11. Feb. 2015 Keying KNWR: Ento: 7718 using MND, p. 975 1→4→6→8→9→11→12→13→14→15→16→17→18→ Neolaria Gill (1962), p. 556 1→2→4→ inscripta ♂

KNWR: Ento: 7999 is also Neolaria inscripta, ♀

12. Feb. 2015 I sent out a draft of a meeting review article for the AFES Newsletter.

I did a little bit of work on Refuge Notebook articles from 2000.

Keying a large mussid I collected yesterday using MND, p. 418 1→2→5→10→11→! ↳12→13→!

This could be Pollinia. Keying using MND, p. 1136 1→9→10→11→ Pollenia
Keying using Jervis-Sains et al. (2012), p. 2 1→2→ P. vagatunda?

I photographed this.

I attended an all-employee meeting

13. Feb. 2015
I pulled literature on Pollenia.

I formatted a couple of Refuge Notebook articles from 2000.

Now I am examining Soltanoski immature earthworm specimens, which just arrived ~~ages~~ Wednesday.

KNWR: Ento: 7051 is just a fragment.
KNWR: Ento: 7098 contains two Lumbricus, one of them fragmentary.
Both of these specimen had been identified using COI by Dan Shain.

I walked ~~the~~ along the building along the back yard. I found 5 more Pollenia dead, either in cobwebs along the wall or dead on the ground by the wall. I also saw one live individual that I photographed and collected. It is a smaller individual that might not be Pollenia.

17. Feb. 2015

I entered data from Pollenia specimens I have been collecting and dissected genitalia off of a male that had come from an old cobweb. I mangled the specimen badly, it being old and very brittle. This had barcode labe KNWRC2877

barcode	sex
KNWRC2876	♀
2873	♀
2879	♀
2880	♂
2878	♀

I dissected genitalia from KNWRC2877. It is Pollenia vagabunda.

18. Feb. 2015

I worked on an article on Pollenia for the AKES Newsletter.

19. Feb. 2015

Examining a vial of earthworms with label data

USA: Alaska, Kasilof.
60.36463°N 151.25842°W +/- 10m
8. V. 2010. M C Bowser
In birch leaf litter

This contains 10 Dendrobaena octaedra: 1 adult and 9 immatures. None appear to be parasitized.

Another specimen with label data

USA: Alaska. Kasilof. K-Beach Road and Sterling Highway. Kasilof Community Church. In leaf litter. 9. V. 2010. M C Bowser
60. 32160°N 151.25805°W +/- 50m

This is one immature Dendrobaena octaedra, not parasitized.

Now I am checking Dendrobaena specimens for signs of parasitism.

KNWR: Ext:		
7049	—	not parasitized
7050	"	"
7052	"	"
7053	"	"
7054	"	"
7056	"	"

KNWR:Ents 7065	—	no parasitism
7046	"	"
7068	"	"
7067	"	"
7066	"	"
7059	"	"
7076	"	"
7072	"	"
7078	"	"
7070	"	"
7069	"	"
7082	"	"
7081	"	"
7080	"	"
(KNWR 925) 8822	"	"
7094	"	"
7087	"	"
7088	"	"
7083	"	"
7084	"	"
7089	"	"
7091	"	"
7085	"	"
7092	"	"
7211	"	"
7214	"	"
7051	"	"

KNWR:Ents 10258 — no parasitism

I took a short walk in the afternoon & collected a Pollenia ♀ (2015 MCB 001) on bare soil by the headquarters building. This I kept alive, hoping to start to learn the biology of this species.

I prepared a loan and otherwise took care of transfer of custody of 11 spider specimens to UAM:Ents.

(20. Feb. 2015)
I worked on the meeting and Pollenia articles for the AICES Newsletter.

In the afternoon I looked among clumps of Calamagrostis.

I did some getting ready for field work on Monday.

(23. Feb 2015) Toby and I took floridone samples at Daniels, Beck, and Stormy Lakes.

24. Feb. 2015
I packaged and shipped out fluvidone samples this morning, taking them to FedEx Kenai.
I collected some more Pallenia specimens this afternoon.
I got started on my earthworm presentation.

25. Feb. 2015
I started to work in earnest on my earthworm presentation.
I collected a ♂ Pallenia (2015MLB003) and placed it in the petri dish with the ♀ (2015MLB001).

26. Feb. 2015
I posted the Refuge Notebook article for tomorrow.
I posted the Kenelm W. Philip Award.
I worked on my earthworm presentation.

I dissected out the paraphallic process of KNWR:Ento:16694, damaging it in the process, but finding the serrations apically as described by Rogers (1992) and in e-mail correspondences with him.

I went on a walk this afternoon looking for Pallenia, but I think it is too chilly today. I found none. I wonder where they go at night on these cold evenings.

I entered, summarized, and graphed fluvidone concentration data for John.

27. Feb. 2015
I spent the morning going through Collet material, packaging it to go to Fairbanks next week.

I examined UAM:Ento:251347. This is immature, looking to me like an immature Lumbricus.

I did work on my earthworm presentation some.

2. March. 2015
I worked on my earthworm presentation.

3. March. 2015 I spent the day packing Collet material and finishing my presentation

(4. March. 2015)
& drove to Fairbanks.

(5. March 2015)
& presented in the morning, giving my earthworm presentation at the sustainable Ag conference. & left soon afterward for the museum. There, Derek and & offloaded the final Collet donation. & did not stay too long, but left Fairbanks bound for home. & camped in the truck near Portage.

(6. March. 2015)
& drove the rest of the way.

(9. March. 2015) & took care of last week's Refuge Notebook article.

& finished uploading images, etc. for the final Collet donation onto Arctos.

& filed loaned earthworms back into the collection.

(10. March. 2015)
& spent a good part of the day working on extracting LTEMP data for Paul Beier.

(11. March. 2015) & revised my Blood-borne pathogens presentation.

& worked on a script to print specimen records from Arctos.

(12. March. 2015) & labeled specimens for a while, printing off a new set of labels.

& spent a good portion of the day reconciling KNWR: Ento and UAM: Ento records in preparation for an LTEMP data dump for Paul Beier.

Aspiring Pollenia specimens:

KNWR: Ento: 16706	♂
16707	♂
16708	♀
16709	♂
16710	♂
16712	♀
16713	♀
16714	♀
16715	♀

10716	♀
10717	♂
10718	♂
10719	♂
10720	♀
10721	♂

13. March. 2015

I worked on the AKES Newsletter.

16. March. 2015

I worked on clean-up and administrata in the morning.

I started processing the material given to me by Dan Bogan.

I worked on cleaning up in the lab.

17. March. 2015 I spent most of the day making updates on Biology News (on our website).

18. March. 2015

KNUK:Ento:10720 is a ♀

KNUK:Ento:10729 ♂

I packaged 14 KNUK:Ento specimens to go to UAM, did the paperwork, etc.

I worked on Sarah Meierotto's AKES Newsletter article.

I took a walk on the Ft. Klean Eye Trail in the afternoon, surveying chaya.

19. March. 2015

I worked on the AKES Newsletter

20. March. 2015

I posted this week's Refuge Notebook article.

I worked on reconciling UAM:Ento vs KNUK:Ento records.

(23. March. 2015)

I ~~was~~ worked on AKES administrata: science fair awards, etc.

On Friday, I placed the worm I had collected (iNaturalist: 1304254) in a plastic container with wet leaf litter. Late in the day I added a Pollenia ♀ I had collected from the outside of the building, hoping that it will lay eggs. Today I saw no eggs. Both the worm and fly were alive. I have not seen any Pollenia mating yet, so I may be too early.

I accompanied Nate on a flight over Kenai to photograph the new helicopter pad.

I worked on geocoding ALS data.

(24. March 2015)

I worked on geocoding ALS data.

(25. March 2015)

I biked to work today.

I formatted a Refuge Notebook article.

I ~~she~~ made small revisions in the AKES Newsletter.

I started a

(26. March. 2015)

I finished and posted the AKES Newsletter

I did some work on iNaturalist, adding a Kenai National Wildlife Refuge place / polygon.

(27. March. 2015)

I started a transfer of another group of specimens to UAM.

Keying a dermestid I collected in the building yesterday using Arnett et al. (2002), p. 224 (→ 2 → 3 → 4 → 5 → 6 → 8 → 9 → 15 → Dermestes ? ↳ 16 → Megatoma / Pseudoanthrenus ?)
Using Beal (1967) → Megatoma ♂

I posted this week's Refuge Notebook article.

I worked on the chemicals inventory.

30. March. 2015
I worked on the Saltmarsh earthworm manuscript.

31. March. 2015
I looked into mastting (mast seeding) prediction and worked on the Saltmarsh manuscript some.

1. April. 2015
I worked on the Saltmarsh MS

2. April. 2015
I attended the water ditcher refresher training the morning. Later I pulled and compiled LTEMP data for Paul Reiv. I also edited an Alaska Science Forum post for Ned Rozell. It was on earthworms -

I collected another ♀ Pallenia on the exterior of the building (2015MLB035)

3. April. 2015
I posted this week's Refuge Notebook article.
I worked on analyzing earthworm data.

6. April. 2015
I worked on science fair award letters.

I worked on the Saltmarsh paper

7. April. 2015 I worked on the Saltmarsh manuscript, re-running some numbers.

8. April. 2015 I worked on Saltmarsh data

9. April. 2015
I formatted this weeks Refuge Notebook article. We had a biology staff meeting from 9:30-11:00 or so.

I worked on Saltmarsh earthworm data and write-up

10. April. 2015 I worked on Saltmarsh data and started looking into NGS work for this summer.

13. April. 2015 I started an abstract for the August 2015 iBOL conference.
I ended up doing some data clean-up of our fieldsystems.org records.

I saw a Pallenia adult ♂ out on the grass. I did not see any on the side of the building today.

Pollenia ♀ 2015MLB001 has laid eggs on the filter paper, 30 of them. Both 2015MLB001 and 2015MLB003 are alive, though 2015MLB001 looks lethargic. I placed these in the refrigerator so that they would not hatch overnight.

(14. April 2015)

2015MLB001 and 2015MLB003 are still alive. I transferred them to a new petri dish, hoping to hatch out eggs in the previous dish.

2015MLB033, the worm, is alive and well. It is still immature, but there is a swelling where the clitellum will be.

I transferred two Pollenia eggs from 2015MLB001 into the container with 2015MLB033.

I did a little bit of work in the collection, labeling, etc.

I revised the iBOL conference abstract.

Mark Laker brought in a larva from soil of his garden. It looks like Nematocera, & think the collection date was 12. April 2014. I am putting this in a container with soil to try to rear it. (2015MLB039). I photographed it (frames 8064 - 8068).

From the Dendrobaena earthworms I collected today (2015MLB040), I put one worm each in 10 urine cups provisioned with litter and humus. I labeled these 2015MLB040-01 - 2015MLB040-10. In each of these containers I added two Pollenia eggs to the surface of the leaf litter.

(15. April. 2015)

I wrote a script to distill all names of terrestrial arthropods from an export of public data from bold systems.org.

I formatted the Refuge Notebook article.

None of the Pollenia eggs hatched. 2015MLB001 has laid no more eggs.

I revised my earthworm presentation for this weekend.

16. April. 2015

I worked on the Saltmarsh paper.

None of the Pollenia eggs have hatched.

17. April. 2015

I worked on a transfer of mostly loan of specimens to go to UAM.

20. April. 2015

2015MLB042 died over the weekend. 2015MLB001 and 2015MLB003 are alive. No more eggs were laid. The eggs from earlier have not hatched. They may have not been fertilized.

From 2015MLB045, one of the Xylophagidae larvae pupated.

Keying earthworms I collected on Saturday in Nunichak using Reynolds (1977). There is one Dendrobaena octaedra.
p. 32 1→2→3→4→?

Lengths of 3 adults 69mm, 71mm, 67mm

I worked on the PCA portion of the Saltmarsh paper.

I spent a good part of the afternoon cleaning the lab.

21. April. 2015

I took my annual FISSA training.

John asked for stats on AK chironomids that have been barcoded, so I obtained those for him.

Keying an aradid I just collected using Matsuda (1977), p. 10 Aneurus p. 75
Aneurus septentrionalis

22. April. 2015

~~Book prep~~ I spent the day on the Saltmarsh manuscript. I also met with Libby and John regarding the upcoming grassland / reforestation sampling this summer.

23. April 2015

The pupae of 2015MCB041 eclosed overnight → 2 adults. These were both anthomyiid, a ♂ and ♀.

Keying KNWR:Ento:10749, a ♂, using NMD, p. 1100 1→3→5→6→10→14→16→18→19→20→21→23→Hydrophoria? Keying with Griffiths (1998), p. 1912 1→2→ & dissected the genitalia. It is not Hydrophoria. It might be Zaphne p. 2112 1→2→3→25→27→29→30→39→41→ Zetterstedtia.

24. April. 2015

& posted this week's Refuge Notebook article.

& worked on Biology News updates from Bella.

27. April. 2015

& worked on specimens for a while mounting, labeling, entering into Arctos, etc.

Numerous small flies emerging from material collected under bark of rotting aspen on 17. April (2015MCB045) are Anthomyza.

28. April. 2015

& worked on the Saltmarsh manuscript.

& attended the quarterly safety meeting.

A noctuid caterpillar & collected yesterday & labeled 2015MCB051. It was from our N high tunnel. It ate fireweed buds (leaves) offered to it last night.

29. April. 2015

That noctuid (2015MCB051) completely consumed two dandelion (Taraxacum officinale) leaves overnight.

& worked on the Saltmarsh paper some, but then & needed to spend time on the DNA barcoding conference abstract.

The worms that the kids and & collected yesterday at Solid Rock look like Lumbricus terrestris, but they are not quite mature, so & am keeping them alive in the lab (2015MCB052)

30. April. 2015 I finished revising and then submitted an abstract for the 2015 DNA barcoding conference.

Keying what I think is an anthomygiid from 2015MCB045 using MND, p. 105 72→73→74→75→76→77→78→81→82→83→84→85→86→87→ Clusiidae p. 857 1→ Clusiodes.

Keying using Lent Lonsdale et al. (2011) I could not ID either with confidence.

1. May 2015 Keying a syrphid reared from 2015MCB045 (aspen log) using MND, p. 7-23 45→46→91→99→100→ Brachyopa? 101→ Brachyopa ferruginea?

I scrutinized ~~and~~ recently obtained COI sequences and updated identifications in BOLD and Arctos.

I worked on the Saltmarsh data.

I formatted and posted the Refuge Notebook article.

4. May. 2015 I pinned up a few insects that had escaped from pupae over the weekend.

Keying earthworm from Solid Rock using Reynolds (1977), p. 32 1→2→3→5→ L. terrestris

I spent much of the day on the Saltmarsh manuscript.

5. May. 2015 I took care of some AKES stuff.

I worked on the Saltmarsh manuscript.

6. May. 2015 Still no eggs from 2015MCB048 or 2015MCB047. They are still alive, as are 2015MCB001 and 2011MCB003.

Now I am checking the containers of worms where I had added eggs

2015MCB040-02: Now this contains a few worms. Apparently some tiny worms in the soil are now ~4 cm in length.

2015MCB040-04: This contains one healthy worm.

2015MCB040-01: one healthy worm.

2015MCB039: This is an adult fly and pupal exuvium now. I think it is Thereva. M,VD, pp 518 1→2→3→4→5→14→15→Thereva? ♂

I had to deal with sealing sea otter hides and removing teeth from sea otter skulls.

I spoke with John Hanson about NGS DNA barcoding methods.

I worked on stats for the Saltmarsh paper. I must re-run some stuff.

(7. May. 2015)
I formatted and posted this weeks Refuge Notebook article. I met with John, Dawn, and Ben Jones about grassland / reforestation work this summer.

I worked on the Saltmarsh data.

(8. May. 2015)
I pulled another set of specimens to go to UAM. I packaged others to go out to UAM today (loan KNWR-2015.06-UAM-Ento).

(11. May. 2015)
I worked on the Saltmarsh manuscript.

(13. May. 2015) I had to put together material for an edible plants class I am teaching this weekend.

(14. May. 2015) I worked on material for the edible plants class.

(15. May. 2015) I come in in the morning, but I am taking a sick day today.

All of the Pellenia flies that I have are alive. There are no eggs.

(16. May. 2015) I come in for the range proofficiation today, but I left early sick.

(21. May. 2015)
I took care of last week's Refuge Notebook. I also posted this week's Refuge Notebook and helped Donna with Content Management System menus.

I started preparing ~~[illegible]~~ equipment and supplies for elodea sampling next week.

(22. May. 2015)
All four of my Pollenia flies are still alive. None have laid eggs.

We had a biology staff meeting this morning.

I did more prep work for Elodea sampling on Monday.

I updated the lab safety plan.

(26. May. 2015) I sampled Stormy Lake and part of Daniels Lake with John, Jillian Jablonski, and Jenny Archie.

(27. May. 2015) The same four of us sampled the rest of Daniels Lake and all of Beck Lake today.

(28. May. 2015) I shipped out fluridone samples from Kenai this morning.

I worked on identifications of plants collected over the last two days.

(29. May. 2015)
I finished entering elodea survey data from earlier this week. I started work on mapping.

I sealed two sea otter skulls and hides.

(3. June. 2015) I came in to catch up.

(4. June. 2015) I worked on mapping recent elodea data.

(5. June. 2015) I worked on Refuge Notebook articles, sent an updated fluridone concentrations graph to John, etc.

Keying a Ranunculus from the Cheechako Trail using Welsh, p. 357 1→3→4→5→7→8→9→ gmelinii

All 4 of my Pollenia flies are still alive.

8. June. 2015 I did data entry for some of our herbarium specimens.

I worked on a map for the Saltmarsh manuscript.

Looking at a Carex collected on 5. June.
- stigmas 2
- staminate flowers below pistillate flowers on same spikes.
Keying using Welsh, p. 488 1→2→ Key II, p. 492 1→2→9→16→12→13→ deweyana? no. Lateral spikes are gynaecandrous.
→19→20→22→23→25→ arctica?

Now using Lunde & Lipkin (2003), p. 25 1b→2a→ Key 2 p. 27 1b→2b→3b→4b→ canescens

Total 2015MCB047, a Pollenia, laid a bunch of eggs over the weekend, but I found this only at the end of the day.

9. June. 2015
I started working on travel arrangements for going to Guelph in August.

10. June. 2015 I formatted this week's Refuge Notebook article.

All four of my Pollenia are still alive. The eggs of 2015MCB047 have not hatched, & expect that these will be sterile because there was no ♂ to fertilize them.

11. June. 2015 I walked down to Headquarters Lake with Jenny to help her obtain photos of Utricularia for a Refuge Notebook article.

In the afternoon I drove to Kenai to get passport photos.

30 32

(12. June 2015) I posted the Refuge Notebook article.

I worked on a map for the Saltmarsh manuscript.

(15. June 2015)

Todd and I took a walk around the new visitor center looking for exotics.

I helped take down the USFWS tent at ~~the~~ Soldotna Creek Park, where it had been set up for the Kenai River Festival. There I collected a Sorbus along the board walk. it has mostly

A chickweed from the new visitor center is Cerastium ~~glomeratum~~. No. Cerastium fontanum.

(16. June 2015)

The Spergularia from the Visitor Center yesterday is Spergularia rubra

I caught up on some safety training (aviation).

(17. June 2015)

I prepared for and then drove out to KDLL for a live interview on local entomology issues with Jenny Nevian and Janice Chumley.

I prepared this week's Refuge Notebook.

I worked some in the herbarium.

(18. June 2015)

I worked on a Refuge Notebook article on Prunus pumila.

Keying a Polygonum from the new visitor center using Welsh, p. 317 1→2→4→6→7→8→9→10→ P. persicaria? yes.

Also, there was Ranunculus gmelinii in the plantings.

A mustard I had thought might be Arabidopsis was shepherd's purse.

Another plant I don't know. Stamens 2, petals 4, sepals 4. Welsh, p. 42, Key IV 1→5→11→17→20→23→24→25→

(19. June. 2015)

I met Nate at the float plane dock at 0600 for a caribou survey. We took off, but there was unexpected low cloud cover rolling in from the inlet, so we postponed and returned.

The plant I was having trouble with yesterday is a Lepidium. I don't have fruits available, though, so I cannot get further.

(22. June. 2015)

Keying Lepidium from visitor center using flora of BC, p. 158 1→2→5→8→ densiflorum.

A composite from the plantings at the visitor center is Crepis.

I worked on the Saltmarsh manuscript.

(23. June. 2015)

I worked on the Saltmarsh manuscript, preparing it for submission. I had trouble registering on Peerofts website, though.

(24. June. 2015)

I submitted the Saltmarsh manuscript.

(25. June. 2015)

I worked some on the ALS dataset.

I led a bug walk in the afternoon.

(26. June. 2015)

I posted the Refuge Notebook articles.

I worked on ALS volunteer dates and collector dates.

I prepared for Calamagrostis work on Monday.

(29. June. 2015) I spent the day in Kenai with Wade working on Calamagrostis plots.

(30. June. 2015) I spent the day on the road with John Lundquist, Garrett Dubois, Jason Moan, and Jenny. We looked at aphid damage at Mossy Kilcher's homestead in Homer.

(1. July. 2015) & worked with Wade today at Mile 149 on the Calamagrostis study.

Keying a Poa from Mile 149, T1, 1. July. 2015 using Skinner et al. (2012), p. 14 Bb (anthers ~1.8 mm long) 2b - 6b → 7a → 8a → 9b → 23b → 24b → 25b → 26b → Poa arctica

Bromus, Mile 149, 1. July. 2015, T12. Skinner et al., p. 8 16→ It is a Festuca. p. 13 16→ 20→ 21→ F. rubra

Festuca, Mile 149, T12C, 1. July. 2015 - also F. rubra, just less mature.

Poa #2, Mile 149, T6, 1. July. 2015 This one is not quite mature, but developing stamens are about 0.5 mm long. p. 14 4→ 21→ 6b→ 7b→ 30b→ 32. P. pseudo-abbreviata? no. Poa laxiflora??

(6. July. 2015) & spent the day with Wade and Jenny on the Griner site of the Calamagrostis study.

(7. July. 2015) & prepared and shipped planchone samples via FedEx Kenai.

(8. July. 2015) & spent the day getting ready for next week's grassland work.

(9. July. 2015) & spent the day preparing for grassland study work.

(10. July. 2015) Another day spent preparing for the Calamagrostis study.

(13 - 14. July. 2015) Helicopter work out of Homer.

(15. July. 2015) 10:00 - 18:00
The day was spent getting ready for more helicopter work tomorrow.

(21. July. 2015) 11:30 -
Today I am working on clean up, etc. from recent field work.

Looking at plants from the Andrew Berg cabin from yesterday.

19. July. 2015 I started drying samples from yesterday in oven: ~~90°C for 24 h.~~ I found a protocol online (http://www.konza.ksu.edu/keep/plantproduction/biomassintro.htm): 60°C for 24–48 h. I started a run at 60°C for 48 h.

20. July. 2015 John, Adam, and I flew the southern and western end of the Lunay River Fire looking for weeds. Over a break in the middle of the day I am looking at plants collected today. The Rosa from Indian Creek is Rosa acicularis.

21. July. 2015 | 11:30 – 16:30

Looking at plants from the Andrew Berg cabin from yesterday

Poa – P. annua

22. July. 2015 | 05:00 –

Keying Salix from Bear Creek using Flora of BC, V2, p. 278 1'→6'→9'→11'→13'→15'→17'→18'→ Cutefolia.

The Trifolium from this locality is T. repens.

Also, Gentianella amarella.

Elymus from Hanson Horse Trail, PICNIC site, 20. JUL. 2015: anthers ~1mm ...
Elymus trachycaulus.

27. July. 2015 I inventoried and compiled data for the spruce samples collected over the last couple of weeks.

I spent most of the day working on coordinates of the spruce samples.

28. July. 2015 I shipped out the spruce samples to Diana Wolf via FedEx Ground.

I started work on the report for the Fanny River Fire weed survey.

(29. July. 2015)
I worked on summarizing the Fanny River Fire weed work. I also identified plants from Mark and Nate's work on Birch Tree and Porcupine Lakes.

(30. July. 2015)
I finished entering KPNR: Herb Asteraceae specimens into Arctos.

I worked on catching up on Refuge Notebook articles.

(3. August. 2015)
Keying a mustard from McElroy's. I think Descurainia, using Douglas et al. (1998), p. 120 1→ 3'→ D. sophia

I spent the day out on Fanny River Road looking at fire lines, fuel breaks of Fanny River Fire. A grass I collected has anthers ~0.8 mm long and was tufted, so it was not Elymus repens.

This is Elymus alaskanus (also keys to Agropyron borale in Welsh (1974))

(4. August. 2015)
I worked on uploading / data entry from yesterday's field work.

Esther and I walked some of the fire line in the vicinity of the Fanny River horse trail in the afternoon looking for weeds.

(5. August. 2015)
A Cerastium from the Fanny River Horse trail yesterday is C. vulgatum.

I worked on the BAER 2015 fire report.

(6. August. 2015)
I processed Homer aphid specimens to mail to Liz Graham.

I downloaded Lepidoptera data from Arctos and tweaked maps for Chef Ferris

(7. August. 2015)
I worked on travel arrangements for the Guelph trip, stocked my presentation, etc.

I worked on preparing a loan of specimens to go to UAM on Monday.

(10. August. 2015)
I prepared a ~~loan~~ loan of specimens to go out to UAM.

I worked on my presentation for next week.

John asked for a power analysis for cholera survey work, which I delivered to him.

(11. August. 2015)

I got specimens sent to Derek, but most of the day was spent on my presentation.

(12. August. 2015)
I worked on my barcoding presentation.

(13. August. 2015)
I worked on my barcoding presentation.

Keying a composite flower from the EEL plantings using Welsh (1974), p. 107
1 → 2 → Key II 1 → 2 → 3 → 4 → ~~5~~ 5 →
Eigeron? p. 141 1 → 8 → 9 → 11 → 12 → 14 →
perigrinus?

(14. August. 2015)
I prepared for the trip to Guelph.

(24. August. 2015)
I took care of administrate, etc. and prepared for fluridone sampling tomorrow.

(25. August. 2015)
I sampled Beck, Daniels, and Stormy lakes.

(26. August. 2015)
I shipped out fluridone samples in the morning, then made preparations for being away for a while.

(14. Sept. 2015)
I had much email, etc. to catch up with.

I went on a short walk in the middle of the day.

Keying a slug I photographed and collected using Forsyth (2004), p. 33 1→3→4→6→7→!
↳ 8→9→10→Gnat?

I think it is Dercocerus laeve. I dissected this specimen, but I mangled it and ended up discarding it.

At John's request I made maps, etc. for working on one of the lakes tomorrow.

(15. Sept – 16. Sept. 2015)
I spent these days on Stormy and Daniels lakes surveying aquatic plants and taking fluridone samples with John and Edgar.

(17. Sept. 2015) I worked on revising the Saltmarsh manuscript.

(22. Sept. 2015)
I packaged and shipped fluridone and sediment samples via FedEx.

I scrutinized, made final edits of, and submitted the Saltmarsh earthworms manuscript.

I worked on credit card statements.

(23. Sept. 2015)
I processed some of the Kenai NWR NGS data delivered in August.

John asked me to finish up the BAER report, so I will switch to working on this.

I collected some Trifolium pratense from near the fire house to confirm this identification for the BAER report. These were T. pratense.

(24. Sept. 2015)
I worked on the BAER Funny River Fire report.

(25. Sept. 2015) I worked on the BAER report.

24. Sept. 2015
I worked on the BAER report.

28. Sept. 2015
I did a little bit of work in the collection.

John asked me to go sample Sitka spruce in Seward, so, with Jen assisting, I did so.

29. Sept. 2015
Jen and I headed out Swanson River Road to the Silver Lake Trail where we sampled white spruce tips.

I reviewed a draft of the Saltmarsh MS, a grad.

I worked on building a tree and getting EDit from the Kenai NWR 2015 NGS data.

30. Sept. 2015
I shipped spruce samples to Diana Wolf via FedEx.

I worked on the BAER report, getting a draft sent to John.

1. Oct. 2015
I finished the BAER report, getting maps and appendices attached today.

2. Oct. 2015
I worked on ALS volunteer data.

5. Oct. 2015
I attended the biology staff meeting in the morning, then I ~~attended~~ worked on ALS volunteer data.

Examining earthworm from grassland study site ~~83F~~ 71F, 18. July. 2015

~~28-32~~ - clitellum
29-33

It is D. octaedra

6. Oct. 2015
I worked on the ALS data.

7. Oct. 2015
I worked on the ALS data.

8. October 2015

I worked on the ALS data.

9. Oct. 2015

I worked on the ALS data.

13. Oct. 2015

I identified the copepod from the trout we caught yesterday at Eguisen Lake as Salmincola.

I attended a teleconference on the pollinator coordinator, region 7, position.

I worked on ALS butterfly names (synonymies) reconciling for mapping.

14. Oct 2015

I worked on the ALS data, finally producing new maps.

I collected a three-spined stickleback from Headquarters Lake from which to collect parasites. I did find arthropod parasites on the gills, though these were quite small. (<1mm) and lacked the paired egg sacks.

15. Oct. 2015

I worked on updating the Refuge's checklist in preparation for an upcoming Refuge Notebook article.

16. Oct. 2015

I started a Refuge Notebook article due next week.

Todd and I readied equipment for applying herbicide on Monday.

19. Oct. 2015 Josh, Jon, and I applied fluridone in Daniels and Stormy Lakes.

20. Oct. 2015

I worked on my Refuge Notebook article due tomorrow.

21 October 2015

I took a walk to Nordic Lake in the middle of the day. I saw a Pollenia on the recycling bins outside of the new visitor center, but I failed to catch it.

I had made new fluridone graphs for Josh in the morning.

I finished up my Refuge Notebook article.

(22. Oct. 2015)

I shipped out a beetle specimen to M. C. Thomas.

I made updated Eldea survey maps for John.

Keying snails from Egumen Lake trout gut contents using Burch (1982), p. 64 1→11 (Lymnophila) →12→ Lymnaeidae, p. 147 1→4→5→6→7→ Lymnaea or Stagnicola?

(26. Oct. 2015) — I worked on formatting 2015 Refuge Notebook articles.

(27 Oct. 2015) I produced a new map for the butterfly book.

I generated a graph from AKEPIC data requested by John.

I worked on updating the Biology News portion of our website.

Keying a famiid from my house using MND, p. 1118 1→15→16→17→ Fannia. Using Chillcott (1960), p. 42 1→3→4→ Fannia, p. 44 A→M→P→Q→S→T→ pretiosa group ♂ 92→95→ maybe mutica group ♂ 41→ mutica??

(28 Oct. 2015)

I examined the genitalia of that fly from yesterday (KNWR:Ento:10791). The genitalia look like Fannia canicularis. The thorax is vittate, but not conspicuously so. Parafrontals bare, so not F. pilicoxa. Based on thorax vittate and some yellow on abdomen, also parafrontals not at all brown, → F. canicularis.

I finished adding grottits from Richard Payne to the Refuge's checklist.

I made ALS maps for the upcoming book.

I made updates to Refuge Notebook and Biology News.

(29. Oct. 2015)

I worked on 2015 Refuge Notebook articles.

(30. Oct. 2015)

I worked on Refuge Notebook articles.

(2. Nov. 2015)

I calculated mast prediction for 2016 for Kenai: 2016 should be a mast seeding year.

I worked some in the collection on data entry, etc.

I worked on adding material to Biology News.

I scaled a pair of walrus tusks.

(3. Nov. 2015)
I worked on Biology News.

I tried to make some statewide meat seeding predictions, but this was tough.

I worked on our NGS data,

(4. Nov. 2015)
I worked on my LCC synthesis chapter, getting a draft sent off.

I worked on NGS data.

Keying KNWR:Ento:10792 using Bellés (1992), p. 170 1→ ± got 11 segments.
Going back to Arnett et al (2002), p. 253 68→ 69→ 73 → 74→ 75→ Ptinus Papp 1962
Keying using Papp (1962) p. 390 1→ 2→ 3→ bicinctus?

(5. Nov. 2015) I made some posts to akentrax.org.

I worked on our NGS data, finishing the 157 bp data set and starting the 224 bp dataset.

Keying 2013MLB055, an orb weaver, using Ubick et al (2005) p. 69 1→ 4→ 5→ 6→ 7→ 9→ 13→ 14→ 15→ 19→ 20→ ~~22→ 23→~~
↳ 24→ 25→ 26→ 27→ 30→ 31 → 32→ 33→ Araneus? Keying using Levi (1973), p. 479, key + 9's. → (~7mm total length) 2→

Levi (1971), p. 139 6→ 6→ Cortticarius

(6. Nov. 2015)
I formatted and posted today's Refuge Notebook.

I worked in the collection a little.

BOLD appears to be down today.

I added Arctos records from ~~KNWR~~ KNWR:Ento, KNWR:Herb, UAM:Ento, UAMObs:Ento, and ICMP:Ento to the Kenai NWR checklist dataset.

I ran an alignment on Elasmostethus data from our two datasets (two different primers). These

were non-overlapping ~~pa~~ sequences within the 658 bp DNA barcoding region.

I worked on our NGS data.

(9. Nov. 2015)

BOLD BIN assignment for my three LifeScanner samples had been run over the weekend.

I finished going through the 224 bp (313 bp) sequence data.

I worked on GenBank submission for our NGS data. It is quite a task.

(10. Nov. 2015)

I finished uploading data for the Kenai NWR NGS data on Genbank.

I worked on updating the Kenai NWR checklist of butterflies based on names and data now in KWP:Ento.

(12. Nov. 2015)

I worked on Tetlin NGS data.

I spent some time fighting with the CMS, trying to get 1999 Refuge Notebook articles posted properly.

(13. Nov. 2015)

I did some review of Refuge Notebook articles and posted today's article.

I worked on identifications of Tetlin NGS data.

I finished updating the Kenai NWR checklist of butterflies.

Keying KNWR:Ento:7032, which I think is an Araneus ♀, using Levi (1973), p. 479 1→

I used Dondale ~~and~~ et al (2003). I am pretty sure this is Araneus nordmanni based on the heart-shaped posterior plate of the epigynum.

16. Nov. 2015 I did some editing of Refuge Notebook articles.

Kim was feeling sick today, so I left early. I worked 07:00 - 12:30.

17. Nov. 2015
I think I finished the Genbank submission of our NGS pilot study samples.

I did some editing of Refuge Notebook articles.

I worked on Tetlin NGS data.

18. Nov. 2015
I worked on Tetlin NGS data.

I worked from 0800 - 12:00, heading home because Kim was sick.

19. Nov. 2015
I talked with Jason Moan this morning about using NGS methods for EDRR monitoring.

I worked on Tetlin NGS data.
8 / 2:30

20. Nov. 2015
I worked on data for the Genome manuscript.

23. Nov. 2015
I worked on trying to figure out how to demultiplex our NGS data better.

24. Nov. 2015
I worked on the Genome manuscript.

25. Nov. 2015
I worked on Genome manuscript NGS data and a graphic.

27. Nov. 2015
I composed an abstract for a potential talk on DNA sequencing at KPC and sent it off.

I put in 9.5 hrs. ~~on the~~ today, mostly on the Genome manuscript.

30. Nov. 2015
I worked on the Genome manuscript.

A glycol line above the lab had failed over the weekend, causing much damage in the lab. I helped some with clean-up.

1. Dec. 2015

I looked into taxonomy of Boris specimens.

I started a Refuge Notebook article on Pollenia.

2. Dec. 2015

I wrote my Refuge Notebook article on Pollenia.

I did some work cleaning up in the collection.

3. Dec. 2015

I photographed specimen KMNR:Ento:10792.

I finished processing the Drosophilidae returned by Kim van der Linde.

I started work on a TeX version of the Kenai NWR checklist, also doing some work on the underlying data.

I did some work in the collection labeling specimens and selecting some to send to UAM.

4. Dec. 2015

I worked on posting Refuge Notebook articles.

I did a little checklisting work.

I worked on editing Refuge Notebook articles.

7. Dec. 2015

I worked on Refuge Notebook articles at home in the morning, then the kids and I drove out to Jim's Landing on the Kenai River to collect rose galls from Salix sitchensis. We had a hard time recognizing the galls and a harder time finding larvae in them. We ended up just collecting the galls to bring them back to the lab.

We stopped at Watson Lake campground to collect rose galls of Salix barclayi, but we found none.

We did collect a couple of gall midge larvae from rose galls of Salix barclayi on Ski Hill Rd.

8. Dec. 2015

John asked me to get literature on the website, so that is what I did.

I ~~cut one~~ dissected one of the galls from Salix sitchensis that we collected yesterday and put it into LifeScanner sample vial BOLD-U01. The rest I should let my kids work with.

Later, at home, Miriam worked on collecting more gall midges (larvae) from those rose galls on Salix sitchensis.
vials: BOLD-BS0
BOLD-HY2
BOLD-SG2

9. Dec. 2015

I worked on Kenai Refuge biology literature for our website.

10. Dec. 2015

I spent most of the day posting Kenai NWR literature to the website.

11. Dec. 2015

I posted today's Refuge Notebook article.

I am pretty sure that KNWR:Ento:10797 is Otiorhynchus ovatus.

I did some work in the collection.

I worked on a pdf version of our checklist.

14. Dec. 2015

I worked on posting Refuge Notebook articles from 2000 on line, getting this done.

I worked a little on the Kenai NWR checklist.

15. Dec. 2015] Meeting with Carol Denburg, Anchorage, Meg Perdue, Bret Christiansen, and several of Kenai Nwr staff.

Now with water resources office

16 Dec. 2015]
I spent the day in meetings with regional I&M folks.

17. Dec. 2015]
More I&M meetings today.

18. Dec. 2015]
I worked on data entry for data collected with Wade over the summer.

Keying a syrphid with barcode label KNWRC2952 using MND, f. 718 1→39→45→46→47→49→73→74→75→76→77→78→80→84→85→1
↳79→ Cynorrhinella? No

Chalcosyrphus

Keying using Curran (1941), p. 286 1→2→3→4→5→
↳ vecors?

I think so.

Keying specimen KNWR:Ento:7216, a Chrysotoxum, using Vockeroth (1992), p. 48 1→2→3→
There appears to be much confusion in this genus.

21. Dec. 2015]
I posted Refuge Notebook articles.

I did the last of the data entry from the All Hands/All Lands Calamagrostis work with Wade this last summer.

I worked a bit on formatting of the Kenai NWR checklist.

I am reexamining the Poa #2 from Mile 149 T6, 1. July. 2015, which had been kept in the freezer. I found an anther about 0.8-0.9 mm long which might have gotten grown longer after the plant matures if it would have been allowed to do so.

Skinner et al. (2012), p. 14 1b→2b→6b→7a-8a→9a→10a→11b→12b→13b Poa pratensis.

22. Dec. 2015

Keying Luzula from site Kenai T12 29. June. 2015. Welsh (1974), p. 614 1→4→ (. campestris / multiflora. p. 616 1→7→ b

Luzula from Mile 149 T3 1. July. 2015 is Luzula parviflora.

Luzula #2 Griner T12 6. July. 2015 is Luzula multiflora

Stellaria Kenai 29. June. 2015. Welsh (1974), p. 94 1→2→3→4→5→6→7→ longipes? Yes.

Stellaria Mile 149 T4 1. July. 2015 1→2→3→4→ longifolia

Stellaria Mile 149 T6 1→2→3→4→5→5. crispa? yes.

Stellaria Griner T1 6. July. 2015 Stellaria longifolia

A flea from DeVille Rd., May 27, 2015 37730 DeVille Rd. Marian Bowser looks like Dolichopsyllidae (terga 2-6 with 2 rows of bristles, genal comb absent, pronotal comb present, no suture on dorsal surface of head between antennae.

New Ceratophyllidae. Holland (1985), p. 263 1→ Ceratophyllinae Ceratophyllus? p. 264 1→2→3→20→23→ 27→32→33→35→38→

23. December. 2015

I worked a little on in the collection.

I added records from Holland (1985) to the Refuge's checklist.

Examining earthworms from site 54F, 19. July 2015, collector MCD. These are Dendrobaena octaedra, adults : 5 immatures: "

Examining worms from site 53F, 19 July 2015, collector MCD. These are Dendrobaena octaedra. adults: " immatures: "

Examining worm from site 85F, 18. July. 2015, M. L. Bowser. This vial contained one minute oligochaete which may or may not be an earthworm.

Examining a Carex from site 72F.
Stigmas 3 Keying using Welsh (1974), p. 488
1→2→3→4→5→Key VI, p. 493 1→4→8→9→10→
C. mertensii

(24. Dec. 2015)

KNWR:Ento:10823

A flea from a bat collected by Mallory Okuly on Cohoe is a bat flea (Ischnopsyllidae).
Keying using Hilland (1985), p. 29 13→
Myodopsylla p. 214 1→2→ gentilis ♂

(25. Dec. 2015)

Examining a lupine from 81F. Keying using
Welsh (1974), p. 270 1→3→ nootkatensis

I worked on a 2015 data submission to AKEPIC.

(29. Dec. 2015)

Examining contents of bag from site 54F.
Dryopteris expansa
Trientalis europaea
Calamagrostis canadensis
Rubus pedatus

Examining contents of bag labeled 67F
(9. July. 2015.
Rubus arcticus
Viola sp.
Luzula Welsh (1974) p. 614 1→2→3→
parviflora
Pyrola asarifolia
A rhizomatous grass. Skinner et al. (2012), p. 4
1→2→3→ Arctagrostis, p. 9 1→ A. latifolia No.
(Poaceae) 1-2 florets per spikelet
→1→9→14→23→24→25→27→ Poa p. 14
1→2→6→7→ No anthers left, must go both ways
here 8→9→27→24→25→26→ Poa arctica

Examining contents of bag labeled 68F
Stellaria sp. (no flowers)
Ribes sp. (leaves only)

Examining contents of bag labeled 70F.
Swertia perennis
Carex mertensii
Senecio triangularis
Luzula parviflora

Examining contents of bag labeled 65F 19. JUL. 2015.
Luzula parviflora
Cornus canadensis

Examining contents of bag labeled 53F.
Alopecurus magellanicus (= A. alpinus)
We do not have this one in our collection.

(31. Dec. 2015)
Gary Titus showed me how to use the slide scanner today. I started looking at old Kenai NWR bio photos.
I formatted tomorrow's Refuge Notebook article.
We had a retirement party for Gary at the Visitor Center today. We will miss him.

(4. Jan. 2015) I did some work on Refuge Notebook and updated the website accordingly.
I worked on editing 2001 Refuge Notebook articles.

(5. Jan. 2015)
I did a bit of work in the herbarium.

I posted all the Refuge Notebook articles from 2001.

I signed up for a galaxy account to try analysing NGS data.

(6. Jan. 2016)
First I am recording what I did yesterday.
I uploaded the .qual(8) and .fna(7) files from the NGS processing of KNWR samples KNWR:Ento:7114, KNWR:Ento:10656, and KNWR:Ento:10657. I had to edit the barcode file(11) to remove hyphens, which galaxy did not accept or like. Actually it was the Barcode Splitter tool that did not like hyphens.

(7) Bowser_3585X.fna
(8) Bowser_3585X.qual

→ (13) [Combine FASTA and QUAL]
(accepted defaults, changed on which changed encoding of quality from numeric to ASCII.
After processing I changed the data type to "fastqillumina"

↓

(15) [Barcode Splitter]
Accepted defaults.
Downloaded data (3 datasets) as there seemed to be no direct way to pass these data to another tool.

Today

Uploaded split file from (15) Barcode splitter corresponding to KNWR:Euro:7114.

(14) Same as (13), but kept native encodings. Set data type to fastqillumina for the next step.

↓

(17) Barcode Splitter on (14) and (11). Accepted defaults. Downloaded this.

↓

Uploaded file for KNWR:Euro:7114. (18) Changed data type to "fastqcssanger."

↓

(19) FASTQ Trimmer offsets: 5':5, 3':0

Going back to (13). I think the ASCII quality format (15) is the right way to go.

I think I must start from the FASTQ files. Next step is to merge pairs.

Pear (20) on (1) and (2). These are the FASTQ files from KNWR:Euro:7114. Accepted defaults.

pear1 (21) on (4) and (3).

pear1 (22) on (6) and (5).

It might be ok to use the pipeline from Research and Testing Laboratory through the preparation of QIIME files. I will try both ways.

→ Changed datatype of (19) to fastqcssanger to fastqsanger.

↓

Filter by quality (23). Accepted defaults. Failed. I think due to format issues. Trying Quality formats...

Uploaded

(26) KNWR:Euro:7114 sample from (15). format: fastq

Changed data type to fastqcssanger

↓

(27) FASTQ Trimmer on (26).

↓

(28) FASTQ to FASTA on (27)
(error)

Changed (27) from fastqsolexa to fastqsanger

↓

(29) FASTQ to FASTA (Solexa)
(accepted defaults)
(error)

(30) Trying FASTQ to FASTA on (19).
failed.

(31) Trying the same with Solexa variant of FASTQ to FASTA on (19). failed.

Downloaded (27).

Tried parsing using readFastq() from the R ShortRead package. This gave an error.

I was able to read output of (15) into R via this method.

Uploaded to Galaxy (32)

↓

(33) Trim sequences error

→ (34) FASTA Width formatter on (32)

↓

(35) Trim sequences on 34
by 9-600

↓

(36) VSearch dereplication on 35

↓

(37) VSearch clustering on 36

(38) and (39) VSearch clustering on 36
(different parameter and output settings)

(40 & 41) ditto, yet different parameters.
This worked, yielding 148 OTUs

I started working with the output FASTA file in R.

7. Jan. 2016

I did some work on data entry in the herbarium and the entomology collection.

Examining plants from 53F.
Coniogramme chinense

Keying a sedge from 53F using Welsh (1974), p. 488 1→2→3→ Key III, p. 492 1→2→3→4→1
↳5→6→8→

C. lenticularis?

Carex macrochaeta

A Festuca looks like F. altaica. It is.

Examining bug with barcode label KNUKC2959.
It looks like Alydidae. Alydus eurinus?

Examining plants from site 85F
Carex mertensii

pl wasp I collected on 27 July. 2012 = Bethylinae ♀.
Referring to Evans (1978) Bethylini, Bethylus
p. 219 1→ B. lecipiens

Reexamining specimen KNUK-Ento: 4235. = bethylid.
Keying using Evans (1978), p. 7 11*→18→14→
↳12→13→
1→8→9→10→ Apenesia??

Keying anobiids brought to me today using Arnett et al (2002), p. 248 1→2→7*→8→ Ptilineurus? /vs.
↳9→11→12→13→21→22→
26→28→ Stegobium

[8. Jan. 2016] I worked on printing off labels for KNUK: Ento specimens.

[11. Jan. 2016] I dealt with correspondence / AKES business.

Inventorying grassland study samples

67F	19 JULY. 2015	MCB
70F	19 JULY. 2015	JMM
55F	19. JULY. 2015	JMM
84F	18. JULY. 2015	DRM
71F ~~83F~~	18. JULY. 2015	DRM
59F	18. JULY. 2015	JMM
85F	18. JULY. 2015	MCB, DRM
73F	18. JULY. 2015	JMM
53F	19. JULY. 2015	JMM
54F	19. JULY. 2015	JMM

I entered these data into Arctos.

I worked on figuring out primer sets and demultiplexing methods.

12. Jan. 2016

Trying Galaxy again.

Starting from raw data, PEAR (20, 21, 22).

No, I learned more about these datasets.
Files 1-6 should first ~~not~~ be set to data type fastqsanger.

13. Jan. 2016

The kids' cecidomyiid sequence data arrived, so I scrutinized this some.

I am transferring the contents of a vial from grassland site 59F to a clean vial for NGS. My main purpose is to remove vegetation and debris from the sample. (KNUK:Ento:0843)

Contents

Chironomidae
Muscoidea
Hymenoptera
Lauxania shewelli
Psyllidae
Cicadellidae
Tenthredinidae
Miridae
Aphididae
Hemiptera
Ichneumonidae
Phoridae
Simuliidae
Agromyzidae
Diptera

Prepping a second sample, this one from 53F. (KNUK:Ento:0846).

Contents

Cicadellidae
Empididae
Sphaeroceridae
Terymes
Muscoidea
Nabidae? Nabis immature
Hemiptera
Aphididae
Lauxania shewelli
Trbisia
Ichneumonidae
Phoridae
Psyllidae
Miridae
Diptera

Acari
Lepidoptera
Scathophagidae
Hymenoptera
Calliceridae
Simuliidae
Rhagionidae
Tetragnatha sp.

I had to stop at the end of the day. This is a large sample.

14. Jan. 2016

(KNWR:Ents:10840 continued

Chironomidae

Σ = 325 individuals.

This was a repetitive sample, not especially diverse considering how many specimens these were.

I am resuming work on Teflin NGS arthropod occurrence data.

15. Jan. 2016

I am working with LifeScanner cecidomyiid data. I downloaded all 106,216 cecidomyiid sequences from bold. Uploading to galaxy.

LifeScanner cecidomyiids (55)
BOLD cecidomyiidae (56)
↓
Concatenated datasets (57)
↓
ClustalW (58, 59)
(defaults) Error: same name found twice.

I worked up these data using R / Clustal tools.

19. Jan. 2016

I worked on examining demultiplexing issues in our NGS samples and expressing these concerns to John Hanson via e-mail.

I am now transferring the contents of a vial labeled 70F to a new vial, inventorying ~~contents~~ contents.
(KNWR:Ents:10839)

contents
Miridae
Cicadellidae
Hymenoptera
Hemiptera

Muscoidea
Staphylinidae
Empididae
Chironomidae
Phoridae
Aphididae
Diptera
Sphaeroceridae
Psyllidae
Agromyzidae
Tetragnatha
Syrphidae
Sphecidae
Rhagionidae
Nabis

(20 Jan, 2016)

I identified a willow with rose galls from my swamp (Old Kasilof Road) as Salix pulchra.

I worked on putting together coordinate data from the Tatlin NGS samples.

Processing contents of a vial labeled 85F (ICNWR:Ento:10844)

Contents
Cicadellidae
Hemiptera
Empididae
Biliomidae
Diptera
Miridae
Phoridae
Nabis
Chironomidae

I drove down to Soldotna Creek Park in search of Salix sitchensis. I found none, but I photographed and collected what I think is Salix alaxensis. There were dark insect eggs on the branch tips around the buds.

Getting back to working with NGS ~~Tatlin~~ data

Starting with (20), PEAR of the two ICNWR:Ento:7114 reads.

↓

FASTQ to FASTA (60) (min 2)

↓

(61) VSearch dereplication

(62-64) VSearch clustering All 1 cluster

(65-68) VSearch clustering 98% identity
Error. Reduced 98 to identity

(69-72) VSearch clustering 0.98 identity.

(77-79) VSearch clustering 0.98 identity worked!

(76) Makeblast on (73) (consensus sequences)
Error. Looked like an internal error.

Uploaded

Downloaded 64 Alaskan Arthropoda from BOLD (public) and uploaded to galaxy (77)

(73) (77)

(74-75) VSearch Search 0.95 min. identity.
Error -

illegal character '-'.

(80) - new version of Ak library w/ '-' replaced by 'N'

(73) (77)

(81-83) VSearch Search 0.95 identity
method = int

This worked well and looked good!

Now I need to build a better reference database for Ak material.

21 Jan. 2016

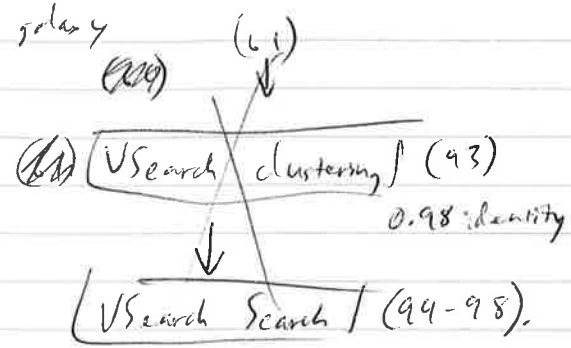
09:00 meeting with the fire folks. Meeting lasted until almost 17:00. Afterward, I worked on assembling a regional arthropod DNA barcode reference library. (84)

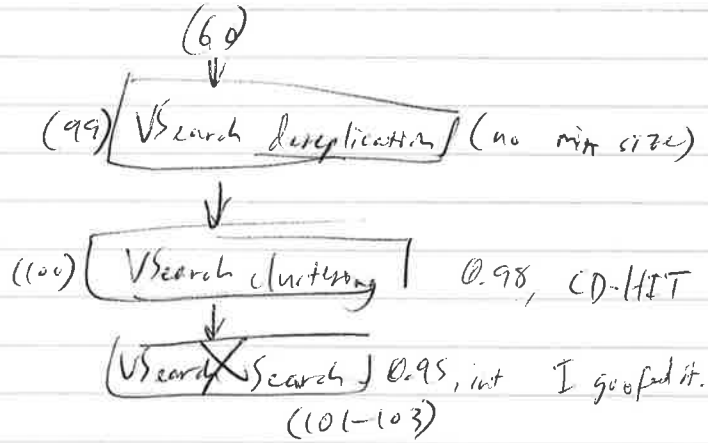
(73) (77)

(85-88) VSearch Search 0.95 similarity

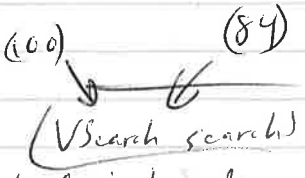
It seems the only way to retain numbers of sequences is by using centroid sequences. According to discussion at driveS.com/usearch/manual/consensus.html, centroids are better predictions of biological sequences anyway and are recommended. Next time I will use those.

22. Jan. 2016

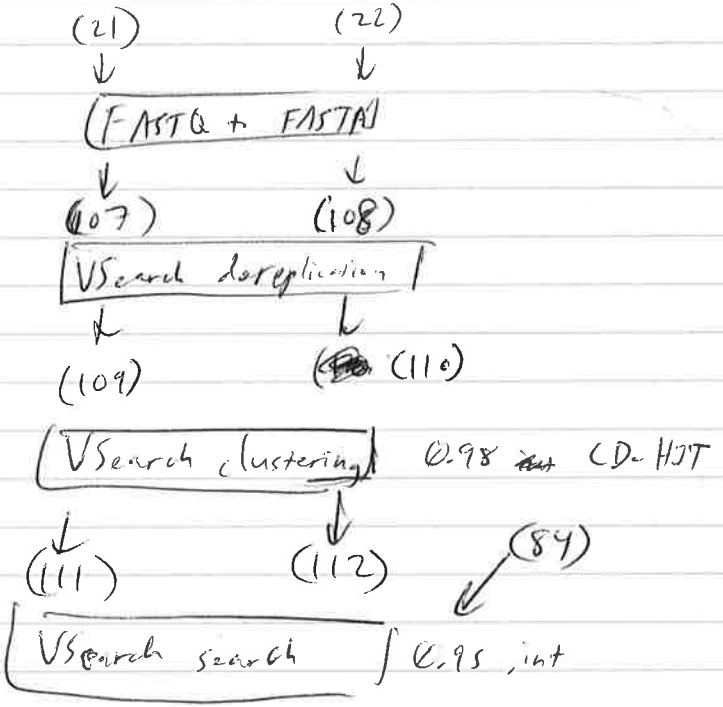




I goofed it.



lots of single reads without many additional taxa added. There appeared to be only one that I could see.



I think I more-or-less have the workflow working, so now I am uploading Tetlin files.

Uploaded all Tetlin raw FASTQ files (1–52)

↓

(53–78) PEAR (defaults)

↓

(79–104) FASTQ to FASTA converter

↓

(105–130) VSearch dereplication (min 2)

↓

(131–156) VSearch clustering (0.98 CD-HIT)

↓

(157) AK vicinity archaeal library

↓

(158–235) VSearch Search (0.95 int

25. Jan. 2015] I did some posting / updates on akentroc.org related to the meeting.

(157) AK vicinity library

↓

(236) VSearch dereplication

(Downloaded + edit by hand)

Deleting 158, 161, 164, 167, 170, 173, 176, 179

this would be done more efficiently another way.

(158–235, all non-matched query sequences)

↓

(263) Concatenate datasets

↓

(264) VSearch dereplication

↓

working R, etc.

26. Jan. 2016

I worked on my AKES NGS presentation for a few hours, but mostly I needed to be home with sick family members.

27. Jan. 2016

I worked on my AKES NGS presentation.

28. Jan. 2016

Working on my AKES NGS presentation.

~~30. Jan.~~ 30. Jan. 2016

AKES meeting

Round robin

Mike Baldwin will be participating in National Mark Week, looking at ~~an~~ invasive plants.

Alex will be working on ants

Shady - snail & slug survey this summer

Jason Moan - monitoring variety of forest pests

Roger - not sure yet.

Garret - monitoring, working with Jason, Spruce aphid monitoring.

John Lundquist - handling calls from public survey and monitoring

Dan Bogan - sampling streams in SW Alaska - long term sites, maybe Salcuit NWR

Molly w/ USGS songbirds, nest monitoring

Logan - visiting this summer. UAF Entomology Club had frost meeting this week. Bio Blitz UAF?

Derek Sikes - Barrow Anaktuvuk, Serpentine Springs. Bug camp in July. Going to Chicken looking for blind weevil. Aleutians in August.

Kath - working in collection, maybe Barrow + Serpentine, National Moth Week

Robin - lab work, sampling for undescribed mites.

Jessie - working on training modules for exotic forest pests - for training for foresters, etc. Leaf litter project - looking at bird cherry litter vs. willow litter birch, etc.

Danny - pest monitoring - thrips, etc. Statewide from visits - root maggots, aphids, ~~tz~~ livestock pest scouting Teaching summer research academy - farming and gardening.

Dan Bogan - will be a butterfly day again this year.

Jacque Shelly, CAPS Program in Alaska
Cooperative Agricultural Pest exotic pests

Ken Perry - (Pied Piper) - He does see earwigs.
#1 Carpenter ants 250-300+ jobs/year
#2 mice - 200-300 residential jobs/year
voles on increase, Anchorage behind Fairbanks, peaked last year. Peaked 2 years ago in Fairbanks.
cockroaches - serious problem in Anchorage. Almost always German cockroach.

#3 spiders -
Upcoming problem is the clover mite. - hide in foundations
strawberry root weevil.
silverfish and fire brats - exotics many in hot and humid environments

Fourth insect pest is the wasp because it can fight back. 258 cases this year.

Growing issues: cluster flies have been here for some time. - in highrises in Anchorage.
Conoco Phillips building has huge cluster fly problem. He has developed his own cluster fly trap.

Biggest issue now is bed bug issue. Bed bugs early as 1968. 2008 huge influx.

Dirofilarial parasitosis — also itchy skin reactions "spider bites!"

Molly McDermot
Shrub expansion in the arctic

Seward Peninsula straddles transition from boreal forest to tundra through shrubs.
30 random points sampled every 4-6 days early June - late July, 8 periods.
Tall shrub had most arthropods.

% cover shrubs was predictor of arthropod abundance, plant height diversity was important in predicting arthropod diversity.

(Kath)

Still need to georeference Canada, Russia records.

Oeneis chryxus - maybe new species from Tok?
Oeneis taygete new sp.

July 24, 2015 - National Moth Week at Creamer's Field

Almost all 84 species of Alaska butterflies DNA barcoded. Lycaenid species in decline. Which one was it?

Butterfly wings smaller after warm summers.

After lunch
- Derek Sikes

John Lundquist FHP

Hans Rinka AK DOF

- Ask John about spruce beetle envelope modelling.

Robin Andrews taxonomy. Lots of undescribed species.

Gnaphidae? - my LifeScanner specimen.
Euphoridae?

Heterostigmata associated with fungi. What do they do?

fungi

Scutacaridae are neat! Tarsonemidae - wishbone-like leg IV. - plant parasites.
Oribatids.

Empididae abundant at alpine sites

Brachychthoniidae - important at other sites.

Business meeting

- Derek reported on success of butterfly field guide

Roger Burnside - 40-50 paid memberships (people) since 2005

As of Jan 2a $3045 CD at NorthRim
$329.57 in checking.

We talked of moving finances documents to dropbox or similar account.

Ask for abstracts from presentations and posters for AKES Newsletter.

8. Feb. 2016 I caught up on some correspondence and some AKES business.

71F
~~83F~~

Sorting insects from sweep net sample, site 18.JULY.2015 KNWR: Entr. 10842

contents	
Psyllidae	
Empididae	
Phoridae	
Cicadellidae	
Aphididae	
Muscoidea	
Diptera	
Chironomidae	
Heteroptera	
Lauxania shewelli	
Calicidae	
Ichneumonoidea	
Ichneumonidae	
Hymenoptera	

We had a biology staff meeting in the middle of the day.

Sorting contents of vial from 84F.
KNUK:Ento:10841

contents

Hemiptera
Mascoidea
Empididae
Cicadellidae
Scathophagidae
Psyllidae
Tohnaumonidae
Aphididae
Rhagionidae
Ichneumonidea
Diptera
Phoridae
Miridae

9. Feb. 2016 Sorting specimens from sweep net sample from site 73F.
KNUK:Ento:10845

contents

Hemiptera — imm. Heteroptera
Psyllidae
Hymenoptera larva — Tenthredinidae
Scathophagidae
Muscoidea
Cicadellidae
Aphididae
Hymenoptera
Chironomidae
Phoridae
Coleoptera larva — Chrysomelidae?
Diptera
Empididae
Misumena vatia ♀
Simuliidae
Pipunculidae
Miridae
Culicidae

Sorting arthropods from sweepnet sample from site 54F.

KNUK:Ento:10847

Contents

Muscoidea
Cicadellidae
Phoridae
Heteroptera imm.
Psyllodae
Empididae
Aphididae
Scathophagidae
Diptera
Lepidoptera larva
Lauxania shewelli
Chironomidae
Araneae imm.
Miridae — elongate, green
Diptera larva

Sorting out insects from sweep net sample from site 55F.

KNUK:Ento:10840

Contents

Acalyptratae
Heteroptera imm.
Cicadellidae
Coleoptera larva
Empididae
Nabis
Rhagionidae
Nematocera
Aphididae
Muscoidea
Ichneumonoidea
Phoridae
Psyllidae
Araneae imm.
Staphylinidae
Lauxania shewelli
Miridae — elongate, green
Piguncultidae
Chironomidae

Sorting insects from sweep net sample from site 67F.

KNWR:Ento:10838

contents

Acalyptratae
Psocoptera
Aphididae
Muscoidea
Tenthredinidae
Ephydridae ?
Chironomidae
Miridae
Heteroptera imm.
Psyllidae ?
Cicadellidae
Empididae
Ichneumonidae
Chalcidoidea
Ichneumonoidea
Tenthredinidae larva
Lauxania shewelli
Elateridae
Psyllidae
Nematocera — Cecidomyiidae?

(10. Feb. 2016) I packaged and mailed the 2015 grassland NGS samples. I then finished data entry of the vial contents and produced summaries.

I took a walk to the outlet of Nordic Lake today looking for cecidomyiid galls on Salix. I did find several kinds of galls including rose galls on Salix pulchra. I found a few examples of Salix fuscescens but no galls on them. I think most S. fuscescens are still buried under snow.

(11. Feb. 2016)
I got going on my ICPC presentation.

(12. Feb. 2016) I am working on my ICPC presentation.

(16. Feb. 2016) I produced new maps of the Oeneis species for the upcoming second edition of the Alaska butterfly field guide.

I worked on my ICPC presentation.

(17. Feb. 2016) I worked on my ICPC presentation.

17. Feb. 2016 I worked on my presentation.

18. Feb. 2016 I came in late morning, finished up my ICPC presentation this afternoon, and gave my talk this evening.

19. Feb. 2016 I worked on posting Refuge Notebook articles.

I caught up on correspondence, ordered Life Scanner kits, filed photos, printed labels.

22. Feb. 2016 I worked on catching up on 2016 Refuge Notebook articles.

23. Feb. 2016 I started work on an article on Fomes fomentarius requested by John yesterday afternoon. This morning he asked for end earthworm distribution map.

24. Feb. 2016 I worked on finishing up my Refuge Notebook article.

I started an article on Glociannus punctiger.

25. Feb. 2016 I worked on my Glociannus article.

I took a series of photographs of specimen KMNH Ento 10806.

26. Feb. 2016 I am re-running some the three Kenai NWR NGS samples on Galaxy

Starting from FEAR step (20-22)

↓

FASTQ to FASTA converter (115-117)

↓

(118-120) VSearch dereplication (write abundance:yes, min abundance: 2)

↓

(121-123) VSearch clustering ID def: CD-HIT
--id: 0.98
read abundance: yes
write abundance: yes
output: centroid sequences

[29. Feb. 2016] I worked at home editing old Refuge Notebook articles.

[1. March 2016] I am revising one of the Alaska Lepidoptera Survey mss. John asked me to make a graph of some of the Eledea data, so I am doing that.

[2. March 2016] I scrutinized the DNA sequences I obtained today from the kids' Lifescanner kits from Salix pulchra. One was Torymus; the other looked like contamination.

Craig Garrett, shadowing today, helped me dissect rosette galls from Place River willow #1 which I had collected on 14. Feb. 2016. I had photographed in obtained coordinates for this collection as an iNaturalist.org observation record. I photographed this gall through the scope (frames 5403 - 5412 in Nikon (Calpix). It was hard to get good 5419 photos because the ~~worm~~ animal was alive and moving. This went into sample vial BOLD-NBS9 (read as BOLD-BS9 by LifeScanner app).

I processed sample collection data from the Tetlin NWR samples and uploaded these to Arctos.

I started inventorying the LifeScanner vials that arrived today.

[3. March 2016]

I finished inventorying the LifeScanner vials and started handing them out.

I am handing out LifeScanner kit vials

BOLD-LY7 } Todd Eskelin
BOLD-MQ4 }
BOLD-CT1 - Donna Handley
BOLD-7M6 - Matt Conner
BOLD-RN2 }
BOLD-PM2 } Mallory Okuly
BOLD-3A2 - Michelle Ostrowski
BOLD-QR9 - Macey Hoffman
BOLD-939 - Leah Eskelin

[4. March 2016] I worked on getting Tetlin NWR NGS sample data onto Arctos.

I edited Refuge Notebook articles from 2005, and a few from 2004.

With Todd's help I collected the maggot from which we have seen calliphorid flies emerging. I collected it at 8:30 this morning and placed it in

the freezer to kill any inhabitants before going through it.

I started work on the GenBank SRA submission for the Teflin samples.

I dissected the wasp nest collected earlier today, opening up all the pupal chambers. Examination of adults still in chambers confirmed that this was a nest of Delicheirospila cressatia. There were a handful of dead calliphorids in the nest, mostly ill and deteriorated. There were old Pollenia vagabunda pupae and two live Pollenia vagabunda individuals as well as a live Pt. rufae. There was also an old dermestid larval exuvium. I think these Pollenia adults were simply using the old wasp nest for shelter as were the other calliphorids.

I finished processing and submitted the Teflin BioSample records.

7. March. 2016

I worked on ~~editing~~ editing 2003 Refuge Notebook articles and getting them ready to post on the web.

I extracted a gall midge from a willow I had collected at Summit Creek on 14.Feb.2016 and put it in LifeScanner vial BOLD-RZ1.

I worked on uploading fastq files to GenBank SRA and making BioProject, Biosamples, experiments, runs, etc.

I worked in the collection on another donation of specimens to UAM.

8. March. 2016 I pretty much finished the Teflin NGS GenBank submission. Now I am waiting on GenBank SRA to finish processing the ~~samples~~ data.

Looking at Succineidae on BOLD, 2 from Ak.: Succinea rustica and Succinea strigata, both held by Florida Museum of Natural History

In the lab I transferred a ♀, possibly immature Lepidoptera from ~~type~~ specimen KNWR:Ent:10646 to LifeScanner vial BOLD-UQ4.

9. March. 2016
I finished packaging LifeScanner vials to go out.

I worked on the AKEES Newsletter on my Glaciamys article and on Jacqueline Schade's gypsy moth article.

10. March. 2016 I worked on an article on the blackberry skeletonizer for the AKEES Newsletter.

I took a series of photos of specimen ICNMR:Ento: 10850.

11. March. 2016
I processed and posted the Refuge Notebook articles from volume 4, 2002.

14. March. 2016
I made an update to Biology News.

I posted Refuge Notebook articles from 2003.

I posted Refuge Notebook articles from 2004.

In the afternoon I worked on improving the Refuge's checklist.

15. March. 2016 I did more checklisting work yes I finished this draft and posted it to the web.

16. March. 2016 I updated the Lab chemical Hygiene Plan and Lab Safety Plan.

I started work on a new chemicals inventory / SDS binder document for the lab.

Keying one of series specimen ICNMR:Ento: 8092 (Araneae) using Szita et al. (2015), p. 62
↳ A. cataphracta

I worked a little on the AK arthropod DNA barcode library for Tetlin NWR work.

17. March. 2016
I worked on packaging 2015 grassland ~~soil~~ soil samples to ship out and associated paperwork.

I packaged willow specimens to go out to Dominique.

I wrote a short ~~fact~~ review article on Urocerus wasps for the AKEES Newsletter.

18. March. 2016

I worked some on the AKES Newsletter.

Doing some work on Tetlin data in Galaxy

uploaded new version of AK library (292)

(131-156) → VSearch Search | 0.95 ident

(293-370)

21. March. 2016 | I prepared some materials for today's biology staff meeting, then attended the meeting.

I spent most of the afternoon on Derek's St. Matthew article for the AKES Newsletter.

22. March. 2016

I finished formatting Derek's St. Matthew article.

Keying at Dyttscid collected recently from Headquarters Lake (2016MCB002) using R. Roughley and Larson, p. 160
1 → 4 → 32 → 40 → 42 → 43 → 44 → 45 → 46 → 47 → 48 → 49 → Agabus

I examined and photographed a spider that I could not identify.

I did some cleaning in the lab. I also worked with labeling and data entry of some plant specimens.

Back to Tetlin N65

(293-370) (BLAST results)

↓

(397) Concatenate datasets

23. March. 2016 | I spent most of the day in Wilderness training, but I did get a little bit done by coming in early this morning.

I spent the morning on Tetlin N65 data, improving the reference database taxonomy for records matched.

Back on Galaxy, putting together unmatched sequences.

(294-369)

↓

(399) Concatenate datasets

I started looking up sequences that were not matched and adding similar sequences to the library.

25. March. 2016

I did some correspondence related to the AKES Newsletter.

Back to Tetlin NGS:

(399) → (400) VSearch dereplication

↓

using this to improve library, checking sequences versus BOLD and adding sequences to the library.

Stop at ~~read~~ cluster with < 50 reads.

Exported the library, uploaded to Galaxy

(401) →

(131-15) VSearch Search 0.95 | CD-HIT

↓

(402-427) BLAST Tab output ← 100 returned for hits.

Trying again using int method (428-453)
This was much better.

(401) → VSearch Search (C

(155) → run with output of non-matching sequences, FASTA

28. March. 2016

I continued with Tetlin NGS work.

I made a couple of posts to Biology News.

I did a lot of fiddling with parameters on the VSearch Search step, settling on the int method with minimum similarity = 0.90.

I ran this on all sites, but Galaxy was flaky today and many had to be run multiple times (488-

30. March. 2016 |

I packaged and shipped out another set of LifeScanner vials.

I posted photos and observations from yesterday.

I took a short walk in the afternoon.

31. March. 2016 | I came in for a half day today and caught up on some data entry.

I resumed work on Tetlin NGS.

1. April. 2016 |

I worked on inquiries for a 2016 - 2018 NGS contract.

This afternoon I put some sod, soil, and leaf litter from the back yard into a terrarium. I augmented this with Pendrobaena worms from the alder leaf litter around the headquarters area. I collected three Pollenia adults, I think all ♀, trimmed their wings, and placed them in the terrarium.

4. Apr. 2016 | I formatted Liz Graham's spruce aphid article for the AKES Newsletter.

I reformatted the Bombus article for the Newsletter, which took awhile due to all of the citations and links.

Sorting insects from sweep net sample 2016MLB006 collected today in Headquarters Lake wetland.

Chironomidae !!

Araneae !:⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠

Ichneumonidae parasitoid on spider ::

Lepidoptera larva ::

Diptera :.

Insecta .

Lepidoptera or Trichoptera, old, dead

Collembola ,

Entomobryidae?

5. Apr. 2016 | Today I am preparing samples to send to John Iranson to run on the PacBio. I accessioned the Pollenia vagabunda specimens I had collected the other day and frozen (2016MLB003). I also photographed and collected an Elasmostethus interstinctus that was in the terrarium with soil, leaf litter, and flies I had collected on 1. Apr. 2016 (2016MLB007)

I packaged a loan of specimens to go out to John Hanson for NGS on the PacBio.

I did some clean-up in my office and in the lab

I met with John Trent this morning about butterflies and entomology-related news.

I finished formatting Meltaghi and Sikes' article on Bombus occidentalis for the AKES Newsletter.

(7. Apr. 2016) Most of the day I spent preparing for and attending the safety meeting.

(7. Apr. 2016) I processed data for Derek, data from their climate transect / PDO / defoli-

I formatted Jason Means' Ips article for the AKES Newsletter.

(8. Apr. 2016) I came in late today due to Kim's doctor appointment.

My Blescommer results had come back. All the rice gall midges from Salix barclayi and Salix commutata clustered together. The rice gall midge from Salix fuscescens was different.

The Leptothorax specimen from Skyline is Leptothorax borealis. This was not a new species.

I uploaded my recent AK library to Galaxy (530) and ran

(530) → (13:15 6) → [Vsearch Search] (int, 0.90)

↓

All errors, probably something wrong with the library file.

(11. Apr. 2016)

I examined recent cecidomyiid COI data and sent a letter to Dominique.

I worked on the Kenai NWR checklist, especially fixing problems in the willows.

Today I received a vial of worms from Fairbanks with barcode label UAM1000611035.

Keying using Reynolds (1977), p. 72 1→2→6→7→8→9→10→ clitellum in 29 → 11→12→13→14→ D. rubidus??

Yes, these fit.

Length: ~50mm

width: ~3mm

(12. Apr. 2016)

I formatted the Olive-sided flycatcher article for the Newsletter.

(13. Apr. 2016)

I had to make some fixes on the Kenai NWR website.

I poured through the remaining material in the AKES Newsletter, posting a draft in the afternoon.

(14. Apr. 2016)

I packaged another set of Life Scanner specimens to go out to U of G for sequencing.

I worked on the Kenai NWR checklist some.

I worked some on cleaning the lab.

(18. Apr. 2016) I worked on some corrections on the Kenai NWR checklist.

I worked on checking and cleaning the 2015 grassland study vegetation data.

I worked on entering grassland site classification data.

19. Apr. 2016

I finished entering/reconciling grassland 2015 site and veg classification, summarized this, and made a draft map for John.

We received NGS data today from the 10 2015 NGS samples from the grassland study.

↓

Galaxy

(1–20) raw FASTQ data

↓

(21–30) PEAR defaults

↓

FASTQ to FASTA converter

↓

(31–40)

↓

(41–50) VSearch dereplication

↓

(51–60) VSearch clustering CD-HIT, 0.98,

(61) (library 40 i from Teflin NGS work)

↓

(62–71) VSearch Search int, 0.9, BLAST output

(51–60) (61)

↓ ↓

(72–81) VSearch Search int, 0.9, non-matches

20. Apr. 2016

I spent the entire morning on 2015 grassland NGS data improving the library. This is what I did for most of the afternoon, too.

21. Apr. 2016

I finished the library improvements based on matched records. I also checked through the non-matched sequences. Once this was done I uploaded the library file to Galaxy (83)

↓

(51) → VSearch Search (82)

↓

failed.

I found the error (reported by VSearch search) in the FASTA library file, fixed it, uploaded it (84)

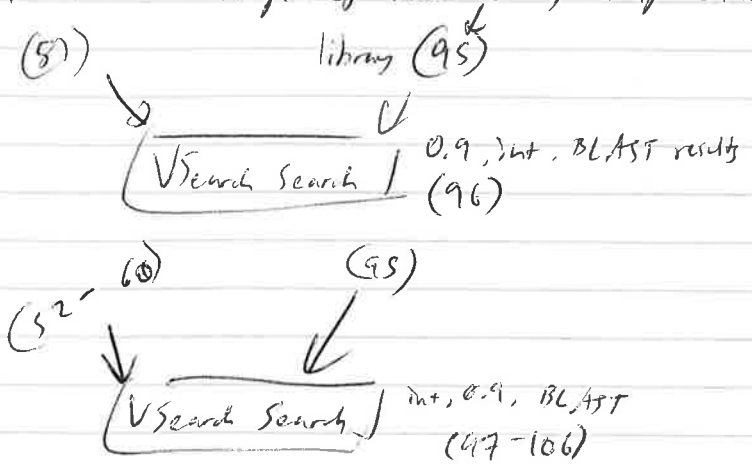
(51) → VSearch Search (85) int, 0.9, BLAST output

(52–60) (84)

↓ ↓

VSearch Search (86–94) int, 0.9, BLAST output

Argh! Galaxy went down before finishing these.
It worked after a while, though
I worked on a couple of more library improvements.



Galaxy went down!

[22 Apr 2016]
This morning I worked on 2015 grassland veg and arthropod data, using the occurrence data to cluster the sites.

I worked on updating some records in BOLD.

[25 Apr. 2016]
I started work on a final draft of the AKES Newsletter, but then John asked me to add in the earthworm data to the grassland community exercise I had done earlier. I ended up spending most of the day working on this for John.

[26 Apr. 2016]
I cranked out a near-final draft of the AKES Newsletter.

I photographed oligochaet specimen KNWR:Ento:10822 a minute segmented worm, & LifeScanner vial BOLD-Q24 for sequencing.

[27 Apr 2016] I completed my FISSA training.

I worked on my Refuge Notebook article there today.

The one fairy shrimp that I collected last week, kept alive, and photographed today I put into LifeScanner vial BOLD-G99.

(4. May. 2016) I worked briefly for an hour and a half on correspondence, etc. in the morning, but I had to take the car into Alyeska and then return home so that Kim could go to the curriculum fair.

(5. May. 2016)
Keying a sedge from my house using Thorne & Lipkin (2003), p. 25 1→Key I 1→2→3→ These are immature Eriophorum Welsh (1974), p. 532 1→4→5→

I posted the AKES Newsletter articles to the web with links to the articles, a BibTeX database, etc.

I reviewed the station safety plans.

I worked on formatting and posting 2016 Refuge Notebook articles.

(9. May. 2016) I worked on submitting a scope of work to Tetra Tech for 2016 arthropod metagenomic NGS work.

I did some lab cleaning, but I had to leave early to be home with Kim, who was sick.

(10. May. 2016) I did some lab cleaning

I worked on the Genome manuscript submitted by Sikes et al.

(11. May. 2016) I packaged a shipment of LifeScanner specimens to go out today.

Keying Anostraca specimens (2016MLBC10) using ~~Beet~~ Belk (1975), p. 93 1→2→4→6→ 12→(9)→16→17→18-20→22→23→24→ E. intricatus?

12 May. 2016 I worked on cleaning up in the lab.

I spent most of the morning working on an arthropod grassland NGS arthropod manuscript.

Keying KNWR Entz: 10864 using Merritt and Cummins (1996), p. 147 1→2→3→7→9→13→14→ Baetidae 23→24→28→29→31→32→33→ 34→35→36→37→ Baetis? or Barbaetis.)

13. May. 2016 I worked on my 2015 grassland NGS manuscript.

Jen and I worked on lab clean-up.

I checked the terrarium in which I had been keeping three female and one male Pollenia with soil, grass sod, and Dendrobaena worms for some time now. All of the worms I saw looked healthy. None appeared to have been parasitized or otherwise harmed.

16. May. 2016 I worked on updating my bloodborne pathogens training presentation that I will be giving later today.

I worked on my grassland NGS manuscript.

I gave my talk in the afternoon.

17. May. 2016 I worked on mapping Slick Creek watershed, but I could not get very far because ArcMap is not working properly for me today.

I worked on a more thorough version of the NGS grassland analysis. First I removed pairs of reads where either read was < 250bp. I uploaded the new fastq files to Galaxy (108-127)

↓

FEAR (~~108~~ 128-137)

↓

FASTQ Groomer (138-147)

↓

Filter by quality (148-157) 20, 90

18. May. 2016 I qualified at the range this morning.

Galaxy (148 - 157)

↓

FASTQ to FASTA (158 - 167)

↓

VSearch chimera detection (168 - 187)

↓

VSearch dereplication (188 - 197)

↓

VSearch clustering CD-HIT, 0.97 (198 - 207)

↓

VSearch search Kint, 0.90 (208 - 217)

↓

VSearch clustering CD-HIT, 0.96 (218 - 227)

↓

VSearch search (228 - 237) BLAST int, 0.90

(238 - 247) non-method

Inheritance check

Galaxy 228 ← KNUR:Euto: 10838 (Galaxy 108, 109).

Galaxy 237 ← KNUR:Euto: 10847 (Galaxy 116, 127)

Good.

I worked on this NGS manuscript data for much of the day.

I worked on updating my library based on ~~today's~~ today's analyses.

19. May. 2016 I took the light duty pack test at Skyview this morning.

My smart card expired this morning so I cannot log on to my computer. Debbie is working on this.

I attended the fire refresher.

I worked on going through Dominique's papers, getting rid of some things and retaining papers of potential value.

20. May. 2016 I spent the day on the Kenai River float trip as a rower.

23. May. 2016

We had a BIO staff meeting this morning.

I worked on mapping for this years Slikok watershed work. I worked on designing a sample frame.

24. May. 2016

I finished generating proposed sample frames for the Kenai NWR portion of the Slikok watershed.

Rebekah and I prepared equipment for Elodea sampling tomorrow.

I trained Rebekah on Arctos, getting her started on data entry.

I picked up on the grassland NGS analysis.

(248) AK reference library 2016-05-24-1546

(218-227) → VSearch search int, 0.90
(249-258) - BLAST
(259-268) - non matching

25. May. 2016

I attended the classroom portion of the RT-212 chainsaw refresher this morning.

I spent the afternoon in the field on the practical portion of RT-212, felling, limbing, and bucking trees on the fuel break off of three Johns Road, working with Tyler Johnson.

26. May. 2016 I worked on the grassland NGS manuscript.

27. May. 2016 I spent a long day in the field with Rebekah Brassfield and Joel Stone sampling vegetation and obtaining fluridone samples from Beck and Daniels Lakes.

31. May. 2016 I packaged the fluridone water samples and drove them to FedEx Kenai.

I made a map for the grassland NGS paper.

I entered data on elodea veg survey work from last week and put away related equipment.

1. June-2016 I worked on moving have good waypoints to Jen's GPS for her.

I started another iteration of proposed sample sites for the Slikok project. We finally settled on a sampling design later in the afternoon.

2. June. 2016 I worked on my NGS manuscript.

I went on a walk with Rebekah to Headquarters Lake teaching her some of the more common plants ahead of veg work she will be doing next week.

3. June. 2016

I generated kml data of the Slikok watershed sample frames for the purpose of discussion this morning.

I spent most of the morning on Slikok project products.

4. June. 2016 I attended the visit with a Russian delegation at 08:30. The delegates mostly asked about visitor use, the visitor center, etc.

To do
- ~~contracts~~ follow-up
- NGS manuscript
- maps for Jen and Joel

Todd brought me some aquatic snails he had collected at Doroshin Bay cabin on 3. June. 2016. There were three snails. One I removed from its shell and placed in LifeScanner vial BOLD-SR4; its shell and the other two snails I retained as specimens (KNWR: Ento: 10865).

I started a Biodiversity Data Journal manuscript for the Slikok watershed project.

I worked a little on the grassland NGS manuscript.

7. June. 2016 I helped Jen and Joel get ready to go mark points on the Slikok grid.

I took the Russian delegation on a walk around the Centennial Loop, which I had not planned on.

I hiked out on the Centennial Trail in the middle of the day marking six points on the Slikok grid.

8. June. 2016

To do
- time sheet
- NGS manuscript
- aviation training
- SDS update
- mark Slikok grid sites
- FMH photos for Ed

I worked some on the Slikok site data and manuscript.

I marked five more points from the Slikok grid.

I did work a little on the grassland NGS manuscript.

9. June. 2016

To do
- MSDS book revision
- lab cleaning and safety checks
- 2 more Slikok grid points

I worked on updating the SDS files for the lab.

I walked out and marked the last two sites on the Slikok minigrid

I worked on grassland NGS data, adding sequences to the supplementary material and starting a phylogenetic analysis.

10. June. 2016 I spent much of the day on the grassland NGS manuscript.

13. June. 2016

To do
- fill vials
- vial labels
- marked lines
- SDS

We met in the library to plan for grid sampling this week. I will be working with Dawn tomorrow; Rebekah will be working with Dawn.

Dawn, Todd, John, Joel and I spent most of the day preparing equipment for field work tomorrow.

14. June. 2016 I spent the day in the field w Dawn on bird survey north of Headquarters Lake.

15. June. 2016 I spent the day on bird survey with Todd south of Nordic Lake.

16. June. 2016 I spent the day south of Nordic Lake on bird survey with Dawn.

17. June. 2016 Todd and I hiked out to sample sites MG41 and SK25 for birds and arthropods.

20. June. 2016

~~To do~~

- ~~Scan~~ data sheets
- ~~data~~ entry for arthropod samples
- AV safety training
- SDS
- Spiranthes and Lupinus gnd samples
- NGS manuscript
- analysis for Wade
- capture Slikk methods in manuscript

I worked on bulk loading arthropod samples from last week's work into Arctos. Meanwhile, I started Rebekah on processing of these same samples. I did finish bulk loading all of the arthropod sample data into Arctos.
-> Arctos records 10816-10945

I worked on capturing the Slikk methods code.

Back on Galaxy, trying grassland sample data with cluster identity set to 0.94.

(188-197)

↓

VSearch clustering (278-287) @0.94, CD-HIT

↓

(248) → VSearch search int, 0.9 (288-297) BLAST

21. June. 2016

To do

- meet w John regarding veg protocol
- AV safety
- SDS
- Slikk and NS

These still included identification of Alticus grasing.

(188-197)

↓

VSearch clustering CD-HIT, @0.92 (298-307)

↓

(248) AK library → VSearch search int, @9 (308-317)

This still returns Alticus grasing and Crasspedolagria subpunctata suspicious ~~the~~ entities. BOLD:AAP4550, two

(188-197)

↓

VSearch clustering CD-HIT, 0.9 (318-327)

↓

(248) ↓ VSearch search int, 0.9 (328-337) BLAST (338-347) non-matches

I did some cleaning in the lab to set up a second sample processing work station.

This looked good.

I worked on improving the library a little and obtaining identifications for the non-matching sequences using the bold package for R.

Processing sweep net sample KNWR:Ento:10912 from east half of MG08

identification	quantity
Diptera	
Orthoptera	
Araneae	
Hemiptera	
Collembola	
Hymenoptera	

Now processing sample KNWR:Ento:10906 from site MG05, East half.

identification	quantity
Diptera	
Hymenoptera	
Neuroptera	
Hemiptera	
Araneae	
Thysanoptera	

Now processing sample KNWR:Ento:10908 from site MG06, east half

identification	quantity
Diptera	
Hymenoptera	
Collembola	
Araneae	
Lepidoptera	
Hemiptera	
Thysanoptera	

I reviewed Derek's Alaska DNA barcode library manuscript.

I worked on filing photos from last week and uploading them to Arctos.

27. June. 2016

Processing sample ICNWR.Ento.10922
from plot M616, east half
barcode UAM100185631

Hemiptera	☒ ☐
Diptera	☒ ☒ ☐
Hymenoptera	▪ ▪
Collembola	▪ ▪
Araneae	▪ ▪
Acari	▪ ▪
Coleoptera	▪ ▪
Lepidoptera	▪

Processing sample ICNWR.Ento.10924 from plot M617, east half, barcode: UAM100185632

Diptera	☒ ☒ ☐
Collembola	▪ ▪
Hemiptera	▪ ▪
Acari	▪
Hymenoptera	▪

27. June. 2016

to do
- AV safety
- ~~SDS~~
- Life scanner samples
- ~~lab~~ safety checks
- vehicle mileage
- veg data for Wade

I updated / revised the lab SDS binder, taking a good part of the morning to do so.

Rebekah and I collected some fresh specimens for COI sequencing.

We also took a ~~bird~~ raven and a gray jay to Soldotna Animal Control.

I worked a bit with grassland NGS data.

(28. June. 2016)

- mail out lifescanner samples
- meet with Wade
- mileage

I packaged LifeScanner specimens to go out.

Mariah McInnes, ~~[illegible]~~, and I drove out to the Sterling highway near the landfill to pick up a dead gull which she checked for decomposers and parasites.

also to do

- ~~CPR~~ sign-up in wade track
- Process Calamagrostis study veg data for Wade

I examined COI sequences from LifeScanner specimens that recently became available.

I took a quick walk down Ski Hill Rd.

Keying a Ranunculus I found on Ski Hill Rd. using Welsh (1974), p. 357 1→3→4→~~[illegible]~~5→7→10→12→14→20→21→22→25→26→ R. pacificus? or R. regens?

- also, Eldean 100 point data for Daniels and Beck Lakes

John asked me to take care of some veg data from Beck and Daniels Lakes from last year, so I started assembling these data.

(29. June. 2016)

- AV training
- analysis for Wade
- lifescanner kit info for Kim

I started my AV safety training, but then I headed home sick.

(30. June. 2016) I took the first aid/CPR class.

Processing sweep net sample KNWR:Ento:10942, from east half of plot MG29.

Hymenoptera	⁘
Hemiptera	⊠⊠⊠·
Diptera	⊠
Araneae	⁝
Collembola	⊠⊠
Insecta larva	·

I worked some on grassland NGS data, improving the library.

1. July, 2016

To do
- Lake veg data
- ~~Calculating graphs data for Wade~~
- grassland NGS

I finished up a round of improvements to the AK reference library.
↓
uploaded to Galaxy (348)
↓
(318-327) → VSearch Search | int, 0.9 (349-358)

This returned errors, errors likely in the new AK library file.

I processed the 100-point lake survey from 2015.

5. July, 2016

to do
- data for Wade
- [illegible] for lake sampling
- maps for lake sampling?

I worked on trouble shooting the recent AK DNA barcode library file.
↓
(359) AK library
318 ↓ ↓
VSearch search | int, 0.96 (360)
✗ error reading file

Bio staff meeting at 08:30.

to do
- boat prep
- ✓ maps
- ✓ data sheets

I made maps for elodea sampling this week.

I made data sheets for lake sampling

Uploaded new library file (corrected, hopefully) to galaxy
(361)
↓
(318) → VSearch search | int, 0.9 (362)
This worked!

Repeated this for (319-327).
↓
(363-371).

6. July, 2016 | 06:45 -

to do
- uniform order
- data for Wade
- NGS grassland [illegible]
- Potamogeton ~~[illegible]~~ easy key

I started preparing to head out to do lake sampling with John and Mariah, but we decided not to go today due to heavy rain.

I wrote a quick key to Potamogeton and Stuckenia for my own use.

I spent much of the morning assembling the 2013–2015 Calamagrostis study data.

Processing sweep net sample KNWR:Ento:10895, from east half of lit SK24.
UAM1000185654

Diptera	⊠⊠⊠⊠⊠⊠⊠⊠⊠
Hemiptera	⊠⊠⊠⊠∴
Hymenoptera	!∴
Coleoptera	∴
Araneae	∴
Collembola	!∴
Lepidoptera	!∴
Diptera (continued)	⊠⊠⊠⊠⊠⊠⊠⊠⊠T∴
Acari	

Mariah brought me back a LiDAR scanner vial, BOLD-VEG, from Swanson River Road, grid 23622, today. 60.771027°N, 150.835342°W @ 80m.

~~0700~~ 07:30–18:00

7 July 2016 I prepared for field work today, then worked on grassland NGS data/graphs.

I spent the day in the field with John and Mariah McInnes doing veg survey work on Daniels Lake.

8 July 2016

Keying Stuckenia from Daniels Lake using Welsh (1974), key to Potamogeton p. 143

3 →

fruit 2–8 mm long × 3mm long → s. not filiformis

4–6 whorls in spike

Going to leave this at Stuckenia.

I spent the day on Beck lake with John and Rebekah.

11. July. 2016

To do
- NGS MS
- Lontpete. for tomorrow

I worked on the grassland NGS manuscript.

12. July. 2016

To do

Today I will be going with John and Joel to Stormy Lake.

13. July. 2016

~~Sedge from~~ yesterday
- data for Wade
- propylene glycol

Keying a sedge from Stormy Lake yesterday, site #99
stigmas: 3
Keying with Welsh (1974) p.
488 1 → 2 → 3 → 4 → 5 →
Key V, p. 494 1 → 2 → 3 → 4 →
Key II, p. 490 1 → 2 → Key VI, p. 495 1 →
4 → 8 → 21 → 31 → 32 → 33 → 35 →
Trying Tande & Lichin (2003) p. 25 1b 2b →
3b → 4a → Key 4, p. 29 1b → 2a → 3b → 4b
C. utriculatum
6 → 7 → C. rhynchophysa (= C. utriculatum).

More to do
Life Scanner data entry

I scanned data sheets from the lake surveys.

I did some summary work from the All lands / All lands Calamagrostis dataset for Wade.

14. July. 2016

I worked on data entry of Life Scanner specimens.

I ran to Home Depot to get more propylene glycol.

15. July. 2016

~~To~~ Send off Life Scanner specimens
- Prep for field work next week
- truck credit card receipts
- Δ password
- uniform order
- impediment photo for John
- NGS graphics for John

I packaged Life Scanner specimens to go out today.

I spent much of the day preparing for field work next week.

18. July. 2016
- start veg sampling
- request snail reference

08:00 - 13:00

Mariah McInnis and I completed veg plots in Slikok watershed project MG06 and MG14. I left early because kim was sick.

19. July. 2016
- weather
- data sheets
- lichens / bags?

07:30 - 16:30

I surveyed four nearby plots from the Slikok creek project.

20. July. 2016
- timesheet
- write AISC-L regarding Radar

07:00 - 17:15

Today I will be working with Tracy Sivers and Annie Dziergowski on Slikok project vegetation plots.

21. July. 2016
- data sheets

07:15 - 16:30

Joel Stone, Mariah McInnis, and I sampled veg plots southeast of Head quarters Lake.

22. July. 2016
- Nosreel

Joel and I sampled a couple of veg plots this morning. I went out again in the afternoon, getting one plot done before getting rained out.

07:10 - 16:10

15. July. 2016
- uniform order
- truck fuel receipts
- vehicle mileage
- plant identifications from last week

Keying a slender sedge from site MG14 using Tandet Lipkin (2003), p. 25 1b → 2a
Key 2 1b → 2... Carex utriculata

Another sedge from MG14, same key 1b → 2b → 3b → 4b → Key 5 1b → 3a → 4b → 5a → Carex magellanica

Now examining specimens from MG09.

One is Carex paucaflora or Carex microglochin. It seems to have a projecting rachilla.

Also, Carex magellanica

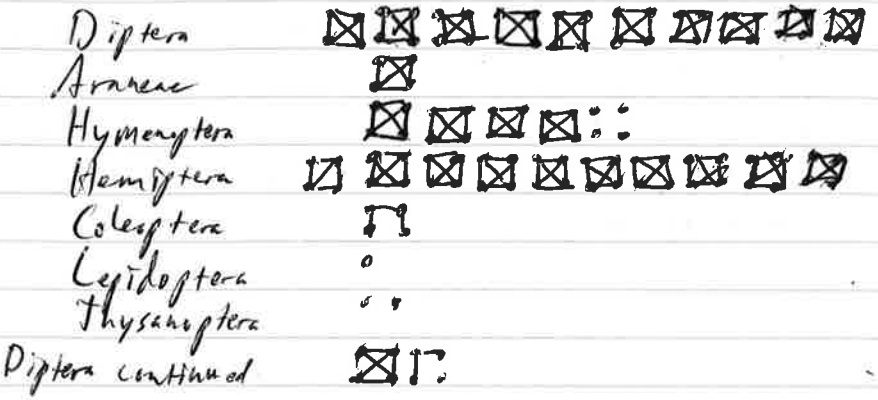
another Carex, same keys 1b → 2a → Key 2 ~~1b → 2b~~ → 1b → 2b → 3b → 4b → 5b → Carex canescens

Perigynia not bidentate, leaves 2.5mm wide

Keying a *Stellaria* from MG21 using Welsh (1974), p. 94 1→ 2→ 3→ 4→ 5→ 6→ calycanthn? yes. Leaf margins tuberculate-serrulate, ciliate.

I worked on the grassland metabarcoding manuscript.

Processing sweep net sample KNWR:Ento:10871 from west half of plot MG34.



26 July 2016 07:30 –

– vehicle mileage I did a little checklisting.

Processing sweep net sample KNWR:Ento:10878 label: UAMLOO185669, from plot MG35, west half, 15. June. 2016.

In the afternoon Mariah McInnis and I sampled 5 litkale project plot MG35, but then we were rained out.

28. July. 2016

- time
- fuel receipt
- Refuge Notebooks
- Bio News
- checklist
- call Marcus
- call Bryan Box

I did a bit of checklisting work.

I spent most of the day in the field with Bryan Box. We drove out to ~~Mystery Creek~~ Swanson River Road to look at spruce bark beetle damage and birch dieback. We saw quite a bit of white spruce being attacked by beetles north of the 1969 burn.

29. July. 2016

I spent the day in the field with Mariah doing veg survey work.

1. Aug. 2016

Mariah McInnis and I sampled three of the Slikok project plots today.

Keying a sedge collected today from M618 using Tande and Lipkin (2003), 25 1a → Key 1
1b → 2b → 3b → 4b → 6b → 7b → 8a → 9a
C. gynocrates

0800 - 09:30

2. August. 2016

- plants from yesterday
- graph for John
- uniforms

I produced a graph for John, then decided to head home to be with kin.

07:00 - 17:00

3. August. 2016

- time

Mariah and I surveyed six of the Slikok project sites.

4. August. 2016

- plant IDs
- uniforms
- retrieve canoe
- grassland NGS MS
- Gyland to Arctos

07:30 -

I worked on formatting grassland NGS observation data to Arctos.

I retrieved the canoe from the other side of Headquarters Lake and put away the paddling gear in the canoe shed.

I submitted the grassland NGS manuscript for pre-submission technical review.

(5. August. 2016)

- ☑ data sheets
- ☑ mustard powder
- plant IDs
- Refuge notebooks
- uniform
- scan Rebecca's notebook

I did some necessary lab clean-up, etc.

A grass from site MG30 is Calamagrostis canadensis.

Eriophorum from MG12
E. angustifolium

A grass from MG31, 29. July. 2016
It is a Poa. Using Skinner et al (2012), p. 14.
1 → 2 → 6 → 7 → Found one of another ml. 7mm long, may or may not belong to this grass. Yes, found another another 1.5mm long. 8 → 9 → 10 → 11 → 12 → 13 → Poa pratensis.

A Stellaria from SK24, 29. July. 2016
Keying using Welsh (1974), p. 94 1 → 2 → 3 → 4 → 5 → 6 → Stellaria calycantha

A Galium from SK24 is G. triflorum.

A Carex from SK24. Keying using Tande & Lipkin (2003), p. 25 1b → 2 → 3b → 4 in Key 4, p. 29 12 → 2b → aquatilis

Examining an orchid from MG37, 3. August. 2016
Platanthera dilatata.

A Carex from MG37 is Carex tenuiflora.

Another Carex from MG37 is Carex aquatilis.

Looking at a Carex from SK16, 3. August. 2016
Keying using Tande & Lipkin (2003), key 5, p. 29 1b → 3b → 6b → 7a limosa

A Juncus from SK16 is, Juncus torreyi

4th Eriophorum from SK16 with an anther ml. 2mm long. E. scheuchzeri

I produced an updated version of the (Cena) NWR checklist.

8. August. 2016

- uniform
- Refuge Notebooks
- Bio News
- process samples
- checklist updates

I did a little bit of checklisting work.

Processing sweep net sample KNWR: Entc: 10897 from east half of plot SK03, 14. June. 2016

Diptera	⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠
Lepidoptera	∴
Hemiptera	⊠⊠⊠⊠∴
Hymenoptera	⊠□
Collembola	∴
Gastropoda	∴
Araneae	⊠□
Acari (Oribatida)	∴
Psocoptera	∴
Coleoptera	∴
Thysanoptera	∴

9. August. 2016

McInnes surveying

07:30 – 17:30

I worked with Mariah Slikok project sites.

10. August. 2016

- order uniforms
- finish plot work

I took care of the last two remaining veg plots.

11. August. 2016

- uniforms
- NS grassland

I worked on the grassland NGS manuscript.

12. August. 2016

- move truck
- time
- sweep samples
- lake / fish sampling planning
- LifeScanner order
- veg data entry
- gall midges
- Impatiens specimen

I extracted gall midge larvae from Salix richardsonii rose galls that Ethan and I had collected at our campsite on Palmer Creek on 12. August. 2016. (BOLD-EH7).

The Impatiens we collected at Tim's Landing on Thursday appears to be Impatiens noli-tangere.

I did some cleaning in the lab.

(16. August. 2016)

- ~~Lifescanner samples~~
- Refuge Notebook
- ~~Talk with Rebecca~~

I prepared a shipment of LifeScanner samples to go out today.

Processing sweep net sample KNWR:Ento:10900, from plot SK04, west half, 14. June. 2016. barcode: UAM100185673

Culicidae	⊠⊠
Ichneumonoidea	▪
Hemiptera	⊡
Empididae	▪
Hymenoptera	⊡
Simuliidae	
Aphididae	⊠ ⊓
Pipunculidae	
Symphyta larva	⊠ ⊓
Araneae	⊠
Diptera	⊠
Cicadellidae	
Chironomidae	▪
Entomobryidae	▪
Psocoptera	▪
Gastropoda	▪

Processing sweep net sample ~~SK07~~, KNWR: Ento: 10884, from east half of plot SK17, 15. June. 2016, barcode UAM100185674

Culicidae	⊠⊠
Muscoidea	▪
Aphididae	▪
Empididae	▪
Lepidoptera larva	▪

This was a poor sweep net sample, confirming that this collector did not sweep thoroughly.

Processing sample KNWR:Ento:10944, from plot SK25, east half, 17 June, 2016, barcode UAM 100185675

Culicidae
Diptera
Symphyta larva
Lambaria sherelli
Araneae
Ichneumonoidea
Canthartidae
Cicadellidae
Psyllidae
Simulidae
Hemiptera
Aphididae
Araneae
Pipunculidae
Collembola
Delphacidae
Bibionidae
Gastropoda
Sminthuridae
Cinyphidae
Thysanoptera

Processing sample KNWR:Ento:10886 from west half of plot SK15, 17 June, 2016. barcode: UAM 100185676

Diptera
Hemiptera
Araneae
Culicidae
Sminthuridae

That was dismal. What happened?

Processing sample KNWR:Ento: 10445 from plot SK25, west half of plot, 17 June 2016.
Barcode: UAM100185677

Hymenoptera
Hemiptera
Diptera
Culicidae
Cantharidae
Tchnemonoidea
Aphididae
Cicadellidae
Araneae
Mycetophilidae
Bibionidae
Psyllidae
Symphyta larva
~~Mecoptera~~?!!

→ stopped to photograph this and pull it from the sample.

Psocoptera
Coleoptera
Smithuridae
Oribatida
Lepidoptera larva
Lepidoptera
Acari (long, lanky)

17 August 2016

- Refuge Notebooks
- equipment orders (light, tape)
- ✓ time
- ✓ wash truck

I washed the truck at Noble car wash this morning.

Tracy, Todd, and I sealed 5 sea otters.

Processing sweep net sample SK03, w half, 14 June 2016 (KNWR: Ento: 10898), label UAM100185678

Psocoptera
Araneae
Empididae
Culicidae
Symphyta larva
Hemiptera
Oribatida
Aphididae
Cicadellidae
Entomobryidae
Delphacidae
Sciomyzidae
Nematocera
Cantharidae

Chironomidae °
Mycetophilidae °
Araneidae °
Opiliones °°
Tetragnatha °
Gastropoda °
Bilioniidae °
Sciaridae °°
Muscoidea °

↑ looks like a Fannia with an amber abdomen.

We now have processed 66 of 80 vials from the first round of sampling 40 terrestrial sites.

I was out sick on the 18th and 19th.

22. August. 2016
- time amendment
- boat
- load equipment with Ed

I prepared the truck and the Magnum for work with Ed tomorrow.

Processing sweep net sample ~~SK08~~ KNWR:Ento:16901, from east half of plot Sk08, 14. June. 2016
label: UAM100185679

Nematocera °°
Culicidae ¡¡
Mycetophilidae °°
Ichneumonoidea °°
Araneae °
Hymenoptera °°
Cicadellidae °°
Thysanoptera °
Aphididae °°
Empididae °°
Tipulidae °
Hemiptera °

Processing sweep net sample KNNR:Euro:10902,
from west half of plot SK08, 14. June. 2016
label: UAM100185680

Culicidae
Hemiptera
Aphididae
Cantharidae
Empididae
Nematocera
Acari
Cicadellidae
Ichneumonoidea
Thysanoptera
Araneae

Ed Berg and I loaded coring gear into the truck.

23. August 2016 | 07:10 – 18:00

Ed Berg, Mariah McInnis, and I did peat coring work at Dilly Varden Lake.

24. August 2016 | 07:30 – 16:30

Ed Berg, Mariah, Ethen, and I finished peat coring at Dilly Varden Lake.

25. August 2016 | I took a first look at some of the PacBio data from the three test samples we had sent.

Call Kelly Sullivan
Put away coring gear
Vehicle Mileage

I put away equipment from yesterday. I saw the black European rabbit behind the Brichut today and photographed it using my phone.

26. August 2016 | I made some posts in Biology News.

Vehicle mileage

10:45 —

31. August. 2016

- time
- Sitka MS

Todd brought in a dandelion he had collected at Skilak Lake on Monday. It is Taraxacum ceratophorum! I pressed the inflorescence and some leaves; the root I will try to transplant.

- Refuge Notebook

I posted two Refuge Notebook articles from May.

I worked a bit on the Refuge's checklist.

1. Sept. 2016

- KRFA mentorship no
- Sitka article
- Kaleidoscope class

I worked on the Sitka ant manuscript on exotic collections.

2. Sept. 2016 07:00 — 3:30

I spent the day on Skilak Lake with Ally Curtis and Todd.

6. Sept. 2016

- observations from Friday
- equipment order
  - light
  - battery
- NGS samples 2016
- NGS MS 2015
- Refuge Notebook
- Sitka MS
- FS proposal
- password
- write Dominique
- pintail lice
- vehicle credit card statement
- Equisetum from Friday

An Equisetum I collected on Friday is E. variegatum. It has flattened ridges on the stem.

I uploaded photos from Friday and started to identify some of the exotics.

I sealed three sea otters.

7. Sept. 2016 I worked on checklisting some, adding the exotic plant species that Todd and I saw on Friday.

Sorting sweep net sample KNHR:Ento:10885,
from east half of plot SK15, 17 June 2016
Label: UAM 100185681

Chironomidae
Symphyta larva
Hemiptera
Araneae
Diptera
Hybotidae
Culicidae
Lepidoptera larva
Insecta larva (Coleoptera?)
Nematocera
Diptera
Insecta (mangled)
Aphididae
~~Diptera~~ Diptera pupa (Syrphidae?)
Delphacidae
Lepidoptera
Saldidae

Sorting sweep net sample KNHR:Ento:10892,
from plot SK22, west half, 15 June 2016
Label: UAM100185682

Aphididae
Saldidae
Culicidae
Araneae
Psyllidae
Coleoptera
Ichneumonoidea
Hymenoptera
Acari
Hemiptera

Sorting sweep net sample KNWR:Ento:10891, from East half of plot 2522, 15. June. 2016.

Ichneumonoidea
Hemiptera
Araneae
Symphyta
Hymenoptera
Collembola
Psyllidae

Examining live with label data

Castle River, south Leach ponds. 60.382719°N 151.31869°W. 4. Sept. 2016. from northern pintail.

Keying using BTJ, p. 277 1→2→3→4→5→ Meneponidae, p. 280.

8. Sept. 2016

- order microscope
- ~~collect mushrooms~~
- ~~Kaleidoscope talk~~
- Sites p15
- inventory Coleoscanner work

I worked on extracting occurrence record, from Eschscholtz (1822) for a manuscript that Derek and others.

In the afternoon I taught four second and first grade classes at the Kenai Kaleidoscope school

(9. Sept. 2016)

- ✓Eloden data entry
- inventory vials
- Slik.k veg data entry
- ship out bryophytes and lichens from Slik.k project.
- correct LifeScanner data

I entered data for 50-point eloden sampling from September 2015 and May 2016.

I began inventorying the LifeScanner vials from the recent shipment.

(12. Sept. 2016)

- Slik.k veg data entry
- Slik.k lichen samples
- ✓correct LifeScanner data
- Refuge Notebooks
- correspond with Dominique.
- ✓spiders for Michelle
- NGS MS
- Sikes MS

I filled out a spreadsheet of LifeScanner specimen data that needed to be corrected.

I pulled spiders for Michelle.

I entered data for the Slik.k project lichen and bryophyte samples into Arctos.

I labeled and barcode-labeled all of the Slik.k project lichen and bryophyte samples.

(13. Sept. 2016) I packaged a set of LifeScanner specimens to go out this morning.

- ✓prepare for boating tomorrow
- ✓LifeScanner specimens shipped
- ✓lichen specimens shipped

I packaged lichen samples to go out to Trevor Goward tomorrow.

I spent much of the afternoon getting ready the boat, equipment, maps, and vials, etc.

(14. Sept. 2016) John, Mariah, and I sampled vegetation and fluridone on Beck Lake and fluridone on Daniels Lake. We found Rubus arcticus on Beck Lake.

(15. Sept. 2016) I spent the day on Stormy and Daniels Lakes with John and Mariah carrying plants and fluridone.

19. Sept. 2016

Fluridone samples shipped
- mail e-mail
- earthworm e-mail

I packaged fluridone water samples and drove these to FedEx Kenai to have them shipped out.

Processing sweep net sample KNWR: Ento: 10888, from west half of plot SK16, 16. June. 2016
Label: UAM100185684

Chironomidae	9
Pipunculidae	1
Agromyzidae	2
Tipulidae	1
Nematocera	2
Mycetophilidae	2

That was dismal.

Processing sweep net sample KNWR: Ento: 10890, from west half of plot SK17 on 15. June. 2016
Barcode: 100185685

Hemiptera	1
Culicidae	11
Delphacidae	1
Sciomyzidae	1

Another meager sample.

Processing sweep net sample KNWR: Ento: 10893, from east half of plot SK23, 15 June 2016
barcode: 100185686

Hymenoptera
Culicidae
Echinemmonoidea
Neuroptera
Entomobryidae
Aphididae
Symphyta larva
Hybotidae
Cantharidae
Mycetophilidae
Nematocera
Hemiptera
Bibionidae
Empididae
Diptera
Araneae
Thysanoptera
Sminthuridae

(20 Sept. 2016)

- FS proposal
- grassland MS
- Slikek samples
- earthworm specimens
- scan.
- LifeScanner vials
- fluridone sediment samples

I finished inventorying LifeScanner vials and loading these data into Arctos.

I drove out to a fish shipper to pick up shipping boxes for shipping fluridone samples.

Examining a worm loaned from UAM with barcode label UAM100139535. No label data.

Keying using Reynolds (1977), p. 32 1→2→6→

clitellum on 22–27

7→8→11→ Eisoniella tetraedra? yes.

Examining earthworms collected by Talk from Kenai golf course on 12. Sept. 2016. They look like Dendrobaena octaedra.
clitellum on 26.-31.
No, this is Dendrodrilus rubidus

21. Sept. 2016

- Worm box returned to Derek
- Fluridone sediment samples shipped
- fluridone graph
- STDP proposal
- Grassland NGS MS

I drove to FedEx Kenai this morning to ship out fluridone sediment samples. I entered FasTEST fluridone concentration data and graphed this for John.

I inventoried fluridone buckets and went on a short walk in the afternoon

Processing sweep net sample KNWR:Ents:16896, from W half of plot SK24, 15. June. 2016
barcode: UAM1100185688.

Megaloptera
Syrphidae
Aphididae
Diptera
Echneumonoidea
Sminthuridae
Chironomidae
Hemiptera
Cicadellidae
Lepidoptera
Lauxania shewelli
Araneae
Culicidae
Tetragnatha
Pipunculidae
Ceratopogonidae
Nematocera
Delphacidae
Dolichopodidae
Symphyta
Psyllidae
Acari
Coccinellidae
Thysanoptera

(22 Sept. 2016)
- letter to Dominique
- STDP proposal
- Grassland NGS MS

I worked on the STDP proposal.

Anthony helped me load 3400 lbs. of fluridone into a flatbed trailer (Soren in the cab of the truck) to go to Palmer tomorrow.

(23. Sept. 2016) I drove 3,400 lbs of Sonar (fluridone) to the Alaska Plant Materials Center in Palmer.

(24. Sept. 2016) I worked with Mike Hill, Scott Johnson, Scott Slavik, and Krista Kennedy on the Sterling fuels reduction project.

(26. Sept. 2016)
- STDP proposal
- Salix hookeriana ovule samples
- Palmer observations
- photos to Matt Goff of S. sitchensis galls
- correspondence to Dominique
- alcentroc.org poll

I worked on the STDP proposal, getting a pretty complete draft sent off to the cooperators.

Marinh extracted two gall midges from rose galls I had collected from Salix hookeriana on Friday.

We drove to Watson Lake in the afternoon, where we collected rose galls from Salix barbiana.

(27. Sept. 2016)
- final observations
- extract gall midges
- STDP proposal
- Grassland MS
- vehicle credit card
- pay stubs
- cardboard boxes
- time
- embryos?

I worked on dissecting willow galls, extracting gall midges, and submitting data to BOLD.

I worked on preparing some correspondence to send to Dominique, an update on the ovule work.

(28. Sept. 2016)
- time
- vehicle credit card
- grassland MS
- alcentroc doodle poll
- emails to Matt

I took care of administration.

At home I worked on cecidomyiid sequence data.

29. Sept. 2016

- diversity training
- VS map
- email Liz
- email Tracy

I spent much of the day on EEO and diversity training.

BOLD-HI2 ← both photos wrong
BOLD-3A4 ← all photos wrong.

Processing sweep net sample KNWR:Ento:10899, from Slikok project site SK04, east half, 14 June 2016 (

Nematocera	☒
Culicidae	☒☒☒☒
Aphididae	☒
Araneae	☐
Neuropteral larva	• •
Araneidae	•
Mycetophilidae	• • •
Hemiptera	• •
Diptera	•
Cantharidae	•
Psocoptera	•
Symphyta larva	• •

3. Oct. 2016

- mail LifeScanner samples
- Mail vials to Dominique
- Grassland MS
- Slikok samples
- Aerial gulo

I did some work on the web site requested by John and Leah.

I worked on very dem for the grassland manuscript and I worked on the manuscript text.

4. Oct. 2016

- ~~mail LifeScanner vials~~
- ~~Accomplishments~~
- vials to Dominique

I wrote out my 2016 accomplishments at John's request.

Processing sweep net sample KNWR:Ento:10894, from west half of plot SK23, 15. June 2016.
label: UAM10018569

Symphyta larva
Culicidae
Nematocera
Aphididae
Mycetophilidae
Hemiptera
Diptera
Empididae
Elateridae
Simuliidae
Hybotidae
Araneae
Ichneumonoidea
Entomobryidae

Processing sweep net sample KNWR:Ento:10887, from east half of plot SK16, 16 June 2016
label: UAM10018569

Pigmaeidae
Aphididae
Araneae
Nematocera
Lepidoptera larva
Lepidoptera
Culicidae

5. Oct. 2016

- kit to Dominique
- Slik-1 samples
- Grassland MS
- write landowner
  Heather
- write Carl

I packed a LifeScanner kit to go out to Dominique.

Processing sweep net sample from Slikok project site
SK03, east half, 19. July. 2014
label: UAM100185692

Culicidae
Diapriidae
Mycetophilidae
~~Culicidae~~
Araneae
Diptera
Ichneumonoidea
Aphidiidae
Chironomidae
Hybotidae
Nematocera
Acari
Hemerobiidae
Hymenoptera
Ichneumonid parasitoid of a spider
Psocoptera
Gastropoda (snail)

I worked on data entry of the second round of arthropod specimens collected with vegetation sampling on the Slikok grid. Printed off labels for these