Yakima/Klickitat Beaver Restoration Project

Sponsored by:

Yakama Nation Wildlife Resource Management Program

Presented by:

Dave Blodgett III, YN Waterfowl Biologist

Tom Elliott, YN Riparian Biologist

What is the Yakama Nation Wildlife Resource Management Program?

Mission Statement:

Protect, restore and enhance the ecosystem integrity and traditional use of wildlife and other natural resources while supporting a culturally and economically strong, self-governing Sovereign Nation.

Yakama Nation Resource Values: Water First

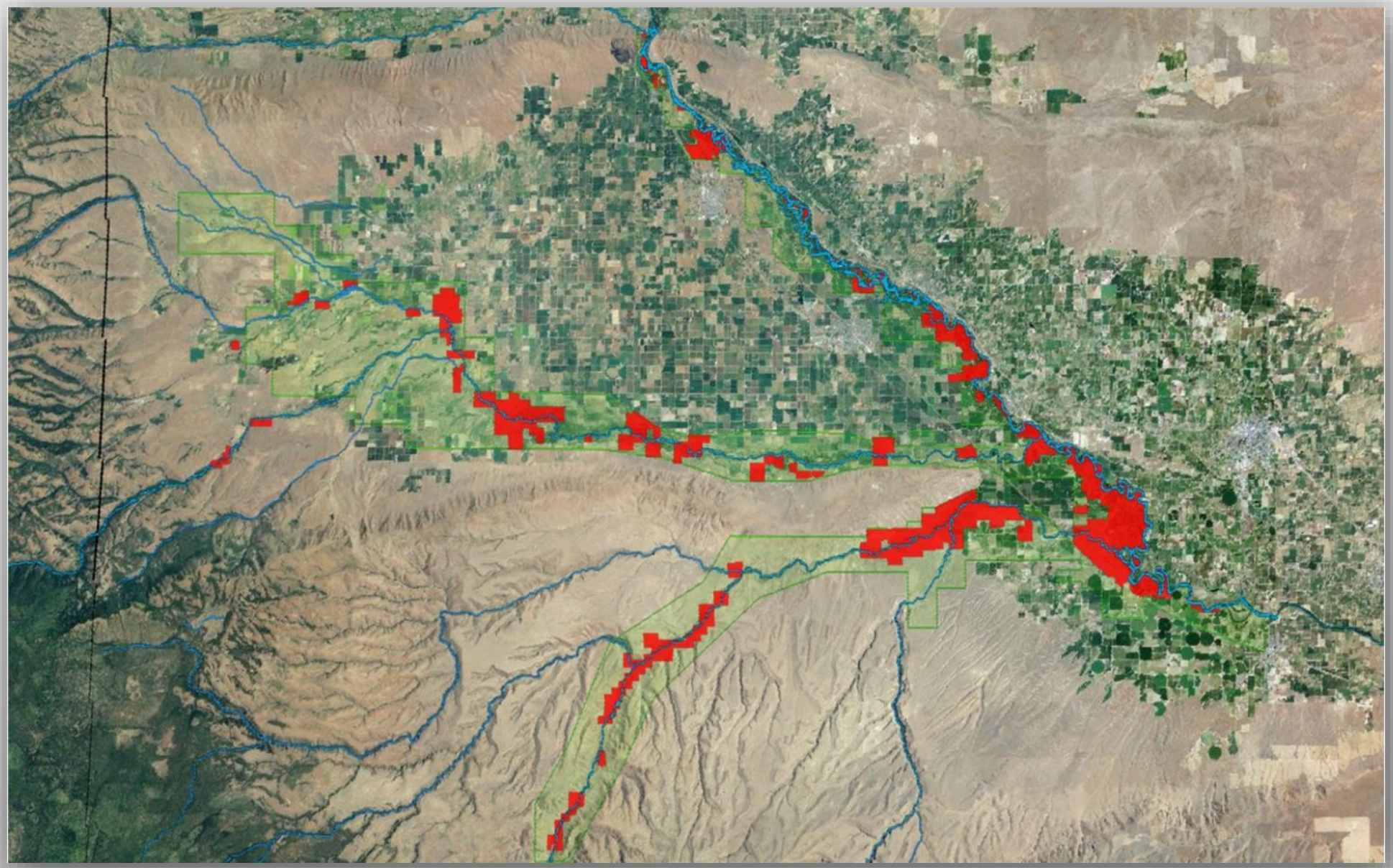
Riparian and Wetland Program: Protecting and restoring YN wetland resources

Integrate tribal and scientific knowledge to restore floodplain habitat.

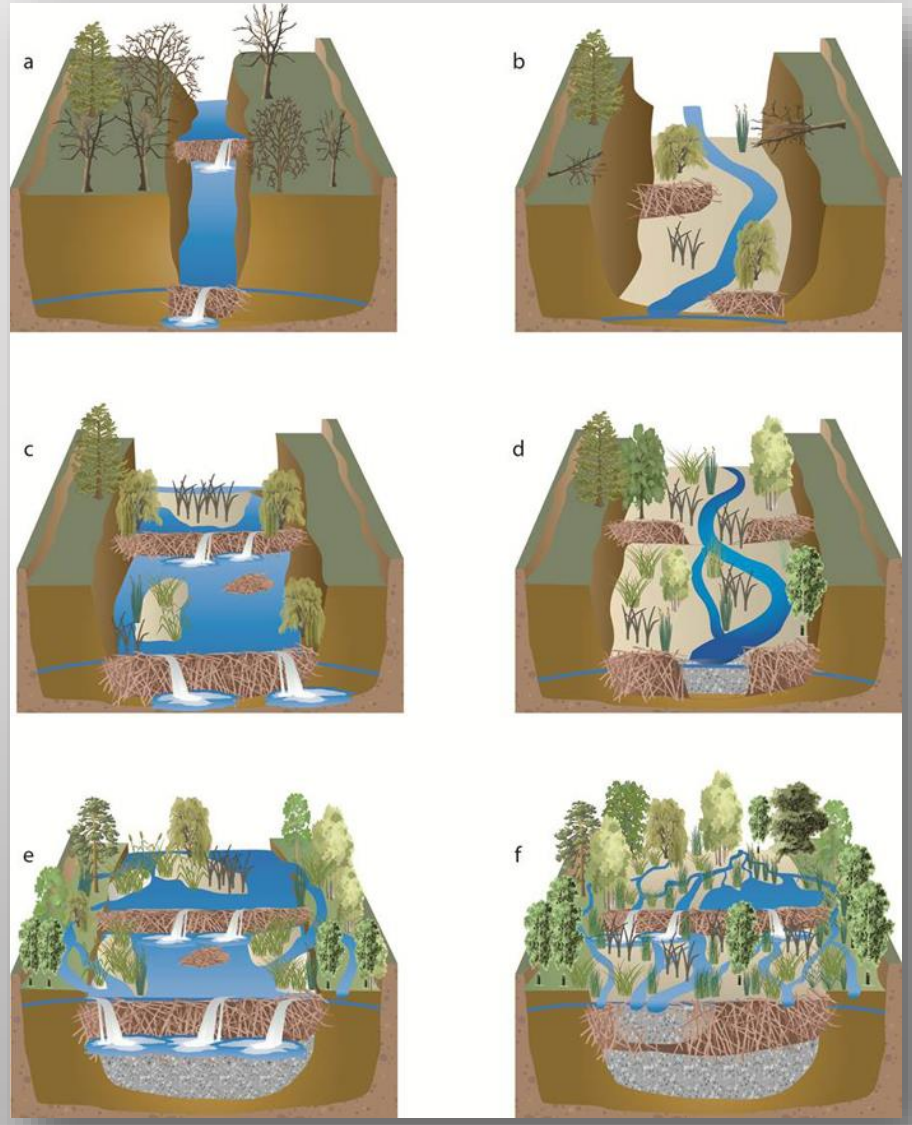
Protect, restore and manage large, contiguous areas.

Over 21,000 acres protected, 4000 acres of wetland managed, 590 acres of water rights returned to instream flow.

Connect dewatered floodplain wetlands and channels.



Yakima/Klickitat Beaver Restoration Project



Benefits

- Increased water retention and base flow
- Decreased peak flows
- Expand habitat area and complexity
- Reconnect floodplain
- Increase groundwater recharge
- Sediment Retention
- Temperature moderation
- Nutrient cycling and decontamination

Project Goals

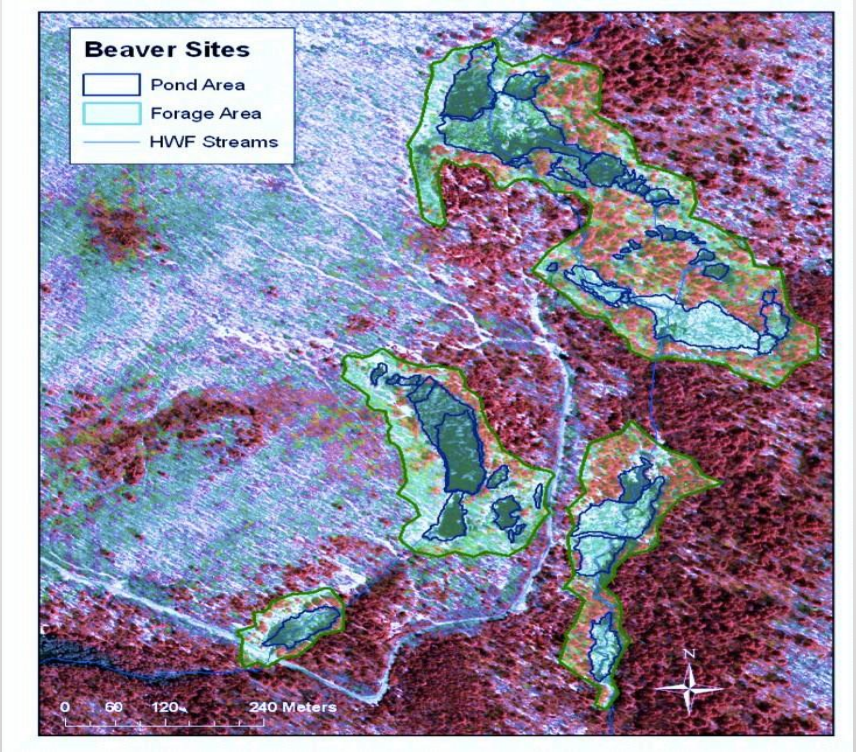
- Restore hydrological connection between channel and floodplain-inundation frequency and duration
- Increase area and quality of wetland and riparian habitat-ponding, complex habitat mosaic, meadows
- Increase beaver population in headwater streams
- Increase water quality and, potentially, quantity locally and downstream
- Develop low-cost restoration methods for smaller streams and meadows

What do we know?

- Beaver Biology
- Traditional Ecological Knowledge and cultural values
- Scientific Support

Beaver 101: The Colony

- Colony unit = 6–8 related individuals
- Avg. litters = 2–5 kits
- Young stay with parents at least 2 years
- Adults (>2 yrs) disperse to establish new lodge, 1 – 25k away from natal site
- Territories marked with scent mounds
- Home ranges tend to follow shorelines in lakes, ~1km in streams
- Colony saturation densities vary with landscape and region



John Stella

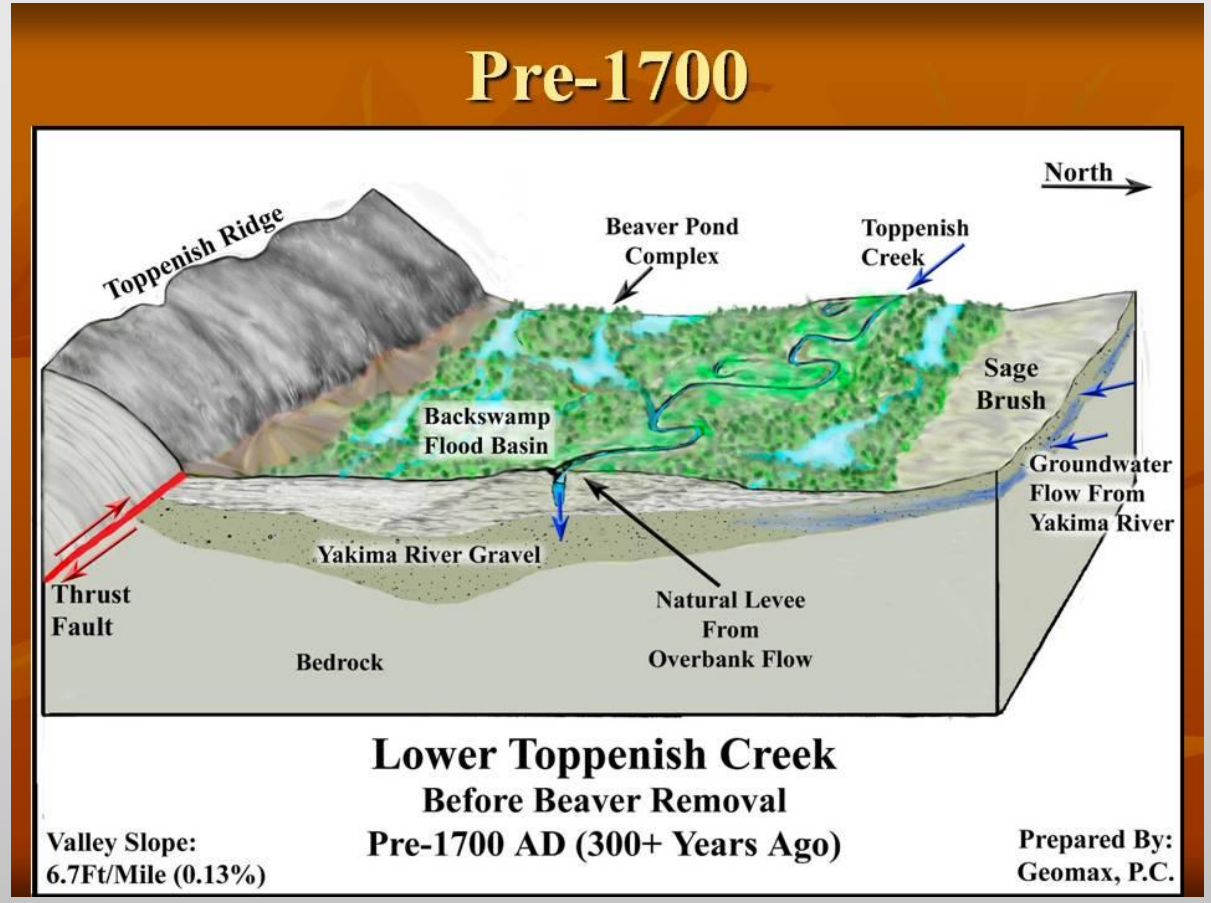
Yes, that's all well and good, but what we're really here to learn about is…

BEAVER DAMS

- Created to impound water around lodge
- Dam location / repair cued by running water
- Dams constructed of wood and available debris (e.g., plastic, metal)
- Dams are porous and not permanent
- Where palatable species are rare, conifers are used more in dams, with hardwoods saved for the food cache

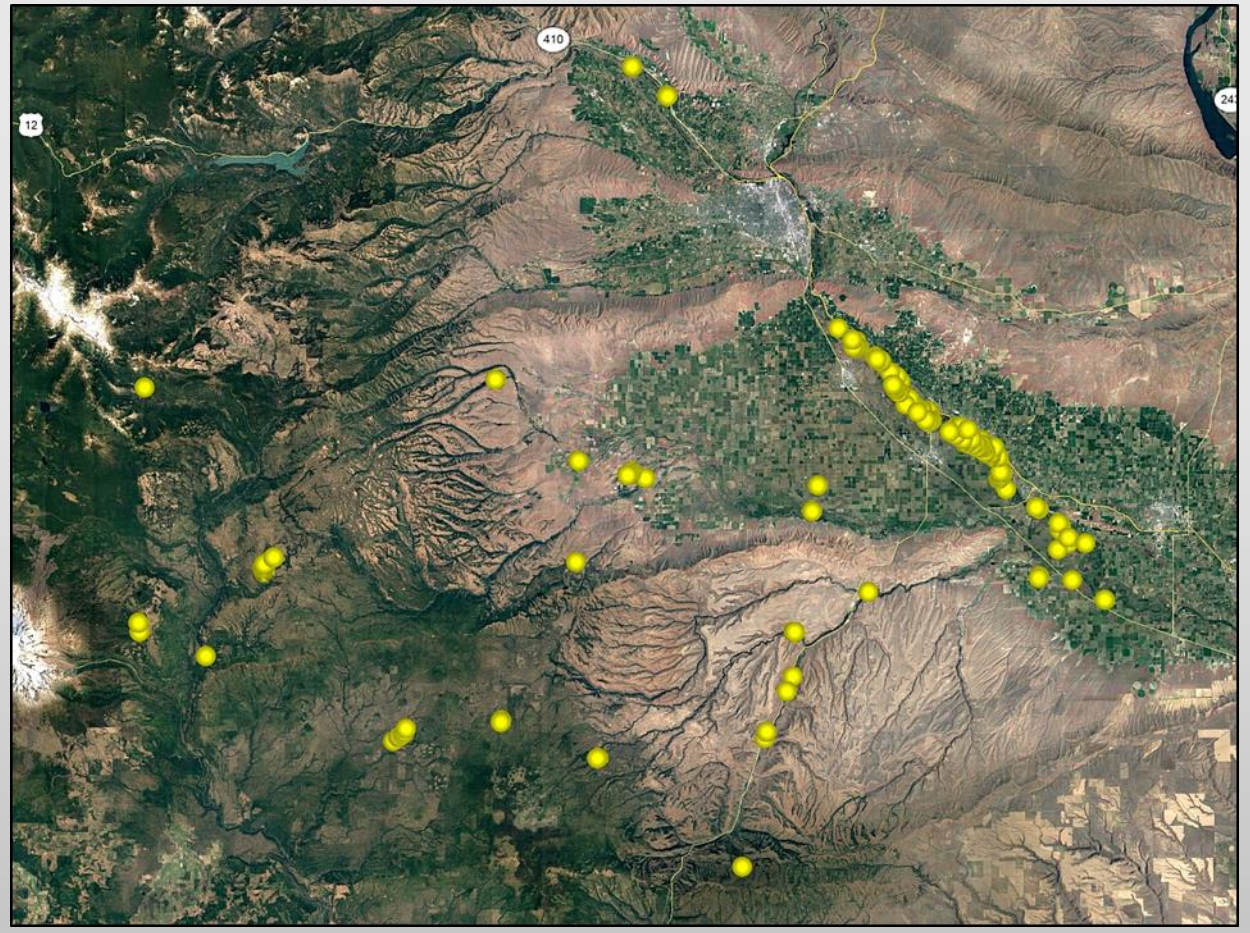
Tribal Knowledge- Values

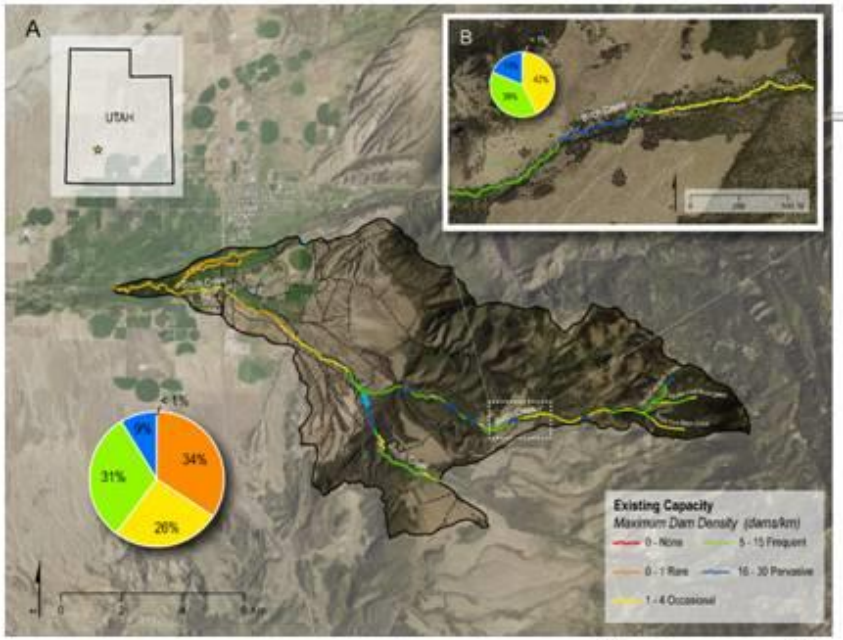
- Elders and other tribal members remember more dams and beavers on the landscape
- References to specific locals: “Beavers used to run Toppenish Creek”, beavers along Dry Creek before overgrazing
- Cultural plants in meadows being lost, perhaps because of reduced beaver dams
- Guide us in what to do (bring back beavers) and where

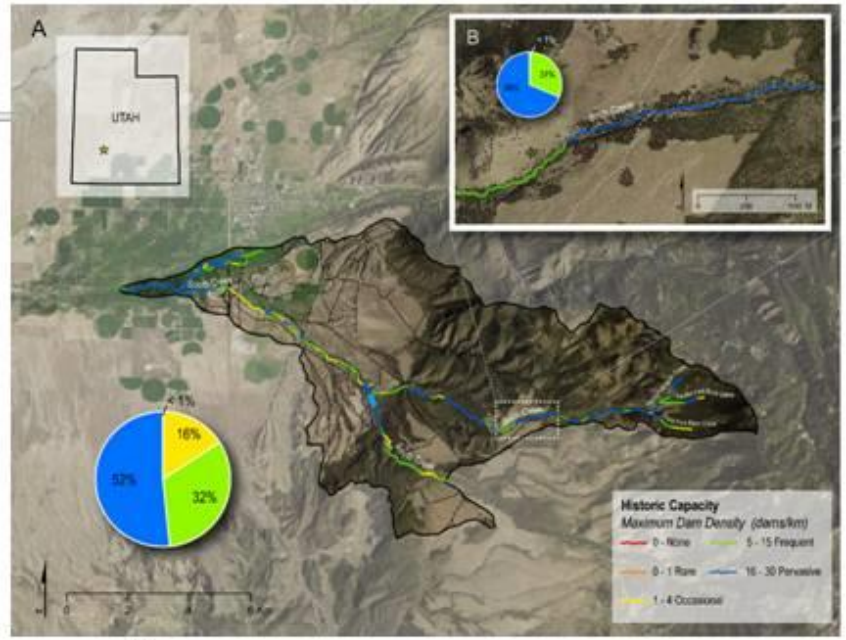


Scientific Support- Modelling, Assessments, Monitoring

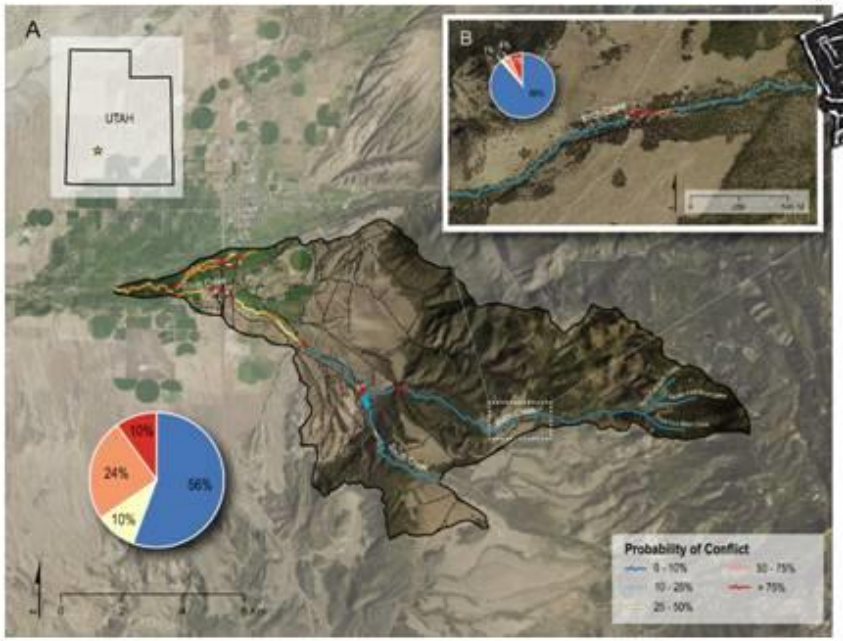
- BRAT (Beaver Restoration Assessment Tool)
- Mapping of beaver dams
- Rapid Meadow Assessment in 2011 (RMA)
- Meadow Vulnerability Assessment in 2018
- Adaptive approach-need to monitor in cost-effective manner

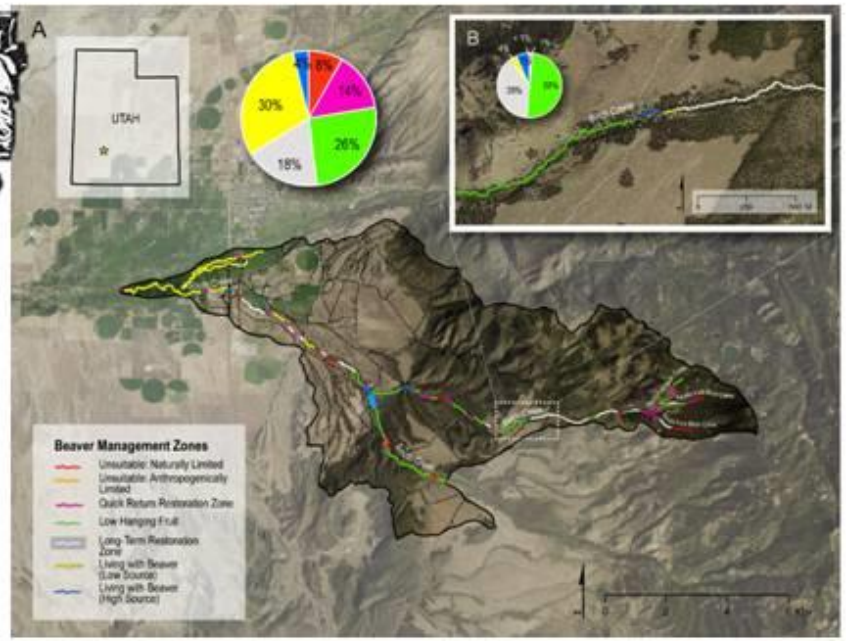






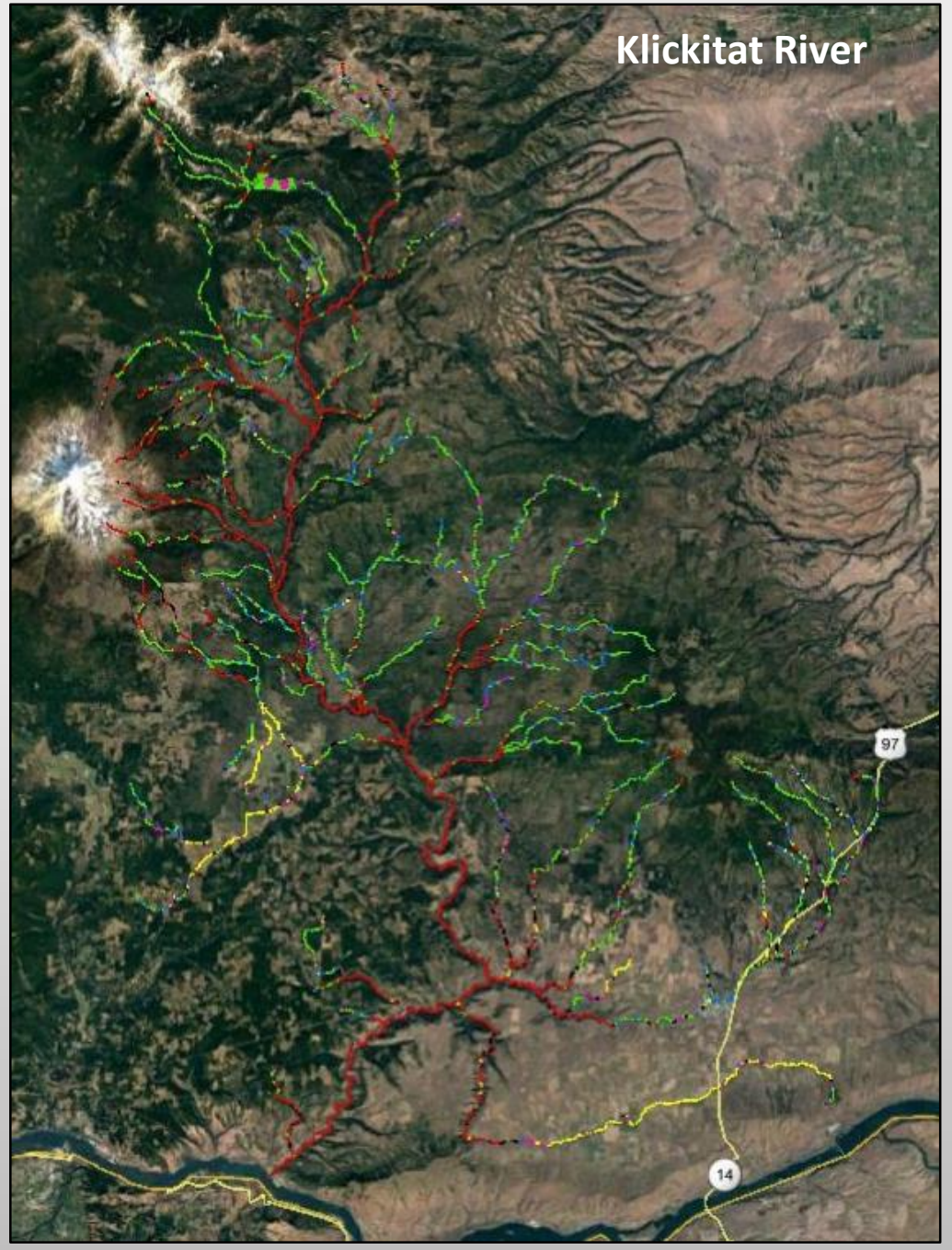
Collectively, this is the BRAT MacFarlane et al 2018





Putting it all together!

- Using Tribal knowledge and science assess general locations- Medicine Valley, Dry Creek, Upper Klickitat, etc
- Select sites using input from models, assessments, and staff knowledge-preference for focusing on water-sheds
- Choose areas where restoration can be efficient and sustainable
- Implement and monitor. Pre-monitor where possible.



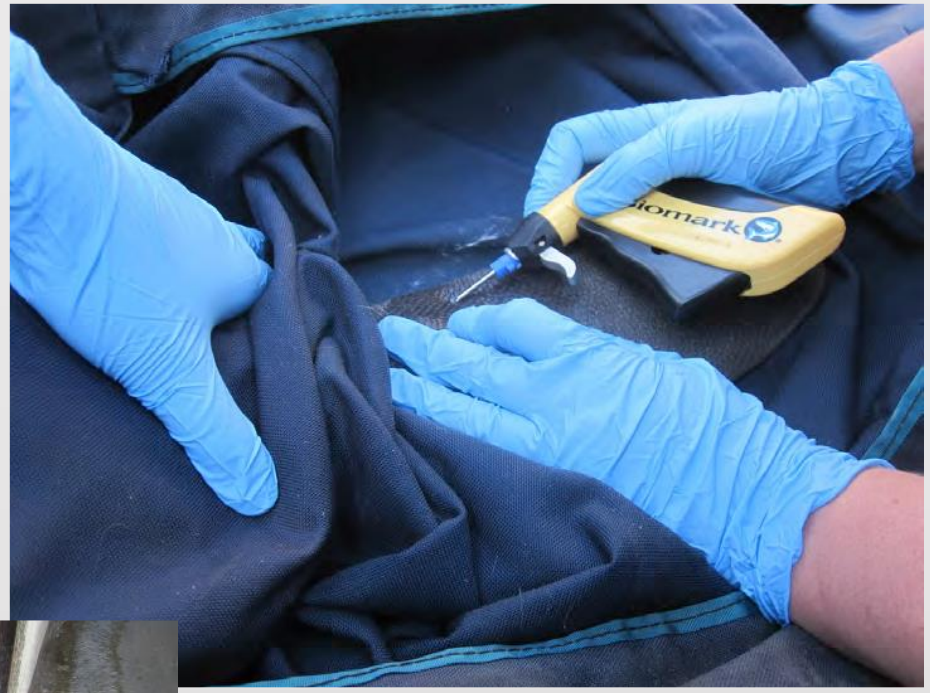
Now what?
Types of Beaver Restoration

- Passive actions that protect beaver
  - Moratorium
  - Increased regulation/lower limits
  - Grazing deferment
- Actively transplant beavers into areas with few or no beaver but high potential
- Active habitat manipulation to mimic beaver activity
  - Beaver Dam Analogs
  - Bank attached structures
  - Choke Structures, etc.

Active Translocation

- Capture and “Hard” Release (Most)
  - Often “nuisance beavers”
  - Good to do with 2 year old beavers
- Capture, Hold, and “Soft” Release (Some)
  - Often mature pairs and young
- Prepare site (BDAs) then begin translocation (Few)
  - Sites that have some limiting factors (e.g., lack of pools) but high potential
  - Example: Proposed South Fork Simcoe Creek Project

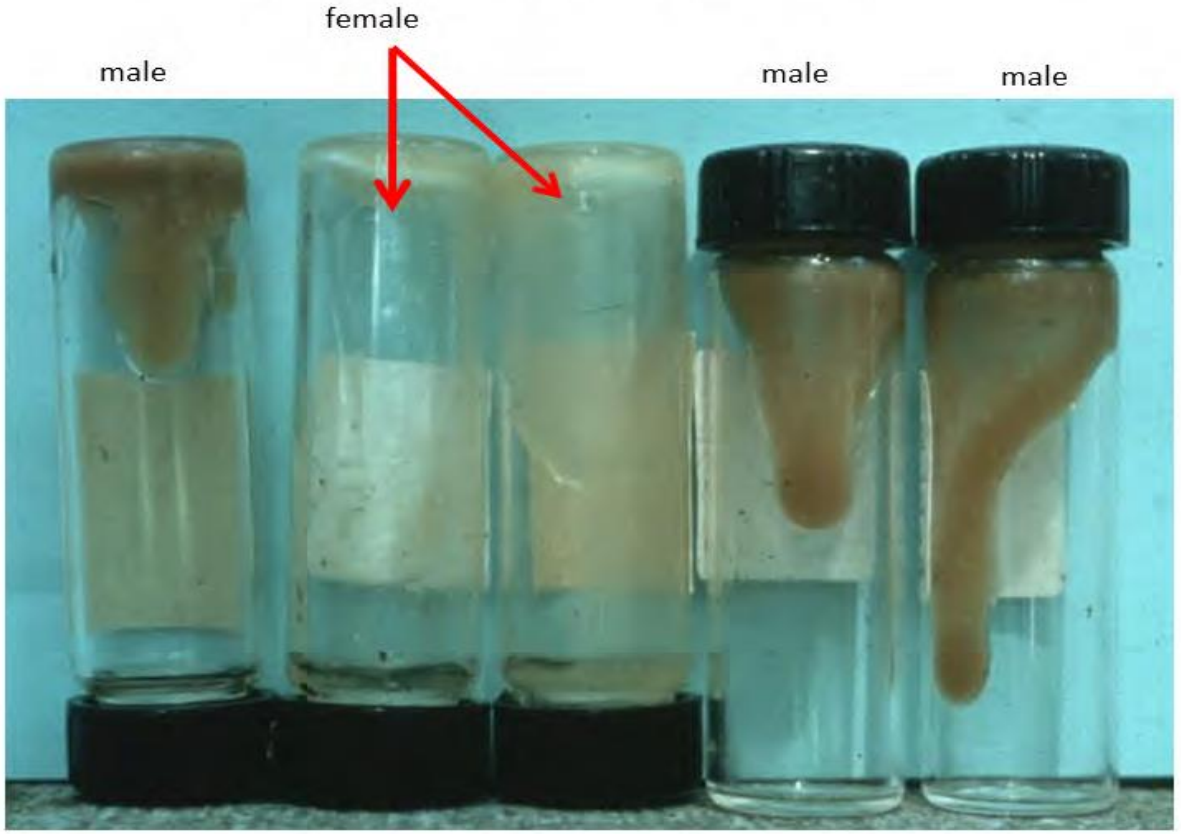
Step 1



Step 2

Step 3

Beaver Oil Gland Secretions



Female:
Viscosity is more runny
Color is creamy tan
Smells like bleu cheese

Males:
Viscosity is more thick
Color is caramel brown
Smells like oil/diesel

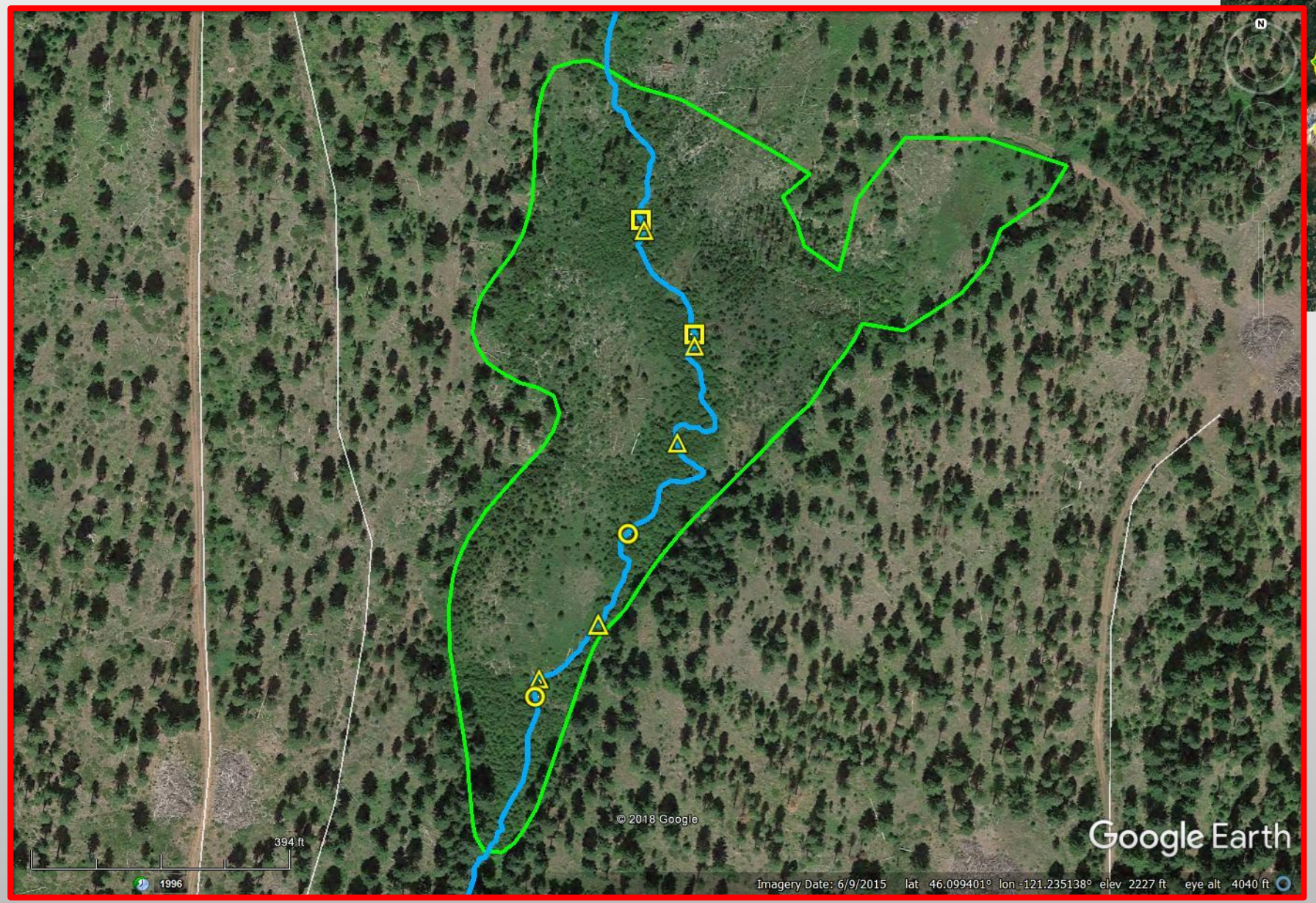
Holding Facilities

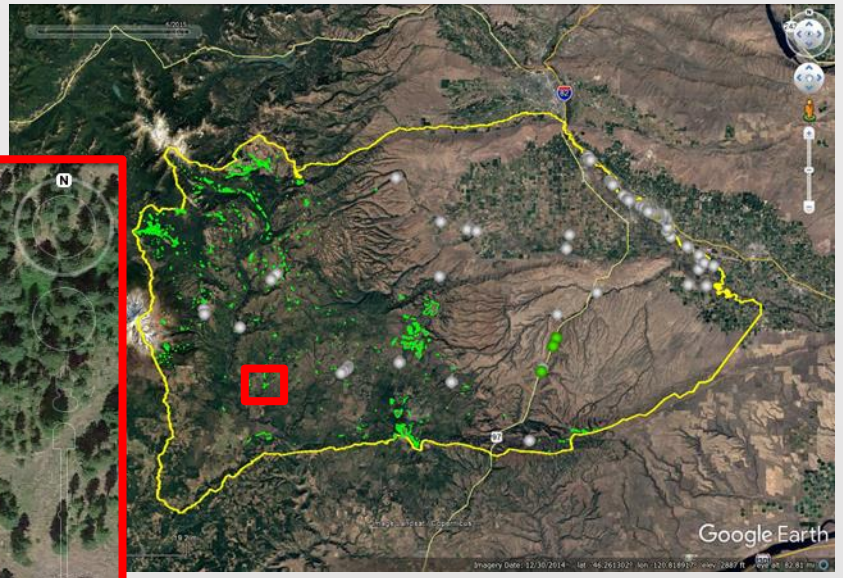

09/29/2015 13:34

Proposed Projects for 2018-19

- Restore 2-3 sites in 2018
  - Bear Creek
  - South Fork Simcoe Creek
  - South Fork Dry Creek
- Funding is through the NRCS' Resource Conservation Partners Program (RCCP)

Bear Creek


© 2018 Google
394 ft
1996
Google Earth
Imagery Date: 6/9/2015 lat 46.099401° lon -121.235138° elev 2227 ft eye alt 4040 ft


Google Earth

LOC: 46 11 45.8
121°15'22.0"

For Official Use Only: Notes on Site Use

Yakima Beaver Project

Release Site Score Card # _____ Date _____ Observer JB/YM

Site ID (Creek) Sunnyside Creek WEST Subwatershed _____

GPS Coordinates-UTM (NAD 83) 634556 5117890 2546 ELEV.

Location Description FOOD PLOT IN SIDE POOL TREES FELLED BETWEEN MAIN CHANNEL & FOOD CACHE POND. BEAVER(S) HAVE SIDE CHANNELS AND POOLS. LARGE WOODY DEBRIS IN CHANNELS.

Please circle answers, then fill in the points

5 **1. Stream Gradient of the defined habitat unit**
(5.) ≤3% 3. 4-6% 1. 7-9% 0. ≥9%

5 **2. Stream Flow**
1. Garden hose (5.) Fire hose -3. Unwadeable

3 **3. Do you predict there will be year-round stream flow?**
(3.) Yes -5. No 0. Unsure

1 **4. Average Stream Depth**
(1.) Over sneaker 5. Over knee-high boots -3. Over waist

5 **5. Habitat Unit Size** (stream length)
(5.) Extensive stretch of the stream 1. Small isolated pocket

5 **6. Woody Food**
a. (3.) Aspen, Cottonwood, Willow (2.) Alder 1. Other hardwoods
3 b. (3.) Within 10 meters 2. Within 30 meters 1. Within 100 meters
c. (3.) Large amount (thousands of stems) 2. Some (hundreds of stems) 1. Little (dozens)

45 **Woody food score = multiply a x b x c**

3 **7. Herbaceous Food**
(3.) Grass/Forbs Present 0. No Grass/Forbs Present

5 **8. Floodplain Width**
(5.) Adjacent floodplain 0. Narrow V Channel

1 **9. Dominant Stream Substrate**
5. Silt/Clay/Mud 2. Sand (1.) Gravel 0. Cobble -1. Boulders -3. Bedrock

5 **10. Historic Beaver use**
(5.) Old structures present 3. Some old indications 0. No indication of previous occupancy

5 **11. Lodge and dam building materials**
(5.) Variety of 1-6" diameter woody vegetation avail. -10. No building material present

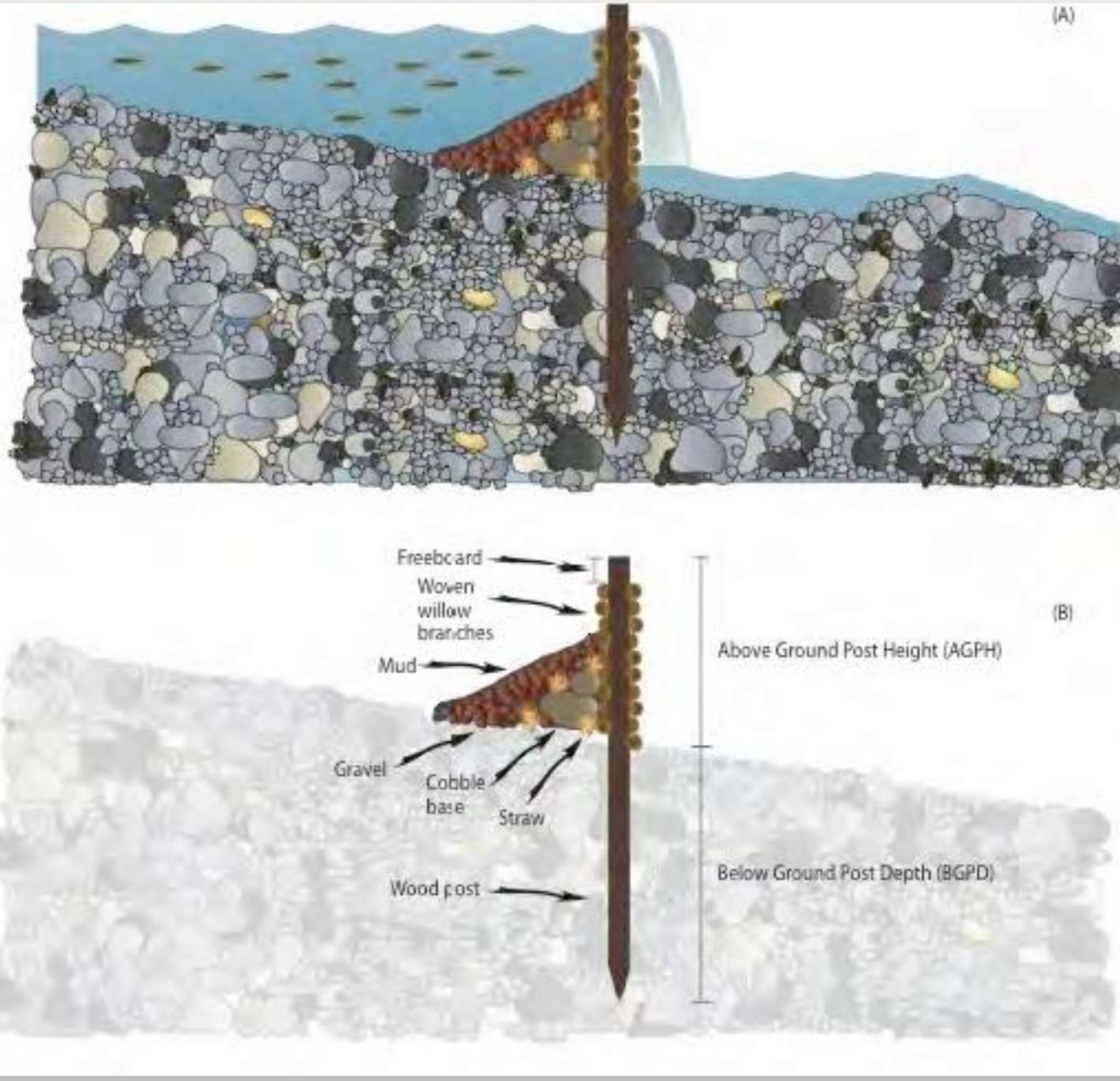
0 **12. Are there any roads, culverts, or other damage situations that may result from flooding? (If yes, please expound on below. i.e., how far away is a culvert)**
-3. Yes. (0.) No

Culverts are [illegible] in Sunnyside
There are 2 big culverts on side channel (<5') and a culvert on main channel (<10')

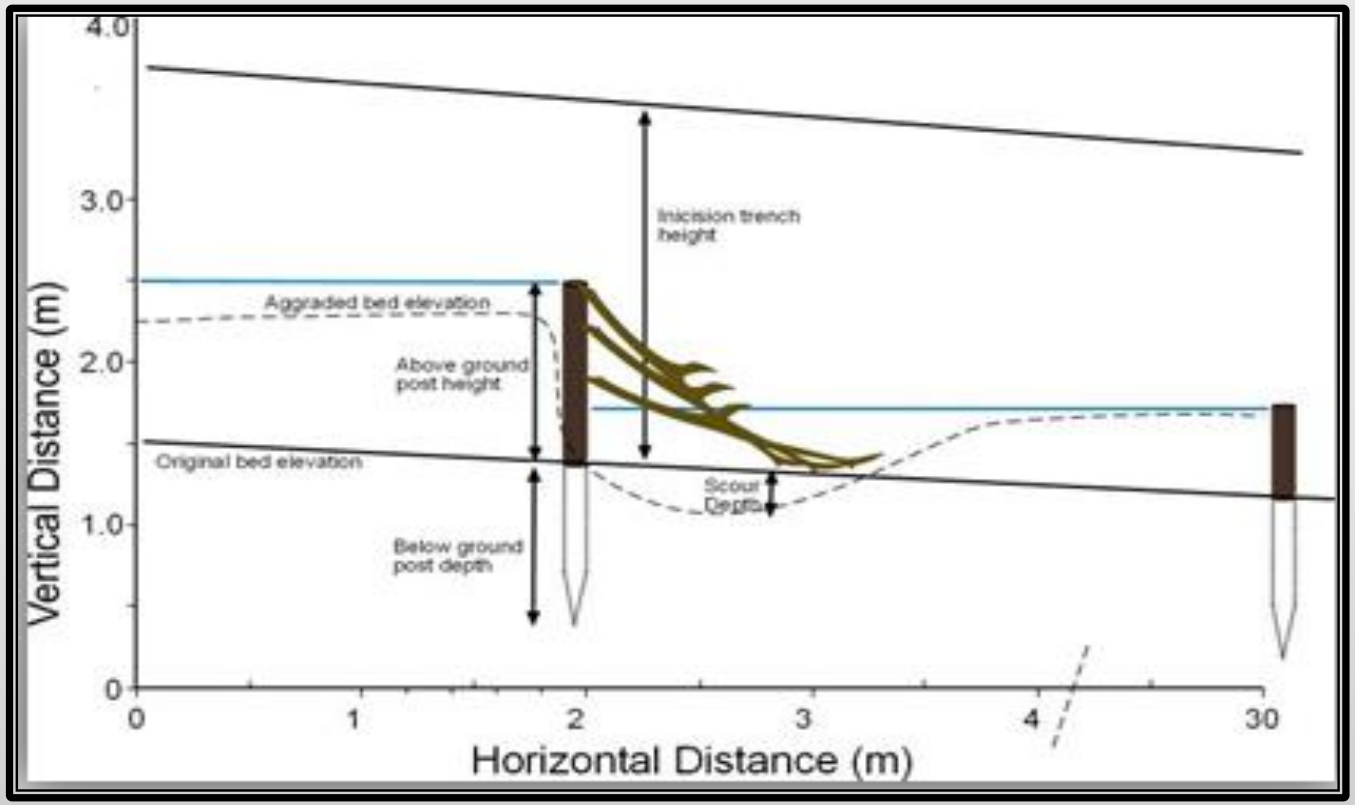
83

* DOES NOT CHEW ON VINE MAPLE THAT IS PLENTIFUL BESIDE FOOD CACHE POND. LARGE ALDER FELLED THEN CUT IN HALF AND LEFT LYING

Current Use * Food plot (#3) is mostly sand / site plot


(A)
Freeboard
Woven willow branches
Mud
Gravel
Cobble base
Straw
Wood post
(B)
Above Ground Post Height (AGPH)
Below Ground Post Depth (BGPD)

Beaver Dam Analogues



Questions?