

Ohio River Foundation's

2015 Youth Conservation Team – Great Parks of Hamilton County Crew

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; 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 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 five high school students led by a Crew Director and Program Manager, successfully completed 35 habitat conservation projects in the Ohio River Watershed. By the end of the session, the teams had accomplished a wide variety of projects:

- Cleared woody plants to maintain a prairie over a 1000 ft.² area
- Weeded Compass Plant beds at the seed nursery: 1000 ft.²
- Planted 26 trees
- Collected several species of raw seed for the seed nursery: 35 gal. total. (Raw seed head size varies per species.)
 - 7 gal. Lanceleaf Coriposis
 - 8 gal. Spiderwort
 - 20 gal. Black-eyed Susan
- Trimmed hazardous/overhanging branches along trails and firebreaks: 1 mile
- Removed several species of invasive plants: 8,500 ft.² (about 25,500 lbs.)
- Replaced deer fencing around 45 young trees
- Removed 788 ft. unwanted deer fencing from around trees
- Removed unwanted seed species from plots at the seed nursery to keep them pure
 - 750 gal. Curly doc removed from 1 acre plot of Lanceleaf Coriopsis
 - 23 gal. raw seed heads Wild Bergamont removed from Grey-headed Coneflower plot
- Cleaned native Switchgrass seed for storage: retrieved 4 cups seed total.
- Completed erosion control projects: placed 105 ft. logs and 1100 ft.² brush and leaves.
 - Graded and lowered to unclog culvert (moved 70 ft.³/5,320lbs. dirt)
 - Placed 155 lbs. rock in culvert
- Collected 25 lbs. trash and separated 15 lbs. recyclables: total 40lbs.
- Placed nest boxes/platforms: 1 osprey platform, 1 kestrel box, 2 wood duck boxes
 - Moved 135 ft.³/10,260 lbs. dirt
 - Filled with 10 bags concrete and 20 ft.³/200 lbs. gravel
- Stained bird boxes in preparation for placement: 4 wood duck, 5 kestrel

Summary of Conservation Practices

Type of Conservation Practice Projects Completed

Invasive Removal	8
Seed Nursery Projects	9
Safety/Trail Maintenance	2
Debris Cleanup	4
Erosion Control	3
Habitat Creation	8
Prairie Conservation	1
TOTAL	35

Invasive Species Removal and Green Infrastructure



Pulling out some porcelain-berry vines smothering an area of Glenwood Gardens

Plants that are not indigenous or native can 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.



Before



After

Throughout many of the Great Parks, Japanese honeysuckle (*Lonicera maackii*) suffocates native trees and other plants. The removal of this aggressive non-native plant allows sunlight to reach the forest floor so young native trees can grow. As pictured above, existing trees are visible and no longer choked out as their competition is greatly reduced, the young Eastern Dogwood tree was nearly unnoticeable before the surrounding honeysuckle was taken out. The YCT removed about 8,500 ft.² (25,500 lbs.) of invasive Japanese honeysuckle (*Lonicera maackii*), Callery pear (*Pyrus calleryana*), multiflora rose (*Rosa multiflora*), autumn olive (*Elaeagnus umbellata*), Johnson grass (*Sorghum halepense*), and porcelain-berry vine (*Ampelopsis brevipedunculata*).

Wetland and Meadow Preservation



Before



After

The succession of many natural areas in Hamilton County is to grow into deciduous forest. In order to preserve some areas as a prairie or wetland, woody plants spreading from bordering forests must be maintained and removed periodically. The crew removed woody plants on a hill descending from a prairie overlook area that was not only transitioning into a forest, but blocking the view from the top where park guests can overlook the prairie and wetland below. This will also ensure there is habitat available for important prairie and wetland flora and fauna.

Debris Cleanup



Collecting trash on the lakeshore

Where there are people, there will be trash. This never ending task fell to the crew as they spent a full day picking up trash, separating the recyclables, at Campbell Lakes, a Great Parks pay lake area situated alongside the Miami Whitewater River. There are five lakes, and the crew walked along the border of each lake where there is the most human use. This not only improves the aesthetic appeal of the park, but can protect local wildlife that may get stuck in or eat a piece of the garbage.

Trail Safety and Maintenance



Before – branches over fire break



After

As a guest, limbs impeding a trail can be a nuisance. From a land management standpoint, stray limbs can be a safety hazard as well. Encircling most prairie areas in the parks is a mowed firebreak to prevent the adjacent forest from catching fire when those prairie areas undergo controlled burns, or if they were to catch fire from another source. The crew hiked along some of the walking trails and firebreaks to trim back overhanging branches that were either in the way of hikers or a potential fire hazard.

Erosion Control



Old, eroding trail with logs strategically placed and brush and leaves scattered to disguise.

Erosion is an ever present issue. The crew worked on two different types of erosion projects. The first was alongside sections of trail and on old, no longer used trails with a steep grade, where the water was creating ruts from flowing downhill over time. Here, using materials gathered from the surrounding forest areas and a few recycled stakes from other projects, logs were strategically placed and staked across the trail to divert some of the water. Subsequently, dead sticks, brush, leaves, and any seeds found were scattered over the area to blend it in with the rest of the forest floor. These may also slow the flow of water and prevent sediment from washing away further.



The second type of project the students worked on was a culvert ditch. The culvert was previously clogged, preventing any flow. Once the culvert pipe was unclogged, the sides were re-graded and rocks were placed in the bottom. Due to time restraints the crew did not finish the final stage of seeding the newly graded sides to further stabilize the soil; this was completed soon after by a park employee.

Habitat Creation



The base hole for the osprey platform.



Finished platform.



Wood duck box.

This summer, the crew placed boxes and nesting platforms for several species of birds including Osprey, Wood Ducks, and Kestrels. This process involves digging a deep hole to place the post, filling in and packing the bottom with gravel or cement, then gradually filling in the rest of the dirt, packing several times intermittently to ensure it will be sturdy and last a long time. The crew stained several bird boxes for later placement as well, the treated wood lasting much longer. These nest boxes/platforms are designed and strategically placed to draw birds to the area by providing a safe place to raise their young that may not have been present previously due to deforestation or competition. They can potentially attract species with declining populations and increase or maintain local biodiversity.



Digging a hole for a seedling.



Good luck, young tree!

The students also planted a variety of native seedling trees to rehabilitate struggling natural areas recover from various projects. Some tree species include white oak, red oak, chinquapin oak, eastern dogwood, shagbark hickory, and more. One project area had previously been mowed grass, the students planted a few native trees to encourage the area to revert back to forest and increase available habitat. A second area had been so ravaged by invasive plant species that once they were all removed, there was nearly nothing left; to prevent the invasives from returning or spreading from nearby, the young native trees were again planted to encourage the area to revert back to forest and out-compete potential invasives trying to move back in. These trees were also planted near public trails and will improve aesthetic appeal.



Deer fence to protect this tree's trunk.

Not only did the crew plant trees but they took a few extra steps to boost their chances of survival. They put fertilizers and special water retaining pellets in the bottom of each hole and placed some mulch near the base to reduce root competition and erosion. A different tree project the crew completed did not involve planting trees, but both removing old deer fencing from around trees that had been planted many years ago, and placing new deer fencing around young trees that had been planted recently to stabilize a newly renovated riparian area. This deer fencing increases a young trees chance of survival by preventing deer from potentially eating tree bark, and protecting them from male deer rubbing their new velvet-covered antlers along the tree trunk, leading to death by breaking or the possibility of disease and insect exposure by removing the protective bark.

Seed Nursery Work



Collecting Wild Bergamont seeds heads.

A unique opportunity for this crew, they did several projects with the Shaker Trace Seed Nursery, a Great Parks property. The nursery is a place where employees and volunteers are able to target particular prairie species, harvesting and storing the seeds for later use in special seed blends when they wish to install or rehabilitate an area into a native prairie. One project the students worked on was weeding Compass Plant beds. They also spent some time collecting seeds of Black-eyed Susans, Spiderwort, and Lanceleaf Coreopsis wildflowers. A similar task with a different purpose, they collected seed heads for Curly Doc and Wild Bergamont from Coriposis and Grey-headed Coneflower plots to preserve the purity of the plots for later sorting of the seeds. The final task they participated in was the cleaning of native Switchgrass seeds in preparation for storage.

Education Days



Learning about the leachate outflow at Fernald.



Placing a wildlife camera.

To enrich the YCT experience, one day per week student crews worked with professors from area universities and other local organizations. The student field scientists explored the connections between the habitat protection work they were performing and watershed ecology. Their first education day took place at Fernald Preserve, where they learned the long history of what Fernald is, what it was, and what it is becoming. The students were taught about current and past eco-restoration projects, including the process of removing radioactive material from the site and ensuring the safety of their Great Miami Aquifer. They also got to learn about current wildlife monitoring projects, how to strategically place wildlife cameras, and choose a location to place their own. After three weeks, they returned to see what their cameras filmed.



Checking for fish in the seine net.



Collecting macroinvertebrates.

The second week, they experimented with many water chemistry parameters such as what affects rates 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 pre-collected from several different area streams using these water chemistry parameters. In a nearby stream, 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.



Counting bluntnose minnow eggs. Ready for electrofishing.



Out on the Ohio River.



The students also took a trip to the Thomas More Field Station on the Ohio River to see professor Chris Lorentz, where they learned about different 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, took an algae sample, and reviewed macroinvertebrates. 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.

Thanks to everyone who made the 2015 Hamilton County Youth Conservation Team season a resounding success!!

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