**Field notes**

**Redwoods**

**August 2016**

**Headwaters Pond** – 8/29/16

* Dried up, soft mud surface
* Dan G., David LaFever, Kate Hayes

**HEAD I** – 40.62389N 124.03180W (+/- 5m)

\* 0 is lower edge of plywood

**> Drive A**: 100-21=79cm push

* Suction below piston – we may not have obtained lower part of drive
* 50 cm recovery (0-50)

**> Drive B**: push 13 cm

* refusal – wood?
* 12 cm recovery
* uniform dark brown

🡪 Decided best to sample site I using shovel, monolith collection

**Headwaters Pond –** 8/30/16

**HEAD II** – 40.62405N 124.03172W (+/- 6m, 7 satellites)

(Saved waypoint GPS)

Move to wet spot, very soft sediment. Water table at mud surface. Using rafts and platform.

**> Surface core**: 3” polycarb tube, tube is 1 m exactly

* Mud to platform = 17.5 cm(See iphone photos)
* Plan to push until we see sediment refusal (lowering of uppermost sediment)
* 46 cm push – starting at mud, mud fell out when pulled out surface
* Try again – start 13 cm above mud
* Push 40 cm – recover 40 cm
* Inserted plug under mud
* Could see red algae dragged down a few cm. Need to clean outer 1.5 cm

Take Livingstone 12 inches from HEAD II SS (off edge of platform)

**> [did not keep]** Drive A*:* start 20 cm into mud

* 106 cm of Livingstone tube above mud when starting drive
* pushed to 81 \_\_\_\_, hit wood
* 106 – 81 = 25 cm push so 45 cm total
* Therefore not saving

> **Tried through platform hole**

* 30 cm push, hit wood

> **Other side of platform**

* 20 – 72 cm, 49 cm recovered
* 49 cm recovered, probably lost top

> **Drive A:** 170 cm east of surface core

* 23 – 72 cm
* Bottom 10 cm firm, upper 20 cm soft
* 2 iphone photos of wrapping up core
* 2 theodolite photos facing east

> Try drive B next to A:

* start 40 cm, push 28 cm therefore 68 cm, not any deeper

\* Frog population indicates consistently wet

More probing wet areas, consistently 50 cm of sed

**HEAD III:** N 40.62392, W 124.03160 (+/- 5 m) [located between I and II]

**> Drive A:** 60 cm push

* recovered 49 cm
* Looks good – iphone photo
* Uniformly firm
* Woody material throughout

Snags have lots of char (fallen snags around core site)

**> Drive B**: 14 cm push

* Big chunk of wood at base, ~ 60-74 cm?

**> Drive C:** Start 30 cm down

* New hole 6” away
* 56 cm push, 42 cm recovered
* solid, firm. Most likely missed base
* so, 30-72 cm

**> Drive D**: new hole, start 50 cm

* 23 cm push, 21 cm recover
* 50-71

**HEAD I -** Return to site I to fill gap [new hole]

**> Drive C**: start at 30 cm

* 26 cm push
* recovered 19 cm
* large wood, cut through one side of core

**2:00 pm** - giving up on more from site I, going to \_\_\_ area on other side of large log

**HEAD IV** – N 40.62382, W 124.03184 (+/- 2 m), 8 satellites

**> Drive A**: next to old snag

* 90 cm push, 82 cm recovery
* light to dark brown, firm @ base
* some drag-alongs on tip to base
* \* see notebook for drawing of area

**> Drive B:** no go

**HEAD V** – 5m to log. N 40.62379, W 124.03177 (+/- 4m, 7 satellites)

**> Drive A:**

* On edge of wet spot, 41 cm push
* 1 break in core

**Soil Sampling** – 8/31/16

Governor’s grove, Headwaters

Cut banks on way in – GPS waypoint GOV-01

**GOV2** – N 40.62003, W 124.08127

* Took one soil core, extruded with treaded rod, crumbles!
* Saved O horizon (GOV2hO), A horizon (GOV2hA)
* Charcoal throughout

**GOV3** – N 40.62040, W -124.08135 (+/- 9m)

* C14 sampling on face of small pit, into vials [kate has photo of pit]
* Lots of charcoal visible
* 3 cm duff, light brown uniform AB
* Samples taken at depths (one piece at all)
  + 8 cm – GOV-03d8
  + 17 cm – GOV-03d17
  + 15 cm – GOV-03d15 (big piece)
  + 18 cm – GOV-03d18
  + 16 cm – GOV-03d16

**GOV1** – wildcat sandstone, roadcut

* Clean surface, right side of face is cleanest
* Profile:
  + 0-11: duff
  + 11-15: transitional, low density A
  + 15-40: light brown AB (orange concretions, speckled)
  + 40-45: transitional
  + 45 – 130: yellow-orange B horizon, large roots
  + 130 – 170: lighter tan angular rocks, therefore C horizon
* Taking samples for c14 dating: all single pieces into vials, using tweezers
* Several photos on OLYMPUS and iphone
* Very difficult to find charcoal below 70 cm
* Samples: 17, 23, 31, 38, 50, 52, 67
* Slope: ~28 degrees, aspect: 220 degrees [according to iphone theodolite]
* Sampled face of GOV-O1
  + 5 cm diameter, 5 cm depth (not a perfect volumetric)
  + 10-160 every 10cm, into whirlpacks

**Salmon Creek Watershed** – 9/1/16

**SCW-01** – Roadcuts, past Salmon Pass: N 40.61561, W 124. 06746 (+/- 6 m)

* Profile:
  + 0 - 40: O and A
  + 40 – 100: B
  + 100 - 171: Sands
  + \*\* 160 – 171: sheet flow deposits, fine orange layers
  + 171 – 178: Orange, iron
  + 178 – 230: Uniform sand
* Sampled garnets (?) at 171, 168, 130 with tweezers
* 3 iphone photos with tape measure
* 2 photos of 150-171 layers showing glaying, foresets?
* A horizon very disturbed, no charcoal (not easy to find)

**Worm Trail** – 9/1/16

**WORM-01 –** ridge location, N 40.62871, W 124.06454 (+/- 9 m)

* Shallow pit OG, near road
* 30 cm pit, iphone photo
* 14C samples:
  + 9 cm – small, crumbled
  + 11 cm – large, in bag (hard to break apart)
* Sampled pit 5x5 cm diameter w/ tube
  + 0-5, 5-10, 15-20, 27-32, 35-40
  + 0-5 was 5 x 10 cm area
* Profile:
  + 0-5 – duff (0), light ashy color at 4-5 cm
  + 5-9 – orange, gray
  + 9-30 – tan brown, dense, highly weathered and clay-enriched
  + \* No charcoal found below 11

**WORM-02** – ridge-top, N 40.62893, W. 124.06435

* Profile:
  + 0-2 – duff with ashy white
  + 2-25 – light gray, not as clay-rich (B Horizon)
* 14C sample at 18
* Soil seems younger, light grey-brown: no yellow tans, not clay enriched
* Soil sampling: 5 cm diameter tube samples
  + 0 – 2 (5x10 cm)
  + 24 – 30: base
  + 15 – 20: sidewall
  + 5 – 10: sidewall

**WORM-03** - gullied stream in alder, N 40.62296, W 124.06887 (+/- 15 m)

* In alluvium, next to trail, easy to clean free
* Profile:
  + Very little duff, almost no O horizon
  + Specks of charcoal throughout
  + 0-57: dark brown silt clay (chocolate)
  + @ 57: large tan layer
  + 57 – 65: more dark brown
  + 65 – 80: densely mottled (discrete), brown with orange mottles ~20%
  + 80 – 95: lighter brown and grey with indistinct orange mottles
  + 95: abrupt contact to lighter brown and grey, dense clay with visible char
    - contains rotted roots
* Samples: 12, 51, 55, 59, 68, 72, 97, 110, 110b
* Bags of soil: every 20 cm, not volumetric
  + 20, 30, 40, 50, 60 (char piece observed), 80, 100

**Salmon Creek Trail** - 9/14/16

**8:30 am** – started hiking Salmon Creek trail

Few interesting spots in 2nd growth:

- bank cut by stream

- some road cuts but very weathered

**10:00 am** – Old growth

Tried digging a soil pit off the trail on a slope between trees. Lots of duff, roots as deep as 10 cm (roots made it nearly impossible to maintain a vertical surface).

Tried a 2nd soil pit 2 feet away, had same problem. Did not sample either, looking for a less vegetated spot.

**11:00 am** – Found a face of exposed soil left by tree tip up

Found a nest of fist-sized spiders. Only freaked out a little.

**> SCT-01:** N 40.628102, W 124.092083

* Soil Profile description:
  + 0-4 cm duff, roots
  + 4-17 cm grey, roots
  + 17-30 transitions, roots
  + 30-90 thick orange, hard to chip away
  + 90-190 orange clay, easy to shovel, still some roots
* 3 charcoal samples taken from face:
  + d \_\_, d16, d24 [not any visible charcoal below]
* Sampled face of SCT-01: 5 cm diameter, 5 cm depth (though not perfect)
* 10-190 cm, every 10 cm
  + smaller bags at 150 cm
* Also took some miscellaneous surface charcoal samples
  + SCT-01-SA: fragment of charcoal from trunk of fallen tree (from tip-up)
  + SCT-01-SB: chunk from surface of ground above fallen tree
  + SCT-01-SC: chunk from trunk segment of tree still in the ground

**> SCT-02:** Small stream bank, 2nd growth

* 0-35 cm uniform tan brown, with mottled orange/white ovals throughout
* Sampled charcoal throughout for RC
  + Depths 0, 3, 13, 19, 25, 30 & 35 cm
* Took volumetric samples every 10 (0, 10, 20, 30 & one straight vertically at bottom [35])
  + Decided to do every 5 cm, lots of charcoal in samples

**Worm Trail -** 9/16/15

9 am – hiked up Worm Trail, took the right fork instead of the left at the fork with the camera

Found highest spot in old growth, lots of understory vegetation

**> WOMT-01**: Small soil pit

* 30 cm deep, 2 cm of duff
* Soil very dry and dusty, almost like ash all the way down
* Sampled charcoal @ d5, 9, 12, 15, 19
  + Piece @ 15 may be same as 12, 12 was large
* Took soil samples at every 10 cm, 5X5 cm volumetric
* Soil was so loose, taking samples was a little bit fussy
  + Not any change in consistency on the way down

**> WOMT-02**: dug similar soil pit across trail from first

* Noticeable difference in soil – darker brown, more compact
* Only 22 cm deep, hit something hard at bottom, ~1 cm of duff
* Sampled charcoal @ depths 2, 7, 10, 12, 15
* Took volumetric soil samples @ 0, 10 & 20
  + Harder than usual, think it may be because of combination of roots and loose dry soil
  + 10 & 20 cm especially are smaller than typical samples

More useful things for soil sampling:

* Headlamp
* Clippers for roots
* Lupe (magnifying glass)
* Short ladder?