



# SEELEY CREEK HABITAT RESTORATION

In partnership with:



\$815,000 in grant funds provided by the Great Lakes Restoration Initiative (GLRI) through the U. S. Environmental Protection Agency (USEPA) for design & implementation

## The Seeley Creek Habitat Restoration Project included:

- 5 acres of invasive plant species management and wetland restoration
- 30+ stream grade control riffles
- 4,000 feet of restored/improved stream habitat

In 2019 the Alliance of Rouge Communities (ARC) received grant funding from the U. S. Environmental Protection Agency (USEPA) Great Lakes Restoration Initiative (GLRI) to design and implement habitat restoration at Seeley Creek located in Farmington Hills within the Rouge River Watershed.

The Rouge River watershed is a designated Area of Concern (AOC) under the Great Lakes Water Quality Agreement (GLWQA) and has three Beneficial Use Impairments (BUIs) associated with fish and wildlife habitat: Degraded Fish and Wildlife Populations, Degradation of Benthos, and Loss of Fish and Wildlife Habitat. The Rouge River Advisory Council (RRAC), the Public Advisory Council (PAC) for the Rouge AOC, in March 2016 approved a list of projects that need to be completed to remove the Rouge AOC habitat BUIs. As part of that list, habitat restoration at Seeley Creek was considered as having a significant impact on the removal of the BUIs.

As water quality in the Rouge River continues to improve, this project builds on past efforts to restore some of the damage done during the last century. Tributaries of the Rouge River have suffered from loss and impairment of aquatic habitat and increased frequency and magnitude of flood flows, primarily due to increasing urbanization within the watershed. The flat river slope and the meandering channel can not pass the large flows associated with rain events. Upstream urbanization continues to exacerbate this problem as runoff from increased amounts of impervious surfaces culminates in flooding within the river system, bank erosion, and continued habitat degradation. This project has enhanced habitat in the creek and adjacent floodplain by stabilizing the streambed, eroding banks, and adding stream substrate. Invasive species management was conducted to increase diversity of native plant species. This project has enhanced habitat for fish and aquatic species as well as improved habitat for birds, amphibian and terrestrial species.

In 2008 a morphological monitoring and assessment demonstrated that a portion of Seeley Drain was morphologically unstable due to entrenchment, and that habitat diversity was low due to a lack of coarse substrates, lack of stable woody debris, and lack of pool habitat.



*Exposed tree roots due to erosion caused by large flows from rain events*



*Large flows associated with rain events has caused flooding within the river system, bank erosion and continued habitat degradation*

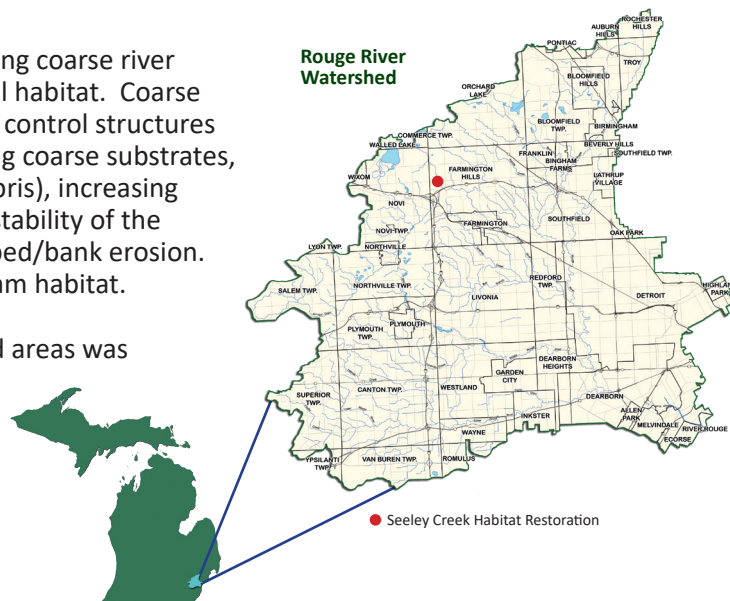


## Seeley Creek Restoration

The design included the addition of 30+ grade control structures using coarse river aggregates and woody debris to control bed erosion and create pool habitat. Coarse substrates were added to provide diversity to the creek bed. Grade control structures such as rock riffles have increased habitat diversity by directly adding coarse substrates, promoting natural sediment sorting (creating deposits of coarse debris), increasing flow velocity heterogeneity, and creating pool habitat. The overall stability of the aquatic habitats have been improved by reducing flow energy and bed/bank erosion. These efforts have resulted in 1,600 feet of restored/improved stream habitat.

In addition, restoration of approximately 5 acres of riparian wetland areas was designed and implemented. The wetlands were impaired by hydrological alteration and invasive species colonization. Erosional gullies had formed through the wetlands, which was promoting their drainage, decreasing their hydroperiod, and encouraging loss of native vegetation and establishment of invasive species. These conditions also impaired their water quality function by preventing or reducing naturally filtering processes. To restore the wetlands, the gullies were filled, and stabilized, invasive species were treated and managed using the most effective means available, and native wetland species were planted.

### Rouge River Watershed



### Project Outcomes

- Improved channel stability and reduce erosion & sedimentation
- Improved aquatic habitat diversity and stability  
Provided important aquatic habitat for redbreasted dace, a Michigan endangered species
- Improved wetland habitat diversity & function
- Public education opportunities



*Gully erosion drained surrounding wetlands that many native plants and animals depended on. Soil washed downstream and smothered downstream habitat.*



*Gully filled with soil and rock riprap to keep soils from washing downstream. Invasive vegetation removed and native vegetation planted providing habitat and increased plant and animal diversity.*

### Construction Activities



*Large wood log structures were installed in the stream to stabilize the streambed and to create fish and wildlife habitat.*



*branches cut from nearby native wetland shrubs to create live stakes that were planted to grow into new native wetland shrubs.*



*Invasive vegetation removed and native seeds, live stakes, and trees planted which provide valuable food and habitat for wildlife.*



*Rocks placed in stream to protect the bed and banks from erosion and provide spawning habitat for fish and other aquatic animals.*

## About the Alliance of Rouge Communities

The ARC is a 501(c)(3) non-profit organization consisting of local municipalities, counties, educational institutions and stewardship groups working together to improve the Rouge River. Founded in 2005, the ARC is funded by membership dues from local governments and supported by grants. The ARC and its partners work cooperatively to meet water quality requirements mandated by the state's stormwater permit and to restore beneficial uses, such as canoeing, fishing and other recreational activities, to the Rouge River. That means better water quality for less cost to its members!

**For more information about this project and other ARC activities visit our website at: [www.allianceofrougecommunities.com](http://www.allianceofrougecommunities.com)**

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