**Field notes**

**Redwoods**

**June / July 2017**

**Crew:** Kate Hayes, Schyler Reis, Alexia Gee

Jennifer Wheeler: (707) 825 – 2310

David: (707) 825 – 2314

Combination gate key: 4527

**Headwaters Pond – 6/29/17**

Meeting David @ park and ride for help getting to pond using south entrance

Planning on coring lake if possible [need to assemble livingstone]

Attempted one core – piston on too tight

Using auger with two drive rods and a handle to test bottom: getting down 1 meter consistently, but hitting wood

Auger full of rotted redwood when pulled up

Lake (pond) has 8 inches of water, lots of plants and tadpoles

No new fallen trees, but ones from last summer are still above surface of water

**Drive A**

- distance from surface to bottom = 44 cm

- hit bottom (wood) & did not recover anything (2-3 inches of mud)

**SOIL SAMPLING 6/30/17**

**RIDG-01** 🡪 hiking up decommissioned road on east side of park, difficult to get to

N 40°38.047’

W 124°02.091’

**RIDG-01-01** 🡪 1st soil pit

Dug soil pit, 300 mm deep, Kate has picture on phone

Sampled charcoal @ 55mm from bottom, 115 mm from bottom

Soil too dense to take samples horizontally in soil pit, shouldn’t need them with AMS samples

**RIDG-01-02** 🡪 AMS sample 1

Labeling system goes as follows:

|  |  |
| --- | --- |
| RIDG-01-02A | 0 - 50 mm |
| RIDG-01-02B | 50 – 100 mm |
| RIDG-01-02C | 100 – 150 mm |
| RIDG-01-02D | 150 – 200 mm |
| RIDG-01-02E | 200 – 250 mm |
| RIDG-01-02F | 250 – 300 mm |
| RIDG-01-02G | bottom |

\* length of bottom unknown at this time, also can vary widely between samples

*Samples are:* A-G

**RIDG-01-03** 🡪 AMS sample 2 (for sieving)

\*1st cylinder was half full (incomplete drive?) but all A-F retrieved

*Samples are:* A-G

**RIDG-01-04** 🡪 test sample

\*\* will probably use for soils class

Testing to see if we can get past the ~350 mm mark w/o burying AMS or compressing samples

🡪 soil too dense to continue down (not surprising)

*Samples are:* A-G

**1 general observation** 🡪 while continuing down ridge trail, found large tree with scar that extends beyond sight while two re-sprouts on the side (behind when looking at tree from trail) are perhaps 20 years old without any scarring

All trees in vicinity are non-redwood and young

All large (relative) in eyesight have scars on the same side of tree @ about the same height

\* scars are south-facing

lots of charcoal on trail, pictures on phone

**EELS-01** 🡪 sampling on east (?) side of south elk river in old growth, at a flat section of the bottom of a valley [\*note: named EEL because in the field we mistook the elk river headwaters for the eel river; easier to leave than re-label]

N 40°38.177’

W 124°01.859’

**EELS-01-01** 🡪 soil pit, 20 cm deep

Sampled @ d10, d7, d13 and d6

**EELS-01-02** 🡪 AMS sample

*Samples are:* A-G

**EELS-01-03** 🡪 AMS sample

\*both straightforward, all cylinders recovered

Very dense soil, lots of mudstone

*Samples are:* A-G

**RIDG-02** 🡪 sampling back on decommissioned road, this time on other side of road [look up]

N 40°38.089’

W 124°02.060’

**RIDG-02-01** 🡪 soil pit, 22 cm deep

Sampled at d 9, d6, d10, d10b, d11, d2, d5, d9

**RIDG-02-02** 🡪 AMS sample

Samples came out of the cylinders 1/2way at ~200 mm so saving as backup for the soils class

*Samples are:* A-G

**RIDG-02-03** 🡪 AMS sample

Could not get AMS out by hand (did not go in easy either), dug out with shovel and trowel

🡪 stuck in root, visible at end of AMS (kate has pic)

All cylinders recovered

*Samples are:* A-G

**RIDG-02-04** 🡪 AMS sample

Also buried hard, had to dig out

All cylinders recovered

*Samples are:* A-G

**SOIL SAMPLING 7/1/17**

Hiking up Salmon trail (gate to worm trail locked)

Fog was very heavy all day, not sure if change in weather or because we were further west

**SALM-01** 🡪 first site, ridge on border of old growth, very dense vegetation

N 40°37679’

W124°05.525’

**SALM-01-01** 🡪 soil pit, 31 deep

Sampled @ d10, 13, 9, 0, 2, 10 (diff 10), 4

**SALM-01-02** 🡪 AMS sample

Cleared away vegetation on top, went in easy / came out relatively easy

Samples may possibly be compacted: top 2 cylinders (A/B) are empty

🡪 thought is, hitting through duff layer takes a few extra hits, meaning bottom few end up compressed?

- collecting anyways but will redo after clearing away more of the top layer

\*samples are in small whrlpacks, 2 packs per sample

samples are: no A/B, C, D-G^2

**SALM-01-03** 🡪 AMS sample

Clearing away more of the vegetation

Duff in 1st cylinder, no issue there

Samples are:

**SALM-02** 🡪 sampling below trail in small flat hallow 40

N 40°37.702’

W 124°05.603’

West facing slope

**SALM-02-01** 🡪 soil pit

Lots of duff layer, hit something hard at 21 cm deep

Hard layer turns out to be a root

Sampled charcoal @ d10 (doubtful it’s charcoal)

\*\* very little charcoal, mostly roots, soil is yellow-ish

🡪 thoughts why: too close to trail? West-facing?

Taking an AMS sample, will look for char there

**SALM-02-02** 🡪 AMS sample

Dug out duff beforehand but still missing 2 cylinders at top

Some char visible in lower layers

\* little worried RE compression

**SALM-02-03** 🡪 AMS sample

Very dense clay at the bottom; visible char

All cylinders full

**SALM-02-04** 🡪 AMS sample

Taking because 02-02 and 02-03 won’t compare well

Sampling 2 feet away

Samples are:

**SALM-03** 🡪 sampling on hilltop to the right (above) the trail

Schyer worried about how flat the surface seems, but no alder/indication of past road or disturbance (shouldn’t be a road here anyways)

N 40°37. 751’

W 124°05.630’

**SALM-03-01** 🡪 soil pit, 30 deep

Pit looks good, visible charcoal right away, small duff layer

Sampled @: d22, d15, d16, d13, d11, d9, d12, d7, d4, d4, d3, d22, d15(may be same as earlier 15), d19, d3 (small), d12 (small), d8, d8 (diff), d13 (may be same as earlier), d15 (not sure it’s charcoal), d4, d7 (not sure it’s charcoal)

**SALM-03-02** 🡪 AMS sample

Came out okay, lots of charcoal

Very dense clay at bottom

**SALM-03-03** 🡪 AMS sample

Went in at a bit of an angle, had to dig out (stuck between two roots)

**SALM-03-04** 🡪 AMS sample, took another one since the roots in 03-03 took up nearly a cylinder

All cylinders filled

**WORF-01** 🡪 7/2/17, sampling on a hilltop on the right fork of the worm trail

\*not the highest point on the trail but doesn’t appear to be another large ridge, will return to higher hill later in the day

Not as foggy as yesterday, but also further east

Dense understory, lots of sorrel and huckleberry

N 40°38.026’

W 124°03.698’

**WORF-01-01** 🡪 soil pit, 22 cm deep

Small duff layer, tan colored soil with specks of orange, some visible char

Sampled at d10, d5, d13 (may not be char)

**WORF-01-02** 🡪 AMS sample

Went in easy, came out easy

All cylinders full, some visible char

*Samples are:* A-G

**WORF-01-03** 🡪 AMS sample

Same as 02-02

No A cylinder

Charcoal visible at bottom, some roots

*Samples are:* B-G

**WORF-02** 🡪 small bench (spot of flat ground) on side of S/SW facing slope [aspect 240]

Very wet vegetation layer below one big redwood conglomerate

N 40°38.034’

W 124°03.712’

**WORF-02-01** 🡪 soil pit, 21 cm deep

Tan-colored soil, ~ 1 cm duff layer

Lots of visible charcoal

Sampled @ d12 (big), d7(big), d9 (also big, may be connected to previous), d5, d3, d20

**WORF-02-02** 🡪 AMS sample

Went in easy

Very little in first 2 cylinders (A and B), soil may have been compressed

*Samples are:* A-G

**WORF-02-03** 🡪 AMS sample

All cylinders full

*Samples are:* A-G

**WORF-02-04** 🡪 AMS sample

Taking one more to compare better with 02-03

Went in “really easy”

Northing in A, very little in B

*Samples are:* B-G

**WORF-03** 🡪 top of hill at beginning of right fork of worm trail

Highest point on right fork (almost 2000 ft)

Right side of trail (when walking out), NE facing slope

N 40°37. 858”

W 124°03.587”

**WORF-03-01** 🡪 soil pit, 25 cm deep

Sampled at: d8, d10 (small), d11, d7, d15

**WORF-03-02** 🡪 AMS sample

All cylinders full

*Samples are:* A-G

**WORF-03-03** 🡪 AMS sample

All cylinders full

*Samples are:* A-G

**WORF-04** 🡪 sampling on other side of road (left when walking out)

Vegetation very dense, lots of leaves

N 40°37.827’

W 124°03.597’

1993 ft

SW facing slope

Still on hilltop though, so not very steep

**WORF-04-01** 🡪 soil pit, 20 cm deep

Dense clay at bottom, visible charcoal

Sampled at: d10 (may have fallen out of bag), d19, d19 (not connected to earlier)

**WORF-04-02** 🡪 AMS sample

Hard to hit in all the way down

Stuck in very dense soil, had to dig out

*Samples are:* A-G [B^2, C^2, G^2]

**WORF-04-03** 🡪 AMS sample

Again, hard to get in and get out (shoveling out)

🡪 theory is, clay may be binding

got out fine

*Samples are:* A-G [B-F^2]

**WORF-05** 🡪 found offshoot road, very overgrown, sampling off road

N 40°37.831’

W 124°03.566’

**WORF-05-01** 🡪 soil pit, 20 cm deep

Sampled at: d10, d5, d5, 6, d7, d8, d10

**WORF-05-02** 🡪 AMS sample

Hard going in, had to dig out

Using smaller bags again, so some samples are doupbled

**WORF-05-03** 🡪 AMS sample

Had to dig out again

**WOLF-01** 🡪 hiked into left side of worm trail (left fork)

30 minutes down trail in old growth

found second hill, sampling on hilltop on right side (right while entering); will sample left next (WOLF-02)

Lots of young redwoods lining old road, hiked in past them to get past potentially disturbed border zone

N 40°37.691’

W 124°04.201’

1744 feet

N/NE facing slope

**WOLF-01-01** 🡪 soil pit, 25 cm deep

Dug one soil pit at original site but soil was very compacted, so we moved further away from the road in fear of disturbance

Second site was much better – dense still but not as bad [GPS should be the same, well within the error level]

B layer is very dense clay

Lots of charcoal visible as pit was being dug

Sampled at: d15, d5-6.6, d12, d8, d2, d15, d10, d11, d8, d9, d4 (may be rotten wood), d12, d10, d12, d13, d14 (may be root), d3 (may have rotten wood in it), d5, d15, d0 (may have fallen from above), d15 (may be the same as earlier d15), d20, d16

**WOLF-01-02** 🡪 AMS sample

Dug out, stuck in dirt pretty hard,

All cylinders very full – Schyler thinks soil is dry/hard enough that it isn’t compacting like yesterday

**WOLF-01-03** 🡪 AMS sample

Hard going in, had to dig out again

All cylinders full; some dropped out of G (bottom)

Large pieces of charcoal visible when we broke apart samples

**WOLF-02** 🡪 sampling on left side of road

Small hilltop on larger slope (NW facing)

Next to an older redwood with fire scar; again, trying to get away from road disturbance

May be difficult to find spot without roots

N 40° 37.683’

W 124°04.227’

**WOLF-02-01** 🡪 soil pit, 18 cm deep

Lots of roots on top layers of soil that are hard to get through (“not a pretty pit” – schyler)

25 cm deep, ~8 cm of duff, no visible charcoal…

Digging second pit a little higher up and further from roots

Sampled at: d5, d3, d10 (may be rotten wood), d6

**WOLF-02-02** 🡪 AMS sample

Hard going in, felt a root

All cylinders full

**WOLF-02-03** 🡪 AMS sample

Hard going in, dug out

All cylinders full

**WOLF-03** 🡪 sampling on right side of old growth closer to the border [border of old vs second growth] – close to the fork with the camera

Lots of roots in soil (relatively close to a few big trees and a tip-up)

N 40°37.742’

W 124°03.853’

**WOLF-03-01** 🡪 soil pit, 45 cm deep

Can see transition (even-gradient) from brownish-gray to even-tan towards bottom

Soft (“fluffy” – schyler) soil layer under root layers; can dig with hands

Sampled at: d10, d35, d32, d28, d45, d33, d40, d40, d30, d28, d34 (may be rotten wood),d30, d29, d30, d30 (may be related to first 30), d25, d19, d40

**WOLF-03-02** 🡪 AMS sample

Stuck in bottom hard layer of soil (F cylinder was hard to get out)

All cylinders full (even all of A)

**WOLF-03-03** 🡪 AMS sample

All cylinders full

**WOLF-04** 🡪 sampling on other side of road, in past big trees (with scars)

N 40°37.726’

W 124°03.864’

**WOLF-04-01** 🡪 soil pit, 20 deep

Solid clay at bottom

Sampled at: d10, d3, d14, d12, d12, d16, d17

(one sample lost – depth not recorded)

**WOLF-04-02** 🡪 AMS sample

Very oxidized soil, hard to remove

**WOLF-04-03** 🡪 AMS sample

**GOG-01** 🡪 sampling in governor’s grove up on a hilltop in between a number of tagged trees

N 40°37.172’

W 124°04.845’

NW facing slope, 1560 ft

Trees tagged in vicinity: 8863, 8766, 4736, 4738

**GOG-01-01** 🡪 soil pit, 25 cm deep

Visible charcoal, lots of roots

\*\* this is a good one to radiocarbon date right away, lots of samples spread out throughout pit

sampled at: d18, d15, d14, d12, d11, d9, d10, d7, d6, d5, d3, d2, d1, d14, d18, d2, d5, d9, d4

**GOG-01-02** 🡪 AMS sample

Hit huge root on first attempt, trying further away: attempt 2 went fine

All cylinders full

**GOG-01-03** 🡪 AMS sample

All cylinders full

**GOG-02** 🡪 climbed to absolute top of hill in governor’s grove

N 40°37.147’

W 124°04.821’

[w/I 16 m]

1737 feet

**GOG-02-01** 🡪 soil pit, 20 cm deep

Visible charcoal right off the bat

Sampled at: d16, d7, d8, d12, d10, d9, d7 (may be related to earlier 7), d4, d8, d5

**GOG-02-02** 🡪 AMS sample

All cylinders full (had to dig out)

**GOG-02-03** 🡪 AMS sample

All cylinders full