

2
30 June 2015 continued

At Mossy Kitchens, Homer At 59.67648°N
151.40806°W ± 20m, we collected aphids from
sitka spruce. (2015MKB061) (frames 849-811).

Bird cherries are escaping here.

After leaving Mossy's place, we drove as far as
Kitchen Road on East End Road, looking for more
spruce aphids. We only saw a few trees that had
damage that could have been spruce aphid.

At 2:00pm we visiting a home owner off of N
off of Bear Creek Rd. Here she had woolly aphids
on spruce. I collected there (2015MKB062) at
60.66743°N 151.46079°W ± 20m. I took some
photographs here as well.

North Fork Road: At 59.77682°N 151.60466°W ± 20m
we stopped to look at what had been other defoliation by
gambusia. They are now recovering. I had several shots
here just before 16:01.

Insect and disease treatment area - about the
Refuge on the Chugach side -

3
1 July, 2015

I am with Wade again today. We arrived at the
Mile 149 Calamagrostis site at 09:16. It is a beautiful
sunny morning.

frames	plot
898	T1
899	T1C
900	T2
901	T2C
902	T3
903	T3C
904	T4
905	T4C
906	T5
907	T5C
908	T6
909	T6C
910	T7
911	T7C
912	T8
913	T8C
914	T12C
915-916	T12
917	T11C

frames	treatment
918	T11
919	T10C
920	T10
921	T9C
922	T9

(6. July 2015) Wade, Jenny, and I are on the way to the Griner site.

Bruce Dikolhoff is the environmental person (or was) for Ninitchik native corporation.

Wade says there is very little birch on upper ice-free hills past a certain elevation.

Wade worked on a project planting spruce on Ninitchik Native land circa 2000-2011. First scarification. Also, mounding, planted spruce on inverted mound. Mounded seedlings grow best. Planted ~600,000 trees.

Peninsular-wide, of which ~80-100k was on Ninitchik Native land. 250 or 300 seedlings per acre. Unfortunately, this coincided with a high snowshoe hare population, so seedlings were lost or damaged. Most seedlings recovered, though.

At Griner, the borough hooked up with John Alden, governance studies: white spruce from throughout the

balsam fir

range, lodgepole pine, and a variety of larches.

frames	plot
910	T1C
961	T2
962	T2C
963	T3
964	T3C
965	T4
966	T4C
967	T5
968	T5C
969	T6
982	T6C
983	T7
984	T7C
985	T8
986	T8C
987	T12C
988	T12
	orange bark seed on this plot!
989	T11C
990	T11
991	T16C

from	to
992	T10
993	T9C
994	T9

13. July, 2018 05:30 - 18:30

Helicopter work on grasslands with John. Our pilot is Adam, our ship N302MH. We are using "X's" to denote extremely dry sites, "F" to denote fire polygons. Proceeding up at 09:47. First is (X) (65). This is black spruce marshing. Next is 1X (1E)

This was on open wetland with *Vaccinium*, *Erythronium*, *Galium*. Next is 7X. Done at 10:39. Next is 11X. 7X was a *Calluna-grass* grassland looking like it was formerly forest. 11X looked like private land and is road accessible. Moving to 12X. Done at 11:00. Next is 8X. We did not land here, (close to road). Next is 3E. This is a strong bog. We did not land. Next is 9E. Done at 11:37. Next is 13X. Done at 12:04. That was wet and difficult walking. Next is 18X. Done at 12:38. Next is 17X. At 17X we could not land near the site, so we took spruce samples nearby at 59°43'45" N W 151°31'9"

After refueling in Haver and discussing, we are changing our methods some. We will first visit each site to obtain a classification, then land close by. We will collect spruce samples at the landing site and record those coordinates. Next is 102X. Done at 14:28 (spruce samples from photos). Next is 103X. Done at 14:46. Next is 118X. We could not land nearby. Next is 119X. No place to land here. Next is ~~160X~~. No, we'll go to 121X. No place to land. Next is 122X. We tried to land here, but could not. Next is 120X. Wpt 001 UTM 25 0624004 6657264. (Could not get GPS on camera to update.) Next is 112X. Done at 15:32. Next is 104X. Done at 15:46. Next is 111X. Done at 15:59. Next is 110X. No landing site. Next is 109X. Done at 16:18. Heading back now.

06:30 - 22:00

(14 July 2015) Continuing with the gravel work, same helicopter and pilot out of Homer. I am working with John again today. Powering up at 09:29. Our first is 48X. We did not land. We'll get it by road. Next is 64X. No GPS reading is correct.

specimens collected at USM 25 0599378 681898

Done at 10:22. Next is 63X. Done at 10:45.

Next is 76F. No land here. Next is 62X.

Could not land. Next is 47X. Done at 11:23. John

was excited because this rich wetland is a place where afforestation appears to be happening.

Next is 46X. Took lunch here. Done at 12:09.

Next is 32X. Saw a wolf pack. Could not land

at 32X. Next is 29X. Done at 12:44. This was

a rich fan. Next is 23X. This is a logged forest.

Done at 13:05. Next is 31X. Done at 13:30.

Next is 45X. Done at 13:56. Next is 36X. Done

at 14:28. We had sampled from the actual plot.

Heading back to Homer now for fuel. ~~However~~

change: going to 28X. Done at 14:54.

After fueling our next will be 22X. Changing to 20X. Done at 16:37. This had been in Alnus incana and Calamagrostis. Next is 21X. Done at 16:59. Next is 14X. Done at 17:24. Next is 22X. This was pure black spruce. Done at 18:04. Next is 29X. Done at 18:24. Next is 80X. Done at 18:41. Next is 79X. Done at 17:04. Next is 44X. Done at 19:25. Next is 42X. Done at 19:50. Next is 39X. Done at 20:12. This was a beautiful spot with a nice copse of cottonwoods on top and a diverse meadow.

(16 July 2015) 07:30 - 11:15

John had driven down to Homer to meet Mallory and the helicopter. Dawn and I were to be picked up at Soldotna airport. John got started, but then cancelled due to high winds.

(18 July 2015) 07:30 - 19:15

John, Mallory, and Alon started out around 05:30 this morning from Homer. Dawn and I stood by at the Soldotna Airport. As of 09:50, John had just called in after flying over the Windy Point fire and part of the Fox Creek fire. So far it all been

coming back as deciduous.

weights

Matt Crack, gun.

Powering up at 12:29. Our first is 89F. Next is 93F. Next is 87F. Next is 75F. Next is 74F. Next is 86F. Next is 92F. Next is 91F.

Next is 85F. We are going to land here. On plot at 13:44, John is at 73F. In ship powering up at 15:00. Next is 84F. At 85F, there were no

seedlings on ~270 walk, neither hardwood nor conifer. At 84F at 15:18. Done at 15:53

No seedlings of hardwoods or conifers on vicinity. This plot had apparently not been logged, but a ridge ~170m to the south, where we landed, had been logged. There was a cabin ~200m to the east.

In ship at 16:39. Next is 90F. Willow spruce thicket. Just going to get spruce samples here.

Done at 16:54. Next is 83F. On ground at 17:04. Done at 17:53. In ship at 18:01. Heading home.

On ground at 18:19.

Next was 71F.

[19 July, 2015] 08:00-22:00

Powering up at Soldotna airport at 10:43. Our first plot is 82F. willow thicket. Next is 81F. On ground at 11:18. Done at 11:53. Will get spruce DNA on way back to LZ. In helo at 12:17. Next is 68F. Done at 12:59. Took spruce DNA samples near LZ. In ship at 13:28. Helo will not start. After talking with the mechanic, Adam was able to start it. We flew over to 55F where John and Mallory were waiting. Mallory switched with me. I stayed with John at 55 & LZ while Adam took Dawn and Mallory to Homer. We had cut the day short so that we did not have to restart the helo.

14:52 - taking off in ship bound for Homer. Unloaded at 15:15, on ground at tracks in Homer. Dawn and F are back in the helo at 16:02. We are landed first to 65F. (flyover); next is 53F) fly over. Next is 54F. (flyover) Next is 66F. (flyover) Next is 67F. Getting off here. On ground at 16:37. Done at 17:31. In helo at 17:40. Next is 65F. On ground at 17:51. Done at 18:26. In ship at 18:42. Next is ~~Next is~~ Headed back to Homer. Unloading in Homer at 19:02. While waiting at the parking lot of Maritime Helicopters I collected 3 tree and 3 seedling DNA samples from

Sitka spruce around the parking lot.

20 July 2015 07:15 - 18:45

Today Adam, John, and I will be flying out to points along the Furry River Fire for work.

We will be headed first to the Brown Lake cabin, Powering up at Soldotna airport @ 10:21.

Could not land at cabin. Going to H-99, just to the west. On ground at 10:46. No weeds here.

Next is H-Findina Creek. On ground at 11:04.

The coordinates were ~300m off. There were multiple grasses here, which I collected. This area is a

little cleaner than it was after the Glacier Creek Fire. In ship at 11:31. Next is Pipe Creek cabin

Out and about at 11:42. At this site is the same Rumex we saw at Findina Creek.

No obvious weeds here. Next is H-NA4. This is the Bear Creek ledge. On ground at 11:56. In

helo at 12:23. Next is H-Sand Beach. I am going to skip the AKEPEC data sheets from this

point out. Fields are plant species, area infested, and 7. cover. On ground at 12:38. Done at 12:46.

There were no weeds here. Next is H-Southside Star Lake. Done at 12:55. No weeds here. Next is H-60.

H-Northwest Corner Star Lake. Done at 13:03. There were no weeds here. Next is H-Raven Lake.

This was too wet. Next is H-Coal Creek Lake.

Could not land here. Next is H-60. This looks clean, but we did not get out. Next is H-NAB.

This was clean. Done at 13:40. Next is H-NA1.

We did not land, but it looked clean. Next is

H-NA2. Done at 13:49. This site was clean. In helo at 16:04. Next is H-West side of Furry River.

Stopping along the way on the fire line. See photos for coordinates. The only species that looked exotic here was what looked like Lyginus polyphyllus. In ship at 16:27. That was H-West side of Furry River. H-Fuel Bed 34/35 looked clean. On

ground at 16:33. Found Croci's tectorum here, only one individual. Lyginus polyphyllus is here, also.

In ship at 16:53. Next is H-NA5. Done at 17:03.

Next is H-West of Turpelo Lake. Done at 17:16.

This had been clean other than maybe non-native Lyginus. Next is H-West Div C spike. We had to

skip this one because it looks wet. Next is H-Exp Pic C camp. This had been burned in the

Carl St. Fire and is now black. Did not land here. Next is PICNIC, one of the Grimes sites on the

Hansen Trail. On ground at 17:25. Here we found Marrubium, Solidago ligula, Plantago major, Elgans sp, Phleum pratense, Taraxacum officinale. Done at 17:49, powering up to hand horse. On ground walking down at 17:59.

3 August 2015

West survey, wood cut road. Crepis tectorum at the start just two individuals. There were Crepis individuals all the way to the end of the road.

We had trouble finding the deer line. At 60.43907°N 150.95866°W ± 3m we set off on foot to the west, looking along the fire line for the deer line.

We found the deer line at 60.44037°N 150.96234°W ± 5m. There is a tree stand here. Joined woodcut road at 60.44056°N 150.95159°W ± 4m. No weeds on this stretch.

We parked at a pull-off at 60.46279°N 150.89141°W ± 5m to look for another deer line to the east. Found it. Deal end at 60.46291°N 150.88867°W ± 4m. Found the longer line at 60.46107°N 150.88623°W ± 3m. Found and pulled a small group of Marrubium discoides here that had not yet gone to seed.

We parked near 60.47277°N 150.88205°W ± 4m + walk a little of the fuel break. Found and pulled Crepis here. Also here are Lupinus polyphyllus, Plantago major, Marrubium, and Taraxacum officinale.

Finished up at Kyoc stream. Collected on Elymus
here, E. repens. Miss woods should be
identifiable from photos.

(17 Sept. 2015)

I am trying out the lifescanner kit.

BOLD-L91: Diptera in fruiting body of
Lycopodium, georeferenced frames 477-480
on Olympus camera.

BOLD-SM3. Sphagnum clump from Henderson's
Lake.

(28 Sept. 2015)

Jan and I drove to Seawant today to collect
samples of Sitka spruce. We stopped at Tern Lake
on the way, where we checked the outlet for exotic
plants. We saw no exotic aquatics, only Ranunculus,

Myriophyllum, Hippuris, and Potamogeton.
We next went to Nash Road. We pulled off at
(60.10841°N 149.36015°W ± 4m). The trees were so
tall and thick here that we could not get to the
growing tips. We headed back to Lost Lake Trail
trailhead and sampled here. ~~both~~ We collected 60
spruce tips from this area from mature spruce.

Next we sampled the Divide Ski Area (60.25141°N
149.35414°W). Here we took 11 spruce tips.

At Primrose campground at the trail head we
collected 12 samples.

We stopped at a pull-off at 60.51041°N 149.68298°W.
This site had a grave marker cross labeled Loolym H Chumley,
s. calling this the Chumley site. Here we collected 12
samples. These look like white spruce. The apparent
fracture between the species was between here and

Primrose, where the trees looked more like Sitkas.

(29. Sept. 2015)

Jan and I drove out to the Silver Lake trailhead to collect tips of white spruce. We collected 62 spruce tips here.

(14. Oct. 2015)

I collected a stubble back from Headquarters Lake (2015MLB063). This was at 60.46247°N $151.07477^{\circ}\text{W} \pm 4\text{m}$.

(19. October. 2015)

We are headed to Daniels and Spring Lakes today to apply fluridone. On Spring Lake we will apply herbicide at $60.771797^{\circ}\text{N}$, $151.050667^{\circ}\text{W}$.

(7. Dec. 2015)

Miriam, Ethen, Apphia, and I drove out to Tim's Landing on the Kona River to collect rose gall midges from Salix sitchensis.

We had a lot of trouble recognizing galls, but we collected some of what we thought were galls to bring home. We could not find any larvae in any galls that we cut open.

We stopped at Watson Lake looking for galls on Salix baccata, but we found none. We did see a dipper in the East Fork of the moose though!

We did finally find and collect larvae from rose galls on Sk? Hill Road. (BOLD-KA3 and BOLD-MDS).

(2 March 2016) I walked out to Headquarters Lake wetland near the Centennial Trail time capsule boulder. I collected two LifeScanner samples: BOLD-075 from rosette gall of Salix fuscescens and BOLD-R56 from beak gall of same species of willow.

(3 March 2016) I collected a rosette gall midge from Salix pulchra on the outlet of Nordic Lake (BOLD-T95). In the same vicinity, I collected a pupa from a beaked gall of Salix pulchra (BOLD-OR3). I collected a sausage stem gall midge from Salix pulchra (BOLD-DX1).

(7 March 2016) I collected a stem gall on Salix bebbiana from the power line off of Ski Hill Rd. Two larvae & pupae were put in a vial BOLD-L07.

(8 March 2016)

At the bottom of Ski Hill Rd. near SBS I collected a pupa from a terminal beak gall of Salix bebbiana (BOLD-FO). These were the same willows from which the kids and I had collected rose gall midges on 7 Dec. 2015. From the same willows I collected

Dasineura (?) pupae from rosette galls (BOLD-DP2)

(10 March 2016) At $60^{\circ}27'14''$ N $151^{\circ}5'25''$ W I photographed and collected a fly immature, I think a pupa, from Birch leaf litter. (2016MKB001)

(17 March 2016) I collected and photographed a diving beetle from a log at the outlet of Headquarters Lake (2016MKB002)

(23 March 2016) Today I collected several cluster flies from the outside of the headquarters building over the lunch break (2016MKB003)

(24 March 2016) I collected and photographed a tipulid larva (BOLD-IUC).

(29 March 2016)

Today I am with the forestry folks in Homer looking at spruce aphids. First stop is a private residence at 10:29. There were aphids here, but not many. It looks like some of the browsing is due to some other cause. They do not show signs of multiple years of needle drop due to spruce aphids. There were clusterflies here, one of which I collected. Next is Hidden Way

at 10:57. Here there was a heavier infestation on some of the spruce trees, there were cluster flies here too. I collected one.
(206 MUB004)

Next is China Post at East End Rd.

Today we have a big group: Garret, John, Anne, Curtis, Janice, Jason, Casey, and Steve Nickel and Liz Graham.

There were lots of cluster flies here, which I photographed.

Next is off of Alon St, Bruce Ave.

Next is near ~~Stellar Jay Rd.~~ I collected a *Lifeseeman* sample of aphids here for COI sequencing.
(BOLD-AL4) off of Ptarmigan Hwy hwy.

I went down to Dominique's house after lunch. I had sent him three willow specimens earlier.

(BOLD-BIS) from Col. is ~~*Salix baccata*~~
Salix commutata (?) (not sure).

(BOLD-RZ1) from Summit Creek is also
Salix Barclayi.

BOLD-

(BOLD-BS9) from Placer River is also
Salix commutata (?). I need to go back in the summer and check these, with *S. commutata* specimens.

Dominique said that I need to check *S. bebbiana* for rosette galls at Watson Lake. Also, at the first 1/2 mile of Mystery Creek Rd. Also, check for beak galls on *Salix bebbiana*. These are rare here but common in Fairbanks.

There are plenty of galls in *Salix alaxensis* in Fairbanks.

Need *R. stabiloides* from *Salix pulchra* from Denali Park.

Salix glauca - lower Skitlak campground
keeps catkins over winter

Also at lower Skitlak is Salix stolonifera in
clumps of grasses on edge of hummock facing the
lake. Also at Second, Lost Lake Trail near the top

Salix reticulata - Susitna R. bank, Sutton
area

Salix reticulata - Cooper Lake trail

(6 Apr. 2016) I returned to the same log where I had
been yesterday and collected a beetle larva (I think
Salpingidae) to be sequenced (BOLD-B23).

(4 Apr. 2016) Today I walked out to the wetland north
of Headquarters Lake on the wetland margin near the
Centennial Trail. There, at $60^{\circ}46'52''\text{N } 151^{\circ}06'16''\text{W}$
 $\pm 20\text{m}$, in mostly Chamaedaphne caliculata low shrubs
and Calamagrostis canadensis grass, I collected a
sweep net sample (2016MLB006). This was dominated
by spiders, but there were some flies and two Legiptera
larvae. I photographed the site and sample.

(5 Apr. 2016)

I collected a tithelomorph centipede from Calamagrostis
/ Birch leaf litter off of the Cheechate trail
(BOLD-NF4).

(7 Apr. 2016) I tried to collect some cluster flies today,
a beautiful day, but so far I have only been able to
catch one ♀ from the maintenance yard area.

I am inventorying our 4' fiberglass rods for work this
summer. We have 150.

Headquarters Lake is mostly free will be free of ice soon.
Up to about a foot of ice has melted away from shore
in places and the whole surface of the lake is darkening.

Where the ski trail meets the lake I photographed a
curious apterous moth. It was determined to walk directly
away from the sun no matter how I disturbed it,
re-oriented it, or set it. I collected this live for
now and photographed it (2016MLB008).

(11. Apr. 2016) At the old reptile leach field from the rotting base of Heracleum maximum I collected a Diptera larvae (Stratiomyidae?) (BOLD-889).

Headquarters Lake opened up completely over the weekend.

At Headquarters Lake westward near the intersections of the Keen Eye and Centennial trails I photographed and collected a cecid larva from a beak gall of Salix fuscescens. (BOLD-115).

(12. Apr. 2016)

Mirdic Lake is now mostly free of ice.

At the south end (outlet) of the lake I collected and photographed a larva from the seed pod of Tross setosus. (BOLD-SC5). I found one more of these and collected it live to rear (2016MCB009).

I collected several larvae from stem galls of Salix pulchra, the object of my walking down here (BOLD-X47).

(22. Apr. 2016)

Things are happening outside! This morning, in my way home I checked a few rose galls on Salix borealis. There were empty, except for Dacnusa. The Roddyphaga ridges appear to have flunked.

At Ski Hill Road the scouter's willows are dropping more catkins.

At a grassy vernal pool at 60.46800°N 151.07623°W I filtered some pond water and looked at the live contents in a pan. There were a couple of small Anostraca! There were of course many mosquito larvae. There appear to me to be at least a couple of kinds of copepods. The fairy shrimp were both small immatures.

(25. Apr. 2016) I walked down to the same streamlet pool where I had collected Anostraca on 22. Apr. but today I found none. They are certainly off to hibernate. I did take some photographs.

(11. May. 2016) I photographed and collected Anostraca from a small pond at 60°28'13"N 151°41'42"W 120m (2016MCB010).

28 May
(17 ~~Apr~~ 2016)

At 60°27'45"N 151°4'37"W I found some moths in cottonwood litter and photographed them. There were some small flies which I also photographed that were associated with the moths, spending their time on or near them. Of the four moths I saw here I collected 3 (2016 MCB04) with the intent of finding a way to get ITS sequence from them. I also photographed and collected a Gyromyza nearby (2016 MCB012)

(27 May 2016) At the parking lot at Headquarters I collected midges that were swarming (BOLD-DV4)

(7 June 2016) Leaving headquarters at 11:22 + mark Slikok site SK03. Arrived at 11:35. Done at 11:43. Next is MGB02. Arrived at 11:59. It would have been better to follow the Centennial Trail, which I crossed twice. Done at 12:07. Next is SK04. Arrived at 12:22. Done at 12:29. Next is MGB09. Arrived at 12:43. Done at 12:52. I really bothered a snipe here. Next is MGB08. Arrived at 13:07. Done at 13:13. Next is MGB07. Arrived at 13:27. Done at 13:32. Back at 13:42.

(8 June 2016) More marking Slikok grid points. First is MGB06. Leaving headquarters at 10:35. Arrived at 10:49. I appear to have poorer GPS reception today. Done at 10:57. Next is MGB05. Arrived at 11:15. Done at 11:20. Next is MGB04. Arrived at 11:36. Done at 11:41. Next is MGB10. Arrived at 11:53. Done at 11:58. Next is SK08. Arrived at 12:16. Done at 12:24.

(9 June 2016) Today I am marking Slikok sites MGB12 and MGB16. Leaving headquarters at 10:20. Arrived at MGB12 at 10:36. Done at 10:40. Next is MGB16. Arrived at 11:12. Done at 11:18.

(10 June 2016) At 60°46'604"N 151.07249"W I photographed and collected Diptera larvae from a leaf of Dryopteris expansa. These are the larvae that prevent the fronds from unfurling completely, feeding within the still rolled fiddle heads. These went into lifescanner vial (BOLD-9P2). I also photographed and collected one of the very mosquitoes that have been biting me (BOLD-SZ5).

At 60.46438°N 151.06912°W ± 6m I collected a
small larva feeding on Gymnocarpium
dryopteris (BOLD-3E5)

14 June 2016 (03:30-11:30) | I am working with Dawn this
morning in bird survey for the Slikok
watershed inventory. First is SK03, leaving at
16:00. On plot at 16:12. Next is MG02, on
plot at 05:15. Next is SK04. Arrived at
06:04. Arrived at 06:44 at MG09. Arrived at
MG08 at 07:25. Arrived at MG07 at 08:16.
We started walking to MG06, but we called this
off because bird activity dropped off just before
09:00 10:30 -

15 June 2016 | Todd and I hiked out from Arc
Camp to MG35, arriving at about 04:15. Arrived
at SK22 at 05:03. Arrived at MG37 at 05:47.
0.8°C, 88% RH, 0.0 m/s avg. Ice in the net here!
Also, frozen Sphagnum on the walls between here and
SK22. Arrived at SK23 at 06:31. 07:17 - arrived at
MG39. 08:01: arrived at SK24. Back at truck at
11:04.

14 June 2016 | I am with Dawn today. Arrived at
MG30 at about 04:20 via the skitrails. Arrived
at MG31 at 05:10, & 05:59 - arrived at MG32
weather at MG32: 10.8°C, 85% RH, 0.0 m/s avg.
wind speed ... MG33 ... Done at MG34 at 08:30.
On the way back at 60.44297°N 151.05113°W
± 6m we found a mountain hemlock! We photographed
this. It appears to be an isolated sapling. We saw no
other hemlocks.

Collected a stem gall of firwood at 60.46049°N
151.08041°W ± 10m. We made it back to headquarters
a little after 11:00. |

Inside the gall were several of what appeared to
be Lepidoptera larvae. These I placed in Life Science
vial BOLD-272. I photographed these.

(17. June 2016) Todd and I arrived at MGY1 at 05:40. Arrived at 06:31 at SK25. Done at 7:02.

(28. June 2016) Mariah McInnis and I drove out to the KPBB maintenance yard to pick up a gull *fd* of the Sterling highway. I photographed Mariah picking it up.

mileage: 31, 729

(18. July 2016) Mariah McInnis and I are starting the veg/insect/earthworm sampling on the Slikok quilt. We started at MGY6; on the plot from 09:36 to 10:32 getting the methods worked out.

Ar MGY4 at 11:09.

(19. July 2016) Leaving headquarters at 08:38, I am working on sampling nearby sites for the Slikok project.

At SK03 at 08:55. Done at 10:17. Arrived at MGY2 at 10:40.

I think earthworm detection probability is quite low now, both yesterday and today, because the litter and soil are so dry at present.

Done at 11:58. Taking lunch. Arrived at SK04 at 12:31. Headquarters Lake wetland is perhaps the driest I have ever seen it. The Sphagnum and other vegetation crunches under the step in many places. Done at 13:43.

Arrived at MGY9 at 14:02. Done at 15:11. Back at the lake at 15:53. Done at 12:26

(20 July 2016) With Tracy and Annie today. Made it across the lake at 09:20. At MG20 at 09:42. Done at 10:44.

Arrived at MG21 at 11:34. That was a rough walk! The temperature data logger is gone. Something dug it up.

At SK17 at 13:19. Arrived at MG26 at 14:59. I left the lines and stakes at SK17!

(21 JULY 2016) Marich McInnis, Joel Stone and I paddled across Henderson Lake, arriving at 09:48 on the other side. Filled up jugs at a stream at 10:53. Arrived at MG41 at 11:14. Done at 11:45. Arrived at SK25 at 12:18. Done at 12:48. At MG34 at 13:13. Done at 13:41. Arrived at MG38 at 14:02. Done at 14:35.

(22 July 2016) Today I am headed out with Joel, trying to get a few plots done before it rains too much. Arrived at MG05 at 09:03. Done at 09:37. At SK08 before 09:55. Done at 10:14. Calling that a day. It is raining. We went back to the office and I let Joel go for the rest of the day.

At 11:43 I arrived at MG08. Done at 12:45. Got rained out.

(26 July 2016) Marich McInnis and I arrived at plot MG35 at 12:49. It has been raining lightly. Done at 13:34. We are getting rained out.

(28 July 2016) I accompanied Bryan Box (USDA Forest Service) out Swanson River Road to look at damage to birches. At the Refuge boundary we saw heavy loads of aphid husks on birch. This is at 60.59733°N , $150.78787^{\circ}\text{W} \pm 5\text{m}$. The adult aphids Bryan tells me are Euceroaphis. I collected nymphs for sequencing (BOLD-2X9).

We next stopped at a white spruce under attack by bark beetles. This the top of this tree's crown had been blown off previously. Some other trees in the vicinity were also under attack.

As we headed north we saw quite a bit of dead and decline due to spruce bark beetles. We stopped at Rainbow Lake campground, where trees are being attacked by spruce bark beetles. We saw what appeared to be new 10 day old spruce beetle larvae, a real surprise.

There are Limbricus worms here. I collected some immatures, but I was unable to find any adults. The soil here is conspicuously worm-worked. I did see and fail to collect one very large Limbricus. I am pretty sure there are L. terrestris.

29 July 2016 Mariah McInnis and I pedaled and walked out to plot MG32, arriving at 6:10. Done at 10:57. Arrived at SK24 at 11:34. Done at 12:12. Arrived at MG39 at 12:55. Done at 13:34. We saw stable backs at the stream. At MG31 at 14:08. Done at 14:46.

1 Aug. 2016 Mariah and I are again working on veg plots today, arriving at MG07 at 10:51. Arrived at MG12 at 11:43. Arrived at MG18 at 12:42.

3 Aug. 2016 Mariah McInnis and I arrived at MG19 at 09:20. Done at 09:58. Arrived at SK16 at 10:07. Done at 10:38. That was a neat spot. Arrived at MG24 at 10:59. Done at 11:31. At MG30 at 12:21. Done at 12:49. Arrived at site SK23 at 13:24 after falling into the creek over my boots. Arrived at MG37 at 14:21. Done at 14:59.

(9 August 2016) Marich McInnis and I arrived at MG17 at 09:04. Done at 09:39. Arrived at SK15 at 09:47. Here I photographed and collected a Diptera larva from within the fruit of Rosa acicularis. (BOLD-326). Done at 10:20.

Arrived at MG29 at 10:39. Done at 11:11. Arrived at SK22 at 11:35. Done at 12:13. After a lunch break, arrived at MG28 at 13:14. There was an interesting rotting mammal foot here, which I photographed. Done at 13:50. Arrived at MG22 at 14:07. Done at 14:37.

Returned to the office. Now working alone.
Arrived at MG16 at 15:53. Done at 16:48.

(10 August 2016) Working alone today. Arrived at MG04 at 08:56. I collected a snail here (BOLD-A02). Done at 10:31. Arrived at MG10 at 10:46. Done at 12:08. I returned to MG06 to collect and document bryophytes and lichens. Done at 12:40.
DONE!

(11 August 2016) Traci Swann, Ethan, and I drove out to Oim's Landing. We photographed and collected no Impatiens here. There were only around the parking lot, so they may have been introduced. We also photographed a Rhabdophaga golt on Salix sitchensis.

(16 August 2016) I photographed and collected some long-legged arses on Saxatilis subrotundus near the flow plane date at the ski trail. (BOLD-P23)

(26 August 2016) Vehicle 806 mileage: 32,745

(2 Sept 2016) Todd Estelita, Ally Curtis, and I put in at Upper Skilak in the Magnus. We are headed across Skilak Lake to look at the Taraxacum ceratophorum population that Todd and John saw near Pipe Creek on Monday. At 10:21 we were at the composite at the Peninsula near Pipe Creek at 60°23'53" 150°12'26". There appear to be Taraxacum officinale individuals also, but so far I have not found flowers.

Count of T. ceratophorum in this vicinity:

☒ ☒ ☒ ☒ ☒ ☒ ☒

T. affinis

2:

I looked for Glozman's wasps in seed heads, but I found none. All the T. carolinense were in a small area, mostly in the four pod, all within a 10m radius. We walked the shore and woods both ways and found no more. I walked over to the peninsula as well but found no Leptocryptus.

We next stopped at a stream outlet immediately east of the peninsula. Here I photographed and collected an Equisetum (201/MLB013). I also collected some earthworms here.

8. Sept. 2016

At kaleidoscope we collected a fly larva collected from a large Lactarius I had picked up earlier today (BOLD-9T2) with Mrs. Sheldon's class.

Also at kaleidoscope another specimen (BOLD-664) a centipede from mushrooms collected at headwaters parking lot.

In Mrs. Atchley's class we collected a larva from an Alaska Gold mushrooms collected from the ship area this morning (BOLD-UL9).

In Mrs. Field's class we collected a rove beetle from a ~~leaf~~ bulate from the Headwaters Lake access road (BOLD-T24).

9. September 2016 At the power line off of Ski Hill Rd. I collected two larvae from a bark gill. One was apparently an ingulline at the distal end of the gill (BOLD-B47). The other was the bark gill maker (BOLD-3A4).

21. Sept. 2016 inventorying fluidone

→ 3 full pallets at 48 buckets/pallet = 144

→ 1 partial pallet: 26

$\Sigma = 170$

Each bucket

l = 12"

w = 10.5"

h = 9 1/2"

weight = 20 lbs.

$$\begin{array}{r} 170 \\ - \times 20 \\ \hline 3400 \end{array}$$

My trunk bed is 81" L x 64" W x 17 1/2" deep.
We will need to use a trailer.

At Headquarters Lake, Ski Trail access I collected a series of worms from inside of a spider web.
One I put in a Life Scanner vial (MCD-669) ~~with~~ and the others four I collected into ethanol.

(26. Sep. 2016) Merrick and I drove out to Watson Lake to look for rosette galls on Salix babingtonii, looking by the East Fork of the Mouse River near the highway where Dominique had told me to look. We did find one ridge ^{ridge} in a slightly swollen stem of Salix babingtonii, really on ^{leaves} the outside of the stem under about. I photographed and collected this (2016 MCD 014).

(13. Oct. 2016) At Stormy Lake I first cleared leaf litter, then used mustard powder and water to extract earthworms near the base (leaves) behind the sign where I had photographed earthworms. Here there were abundant Lumbricus terrestris, as well as a few smaller worms (2016 MCD 015). This was at (60.78902°N 151.03238°W ± 5m). I regret now not quantifying the biomass of these worms. I did not bring a quadrant frame.

I measured soil loss (O horizon) of up to 10-15 cm, almost 16 cm around the base of a cottonwood.

I later measured up to 22 cm of vertical soil loss and moss lines suspended 13 cm above this year's leaf litter. There is also lots of Davospora reticulata here in the leaf litter.

At the top of the hill near the Spur highway I collected worms under cottonwood and alder at (60.79187°N 151.03200°W ± 5m). Here there is a thick layer of decaying leaves. I found only epigeic worms (2016 MCD 016).

A second sample on the other side of the road (not refound) was similar.

21. Oct. 2016 / vehicle. 806 on target: 33 097

22. Oct. 2016 / I looked in spruce at Headquarters Lake for evidence of Dasineura (maignei). I did find some damaged (maybe galled) spruce tips, but no larvae.

On the way back I found some larvae in a bud of Sambucus racemosa. These I collected (BOLD-X13). This was in the flat place deck access road just uphill of the old septic leach field.

31. Oct. 2016 / On the Centennial Trail not too far from the signed rock I collected what I think is a midge larva from the bud of Alnus (viridis) (BOLD-90). This was at 60°28'0" 151° 4' 16". I had been looking for stem galls on Salix pulchra in the adjacent wetland, but I found none of those galls.

16. Nov. 2016 / I walked down to the south shore of Mordie Lake, looking for sausage-shaped stem galls on Salix pulchra. I found plenty of S. pulchra, but none of the sausage galls. I did collect a couple of galled willow stems: one on S. pulchra and one on S. bebbiana. I photographed these.

18. Nov. 2016 / Mordie of Headquarters Lake I found what looked like some kind of larvae in a blackened bud of Salix pulchra. This I photographed and collected (BOLD-MVI). I collected several more of these blackened buds.

Nearby I did find, photograph, and collect a few sausage galls from Salix pulchra.