

**Final Report
2014 Coldwater Conservation
Implementation Grant
Little Lehigh Creek Riparian Buffer
Shade Tree Project**

**Presented by
Little Lehigh Chapter #070
Trout Unlimited
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**Submitted to
COLDWATER HERITAGE PARTNERSHIP
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Project Overview

The Little Lehigh Chapter of Trout Unlimited (LLTU) submitted a grant application to Coldwater Heritage Partnership for a Coldwater Conservation Implementation Grant to plant appropriate shade tree species in selected areas along the Little Lehigh Creek that have significant gaps in the streamside riparian buffer tree canopy.

Project Objective

Gaps in the shade tree canopy along the Little Lehigh Creek were identified as a concern in the Little Lehigh Creek Coldwater Conservation Plan (October 2007), which was prepared by Wildlands Conservancy and Lehigh County Conservation District and funded by the Coldwater Heritage Partnership. The objective of this project was to take steps now to provide a viable shade tree canopy over open sections of the Little Lehigh in the coming decades.

Project Location

This Coldwater Conservation Implementation Project was conducted on the Little Lehigh Creek (Lehigh River watershed) in Lower Macungie Township, Lehigh County. The project consisted of work at six different locations on the Little Lehigh between coordinates 40-32-30/75-35-13 and coordinates 40-32-13/75-31-13. The Little Lehigh is a spring-fed stream that is been designated by PADEP as a High Quality Coldwater Fishery. Sections of this stream have naturally reproducing populations of brown trout.

Project Details

LLTU proposed a series of targeted riparian buffer plantings along the Little Lehigh Creek in Lower Macungie Township. Appropriate shade tree species were planted in selected areas along the Little Lehigh that have gaps in tree canopy coverage. Increasing the tree canopy and resulting the shading reduces the temperature fluctuations of stream water. Dissolved oxygen concentrations are increase as water temperature decreases. Therefore, increasing the tree canopy over the creek will likely improve oxygen concentration levels thus benefitting the native trout population in the stream. Whenever possible, the trees were planted on the southern bank of the stream so that, at maturity, the trees would provide the maximum shading effect from the sun. A total of 78 potted trees were originally proposed in LLTU's grant application to be planted at five different locations along the Little Lehigh. However, LLTU was eventually able to document our tax-exempt status, have the originally estimated sales tax from the tree nursery waived, and increase the number of potted trees acquired to 88 from the savings in sales tax.

The sales tax savings also allowed LLTU to also purchase live stakes for planting in an additional riparian buffer area with gaps in tree canopy. Live stakes are dormant, live woody cuttings of trees with all branches trimmed off. Certain tree species have the ability to take root in moist soil. LLTU purchased cottonwood (*Populus deltoids*) live stakes to plant as part of this project. In addition to the cottonwood live stakes, the project scope originally called for planting six different species of potted trees at five different locations along the Little Lehigh.

They were:

- Sycamore (*Platanus occidentalis*)

- Poplar (*Liriodendron tulipifera*)
- Sweet Gum (*Liquidambar styraciflua*)
- Pin Oak (*Quercus palustris*)
- American Beech (*Fagus grandifolia*)
- Red Maple (*Acer rubrum*)

All potted trees had protective plastic tubes installed around them on wooden stakes at the time of planting. The tree tubes will protect the young trees' bark from rodent damage and also prevent wind burn during the winter months. All potted trees were in containers ranging in size from 7 gallon to 15 gallon and ranged in height from 5 feet to 8 feet. The live stakes were 3 feet long and 3/8 to 1/2-inch diameter. The live stakes were planted by using a length of rebar as a dibble to create a planting hole from 1.5 to 2 feet deep. The live stakes were inserted in the hole and watered in to seal the stake into the hole.

Project Partners

The following organizations shared important roles with LLTU in the planning and/or implementation of this project:

- Lower Macungie Township (landowner)
- Jeremy and Adrienne Fox (private landowners)
- Boy Scout Troop 131 of Wescosville, PA
- Explorer Crew 575 of Mertztown, PA
- Girls Scout Troop 690 of Macungie, PA
- Penn State Cooperative Extension's Master Watershed Steward Program
- Lehigh County Conservation District
- Lower Macungie Township Environmental Advisory Council

The Locations

In consultation with the Lower Macungie Township Environmental Advisory Council (EAC), LLTU identified six locations along the Little Lehigh in Lower Macungie Township with tree canopy gaps that allow a significant amount of sunlight through to the stream. The planting activities at these six locations are described below.

Spring Creek Road

This location is part of a township-owned open space area. This location was not identified in the grant application detail but was added to the project during the purchasing phase. After we were able to straighten out LLTU's state sales tax exemption to the satisfaction of our tree nursery, LLTU was able to purchase 40 cottonwood live stakes with the sales tax savings. On Saturday, April 19, 2014, one LLTU member and nine members of Girl Scout Troop 690 planted 40 cottonwood live stakes along this 400-foot long, unshaded section of the Little Lehigh

Kratzer Farm

Township-owned open space. On Saturday, May 10, 2014, LLTU and two members of LLTU, two Lower Macungie Township volunteers, and eight members of Boy Scout

Troop 131 planted 14 trees along a completely unshaded, 330-foot long length of the southern bank of the Little Lehigh

Harris-York Open Space

Township-owned open space. Immediately upstream from the confluence of Swabia Creek with Little Lehigh. On Saturday, May 10, 2014, five LLTU volunteers, one Lower Macungie Township volunteer, one eight members of Boy Scout Troop 131 planted 22 trees along a 900-foot long, mostly unshaded length of the Little Lehigh.

Graymoor Open Space

Township-owned open space proximate to a township Greenway trail. On Sunday, May 18, 2014, three LLTU members and nine members of Explorer Crew 575 planted 17 trees at Lower Macungie's Graymoor Open Space area. These trees were planted in several canopy gaps along a 600-foot length of the Little Lehigh.

Fox Farm

Private landowner at 6272 Sauerkraut Lane. They allow public access for fishing along the Little Lehigh in their horse pasture. On Monday, May 26, 2014, three members of LLTU, one Lower Macungie Township volunteer, and one volunteer from the Master Watershed Steward program planted 18 trees along a 330-foot long, completely unshaded length of the Little Lehigh.

Camp Olympic Park

Township park. Targeted the confluence of the Leibert Creek and the Little Lehigh. On Wednesday, May 28, 2014, three LLTU members, two employees of Lehigh County Conservation District, one Lower Macungie Township volunteer, and two volunteers from the Master Watershed Steward program planted 17 trees along 300 feet of the Little Lehigh and the Leibert banks in several gaps in the existing tree canopy.

Project Summary

LLTU and our partner organizations succeeded in planting 88 potted trees and 40 live stakes. These plantings will form the basis of improvements to the shade tree canopy for a total of 2,860 feet of the Little Lehigh Creek in Lower Macungie Township. If we assume an 80 percent survival rate after 10 years, that will be an average of one new tree every 28 feet in the areas targeted.

Future Work

The Lower Macungie Township EAC has committed to continue the efforts of LLTU in reestablishing the riparian buffer throughout the publicly owned sections of the Little Lehigh in the township. The EAC does planting projects with Boy Scout Troop 131 at least once each year. In the coming years, they expect to conduct many projects to add both understory trees and shrubs as well as more shade trees to expand the width of the riparian buffer in these and other open sections of the stream in the township.

Before:



Kratzer Farm Planting Area

After:



Kratzer Farm Planting Area
Volunteers from Boy Scout Troop 131