Hangman Creek Restoration Project at Grouse Creek Ranch – Phase 1 April 2025







Project Area Overview

- Single property with willing landowner, long term relationship with SFTU.
- Reach-scale(more hydrological parameters over larger areas) project consisting of 2.2 miles of Hangman Creek and its floodplain.
- Approximately 13 miles south of Spokane, 0.25mi upstream (south) of Rock Creek confluence.
- Hangman Creek exhibits channel incision, floodplain disconnection, and habitat simplification.
- Mix of open forest, meadow, and agriculture. Currently managed for fire risk (e.g., mowing, thinning, etc.)





- Spokane Falls Trout Unlimited Projects Beginnings
- Harvey Morrison & Others forged a relationship with the landowners
- 2022 Project Feasibility
- 2023 Landowner Agreement
- Summer 2023 RFP Sent Out
- Selection Process
- Reach Assessment Report

Existing buildings/ infrastructure located on high terraces above active floodplain Google

SISTERCEEKRO

Creek Rd

S Layers

SLAAN Creek Rd

Han Creek Rd

Existing buildings/ infrastructure located on high terraces above active floodplain

Layers





Project Goals





- Reconnect Hangman Creek with its Floodplain
- Improve Habitat
- Protect Infrastructure and Upstream and Downstream Properties.

Project Design Objectives

- Use process-based restoration approaches to raise the Hangman Creek water surface elevation and improve floodplain hydrologic connectivity.
- Lengthen the longitudinal profile of the channel.
- Improve riparian and floodplain habitat.
- Improve habitat for fish and other aquatic species through installation of BDAs, LW, riparian vegetation, and other design features.
- Cold water refugia.
- Flood Risk and Landowners.



Potential Design Elements and Project Actions





- Reconnect floodplain features
 - Relic side channels
 - Groundwater seeps
 - Historic beaver ponds
- Enhance instream and floodplain habitat
 - Large wood installations
 - Beaver dam analogs and other LTPBR elements
 - Riparian/floodplain
 revegetation
 - Potential beaver reintroduction

Consistency with Local Watershed Plans



- Project elements follow recommendations in the Hangman Creek Water Resources Management Plan (2005).
- Restoration actions consistent with Spokane County Shoreline Management Plan (2021) and Hangman Creek TMDL Implementation Plan (2011).



Project Relevance

- Hangman Creek and its historical and cultural relevance.
- Salmon and steelhead reintroduction
- Hangman Creek is a critical piece of the reintroduction puzzle because it is one of two key tributaries to the Spokane River, and one of only two points of entry for salmon into Idaho.

The Coeur d'Alene Tribe wants to bring salmon back to the entire Inland Northwest — and it's starting with Hangman Creek

By Aaron Hedge



Young Kwak photo Coeur d'Alene Tribal Member Cheffrey Sailto, second from the left, sings a Hangman song during a Summer Chinook salmon release into Hangman Creek in April.

Project Relevance (cont'd)





Photo: A 2017 drone photo, from Cutboard Studio, shows Hangman Creek choked with dirt and pollution, shortly before spawning season for redband trout. Courtesy of Spokane Riverkeeper.

- To help address downstream sediment plumes
- Hangman Creek is the largest contributor of sediment and bedload to the Spokane River.
- This project is one of the first reach-scale floodplain restoration projects in Hangman Creek and will serve as a demonstration project to spark more restoration projects in the watershed.

Project Team and Partnerships





- Project Team
 - TU Staff/Spokane Project Manager
 - Spokane Falls TU Chapter volunteers
 - Spokane Riverkeeper
 - Landowner
 - InterFluve (engineering consultant)

Key Partnerships

- Spokane Tribe of Indians
- Coeur d'Alene Tribes
- Spokane Salmon Restoration Collaborative Lead Entity members
- Inland Land Conservancy
- Spokane Conservation District
- Department of Ecology

Project Scope – Phase 1 & 2

- Reach Assessment being conducted by InterFluve (funded by TU and Ecology WQ Grant)
- Partnerships and agencies outreach and coordination (funded by TU)
- Project engineering and design (funded by Ecology WQ Grant)
- Permitting (funded by Ecology WQ Grant)
- Construction (funded by Ecology WQ Grant)
- Monitoring and Adaptive management (funding TBD)
- Future project phases will be determined based on ecological responses to Phase 1 actions.





Milestone	Date
Preliminary Reach Assessment results completed (2D hydraulic modeling and flood hazard risk reduction / restoration opportunities identification complete)	March 2025
Reach assessment finalized / permitting processes begin	Spring/Summer 2025
Outreach to partnerships regarding restoration opportunities and design alternatives	Summer/Fall 2025
Preliminary design (30%) of selected restoration strategies/Cultural Survey/ permits submitted	Fall 2025 – Winter 2026
Final design / permits obtained / bid documents	Spring 2026
Construction	Summer/Fall 2026
Monitoring and Adaptive Management	Spring/Summer 2027 – Spring 2029

Grouse Creek Ranch Property/Summer 2023







Questions?





Flood Hazard Risk Reduction





- Flood hazard risk will be quantitatively analyzed using 2D hydraulic models of pre-project (existing; using 2023 LiDAR) and with-project (proposed) conditions.
- Hydraulic models will spatially evaluate how proposed project elements may affect hydraulic parameters such as velocity, depth, and shear stress in the stream channel and surrounding floodplain.
- Evaluation of existing and proposed conditions will also include assessment of anticipated flow trajectories (e.g., channel migration) and evolution of the site as a result of fluvial process associated with design elements.
- Analyses will inform a design that (1) eliminates and/or mitigates flood risk associated with the project elements, and (2) identifies areas where existing flood risk may be alleviated through installation of habitat features, to <u>achieve the mutual benefits of</u> restoring habitat while reducing flood risk for onsite and adjacent <u>landowners.</u>



Source	Amount	Level of	Scope Element(s)
		Certainty	
Trout Unlimited Washington Council and Spokane	\$50,000	These donated	Reach assessment, personnel
Falls TU Chapter donations (cash)		dollars were used	costs other tasks
		for the reach	
		assessment study	
Washington State Department of Ecology Water	\$499,730	In-hand	Reach assessment, design,
Quality Funding (cash)			construction
Project team technical support (in-kind)	\$20,000	Pledged	Reach assessment, design,
			construction, monitoring and
			adaptive management
SFTU riparian restoration labor (in-kind)	\$15,000	Pledged	Construction, adaptive
			management
Landowner property value (in-kind)	\$489,830	In-hand	All

Total match = \$1,074,560