

Coldwater Heritage Muddy Creek Final Report

1. (Photos attached)
2. Project Summary- The Muddy Creek Stream Restoration project objectives are to reduce sediment impacts from eroded pasture streambanks, mitigate elevated summer water temperatures, and improve physical instream trout habitats such as pool and channel depth and spawning gravel substrate of a HQ CWF Class A wild trout water in the upper Penns Creek watershed. The first phase was completed in July (fish habitat) and November 2014 (streambank bioengineering and buffer) on a 1,100 foot stream reach located on the Jerry and Carol Myers farm in Georges Valley, Gregg Township, Centre County. As depicted on the enclosed "as built" aerial photograph, a wide variety of in-stream fish habitat and streambank stabilization measures were implemented over a 9 day period, as follows: 381 linear feet of mudsills at 5 locations; one log cross vane; two single log vanes; 212 feet of bank toe log with bioengineering; 331 feet of bank grading with bioengineering; 70 feet of brush mattress/tree revetment; and boulder cluster habitats at 4 locations. Invasive autumn olive and other exotic streambank shrubs were cleared by construction equipment and additional mowing and planting site preparation carried out on four acres. Additional streambank bioengineering at the fish habitat structures using dormant live cuttings of native willow, alder, and silky dogwood was done November 2, 2014 by 15 PVCA members and students of the American Water Resources Association chapter at Penn State. A four-acre riparian buffer at least 35 feet in width using 775 native tree and shrub seedlings protected with tree shelters is also being installed in November under contract to the US Fish and Wildlife "Partners for Fish and Wildlife Program".
3. The total cost of the Myers farm fish habitat, riparian buffer, and streambank bioengineering, when completed next June 2015 will be \$95,778.
4. The original "seed money" Coldwater Heritage Partnership grant of \$10,000 in 2013 was important by leveraging two additional grants, making it possible to greatly expand the fish habitat scope of work on the Myers farm and to design and permit a comparably- sized stream restoration and fish habitat project on the adjoining Marquardt farm upstream. The additional grants were received from the PA Department of Community and Economic Development and an anonymous private foundation.

Extremely wet conditions required at least two weeks work upgrading a construction entrance and repairing the equipment and materials access roadway before actual implementation of fish habitat structures could begin with resulting cost overruns and expenditures not anticipated in the budget. For instance, a special truck was rented at \$1,400 per day plus mobilization to transport 120 tons of quarry stone to work sites. These factors were addressed by Coldwater Heritage Partnership reallocating construction budget line items and US Fish and Wildlife Service increasing its match contribution to cover added costs for time and materials.

5. Remaining fish habitat work at the Myers farm is scheduled for June 2015 and will entail construction of three log vanes, 180 feet of mudsills, 225 feet of toe log, random boulder

placement and bioengineering to plant the banks disturbed by construction. The costs are covered by the DCED grant.

6. PVCA has operated an on-going summer hourly stream temperature monitoring program for the past five years with HOBO Tidbit recorders located closely upstream and downstream of the Myers farm and the Marquardt farm. In addition, PVCA in 2014 hired part time temporary stream monitoring employees to conduct physical, biological, chemical and other watershed health monitoring protocols, including data collection at the Myers and Marquardt farms. Annual trout redd counts began in 2013 at Muddy Creek and will be repeated each November. These monitoring efforts will provide excellent “pre-project” baselines to assess trends over time and measure results of the stream restoration work. The next project phase at the Marquardt farm has approved GP-1 and GP-3 permits in hand and is partially funded-PVCA is currently seeking additional funds with the goal to begin work in 2015. The Marquardt farm project will consist of 20 fish habitat structures: 434 linear feet of muddills at 9 locations; 355 feet of toe log; and 5 log vanes as well as random boulder habitats and bioengineering of banks at the structures. The estimated cost is \$57,000 with \$27,000 of match and grant funds in hand, leaving a fund-raising goal of \$30,000.
7. PVCA has established a buffer maintenance fund with a current balance of over \$4,000 earmarked for the Muddy Creek sites, including \$400 from the Coldwater Heritage grant. The first scheduled maintenance of the Myers farm buffer will take place in spring 2015 with herbicide applications around the base of tree shelters by certified applicators from USFWS Habitat Forever. Replanting as needed to replace dead seedlings will also be done under a one-year warranty by USFWS. Replacement seedlings will be donated by the PA Game Commission Howard Nursery. PVCA’s “Second Saturday” monthly activity program to engage members in the organization’s work will schedule April 2015 for volunteers to assist with buffer maintenance. A pending Growing Greener 2014 grant application by PVCA would provide additional support for buffer maintenance at new and existing projects.
8. Partners/Roles
 - Penns Valley Conservation Association-project sponsor: fund raising, cash match, coordination of in-kind volunteers, education and outreach, landowner agreements, and grant administration.
 - US Fish and Wildlife Service “Partners for Fish and Wildlife”/Habitat Forever- natural stream design, permitting, construction implementation, match
 - Coldwater Heritage Partnership- seed money grant to initiate Muddy Creek restoration
 - PA Department of Community and Economic Development- design and implementation grant, buffer maintenance trust fund
 - Foundation for California University of PA- construction match
 - Cora Brooks Foundation-implementation grant
 - T. Allen Construction-donation of access road/construction entrance materials
 - Mike Marquardt “Muddy Creek Farm”-donation of shale road ballast
 - PA Game Commission-donated buffer seedlings

PA Fish and Boat Commission- stream surveys of Vonada Gap and Laurel Run tributaries to Muddy Creek in the project reach documenting brook trout reproduction and Class A brown trout biomass.

American Water Resources Association student chapter-dormant stake planting labor
Seven Willows LLC- design, permits, implementation, bioengineering materials, grant applications and reports.

9. Accomplishments

The initial phase of the Myers farm project exceeded its original goals in terms of tangible fish habitat improvements of a Class A HQ CWF self-sustaining brown trout fishery by implementing over 1,100 linear feet of various in-stream structures, a four acre riparian buffer of 775 native trees and shrubs, and streambank bioengineering at the fish habitat structures. The 2014 work will be augmented in June 2015 by installation of an additional 510 linear feet of fish habitat structures and 600 linear feet of riparian buffer. Further, the Myers farm work is serving to launch a larger stream restoration effort at Muddy Creek ultimately extending upstream to the adjoining Marquardt farm and potentially several other interested landowners in the Muddy Creek watershed as funds become available.

Photos



In-stream construction of mudsill overhead cover structure



Typical bank erosion at Myers Farm fallow pasture (before)



Completed mudsill (after)

