



Ohio River Foundation's 2011 Youth Conservation Teams



Background Information

The Ohio River Foundation's Youth Conservation Team (YCT) program completed its inaugural season in summer 2011. This report showcases the variety of conservation projects that the crew completed throughout the six week season. This program was highly successful, and Ohio River Foundation is working to secure funding for 2012.

What is a Youth Conservation Team?

The Ohio River Foundation's Youth Conservation Team (YCT) project comprises groups of five or six local high school students hired for summer work to fix runoff and erosion problems. A Crew Director organizes the conservation projects and schedules work for the teams. A YCT Program Manager oversees the program, provides training for the Crew and Crew Director, serves as liaison to the participating communities, and meets with interested public and private landowners to detail their conservation needs that can be met through YCT.

During the summer, the crews work six hrs per day four days per week to install conservation projects that reduce erosion and runoff in the target watershed. Potential projects include planting trees and shrubs along streams and lakeshores; removing winter sand from ditches, culverts, and settling basins; rock lining ditches and culverts; and installing water bars and other diversions to direct water from dirt roads and paths to vegetated areas. Landowners that receive YCT services provide the plants and other materials necessary for construction, but the YCT labor is provided free of charge.

There is also an educational component to the program. Expert scientists, professors, and educators supplement the students' labor with one day per week of information and hands-on instruction relative to the watershed protection and restoration work being performed.

The goals of the YCT Project are to: (1) improve water quality in the Ohio River watershed, (2) foster local stewardship, (3) provide students a work-study hands-on professional experience, and (4) build strong town and community support to sustain the program through local funding.

Why do we need Youth Conservation Teams?

In other parts of the country these types of programs have proven to be one of the most effective ways for local communities to correct soil erosion problems and protect water quality long term. Despite improvements, water quality in the Ohio River watershed remains degraded. As rivers, creeks, and streams are cleaned up, development along the shoreline is resulting in significant soil erosion and a loss of vegetated buffers. Increased runoff and erosion has also altered stream channels and continues to degrade the river's once thriving fishery. Ohio River Foundation is working to reverse these impacts on both private and public lands through the implementation of recognized BMPs (Best Management Practices).

Accomplishments

In just six weeks, two teams, each comprised of six high school students led by a Crew Director and Program Manager, successfully completed 49 habitat conservation projects in the Great Miami and Little Miami River Watersheds. By the end of the summer, the teams had saved Hamilton and Clermont County Park Districts more than \$35,000 in labor costs, and:

- ★ Planted 720 trees, shrubs, small plants, and grasses
- ★ Installed 2,850 sq. ft. of deer-resistant fencing
- ★ Hand-placed 4.5 tons of stone
- ★ Constructed 4 water bars to divert stormwater
- ★ Installed 100 ft. of 6-inch pipe to reduce runoff
- ★ Spread 7 cubic yards of mulch
- ★ Removed 100 lbs. of trash from riverbanks
- ★ Transported 2,400 gallons of water for irrigation



Summary of Conservation Practices	
<u>Type of Conservation Practice</u>	<u>Number Completed</u>
Stream-side Vegetation	4
Erosion Control	15
Trail Stabilization	12
Runoff Diverters	13
Invasive Species Removal	2
Green Infrastructure	3
Total	49



Vegetative Plantings

A major pollutant to the Ohio River is excess sediment delivered by its tributaries. While some sediment transport is normal and healthy for rivers, excess soil smothers habitat and lowers water quality. Revegetating unprotected riverbanks and streamside areas can dramatically reduce this problem. Trees and their roots are very important in helping to stabilize these areas.

Great Miami River, Grandview, OH

Before



After



Well developed streamside (i.e., riparian zone) vegetation physically holds soil together and slows flood waters. Erosion and nutrient runoff into streams is reduced and wildlife habitat is improved.

Before



After



The Great Miami River site in Harrison is property recently acquired by Hamilton County Park District. Spring rains frequently flood these former ball fields inundating the river with sediment and nutrients as the water recedes. To combat the problem 500 cottonwood and sycamore trees were planted adjacent to a very narrow riparian zone along an outside bend in the Great Miami River.

Trail Stabilization and Erosion Control

Access to parklands via trails and roads is essential for the public enjoyment of natural resources. It is necessary for these roads and trails to be safe, serviceable, and require minimum maintenance. However, trail and road erosion can make these paths dangerous and cause excess sediment and runoff pollution to overwhelm small streams.

Shor Park, Union Township

Before



Stormwater pollution takes many forms. In this Clermont County Park District property, 800 feet of severely eroded gravel paths were repaired and reengineered to help prevent future deterioration, sediment loading, and stormwater runoff into a nearby stream (Avey's Run). The chief issues were path slope and water flows from adjacent upland areas. The erosion was most evident as furrows were cut in the paths by stormwater. Overland flow volume, water velocity, and erosion increased progressively down slope.

After



To address these problems special attention was paid to topography. Four hundred twenty-five feet of roadside swales were dug to help keep water flowing down the slope but away from the side of the road. To reduce the ever increasing water volume and subsequent erosion, 4 dry wells and 100 feet of under road drain pipes were installed to collect and bleed of water gradually to Avey's Run.

Invasive Species Removal and Green Infrastructure

Plants that are not indigenous or native adversely affect the habitats and bioregions they invade. They out-compete native species, putting at risk plant and animals that are dependent on the native species for survival. Stormwater pollution is a nationwide problem as waterways are contaminated by runoff from agricultural, urban, and suburban areas. A solution is the use of green infrastructure, like rain gardens.

Shor Park, Union Township, OH



Grasslands in the watershed have many invasive species. In Shor Park, Autumn Olive dots the landscape. The YCT took down some of these trees as well as the *Ailanthus* pictured above.

Childrens Home of Cincinnati, Madisonville, OH

Ohio River Foundation (a tri-state rain garden leader, with more than 13,000 sq. ft. installed) assisted in the design and installation of this 6,000 sq. ft. rain garden complex.



Stormwater runoff from an 89-space parking lot and roof of an adjacent building is now routed to a series of rain gardens that keep the contaminated water from flowing into the sewer system or nearby creek. Several thousand plants, trees, and shrubs were installed to create a highly functional natural landscape.

Runoff Diverters

Stormwater runoff pollution problems can be reduced by run-off diverters that duct water around potential problem areas to places that can absorb and/or filter the water.

Great Miami River, Grandview, OH



A log runoff diverter was installed on the slope of a canoe access path. The log was buried enough to redirect runoff water off the path. Grass plugs were planted near the diverter to help hold soil.

Shor Park, Union Township, OH



Stormwater drained from several areas making the roadbed soggy. Timbers were used to shunt water away from the eroding edge of the gravel road and instead to a field where vegetation absorbs and filters the stormwater.



A dry well was dug and a 30 foot long x 6" diameter pipe was installed to divert runoff under the road into the adjacent riparian zone. Rocks were placed at the outlet of the pipes to diffuse the runoff and reduce erosion.

Education Days

To enrich the YCT experience, one day per week student crews worked with scientists from USEPA and professors from area universities. The student field scientists explored the connections between the habitat protection work they were performing and watershed ecology. They collected fish via electro-fishing with Professor Chris Lorentz of Thomas More College Center for Ohio River Research and Education; studied small stream morphology with Professor Mike Miller, University of Cincinnati; and learned about sub-watershed research techniques with Chris Nietch, USEPA.





Thanks to everyone who made this first Youth Conservation Team season a resounding success!!

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Youth Conservation Team Staff

Rich Cogen, Program Manager
Bernie Moller, Crew Director
Taylor Batty (Madeira)
Dylan Calahan (Clark Montessori)
Caroline Dill (McNicholas)
Tony Losekamp (McNicholas)
Quinn Moore (Fayetteville-Perry)
Ben Poehlmann (Roger Bacon)
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Education Days

Michael Miller, Professor Emeritus, University of Cincinnati, Aquatic Biology
Chris Lorentz, Professor and Director of CORRE, Thomas More College
Chris Nietch, Ph.D, USEPA
John Martinson, USEPA