Stage-8 Strategies for Riparian Activation and Mega-Sized BDAs for Full Floodplain Inundation

Matt Gamel:

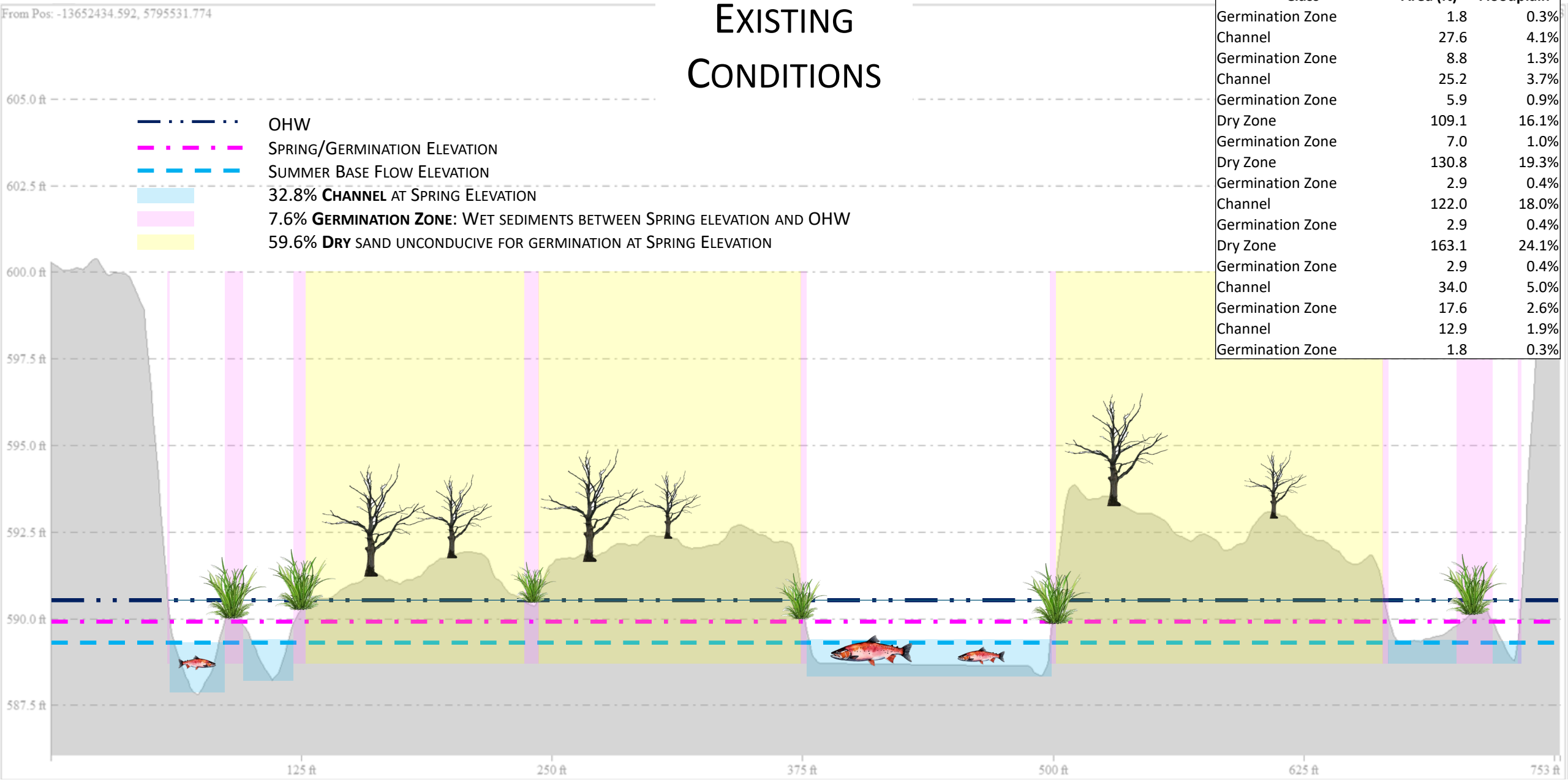
Lower Columbia Fish Enhancement Group


37 USA
Greetings
FROM
HAWAII
2002
Shout out to Brice Crayne, currently enjoying Hawaii ☺

HARRINGTON CREEK WINTER BEFORE CONSTRUCTION

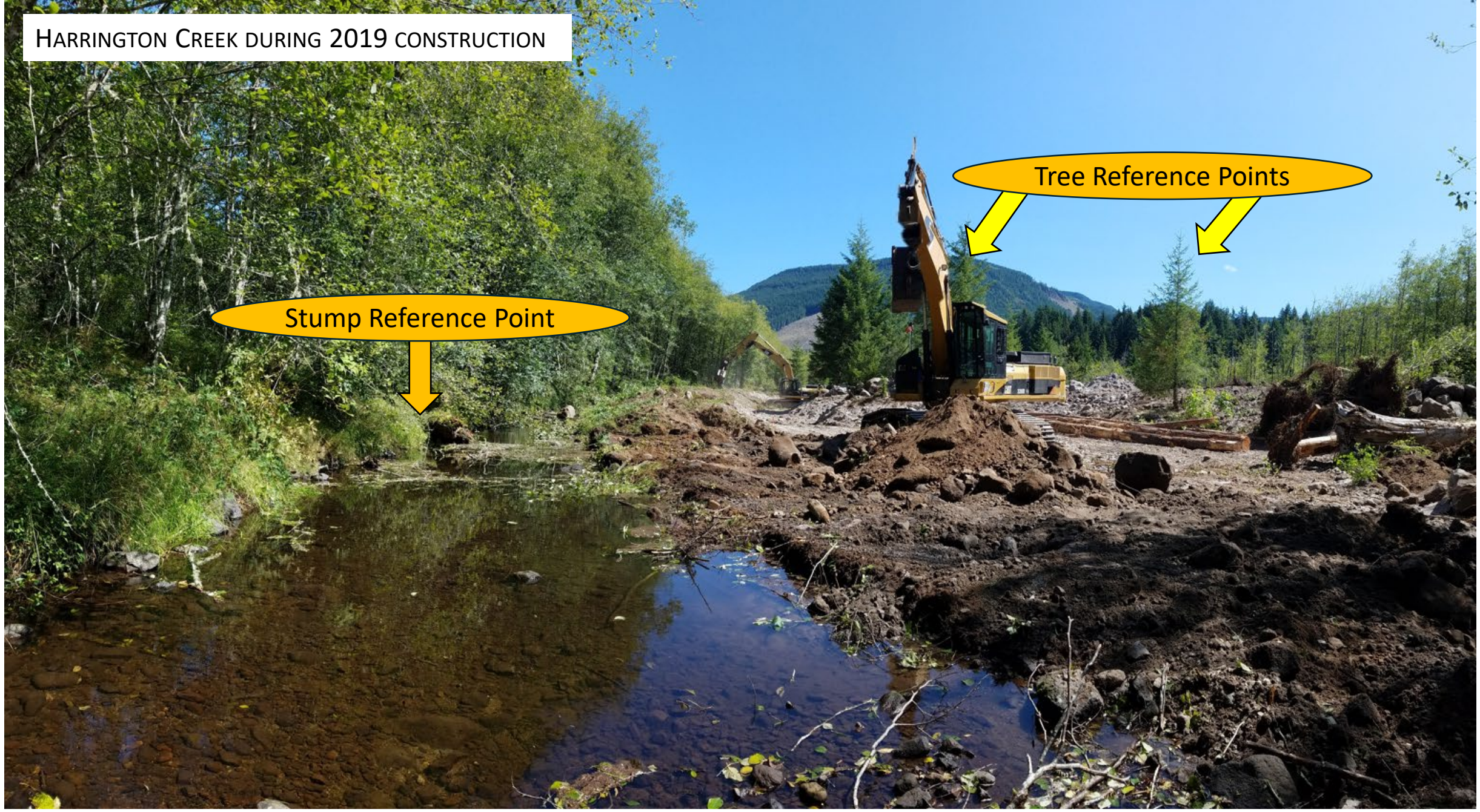
THE ORANGE ARROW POINTS AT A ROTTEN MAPLE LOG ON THE BANK OF THE STREAM.

Existing Conditions



Class	Width of Area (ft)	% of Floodplain
Germination Zone	1.8	0.3%
Channel	27.6	4.1%
Germination Zone	8.8	1.3%
Channel	25.2	3.7%
Germination Zone	5.9	0.9%
Dry Zone	109.1	16.1%
Germination Zone	7.0	1.0%
Dry Zone	130.8	19.3%
Germination Zone	2.9	0.4%
Channel	122.0	18.0%
Germination Zone	2.9	0.4%
Dry Zone	163.1	24.1%
Germination Zone	2.9	0.4%
Channel	34.0	5.0%
Germination Zone	17.6	2.6%
Channel	12.9	1.9%
Germination Zone	1.8	0.3%

Harrington Creek during 2019 construction



We took about 3 feet off the adjacent floodplain surface. No dewatering or removing fish from the channel was required. We left islands where 20-30’ tall Douglas fir trees were already established (see yellow arrows).

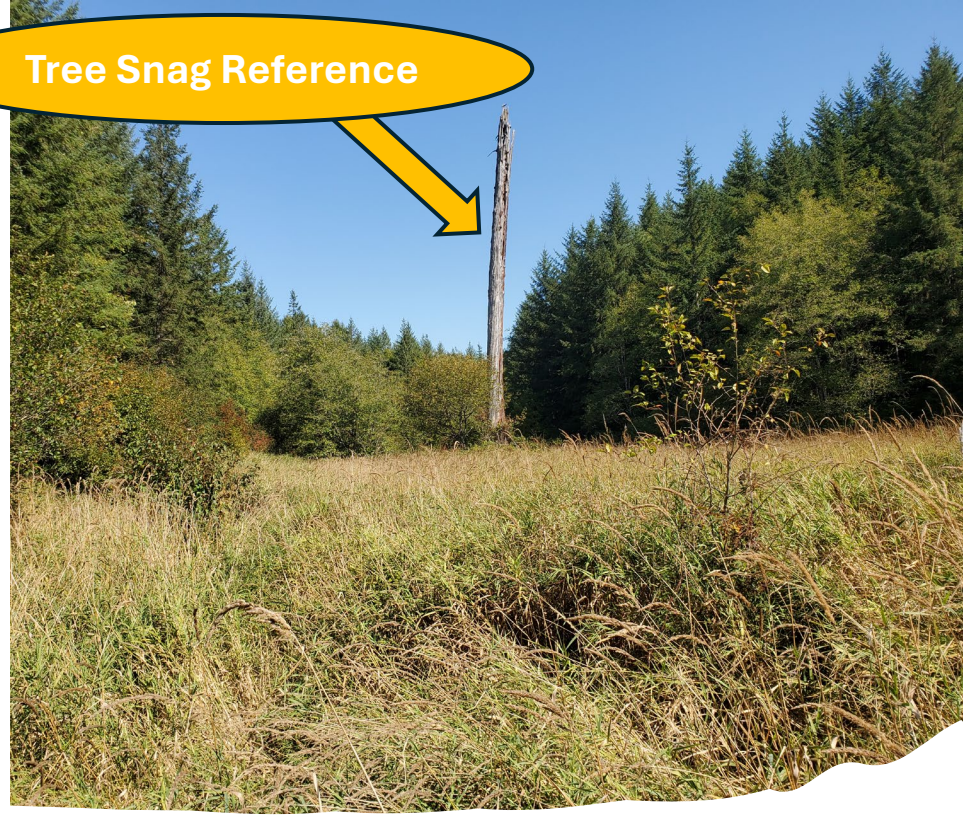

HARRINGTON CREEK AUGUST 2023
Tree Reference Points
Stump Reference Point
90 PERCENT OF THE VEGETATION SHOWN HERE IS FROM NATURAL REGENERATION.


Harrington Creek January 2025
Tree Reference Points
Stump Reference Point
Harrington Creek has become a reference reach for Winter Rearing Habitat for coho and steelhead

Pause for Video #1: Brice LTPBR Presentation

https://youtu.be/9Rehm9IHv_0?si=J-YvpwSnGQhWH3U9

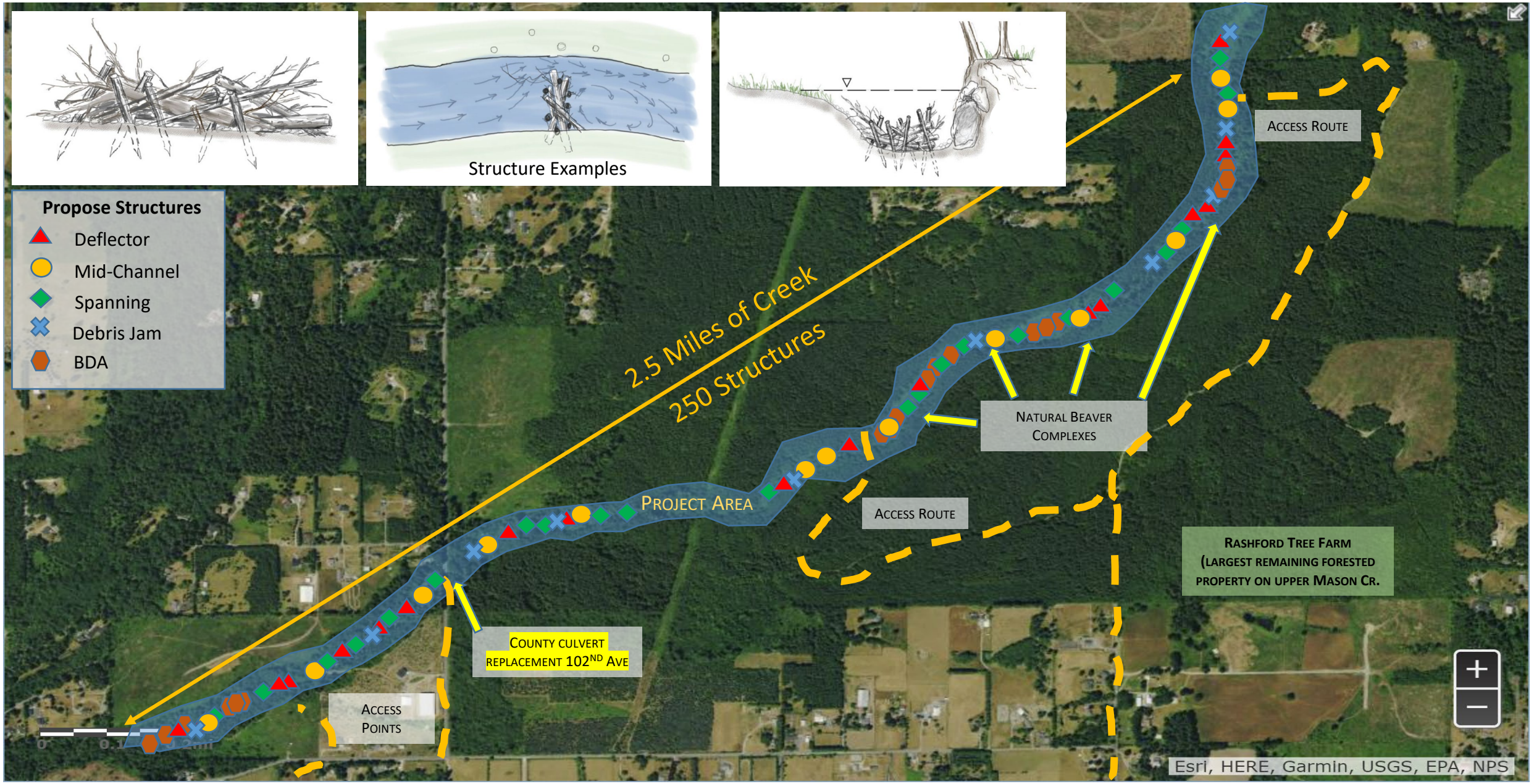
Introducing the Meadow Maker!



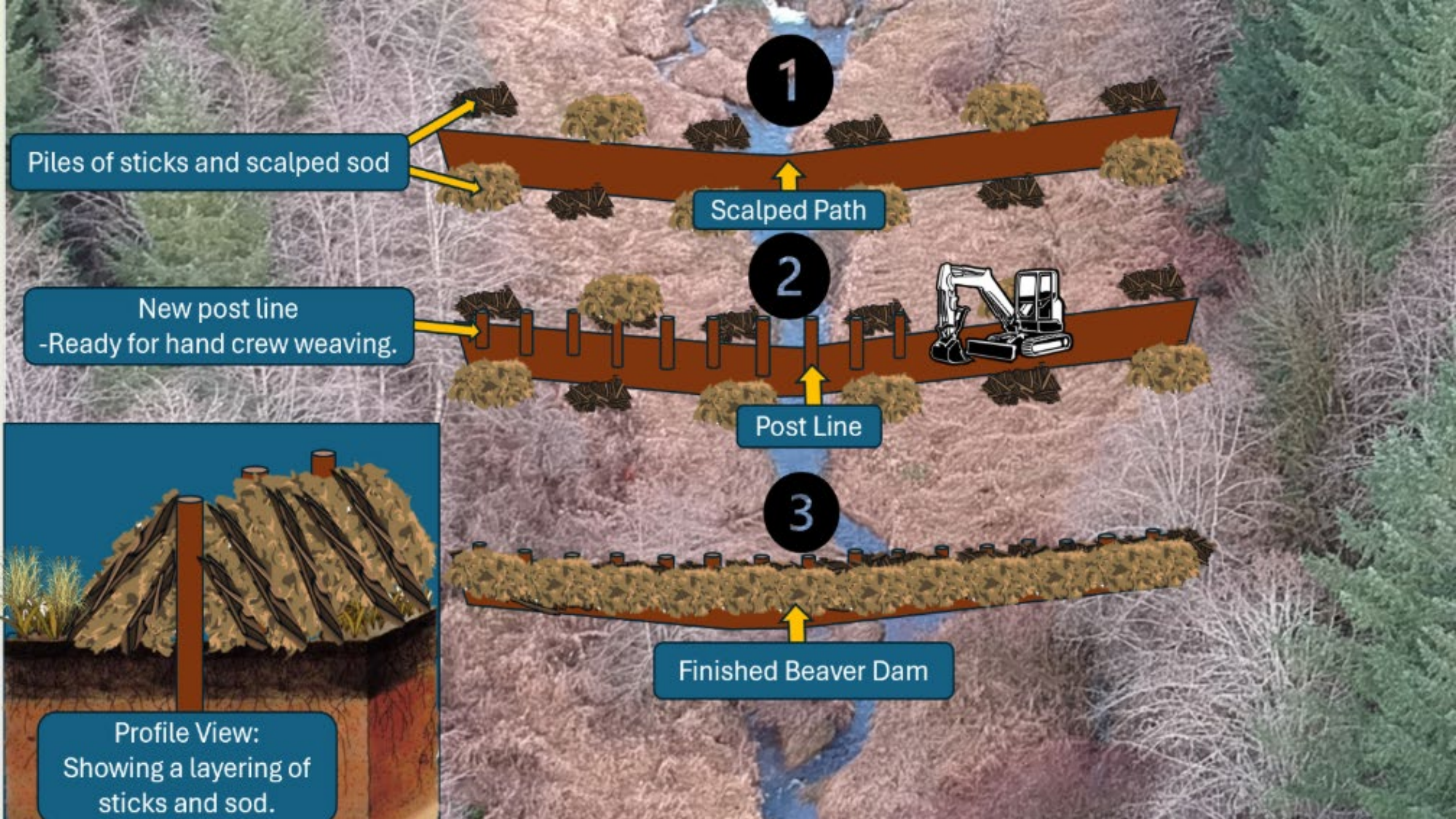
Mason Creek

-Problem Child with Great Potential

- Historically perennial
- High salmon returns
- Currently drying up…
- Yearly fish strandings…
- Beaver ponds are the only places staying wet
- Full of invasive Reed Canary Grass



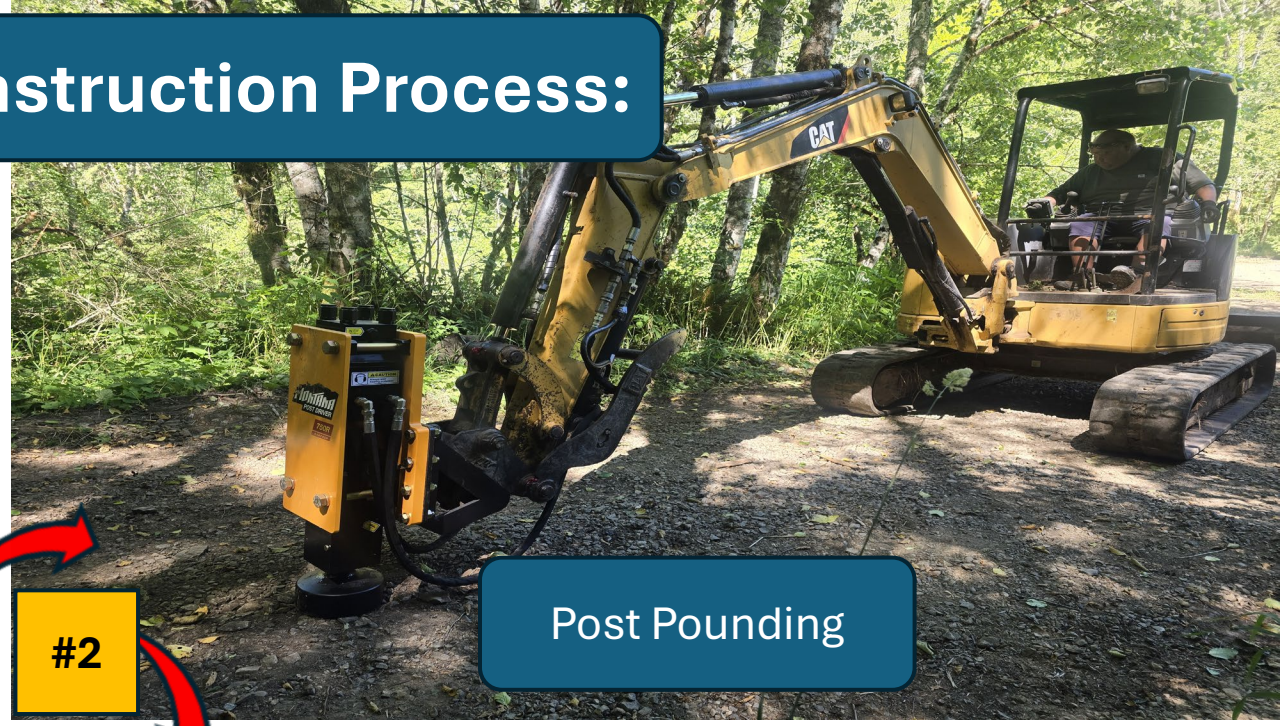
Mason Creek Stewardship	Lower Columbia Fish Enhancement	PROJECT LAYOUT AND ACCESS MAP	SRFB APPLICATION


1
Piles of sticks and scalped sod
Scalped Path
2
New post line
-Ready for hand crew weaving.
Post Line
3
Finished Beaver Dam
Profile View:
Showing a layering of
sticks and sod.

Meadow Maker Construction Process:

Scalp and Smooth

#1



#2

Post Pounding

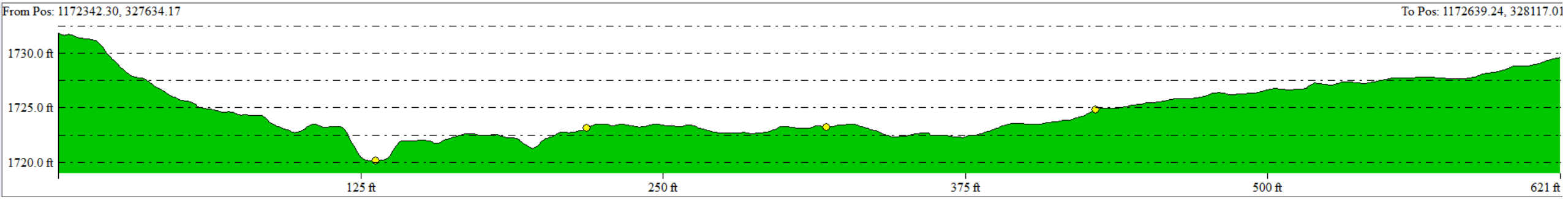
#3

Level and Trim

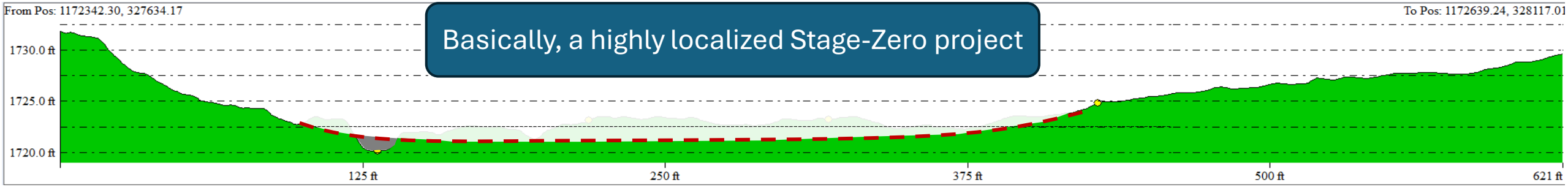
#4

Weave and Pack

Existing Cross Section

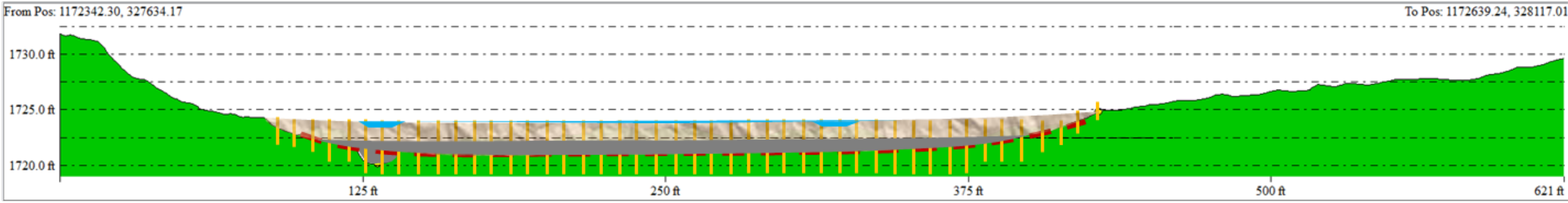


Proposed Cross Section – Showing Cut/Fill w/out Posts and Debris



Basically, a highly localized Stage-Zero project

Proposed Cross Section – Showing Cut/Fill, Posts, and Debris



350-foot wide BDA

Reed Canary Grass:

- RCG makes excellent building material.
- Meadow Makers effectively flood out large areas of RCG.
- Requires 18 inches of inundation to kill RCG.
- Preemptively scalp and plant what will be the new pond edge.
- Best success with spring-fed, consistent systems.

Why go big?

- Because beavers do!
- More creeks are going to go dry, and you will need big changes to reverse that.
- If you can’t return year-round flow, then large/deep pools are essential.
- Fire is what sold the landowner on this project. And if you want to stand a chance of stopping a big fire, you need a very wide and very wet floodplain.
- Bigger floods…this system held up great during the last atmospheric river because it had the entire floodplain, and it used it!
- Because fish and beavers love it!

Environmental Amnesia…

We forget that what we see today is not normal!

Beaver Dams can be **Very Large** and **Very Stable!**

Half Mile Long!!!!

Oldest Beaver Dam:
125,000 years old and still standing!!!

Thank you, Emily Fairfax

Key Takeaways:

- Only install in low-risk areas! Damaged infrastructure is bad news for everyone.
- Install many structures! Redundancy is key to functionality and safety.
- Plan for post-project maintenance! Large dams require a large beaver crew, which in turn requires a large, stable food supply.
- Fish passage is NOT an issue! Provided you place your structures close together and gradually increase the height.

Pause for video #2: Matt LTPBR Presentation

https://youtu.be/5t5pDSxHmOI?si=lsaR_vAgxhyKbMII

Thank you!

Beaver
Taught Salmon

To Jump!