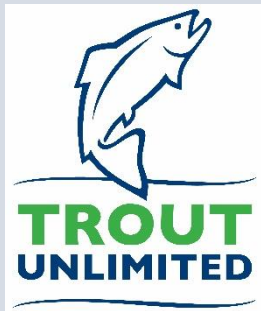


# Directional Felling (Chop and Drop) in Water Tank Run

## Final Report



### Prepared by:

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Western Pennsylvania  
Conservancy

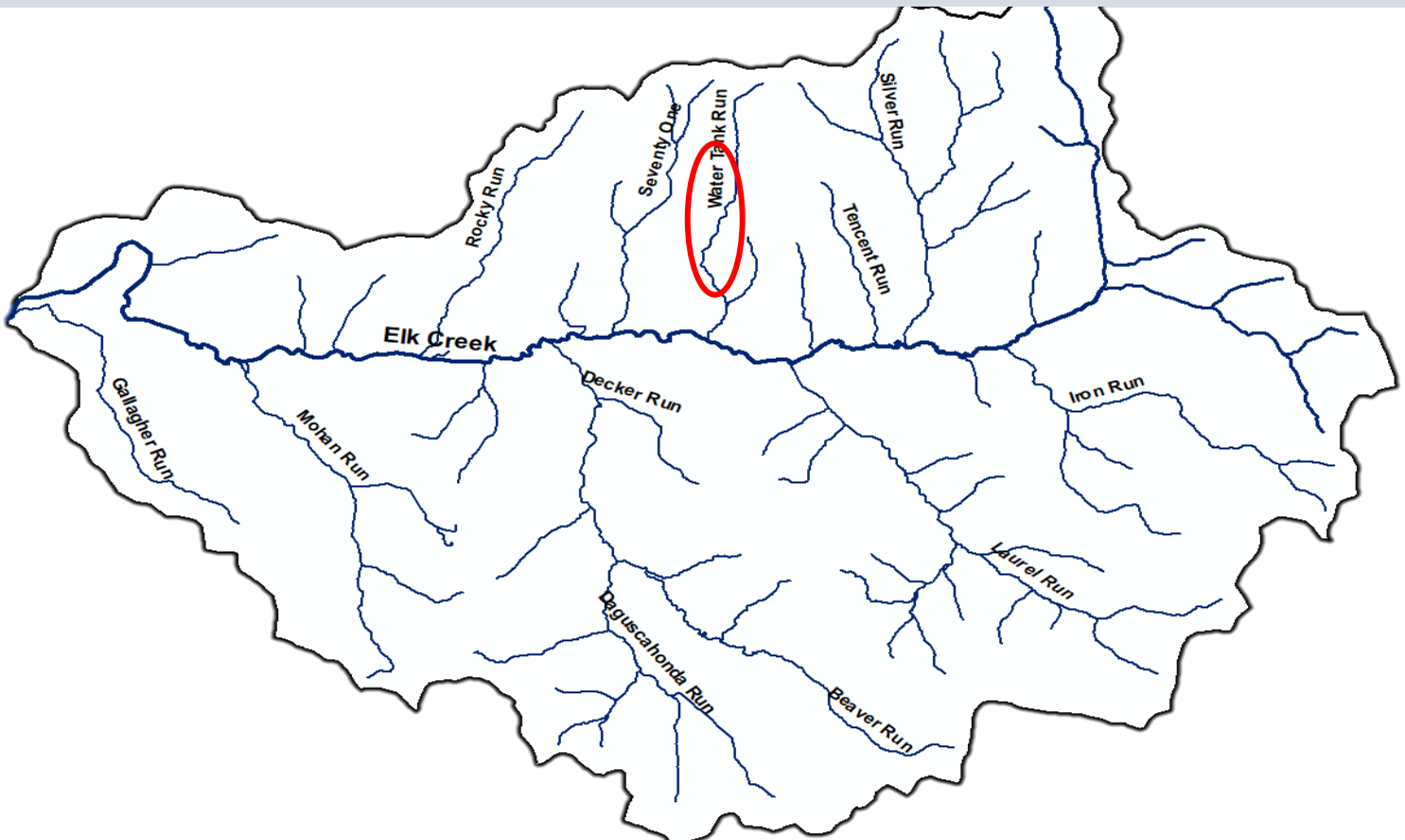


### Project Partners:

PA Game Commission

Western Pennsylvania Conservancy

Jim Zwald Chapter Trout Unlimited



## **Project Background**

Water Tank Run, which is located in Elk County, is a tributary to Elk Creek, which flows into the Clarion River. Water Tank Run is designated as a Class A trout stream. Approximately one mile of Water Tank Run is located within State Game Lands 25, meaning this portion of the watershed is being managed by the Pennsylvania Game Commission.

The 0.69 mile long project reach within Water Tank Run was identified by Elk County Conservation District (ECCD) as an area in need of large woody debris addition. Large woody debris addition has many ecological and hydrological benefits such as nutrient recycling, improved access and connectivity to the floodplain, which will increase groundwater and surface water interactions, increased overhead cover, and a reduction in the sediment load.

During implementation of this project, twenty large wood structures were added to Water Tank Run throughout a 0.69 mile project reach. These structures were comprised of over 110 trees over six inches in diameter and twenty feet from the butt. These structures will help to trap sediment and debris during flood events and will create scour pools in the stream. Providing this diversity in habitat allows different age classes of trout to thrive.

## **Public Meeting Information**

<b>Meeting Type</b>	<b>Date Presented</b>	<b>Number of Attendees</b>	<b>Organizations Represented</b>
Elk County Conservation District Board Meeting	April 26, 2021	10	Elk County Conservation District
Elk County Conservation District Board Meeting	February 28, 2022	13	Elk County Conservation District
Jim Zwald Chapter Trout Unlimited Meeting	February 22, 2022	9	Elk County Conservation District, Western Pennsylvania Conservancy

\*All meetings were held at the Elk County Conservation District Office, 850 Washington Street, St. Marys, PA 15857.



### **Before and After Photos**



Photos 1 & 2: LWD in hemlock area on Water Tank Run along main channel (2022)



Photos 3 & 4: LWD addition on floodplain, side channel, and main channel along Water Tank Run (2022)





Photo 5: Additional photo showing LWD addition on side and main channel of Water Tank Run (2022)

### **Project Summary**

A 0.69 mile reach of Water Tank Run was improved through the installation of large woody material in the year 2022. This project reach is located in State Game Lands 25, which is located west of St. Marys, PA. Twenty large wood structures were installed using approximately 110 trees over six inches in diameter and twenty feet from the butt. Pennsylvania Game Commission (PGC) and Western Pennsylvania Conservancy (WPC) staff assisted with project implementation. Both organizations provided sawyers. This project served as a great training opportunity for both PGC and ECCD staff, as WPC educated both organizations on proper implementation of these structures.

Project locations were selected based on the natural flow of the stream channel. Areas where debris was already accumulating, areas that could benefit from overhead cover or increased pool habitat, and areas that were seen as an effective opportunity to increase floodplain connectivity were chosen for large wood material addition. Small diameter trees are cut and placed in the stream channel first, which are used to fill in the gaps between the larger logs. Larger logs are then felled on top of the brush. This allows for the velocity in the stream channel to slow, increasing trout habitat, increasing feeding opportunities for the macroinvertebrate community, decreasing sedimentation, and reducing flooding downstream.

### **Project Outcomes**

The goal for the project was the implementation of 1,000 linear feet of LWD to Water Tank Run. In order for this to be accomplished, fifteen to twenty habitat structures needed to be added at a rate of one structure every 150 feet. This objective was met, as twenty structures were installed, with over 110 trees over six inches in diameter and twenty feet from the butt being used. As a result of the objective being met, this project is considered complete.

### **Project Sustainability**

This project is expected to need very limited maintenance. The major threat to the sustainability of the project is severe storm events, which could wash the structures downstream. The only form of maintenance for the project would be the felling of additional trees as the quality of the logs begin to deteriorate or get washed downstream from storm events over time. If maintenance needs are identified, ECCD will work with project partners to address issues.

In the Coldwater Conservation Plan for Elk Creek, a culvert was identified as a threat to Water Tank Run. Due to the two pipes containing inlet drops and outlet perches, when combined with low water levels, these pipes could act as barriers to fish passage between Elk Creek and Water Tank Run. In the future, if this culvert would be properly replaced, aquatic connectivity would be greatly increased between Water Tank Run and Elk Creek. This would allow the trout populations present in Water Tank Run to breed with other populations, while also allowing other trout populations to use Water Tank Run as a refuge. With the improved habitat from this large wood project, Water Tank Run would serve as an effective refuge for these additional trout populations. This would increase the amount of trout in Water Tank Run, increasing the benefits of the current project.

### **Project Partners**

<b>Organization</b>	<b>Contribution</b>
Pennsylvania Game Commission- provided two sawyers and two swamper	4 employees, 7 hours a day for 2 days= 56 in-kind hours
Western Pennsylvania Conservancy- provided two sawyers	1 employee, 7 hours a day for 2 days= 14 in-kind hours 1 employee, 7 hours a day for 2 day = 14 grant sponsored hours

### **Accomplishments and Outputs**

Observed or measured improvement to the overall condition of the stream or watershed: Since the project was just implemented, there are no observed or measured improvements to the stream or watershed at this time. The majority of the benefits from adding wood to streams are unquantifiable, but ecologically significant. Over time, Water Tank Run should see multiple ecological and hydrological benefits as the result of this project. Adding this woody material will provide additional habitat for trout during low flows through the creation of pools, allow nutrient

cycling to take place, will help to reconnect the stream to its floodplain, increase overhead cover which serves as protection from predators for aquatic species, and will increase groundwater and surface water interactions resulting in cooler water being stored over winter for access in the summer.

Number of linear feet improved: Approximately 1,000 linear feet of stream were improved as the result of this project. Each structure has an average length of approximately fifty feet, with there being approximately 20 structures throughout the project reach.

## Coldwater Heritage Partnership Final Budget Report

**Organization:**

**Elk County Conservation District**

**Project:**

**Directional Felling (Chop and Drop) in Water Tank Run**

**Grant Amount:** \$3,400

**Contract Dates:**

3/23/21-9/30/22

		Estimated Expenses (from original approved budget)			Actual Expenses (input after project is complete)		
Items	Description	CHP Grant Cost	Match		CHP Grant Cost	Match	
			Cash	In-Kind		Cash	In-Kind
<b>Professional Services/Labor</b>	Certified WPC Sawyer	\$3,000			\$3,000		
	(2-3) ECCD Staff at (\$22/ hr for 2 days each)			\$1,584			\$770
	(4) Pennsylvania Game Commission Employees (\$22/hr for 2 days)			\$528			\$1,232
	1 WPC Certified Sawyer						\$1,498
<b>Travel</b>							
<b>Equipment and Supplies</b>	Field Equipment- Rockbar/Axe (2)	\$265			\$265		
<b>Contractual/ Construction</b>	Logs for habitat structures (\$40/log*110 logs)			\$3,000			\$4,400

<b>Administrative</b>	Salary/Project Coordination	\$135			\$135		
<b>Meeting Space /Rental</b>							
<b>Other</b>	GP-1 Permit			\$50			\$50
<b>Total</b>		<b>\$3,400</b>	<b>\$0</b>	<b>\$5,162</b>	<b>\$3,400</b>	<b>\$0</b>	<b>\$7,950</b>