

Friday, [May 18, 2012]

This afternoon I am deploying pitfall/gan traps to study Smintanus phenology at Headquarters Lake south of the floatplane dock. I am using cottage cheese containers as gan/pitfall traps, stocking them with RV antifreeze. The first was at

$60.46178^{\circ}\text{N } 151.07556^{\circ}\text{W} \pm 5\text{m}$, elev. 60m. The second

is at $60.46146^{\circ}\text{N } 151.07599^{\circ}\text{W} \pm 4\text{m}$, elev. 52m.

The third is at $60.46136^{\circ}\text{N } 151.07610^{\circ}\text{W} \pm 5\text{m}$,

elev. 50m. I did a good bit of sweeping with a sweep net in this vicinity, but I found no Collembola (lots of spiders and flies, though).

Monday May 21, 2012

Tim Mullet and I left Headquarters at about 04:40, drove down the Oil Well Road out of Ninilchik, and parked at the gravel pit parking lot at about 06:00.

We walked NE on the Lobo Trail and at 07:30 are about 0.69 miles from Mile 12.5 Trail

At 09:35 we were at the first of the two traffic counters on mile 12.5 trail. Tim could not find the counter using the metal detector. We did find one metal object, which turned out to be an old aluminum can in the frozen soil.

At 10:18 we were at 4 corners. We have had to take many stops because it is hard going. We are using snowshoes over snow and mud.

At 11:45 we were at the refuge boundary. The traffic counter was sitting on top of the snow.

At 5:37 we were back at the first traffic counter for another attempt at retrieving it.

We retrieved the truck just after 21:00. We were very tired.

Thursday, May 24, 2012

I serviced the traps I had set out by Headquarters Lake on Friday

60.46177° N 151.07556° W → HQ1

60.46196° N 151.07599° W → HQ2

60.46136° N 151.07610° W → HQ3

HQ1 collected 24. May. 2012 → 2012 MCB001

HQ1 deployed 24. May. 2012 → 2012 MCB002

HQ2 collected 24. May. 2012 → 2012 MCB003

HQ2 deployed 24. May. 2012 → 2012 MCB004

HQ3 collected 24. May. 2012 → 2012 MCB005

HQ3 deployed 24. May. 2012 → 2012 MCB006

I also did some pretty thorough sweeping in this area, finding no *Saethurus*.

Thursday, May 31

I am again checking traps down at Headquarters Lake.

I collected sample 2012MLB002 from HQ1 and deployed sample 2012MLB007 here.

From trap HQ2 I collected 2012MLB004 and deployed 2012MLB008.

From trap HQ3 I collected 2012MLB006 and deployed 2012MLB009.

I also swept extensively. Some dark Chironomid midges are extremely abundant now, but I saw no Sminthurus.



Friday, June 1

I am accompanying Dan Bogan, Dustin Kerrigan, and Katelyn down to a pond near Headquarters Lake, where they will be sampling aquatics. We walked down to a pond at 60.46738°N 151.06490°W ±4m, where they began sampling.

I collected a hover fly here (2012MLB010)

Wednesday, June 6

Today I am out at Swanson River oilfield with Dan, Dustin, and Callyn. We are first heading out to their site 111-19 not too far from the Discovery Well. This is at

60.78765°N 150.82561°W ±3m. Here I had an

Ellychnia alight on my net. I collected it live. → (2012MLB011).

It is now 10:34. A quick sweep in the muskeg did yield Sminthurus. There is already some damage on leaves of Rubus chamaemorus possibly attributable to Sminthurus. I collected a large ♂ Pibionid, which was live and struggling in an orb web. → (2012MLB012).

We next headed to 111-9, near Gros Lake.
It took us - while to get here due to
a gate, the combination to which we did
not know, and to a damned black spruce
of over the road, which we had to cut
using a cheap hatchet.

At 60.77821°N 150.69017°W 14m, ext 4m
by pond 11-9 there is a high density of
Smittium as sampled by sweep net.
I was able to observe three of these on
Betula nana, New Now appeared to be
feeding or I watched. Two of them
crossed onto *Ledum palustre* and did not
feed on this potential host. I took a
wings was here that had been produced
on *Betula nana*. → [2012MLB013]

I collected *Lepidoptera* larva live for
Vaccinium uliginosum → [2012MLB014]

Next is KNA01. At the parking spot
here at 60.73777°N 150.87285°W ± 4m, ext 2m
I collected some *Compositae* for Feb.
At 60.73792°N 150.87275°W ± 5m, ext 1m, I collected
a live *Lepidoptera* larva on *Betula nana*. It
had enclosed itself between two leaves using
silk. → [2012MLB015]

Our next site is KNA003. It is now 14:19.
There were less *Smittium* here (60.72591°N
150.85911°W ± 5m, ext 10m) than at the previous
site, but also less *Betula nana*. There were
lots of *Smittium* on *Betula nana* at the
last site. I collected another live
Elychnis here → [2012MLB016].

It is now 15:01. Next is KNA02, where we be
after *Sphagnophylax*. Here I did some
sweeping for adult *Tachypora*. Two I gave to
Dan and two I kept → [2012MLB017]
I also saw a nest *Dolomedes* here on the top
of the water. It dove down - I took it by
hand → [2012MLB018]

There is an infestation of *Alepecuria* here
that spreads from the pond to a gravel pit to the
east.

8. June 2012

This afternoon I am servicing the traps
down at Headquarters Lake.

From HQ1 I collected [2012 MCB007] and
deployed [2012 MCB017].

From HQ3 I collected [2012 MCB009] and deployed
[2012 MCB020].

At HQ2 I collected [2012 MCB008] and deployed
[2012 MCB021].

18. June 2012

I walked down to Headquarters Lake
today specifically to photograph Smittsheene.
I could not find any, but I did find and
photograph clusters of small eggs on the
underside of leaves of Petaluma nana.

[2012 MCB022]

I photographed and collected aphids on a petiole
of Rubus lamacmorus → [2012 MCB023]



(19. June 2012)

Down at Headquarters Lake, I observed and photographed Sarruthium on Petula nana, Ledum palustre, and Empetrum nigrum, but they merely wandered about, apparently failing to find whatever it is that they were after. I collected some sawfly larvae feeding on Rubus chamaemorus.

(1. July 2012)

Today I took a walk down to Headquarters Lake, looking for Sarruthium. The mosquitoes were horrible. I found lots of cottony Hemiptera on stems of Petula nana. There were also galls on the leaves, which contained orange larvae that look like Cecidomyiidae.

(9. July 2012)

John, Bella, Mercedes, and I were hiking up Skyline today, leaving the parking lot a little after 09:00. We are here to look at sub-alpine defoliation and die-off. Near the base of the trail we picked up some caterpillars on Sambucus. It was on other shrubs as well. We stopped at the break spot at about 10:00.

There was plenty of defoliation on shrubs as we walked up toward the saddle, but most of the damage appeared to be from last year. At the saddle, the Petula nana, vaccinium uliginosum, and Empetrum nigrum were dead, but the Empetrum had not been defoliated.

[27 July 2012]

This afternoon I went on a walk on the ski trail at $60^{\circ}48'34.8''N$ $151^{\circ}07'55''W$ 7m, el. 61m, extent 2m. I saw several large Cicadellids feeding on Sambucus racemosa. I collected these. [2012 HCB24]

I also took a neat looking wingless wasp on a Sambucus here. [2012 HCB25]

I also swept mostly Gynocarpium and Viburnum at $60^{\circ}46'25''N$ $151^{\circ}07'27''W$: 8m, ext. 10m, el. 66m, yielding an Ichneumonid, some land snails, etc. → [2012 HCB26]

[10 August 2012]

I took a short walk on the Heen Eye trail looking at Lygocoris and aphids on Streptopus. I photographed some Lygocoris.

Streptopus plants within 2m of center line of the trail, starting from EE cabin.

!:

(passed lake overlook)

(passed intersection of Centennial Trail)

!!

(passed west intersection with Centennial Trail)

13. August 2012

Today I am out collecting with Wayne and Diane Mathis and Janine Ray. We are after *Penocera* off of Swanson River Road.

We first headed to frog site K1112.

This was at 60.71405°N $150.81537^{\circ}\text{W}$ $\pm 11\text{m}$, ext $\sim 10\text{m}$. We swept vegetation here for *Diptera*. (2012M1327)

We next stopped at Rainbow Lake boat launch at 60.71834°N $150.81775^{\circ}\text{W}$ $\pm 4\text{m}$, elev. 52m. (waypoint 17)

We next lunched at Swanson River Landing and then collected there. This is at 60.74436°N $150.79762^{\circ}\text{W}$ $\pm 3\text{m}$, ext. 20m

17. August 2012

Today I am looking at *Lygocoris* on *Streptopus*. Starting at 60.74436°N $151.07105^{\circ}\text{W}$ $\pm 6\text{m}$, I am considering all *Streptopus* within 2m of the center of the ski trail.

- Crossed service path

- Passed fork, heading out on E trail.

# berries	# <i>Lygocoris</i>	# shriveled
0	0	
0	0	
0	0	
0	0	
0	0	
0	0	

- Passed service road.

22	0	21
0	0	
13	0	17

I need to start over. I am missing most of the *Streptopus* plants. The trail is wide enough that I am sampling mostly trail.

New sampling 2m from edge of trail.
 Starting again at service road.

# berries	# <u>Lycopodium</u>	# shriveled
18	0	11
9	0	0
9	0	6
15	0	6
13	1	9
11	0	9
21	..	20
28	0	22
20	0	18
21	0	20
9	0	9
50	II	50
10	0	10
17	'	12
17	::	11
46	:::	37
16	0	16
48	0	4
8	0	4
2	0	2

# berries	# <u>Lycopodium</u>	# shriveled
0	0	0
0	0	0
2	0	2
0	0	0
0	0	0
2	0	0
30	::	30
10	!:	10
25	..	25
7	0	1
1	0	1

I stopped at 60°46'12.5"N 151°07'52.2"W L2

28. September 2012

I am at Carl and Hilary's new house in Homer by the stream. Under some rotting wet boards and plastic I collected earthworms and slugs.

10. October 2012

I took a walk in the woods on the ski trails today, bringing along an aquatic net. We have received much rain lately so that most wet places are more full than usual. I stopped at a pool and sampled at 60.46175°N $151.08031^{\circ}\text{W} \pm 5\text{m}$, ext 4m. All the arthropods that I found were small beetles (2012MLB28). There were also plenty of earthworms in the water looking like *Dendrobaena*, but I did not collect them. I photographed this collection site (from 1753). The vegetation of this pool was mostly *Calamagrostis* with litter from Birch (mostly).

28. October November 2012

Dominique and I drove to Jim's Landing to collect *Rhodosphega* galls from *Salix viticarpis*. It is a cold, overcast winter day.

France 1772-1774 - Dominique collecting parasitized winter buds of *Salix viticarpis* → 2012MLB29

We next drove to Lower Skelch, where Dominique is collecting galls from *Salix glaberrima*: 2012MLB30

We also collected galls from *Salix herbacea* → 2012MLB31

At 60.47204°N $150.47513^{\circ}\text{W} \pm 4\text{m}$ we found what looked like *Salix herbacea* → 2012MLB32

[13. Feb. 2013]

Today I am flying with Dusty in the Super Cub. We are flying moose surveys in 15C north. We first tried to survey unit 50, but it was covered in low cloud. We are now headed to [82] instead. This, too, was too foggy on part of ~~the north~~ [53]. We started surveying it at 09:22, but then had to stop.

[41] is too foggy as well.

We surveyed [82] and [65]. Now we are checking out [86], but it is too foggy.

[21. Feb. 2013]

Dusty and I are flying moose surveys this morning in 15A around Point Barrow. We surveyed unit 6 and started unit 2, but fog rolled in. Unit 5 was fogged in as well. We are now headed for 24.

[28. May. 2013]

I walked down to Headquarter Lake looking for *Sminthurid* and *Cixiids*. In a patch of mostly *Vaccinium vitis-idaea* and *Sphagnum* (with some *Empetrum nigrum* and *Ledum palustre*) I found a few *Cixiids* nymphs in the first 15cm of moss. They were active animals. One got away. These nymphs do have wing buds. This is at 60.46068°N $151.07660^{\circ}\text{W} \pm 4\text{m}$ elev. 49m. → 2013MLB001. (frames 1588-1596) The *Cixiids* could evade capture by descending or moving laterally through the porous matrix of moss.

[5 June, 2013]

Today I walked down to Headquarter Lake again looking for *Cixiids*. From emergent stems, I carefully followed these stems to their roots, and seemed to find the most *Cixiids* associated with roots of *Vaccinium vitis-idaea* and *Charadriophora*. Today I found what appeared to be 1st instar immatures, the first of these I have noticed. I did find them clustered and I did find exuviae with

2013MLB003

live nymphs on an old, buried V. vitis-idaea leaf.

[6. June 2013]

Today I am at Headquarters Lake attempting to use food coloring to determine the food of Cixius here. I will be abrading leaves of Vaccinium vitis-idaea using the file on my leatherman, then adding a drop of blue or red food coloring to each leaf, hoping that the food coloring will be taken down to the roots via phloem and onto the pale Cixius nymphs. I am using

Safari colors, which are mostly propylene glycol with red #2 and blue #1 for the dyes I will be using.

I am choosing spots in the muskeg having dense patches of V. vitis-idaea.

Site 1 is at 60.46007°N 151.07680°W ± 5m.

Here I will use red dye.

stem	# leaves dyed
------	---------------

1	9
2	5
3	6

Abrading the leaves was more difficult than I expected

on these small, waxy leaves, but it seemed to help.

The next site is 21.5m SE of site 1. Here I am going to try blue dye and try not abrading the leaves.

stem	# leaves dyed
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1	5
2	5
3	3
4	4
5	6
6	6
7	5
8	8

Abrasion seemed to greatly improve the absorption of the dyes, at least on the scale of a few minutes.

Later I did some poking around looking for waxy feeding sites and nymphs. I did learn to start spotting them. I found them on some long, thin roots. Frames 1715-1716 are of a little wax filament void around a thin root (smooth), where two large Cixius nymphs had been.

Carefully pulling apart the mossy duff around these roots (and finding plenty of Cixius wax and some nymphs along the way), I found that these belonged to Picea mariana. Now it seems quite clear about P. mariana

in the host of C. meridionalis here.
Also, Cixius seemed to be restricted to
moist Sphagnum moss. I could not find
them in drier Plurazium moss ~ 5 dm
away.

[7. June. 2013.]

This afternoon I headed back down to
Headquarters Lake to where I had
been yesterday (sites 1 and 2 of
yesterday) and looked for Cixiids and
eggs. The mosquitoes were horrendous
today!

I did find Cixiids, some of which
appeared to be on Picea roots. (2013MLB004)

Later in the day at Farrowood Park I
swept the mown grass around the playground
for Delphacids. (2013MLB005). Aphidid did
some of the sweeping.

[11. June. 2013.]

I did some digging around in the mixed forest,
following from emergent stone / leaves
the root system of Viburnum edule,
Dymocarpium dryopteris, and Picea
glauca. I found no Cixiids, but I did
collect some spruce roots to examine.
This was at 60.4606°N 151.07985°W ± 5m,
extent ~ 3m.

At 60.45972°N 151.07908°W ± 14m, ext 1m

I was looking for Cixius among the roots of
a diminutive black spruce. I did not find
any after a short while, but I did find
numbers of aphids, apparently on Arbutus.
→ [2013MLB006]

[12. June, 2013]

I walked from the Headquarters Lake fen off of the Morse Tract. At 60.46463°N $151.06769^{\circ}\text{W}$ 5 m, ext. 1 m, elev. 48 m, I started at the base of a young white spruce, following a root. This was a white spruce at the edge of a wetland where black spruce was close by. Quickly I found one Cixius, apparently on this root. With it was an ant, which I also collected. (2013M6B007) (frames 1779-1780).

[13. June, 2013]

I am back out at Headquarters Lake wetland at 60.46022°N $151.07172^{\circ}\text{W}$ 1.8 m, ext 2 m, elev. 58 m looking for Cixius nymphs in the musky. I have found lots of waxy secretions on P. marianus roots, but just a few Cixius. I am trying to bring some to the lab here to look for parasitoids. I found three nymphs (2013M6B008). I also picked up a neat ant-like spider at the same locality. (2013M6B009). It had been crawling on me.

[17. June, 2013]

Today I am meeting Ben Shryock and Rob Progar for field work re part of the defoliation project. I arrived at the gravel pit at Silvertip Creek at about 11:00. I checked the cottonwood/aldar/willow site at the given coordinates. I could see no plot markers.

While I was waiting, I looked around in its moss carpet below white spruce looking for Cixiids. At 60.73876°N $149.35632^{\circ}\text{W}$ 3.6 m, ext 2 m I found a moss aphid. (2013M6B009) in Sphagnum and Polystichum moss. (frame 1909). I found a beetle larva having waxy filaments on its head. Third photographs (frames 1910 - 1912).

Rob and Ben arrived just after 13:00. We sampled, clipping 25, 8-leaf branch tips of cottonwood, alder, aspen, and willow.

We now sampled at Trail Lake. We also sampled Seward off of Nash Road and at Broadview.

(20. June 2013)

I am at Headquarters Lake again looking for Cixius. At $60.4610^{\circ}N$ $151.07632^{\circ}W \pm 5m$, elev. 49m, I collected Cixius nymphs in the moss near black spruce. I collected three live (2013MLB010). I did some sweeping in the vicinity looking for adult Cixius, but I found none. I did take a couple of adult Elaterid from this sweep (2013MLB011).

On the way back I collected some wasp-seedling Heamiptera from Betula occidentalis. I also photographed them (years 1957-1959) (2013MLB012). This was at $60.46152^{\circ}N$ $151.07672^{\circ}W \pm 5m$, ext. ext. 2m.

(24. June 2013)

I walked down to Headquarters Lake south of the float plan dock I collected one Cixius on black spruce roots. I did some sweeping, quite a bit of it, but I found up no Elaterid or Cixius.

(25. June 2013)

Vehicle 886 mileage: 26,810.1

I walked down to Headquarters Lake looking for Cixius. I did quite a bit of sweeping on the SW shore of the lake, but found no adults. I did collect some Elaterid (2013MLB015).

At $60.44951^{\circ}N$ $151.07675^{\circ}W \pm 7m$, ext 2m, el. 36m.

I collected several Cixiid nymphs in moss, Sphagnum (2013MLB014).

Yesterday I had collected what I think are Pleurotus on a birch snag. This was at $60.4410^{\circ}N$ $151.07799^{\circ}W \pm 6m$, ext. 1m, el. 62m. I took the coordinates today.

(26. June 2013)

I collected branches from a spruce from which I had collected Cixiid the other day to determine whether it is white or black spruce. (same spruce as 2013MLB007).

I did some sweeping in the vicinity finding no Cixius.

At 60.46525°N 151.06561°W ± 6m; ext. 2m, d. 50m
 I collected a number of *Cixius* nymphs in
 moss and duff. I could not tell for sure what
 kinds of roots they were feeding on, but it
 seems like they might have been on Empetrum
nigrum. Black spruce roots were present,
 though. → 2 (2013MLB015).

27. June 2013

I walked down to Headquarters Lake
 muskeg where I had been sampling
 yesterday. I set out a yellow sticky
 card. Some sweeping yielded no
Cixius. I did some looking over a black
 spruce roots in tree soils on the margin of
 the wetland, but found none.

At 60.46503°N 151.06277°W ± 4m ^{ext 2m} I did some
 excavating of a large Formica neociliatibarb
 ant colony in a hummock complex. I did
 find four *Cixius* here within a few
 centimeters of ant tunnels, but none
 obviously in tunnels of ants. The *Cixius*
 are certainly not averse to be averse

to living within or under the colonies of these
 ants. Two small nymphs evaded me, but
 I collected two larger ones (2013MLB016)

28. June 2013

This afternoon I ~~walked~~ drove out on K-Beach Rd.
 to Lot 11 Lane, where it looked like there had
 been defoliation in 2012 based on MODIS imagery.
 There was not too much defoliation, appears
 today. This was mixed forest: birch, spruce,
 and cottonwood. There is birch defoliation 1-2 km
 north of here on Birch on K-Beach.

After the kids were in bed, I took a walk
 out in the wetland across the street. Some sweeping
 in black spruce muskeg yielded no *Cixius*. I
 did find a *Cixius* in well-branched spruce forest
 in Sphagnum. black
 (2013MLB017). frame 2011

11. July 2013

I took a walk in Headquarters Lake wetland. Some sweeping yielded no *Cixiids*.

12. July 2013

I am back out of Headquarters Lake, this time looking for live 5th instar nymphs of *Cixius* to rear out to adulthood. Some sweeping yielded no adults.

At 60.46029°N $151.07675^{\circ}\text{W} \pm 7\text{m}$, ext 2m. I collected some nymphs from moss and roots, (2013MLB018). One of these I found under some rotten spruce wood among adult and immature *Myrmica* ants.

15. July 2013

I did some sweeping down by Headquarters Lake, finding no adult *Cixiids*. At 60.46002°N $151.07692^{\circ}\text{W} \pm 6\text{m}$, ext 1m sl. 59m. I found *Cixiid* nymphs and one adult *Cixiid* in moss and roots. (2013MLB019). In one spot it appeared as if nymphs had been feeding on roots of *Vaccinium oxycoccos*. Most of the 5th instar nymphs had been $< 3\text{cm}$ or so beneath the surface. I kept some of these

two to attempt to rear them. Some further sweeping did yield \circ *Cixiid* adult (2013MLB020)

17. July 2013

At 60.46025°N $151.07745^{\circ}\text{W} \pm 6\text{m}$, ext. 1m. I collected some ants, *Formica* from a nest made of leaf litter. (2013MLB021) (frames 2090-2081).

By the lake, I separately and repeatedly swept understory plants and black spruce. I found two *Cixiids*, both from understory plants.

10. July 2013

Lilly, Emily Weidner, and I hiked up Skyline today to examine conspicuous defoliation along the slope, forming a solid band visible from the road. At 60.52771°N $150.17906^{\circ}\text{W} \pm 6\text{m}$, extent 250m all the willows, aspen, and a birch show no signs of caterpillar this year. Then to the back, but the willow plants are coming back. (frames 2090-2099) (12967). Here I collected a mummy

in Anglican, where it had been pursuing muscoid
flies. (2013 MCB022). Early took some pictures of it.

Just past the saddle to the south there
was a lot of dead to the ground (frases 2107).
From here (waypoint 19) we were tracking
the upslope margin of a large patch of
defoliation.

I quickly checked a rock outcrop for
Leptotarsus since we were close, but I
found none. I did pick up a slug and
photographed it.

The "dead zone" is mostly alder. There is
also some dead mountain ash here. The
Chamaedaphne has killed in thickly.
Above this band the alders are quite green.

We did find some defoliation of mostly mountain
ash, some alder. The stragglers were gone though.
Up to waypoint 19 we had been following the
upslope edge of heavy defoliation. From here
we will head down, then follow the lower
edge back to the trail.

The downslope side of our mapping
using GPS tracks were not very
good. We ran into fresh bear sign
and back-tracked back up the slope,
then ~~we~~ walked back (down) through
alder and willows) to the Skyline
trail.

(12. July, 2013)

I am down in Headquarters Lake willows
near the Continental Trail at the site I
collected knut. Emp. 5716 he collected notes from this
colony. I did collect some notes here
(2013 MCB023)

At 60.46498°N 151.06441°W on the
I photographed a circle in situ (2013 MCB024)
(frases 2118 - 2178). With it were some
Myrmica ants (2013 MCB025). I collected
a couple more circles here (2013 MCB026). I
followed the roots of the feeding site to
Chamaedaphne caliculata! I kept the
plants including the feeding site (2013 MCB027).
I would have worked here more, but it
was time for me to head back.

A quick survey on the way back yielded three cicadas (2013MLB018).

(15. July, 2013)

I returned to the site where I had collected yesterday (2013MLB024) and found more cicadas in moss and rocks.

any nymphs	□	} 2013MLB029
adults	∴	
laterals	∴	

At 60.46511°N 151.06467°W ± 5m, within 10 photographs and collected a bug feeding on the fruit of *Rubus hammondi* (2013MLB030) (frames 2261 - 2278).

(16. July, 2013)

I drove out to Nikitka today to investigate apparently low productivity this year judging from MODIS imagery.

At Lighthouse road near the Highway there was a lot of leaf roller damage on birch and cottonwood. At 60.71511°N 151.35721°W ± 3m (LWP71) exit 26m I took a few photographs (frames 2280 - 2295). I collected some larvae and pupae of leaf rollers on cottonwood (2013MLB031) to rear. There were also on the cottonwood large cicadellids, which I placed in the same bag. These cicadellids took advantage of the rolled leaves, feeding in there. I also collected a one patch leaf roller, but there were harder to find. Most affected birch foliage was well beyond and most caterpillars have apparently pupated and dropped to the ground. → 2013MLB032

Frames 2284 - 2285 on Forest Rd. 61.71836°N 151.36542°W ± 8m, showing larvae on all 2nd and 3rd year from leaf rollers.

Frames 2288-2292 showing alder defoliation along Wild R. (60.73505°N 151.34435°W ± 7m)

Most caterpillars here have already hatched and pupated but I did collect a few caterpillars (2013MCB033), which may not be the main culprit. Also, frames 2293-2295 here.

18. July, 2013

I met Ben Skayack at Branderwin at 09:00. We sampled the Great Lake, Seward, and Liberty Creek sites. Ben would be sampling at Branderwin after I had left.

As we drove, I observed defoliation in the alder band between Fern Lake and Seward. There was also defoliation on the mountain just east of Cecil Road Mt. I photographed defoliation at Cecil Road.

19. July, 2013

I again walked down to Headquarters Lake today to look at *Cirsium*. First I swept low vegetation (not spruce) around (60.46521°N 151.06494°W ± 4m, ext 50m) yielding one adult *Cirsium* (2013MCB034). A sweep of black spruce yielded another *Cirsium* and a *Pipunculid* (2013MCB035).

At (60.46521°N 151.06554°W ± 7m, ext 1m) I collected *Cirsium* nymphs and an adult from moss and roots. It is extremely hard to tell what they are feeding on generally. I found a few around the vegetation around base of a small (open heather) dead spruce snag. (2013MCB036).

I did find a *Cirsium* nymph just below the surface I felt confident had been on the tip of a particular root. I followed the way finding it to be spruce. ~~At~~

(27. July. 2013)

A quick sweep of low vegetation at Headquarters Lake wetland yielded two *Cixius* (2013MGB037). A sweep of spruce yielded no cixiids. Do look like adults are on low shrubs. I have yet to find an adult in situ.

(24. July. 2013)

I joined Mike and Helen of the cabin crew on Trutman Lake today. I wanted to check what looked like potential defoliation in the *METS* imagery. We first went to the Home Cabin on the NE shore. Here there is not a lot of obvious defoliation. I did collect leaves and catkins from a cottonwood tree (2013MGB035) (frame 24127).

The Big Bay cabin was in the midst of the Fox Creek fire. There is no visible defoliation going on here. At 60.15085°N 150.84976°W ± 5m. ext. 3m I collected lupine pods containing larvae, hoping to rear these next. (2013MGB039)
At least some were *Lepidoptera larvae* and had been feeding on seeds of lupine.

(29. July. 2013)

In the evening I took a walk down Eryhl's Way off of Old Flaxlof Road. I did a good bit of sweeping in the black spruce muskeg there and dug around in the *Sphagnum* sedge, but I found no cixiids.

(30. July. 2013)

Today I will be meeting Steve Swenson at Longmere Lake to fly the Heras on the Forest Services aerial detection survey.

Chuck (of Regal Air), Steve, and Ken picked me up at Headquarters Lake at about 10:00. We first headed to Trutman Lake. The only notable defoliation on the north shore of the lake was in wetlands on *Shrub juniper*. There was some flagging on the SE shore of the lake.

Ball Mountain was defoliated.

there was a conspicuous large cone in
Sikka Springs, around Saldern. There
were some brown alders on the hillside,
the one S of Saldern.

(31. July 2013)

I quickly walked down to Headquarters
Lake to get some peat (*Sphagnum*) samples
to try to extract cixiid nymphs. At

60.46016°N 151.07712°W ± 5m, ext 1m, I
found a large alder cone in - *Betula*.
I think *R. punctata*. It was likely preyed
on maggots that infested the mushroom.
(2013 ML8010)

At 60.45996°N 151.07707°W ± 4m, ext 1m I
collected one *Sphagnum* sample (2013 ML8041)

At 60.45998°N 151.07692°W ± 5m, ext 1m I collected
some *Planozium* / *Sphagnum* moss where
I saw one 4th / 5th instar *Cixius* nymph and
I know it is in the sample. (2013 ML8042)
I collected two other nymphs at the same site
(2013 ML8043)

(7. August 2013)

I took a walk down to Headquarters
Lake today looking for *Cixius*. At
60.46017°N 151.07899°W ± 6m, ext 50m I
swept low vegetation, yielding two
adult *Cixius* (2013 ML8044). A sweep of
black spruce in the same area yielded
another *Cixius* (2013 ML8045)

Same locality, but ± 7m extent - I
collected *Cixius* nymphs from *Sphagnum*
by hand (2013 ML8046). Here I also took
a couple of moss (*Sphagnum*) samples to see
if they be beehives (2013 ML8047).

At 60.45004°N 151.07890°W ± 4m, ext 1m
I picked and photographed a mushroom which
looks to me like a gypsy mushroom.

[8. August, 2013]

I headed down to Headquarters Lake with Shanice Bailey to collect *Cixius*. At 60.46516°N $151.06555^{\circ}\text{W} \pm 5\text{m}$, $\text{ca } 50\text{m}$.

Shanice swept, yielding three *Cixius* (2013ML8048)

We also collected some nymphs from moss and roots by hand, $\text{ext } 4\text{m}$, otherwise same locality.

We also collected a soil sample here, $\text{extens } 1\text{m}$. (2013ML8050)

[9. August, 2013]

I again walked down to Headquarters Lake today, this time especially looking for eggs of *Cixius*. At 60.46515°N $151.06506^{\circ}\text{W} \pm 4\text{m}$, $\text{ext } 3\text{m}$ I collected *Cixius* by hand / aspirator from moss / leaf. I also collected infested spruce roots to look for feeding damage. (2013ML8051)

I saw nothing that looked like a wax covered *Cixius* egg.

[13. August, 2013]

I returned to 2013ML8050 site to collect now bags to hopefully extract more pseudoscorpions. Here I collected two samples from the same hummock: one from $\sim 0-15\text{cm}$ depth (2013ML8052) and one from $\sim 10\text{cm}-25\text{cm}$ depth (2013ML8053). I also collected *Cixius* nymphs by aspirator from around the bases of small black spruce trees (2013ML8054)

A sweep of the vicinity yielded one adult *Cixius* and one dead adult *Cixius* carcass. (2013ML8055)