



JAPANESE KNOTWEED

REED CANARY GRASS

GARLIC MUSTARD

GLOSSY BUCKTHORN

NARROW-LEAVED CATTAIL

The History:

A tributary of Tinker’s Creek runs through Hudson High School campus. This tributary had been channelized, incised, and disconnected from the floodplain. In July 2003, 17 inches of rain caused devastating flooding in Hudson, taking two lives. The City has since spent nearly \$3.7 million on stormwater improvement projects like cleaning the Brandywine tributary, building detention basins, lining storm sewers, and replacing culverts.

The Restoration:



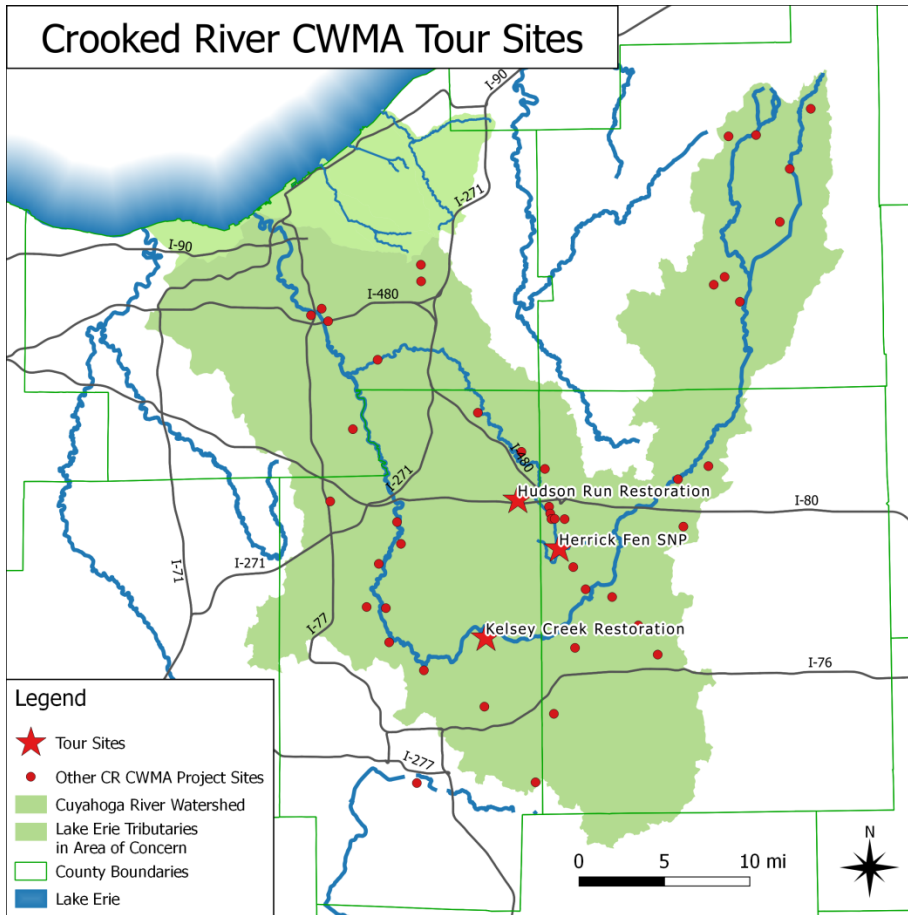
The Cuyahoga County Board of Health contracted Biohabitats to restore 2,000 linear feet of this tributary. The restoration project was designed to improve water quality and riparian habitat while also dissipating stream energy, minimizing erosion and sedimentation, and protecting existing infrastructure. This restoration also provided an additional 2,000,000 gallons of storage to reduce storm flows at the site. The site was divided into three reaches for the restoration. Each reach represents an ecosystem indicative of Ohio’s riparian systems, including a wildflower meadow, forested wetland, and scrub/shrub emergent wetland. Now, the site is a part of Hudson High School’s Land Lab, a living outdoor classroom, and inspires and facilitates ongoing stewardship and education.

Invasive Plant Control Techniques and Equipment Used at Hudson Run:

- Hand pull smaller shrubs. Larger shrubs cut close to the ground and applied herbicide immediately to the cut surface of the stump. Herbicide used: 25-50% aquatic-safe glyphosate-based herbicide with dye.
- Foliar sprayed non-woody plants (and any small shrubs intermixed with non-woody plants)
- Herbicide used: 1.5-3% aquatic-safe glyphosate-based herbicide, with aquatic-safe surfactant (spreader/sticker), and spray tracker dye. A total of 502oz of concentrated glyphosate-based herbicide.
- Removed fully developed flowers from thistles by hand before foliar spraying to prevent seed production. Note: Optimal treatment time for thistle is a narrow window when buds are developed but flowers aren't yet open.
- Time: Over the course of six days (two days in 2014, two days in 2015 and two days in 2016), between three and six staff spent 19 hours on site for a total of 71 person-hours.
- Equipment: Backpack sprayers, folding hand saws, hand pruners, loppers.

Hudson Run Species Controlled at Hudson Run:

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
Garlic mustard	<i>Alliaria petiolata</i>	White sweetclover	<i>Melilotus alba</i>	Small-flowered willowherb	<i>Epilobium parviflorum</i>
European black alder	<i>Alnus glutinosa</i>	Yellow sweetclover	<i>Melilotus officinalis</i>	Glossy buckthorn	<i>Frangula alnus</i> (<i>Rhamnus frangula</i>)
Canada thistle	<i>Cirsium arvense</i>	Reed canarygrass	<i>Phalaris arundinacea</i>	Asian bush honeysuckles	<i>Lonicera</i> spp.
Bull thistle	<i>Cirsium vulgare</i>	Common reed, “Phrag”	<i>Phragmites australis</i>	Narrow-leaved cattail	<i>Typha angustifolia</i>
Common teasel	<i>Dipsacus fullonum</i>	Common buckthorn	<i>Rhamnus cathartica</i>	Hybrid cattail	<i>Typha X glauca</i>
Cut-leaf teasel	<i>Dipsacus laciniatus</i>	Multiflora rose	<i>Rosa multiflora</i>		
Hairy willowherb	<i>Epilobium hirsutum</i>	Crown vetch	<i>Securigera varia</i>		



About CR CRMA:

The Crooked River Cooperative Weed Management Area (CR CWMA) is a collaboration of major land stewards and other landowners in the Cuyahoga River watershed of the Lake Erie basin, all motivated by conservation of land and biological diversity in Northeast Ohio.

The purpose of CWMA's is to share knowledge, staff, equipment, and material across jurisdictional boundaries for invasive species detection and management. Each CWMA is organized around geography and one or more species. The CWMA is based on a Memorandum of Understanding (MOU) among the partners.



In the Cuyahoga Watershed, several agencies have hosted seasonal crews working with land managers across the watershed. We share some large and small equipment, and we have a mobile tool cache of equipment and supplies for crews or volunteer projects.

Participation in the Crooked River CWMA takes many forms. There are two types of signatories to our Memorandum of Understanding, depending on how deeply involved in land management a participating agency or landowner is. We also have a Steering Committee to assist with work plans, community projects, and outreach.