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April 6th 2023 10:30 - 14:30
Evergreen Campus, organic Farm and Heifer forest

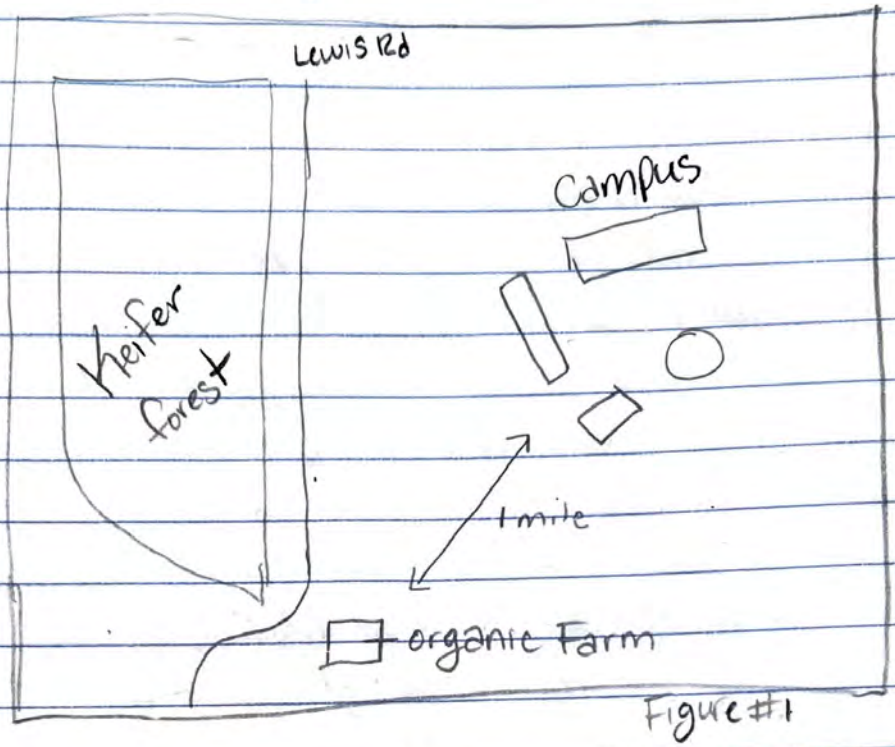


Figure #1

Wind condition 0-1, overcast with drizzle and showers, 47°

- First Location: Behind the sustainable agriculture Lab, weather station

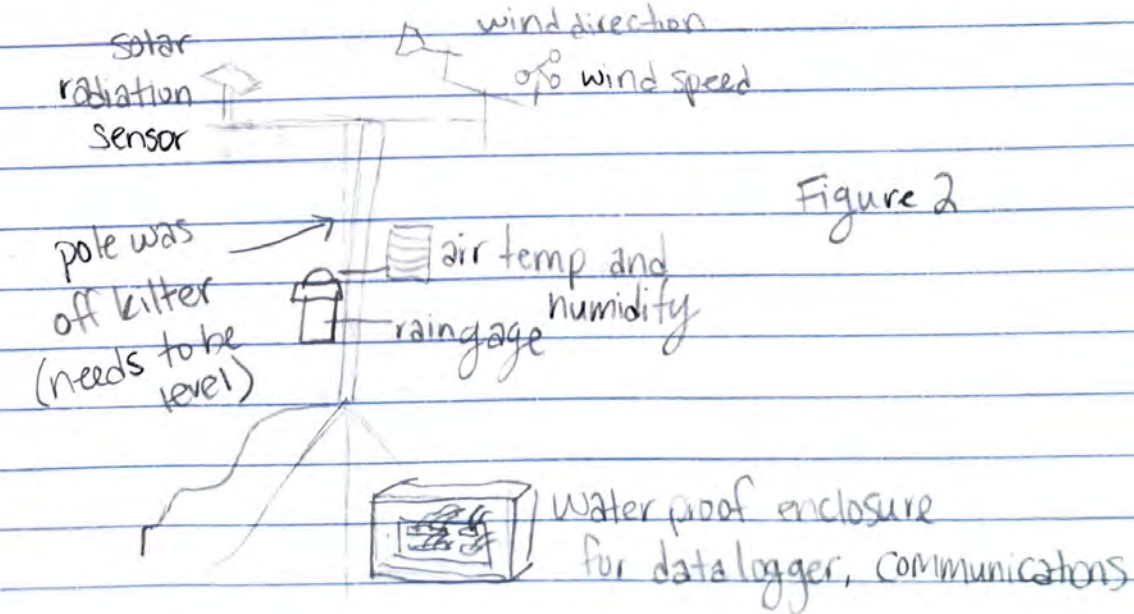


Figure 2

#2

- location 1 was clear cut surrounded by doug fir, cedar, and at least 1 hemlock very near. (scientific names?)
- Sword fern understory, some salal and evergreen huckleberry nearby.
- Several snags, woodpecker holes?
- Found 3 fiddle heads

- Brown creeper on douglas Fir near site. small bird. brown back/wings white underside. speckled pattern corkscrew up tree (Certhia americana)
- Song sparrow. small mostly brown bird (Melospiza melodia)

We spoke about a root rotting disease that effects douglas firs (Pseudo suga menziesii) and what may be motivations to preserve douglas Firs, like for spotted owl (Strix occidentalis) habitat. We learned that Silviculture is the science behind choosing trees to cut or not cut.

Then we began dividing tasks. Some students, including cody found information on how to wire the connection for all of the components of the weather station to the data loggor. I helped Dylan set up a stand for the weather proof box while Haley and Isaac dissasembled the top of the tripod. Chris and sage then worked on resecuring the wind direction and speed gage. Taking apart the rain gage

we were all able to see the "lever" type system that determines the amount of rainfall.

When all information had been gathered for proper wiring, Dylan handed the wires off to me where Cody then instructed me on where to place and how to properly secure the wires. Jacob then took over for a turn.

Haley, Dylan, and Isaac then found a way to reattach the pole to the tripod.

The Datalogger was in the end logging some information but not all. The weather station will be checked on after a few hours.

Second location: Weather station, center of evergreen community gardens
Farmland / gardens / grassy feild

This weather station was a "Hobo" station and was solar powered. Dylan explained that the weather system is usually down in the winter for lack of Sun (solar power). The data logger was a very simple interface but could tend to be slightly less precise.

#4

Third Location: Kiefer Forest, across from evergreen organic farm.

- 2nd growth, Big-leaf Maple (Acer macrophyllum) dominant. Trees aged between 80-60 years.
- Some Douglas Firs (Pseudosuga menziesii) observed
- Understory of Salal (Gaultheria shallon), Evergreen Huckleberry (Vaccinium ovatum), and ferns (possibly sword or lady fern (Polysticum munitum or Athyrium filix-femina), Oregon grape (Mahonia nervosa),
- Trailing Blackberry (Rubus ursinus)

We came into the northern side of Kiefer forest on a loop trail which took us to our first plot. We then learned how to use a Clinometer to measure the percent slope of the first plot which was 2%. This was done by determining eye level, then Isaac and I went to one side of the plot while Sage and rosie went to the other. Then we pointed the Clinometer at our partners where our original eye level was determed and the clinometer gave us the slope.

Then our group, the funguys (sage, rosie, Isaac, and I) went to our assigned Plot # 4.1.

The site was very similiar to the first in terms of forest type and Dominant plant and tree species. We had to be very careful walking due to Hollow ground from mountain beavers (Aplodontia rufa) We then repeated the procedure for determining slope on this plot. It was 21% slope. We also observed a type of wild rose that Sage identified as (Rosa nutkana).

After this we headed to 2 sites that were being used to observe soil. A hole had been dug about 1 meter deep and approx. 1 meter wide. The hole was covered to keep the soil dry. The first hole was mostly clay the whole way down. Dylan then showed us how to collect soil using pvc pipe and a mallet by placing the approx. (10 inch') long pvc pipe horizontally into the soil that is to be collected and then hammered in until approx 2" of pvc pipe is sticking out. We then headed over to the 2nd hole only (a very short distance) away where the soil was mostly sandy loam. Dylan collected some of the sandy loam.

We took the soil sample back to lab and placed the soil into a sifter

Nichole Verner

#10

April 11th, 2023 10am

Site #1 Evergreen Campus, Between C lot and Seminar II building 47.07, -122.97

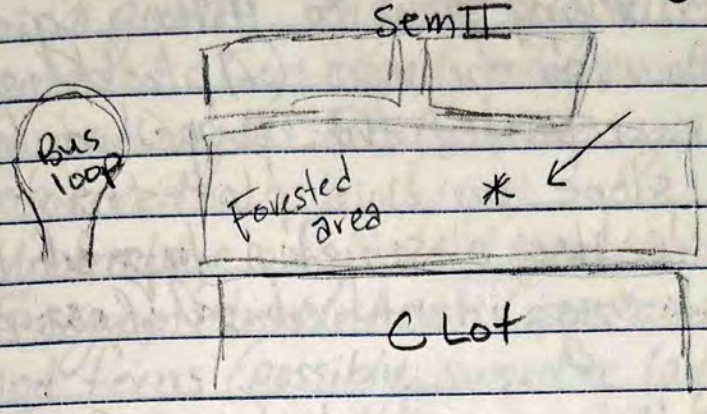


Figure #3

* Small plot of Conifer Dominant Forest *

Climate: Wind Conditions 0-1, 44.6°F
Sky Conditions 0, 1

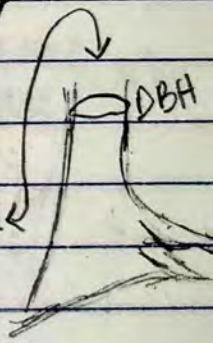
Species present:

- Douglas Fir, Pseudosuga menziesii
- Western Red Cedar, Thuja plicata
- Western Hemlock, Tsuga heterophylla
- Salal, Gaultheria shallon
- Baldhip rose, Rosa gymnocarpa
- Sword fern, polystichum munitum
- Oregon grape, mahonia nervosa
- Evidence of Douglas squirrel, Tamiasciurus douglassi

Tree #1: Douglas Fir 76.8 cm DBH

Tree #2: Western Red Cedar 93cm DBH

Sage, Rosie, Isaac and I picked a douglas Fir on a small hill next to the side walk to practice measuring diameter. First we all measured 1.37 m on our bodies to determine where to measure from. We all took the measurement to get practice. We stood on the uphill side of the tree to take its diameter. Our measurments were all very close to 76.8 cm. Dylan then showed us a few examples of trees that are not easy to measure. Our group picked a Western red cedar with a large swell and exposed root mass on one side. We had to climb up the tree roots and then took the diameter at that height. The western red cedar was 93 cm in diameter.



1pm Site #2: Kifer Forest Plots, plot 5.2, Evergreen Campus. 47.0712, -122.9883

Deciduous and Conifer mix Forest
2nd growth, Trees aged between 80-60years

#8

Species list:

- bigleaf maple, Acer macrophyllum
- Red Alder, Alnus rubra
- English Holly, Ilex aquifolium
- Grand fir, Abies grandis
- Black cottonwood, Populus trichocarpus
- Evergreen Huckleberry, Vaccinum ovatum
- Pacific trillium, Trillium ovatum

Tree #1: K1088 Douglas Fir 70cm DBH

82.5 ft + 5ft 2in = 87' 8" Tall

Tree #2: K716 Hemlock 50.7 DBH

87 ft + 5ft 2in = 92ft 2inches

Tree #3: K1644 Maple 40cm DBH

79 ft + 5 ft = 84ft

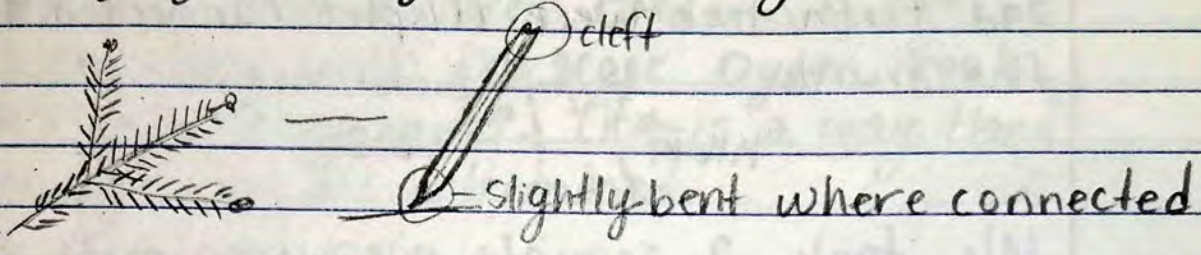
Tree #4: K812 Maple 76.5 cm DBH

112 ft + 5 ft = 117 ft

Tree #5: K2446 Cedar 36.5cm DBH

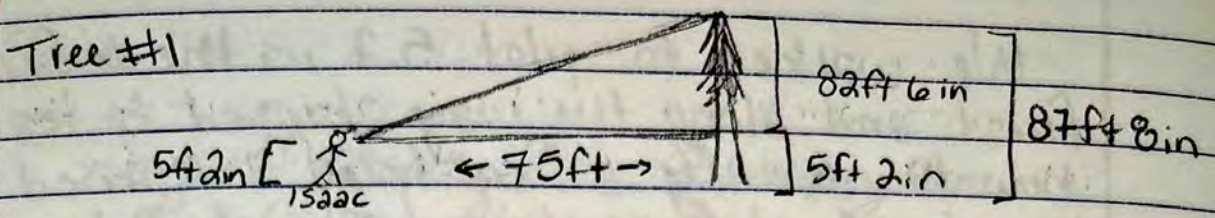
42 + 5ft 2in = 47ft 2in

We walked to plot 5.2 in the kifer forest and along the way stopped to learn how to identify a few trees. I learned how to identify a Grand Fir which has a lighter and smoother bark than the douglas Fir and its needles in the lower canopy grow very flat and symmetrical

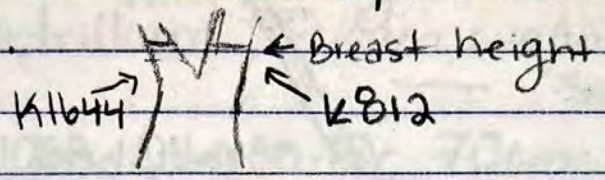


When we made it to plot 5.2 we split up into groups and picked 5 trees to measure tree height with our clinometers and DBH. We picked our first tree on the eastern side of the plot. We identified it as a douglas fir then using DBH tape, took its diameter which was 70cm. Then we took a tape measurer and walked 50ft away from the tree. this was not far enough for an accurat measurement so we walked another 25 ft for a total of 75ft away. We measure Isaacs eye height at 5ft 2in and then he took the clinometer and pointed it at the top of the tree. Reading the right side, the height was 110 but at 75ft out instead of 100 we determined the hieght to be 87ft 8" after factoring in Isaacs eye height.

#10



We then all took turns with this tree using the clinometer and all got approximately the same measurement. Our third and forth tree were Maples connected at the trunk.



We took 2 seperate measurements at 100 ft away, pointing the Clinometer at the tallest most centered branches. We took measurements at 100ft for the last 4 trees. We also measured a hemlock and Cedar. Then we joined the rest of class inspecting some Deer bones and learned we should always have a plan incase we find something Sketchy in the woods. Alyson then took us up the trail where we stopped and observed 2 trees with cables in them used for setting up audio surveys. She explained a few techniques that an arborist may use to get these cables and microphones set up in the canopy. The microphone is placed in the canopy layer about 90-100 ft up to record birds in the tall canopy. The 2nd tree was identified as a cottonwood.

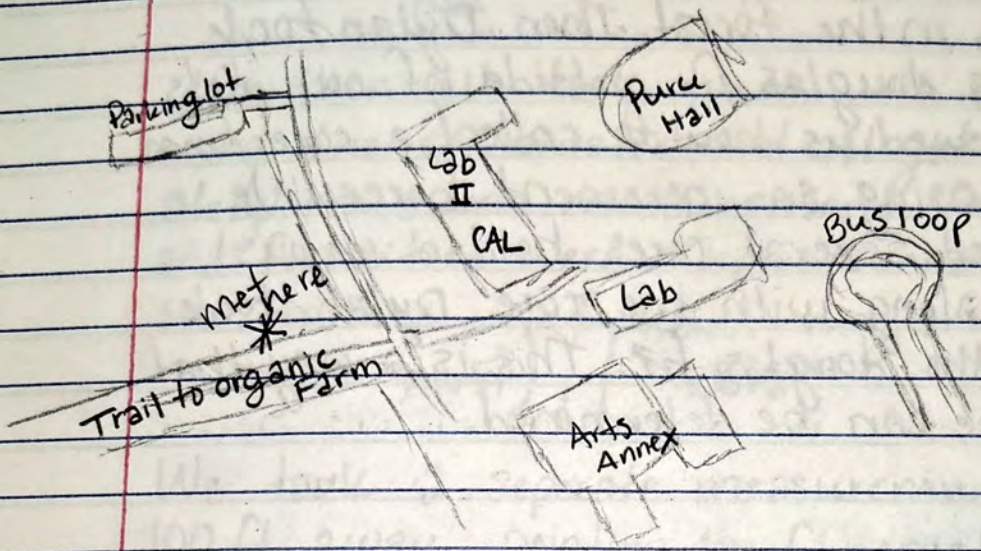
We learned that cottonwoods are brittle and arborists dont like climbing them. They grow very fast and like to be as tall as the conifers in the forest. Then Dylan took us to a douglas fir outside of our plots and showed us how to collect a core from a tree using an increment borer. We observed several cores held in various cases along with the core Dylan took from the douglas fir. This is a way that tree age can be determined.

#12

Nichole Verner

April 12th, 2023 11am

Evergreen Campus, Trail to organic Farm next to CAL Lab II [47.07178452, -122.9792069]



- 47.5°C
- Wind 0-1, 0.30 K/h
- Sky conditions 0-1, Clear conditions

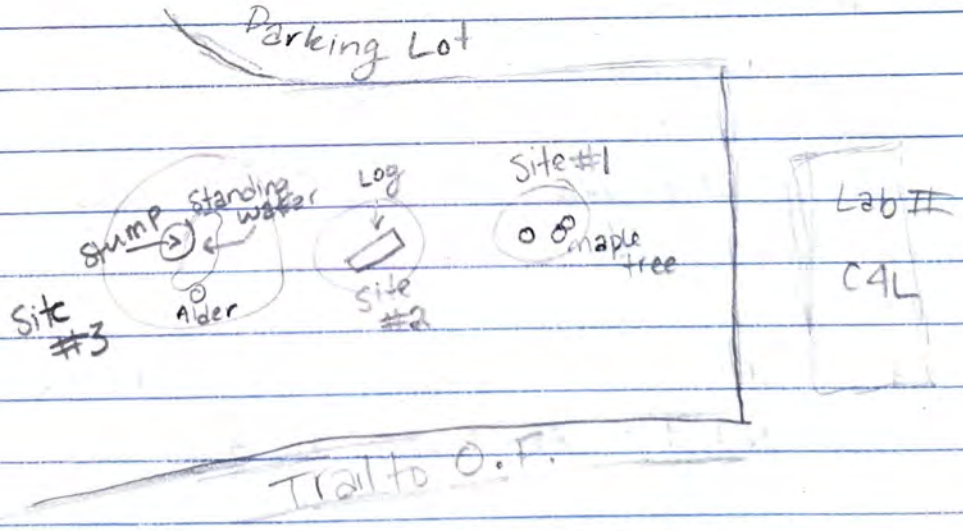
Species present:

- Douglas Fir, *pseudotsuga menziesii*
- Western Red Cedar, *Thuja plicata*
- Western Hemlock, *Tsuga heterophylla*
- Bigleaf Maple, *Acer macrophyllum*
- Red Alder, *Alnus rubra*
- Salal, *Gualthena shallon*
  * some of the salal along the trail had excesively large leaves compared to what I have seen
- Evergreen Huckleberry, *Vaccinum ovatum*
- Red Huckleberry, *" parvifolium*

- Salmon berry, *Rubus spectabilis*
- Oregon grape, *Mahonia nervosa*
- Sword fern, *polysticum munitum*
- Lady fern, *Athyrium filix-fementa*
- Song sparrow, *Melospiza melodia*

11am

After configuring our cameras and audio recorders we walked out to the forest just behind lab. Sage, Rosie, Isaac and I had 3 cameras and 3 audio recorders between us so we chose 3 sites to set up our equiptment.



Conifer Dominant forest

Site #1 47.0718441, -122.9797108
Camera #3, Audiomoth #10

We set Camera #3 one foot off the ground, zip tied to a maple tree, and the audiomoth about left off the ground

in the same maple tree. We did not collect any images from our camera and very minimal audio of any birds. We did hear one chickadee in our recording

Site #2 47.0717096, -122.9799663
Camera #5, Audiomoth #04

We set up our camera on a branch sticking up vertically from a fallen log. We hoped to maybe see critters crossing through on the log. The Audiomoth was set up in a maple branch about left off the ground nearby the camera. This camera did not capture any images but our audiomoth captured sounds from several birds. One distincly was a song sparrow and another a chickadee.

Site #3 47.0716623, -122.9801483
Camera #7. Audiomoth #6

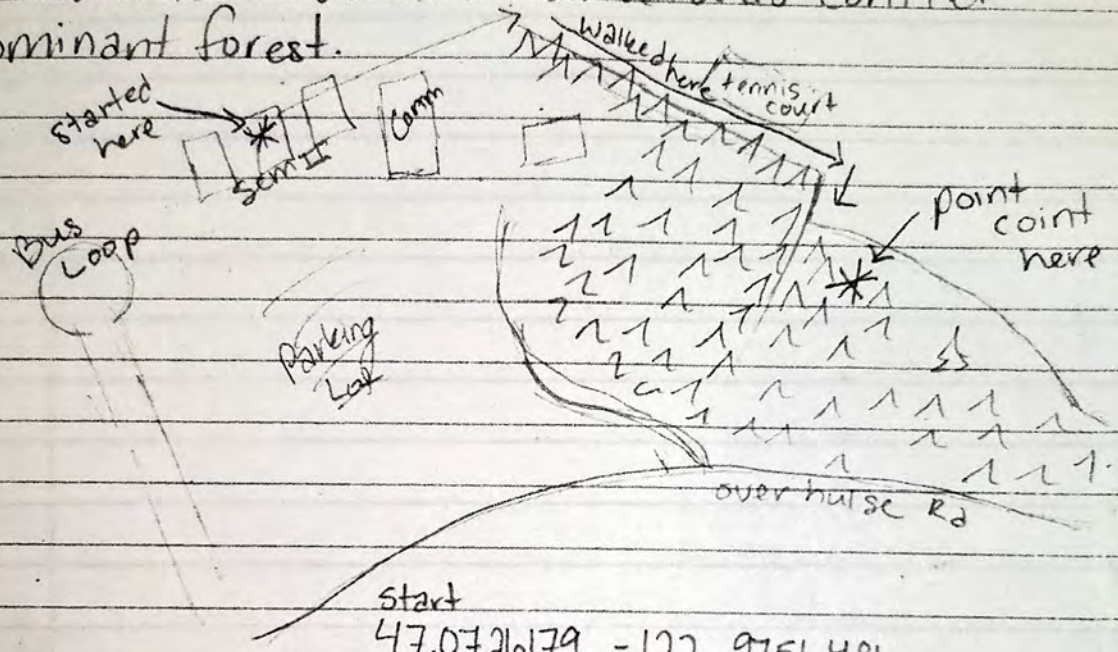
We found some standing water just north of our last site and wanted to see if this would elicite more wildlife activity. We set up our camera facing the ground near the water about 5ft up an alder tree and the audiomoth right next to it. I was not able to reveiw our images or audio but will record it when I do

Nichole Verner

Verner
#15

April 13th, 2023 9:30 am

Evergreen Campus, soccer and tennis feilds and disc golf course. Recreational land, open grasy feilds with some forested area on outskirts. Disk Golf Course was Conifer dominant forest.



start
47.0726179, -122.9756486
→ 47.0722850, -122.9695432

Climate: 42.6°F, Wind 0.92 k/h, Sky conditions some clouds

Species List:

- Starling sturnus vulgaris
- American Robin Turdus migratorius
- Dark eyed Junco Junco hyemalis
- Spotted towhee Pipilo maculatus
- Song Sparrow Melospiza melodia
- Golden Crown kinglet Regulus satrapa

#16

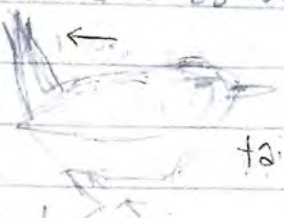
Verner.

- chestnut backed chickadee *Poecile rufescens*
- Black capped chickadee *P. atricapillus*
- Pacific Wren *Troglodytes pacificus*
- Northwestein Crow *Corvus caurinus*
- Oso berry *Oemleria cerasiformis*

As a class we walked towards the soccer feilds while Alyson helped us identify birds. Just outside the seminar building we stopped and identified several birds and bird songs. Alyson identified a Robin, starling, Junco, and chickadee. When we got to the soccer feilds we observed the Robins in the grassy feilds hunting for worms. There could have easily been 20-25 robin in the feilds. We stopped at some brush (salal) and observed a song sparrow who sang to us breifly. Alyson explained that song sparrows like low brushy vegetation. The song sparrow was small and brown colored throughout. We stopped again to observe a couple Juncos that flew across the trail. The Juncos have white on their tail that flashes when the move making them easy to identify. In the tree above we observed a few black capped chickadees. Alyson pointed out that they often are in the outer branches of trees and sometimes will hang off the branches.

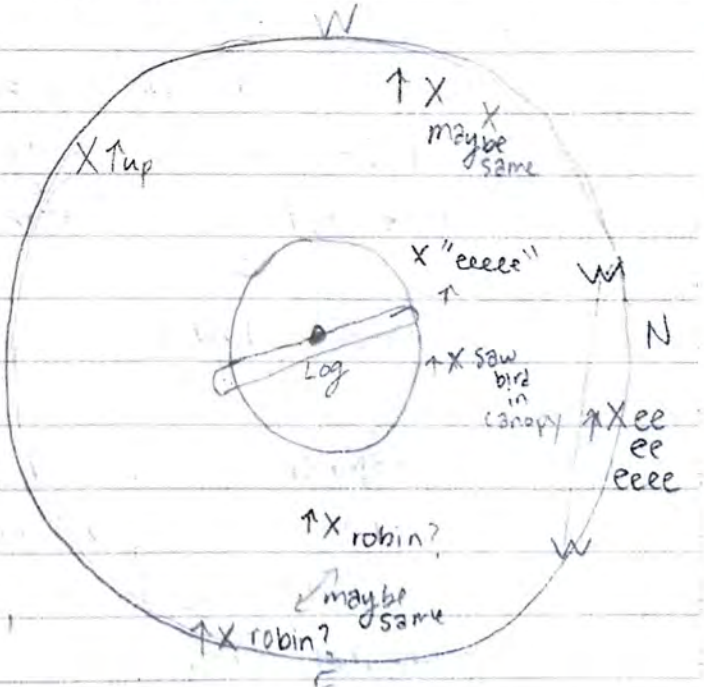
Verner
#17

When we made it to the woods, just inside we saw a pacific wren. This bird was very small and hard to spot. Their song is very long and sound like a whole chorus of other bird sound.



A litle further in we split up into our groups. Rosie, Sage, Isaac and I then split into groups of 2. Sage and I picked a spot just south of where we came in and Isaac and rosie just east of us.

X= bird sound or sighting
T= above me
W= flew over



Sage and I sat back to back and listened/observed for five minutes. When we were finished we joined up with Rosie, Isaac and then Alyson. Alyson helped us Identify the bird north of us that called repeatedly from the canopy as a Golden Crown Kinglet. Isaacs mimic app identified another bird sound we heard but I did not write it down. We heard Robins a lot. When the rest of the class joined

#18

verner

We all returned to the classroom. On our walk back Alyson pointed out some flight patterns pertaining to the white crowned sparrow. She called it the "parking lot bird" because thats where they are seen most often.

1:30 pm 45.1°, Showers off and on

site #1: Plot 4.1 Kifer woods, across from the Organic Farm on the Evergreen campus. Conifer dominant forest, old stand

Sage, Rosie, and Isaac and I found our plot and immediately started identifying species/ signs of species

[47.071681, -122.987299
coordinates

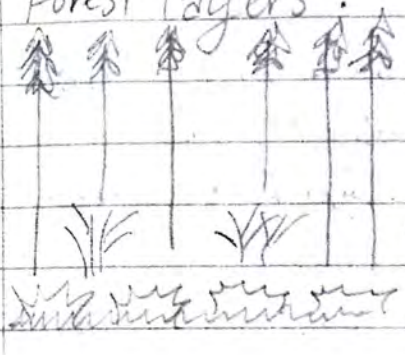
Species list:

- Catchweed? Galium
- Dull Oregon grape Mahonia nervosa
- Holes from Mountain Beaver Aplodontia rufa
- Scat from Mule Deer Odocoileus hemionus
- Swordfern polysticum munitum
- Salal Gaultheria shallon
- Douglas Fir pseudo suga menziesii
- Wild rose Rosa pite carpa
- Red huckleberry Vaccinium parvifolium
- Evergreen huckleberry V. ovatum

Veiner
#19

- Big leaf Maple (small/young) Acer macrophyllum
- Vanilla leaf Achlys triphylla
- English Holly Ilex aquifolium
- Basidiomycete on snag Fomitopsis achracea?
- Small white basidiomycete
- Red Alder Alnus rubra

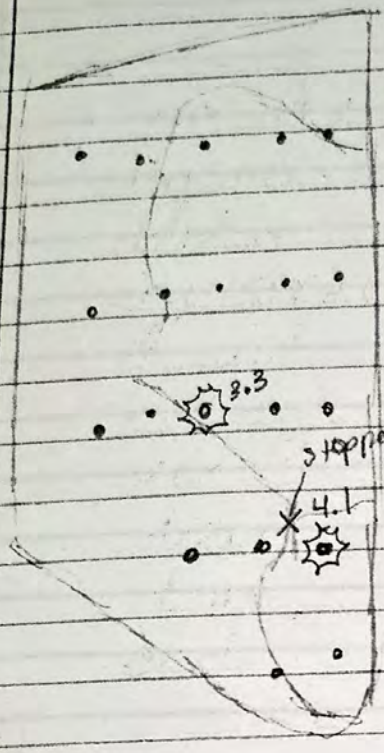
Forest layers:



Only mapped out trees for NW corner. We found deer scat in the middle of our plot and over 6 holes from a mountain beaver within 6-10 ft from the center of the plot. The trees here are almost entirely douglas Fir over 100ft tall, with the exception of an alder on the outer NW boundey and a very young approx 12ft tall maple. Our plot had 7 snags, all with signs of wildlife usage.

verner

#30



Along the pathway from the 4 plots to the 3, Alyson stopped us to look under a log. We found a very small whitish centipede just a few centimeters long and then some insect larva. Along the trail there was signs of the Douglas squirrel and some mole hills.

2:30 pm

Site #2: Plot 3.3, 47.073227, -122.988993

Showers and hail

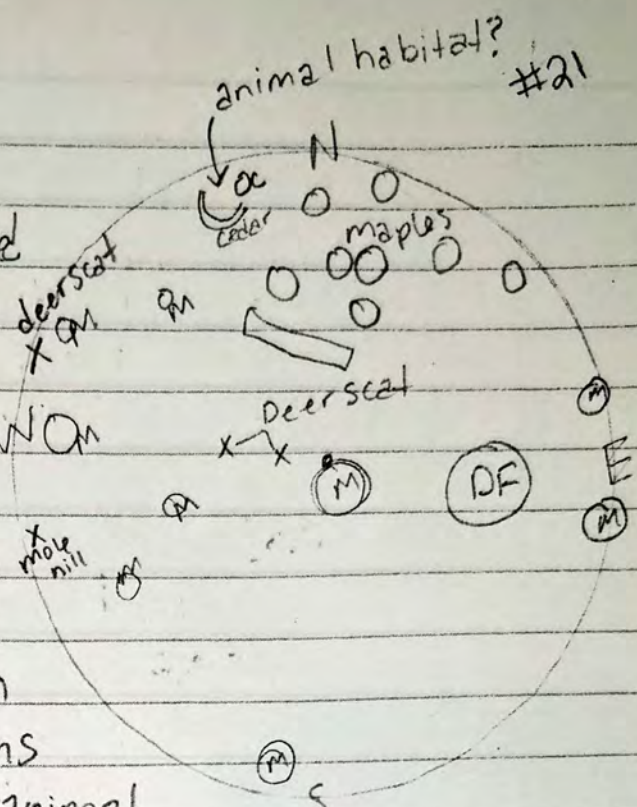
Deciduous forest *Acer macrophyllum* - dominant species

Species list:

- Scat from Mule Deer (x3)
- Miners lettuce *Claytonia perfoliata*
- Big Leaf Maple
- Western Red Cedar *Thuja plicata*
- Some type of grass
- Pacific Waterleaf *Hydrophyllum tenuipes*

verner

#21



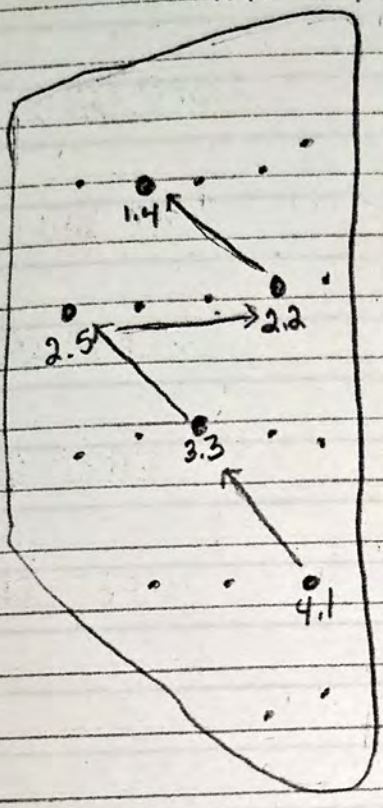
Plot 3.3 mostly contained maples that were large and old in age. There was one large douglas fir and a couple cedar. The shrub layer here was almost completely made up of sword fern We found several signs of deer, and possible animal habitat in a doug out under an oddly shaped cedar in the northern area of our plot. We had less time in this plot and it began hailing at the end. Sage was able to identify a few plants we hadn't seen in our other plot and pointed out some possibly invasive species of grass that we were unable to identify. We met up with the rest of class on the trail where I found more evidence of douglas squirrel under a tree just off trail.

Nichole Verner

#22

April 18th, 2023

Evergreen Campus, Kifer Woods
Plot 4.1, 3.3, 2.5, 2.2, 1.4



1.4 : 47.071678, -122.99013

2.2 : 47.07493, -122.98823

2.5 : 47.07471, -122.98977

3.3 : 47.07342, -122.98917

4.1 : 47.07164, -122.98760

Climate: 38°F, Windy: 2, Showers and Sno

Site #1 : Plot 4.1

(Time) (Lat/Long)

Camera #1 deployed
stump ~50ft facing multiple signs of mountain beaver previously noted

(Time) (Lat/Long)

Audiomoth #1 deployed
verticle root on downed tree, approx 8ft-10ft high facing east

Sage, Isaac, Rosie and I came to plot 4.1 first. We had previously done a very thorough survey and quickly decided on a spot for our camera where we had found several signs of Mountain Beaver. We set our camera up close to the ground on a small stump with a veiw facing multiple Mountain Beaver holes. Our cover board was placed near the center of our plot over some ground cover. We then decided on a place for our Audio recorder. A downed tree in the North eastern corner of our plot had some verticle roots that were accessable by climing onto the log. We were able to get our device set up a little higher this way. We moved on to our next plot after this.

Site #2: Plot 3.3

We had previously done a survey here but we spent a little more time obsewing for animal signs and collecting information on our plot. Rosie and Sage stood on opposite sides of the plot and measured the slope at 1%. We noted that there were at least 4 forest layers here. Due to the cold and rain we decided to ... next plot quickly.

#24

Verner

Site #3 plot 2.5

Mixed deciduous, ACMA (Big leaf maple dominant) 26% Slope

Species list:
- Dirt mound from mole *Talpidea*
- Dark eyed Junco *Junco hyemalis*
- American Robin *Turdus migratorius*
- Chickadee *Poecile*
- Big leaf Maple
- Douglas Fir
- Western Red Cedar
- Oregon grape
- Sword fern

When we got to this plot we all split up and starting doing a general survey for species and signs of wildlife. This plot has less canopy cover than our previous and had less shrub layer covering the ground cover layer. We came back together and measured slope at 26%. The plot is visibly very sloped and near a small stream bed and some standing water.

Camera #2 deployed
Near around at top of plot facing down hill

Audiomoth #2 deployed
In big leaf maple facing south east near center of plot.

We noticed a little bit of bird activity during a break in intesity of rain. An american Robin called and landed in the southeastern corner of our plot and at the same time a Darkeyed junco flew by quickly. We decided to do a point count here. During the point count we heard a Robin, a chickadee, and a pacific Wren.

We decide to place our sound recorder facing that corner of our plot and our camera at the top of our plot where it may have a broad veiw of most of our plot.

Site #4 plot 2.2

Mixed deciduous, ACMA
10% Slope

By the time we came to plot 2.2 we were all getting very cold and wet. Isaac and Sage did a quick check for signs while Rosie and I measured

#26 verner

We packed up quickly after this and walked to our next plot.

Site #5 plot 1.4 mixed forest

Slope 38.1°

Camera #3 deployed
We placed near the ground near some deer scat we spotted

Audiomoth #3 deployed
We placed our adiomoth high up in a BLM on the highest part of our plot facing the rest of our plot.

This plot is mixed deciduous + coniferou and is bordered by a riparian zone. We had a difficult time accessing this plot due to mud, devils club, and the slope.

We divided tasks again to save on time. Isaac and sage did a sweep of the plot while Rosie and I took the slope. Isaac then found a spot for the camera facing towards a possible game trail with deer scat on it.

I went to the top of our plot and thought it may be a good place for

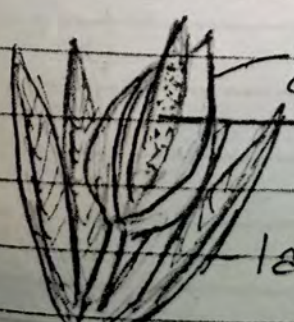
the audiomoth. This spot was almost level with some canopy cover at the bottom of our site.

We saw Dylan across the stream bed with a few other students. He shouted at us that everyone was starting to call it for the day.

This was a tough feild day in the very cold rain. All things concidered we got a lot of information and are hopeful about getting some data from our equipment. We packed up and took off toward campus.

On our way out we noted the skunk cabbage, devils club, and a lady fern growing in the riparian area near our plot.

Skunk Cabbage / Swamp Lantern
Lysichiton americanus

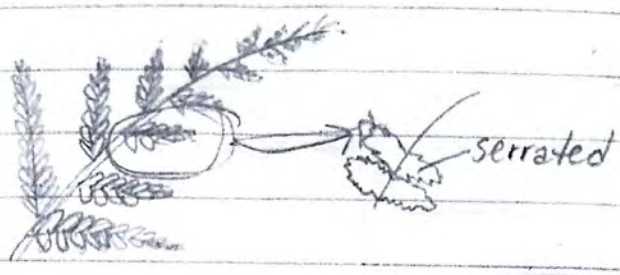


Smells like a skunk

#28

Devils Club / Devils walking stick
Oplopanax horridus

Lady Fern Athyrium filix-femina



Nichole Verner

#29

April 20th, 2023

Evergreen Campus, Kifer woods

1.1: 47.076496, -122.987485

4.1: 47.07164, -122.98760

Climate: Intermittent wind - Beaufort (3-4)

Overcast with showers

9:55 - 12:45

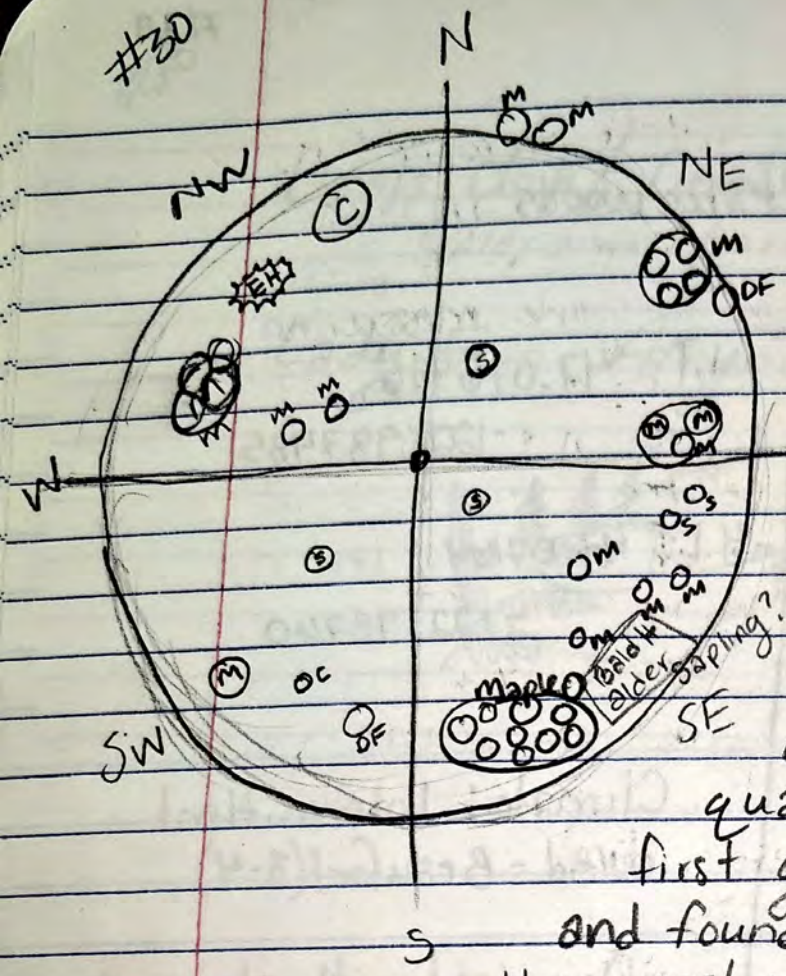
Site #1: Plot 1.1 ACMA, mixed forest
Bigleaf Maple dominant

Species list:

Baldhip rose *Rosa gymnocarpa*
Unkown woody stem, minimal budding, bare
Bigleaf Maple, *Acer macrophyllum*
Douglas Fir, *Pseudotsuga menziesii*
Western Red Cedar *Thuja plicata*
English Holly *Ilex aquifolium*

#30

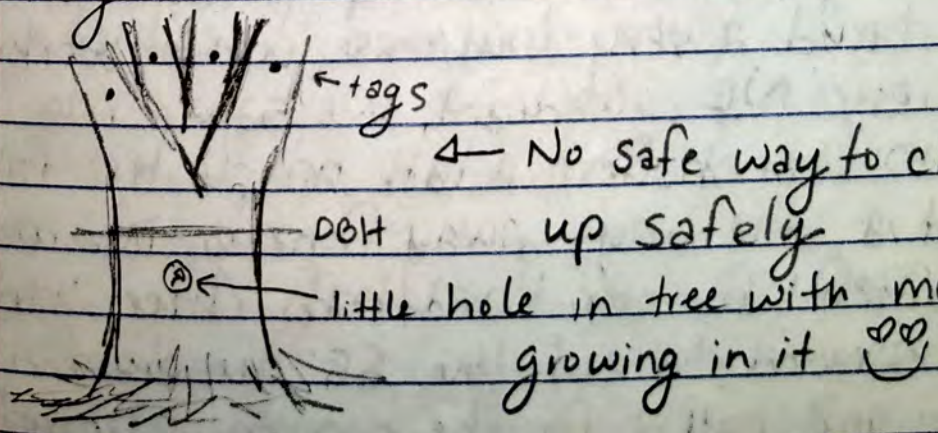
Verner



Rosie and I got to our plot at 9:55 and started right in. Isaac had measured out 2 peices of tape to exactly 52.7ft so we could measure and mark off our quadrants easily. We first got our compass out and found due north + south, then east and west. We left our tape up to mark our SE quadrant and stood at the center of our plot and began mapping it out. Once we had a rough map, We set to work trying to identify the shrubs/saplings in the far corner of the SE quadrant / naturalist Identified one woody shrub with small oval shaped leaves as baldhip rose and the other possibly an alder sapling. We had 3 tall snags in this quadrant, one with very prominant signs of woodpecker usage. Then Rosie started measuring DBH on everything standing with a tag on it while I wrote measurements down and kept track of tags

One of the maples in this quadrant had 11 seperate branches from the main trunk that needed DBH measured. When that was completed we set to work measuring height with the clinometer. I measured height while Rosie helped me measure my distance from the trees and recorded all measurments. None of the trees in this quadrant had live crown. The Maple with 11 seperate offshoots was difficult to distinguish so we ended up clustering some togeth at the same height. We believe this still to be accurately representative.

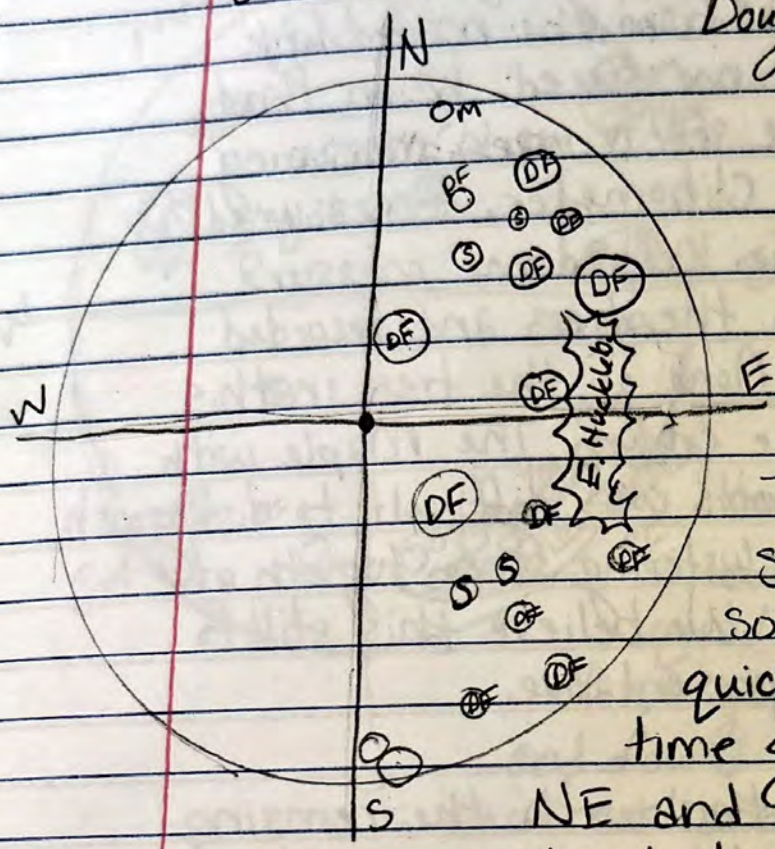
We repeated this with the remaing 3 quadrants. A large maple with 4 tags in the NW quadrant and a large maple in the NE quadrant were measured together. We beleive these trees have grown since tags were placed at breast height.



Very similiar to maple in NE quadrant

#32

15:20 - 17:30
Site #2 Plot 4.1 PMSE, mixed coniferous
Douglas Fir dominant



Rosie and I got to our plot and got to work straight away mapping out our quadrants. The wind had really started to pick up so we tried to work quickly. We had a difficult time getting around the NE and especially SE quadrant due to a plethora of mountain beaver holes. This plot has a lot of very tall Douglas Fir trees, getting DBH was easy but measuring height and live crown was slow going and challenging. Especially with the tree tops swaying. We heard a very loud noise while working on our NE quadrant, We saw a huge main branch from a tall maple tree fall just a little ways away from us. We were grateful for our hard hats. After that we decided to get the SE quadrant done and call it for the evening. We included a couple trees w/ out tags because they were very much inside the quadrant.

When we finished the SE quadrant, we packed up quickly and took off. Right as we were heading out we heard another very loud sound from a tree fall we couldn't see. We were happy to be getting out and headed for warmth!

Nichole Verner

#34

April 25th, 2023

Evergreen Campus, Kifer Woods

Time 9:30-12:15

Climate 47.4°F - 52.5°F

Few clouds, wind <2km/hr

Plot #4.1, 3.3, 2.5, 2.2, 1.4, 1.1

We began in plot 4.1 where our audiomoth #1 and camera #1 were deployed. We set a timer for five minutes of silence to just sit quietly and listen to the birds near or in our plot. The birds were quite loud and there seemed to be alot of them. We could distinctly hear pacific wren and a woodpecker in the distance. We decided to do a Towhee playback first. We heard some pacific wren, then after about one minute a Towhee came up and flew around us, landing on shrubs about 5-8 metres away. The Towhee seemed to be checking us out. We played the recording just a bit longer to see what the Towhee would do but stopped at an overall time of 4min.

Our coverboard had a slug on it, but nothing else underneath. We packed everything up after retreiving our equipment.

10:18 Plot 3.3 did not have any of our recording equiptment, so we jumped in right off the bat with 5 minutes of silence. We heard some pacific wren but nothing else. We decided to do a song sparrow playback. The playback was a few minutes long, we didn't hear or observe anything other than the wren.

10:38 Plot 2.4 was immediately noisy with bird song. We had our equiptment deployed here audiomoth #2 and camera #2. We packed these up first. Alyson and Kylon came through and while talking we all heard a woodpecker in the distance. Alyson explained to us that the loud and rapid knocking is a territorial noise. After they passed through we sat down and did 5 minutes of silence. During this we heard a junkco, a golden crown kinglet and the woodpecker again. We decided to do the pacific wren playback. It was immediately successful, we started to hear a couple wren.

#36

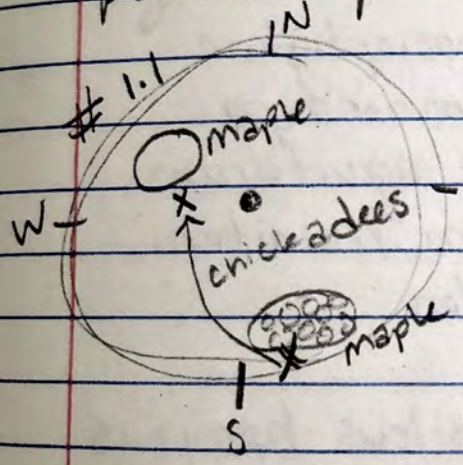
One of the wren landed in a fern nearby and made its way slowly over to us. He got within a few feet of Isaac who was sitting on the ground near a large maple in the center of our plot. The little bird flew away just before the recording ended. I noticed a couple chestnut backed chickadees flitting around a tall maple just on the outskirts of our plot.

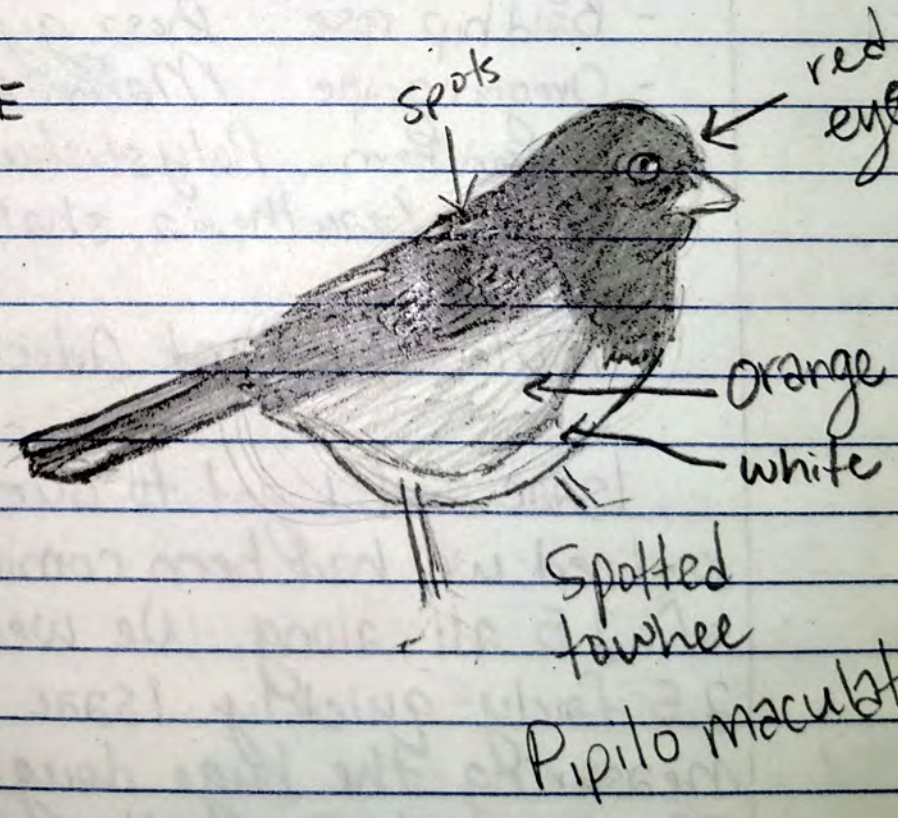
10:58 The next plot was 2.2. We repeated the silence and then chose to do a towhee playback. We didnt have any response from towhee but a few birds were making noise. Merlin Identified a wren and chickadee.

11:23 Plot 1.4 had our last camera and audiomoth (#3s). We colleded our equiptment and then sat for 5 minutes. We chose a pacific wren playback. during the playback we heard wren and a Stellars Jay. We made no other observations.

11:45 Plot #1.1 had birds flitting around the tops of the trees when we got

there. We sat near the center of our plot and listened quietly. During the five minutes I watched a group of 4-5 chickadees fly around the top of a Maple South of us to another maple just above us. We did another Song Sparrow playback, during which we heard a pacific Wren, a chickadee, ~~and~~ towhee, and a Junko but no song Sparrows. We packed up and took off for the day.





Spotted towhee
Pipilo maculatus

#38

April 26th, 2023 | 12:00

The Evergreen Campus, Kifer woods

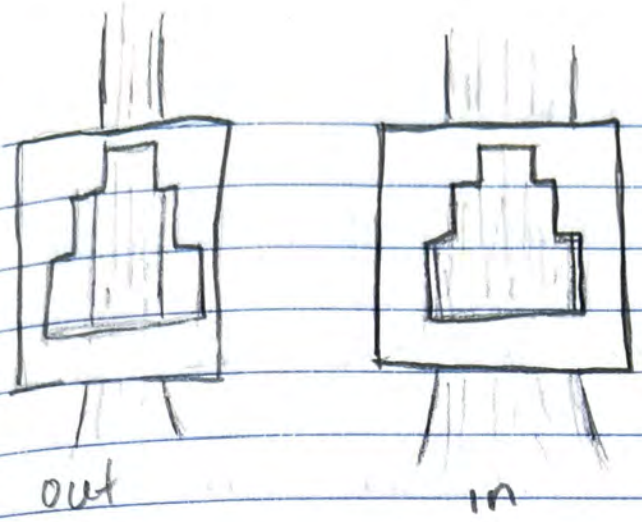
plot 2.5 Lat 47.074522, Long -122.990761

Climate 58°F, Clear skies, wind <2km/hr

Species List: PSME Dominant Forest

- Douglas Fir *Pseudosuga menziesii*
- Western Red Cedar *Thuja plicata*
- Big Leaf Maple *Acer macrophylum*
- Baldhip rose *Rosa gymnocarpa*
- Oregon grape *Mahonia aquifolium*
- Sword Fern *Polystichum munitum*
- Salal *Gaultheria shallon*
- Gallium
- Mule Deer Scat *Odocoileus hemionus*

Isaac and I got to our plot and realized we had been coming to 2.4 instead of 2.5 all along. We were able to find 2.5 fairly quickly. Isaac went to work measuring the huge douglas Fir and Maple we have in the plot while I layed out the quadrants. We used the prism to determine which trees we would take DBH for. Getting DBH was easy and straight forward for this plot.



(from center of plot with prism at arms length)

We took canopy photos and noted alot of deer scat. We knew we were coming back tomorrow so we packed up for the day.

Nichole Verner

April 27, 2023 10:17

The Evergreen Campus, Kifer Woods

Plot 4.1 47.07164, -122.98760
3.3 47.07342, -122.98917
2.5 47.07471, -122.98977
2.2 47.07493, -122.98823

Climate 57.2°F - 66.2°F, Clear skies
wind < 2 km/hr

Complete Species List from Transect:

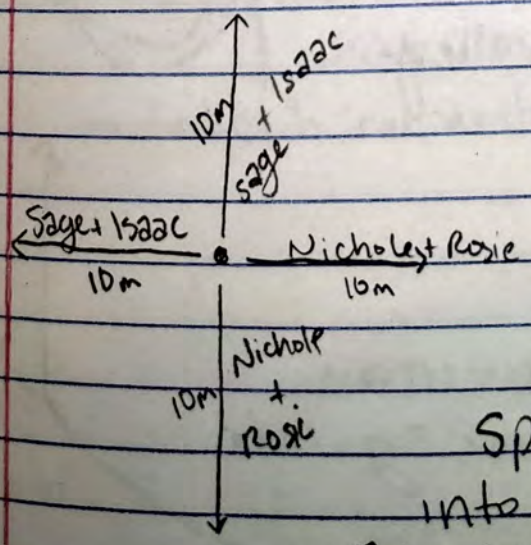
- Bigleaf Maple + seedlings
- Gallium
- Moss
- Catchweed
- Oregon grape
- Sword fern
- Trailing Blackberry
- Star wort
- Western Red Cedar
- Lady Fern
- Grass
- Trillium
- Pacific Water Lilly
- Vanilla Leaf
- Lichen (Fruticose)
- Lichen "Coral"

Verbe

#41

- Salal
- Liverwort
- Small flowered nemophila
- Candy flower
- Stilleria Crispa
- Red Huckleberry
- Osoberry
- Evergreen Huckleberry
- Piliated woodpecker

We (Sage, Isaac, Rosie and I) set out to to complete our understory data starting in plot 4-1. Sage is really well versed in plant identification, and I am pretty familiar with common species so we split into two groups. We found the 4 cardinal directions from center plot and measured 10 meters out in the two opposite directions, starting with north and south. Then using a string tied to a sharpie we brought it down along the meter tape every 10cm counting every species the sharpie came into contact ~~the~~ with. This is called a line transect.

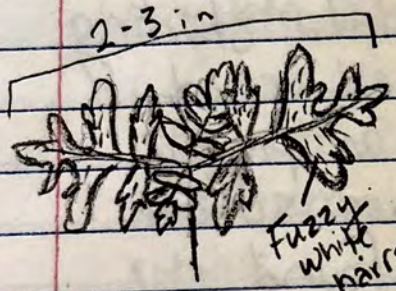


#42

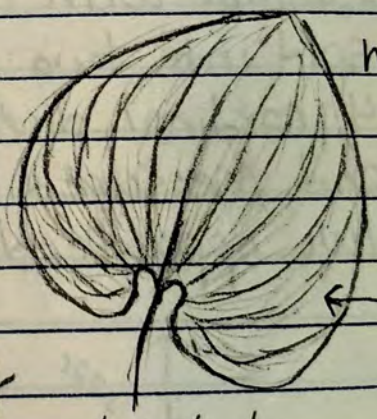
We repeated this for east and west and then did this over again at all 4 plots we visited. Anything we could not identify we gave a name and then photographed and ID'd later.

We came back and completed 1.4 and 1.1 later on.

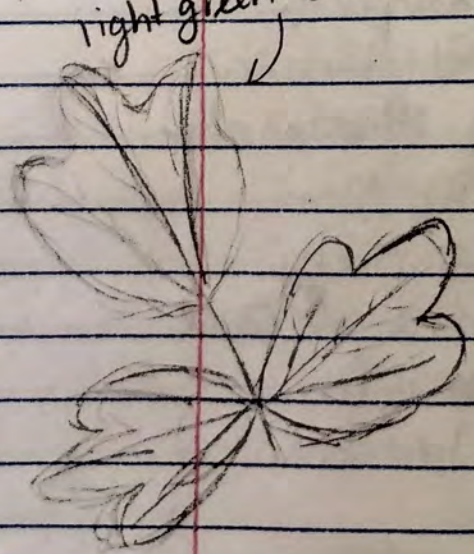
There were a few plants I had never seen before, or couldn't identify



Small flower nemophilla, nemophila parviflora



Western lilly of the valley
Maianthemum dilatatum



Seaside Bittercress
Cardamine angulata

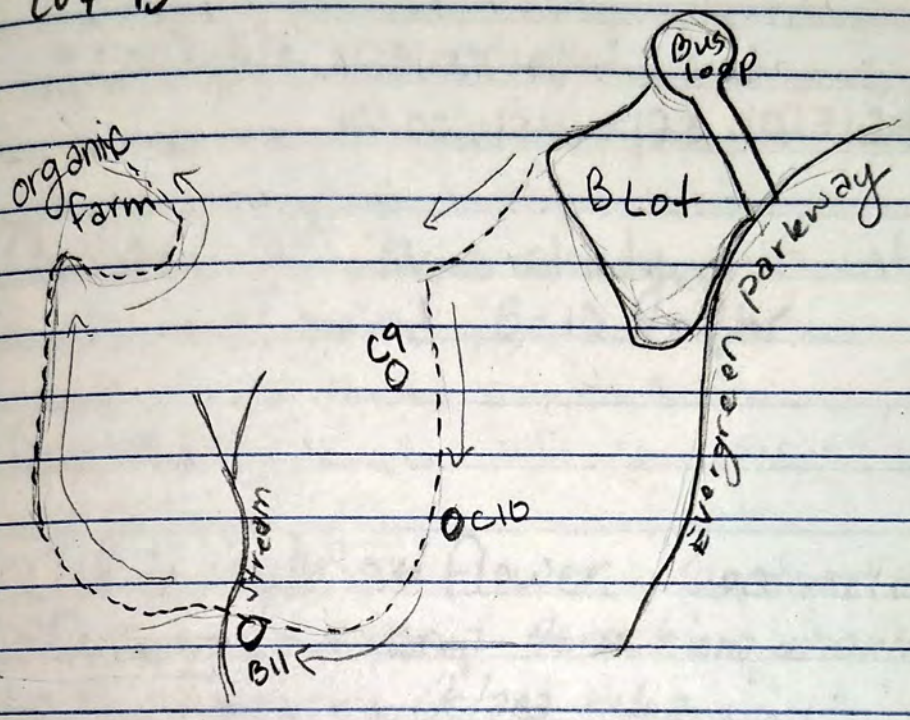
both found in riparian zone

Nichole Verner

#43

May 2nd 2023 13:00

The Evergreen Campus, Southwestern EE on plots via trail off of parking Lot B



47.0717197, -122.979019 ⟶
47.070120, -122.985524

Climate: Between 64°-70° F, skies clear, wind less than 2 km/hr

Verner

#45

May 5th, 2023 9:45

McClane Creek: forestry trail and Pond Loop

47.0026107, -123.00068867 and
47.0010174, -123.0027124

Climate: 50°, skies cloudy with intermitten showers, wind 8-10 km/hr

Species list:

- White inside out flower *Vancoveria hexandra*
- Common Cowparsnip *Heracleum maximum*
- Red Baneberry *Actaea rubra*
- Solomon's plume *Maianthemum racemosum* (western)
- Stinking bob *Geranium robertianum*
- Scotch Broom *Cytisus scoparius*
- Thimbleberry *Rubus parviflorus*
- Black-Headed Grosbeak *Pheucticus melanocephalus*
- Red-winged Blackbird *Agelaius phoeniceus*
- Canada goose *Branta canadensis*
- Mallard duck *Anas platyrhynchos*
- Song Sparrow *Melospiza melodia*
- Wood duck *Aix sponsa*
- Rough skinned newt *Taricha granulosa*
- Northwest pond turtle *Actinemys marmorata*
- Western yellow pond Lilly *Nuphar polysepala*

Verner
#46

Location #1 Forestry trail, Coniferous forest, recently logged

Dylan took the class on a tour of the forestry trail near McLane pond. Alison and him stopped us first in a thick over crowded stand near a riparian zone on the edge of the recent log where we observed the effect of such crowding and discussed the in-and-outs of thinning, logging, disturbances, and the way they impact these forest environments. a little ways up the trail we observed a couple 15yr old Doug Fir that we could count age from looking at branch growth. We also veiwed some older doug Fir that were left standing after the log. We learned that epicormic branches are branches grown after being exposed to new conditions, like light (increase).

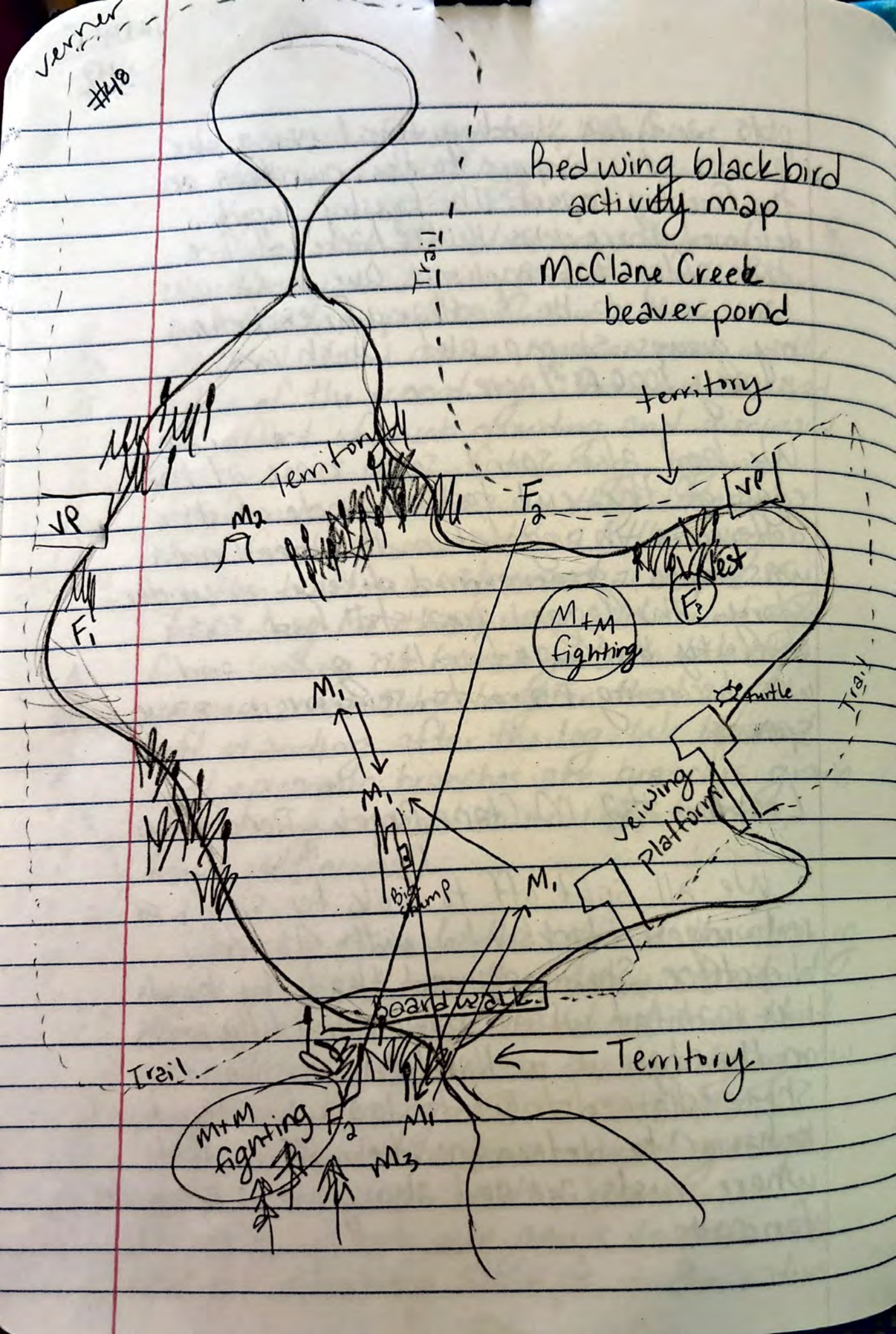
Then we came to the sight of the clearing. Dylan explained how they leave stands of trees throughout and pointed out to us that some of those trees were dead or dying now. We seemed to agree as a class. Also that the vegetation here would go up like a matchstick in the summer. We split up into our groups to measure DBH of remaining Stumps in 8m radius

plots, and the standing forest using our prisms, to compare to the numbers on the forestry report. The forestry report determed there was 160ft^2/acre of live tree after 4 samplings. Our 6 samples came out to be similar if excluding my groups stump plot which was nearly 1000 ft^2/acre.

We had also spent some time at the edge of the cut to take note of the differences in vegetation. The treed area was dense, green, and diverse in understory. The logged area still had some diversity but was far less green and was becoming home to several invasive species.

Location #2 McClane Creek Pond loop

We all split off to look for signs of redwinged blackbirds with Alisons directions. She explained that the birds like habitat with cattails and lilly pads on the edges in welland environments. She explained to us to look for territorial behavior to determine territories and where nests are and also gave us examples for calls.


Red wing blackbird activity map
McClane Creek beaver pond
Vernier
#48
Trail
territory
VP
M2
F2
F1
West
F3
M+M fighting
M1
Big stump
Turtle
Trail
Viewing platform
boardwalk
Trail
Territory
M+M fighting
F2
M1
M3

We observed the blackbird around the pond for a couple of hours. Within 30 seconds we spotted a black bird who continuously perched on a large tall stump in the bond who made many territory displays throughout our time. He seemed to be defending a territory south of the boardwalk. Him and another male in the northern part of the pond displayed their red feathers to eachother, made very showy flights near eacothers territories, and called at eachother repeatedly. This same male seemed to also squabble with another male even further south of the pond. (perhaps another territory). We confirmed a nest in some cattails in the eastern part of the pond after observing the female bringing food to the same place again and again. While standing at the veiwing platform near the nest we watched two males fly at eachother and "fight".

While walking around the pond I also saw many rough skinned newts in the water and a turtle. A female mallard had ducklings and was being bullied by the other mallards. Alison and Dillon pointed out some wood ducks, which were the most ornate and colorful ducks I have ever seen.

Verner
#50

We then all compared our maps and determined at least 3 territories directly around the pond.

Nichole Vemer

#51

Tuesday May 9th, 2023 10:30am - 2:30pm

JBLM, Johnson prairie in Rainier WA
46.91168611, -122.7377222

Climate: 57°-63° F, skies partly cloudy, wind <2km/hr

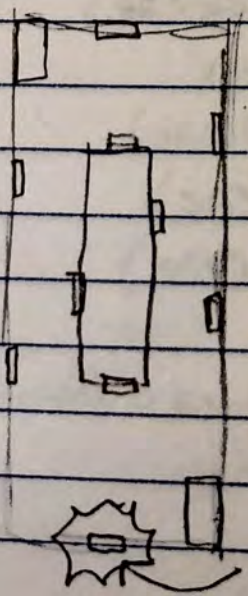
Species List:

Agrostis capillaris (Poaceae)
Carex sp. (Poaceae)
Carex inops (Cyperaceae)
Common Camas Camassia quamish (Asparagaceae)
Cytisis scoparius (Fabaceae)
Danthonia californica (Poaceae)
Eriophyllum lanatum (Asteraceae)
Festuca roemeri (Poaceae)
Gallium
Hieracium scouleri (Asteraceae)
Hypericum perforatum (Hypericaceae)
Hypochaeris radicata (Asteraceae)
Leucanthemum vulgare (Asteraceae)
Acmispon parviflorus (Fabaceae)
Plantago lanceolata (Plantaginaceae)
Rumex acetosella (Polygonaceae)
Teesdalia nudicaulis (Brassicaceae)
Vicia sativa (Fabaceae)
Puget Balsamroot Balsamorhiza deltoida
Spring Gold Lomatium utriculatum

Verner
#552

Olive sided flycatcher Contopus cooperi
Red tailed Hawk

When we got to the prairies as a class we first met a few Individuals who work to manage these prairies. We headed to plot 9 where you could Immediately see the difference between burned and un-burned pairie. Many of the wildflowers were in bloom. We followed to a section of prairie that had been burned, seeded, and also sprayed with herbicide, where there was an amazing and beautiful abundance of blooming wildflowers. We met the Balsamroot which grows very slowly and can have the same lifespan of a douglas Fir. I spent a little time getting more familiar with the common camas plant, then split into my group. We met Dylan in plot 9 which had been set up with all of our transects

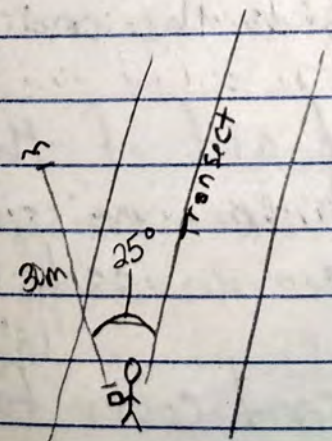


We learned about many plants and how to determine percent cover for each transect.

It was surprising to see how diverse this landscape was

We then met with Alison who taught us how to survey for birds using line transects.

Our group missed out on the random selection of sample selection for how the transects are set up but 3 meter tapes were set up in a row facing north when we came to the spot. Alison taught us how to use a range finder, which is a device that measures distance and can be used like a clinometer. Isaac and I teamed up with a compass and rangefinder. We used the range finder to measure the distance from the transect to where we saw a bird and used the degrees on the compass to measure the angle from the transect. We each took a turn.



Nichole Verner

#54

Wednesday May 10th, 2023 10:15

JBLM, Johnsons prairie, Rainier WA
46.91168611, -122.7377222

Climate: 59°-68° F, skies clear, wind < 2km/hr

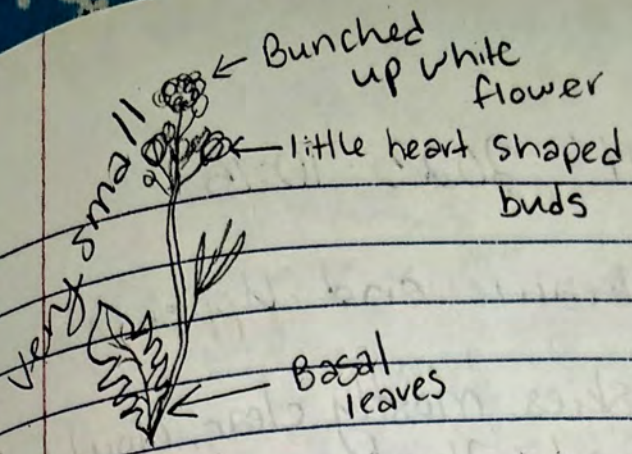
Site #9 unburned:
Grassland, unburned since 2012. Treated with herbicides / invasive species management

This plot is heavily vegetated with grass type species and a significant amount of dry litter. We spent the entire day with Adam Martin who we met yesterday, measuring percent cover in quadrats and couting flowering camas. Species identification between the grasses and sedges was very difficult. I started to become more familiar with *Teesdalia nudicaulis* and *Vicia sativa* towards the end.

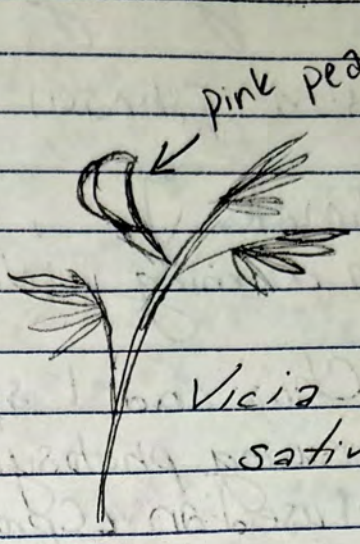
We noticed that a lot of the species we identified that were missing from our 2013 data were invasive species.

Measuring percent cover for each species in this plot was time consuming with how thick and choked out everything was.

Verner
#55



Teesdalia nudicaulis



Vicia sativa

Nichole Verner

#56

Thursday May 11th 2023 10:15

JBLM Johnson Prairie and Upper Weir

Climate: , skies mostly clear, cloudy in morning, Wind < 2km/hr

Chris and I spent most of the day measuring photosynthesis in paired plots 20. We used an LCpro machine that could tell us the rate of photosynthesis in $umol CO_2 m^{2-1} s^{-1}$ We were measuring Camassia quamash. We picked only Camas plants with flowers, some with larger flowers in each plot and some with smaller in each plot. Rotating between each plot/measurement allowed us to illiminate time of day as a variable. When we finished getting 20 samples (10 from each) We moved on to help the rest of class finish gathering information about percent cover from Whitaker plot #8burned. It took awhile to get the plot set up so we only did % cover for a short time. We wrapped up just before 15:00.

↑ This is from Thur May 18th and was mistakenly written in here.

Missing/incomplete Thur May 11th - Thur May 18th

Nichole Varner

#57

Monday May 22nd 2023 9:45-5:15

Conners Lake - blue lake - headquarters in the Sinlahekan Wildlife area

Climate: °F, skies: Cloudy, some showers. Thunder and lightning, partly cloudy at times. Wind < 10km/hr

Species List:

#59
verner

We started our morning walking just north of Conners lake. We observed many Red Wing black Birds around the Lake in the cattails and another bird building a nest in a tree above the water. Up the trail a short distance Alison taught us how to catch Butterflies in a net and then Transfer them to a ventilated jar. The first butterfly we caught we identified as an arctic blue. We caught 3 more along the trail. Dylan stopped us in an aspen forest and showed us how the leaves are able to "shake" in the wind and deter bugs. He took a branch and showed us how larva sits inside the aspen leaf rolled up. We saw some bear marks on an aspen tree. We moved up the trail and Dylan showed us some areas around blue lake where cattle graze. We caught an anise swallowtail butterfly which hung out on Rosies nose for a very long time.

When we got back to camp we got in the vans and first came to the headquarters where we met Nathan? Who told us about the 7 year burn cycle. Dylan showed us how to determine years between burns on some rounds in the barn. We came a little way up the road and observed a patch on the hillside that had been

burned 2 weeks ago. We observed that the scorch marks were very patchy. This is where we saw the spuncha cactus.

From there we took off towards bluelake. We stopped along the way and Dylan showed us an area that had been completely cut off from grazing animals. next to a patch used for grazing The two patches couldnt be more different.

We went up in elevation along a gravel road and then hiked up to an outlook with a stunning veiw of the Sinlehekan Valley. We saw ALOT of Elk shat ... Alot! Wildflower galor and rocks covered in all kinds of lichen and moss. From here we could see bluelake down in the Valley and some of the grazing areas we may work in this week.

This place is unbeleivable. There are birds in such abundance and signs of wildlife every where. There are no words!

Tue May 23rd 2023 #60

Sinlehekan Valley, Fjord Lake Grazed and ungrazed grasslands

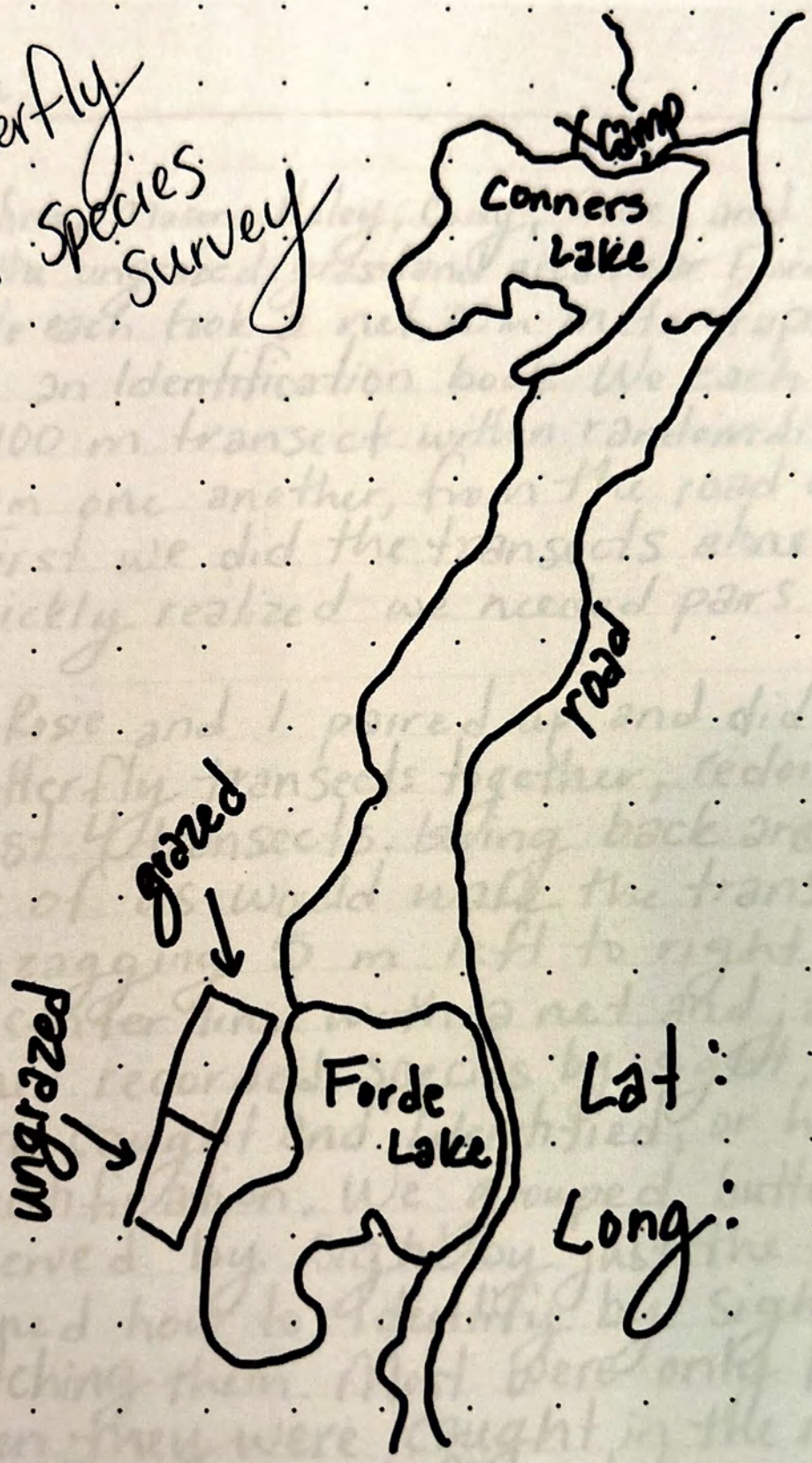
Climate: 65 °F, Skies clear or partly cloudy wind < 8km/hr

Species List

Acmon blue Plebejus acmon
Bois Duval Blue P. icariodes
Silvery Blue Glaucopsyche lygdamus
Arrowhead Blue G. piasus
Melissa/Northern Blue Lycaeides melissa plebejus idas
Large Cloudy White
Orange or Cloudy Sulfur Colias eurytheme C. philodice
Ochre Ringlet Coenonympha tullia

Butterfly 2nd Species Survey

Verner #61



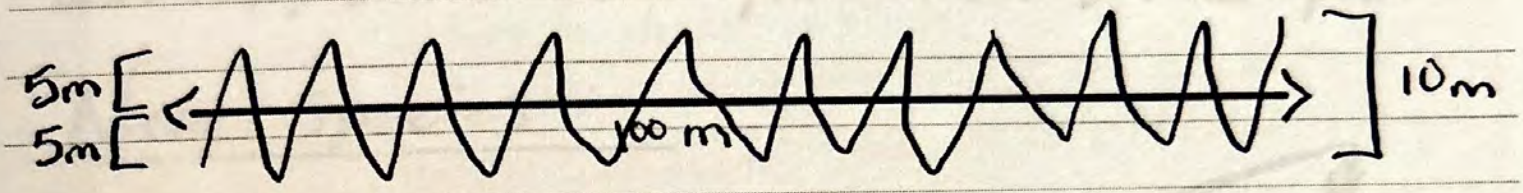
Time: Jerner #162

Chris, Mason, Haley, Cody, Rosie, and I began in the ungrazed grassland area near Fjord lake. We each took a net, 30 m meter tape, a jar and an Identification book. We each set up a 100 m transect within random distances from one another, from the road due east. First we did the transects alone but quickly realized we needed pairs.

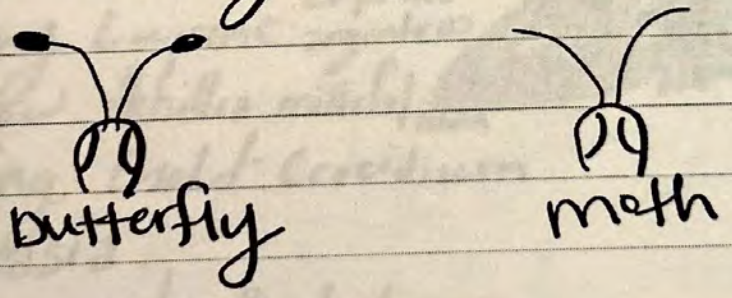
Rosie and I paired up and did Le butterfly transects together, redoing the first 4 transects. Going back and forth. one of us would walk the transect Zigzagging 5 m left to right of the center line with a net and jar. The other recorded species by sight, ones that were caught and Identified, or help with Identification. We grouped butterflies observed by sight by just the family or learned how to identify by sight without Catching them. Most were only Identified when they were caught in the net. We found ___ different types of species in our transects. Vegetation was very different in the grazed vs. ungrazed and we noticed a lot of blues in the lupin

in the ungraced. We also found some of our most interesting species on the road! (not our trans) The sulfurs, whites, and swallowtails were difficult to catch for some reason.

We came up with a game plan for tomorrow and then wrapped it up



PS: Alyson taught us that butterflies have clubbed antenae while moths just have straight antenae.



And some _____ types of butterfly have 4 large legs and 2 tiny legs while others _____ have le legs of Similiar Size

We finish off the remaining butterfly transects just as a thunderstorm began So we could not get to our vegetation transects until the system cleared.

2 of the transects in the grazed area were much further up the slope and had a significant increase in Lupin golden rod, and achenacia. We all finish at the same time.

Chris and I returned with Dylan and did a line transect for vegetation in the grazed area (grazed #1). Dylan helped us with some 10. We decided to do the entire 100m transect with 1m Spaced points. Chris and I then completed ungrazed 7 and 8 then turned in for the night

Thur May 25th 2023 #166

Day 3 in same location 10am - 1pm

Climate: ____ °F, Skies Cloudy and less cloudy at times. Intermitten showers. Wind <5km/hr some stronger gusts during showers <10km/hr

Rosie and I completed the vegetation transects in the grazed area very quickly using the same methods we used yesterday. I identified while Rosie recorded to keep up pace. Chris and Cody finished the other transects in the ungrazed areas.