



Elk Creek Stream Restoration Project 2015

Project Summary

History

Elk Creek, a tributary to Loyalsock Creek in Sullivan County, has been an excellent trout fishery where anglers could be found casting lines to its waters filled with hungry brown and brook trout.

Through the years, flood events have taken their toll on the stream. Much of the trout habitat has been replaced by a high bed-load of material filling in deeper holes, stream bank erosion and a moving stream channel. This has become a problem to stream side landowners as well. Significant floods in 1972, 1975, 2006, 2008, and 2011 have certainly advanced the declining trout habitat.

On the bank that we are working on, recreational trailers that were once 30 feet from the stream bank were washed away and the stream has increased in width by three times what it was in the late 70's.

Restoration Work

It is the goal of this partnership project to return trout habitat and bank stability to the stream. The process we will be using is that of installing PA Fish and Boat Commission approved multi-log structures that will be placed to create small pockets of habitat in the long shallow pool.

The stream bank will have its angle reset to a more stable slope thus decreasing erosion potential. The rebar pinning and stone placement are done to provide stability to the structure for high flow events and floods. Any disturbed areas where work occurs will be leveled, seeded, and mulched to restore a vegetated ground cover.



The use of multi-log vanes requires proper placement as the slope and angle into the stream channel determines the effectiveness. Water flow-off of a vane will be at a 90 degree angle to the vane and therefore when installed correctly, will force the flow of water into the center of the stream channel.

The end result will be a series of 12 multi-log deflectors in this stream project that will provide increased fishery habitat and decrease the sediment loss from the stream bank.

Project Details

The installation of multi-log vanes has several steps:

1. Once the angle of entry into the stream channel is determined, the excavator will dig a trench that is excavated to a depth level with the bed of the stream and wide enough to accept two logs lying side by side.
2. The excavator operator will set the first two logs, hooked by a chain, into the excavated trench at the appropriate angle. The slope into the stream is set by the natural taper of the logs.
3. Volunteers will drill a series of five holes per log and drive 4 foot lengths of rebar through the drilled holes and into the streambed. Once rebar is driven in, the tops will be bent, using a section of pipe, facing downstream with the log and pounded into the surface of the log.
4. The final log will be set by the excavator to cradle between the bottom logs.
5. A series of angled holes will be drilled and rebar driven to hold the top log to the two bottom logs. Rebar will be bent and driven into the top log.
6. A section of non-woven geotextile will be nailed to the upstream side of the structure and placed on the streambed with rocks hand tossed on the portion in the stream.

Note: Geotextile is a permeable fabric that allows water to flow through it yet will not allow stream bed load (stones and rocks) to pass through. We use the non-woven for better water movement along with some sediment. The fabric is placed on the upstream base log to minimize the "undercutting" of the streambed and build up stone and rock at the upstream side of the structure.

7. Next, the excavator will place large rocks and fill the trench.
8. The stream bank will be shaped to the correct slope as work progresses.
9. When all structures are placed, the upper portion of the bank and any disturbed areas will be dressed up by the equipment operator and volunteers will seed and mulch the site.

