and break up the joint so we floated about 12 miles then started looking. Found a spot ~ 14 miles down for an overnight camp on river right. A nice spot with good tent spots. (67.73655°N , 146.09962°W , 478m). Had a quick dinner then bed. Arrived @ $\sim 17:30$. Ate at $\sim 19:00$. We fished for a while with no luck. Alfredo had a bath. There was a boat pulled up down river on river left. A grey ~ 16 ft. raft. We think a couple Venetian folks travelling down. Too far to communicate. Bed at $\sim 20:30$.

Trapping Results: Site #5: 4 August 2017; Smoke Creek

2. *Sorex hoyi*.

7. *Sorex cinereus*

6. *Microtus pennsylvanicus*

4. *Myodes rutilus*

Total = 19 captures

Diversity = 4 species

*Site #5

Journal

AG Hope

46.

Capture Tallies: Site #5: Sndee Creek 31 July - 4 August 2017

37. *Sorex cinereus*

6. *Sorex hoyi*

23. *Microtus pennsylvanicus*

35. *Myodes rutilus*

1. *Microtus xanthognathus*

1. *Sorex monticola*

TOTAL = 103 captures Diversity = 6 species.

5 August 2017 - Woke at 07:00. Had some coffee and breakfast. After great weather boating yesterday, the morning was still and misty. Actually, turned out to be a better day for boating, instead of sun. We've had a lot of sun. Nothing soaking though. We packed up and headed down river at ~09:00 and floated a quick ~10 miles arriving before 11:00.

*Site #6: AK: Arctic National Wildlife Refuge; 8.3 mi. S
confluence of ~~S. Wind River~~ + Chandalar River; 67.66350°N,
146.04645°W, 458 m. 5-9 August 2017.

Unpacked the boats, then set up camp. Clouds had mostly lifted but looked like rain possible so we got our personal tents up. Then the rest. Had some lunch before going off to explore. We are south of the mouth of the Wind River here between (and to east of) the Big Rock, and Little Rock Mtns. Camp is on a broad and long gravel bar with a large ~ flat area for tents and some sparse willow and shallow soil with ground cover plants. Spruce on the bar to south of camp. The old channel to west, separating camp from taiga forest is mostly dry, enough to cross without boots. To the west is a broad flat plain of spruce forest crossed by a few creeks, only one flowing, plus older creek beds, providing breaks in the spruce of willow and some sparse

tussock. Not much close that looked good for shrews though. I did a long loop starting to the NW. And then cutting west. Eventually found a drainage curving around a low spruce ridge running N/S. Behind the ridge (within 1.2 mi. from camp) is a medium sized lake (maybe 0.25 mi. long) which drains to north. The drainage wraps around the ridge though is not flowing. In that drainage is abundant tussock, deep and thick, overlaying permafrost with only small sparse spruce. Very good shrew habitat. This transitions into larger tussock/dwarf birch, and then down (to south) to open meadow. Neither great... I walked ~~back to the south end of~~ up the drainage to the small lake, then back over the ridge. A small pond or two here with some good habitat but far, and not much. I got back to the far south of the gravel bar. Schuyler had found another pond and wet meadow with birch/tussock in the middle of the loop I walked, where I set pits that night, then set more up in the good area ~1 mi. away the next day. The walk was ~6 mi. and I was tired, but with sun too, but managed to sink 64 pits in the middle tussock area by evening. The others set 30-40 snaps nearer camp through spruce forest. The notable thing about this site is that it is one huge Microtus xanthognathus colony. They are highly abundant, very vocal, saw lots of them, and occurring through most habitats except wettest and driest areas, wherever there is peaty soil. We'll see what this does for shrews since we had no success for shrews among these colonies... We all set up by ~17:00. Tried fishing but no luck. Very tired. Had dinner of rice packets and then went to read but the sun was low and shining, even with clouds overhead and it was hot! Finally some shade by ~19:00. Bed not long after. Calm night. Mostly clear, though not too cold ~50°F.

6 August 2017 - Woke @ 07:00. Coffee. Checked traps. Breakfast. Processing. A clear morning with some wispy clouds in the distance. Mostly still, sunny and warm, turning hot to 85-90°F. Draining weather.

Trapping Results: Site #6: 6 August 2017; Big Rock Mtn.

4. *Microtus xanthognathus*

6. *Myodes rutilus*

1. *Tamiasciurus hudsonicus*

TOTAL = 11 captures Diversity = 3 species.

One red squirrel shot by Jeremy the ^{evening} night before. Not a bad lot for the subset of traps out. Had the rest of the day to set up as many as possible... Finished prep work by ~ 11:30 then break for lunch before setting more traps. Clouds building over Little Rock Mtn. to WSW but sun out still in the SE/S. No rain today ~~and~~. I went with 140 pits out to the far tussock area. It looked great at there but was very tough using the auger on pit holes. Mostly thick peat ^{overlying} glacial mud and permafrost. The ice was just deep enough but getting through the tussock roots and peat was foilsome. I managed 120 pits before my strength ran out. Set from ~ 13:00-16:00. Schuyler set 30 snaps out by the small pond where my first pit line is. And, another 40 in an old creek channel further towards camp. AJS set another 60 snaps tacked on to his first line. JTN set 70 snaps along a small running creek, back maybe @ 25 mi. and parallel to the camp gravel bar.

After trapping, folks did laundry, had a over bath, general organizing. I was exhausted but washed up and sat for a while. We all tried fishing a bit. Jeremy saw a few medium/small grayling in the creek so tried there and caught a couple. Fried them up to accompany rice packets. JTN and AJS cooked for us. Then went to

tents to sweat it out reading until sun eventually went behind clouds at ~ 20:00.

7 August 2017 - Woke @ 07:00. Coffee then checked traps. Was hoping for 30, got 42! Nothing on my first line of pits near the small pond. Only one targa vole the day before. Did pick up some shrews up in the tussack, though only a few. Lots of targa voles and a brown lemming. Most again with parasites. 18 total on my lines. We processed through to lunch at 13:30 then finished skinning carcasses by ~ 15:30. Another warm evening last night down to ~ 50°F, then another clear day, sunny and hot. Sweltering prep tent and guts getting bloated. Tomorrow we'll keep specimens in a cold water bucket ...

Trapping Results: Site #6: 7 August 2017: Big Rock Mtn.

20. *Microtus xanthognathus*

15. *Myodes rutilus*

1. *Lemmus trimucronatus*

4. *Sorex cinereus* (+ 2 birds)

TOTAL = 40 captures (+2) Diversity = 4 species (+1)

After prepping 3 went to make original snap trap lines. I sat to write notes some. My anniversary to Lydia today 7th year. I called her and we spoke for a few minutes which was nice. In the evening I cooked up mac + cheese for dinner. Alfredo showed us great pictures of a pine marten (*Martes americana*) he saw near his lines. We cut open an old gallon can of white gas and played at throwing pebbles. Fun camp games. Had some vodka... Bed @ ~ 22:00. Another draining day.

8 August 2017 - Woke @ 07:00. Cloudier this morning after another warm night ~ 55°F. (or more). Overcast but not rain. Breezy too. Mostly good weather but a

very humid morning and buggy. Checking traps then back to camp soaked with sweat. Some afternoon sun but not beating with a thin layer of wispy cloud. Pretty good catch again. Ended up with 30 captures, after p.m. trap checks. Processed until ~13:30.

Trapping Results; Site #6: 8 July 2017; Big Rock Mtn.

11. *Microtus xanthognathus*

13. *Myodes rutilus*

1. *Sorex cinereus*

1. *Sorex tundrensis* (+4 birds)

TOTAL = 26 (+4) captures Diversity = 4 (+2/3) species

After prepping it was day 3 chores. Alfredo repacked the kitchen. We are finally able to pack all the extra food into bear barrels, freeing up an action packer with a hide (the old kitchen box, now in the tote). We plan to burn the action packer. Lots of enthusiasm for it (!) and lots of wood on this gravel bar... Schuyler went to check his traps and maybe get a squirrel, came back with a grouse instead. He cleaned it and quartered it. Plans to braise it over the coals this evening. Jeremy went out to the small lake to try for whitefish or pike but no sign of big fish. A family of loons though. Alfredo checked his lines. Both SWL and ATS got one more targa vole. I went to pull my first line of pits so as they haven't caught any shrews and will ease my efforts in the morning. Late afternoon we sat in the prep tent. I had another wash first. Catching up on notes, labelling, sorting skin samples, preparing tubes, etc. etc. Almost time for a fire, cooked food with instant potatoes, trash burning then bed... Bird was great! Schuyler made up a rice gravy too. Delicious. We also started a fire, burned all the trash and ~~the~~ action packer. A safe place to burn so we made it big... Watched a Coyote Air ~~cap~~ fly over to

Little Rock Mtn.

Small lake.

Low Targa ridge line

Site #6: A.C.: Aster
National Wildlife Refuge
Wind River and Channel north of river
6.7 mi. S. conference, 116.063002
67663002, 116.063002
S-9 August 2011

Journal

Big Rock Mtn
AGH2 80 pits

(~1 mi. from camp)

meadow

SwL4 30 maps

pond
AGH1
64 pits
tussocky

STN3 30 maps

STN1 30 maps

old river channel

STN2 30 maps

running creek

SwL1 30 maps

SwL3 40 maps

SwL4 30 maps

SwL1 30 maps

CAMP

tents.

Chamberlain River

gravel bar

old channel (mostly dry)

old creek bed

Asi Hop

gravel bar

40 maps

AGH3 30 maps

AGH2 80 pits

AGH1 64 pits

tussocky

pick up some folks from the Little Rock Mtn. air strip ~~east~~
on a gravel bar a couple miles down river from camp. A
good day all round. Windy in the evening. Cool overnight,
50°F. Bed @ ~ 22:00.

9 August 2017 - Woke @ 07:00. Coffee then out to collect
all traps. Mostly overcast morning but calm and bright.
Didn't seem like rain. After breakfast, processed another
fairly large catch then packed up to travel.

~~Site #6~~ Trapping Results: Site #6: 9 August 2017; Big Rock Mtn.

2. *Sorex cinereus*

1. *Lemmus trimucronatus*

17. *Microtus xanthognathus*

7. *Myodes rutilus*. (+4 birds)

TOTAL = 27 captures (+4) Diversity = 4 species (+2)

* Site #6

Trapping Tallies: Site #6: Big Rock Mtn.; 5-9 August 2017

pits: $(64 \times 3) + (40 \times 3) + (80 \times 3) = 192 + 120 + 240 = 552$

steps: $(30 \times 2 \times 3) + (30 \times 2 \times 3) + (70 \times 3 \times 3) = 180 + 180$
 $+ 630 = 810$

TOTAL = 1,362 trap nights.

* Site #6

Capture Tallies: Site #6: Big Rock Mtn.; 5-9 August 2017

7. *Sorex cinereus*

1. *Sorex tundrensis*

1. *Tamiasciurus hudsonicus*

2. *Lemmus trimucronatus*

52. *Microtus xanthognathus* (from 2 sites)

41. *Myodes rutilus* (+10 birds)

TOTAL = 104 (+10) captures Diversity = 6 (+a few) species

We were all packed up and headed down river by 15:00.
A few sprinkles but nothing much. Cloudy or sunny and

windy, making the boating somewhat tedious. I had Jeremy on the raft and he rowed most of the way this day so not too hard for me! Hardest going in the SOAR. But we took our time, plus the river was running fast so it wasn't too bad. Stopped at a couple spots that looked good for fishing but not a bite. Not sure why we can't catch anything anymore?? After about 10 miles, at ~18:00 we started looking for a camp spot, and found one at mile 13 for the day. Looked like some possible fishing holes or places on the west side of a broad gravel bar. Camped at: 67.52975 N, 146.20071 W, 415 m. Passed up a really nice camp site a mile or two further up river with wind shelter but this is OK, with sandy spots to set tents. The wind had also died down so we set up tents, tried fishing for a while then gave up and cooked some pasta packets and added instant potatoes and creole seasoning to change it up. Ate at ~21:00 then bed shortly after.

10 August 2017 - Woke @ 07:00. Cold night. ~45°F. Cloudy but bright and calm in the morning. Packed up and headed down river by 09:00. A great day for boating. No wind, no direct sun, but warm. This is a fun fast flowing river. Lots of new channel. We made good time down to camp. Made ~10 miles to pull in at ~noon.

★ Site #7: AK: Arctic National Wildlife Refuge; 4 mi. S,
6 miles mi. W. mouth of Lush Creek; 67.46180° N,
146.45934 W, 392 m. 10-14 August 2017.

Calling this site "Lush Creek" for short cause it's the nearest landmark but Lush Creek Mouth was only ~1 mi. down river from our stop-over camp. Anyway, I pulled

in at the top of a large old gravel bar and we scouted. Found a better spot for camp at the bottom end. The bar has a good thick soil layer all through and must have formed a long time ago. The backchannel is a grassy mud flat meadow with thick equisetum. Another old and willowy grassy channel runs through the middle. Large log jams on the top end and lots of wood around. Lots of established willow and some young spruce throughout. Good rodent sign (*Microtus*) in meadow areas. A small gravel/sand beach at the bottom end near boats for kitchen. Several decent but small spots to eek out a tent site. Very comfortable. We unloaded then set up personal tents then lunch, then set up the rest of prep stuff etc. before going off ~~to~~ to explore. at ~14:30. Partly sunny and warm in the afternoon, a slight breeze. The old bar where camp is located borders a ~~thin~~ strip of spruce forest (both black and white spruce here ~~but~~ but white only in good soil near shore) before abutting a steep scree slope to the west, river breaks. Difficult and dangerous to try and scale straight up but ~~some~~ ~~some~~ arctic ground squirrels (*Urocitellus parryi*) with burrows along the upper parts of the slope. We've seen a couple. The river breaks are topped by endless tundra, growing on permafrost. This relatively flat high plain is fairly open with a diverse lichen/moss plant community. Fairly young black spruce growing over an old burn. Relatively tough walking but easier if you find a game trail (likely caribou or moose). The camp gravel bar runs ~ NE to SW. Just west of our camp is a creek cutting down through the river breaks. A steep ravine but walkable, though a jumble of dead and mature spruce. The mouth of the ravine has game trails running up both ridges to the top of the breaks, the easiest way up. ~~The~~ At the bottom the forest has a thick moss layer and high-bush cranberry and wild rose are widespread, plus low bush cranberry throughout.

Further to the SW, the creek (not running) drains onto an old flood plain with spruce thick around the edges and a relatively open area through the middle. Habitat changes between deep tussock and spruce to ~~very~~ dwarf birch meadows with reasonable structure to open grassy meadows of various sorts. All pretty good for pitfalls. A small pond at the SW end of the plain in among tussocks. High ground areas throughout with spruce and birch / shrub ground cover. Game trails along the river to ease passage. The habitat in general has changed dramatically as we have moved down river. This is true boreal tundra here with all the elements appearing so common through central Alaska. Lots more deciduous shrubs here too, and cottonwood. I also hiked up onto the top plain. Where the creek ravine levels out, it splits to two forks of flat boggy tussock / moss wetland. The north fork is highly structured with thigh-deep tussocks. Too much for setting pits. The south fork is also somewhat treacherous to walk through but better for pits. I aimed to hike out to a small lake about feeding this creek about 1.5 mi. back but the going is too tough... So, I returned to camp at ~16:00. Had some gorp then went out to get traps. Others too. SWH set a line of 30 snaps in the meadow channel next to camp then took a shotgun out to try to get some ground squirrels. He shot a red squirrel at least and prepped it. JTW set a line of 30 snaps up top through forest and along the north fork of the creek, tussocky. AJS set 30 snaps down at the SW end of the flood plain through tussock and forest and around the small pond. I set 64 pits in tussocky spruce forest just south of the bottom of the creek, nearish to camp. Finished at ~18:00. Jeremy also shot 2 red squirrels. It then rained for an hour so we went to tents to wait it out. Had dinner of mac'n cheese at ~20:00 then bed by ~21:00.

11 August 2017 - Woke @ 07:00 to a clear morning. But it was a reflection of a cold night. Our first that may be a signal of the end of summer... Down to 40 or upper 30's, all felt it. Nice and calm though 3/4 moon waxing, still up in the morning. Should be a nice day! We checked traps after coffee then prepped a pretty good bunch. Schuyler had caught 3 root/tundra voles the evening before on his line that we had already prepped and picked up a couple more. Interesting that we've lost the meadow voles here, back to Microtus that we were getting at the first sites. We'll see if we get them both. Prepped until noon then lunch.

Trapping Results: Site #7: 11 August 2017; Lush Creek

- 4. Sorex cinereus
- 6. Myodes rutilus
- 1. Microtus xanthognathus
- 5. Microtus oeconomus
- 4. Tamiasciurus hudsonicus

TOTAL = 20 captures Diversity = 5 species.

A really nice day today with some sun but not too much. Warm but not hot, a slight breeze.. Goldilocks day... After lunch, went out to set up the rest of the traps. SWH put a line of 30 snaps along the base of the scree slope and 40 snaps at the mouth of the creek in thick forest undergrowth. JTN put another 40 snaps in the heinous tussocks along the north fork flat of the creek up top, then 30 snaps along the bottom mouth of the creek near Schuyler's line, plus 32 pits through forest jumble near my first pit line. ~~SW~~ AJS set 70 snaps as an extension to his first line. I set 80 pits up in tussocky mossy wet habitat on the south fork of the creek, then 64 pits through grassy meadow with some structure on the flood plain further to SW.

All finished by ~ ~~18:00~~ 17:00. I then took my fishing rod along the river to south but had no luck. Lots of hiking around last couple days. I'm dead tired. We're getting to the point in the trip of being chronically ~~tired~~ tired, plus getting hungrier as nights get colder.... All are also beginning to count days till finish. All common things on these trips. Still no bad moods though! Umm

We had more pasta packets, potatoes and ~~creole~~ creole seasoning, I couldn't pass up a good thing so did a repeat... Then I went to bed at 20:00. ~~Read a book~~ Read a book for a while before passing out. Another mostly clear and cold night. Down to ~40°F. Time for warmer clothes. -

12 August 2017 - Woke @ 07:00. Coffee then # checked traps. Took a while to get back. Prepped from 09:00 to ~13:45. I caught an enormous Sorex tundrensis today. Much larger than many others on this trip with highly distinct coloration. Makes me wonder what it is, or what the others are, if not the same. All will need checked.

Trapping Results: Site #7: 12 August 2017: Lush Creek

- 1. Sorex hoyi
- 1. Sorex tundrensis
- 8. Sorex cinereus
- 11. Myodes rutilus
- 10. ~~7~~. Microtus xanthognathus

TOTAL = 28 captures Diversity = 5 species

After prepping, lunch. Overcast day but bright. Sprinkled rain before lunch then began to rain proper in the afternoon. I sat to write notes and Alfredo sat to catch up on data and labeling. SWH reset his original 30 snaps within willow near camp to try and get more M. oeconomus.

then went to tent to read. Still raining as I write up to date. Others will reset first trap lines later on. I will now focus on entering GPS units for my captures. Always data to catch up on...

SWL reset 30 snaps as mentioned. JTN set his 30 snaps up in really deep tussocks on the north fork of the creek. Came back wet... AJS then went out w/ bpm to reset his 30 snaps nearer to camp than other lines. Rain had stopped by that point but everything wet. He got wet feet, without his rubber boots. JTN brought back 3 tasiga voles so the 3 of us prepped them while Alfredo was out setting traps, then, we cooked up dinner of Frito pie with beans, chili, cheese, onion. Really good. We ate at ~ 19:30 then bed at ~ 20:30.

Stayed cloudy overnight and so warmer, ~ 50°F but most of us dressed warm too. So damp, sweaty... Not bad though.

13 August 2017 - Woke @ 07:00 to an overcast sky and wet ground but thankfully no rain. Wind had changed to from the NE (an odd direction) around dinner yesterday and remained the same all day. Surprisingly warm but steady breeze and rain from ~ 11:00 → 17:30, steady rain but not hard. Gotta good catch of shrews after the rain yesterday. Prepped from 09:30 - 13:00.

Trapping Results: Site # 7: 13 August 2017; Lush Creek

17. *Sorex emereus*

1. *Sorex tundrensis* (another definite big ♂)

6. *Myodes rutilus*

1. *Lemmus trimucronatus*

4. *Microtus xanthognathus*

1. *Microtus oeconomus*

TOTAL = 30 captures Diversity = 6 species

With the rain, we finished prepping, had a quick lunch, then retired to tents to read or nap, @ ~ 13:45. Rained solid for ~ 3 hrs. I got up @ ~ 16:00 to sit in preptent and catch up on notes, data, etc. JTN joined me soon after, then SWL. We all sat quietly catching up on data for ~ 2 hrs. Rain stopped. Still threatening though. Tonight is the site penultimate so if possible will burn trash, prepare to move down-river.

Didn't manage trash burning. Too wet and were just tired. Had a dinner of ~~pasta packets and potatoes~~ then bed @ ~ 20:00. Frito pie!!

14 August 2017 - Woke @ 07:00. No rain but a wet cloudy morning. The night before, started raining at 23:00 and rained a lot over-night. We had coffee then checked and pulled all traps. Lots more shrews in pitfalls. Presumably the rain really brought them out. Lots of pits floating or underwater with a raised water-table but still many captures. Cold too, so pretty fresh. Took me > 2 hrs. to get all the traps in and over 2 mi. round trip. Started raining again as we began to prep. Around noon, rain mostly quit so we stopped to pack up personal gear and tents. Had some lunch then began prepping again, finishing @ ~ 14:00.

Trapping Results: Site #7: 14 August 2017, Lush Creek

22. *Sorex cinereus*

2. *Sorex monticolus*

~~1. *Sorex hoyi*~~

1. *Microtus pennsylvanicus*

8. *Microtus xanthognathus*

TOTAL = 33 captures Diversity = 4 species.

* Site #7

Journal

AG Hope

61.

Trapping Tallies: Site #7: Lush Creek: 10-14 August 2017

$$\begin{aligned} \text{pits: } & (64 \times 4) + (80 \times 3) + (64 \times 3) + (32 \times 3) = \\ & 256 + 240 + 192 + 96 = 784 \end{aligned}$$

$$\begin{aligned} \text{snaps: } & (30 \times 3 \times 2) + (30 \times 3 \times 2) + (70 \times 3 \times 3) = \\ & 180 + 180 + 630 = 990 \end{aligned}$$

$$\text{TOTAL} = \underline{1,774} \text{ trap nights.}$$

* Site #7

Capture Tallies: Site #7: Lush Creek: 10-14 August 201751. *Sorex caereus*1. *Sorex hoyi*2. *Sorex hudsonensis*2. *Sorex monticolus*4. *Tamiasciurus hudsonicus*23. *Myodes rutilus*23. *Microtus xanthognathus*6. *Microtus oeconomus*1. *Microtus pennsylvanicus*1. *Lemmus trimicronatus*

$$\text{TOTAL} = \underline{116} \text{ captures Diversity} = \underline{10} \text{ species}$$

Thankfully, rain held off for most of the afternoon, though there was a steady mist/drizzle that wetted at the same speed it dried by wind. Damp traveling. We had the boats all packed by ~16:00 and headed down river. Fast flow though with some breeze, still brought us ~12 mi. in ~3 hrs or less. Arrived at the confluence of North and Middle Forks of the Chandler and called camp for the night on the south side. The bottom edge of the Arctic-NWR is at the confluence on the north side ~~so we camped~~ but there are Native AK allotments there so we camped outside of the Refuge on AK State land. Pulled into muddy water coming out of the Middle Fork. Maybe had rained had up river...

Beavers collected willow saplings in the eddy near camp where we set up. Not a great camp but OK for one night. I went to look at the Middle Fork but lots of log jams and difficult to access. Tried casting for fish near camp but no joy. We built up a fire after setting up tents. Tried to dry off the wet and damp clothes. Burned all the trash, had some dinner of pasta packets and potatoes then went to bed at ~ 22:00. We decided to sleep in, if possible until 09:00 and get a late start. Winding down now.

15 August 2017 - I woke at 08:00 and Schuyler was just up. Jeremy just after. We sat for coffee. At 09:30 I woke Alfredo then we all had some breakfast and sat to wait, out continued light rain. Rained on and off through the night and into the morning. Eventually (~ 10:15) rain slackened enough and we packed up and were headed down river by 11:00. Plan was to float through the Chandalar "canyon" for ~20 mi. and stop @ Zimmerman Creek. Started out well, moving at ~7 mph. Wind quickly picked up. A cold breeze in the face, then drizzle, then steadily harder rain and wind. After ~15 mi. rain started proper, and we all got wet, even if wearing waterproofs. Hard to see the river too, being muddier now. Made it to Zimmerman Cr. in driving rain but no good place to camp so continued on down for a couple more miles to the first good spot and called camp, @ ^{15:15} ~16:00. Still a pretty quick section. Wind made it hard going on my ~~stole~~ shoulders and elbows rowing, but not too bad. Mostly, everyone was cold and wet. We unpacked the boats and set up the prep tent for shelter but as soon as we finished with it, the rain stopped (!!) so we had to get our own tents up, and as soon as we were finished, it started raining again. Where!!

Still, lots of wet gear and low moral. We had a late lunch then ~~went to~~ went to wait out the rain in our tents. I got up at 18:00 when it quit, and started organizing and setting up the prep gear. No trapping tonight. This is technically an extra site anyway. SWL helped then JTW too and we then sat and enjoyed a relatively calm evening. ATJ joined us for dinner of snacks then back to bed @ ~ 20:00. I actually stayed up to watch some late sun setting, went through photos, then went to read. Didn't get to sleep till ~ 01:30. No more evening coffee! More rain on and off over night. Really hoping for a break, since stuff is getting wetter, including clothes, and carcasses are rotting in a bear barrel...

16 August 2017 - No rain at 07:00 when I woke. Schneider had coffee going. Locked gloomy but by ~ 09:00 patches of blue, then brighter. By ~ 10:30 it was partly sunny so we had everything out drying, carcasses on a makeshift spruce pole, clothes out on droopy willow, etc.

★ Site #8: AK; 1.5 mi. S mouth Zimmerman Creek;
67.13650°N, 147.27510°W, 258m, 15-18 Aug 2017

Alfredo used the time in the morning to make phone calls. Find out number for Arctic Native Council in Venetie, Contact Hollis about possible Refuge plane flights out of Venetie on 21st. Contact Wright Air about carrying soft case firearms (ok), flight availability on 21st, etc etc. Always a process for Alfredo. Made progress though. We should potentially get everything back to FAI on 21st from Venetie, either on Wright Air and possibly with Refuge assistance. Still need to organize

Transport from river to Air strip. Hoping to contact the council or ~~for~~ simply find someone with a pickup truck and slip them a \$20. We'll need to work on that.

The ~~sit~~ camp here is on an island with a small sluggish back channel to the west bank. So, at ~11:00 we packed up 60 snags or pitfalls each and floated over in empty boats ~~to~~ to the other side, tied up, and looked around.

I was hoping for Zimmerman Creek proper as it was at the base of big hills, but here, we're limited to a big open flat wet area. Immediately evident are numerous snowshoe hare trails and ~~scat~~. JTN saw a hare but couldn't get it. Did get a grouse for dinner though... Also lots of large mammal signs. I found a nice moose ~~strutler~~ shed. Tracks of bear, wolf, moose, caribou. Alfredo saw an ermine. Beaver here too. The flat is very wet all over due to rain but is varied between spruce forest round the edges to dwarf birch ~~and~~ moss/gass/tussock to willow sedge wetland. Also alder fairly thick here along the river. We're now down to dense stands of poplar, possibly also big birch trees, alder in wet areas, and other shrubs.

Set traps till lunch, then returned to camp. Had some food then I had a bath. Really needed it! Then I sat to write notes, JTN and Seth went to try floating up the back channel to fish and hunt. No luck. Alfredo got back on ~~set~~ sat. phone. All up to date for our final two nights of trapping...

Had grouse and ramen for dinner. Nice! Bed at ~20:00. Asleep by 20:30. More rain overnight but not too bad. Got cold too ~40°F. Almost there...

17 August 2017 - Up @ 07:00. Coffee. A mostly clear

morning. Had sun till ~ lunch @ noon. Then cloud in the afternoon. Rain in the evening. We checked traps and got a big catch. Surprising to get ~35+ with only 240 traps out. Mostly meadow voles but some shrews too. No hares or squirrels...

* Site #8

(+ ~~Trapping to~~ Capture Tallies)

Trapping Results: Site #8: 17 August 2017; Zimmerman Cr.

11. ~~Sorex~~ *Sorex cinereus*

1. *Sorex hoyi*.

1. *Myodes rutilus*

30. *Microtus pennsylvanicus*

TOTAL = 43 captures, Diversity = 4 species

* Site #8

Trapping Tallies: Site #8: Zimmerman Cr.; 15-18 August 2017

pits = $(60 \times 1) = 60$

snaps = $(60 \times 3 \times 1) = 180$

TOTAL = 240 trap nights.

We prepped till noon, had some lunch, then continued until done. Turned out we were close to our 30 capture limit on permit for meadow voles, so I decided to pull all traps and close out our trip, here and now. So as clouds covered the site, we headed out to collect traps at ~ 14:30. Got back with ~~one~~ one more vole and a few shrews, prepped them, then organized and packed the prep boxes for the final time this trip. Got rid of all ~~trash~~ to be trashed, bagged all samples and divided out samples into one ~~box~~ packer and extra gear into the other.

Alfredo got on sat. phone, and made contact with Joanna Fox, his boss, who told him the Refuge planes were booked up so she got someone to book us on Wright Air on the 16:30 flight on 21st. They will take our guns in soft cases, ~~unless~~ unloaded, and should get all our

gear too. He also got in touch with the Venetie Village Council who said we could camp near the airstrip and could get us a truck to cart all our gear up there for \$20-30... No prob.

So... we're done. Mostly. Had an early dinner of Thai, excellent, noodles done perfectly. Schuyler cooked. Then I sat to write notes, others entered GPS units. All data almost up to date.

The plan now that we're done, and organized for flights, is to wake up casually in the morning, pack everything up so that we're in travel mode for 3 days then head down river. Maybe 10-15 miles, find a nice camp site with lots of wood for fire (burning all unnecessary stuff) and comfy camping, and possible fishing. Then the next day (19th), make miles, maybe to close to Venetie then find another nice camp and relax. Then Venetie on the 20th, get all the boats packed and everything set for travel, organize for transport to air strip, then set up camp and wait.

River is running even higher after rain, so we'll see what it brings. Bed.

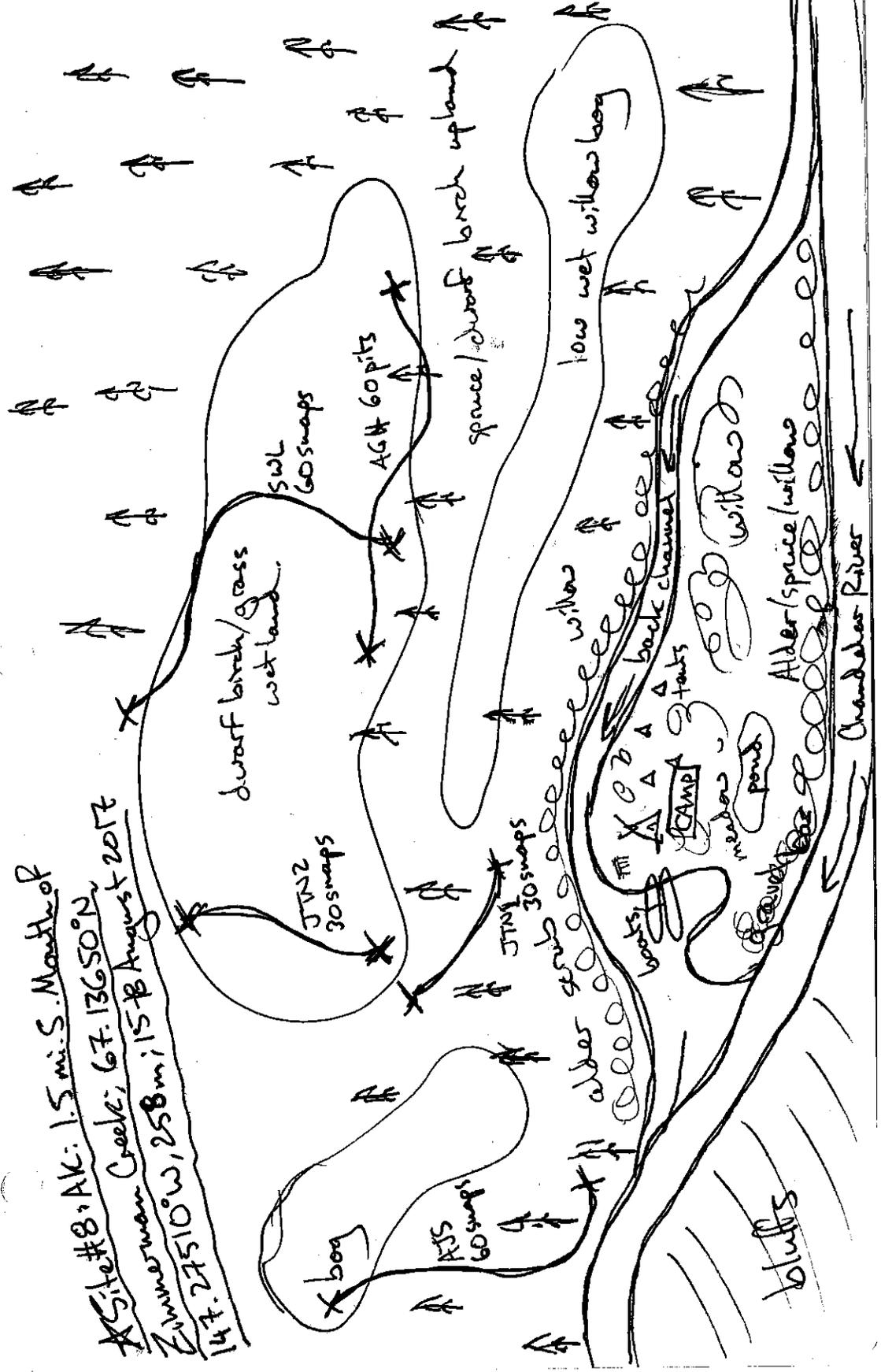
18 August 2017 - Woke up at a leisurely pace and had coffee and breakfast. A nice morning, though cloudy at first but sun breaking through enough that we could break down camp slowly and dry out tents by layers, keep the carcasses drying too. By 10:00 we started packing up and by 11:20 we were off downriver. The plan was to go ~10 mi., find a camp and stop. The river was flowing so fast! Took us ~2+ hrs to get the 10 miles, simply floating without paddling for much of it. Speeds of 7.5 mph sitting in current. No fish again, though we see them every once and a while in side sloughs. A good fun day. Stopped at a huge gravel bar on river left, an

* Site #8, AK: 1.5 mi. S. Mouth of
 Zimmerman Creek; 67.13650°N
 147.27510°W, 258m; 15-18 August 2017

Journal

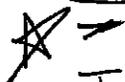
Albatype

67.



Trip Tallies: Captures: All sites: Chandler 2017

Species/Site	1	2	3	4	5	6	7	8	Tot
<i>Sorex cinereus</i>	5	29	8	5	37	7	51	11	153
<i>Sorex hoyi</i>	4	0	1	3	6	0	1	1	16
<i>Sorex agyunak</i>	2	1	0	0	0	0	0	0	3
<i>Sorex tundrensis</i>	0	0	0	3	0	1	2	0	6
<i>Sorex monticolus</i>	0	0	0	0	1	0	2	0	3
<i>Microtus oeconomus</i>	4	1	0	0	0	0	6	0	11
<i>M. pennsylvanicus</i>	0	4	0	7	23	0	1	30	65
<i>M. xanthognathus</i>	1	0	26	1	1	52	23	0	104
<i>M. micrus</i>	8	4	0	0	0	0	0	0	12
<i>Myodes rutilus</i>	19	14	32	27	35	41	23	1	192
<i>Lemmus trimucronatus</i>	1	0	0	0	0	2	1	0	4
<i>Tamiasciurus hudsonicus</i>	0	2	4	1	0	1	4	0	12
<i>Sorex minutissimus</i>	1	0	0	0	0	0	0	0	1
Totals: 13 species:	45	55	71	47	103	104	114	43	582

Trap Tallies: Trapping: All Sites: Chandler 2017

Traps/Site	1	2	3	4	5	6	7	8	Tot
Pits	708	912	480	448	652	552	784	60	4596
Snap	780	1200	720	690	1020	810	990	180	6390
	1488	2112	1200	1138	1672	1362	1774	240	10,986

(+23 birds)

$$\text{Capture percentage} = \left(\frac{582}{10,986} \right) \times 100 = \underline{\underline{5.3\%}}$$

TOTAL = 10,986
Trap nights.

island but with plenty of small back channels, beaver dams, log jams, etc. Was a good spot to camp. We had a simple dinner but a huge fire. Burned all the trash, all the pitfalls (40+ lbs. less to worry about), some

Box 1

* indicates ethanol filled tubes.

- * 32. packets liver samples (15 x 2 ml tubes / packet)
- 1. bag dry carcasses (150)

Box 2

- * 8. packets liver samples (15 x 2 ml tubes / packet)
- * 1. packet liver samples (4 x 2 ml tubes / packet)
- * 8. packets HS samples (15 x 2 ml tubes / packet)
- * 15. packets hindgut samples (20 x 1.5 ml tubes / packet)
- 1. packet nobuto samples (14 dry tubes)
- 1. bag dry carcasses (150)

Box 3

- * 15. packets hindgut samples (20 x 1.5 ml tubes / packet)
- 2. bags dry carcasses (150 / bag)
- 2. bags dry embryos (50 / bag)

Box 4

- 2. packets of LX samples, ^{RNA later} (91 x 2 ml tubes / packet)
- 7. boxes dry skin samples (60 envelopes / box)
- 1. "seal-a-meal" food sealer.
- 1. 35L dry bag
- 1. pair rubber boots.
- 1. personal flotation device
- 1. bottle RNA later solution (500 ml)
- 3. rolls paper towels.
- 1. bivvy sac
- 1. pair hiking boots.
- 1. duffel bag

* Inventory for shipping most samples back to USB. New rules and procedures call for itemized inventories and box limits on # samples w/ ETOH. I shipped all parasites to myself, and frozen samples to USGS AWC.

old broken waders, and the tricycle... A somber moment for the end of our trip mascot. Bed @ ~21:00.

19 August 2017 - Woke up @ ~08:00. Had coffee and breakfast. Around 10:00 we packed up camp and boats, loaded boats. A nice morning. Partly cloudy. No wind. A good day for boating. Headed down-river by 11:30. By ~16:00 we were looking for our final river camp ~18 mi. down river and ~3 mi. outside Venetie. Fast river again. High water. Lots and lots of dead spruce littering the over flow channels and murky water making it difficult to read. No problems though. We found a nice gravel bar on river right but again an island with a large channel between us and right bank. A small channel running through the middle. ~~By~~ Again no fish with three of us trying. Had ham and chili and cheese and pilot bread for dinner. A pretty long day and I was tired. Bed by ~21:00. Very thankful for the good weather!

20 August 2017 - Woke @ 08:00. Same schedule as day before. Headed down river by 11:30. Only 3 mi. to go but tough due to bad preparation for the take out. Alfredo had been flown over Venetie previously by Brett (law enforcement pilot) and described the boat ramp as being in a side channel ~~or~~ upriver of the town. He showed ~~me~~ me a side channel on my GPS and the point at which he assured me was the place to get into it. When we passed this spot, there was no way our boats could get in there, plus dangerous.. So we floated down. I figured somehow we had missed it. We scouted out the next side channel on river left but it also looked sketchy. So I told Alfredo to call Venetie on the sat phone. He did, and the chief

told us just to float down the main channel and we'll see the boats and village. No problem... When we got there it appeared that everything was opposite how Alfredo described with a side channel (no current) forking back upriver. The boat ramp down-river from the village. I'm fairly certain that the fly-over with Brett flew up-river over this area but Alfredo thought they were flying downriver, and hence gave all the directions wrong. I was pissed, cause we almost could have gone down and been stuck in a bad place... This, once again, proved a liability for our trip.

Anyway, we made it safe to Venetie! Packed in, Alfredo went to find the chief (Patrick Hanson) and we stayed with boats. He showed up with a young guy named Jose on a 4-wheeler w/ trailer. We asked Jose to come back in 1.5 hrs. while we unload and pack the boats. So we got to work. Took everything off and piled it all up, rolled the boats, still dirty for the time being. A few folks came down to ask questions. We told them a bit about our trip. They told us about diseased salmon runs the last couple years. Cysts from sub-cutaneous through into the body cavity. We related high parasite loads in mammals. Mostly younger folk. Met an older guy with a jet propulsion hp engine on his boat. He was saying he could get up to Arctic Village in ~6 hrs! then on up to head waters of Junjik or Chaudalar and then on to the hills on foot, presumably to hunt caribou.

Once our stuff was piled up we headed into town up a hill to north then west through the village to the ~~town~~ store. Small but OK. Bought a soda and some smokes. Then headed back to the river. Jose was waiting and him and Alfredo had loaded 2/3 of the gear. Jose took the first load w/ J4h and JTN up to the air strip. Me and Alfredo waited for the second trip. We were all dropped off. I gave \$20 to Jose. Alfredo

had not thought to bring cash. ~~We were~~ He was apparently told by the chief to give "\$20 or 30" to the driver. All I had was \$20. Jose did not seem impressed, but he left us alone. Alfredo made sure to provide an official USFWS handshake before he left...

So, we set up camp and had a look around. One more day to wait! Had snacks and ramen for dinner and bed at ~ 21:00. A pretty basic air strip of gravel though it was broad and long. Could easily support a DC6 fuel tanker. One arrived the next day. We had another lucky weather day today with clouds but no rain.

21 August 2017. - Alfredo had us all booked for the 16:30 flight by Wright Air. This flight turned out to be at 15:15, so luckily noone was in town. Just another detail that Alfredo got wrong. The flight landed in Fairbanks at 16:30... Anyway, we were up @ 08:00 had coffee and breakfast then wandered around. Alfredo got a hold of the Refuge pilots and they decided to send Hollis up in a Cessna 185 and to get gear and one person, plus ~~send~~ ^{send} up later in a Cessna 206 to get more gear and another person, then get the rest on the Wright's flight. The morning Wright's flight landed so Alfredo got a bunch of our gear sent off freight. Then we got word that Nicki was near with some spare room in the other 185. So, Hollis arrived, we loaded half the remaining gear on that, plus me, then Nicki arrived and most of the rest of the gear went on that. ~~The rest with Jess~~. We could easily have gotten the rest on the ^{PM} Wright flight but the 206 was already on route with only 1 extra seats. Took Jeremy and rest of gear. SWL and ATJ got on Wrights. Basically wasted a flight by the 206 plus paid for freight... Another bad decision, decision/plan.

but who was to know, I guess... We all made it back to FAI by 16:30. I was first back so loaded the truck waiting for us with gear and picked up others as they arrived. Fun flights up and over the White Mtns. with good views.

(We were also visited by Jerry Frank, one of the village elders, the night before, at our camp. A real interesting fellow with a good humor, and lots of stories. Stayed talking for ~45 mins. Told us ~20 young men had just left Venetie to fight fires in California (about 1/5 th of the total pop. of 100 in the village); also related his heritage from Old Crow in YT to through AK; noticed arrival of poplar and take over within the last 40 yrs or so through the region; road development ensuing between Venetie and Archic Village soon; changing climate; good berry picking and hunting spots...etc.)

Once back in town, Alfredo went home with his wife Anna and we packed up all the gear and had a bite to eat then drove out to the Rosehip campground. All tired so bed by ~20:00, after some tasty beer..

22 August 2017 - Woke @ 08:00 then headed in, bought a bunch of ziplocks and paper towels, some packed lunches, then headed to USFWS by 10:30. A busy day of sorting and cleaning and storing gear. Had to get the nitrogen slipper off to USGS ASC in ANC, along with the longwire tubes of muscle sample. Sent them gold streak through AK Airlines Freightline, along with all relevant paperwork for longwire and N₂ slipper. Also readied to ship ethanol samples the next day. Much more stringent rules to follow these days. Needed to vacuum ~~cook~~ - heat - seal packets of tubes with no more than 30ml EtOH per packet and

no more than 1L EtOH per sent package. So lots of counting tubes and packing to be done. Around 5pm. we took shipper to airport, sent it to Kevin Sage at USGS then dropped off Alfredo at his house, picked up our spare gear from his shed, then got some boats and corn and headed back to campground to grill dinner. Bed by 21:00.

23 August 2017 - Got back into USFWS Field Office by 10:00. Packed boxes all day. I got all my field gear boxed and sent off via FedEx that evening, 3 boxes of 50 lbs. Cost \$190 total, through my K-State account. Got the boots cleaned and dried and packed away. All USFWS gear stored. Another long non-stop day. Headed out to campground by 18:30. Bed by 20:30.

24 August 2017 - Back to USFWS, by 08:30. Made up box inventories for specimen shipments. ~~Headed~~ Headed to FedEx to ship them by 10:00. Cost only \$50 for ~50lbs to send samples overnight through the USFWS account w/ discount. Really cheap! Stopped by NPS office on Geort to return borrowed bear barrels. Didn't see anyone I knew. Then back to field office for final gear packing and showers. Jeremy went to lunch with a friend. SWL and I stopped for a bite to eat then went to Barnes + Noble bookstore to get coffee. I wrote final notes for the trip. We now all just have to wait. SWL flies out at midnight, JTN and I fly at 01:30 to SEA then on to MCI. Back in KS by 16:30 tomorrow. Now to begin working with all these samples! And catching up on life and work...

THE END