



Stewardship in Mining Wetlands

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Our Mission: Working together to lead, promote,
support and inspire innovative watershed management.



Overview

- ▶ Nature Conservancy of Canada
 - Stewardship in Mining Wetlands
- ▶ NVCA Project Profiles:
 - Nottawasaga River Live staking Project
 - Willow Creek Wing Deflector Project
- ▶ Additional Projects
- ▶ Future Direction





Nature Conservancy of Canada – Minesing Projects (June 2013- present)



- ▶ Completed Ecological Land Classification on nearly 200 acres of wetland habitat (2013/14)
- ▶ Cleared and installed signage along the new Mad River Trail (2013) and developed signage for Clarence Smith Nature Reserve; Mad River South Trail; Iron Bridge Property
- ▶ Developed an invasive species identification brochure for local distribution (2014)
- ▶ Mapped communities of invasive Dog-strangling Vine and Common Reed and completed management control (2013 onwards)
- ▶ Completed (2014)
 - a Landscape Connectivity Study to identify important linkages between Minesing & larger landscape
 - the first iteration of Minesing Wetlands Forest Health Plan
 - the Minesing Wetlands Property Management Plan



Nature Conservancy of Canada – Mining Projects (June 2013- present)

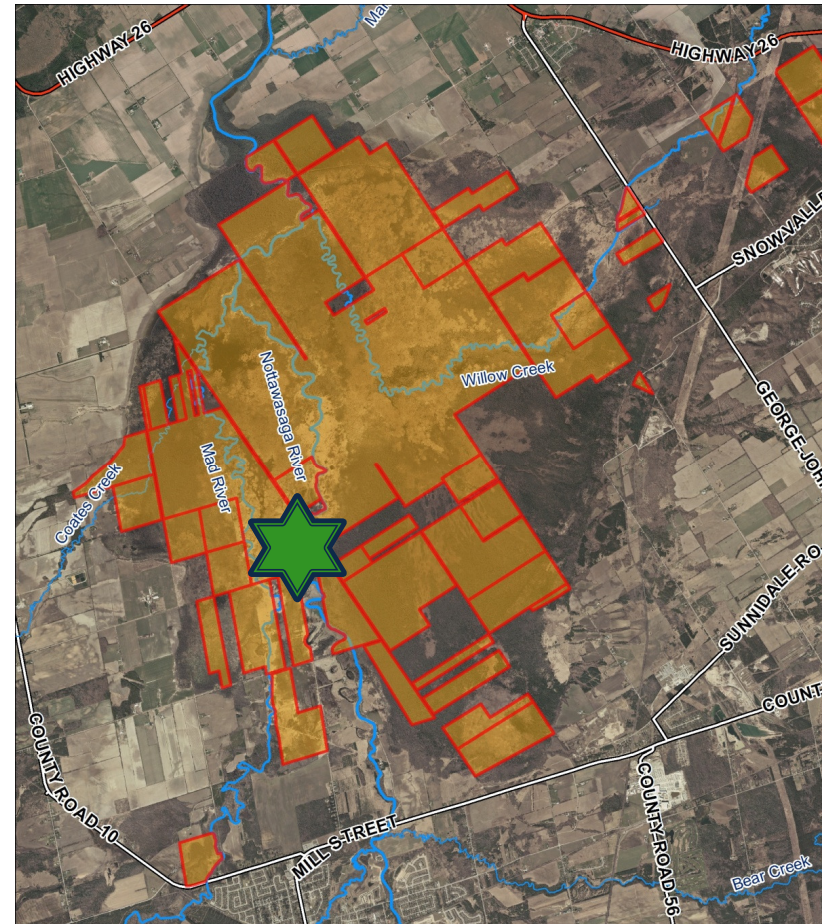
- ▶ Mining Wetlands Dragonfly Count (2013)
- ▶ Spotted and Wood Turtle surveys (2013/14)
- ▶ Participated in TD Friends of the Environment tree planting (2014)
- ▶ Supported the revitalization of the Mining Management Committee
- ▶ Participated in live stake harvesting for use on river restoration projects (2013/14)
- ▶ Supported NVCA-led restoration events along
 - Mad River (log jam clearing/woody debris anchoring-2013/14)
 - Nottawasaga River (live staking-2013)
 - Willow Creek (wing deflector creation-2014)





Nottawasaga River Live staking Project

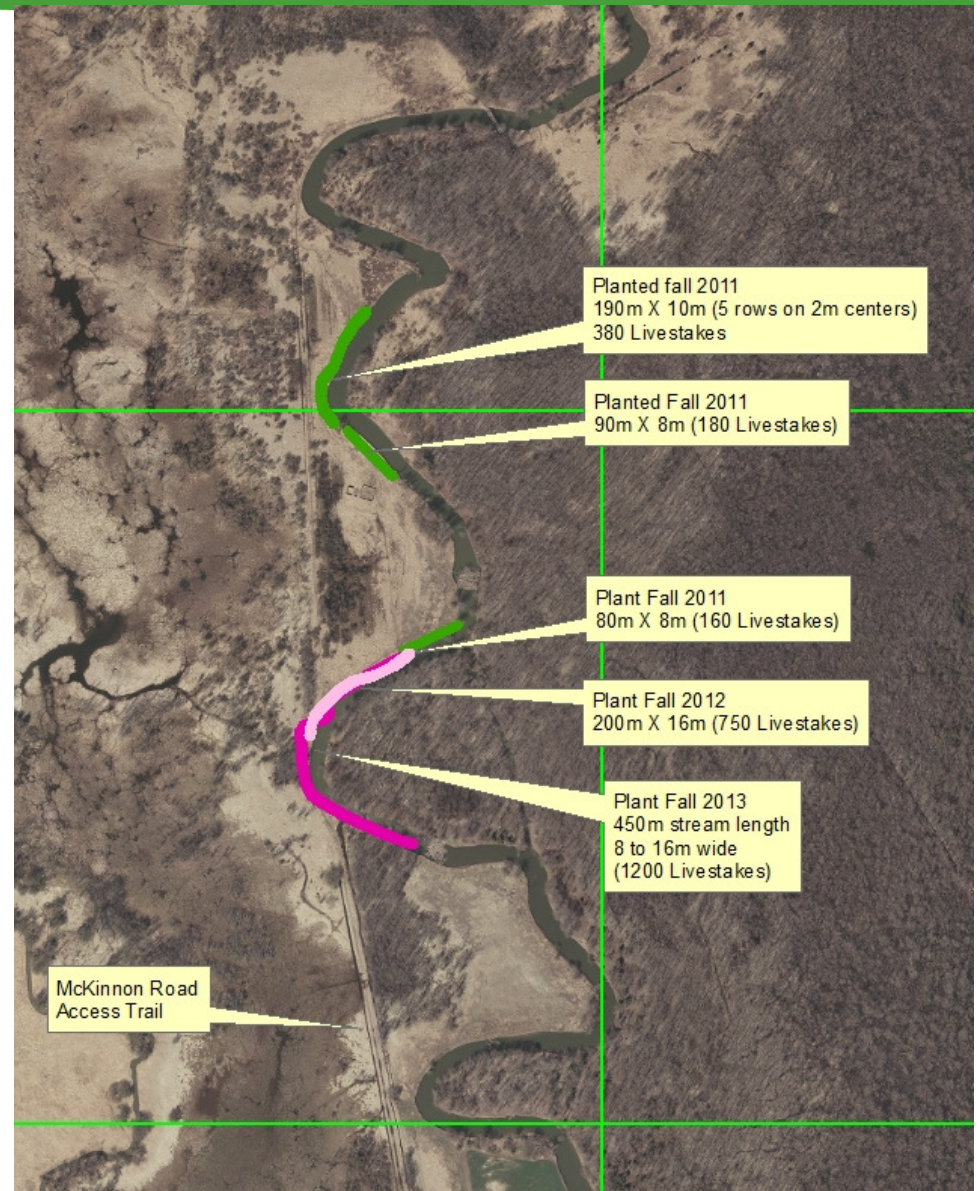
- ▶ This site along the Nottawasaga River within the Minesing Wetlands was identified as a high priority area for restoration due to the impacted streamside habitat
- ▶ Much of the west side of the river, north of Simcoe Rd 90, was historically stripped of vegetation due to extensive cattle grazing
- ▶ Left a legacy of denuded streamside areas (short-rooted grass only) and vertical eroding river banks, with almost no in-stream cover available.





Nottawasaga River Live staking Project

- ▶ Despite decades of farming inactivity, there has been very little natural succession to return the site back to a red/silver maple swamp, likely due to intense competition
- ▶ Project Goal: Increase riparian cover along the banks of the Nottawasaga River within the Minesing Wetlands (property owned by NVCA/NCC)





Nottawasaga River Live staking Project

- ▶ Typical Nottawasaga River bank on NVCA property showing low habitat diversity and early natural succession plant cover only





Nottawasaga River Live staking Project

- ▶ Impacted reach of the Nottawasaga River
 - identified as a high priority candidate for restoration (vertical eroding banks and lack of riparian cover)





Nottawasaga River Live staking Project

- ▶ Shrub willow live stakes and dogwood cuttings were harvested from dormant materials by volunteers (late fall)
- ▶ Live staking is the installation of live cuttings that have the ability to root and grow
- ▶ Live stakes installed into the river bank will stabilize the shoreline, improve fish and aquatic habitat and encourage forest succession.
- ▶ It is hoped that the shade produced by the willows and dogwoods will create a habitat conducive to maple regeneration on the banks, as maples prefer partial shade, and less competition.





Nottawasaga River Live staking Project

- ▶ Volunteers harvesting live stakes (sun/snow/rain!)





Nottawasaga River Live staking Project

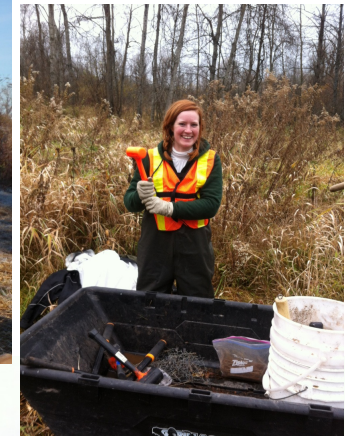
- ▶ Volunteers rolling out brush mats to reduce competition, and limit exposure to wild parsnip on site.





Nottawasaga River Live staking Project

- ▶ Volunteers installing live stakes with dead-blow mallets (reduces splitting). Various treatment methods applied (e.g. chicken wire, sand/paint)





Nottawasaga River Live staking Project





Nottawasaga River Live staking Project

Fall Field Seasons: 2011-2013

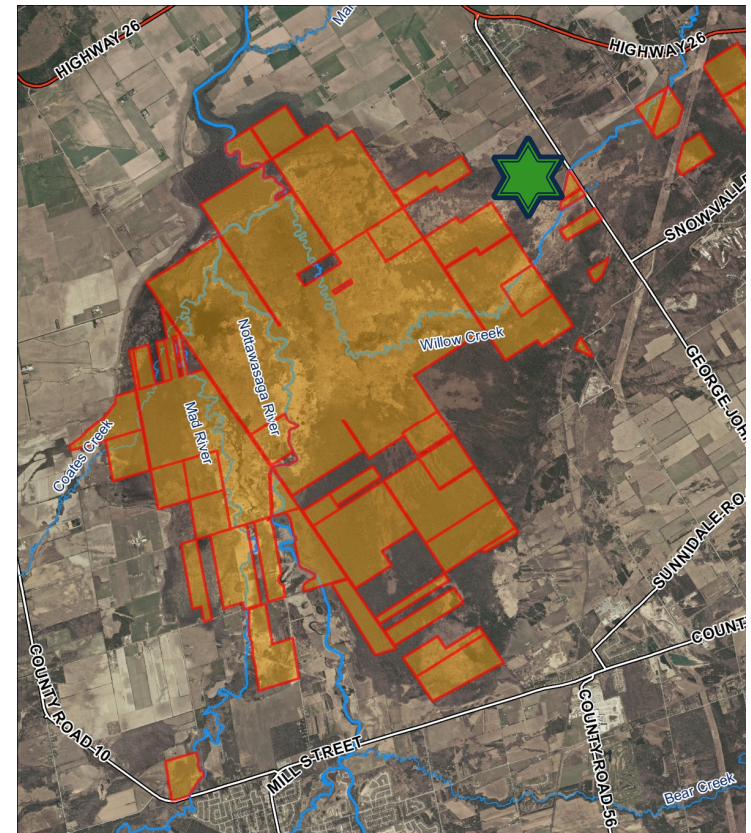
- ▶ Engaged 157 volunteers
- ▶ 2700 live stakes installed!(thanks to our volunteers!)
- ▶ Technique applied to almost 1 km of stream bank





Willow Creek Wing Deflector Project

- ▶ Willow Creek, at George Johnston Rd, Springwater, Willow Creek Canoe Launch (easy to see off trail!)
- ▶ Property ownership (NVCA –south, Engaged landowner – north)
- ▶ Restoration of a habitat in a reach of stream that was channelized (straightened) and dredged by heavy machinery in the past





Willow Creek Wing Deflector Project

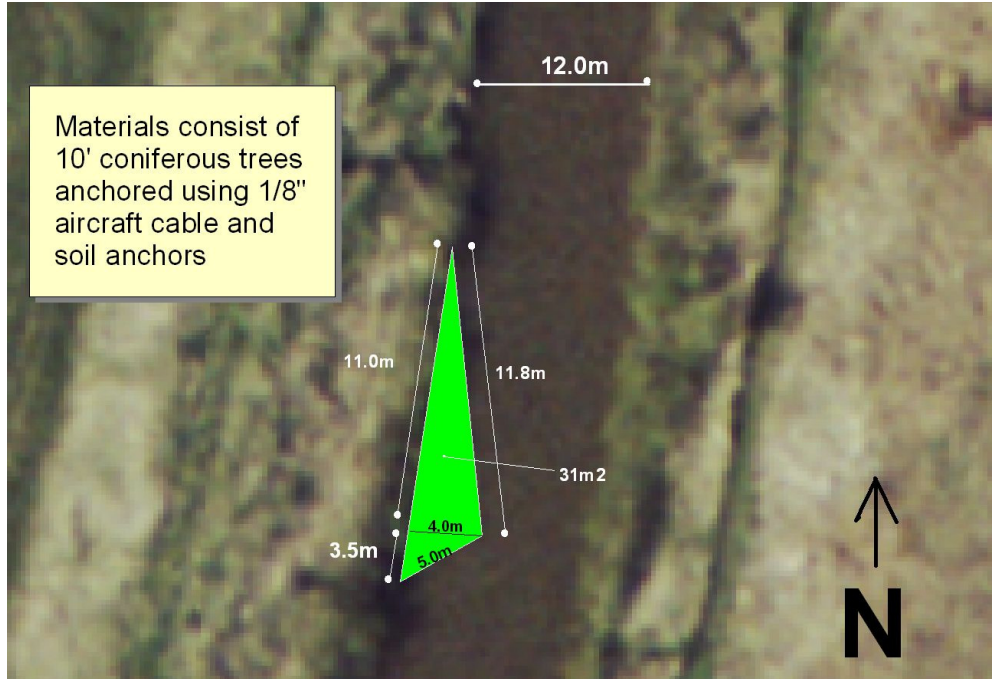
- ▶ The impacted channel is too wide and slow moving to effectively move sediment and sediment bound phosphorus which has been accumulating on the bed of the now very shallow channel.
- ▶ The habitat in straightened streams is not as productive for fish and aquatic insects and there is a decrease in biodiversity.





Willow Creek Wing Deflector Project

- ▶ Triangular wing deflectors (sediment traps) were constructed in an alternating pattern along the banks of Willow Creek in order to narrow the stream and create meanders (natural 'wiggle' in the stream)
 - Each 14.5m long x 4m wide on 50 m centres





Willow Creek Wing Deflector Project

- ▶ The deflectors redirect the current and create a more varied habitat including deeper pools for larger fish and shallow bars for aquatic plants, insects and young fish.
- ▶ During spring runoff, the deflectors trap sediment, providing a place for new vegetation to grow.





Willow Creek Wing Deflector Project





Willow Creek Wing Deflector Project

- ▶ Volunteers hauled fresh cut coniferous trees into the margins of the creek and using soil anchor installed them into the stream bed to create the wedge shaped wing deflector



- ▶ Live willow stakes and dogwood cutting were added to the wing deflectors to further stabilize these new structures



Willow Creek Wing Deflector Project





Willow Creek Wing Deflector Project

- ▶ Installed 7 deflectors, enhancing over 300m of stream
- ▶ Works are still in progress thanks to our amazing volunteers, community partners and funders that have contributed to this project!





Mad River – Log Jam Removal and Woody Debris Anchoring Project

- ▶ In 2013, log jam barriers on the Mad River were removed to encourage fish passage, and open a canoe route blocked for decades
- ▶ The Mad River provides high quality coldwater stream habitat capable of supporting a variety of trout and salmon species.
- ▶ In 2013/14 almost 50 volunteers paddled down the Mad River and donned chest waders to further enhance fish and benthic invertebrate habitat!
- ▶ Using soil anchors, the volunteers installed the previously removed woody material along the margins of almost 12 km of Mad River stream bank to create additional fish habitat.

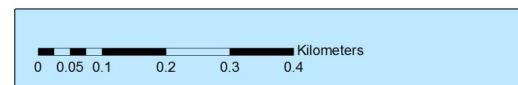
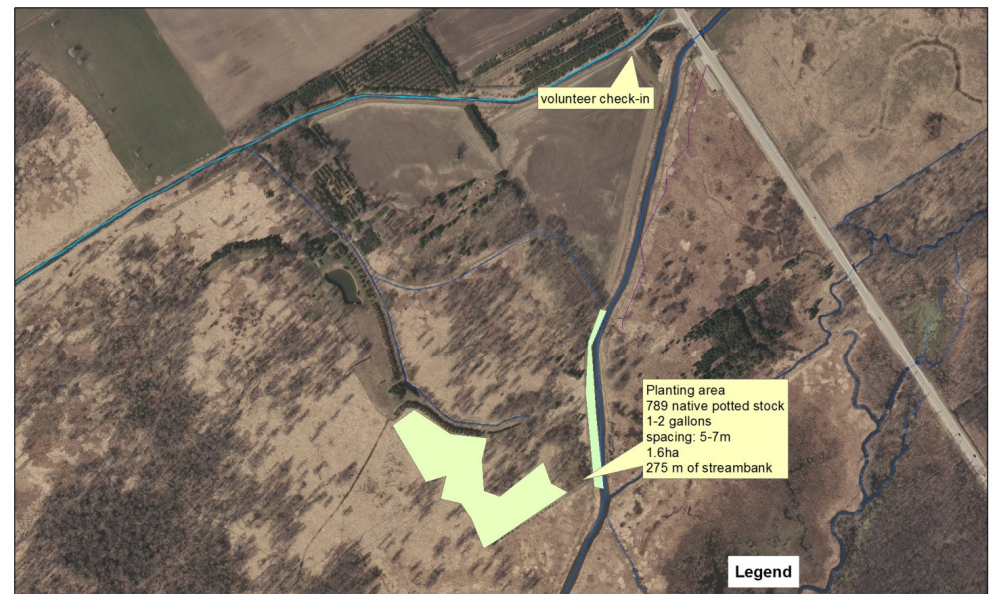




TD Friends of the Environment Tree Plant : Sept 14, 2014

Thanks to the efforts of TD Friends of the Environment, the landowner, our volunteers, NCC and NVCA:

- ▶ 789 potted native trees and shrubs were planted!
- ▶ A buffer was planted along 275m of Willow Creek
- ▶ 1.6hectares of land was planted
- ▶ 107 volunteers were engaged





Friends of Sadie Memorial Plant – Willow Creek





Phragmites Control in the Minesing Wetlands

- ▶ This goal of this ongoing initiative is to reduce the spread of the aggressive, invasive Common Reed (*Phragmites australis*) which poses a threat to the Minesing Wetlands
- ▶ 2011- 3.11 acres sprayed
 - Under 1 plant/m² regeneration in 2012
 - Due to success, additional populations sprayed 2012
- ▶ 2013 – 1.8 acres sprayed (6 plots)
 - Plots inspected Oct 2014 - 100% eradication
- ▶ 2014 – 1.35 acres sprayed
 - Plots inspected – dead or in process of dying
- ▶ Future monitoring and control measures will be required to keep populations in check
- ▶ Access and water levels are a significant factor for control/spraying



Photo courtesy of Dave Featherstone.



Future ...

- ▶ Rebuild/reconnect floodplain forests
- ▶ Continue to pursue opportunities to restore riparian habitat along the Nottawasaga River within Minesing Wetlands
- ▶ Continue to monitor and control invasive species
- ▶ Work closely with monitoring staff from a variety of organizations to identify key issues and “best bets” for stewardship action based on emerging science



Continue to get involved!

