

Landowner Field Meeting – Cougar Creek Pilot

6/11/2020

Landowners in attendance: Rich Appel, Ty Neevel, Jerry Boehring

Invited but unable to attend: Wayne Devries

Technical FLIP Team Members: Mike Maudlin (Nooksack Tribe), Joel Ingram (WDFW), Frank Corey (WCD), Gary Goodall (WCPW) and Paula Harris (WCPW)

Meeting Objectives

- Review options developed by Fish Focus Group for specific reaches of Cougar Creek (see Figure 1 and summary table below) to evaluate landowner willingness to consider/support them
- Gain better understanding of farmers' issues related to their agricultural operations
- Identify next steps to further develop project ideas into tributary plan

General Notes about the Basin

- Rich talked to KB Acre who said he used to catch big fish (chum) upstream in the reach between Woodlyn and Old Guide Roads in the mid-1970's
- He took us to a private crossing on KB's land at 609 Wiser Lake Road where they used to see chum spawning; a tributary with good habitat comes in from the south and enters the creek just downstream of the crossing

Reach AB:

Options Identified to Address Habitat Departures:

Option AB1: Setback north levee to address stability (SWIF deficiency) and channel confinement

- Rich (landowner) and was not receptive to a significant levee setback that would convert farm fields to floodplain but would consider laying back the bank to improve bank stability and resolve the SWIF deficiency
- The power lines run along the levee in this location and would complicate things as well

Option AB2: Setback south levee to reduce confinement and improve bank stability

- Rich (landowner) is open to considering some realignment of this portion of levee especially if it can help mitigate for the loss of habitat that would result of the north ditch (BFG) was filled in and replaced with a subsurface drain
- Realignment of the levee would make sense in conjunction with the Cougar Creek flood gate (Point B) replacement

Option AB3: Riparian planting and LWD placement throughout reach

- Rich and Ty are both supportive of this option
- Joel noted that the riparian cover that exists are older deciduous trees and getting conifers established is important as the existing trees are older and close to the end

Point B (Floodgates):

Options Identified to Address Habitat Departures:

Option B1: Remove both flood gates and replace with one fish-passable flood gate

- Rich would prefer to eliminate the north flood gate and north ditch (BFG) and convert it to a subsurface drainage (see Option BFG1)

Option B2: Restore passage at both flood gates

- Rich and Ty are both supportive of replacing the main flood gate on Cougar Creek
- Realigning the creek to direct the flow away from the north bank would reduce the bank instability issues
- Realigning the south levee could be done in conjunction with the gate replacement, especially if it could help mitigate for burying the north ditch (BFG)
- Rich would prefer to eliminate the north flood gate and ditch (BFG) rather than restore passage to the ditch

Notes about Point B:

- The flood gate on Cougar Creek was originally a wood bridge structure that was installed in the 1940's and was replaced with a culvert in subsequent years
- The Cougar Creek gate headwall tipped in the 1996 flood and the local landowners reinstalled the current structure which is a 4' metal culvert with a top hinge flood gate
- Rich has never seen the flood gate on the north ditch and is unclear on the pipe size

Reach BFG:

Options Identified to Address Habitat Departures:

Option BFG1: Bury north ditch

- Rich would like to convert this ditch to a subsurface drain and realign it to the low spot in the field where it would enter Cougar Creek further upstream and may bring cooler water from the springs coming off the hillside into the lower reach (BC) of Cougar Creek
 - Could include internal check dams to help with sub-irrigation in the summer
- Rich is open to regrading of the field to create a swale above the drain could help reduce the potential for stranding during flood events (would require removing some of the north berm – need to talk to Ty on this as he left before this discussion)
 - Some of this may have flowed north historically and could be routed to Strickland ditch

Option BFG2: Riparian plantings and head gates to increase groundwater recharge Riparian plantings, LWD placement, layback ditch banks

- Rich is not supportive of this option as he already has issues with the ditch spilling out into the field at the low spot in the topography and head gates would exacerbate that

Option BFG3: Riparian plantings, LWD placement, layback ditch banks

- Rich is not supportive of this option, prefers options BFG1

Option BF1: Remove long culvert and daylight stream

- Rich prefers option BFG1 which would relocate the drainage as a subsurface drain

Notes about Reach BFG:

- Rich noted that the ditch becomes a stagnant pool in late summer and is open to allow us to take temperature readings
- Rich noted that he is having a harder time getting the water off the fields in the spring and thinks pumping could improve the drainage
- Joel needs to check the stream inventory to see if the ditch is classified as a stream or a constructed ditch; if it's a stream it will make burying it more difficult and regardless mitigation for the loss of existing habitat (even though degraded) will be needed

Reach BC:

Options Identified to Address Habitat Departures:

Option BC1: Levee setback, riparian planting, LWD placement

- Rich farms the south levee backslope and is not attracted to the idea of removing the levee or setting it back – would need to be convinced there would be a fish benefit
 - Maybe once the flood gate is replaced and drainage improved, the levee would not be as necessary
- Rich is willing to plant along the edge of the creek on top of the south levee but wants to continue to mow the backslope for hay
- Ty is willing to consider some planting on the north side
- Michael noted that the grass in the channel already provides a lot of cover for juvenile rearing; Joel noted that planting may reduce grass cover and addition of wood would add cover, attract fish and provide structure
- Rich is open to considering addition of some wood in this reach

Option BC2: Restore remove water diversion

- Near point C there are 3 water rights (Ty, Rich and Dwaliwal berries); all are screened not sure if compliant; Joel noted that WDFW has funding to help get screens compliant
- Discussed transferring surface water rights to groundwater – Ty tried to put in a well for his berries but abandoned it due to lack of capacity; he'd be open to it if it would work
- Farming and upstream irrigation can cause the ditch to stop flowing; increased capacity in the pond would be advantageous to them; drip irrigation has reduced water use
- Rich has water rights from both Cougar Creek and the Nooksack River; he could draw all his water from the river if it would be beneficial to Cougar Creek and was legal

Notes about Reach BC:

- The levee along the south side of the reach used to be 2 ft high and was built over the years by landowners to prevent Cougar Creek flow from spilling to the south when the river is up and the creek can't drain; as the slough filled up there was less capacity and the creek overtopped to the south into berries

- The levee along the north bank was also pushed up by previous landowners, likely in response to the south levee pushing water to the north
- When asked about stream temperatures due to lack of riparian and Wisser Lake upstream, Rich said past temperature monitoring was surprising as there appears to be springs and groundwater interchange downstream of the lake that makes the water cooler than expected

Reach CDE:

Options Identified to Address Habitat Departures:

Option CDE1: Riparian planning and LWD placement

- This reach used to be deep and open but now is a slough full of reed canary grass and lily pads – will be difficult to plant
- Joel proposed constructing earthen ‘peninsulas’ or fingers staggered on both sides of the creek/slough that would be low enough to overtop but high enough to be able to establish plants
 - Due to wetland classification will need to not result in net fill
 - Rich and Ty are both open to the idea of fingers
 - Rich thought that Wayne would not want trees near his berries but might not be opposed to working in the slough
- Ty noted that there used to be a lot more trees in this reach so there is likely a lot of wood in the system that you just can’t see at this time of year – we should evaluate how much wood is in it and existing channel complexity when the vegetation dies back
 - Working in the slough is less of an issue for the farmers so adding wood in this reach if needed is likely possible

Option CDE2: Channel excavation/wetland creation and enhancement

- We did not specifically talk about this option as it merged with the previous option through the idea of planting fingers which would require excavation to reconfigure the wetland to enable planting with no net loss

Point D:

Options Identified to Address Habitat Departures:

Option D1: Evaluate and restore crossing

- Ty needs to maintain this crossing which is currently twin 3’ culvert but is open to replacing it with a more passable structure

General Notes about the Basin

- Rich talked to KB Acre who said he used to catch big fish (chum) upstream in the reach between Woodlyn and Old Guide Roads in the mid-1970’s
- He took us to a private crossing on KB’s land at 609 Wisser Lake Road where they used to see chum spawning; a tributary with good habitat comes in from the south and enters the creek just downstream of the crossing

Next steps:

- Share results of fish-focus group and landowner meetings with Salmon Recovery Staff Team and FLIP Steering Committee
- Joel needs to follow up on north ditch status – stream or ditch?
- If all support this direction, initiate design of:
 - Cougar Creek culvert and flood gate replacement including creek realignment (Point B)
 - Could include south levee realignment if burying north ditch seems possible
 - Could include laying back north bank to improve bank stability and address SWIF deficiency
 - LWD placement and riparian plantings in Reach AB
 - LWD placement and riparian plantings in Reach BC
 - Planting fingers/wetland reconfiguration and enhancement in Reach CDE (need to make sure Devries and Dwaliwal are on board)

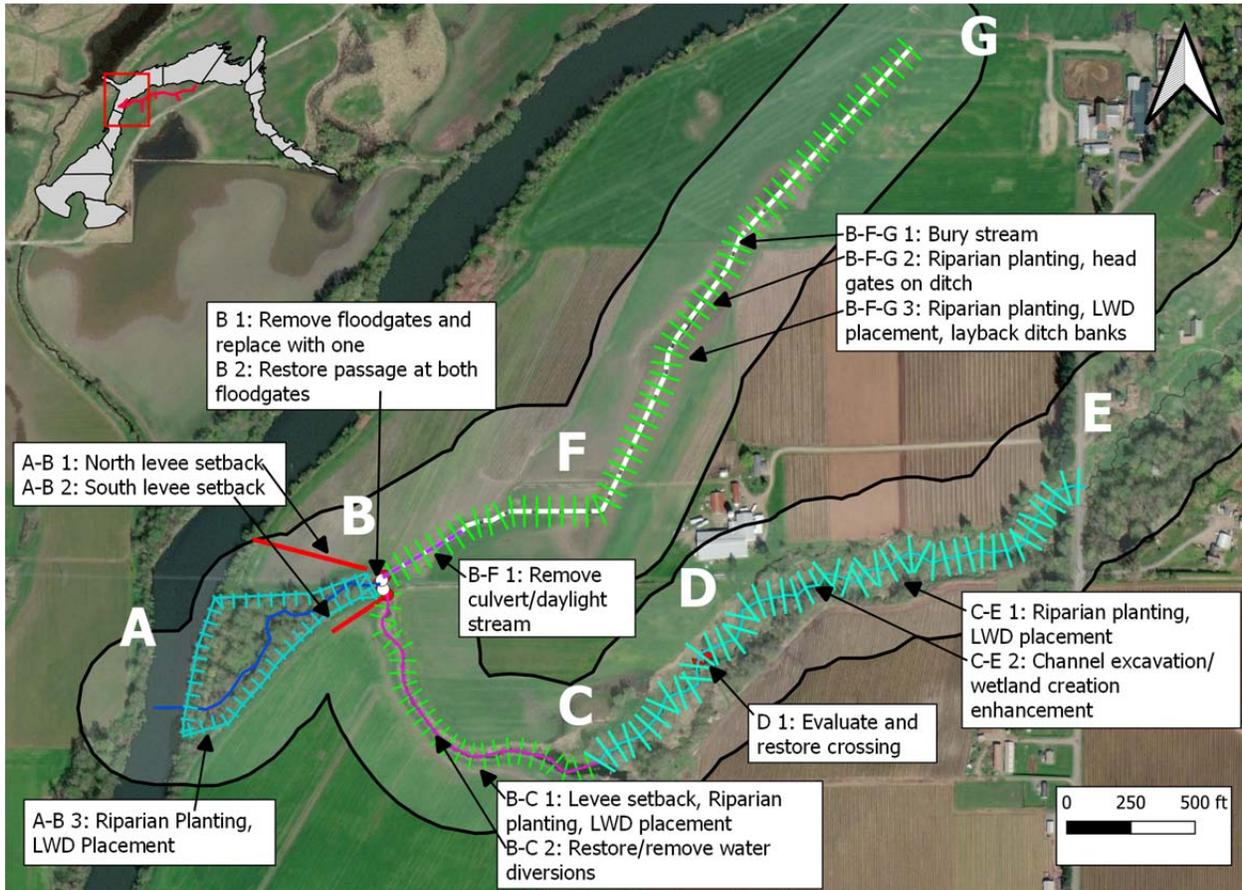


Figure 1. Overview of lower Cougar Creek reaches by restoration opportunities, located in Reach 2 of the Lower Mainstem Nooksack River. Labels refer to corresponding restoration actions shown in Table 1 below. The riparian zone of influence is represented by the black polygon buffered by 300 ft around the stream flow path, and restoration areas described in Table 1 are shown as colored hatched lines along the stream flow path.

Table 1. An overview of restoration strategies discussed in the Fish Focus meeting by reach and strategy. Locations of restoration strategies are shown on the above map.

Reach-Option	Actions	Benefits	Considerations	Description	Comments
A-B 1	North levee setback	Reduces confinement, small increase in floodplain area, improves bank stability, potential for improved riparian and LWD placement	Could be combined with flood gate replacement	Set or lay levee back to flatten riverward slope	Would resolve existing SWIF deficiency related to bank sloughing
A-B 2	South levee setback	Reduces confinement, improves bank stability, potential for improved riparian and LWD placement	Could be combined with flood gate replacement	Set levee back to flatten riverward slope	Farmers had requested that this area be improved
A-B 3	Riparian planting, LWD placement	Increases shading, thermal regulation, water quality, and habitat complexity, reduces erosion	Could be combined with flood gate replacement	Plant throughout area, place LWD throughout stream	
B 1	Remove floodgates and replace with one	One floodgate to maintain, improves fish passage, allows access to both mainstem and ditch	Would need to move daylight long pipe on north ditch, and address stranding and conveyance	Remove floodgates and replace with one floodgate; would include moving channel networks to converge upstream of floodgate	May negatively impact farm access and field area
B 2	Restore passage at both floodgates	Improves fish passage, allows access to both mainstem and ditch, reduces stranding potential on north ditch	Still have to maintain and inspect two culvert/gates	Replace two culverts with fish passable culverts and flood gates	Passage to north ditch may not be cost effective if habitat not improved
B-C 1	Levee setback, Riparian planting, LWD placement	Wider channel, increases habitat complexity; improves water quality, reduces temperatures	Unclear whether levees are needed for flood protection during growing season	Setback or remove levee, install riparian buffer (could be CREP), large wood jams	Need to evaluate current degradation of stream to see if it should be prioritized for restoration
B-C 2	Restore/remove water diversions	Improves flow		Need to evaluate impact on water quality, temperatures, and flows	Water surface diversions exist throughout this reach, these could be replaced with ground

Reach-Option	Actions	Benefits	Considerations	Description	Comments
					water diversions or removed
B-F 1	Remove culvert/daylight stream	Reduces stranding and improves fish passage and habitat	Decrease in farming area and field access	Daylight stream at long culvert to allow for fish passage two-way passage from north ditch into main channel	Passage to north ditch may not be cost effective if habitat not improved
B-F-G 1	Bury stream	Improves water quality and farm access	Large reduction in salmon habitat, would need increases in habitat elsewhere to offset, may need to regrade field to reduce stranding	Completely or partially bury stream	
B-F-G 2	Riparian planting, head gates on ditch	Improves water quality and groundwater recharge, reduces temperatures	Head gates would need to provide for passage or be removable	Plant minimally throughout reach, install head gates in ditch to increase groundwater recharge	Would have minimal habitat improvements for degraded ditch
B-F-G 3	Riparian planting, LWD placement, layback ditch banks	Would enhance large area for rearing habitat and high flow refuge, would improve water quality, reduce temperatures	Would take land out of production and impact field access	Install riparian buffer, large wood jams, and layback banks to reduce confinement	May promote future channel movement that would affect farm operations
D 1	Evaluate and restore crossing	Improved fish passage		Evaluate crossing to see crossing type, impacts on fish passage and flood conveyance	Unclear if access is still being used
C-E 1	Riparian planting, LWD placement	Improved rearing habitat	Reed canary grass removal is difficult to perform and maintain, may not be feasible; unclear as to whether this will restore channel due to sedimentation issues	Reed canary grass removal, install LWD, restore riparian	Little is known about status of this reach, need to evaluate current habitat, water quality, temperature and flows in order to evaluate options

Reach-Option	Actions	Benefits	Considerations	Description	Comments
C-E 2	Channel excavation/wetland creation enhancement	Increase shading, reduce temperatures, improve water quality and groundwater recharge		Excavate to create more wetland area and plant wetland species to enhance wetland area	Little is known about status of this reach, need to evaluate current habitat, water quality, temperature and flows in order to evaluate options;