



Ohio River Foundation's
2016 Youth Conservation Team
Northern Kentucky

Background Information

The Ohio River Foundation's Youth Conservation Team (YCT) program has completed more than 200 projects in Ohio, Indiana, and Kentucky since its inaugural 2011 summer season.

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 habitat protection and restoration work. A Crew Supervisor organizes the conservation projects and schedules work for the teams. A YCT Program Manager oversees the program, provides training for the Crew and Crew Supervisor, serves as liaison to the participating communities.

During the summer, the crews work six hours 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; 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 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 three weeks, the team, comprised of three high school students and two college students led by a Crew Director and Program Manager, successfully completed 12 habitat conservation projects in the Ohio River Watershed. By the end of the session, the teams had:

- Removed 53,050 ft.² of invasive plant
- Collected 240 lbs. of debris
- ‘Swept’ 9 acres for returning invasive plant species

Summary of Conservation Practices

Type of Conservation Practice	Projects Completed
Invasive Removal	3
Invasive Sweeps	4
Debris Cleanup	5
TOTAL	12

Invasive Species Removal and Green Infrastructure



Honeysuckle being sawed, lopped, or pulled... whatever it takes!

Plants that are not indigenous or native can become invasive and adversely affect the habitats and bioregions they invade. They out-compete native species, putting at risk plants and animals that are dependent on the native species for survival. The crew worked in one of the few

remaining forested wetlands in Kentucky removing invasive plant species such as Amur honeysuckle (*Lonicera maackii*). In a forested wetland, the honeysuckle can become so dense that the roots are able to hold an incredible amount of water. Once removed, it is expected that these wetlands will naturally expand.



Before



After

Furthermore, Amur honeysuckle (*Lonicera maackii*) shades native trees and other plants. As pictured above, the removal of this aggressive non-native plant allows sunlight to reach the forest floor so young native trees can grow. Also pictured above, existing trees are visible and no longer choked out as the competition is greatly reduced. The YCT took down over 53,000 ft.² of invasive Amur honeysuckle (*Lonicera maackii*), Callery pear (*Pyrus calleryana*), multiflora rose (*Rosa multiflora*), Russian olive (*Elaeagnus angustifolia*), and burning bush (*Euonymus alatus*).

Mitigation Project Sweeps



Lopping off honeysuckle in a riparian area.

When a large area of land is developed on or near a stream or wetland, these important natural habitats are negatively impacted. Therefore, a mitigation project must be completed to offset the

habitat destroyed. These projects can include the removal of invasive plant species and native re-seeding of a riparian buffer or wetland habitat elsewhere. Once completed, these projects are typically monitored for about ten years. It is nearly impossible to completely eradicate an invasive plant in the first big effort, so part of the subsequent monitoring of these projects includes doing a sweep of the area and removing any new plants that have re-sprouted or have spread from neighboring areas. The crew swept three different sites this season.

Debris Cleanup



Collecting trash along a tributary.

In riparian areas, each rain has the potential to wash more litter downstream and deposit it along streambanks. The crew collected trash both along streambanks and along roadways. This not only improves the aesthetic appeal, but can protect local wildlife that may get stuck in or try to eat a piece of the garbage.

Education Days



Collecting macroinvertebrates.



Testing phosphate levels.



Seining for stream fish.

To enrich the YCT experience, one day per week student crews worked with professors from area universities. The student field scientists explored the connections between the habitat protection work they were performing and watershed ecology. During their first education day, they experimented with many water chemistry parameters such as what affects the rate of light absorption in water, nutrients in water, runoff and absorption rates of different surfaces and soil types, dissolved oxygen, conductivity, turbidity, and more. They were able to compare water previously collected from several local streams using these water chemistry parameters. In a stream on site, they caught macroinvertebrates and stream fish, and observed how to assess stream health by its morphology through sediment erosion and deposition at the UC Center for Field Studies with professor emeritus Mike Miller, University of Cincinnati.



Observing the sewage treatment wetland.



Holding live mussels.



Posing with an electrofishing catch.

The second week, the students took a trip to the Thomas More Field Station on the Ohio River to see professor Chris Lorentz, where they learned about types of pollution, went electrofishing, used a YSI (a water quality testing instrument, capable of measuring multiple parameters) to take water chemistry, learned about the mussel life cycle and current ongoing mussel research. They also got to participate in a Bluntnose Minnow study by counting fish eggs on different color pvc pipes to determine substrate preference for breeding.



Preparing a dissolved oxygen test.



Taking a plankton tow.



Observing algae through a microscope.

The students also visited Dr. Miriam Kannan at Northern Kentucky University. There, they took water samples from the campus lake and brought them back to the lab. At the lab, the samples were used to measure lake water quality parameters and assess the quality of the campus lake. After two stream and river based education days, here they were able to see the similarities and differences between limnology and stream ecology. Again using their campus lake water samples, the students used microscopes to observe zooplankton, algae, and diatoms. They then observed and compared previously collected samples from three other northern Kentucky lakes. Through this experience, the crew learned about plankton ecology and its importance in the ecosystem.

Thanks to everyone who made the 2016 Northern Kentucky Youth Conservation Team season a resounding success!!

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