

Nature Conservancy of Canada
Restoration for a healthy Twelve Mile Creek – Phase 2
Final Report to Ontario Wildlife Foundation – July 31, 2021

Thank you, Ontario Wildlife Foundation, for your generous support of the Nature Conservancy of Canada's (NCC) project "Restoration for a healthy Twelve Mile Creek – Phase 2". We are delighted to provide you with this final report on the project.

BACKGROUND & PROJECT NEED:

The Lathrop Nature Preserve in Fonthill, Ontario was generously donated to the Nature Conservancy of Canada (NCC) by Mr. D. Whiting Lathrop and Mrs. Margaret Lathrop in 1998. It is a conservation gem in the heart of the Niagara region that has long been a favoured nature retreat of the growing Fonthill community and other residents.

The property supports rare animal and plant species including the hooded warbler, butternut, and American chestnut. Carolinian forest cover on the property protects the headwaters of Twelve Mile Creek, the last remaining cold-water stream, and home to the only self-sustaining population of brook trout in Niagara. The headwaters, and the entire Lathrop property, is part of the region's network of streams, inland wetlands, and forests that provide critical ecological services, such as water filtration and storage, flood control, and carbon storage.

The trails on the property are frequented by nature lovers year-round. Part of the trail is located on an aging berm which used to support an old railway line. This berm is causing two significant issues that this project is addressing:

1. It is acting as a dam and has two artificial ponds. As standing water in the ponds warms up and flows into Twelve Mile Creek, the creek temperature rises, making it difficult for brook trout and other cold-water species to survive.
2. The berm is part of a public trail system. The structural integrity of the berm is a safety concern to trail users and downstream property owners. The berm holding the ponds in place was created over 100 years ago and is in poor repair. It is visibly slumped and the water outflow infrastructure is collapsed and degraded, putting downstream properties at risk.

PROJECT BENEFITS:

With the help of funding through Ontario Wildlife Foundation, NCC is addressing the two issues outlined above by restoring the two artificial ponds on its Lathrop Nature Preserve, in partnership with the Niagara Chapter of Trout Unlimited Canada (TUC) and Niagara College. Restoring these ponds will reduce thermal pollution and remove the threat of dam failure that could see a flood of harmful warm water and sediment flow downstream into the last remaining cold-water stream in the Niagara Peninsula. In addition to the benefits to species such as brook trout and American eel, this project will benefit:

- downstream neighbours by removing the threat of flooding from dam failure,
- the local community of Pelham Township and all visitors to the property who can continue to enjoy a safe hiking experience on the trails,
- and Niagara College students who will be using the project as a teaching tool in their GIS and Ecosystem Restoration courses (several students have completed independent surveys and project proposals for the site, which provide valuable information to NCC while giving the students opportunities to include real-world experience in their coursework and portfolios).

PROJECT DETAILS:

Objectives: The Nature Conservancy of Canada (NCC) undertook Phase 2 of a multi-year project to restore two ponds on its Lathrop Nature Preserve to improve habitat connectivity and downstream water quality. The project will remove the threat of flooding from a dam failure, improve trail safety for visitors, and improve water quality and aquatic habitat in Twelve Mile Creek, the last remaining cold-water stream in Niagara.

Location: Fonthill, Ontario

Start date: June 15, 2020

Completion date: June 30, 2021

Project cost: \$650,000 (full project)

Amount funded by Ontario Wildlife Foundation: \$10,000

WORK COMPLETED IN PHASE 2:

Soil sampling and geotechnical investigation to analyze the instability of the berm

- Complete – Consultants completed soil sampling and a geotechnical investigation of the berm stability in May 2020.

The soil chemistry analysis results indicated that the berm soil meets Ontario Ministry of Environment, Conservation and Parks standards and can be left on site following construction. If the soil had not met these standards (i.e. if it was contaminated with heavy metals or other harmful chemicals) it would likely require intensive and expensive remediation efforts as part of the project. Being able to re-use soil from the berm during construction will mean less disturbance to the site.

The geotechnical analysis indicated that the stability of the berm downstream side of each pond does not meet the typically required Factor of Safety (1.2 to 1.3) for the existing use as a walking trail in a park-like setting. This further confirms that the project is necessary for public safety.

Completion of engineered restoration design

- Complete – The Upper and Lower Pond Restoration plan is complete. The restoration plan includes detailed engineered drawings; site management plan; environmental compliance and fish and wildlife relocation specifications; and a detailed planting plan and native species planting list. The restoration plan has been approved by NCC and project partners Trout Unlimited Canada and Niagara College.

Final submission of permit applications and preparation of construction tender

- In progress – The Ontario Ministry of Environment, Conservation, and Parks confirmed in May 2021 that the project does not require any authorization under the Endangered Species Act. The Ontario Ministry of Natural Resources and Forestry confirmed in July 2021 that the project does not require an approval under the Lakes and Rivers Improvement Act. The Department of Fisheries and Oceans provided a letter of advice supporting the project in July 2021.

Permit applications were submitted to Niagara Escarpment Commission (NEC) and Niagara Peninsula Conservation Authority (NPCA), along with supporting reports in June 2021. To support permit applications to the NEC and NPCA a detailed Geotechnical Investigation and Slope Stability Analysis Report, Hydrotechnical Report and Natural Heritage Evaluation/Environmental Impact Study were completed. Permit review at NEC and NPCA is currently in progress.

The Stage 1 & 2 Archaeological assessment of the project area is complete. The assessment did not uncover any significant cultural artifacts in the project area. Pending all regulatory approvals, the work should be able to proceed as detailed in the restoration plan this coming fall.

The construction tender is in the final drafting stage.

Species monitoring and invasive species control at restoration site

- In progress – NCC staff controlled invasive species on 0.75 ha of the property in Fall 2020. There is potential for more invasive species control, however COVID-19 restrictions continue to delay progress.

Clearing of select trees (approx. 370m of trail) to allow equipment access for construction

- No longer necessary - Initial estimates of requirements for equipment access indicated that selective tree removal was necessary along the proposed 370m access route. In early January 2021, the analysis of tree removal required was completed, including more detailed information about equipment size. The completed analysis indicated that no mature tree removal is necessary along the proposed access route, so this activity is no longer necessary for the project.

Initial draining of lower pond (surface area of 0.11 ha and estimated depth of 9 metres)

- Postponed – This work has been postponed to coincide with Fall 2021 construction to reduce disturbance to the site.

Engaging the local community and hosting a second open house

- Complete – Due to COVID-19 the open house was shifted to a virtual information session format. On December 8th2020, guest-speakers Brian Green (Trout Unlimited Canada – Niagara Chapter) and Ian Smith (Niagara College) joined NCC staff to present on the project, as well as TUC's restoration work in the Twelve Mile Creek watershed. Twenty-eight community members attended the virtual session, and the recording was posted to the project website.

The project received local media attention throughout Phase 2:

GEI Consultants Blog Post - https://www.geiconsultants.com/thought_leadership/what-happens-when-your-restoration-vision-conflicts-with-restoration-targets/

Niagara This Week - <https://www.niagarathisweek.com/news-story/10281668-restoration-project-will-preserve-environmental-gem-in-heart-of-fonthill/>

NewsTalk 610CKTB - <https://www.iheartradio.ca/610cktb/audio/non-profit-hopes-to-begin-restoration-work-on-local-nature-site-this-winter-1.14042043?mode=Article>

Voice of Pelham - <https://thevoiceofpelham.ca/2020/12/18/lathrop-preserve-restoration-set-to-start-this-winter/>

Purchase of native plant material to plant at site post-construction (in 2021)

- In progress – A post construction planting plan and species list has been developed. Consultants are currently in communication with potential vendors.

LOOKING AHEAD:

Phase 3 – Construction – is anticipated to commence in fall 2021.

Thank you for making this project possible, and for playing an important role in the health of Twelve Mile Creek and visitor safety on NCC's Lathrop Nature Preserve. If you require any further information or have questions, please don't hesitate to contact Laura Vaughan at laura.vaughan@natureconservancy.ca.

Photos:



Figure 1 - Lower Pond and embankment to be restored



Figure 2 - Upper Pond to be restored