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**Report To: Board of Directors**

**Subject: Enhanced Watershed Restoration and Stewardship Program**

**Report No: FA-51-22**

**Date: December 16, 2022**

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**Recommendations:**

1. **THAT** Report No. FA-51-22 RE: Enhanced Watershed Restoration and Stewardship Program **BE RECEIVED.**
2. **THAT** staff **DEVELOP** program details, including guidelines, cost estimates, and staffing requirements in accordance with the recommendations within the “Enhanced Watershed Restoration and Stewardship Program” attached as Appendix 1.
3. **AND THAT** staff Report No. FA-51-2022 **BE CIRCULATED** to NPCA watershed municipalities in support of continued memorandum of understanding/ service level agreement discussions.

**Purpose:**

The purpose of the report is to provide a vision of future restoration and stewardship programming to achieve the goals set out in the NPCA 10-year Strategic Plan while conforming to changing legislation and meeting emerging opportunities, and obtain Board of Directors’ endorsement for further program development.

**Background:**

Since 1999, the NPCA has played a leading role in watershed restoration and stewardship initiatives within our jurisdiction. Several past and current programs (e.g., Water Quality and Habitat Improvement, Canopies for Kids, Water Well Decommissioning, Mickey DiFruscio & Family Legacy Pollinator Gardens, and Niagara River Remedial Action Plan) have been implemented to improve water quality and ecosystem health while engaging community members, private landowners, municipal partners, volunteers, and environmental non-governmental organizations. In 2019, the Water Quality and Habitat Improvement program was re-launched as a Restoration Grant Program to leverage funds and opportunities to implement habitat restoration projects (e.g., wetland creation, tree planting, agricultural best management practices) that contribute to increasing forest cover, improving habitat quality and connectivity, and enhancing biodiversity. Through these initiatives, the NPCA has completed hundreds of projects and planted over 1.2 million native trees and shrubs across the watershed.

Currently, restoration initiatives are focused on the restoration grant program's projects and providing technical support to internal clients while stewardship activities are focused on planting events engaging the community and other organizations (e.g., ENGOs, nature clubs, community groups, municipalities) and educational opportunities such as public talks and guided nature hikes organized by external groups. The NPCA's 10-year Strategic Plan calls for the expansion of restoration program services and the development of urban and rural stewardship programs aimed enhancing natural habitat and forest cover, increasing biodiversity, leading environmental stewardship and volunteerism, and engaging partners in achieving collective environmental impacts in the watershed.

## **Discussion:**

To better understand the restoration and stewardship programming opportunities/gaps and potential funding mechanisms, a consultant was retained to perform a jurisdictional review with input from NPCA staff. The review examined municipal natural heritage priorities, climate adaptation plans, and restoration goals. Results revealed a mix of defined/undefined goals and objectives inconsistent across municipalities. In parallel, ongoing discussions with NPCA staff and municipal partners have identified several emerging opportunities related to increasing tree canopy cover, greening initiatives, and supporting local climate change adaptation. This information was incorporated into the attached program presenting recommendations to achieve the goals set out in the strategic plan, conform to changing legislation and meet emerging opportunities for the NPCA's watershed restoration and stewardship programs.

The Enhanced Watershed Restoration and Stewardship Program (Appendix 1) builds and expands upon the historical/current work of NPCA restoration and stewardship programs and initiatives, formalizes programming for emerging partnerships and opportunities, and meets the internal needs of integrating knowledge and building organizational capacity. As described below, the enhanced programming includes key goals, targets based on watershed science, a framework detailing distinct program and service areas, a timeline for development and implementation, and summary of funding mechanisms.

### Key goals

1. Restore and enhance natural habitat, biodiversity, water resources, and forest cover towards a healthy and climate resilient watershed.
2. Engage and enable communities in improving the health and resilience of the watershed

### Targets

Through combined restoration and stewardship efforts, the NPCA aims to add 600 hectares of natural cover and plant 1 million native trees across the watershed by 2031. The targets and measures will be adapted and refined during program development and through watershed strategies and management plans.

### Framework for Program and Service Areas

The Watershed Restoration and Stewardship Program proposal identifies six program and service areas, based on distinct audiences, funding mechanisms, and outcomes to work in complement with each other to achieve program goals.

**Internal Restoration Services:** leading restoration initiatives on NPCA lands to improve habitat and ecological function. This service area will provide support across the organization on all matters related to ecological restoration, including supporting the development of Conservation Area Management Plans and Watershed Strategies, creating and inventory of restoration and stewardship opportunities, planning and compliance review, and supporting organizational climate adaptation and mitigation initiatives.

**Watershed Restoration Services:** Leading and supporting external large-scale ecological restoration projects with municipal and private partners, including habitat compensation projects, Class Environmental Assessment (EA) flood and erosion control projects, invasive species management, and other fee-for-service opportunities.

**Private Land Restoration Grant Program:** An updated version of the Restoration Grant Program, continues the NPCA's long history of restoration work with private landowners; however, the grant categories will be focused on improving habitat, biodiversity, water resources and forest cover. The updated program will be positioned to significantly increase natural land cover in the watershed and provide co-benefits of improved water quality. The agricultural components of the existing grant program will be separated into their own program to build additional capacity and expertise.

**Agricultural Stewardship Program:** A focused approach to working with agricultural communities with an emphasis on best management practices, water quality improvement projects, outreach & education, promoting habitat restoration opportunities, and providing technical expertise to the agricultural community.

**Urban Stewardship Program:** Updated and expanded program based on existing community engagement activities (e.g., pollinator gardens, community tree plantings, and Yellow Fish Road program) aimed at encouraging residents to improve the health of the environment. The program will formalize existing initiatives and develop new approaches to encourage resilience to climate change while increasing volunteerism and inspiring larger action. Program elements may include small-scale habitat projects, community park naturalization, rain gardens and other demonstration projects, community/schoolyard greening, and stream/park cleanup as well as working with municipalities to increase the urban tree canopy cover especially in vulnerable, low nature areas.

**Corporate Stewardship Program:** Focused on creating opportunities for private corporations and businesses to engage their staff in meaningful environmental initiatives to fulfill their corporate social responsibility goals, including reducing their environmental footprint. Activities may include invasive species removal, stream/park cleanups, tree plantings, pollinator garden planting/weeding, habitat structure building. The program should be based on a fee-for-service model to recoup costs and may be implemented in collaboration with the Niagara Peninsula Conservation Foundation.

#### Next steps for 2023

- Determine cost estimates for achieving watershed restoration and stewardship targets to inform program costing for financial discussion with municipal partners.
- Develop and formalize program offerings including staff and financial resource allocations, program details and targets, work plan, and performance measures.
- Update current Restoration Grant Program guidelines in anticipation of 2024 launch of Private Landowner Grant Program.

- Collaborate with NPCA staff to formalize Internal Restoration Services, including an inventory of restoration opportunities on NPCA lands.
- Use the established fee schedule to develop a framework for watershed restoration services and corporate stewardship in collaboration with finance, conservation area services, and Niagara Peninsula Conservation Foundation.
- Seek Board approval for new and updated program offerings for 2024 launch.

### **Financial Implications:**

There are no current financial implications. Further program development and scoping to be done by NPCA staff is accounted for in the 2023 budget.

Apart from restoration activities on NPCA-own lands, the Watershed Restoration and Stewardship Program is considered a non-mandatory program or service under the Conservation Authorities Act (i.e. Category 2 or 3) and will need to be partially funded through service-level agreements with municipal partners or with external funding. Discussions with municipal partners on NPCA's inventory of programs and services is on-going. Staff will also actively pursue external funding opportunities, including service level agreements, grants, partnership funding, self-generated funds and other innovative funding strategies, as opportunities arise.

### **Links to Policy/Strategic Plan:**

The NPCA strategic plan calls for the expansion of restoration program services and develop programs aimed at urban and rural landowners to achieve Goal 1.3: *Restore and enhance natural habitat, water resources, and forest cover*. Enhancing NPCA restoration and stewardship program offerings will also directly support achieving several other NPCA strategic goals and performance measures related to managing NPCA lands to increase biodiversity (Goal 1.4), implementing green infrastructure and sustainability best practices (Goal 2.3), leading environmental stewardship and volunteerism (Goal 3.2), establishing the NPCA as an environmental service provider (Goal 4.1), building relationships with other organizations for collective outcomes (Goal 4.2), and optimize self-generating revenue using innovative approaches (Goal 6.2).

### **Related Reports and Appendices:**

Appendix 1: Enhanced Watershed Restoration and Stewardship Program

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# 2022

## **ENHANCED WATERSHED RESTORATION & STEWARDSHIP PROGRAM**

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# INTRODUCTION

As early as the 1930s, there was broad public concern about soil erosion, flooding, and drought due to decades of poor land, water, and forestry practices throughout Southern Ontario. One of the earliest conservation efforts to help mitigate these watershed-scale problems was tree planting to restore forests. Today, the watershed continues to face immense pressures from land uses and the effects of climate change which threaten ecological integrity and require immediate action. Science and policy have advanced to recognize that forests, wetlands, riparian areas, and natural shorelines are all necessary parts of a healthy and functional ecosystems that provide for economic, social, and environmental well-being. Restoration efforts have followed suit and have grown to understand that involving people leads to better outcomes, not only for projects, but in helping to shape perspectives on caring for the environment.

For many years, the NPCA has been a local leader in watershed restoration and stewardship initiatives. Several past and current programs (e.g., Water Quality and Habitat Improvement, Canopies for Kids, Water Well Decommissioning, Mickey DiFrusco & Family Legacy Pollinator Gardens, and Niagara River Remedial Action Plan) have been implemented to improve water quality and ecosystem health while engaging community members, private landowners, municipal partners, volunteers, and environmental non-governmental organizations. Through these initiatives, the NPCA has completed hundreds of projects and planted over 1 million native trees and thousands of plants across the watershed. Currently, restoration initiatives are focused on projects completed through the Restoration Grant Program and providing technical support to internal clients, while stewardship activities are focused on planting events which engage the community and other organizations (e.g., ENGOs, nature clubs, community groups, municipalities) and educational opportunities such as library talks, and guided hikes organized by external groups. While restoration and stewardship initiatives continue to be successful, existing program structure and staff resourcing limit the NPCA's impact on the watershed and ability to fully meet emerging opportunities.

The NPCA's recent strategic plan is aimed at achieving a healthy and vibrant environment with shared greenspace and clean water that sustains life for future generations. To create healthy and climate-resilient watersheds, the strategic plan calls for the expansion of restoration program service offerings and the development of programs aimed at urban and rural landowners. These enhanced program offerings are intended to increase natural habitat and forest cover, improve biodiversity, lead environmental stewardship and volunteerism, and engage partners in achieving collective environmental impacts in the watershed.



The purpose of this document is to provide a vision of future restoration and stewardship programming to achieve the goals set out in the strategic plan while conforming to changing legislation and meeting emerging opportunities.

## **STATE OF THE LANDSCAPE**

The Niagara Peninsula watershed is part of the Carolinian life zone, an incredibly biodiverse area that includes rare plants and animals. The watershed also supports a wide variety of land uses that provide people with recreational, social, and economic benefits. However, research indicates that the NPCA watershed is deficient of adequate habitat (NPCA 2011). Scientific literature suggests that watersheds require a minimum of 30% forest cover to maintain biodiversity toward a resilient and healthy landscape (Environment Canada 2013). This target represents a high-risk approach to maintaining existing biodiversity that may support less than one half of the potential species richness, and marginally healthy aquatic systems, while a 50% forest cover threshold would equate to a low-risk approach likely to support most of the potential species' richness, and healthy aquatic systems (Environment Canada 2013). The NPCA's Natural Areas Inventory indicates that the watershed has 18% wooded cover (meaning variety of treed ecological community types, including forests) (NPCA 2010). To reach the 30% forest threshold suggested by science, more than 12% of the landscape, or over 29,000 ha of land would need to be converted to forest cover. To achieve this target, an estimated 58 million trees would need to be planted— a worthy but immense goal that would require a watershed-wide, long-term commitment to protecting biodiversity and ecosystem function. Healthy and resilient watersheds include numerous habitat types (wetland, riparian, forest, etc.); therefore, targets should reflect a multi-functional and diverse landscape.

Increased pressure on the landscape from changing land use and their impacts threaten the watershed's ecological integrity. It has been known for some time that the NPCA watershed is functionally degraded to a high degree as it consistently exhibits poor surface water quality (NPCA 2022) and is highly fragmented in terms of natural areas and wildlife habitat. The Nature for Niagara's Future study (NPCA 2011) has shown that the existing natural areas in the watershed cumulatively achieve only 56% of what conservation literature recommends is required for a healthy and sustainable watershed. There is a critical need to increase natural cover and help watershed communities adapt to a changing climate.

## **JURISDICTIONAL SCAN**

To better understand the restoration and stewardship programming opportunities/gaps, a consultant, Intelligent Futures, was retained to perform a jurisdictional review with input from NPCA staff. The

review examined municipalities' natural heritage priorities, climate adaptation plans, and restoration goals. Results revealed a mix of defined and undefined goals and objectives, inconsistent across municipalities.

The review summarized specific goals and priorities that indicate a set of emerging opportunities to work with municipalities to achieve a shared vision for the watershed. Some of the relevant targeted areas of emphasis include:

- Improving natural heritage systems and taking advantage of underutilized lands.
- Becoming leaders in sustainability, including enhancing natural features, promoting, and implementing programs which maintain and improve the quality of surface water and groundwater, and promoting the conservation of water resources.
- Reducing Greenhouse Gas (GHG) emissions through increasing the amount of stewardship and restoration efforts, including tree planting and habitat enhancements.
- Managing agricultural lands using best management practices to help improve ecological functions of the natural heritage system and water quality.

In parallel, ongoing discussions between NPCA staff and municipal partners have identified multiple opportunities related to increasing tree canopy cover, greening initiatives, and supporting local climate change adaptation.

## **CURRENT PROGRAM OFFERINGS**

### **Restoration Grant Program**

From 1999-2017, the Water Quality and Habitat Improvement (WQHIP) program was instrumental in restoring natural ecosystem function and improving water quality across the watershed. The WQHIP focused on completing restoration actions identified in sub-watershed plans, including stream restoration, tree planting, wetland creation, and agricultural Best Management Practices (BMPs). After an 18-month service interruption, the WQHIP was re-launched in 2019 as the Restoration Grant Program to meet the Auditor General of Ontario's recommendations (Lysyk 2018) and to formalize goals of improving water quality, wildlife habitat, and forest cover to the benefit of local ecosystems and the overall health of the watershed.

The current Restoration Grant Program uses an objective, prioritized approach to select projects adjacent to or connecting critical natural features (e.g., floodplains, valleys, provincially significant wetlands, near existing large tracks of established forests, and in headwater areas). The program is based on a cost-share model to leverage the NPCA's initial investment funded by municipal levy and

ensures that partners have a financial stake in their project's success. The application process is open to all, and the program has worked with a wide variety of rural and urban landowners (i.e., farms, businesses, and municipalities). Grants are provided for staff to design and implement habitat restoration projects (e.g., wetland restoration, tree planting, stream restoration) and agricultural best management practices (e.g., grassed waterways, nutrient management projects, hedgerows, and windbreaks) that contribute to increasing forest cover, enhancing habitat quality and connectivity, enriching biodiversity, and improving surface water quality.

### **Recent Successes**

Since the Restoration Grant Program launch in 2019, more than 130 restoration and 30 agricultural Best Management Practice (BMP) projects have been completed, resulting in 127 hectares (ha) of habitat added to the watershed broken down as follows:

- 102 ha of afforestation
- 17 ha of wetland habitat restored
- 8 ha of stream and riparian restoration.

Collectively, these projects have added more than 230,000 trees, 15,000 shrubs, and nearly 10,000 herbaceous plants.

Partnerships are critical for leveraging restoration funding and achieving greater outcomes. Thanks to the Restoration Grant Program, the NPCA has signed memorandums of agreement with Ducks Unlimited Canada, Land Care Niagara, Trout Unlimited Canada (Niagara Chapter), and the Niagara Coastal Community Collaborative to support tree planting, shoreline restoration, and wetland creation in Niagara. In addition, the NPCA became a Planting Delivery Agent (PDA) for Forests Ontario in 2021 to plant trees as part of their various large-scale tree planting initiatives. More recently, the NPCA collaborated with the Niagara Parks Commission to restore a 1.6 ha coastal wetland along the Niagara River in an area known as Gonder's Flats. For this project alone, the NPCA has brought together the support of four funding partners and several community organizations, bringing in \$97,000 (to date) to offset direct project costs.

In total, NPCA restoration projects completed in 2019-2022 are valued at more than \$1.7 million (not including staff time) with the NPCA contributing just over 1/3 of the total cost through grant dollars.

### **Opportunities**

The current Restoration Grant Program structure works well at addressing ecological restoration opportunities with proactive landowners whose goals align with the NPCA. In 2021 and 2022, the

Restoration Grant Program had a waiting list of projects that met the programs eligibility requirements but for which there was not enough funding to support. In some areas, such as agricultural stewardship, a different approach, such as focusing on outreach to farming communities is likely to lead to greater success by developing stronger relationships and breaking down perceived barriers. In other cases, changes to program structure are required to support both internal needs and external requests. In recent years the NPCA has led and supported several initiatives and projects, or been approached with opportunities, that do not quite fit with the current guidelines. Such opportunities include, but is not limited to, shoreline restoration, habitat compensation projects, restoration planning for municipal properties, invasive species management, and planning review.

Presently, restoration efforts on NPCA lands have been accomplished through a mix of formal and informal efforts. As the Conservation Area management plans are updated and completed as legislated by 2031, new restoration needs will be identified and will require a structure to implement. The NPCA's new draft Land Securement Strategy (2022) provides guidance on acquiring lands that provide aquatic and terrestrial habitat restoration opportunities, including lands identified as priority for ecosystem restoration. With land securement targets ranging from 200-400 hectares by 2032, these new lands are likely to increase restoration needs.

## **Community Engagement & Environmental Stewardship Initiatives**

Environmental stewardship refers to the care and protection of the natural environment achieved through increased awareness, shared responsibility, and active participation. While stewardship is similar to restoration in that it aims to improve the environment, the key difference is its focus on engagement and education.

A comprehensive landowner stewardship guide produced by the NPCA in 2015 outlines many actions for homeowners and community members to improve the environment; however, there is no formal program to support its implementation and programming has been mainly opportunistic or reactive. Nonetheless, the NPCA has been an environmental stewardship leader engaging hundreds of volunteers, community members, corporations, and student volunteers in various opportunities to connect with nature and take action to improve the environment. The existing community engagement/stewardship initiative structure delivers a variety of unique and compelling programming that engages watershed communities and provides opportunities to improve the health of the watershed while increasing their understanding of their local environment.

Current initiatives include leading community tree and pollinator garden plantings, coordinating community science/monitoring, conservation area stewardship, and supporting the environmental

work of community groups and partners. For example, the NPCA delivers the Yellow Fish Road™ program (created by Trout Unlimited Canada) to engage school children and inform neighbourhoods about the importance of clean water, protecting aquatic species from pollution, and how to properly dispose of hazardous waste. To increase local biodiversity and awareness about native plants, the NPCA is leading the ‘Mickey DiFruscio and Family Legacy Pollinator Project’. The project includes the establishment of community-based pollinator gardens in public (usually urban) spaces. Each garden is cared for by a community group or local environmental organization to ensure the garden’s continued success. The Niagara Envirothon, based on a North America-wide program coordinated locally by Forests Ontario in partnership with NPCA, engages high school students in hands-on, team-based activities to learn about ecosystems while developing critical thinking, problem solving, teamwork, leadership, and communication skills.

### **Recent Successes**

Fostering partnerships and building positive relationships with people is the key to effective community engagement and exemplary action. In 2021, more than 75 community groups and 409 volunteers engaged in conservation work across the watershed. For example:

- Planting native trees and wildflower gardens
- Building, installing, and monitoring wildlife boxes
- Conducting community cleanups
- Monitoring hiking trails
- Removing invasive plant species
- Creating educational opportunities for high school and post-secondary students

More recently, the NPCA supported the Invasive Species Centre’s project to remove European Water Chestnut from a portion of the Welland River through volunteer recruitment, access to a conservation area to assist with storage of materials, and communication assistance. The project received extensive (positive) media coverage, created 5 local jobs, engaged 63 people, and successfully removed 7,000 invasive European Water Chestnut plants from 35 km of the Welland River. The partnership is an excellent example of how the NPCA brings people and organizations together toward a common goal of improving the environment.

## Opportunities

With the recent changes to the *Conservation Authorities Act* through Bill 229 that specify mandatory and non-mandatory programs and services, and the development of the NPCA Climate Change Action Plan, there is an opportunity to formalize these community engagement and stewardship initiatives into a comprehensive program that is attractive to funders, provides objectives and guidance on program delivery, and develops a structure to engage with requests for paid corporate stewardship opportunities. In addition, the NPCA 10-year Strategic Plan offers guidance to deliver complementary approaches to traditional restoration programming to achieve habitat, water quality, and climate adaptation goals (e.g., urban and agricultural stewardship). Working with the people of the watershed primarily in urban and suburban areas, provides the NPCA with opportunities to increase biodiversity in underutilized spaces (yards, parks, stream valleys) and engage communities in important issues such as reducing low-nature areas and adapting cities to a changing climate.

A robust stewardship approach works to better enable individuals and communities to lead local stewardship efforts. By providing information, resources, inspiration through selective demonstration projects, the NPCA can support both burgeoning and developed groups who are ready to take a larger role in caring for their environment.

## WATERSHED RESTORATION & STEWARDSHIP PROGRAM DETAILS

The Watershed Restoration and Stewardship Program builds and expands upon the historical and current work of the NPCA restoration and stewardship programs. It formalizes emerging initiatives, partnerships, and programming, and helps build organizational capacity. As described below, the enhanced programming includes key program goals, targets based on watershed science, a framework detailing distinct program and service areas, a timeline for development and implementation, and summary of potential funding mechanisms. Appendix 1 of this document provides more detailed information on programs and services.

### Key Program Goals

The Watershed Restoration and Stewardship Program proposes two overarching goals to help align with the vision and goals of the NPCA 10-year Strategic Plan and guide its initiatives, as follows:

- restore and enhance natural habitat, biodiversity, water resources, and forest cover towards a healthy and climate resilient watershed; and

- engage and enable communities in improving the health and resilience of the watershed.

## Target Setting

Setting targets is important for achieving realistic and measurable goals that are relevant to the local landscape. While 30% forest cover is an important target established by the scientific literature, its pursuit would exclude other key habitat features critical to ecosystem health and be unrealistic in the timeline of this program. The NPCA 10-year Strategic Plan’s habitat target is based on an increase in natural cover, including multiple habitat types and metrics to represent a healthy, multifunctional landscape. **Through combined restoration and stewardship efforts, the NPCA aims to add 600 hectares of natural cover and plant 1 million native trees across the watershed by 2031 (Table 1).** This initial target is based on previous restoration efforts and scaled up assuming a successful land securement program and partner interest. The targets will be adapted and refined based on watershed strategies as well as Conservation Area management plans. Although the habitat types may vary depending on land availability and funding, the following metrics in Table 1 are proposed as guidance.

**Table 1.** Proposed watershed restoration and stewardship program targets by metric.

Measure	Proposed Target (2024-2031)
Forest restored (ha)	500 ha
# of native trees	1,000,000
# of native shrubs	100,000
# of herbaceous plants	40,000
Wetlands restored (ha)	50 ha
Riparian (ha)	50 ha
<b>Total natural cover added (ha)</b>	<b>600</b>

## Overview of Program Areas

To achieve these goals and targets, NPCA staff have identified six restoration and stewardship program and service areas, based on distinct audiences, funding mechanisms, and outcomes to work in complement with each other as an integrated program to achieve program goals. Many of these initiatives are currently ongoing, both in formal and informal capacities. Developing these recommended program areas will provide the NPCA with a comprehensive path to achieving many of the goals of the strategic plan, provide guidance for how this work will continue, and allow flexibility to meet future opportunities. Refer to Appendix 1 for a more detailed program/service summary table.

## Internal Restoration Services

This program area is specific to leading restoration initiatives on NPCA-owned or managed lands to improve habitat and ecological function. This service area will provide support across the organization on all matters related to ecological restoration, including creating restoration plans to support the development of Conservation Area management plans and watershed strategies, supporting the development of the Conservation Area Inventory and Strategy, supporting the implementation of the Land Securement Strategy to identify priority areas for terrestrial and aquatic habitat restoration as well as prospective restoration opportunities on new lands under consideration, creating an inventory of restoration and stewardship opportunities, planning and compliance review, invasive species management, and supporting organizational climate adaptation and mitigation initiatives.

Restoration initiatives may include:

- Forest restoration: stand conversion, reforestation, establishing new forest through afforestation, creating habitat features, and other projects that sequester carbon and reduce greenhouse gas emissions.
- Wetland restoration: creation and enhancement of open water marshes, swamp forests, and vernal pools, and buffers around existing wetlands.
- Stream restoration: projects that increase stream cover, improve aquatic habitat and biodiversity, natural channel design, riparian buffers, removal of fish migration barriers, and using bioengineering approaches to reduce/prevent erosion.
- Shoreline restoration: creating resilient natural shorelines using nature-based shoreline solutions that use bioengineering to help protect and restore shoreline function. Supporting engineered solutions that incorporate restoration components.
- Upland restoration: large-scale habitat improvement projects that support biodiversity through mixed habitat types (e.g., thickets and hedgerows adjacent to grasslands, where appropriate), or where other land uses limit restoration opportunities (e.g., beneath hydro corridors).

## Watershed Restoration Services

This formalized service area will provide municipal partners and other stakeholders with ecosystem restoration expertise and knowledge that their organizations may otherwise lack. Through service level agreements and/or fee-for-services, the NPCA will lead and support external ecological restoration projects, plans, and strategies with municipal and private partners, including habitat creation and enhancement projects, Class Environmental Assessment (EA) flood and erosion control projects, and invasive species management.



## Private Land Restoration Grant Program

An updated version of the existing program will continue the NPCA's long history of restoration work with private landowners. The grant categories will be focused on improving habitat, biodiversity, water resources and forest cover. The NPCA will continue to work with traditional partners to leverage funds to complete these projects and reduce the overall cost to the NPCA. The updated program will be positioned to significantly increase natural land cover in the watershed and provide co-benefits of improved water quality. The agricultural components of the existing grant program will be separated into their own program to build additional capacity and expertise.

Proposed grant categories include:

- Tree Planting: mid- to large-scale projects aimed at establishing new forest cover and expanding and connecting our existing forests through corridors.
- Wetland restoration: the creation and enhancement of open water marshes, vernal pools, habitat improvements, and habitat buffers around existing wetlands.
- Stream restoration: projects that increase stream cover, improve aquatic habitat, enhance buffers, remove fish migration barriers, and use bioengineering approaches to reduce erosion.
- Shoreline restoration: nature-based shoreline solutions that use bioengineering to help protect and restore shoreline function.
- Upland restoration: large-scale habitat improvement projects that support biodiversity through mixed habitat types (e.g., thickets and hedgerows adjacent to grasslands, where appropriate), or where other land uses limit restoration opportunities (e.g., beneath hydro corridors).

## Agricultural Stewardship Program

The unique microclimate created by the Niagara Escarpment and rich soils supports one of Ontario's most productive agriculture systems including vineyards, tender fruit orchards, livestock, and various specialty crops. Not surprisingly, agricultural lands account for nearly 65% of the watershed.

This program provides a focused approach to working with producers and agricultural communities with an emphasis on outreach and education to promote best management practices and completing water quality improvement projects. Staff will help identify habitat restoration opportunities on marginal farmland and provide technical expertise.

Program elements may include:

- Outreach and education, including demonstration projects and on-farm workshops;

- Incentives for implementing agricultural best management practices such as nutrient management projects, livestock exclusion fencing, and erosion control projects; and
- Supporting agricultural stewardship initiatives in the watershed.

## **Urban Stewardship Program**

This updated, expanded program builds upon previous successful community engagement activities (e.g., pollinator gardens, community tree plantings, and Yellow Fish Road program) to facilitate and encourage environmental action. Existing initiatives and partnerships will be strengthened through new approaches to build resilience to climate change in urban areas while increasing volunteerism and inspiring greater action. The program will seek to engage youth, residents, community organizations, Indigenous groups, corporations/businesses, and municipal partners in improving nature, increasing biodiversity, and growing the urban tree canopy.

Program elements may include:

- Small-scale habitat projects (e.g., pollinator gardens);
- Naturalization of community parks;
- Rain gardens and other engaging green infrastructure demonstration projects;
- Community/schoolyard/backyard tree plantings;
- Stream/park cleanups;
- Incentive for residents/homeowners to plant native species; and
- Outreach and education to build awareness and inspire action.

## **Corporate Stewardship Program**

The corporate stewardship program will focus on creating opportunities for private corporations and businesses to engage their staff in meaningful environmental initiatives to fulfill their corporate social responsibility goals, including reducing their environmental footprint.

Activities may include invasive species removal, stream/park cleanups, tree plantings, pollinator garden planting/weeding, habitat structure building. The program will be based on a fee-for-service model to recoup costs and may be implemented in collaboration with the Niagara Peninsula Conservation Foundation.

## **Program Integration**

The Watershed Restoration and Stewardship Program will collaborate with staff across several NPCA divisions. The program will aim to integrate with established and emerging business areas to work

effectively and efficiently. Specific focus will be placed on collaborating with internal teams that have functional dependencies including conservation area lands, conservation area programs and services, land care, land planning, watershed monitoring and reporting, climate change and special programs, and watershed strategies.

Examples include:

- Providing landowner leads to securement outreach areas;
- Integrating updated monitoring data into restoration project prioritization;
- Implementing a monitoring project in a key location to showcase the benefits and impact of agriculture stewardship and restoration activities;
- Maintaining a database of restoration and stewardship opportunities on NPCA lands; and
- Creating outreach materials specific to planning/permitting applications to build awareness and encourage the use of native plants in restoration areas and low impact development projects or street tree plantings.

## Financing Considerations

Apart from restoration activities on NPCA-own lands, the Watershed Restoration and Stewardship Program is considered a non-mandatory program or service under the *Conservation Authorities Act* (i.e., Category 2 or 3) and will need to be partially funded through service-level agreements with municipal partners or with external funding (Table 2). A Watershed-based Resource Management Strategy, to be developed in 2023 as part of recent changes to the *Conservation Authorities Act* through Bill 229 and associated regulations, will assist NPCA with evolving and enhancing its programs and services to address or manage local watershed triggers, issues or risks. The Watershed-based Resource Management Strategy will include identifying category 2 and 3 programs and services, with cost estimates, that are recommended to support the delivery of mandatory programs and services.

Funding approaches to implement the Watershed Restoration and Stewardship Program will be combined with external grants and innovative approaches to leverage various sources of funding for restoration and stewardship programs. For example, the NPCA will continue to work with Ducks Unlimited Canada to complete wetland restoration projects throughout the watershed. Future costs will be determined by the scope of the program, staffing requirements and uptake and interest by partners and funders.

Additional potential funding sources include:

- **Partners:** working with a mix of existing and new partners to fund and complete projects that meet our shared goals.

- **Grants and external funding:** leveraging the NPCA's newly established Grant Centre, external funding sources will be targeted to help support projects in all programming and service areas.
- **Program sponsorship:** A previously unexplored opportunity, the NPCA will investigate the viability of program and initiative sponsorship from corporations and other organizations.
- **Niagara Peninsula Conservation Foundation (NPCF):** collaborating with the NPCF to increase funding for restoration and stewardship initiatives through donations and giving programs.
- **Fee-for-service:** leveraging the NPCA's skills and expertise to increase self-generated revenue through the Watershed Restoration Services and Corporate Stewardship programs.
- **Conservation Impact Bond (CIB):** an innovative financial tool to address the conservation funding gap and create healthy landscapes in the spirit and practice of reconciliation with Indigenous communities. The NPCA is currently exploring opportunities to create a Niagara Peninsula CIB that could fund habitat restoration projects.

**Table 2.** Description of the mandatory and non-mandatory programs and services as required by the Conservation Authorities Act (2020).

CA Act	Description
Category 1	Mandatory programs and services as identified in Ontario Regulation 686/21 that can be funded through a municipal levy.
Category 2	Municipal programs and services provided at the municipality's request. These programs can be funded through government and other agency grants and/or municipal funding under a memorandum of understanding (MOU) or agreement with the municipality.
Category 3	Other programs and services that an Authority (Board) determines are advisable. These programs can be funded through self-generated revenue, user fees, government and other agency grants, donations, etc. Any use of municipal funding will require an agreement and would be subject to cost apportioning.

## CONCLUSION & RECOMMENDATIONS

This integrated program provides the framework for the NPCA to respond to existing and emerging opportunities, engage the watershed community in restoring and stewarding the local environment, and provide conservation leadership in the watershed. It provides a set of land cover targets to guide the NPCA to achieve its goals set out in the 2021-2031 strategic plan of restoring and enhancing natural habitat, water resources and forest cover by increasing the total amount of land restored.

Through this increased capacity program, the NPCA will strengthen its ability to effect positive change in the watershed. This framework creates structure and flexibility to embrace existing and forthcoming challenges and prepares the NPCA to take on even greater targets in the future.

The following is a list of recommended next steps:

- Develop and formalize program offerings including staff and financial resource allocations, program details and targets, work plan, and performance measures.
- Seek Board approval for new and updated program offerings for a 2024 launch.
- Determine cost estimates for achieving watershed restoration and stewardship targets to inform program costing for financial discussion with municipal partners in 2023.
- Update current Restoration Grant Program guidelines in anticipation of 2024 launch of Private Landowner Grant Program.
- Collaborate with NPCA staff to formalize Internal Restoration Services, including an inventory of restoration opportunities on NPCA lands.
- Use the established fee for services within the NPCA fee schedule to develop a framework for watershed restoration services and corporate stewardship in collaboration with finance, conservation area services, and Niagara Peninsula Conservation Foundation.

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## APPENDIX 1 - PROGRAM AND SERVICES SUMMARY

Program/Service	Links to NPCA strategic plan	Key Performance Indicators Sample Metrics	Description	Delivery Method	Category	Potential Funding Sources
Internal Restoration Services	1.3, 2.3, 3.2, 4.2, 5.4, 6.2	Ha of restored area # of trees planted #ha forest restored #ha of stream area restored #ha of wetland restored # of volunteers engaged	Implementation of restoration projects as per Conservation Area Land Management Plans Including tree planting, habitat Improvement projects, shoreline management, invasive species management, and water quality improvement and compensation projects.	NPCA Staff/ NPCA Coordinated Volunteers/ Corporate Volunteers	1	Levy, Grants, Partners, NPCF, Fee-for-service, Grants
	1.3, 1.4, 2.2, 2.3, 5.4		Restoration support for internal initiatives including Conservation Area Management Plans, Land Securement, inventory restoration opportunities, planning/ compliance review, climate focused initiatives (e.g., seed collection)	NPCA Staff	1, 3	Levy, Fee-for- service, Grants, NPCF
Watershed Restoration Services	1.3, 2.2, 4.1, 4.2, 6.2	Ha of restored area # of trees planted #ha forest restored #ha of stream area restored #ha of wetland restored	Lead and support external ecological restoration projects, plans and strategies with municipal and private partners, including habitat creation and enhancement projects, Class Environmental Assessment (EA) flood and erosion control projects, invasive species management, and other fee-for-service opportunities.	NPCA Staff /NPCA Coordinated Volunteers	2, 3	MOU/SLA, Partner, Grants, NPCF
Private Land Restoration Grant Program	1.3, 2.3, 4.1, 4.2	Ha of restored area # of trees planted #ha forest restored #ha of stream area restored #ha of wetland restored	Updated version of the Restoration Grant Program, continues history of restoration work with private landowners; however, the grant categories will be focused on improving habitat, biodiversity, water resources and forest cover. The updated program will be positioned to significantly increase natural land cover in the watershed and provide co-benefits of improved water quality. The agricultural components of the existing grant program will be separated into their own program to build additional capacity and expertise.	NPCA Staff, Environmental Non- Governmental Organizations	3	MOU/SLA, Grants, Partners, Sponsor, NPCF
Agriculture Stewardship Program	1.3, 2.3,3.2, 4.1, 4.2	Surface water quality including total suspended solids and total phosphorus # ag. BMP projects completed # program participants	A focused approach to working with agricultural communities with an emphasis on best management practices, water quality improvement projects, outreach & education, promoting habitat restoration opportunities, and providing technical expertise to the agricultural community.	NPCA Staff/ Landowners	3	MOU/SLA, Grants, Partner, Sponsor, NPCF
Urban Stewardship Program	1.3, 2.3, 3.2, 4.1, 4.2	# of habitat projects completed # of native trees # herbaceous plants # volunteers engaged # events	Formalize existing initiatives and develop new approaches to encourage resilience to climate change while increasing volunteerism and inspiring larger action. Program elements may include small-scale habitat projects, community park naturalization, rain gardens and other demonstration projects, schoolyard greening, and stream/park cleanup as well as increasing the urban tree canopy cover especially in vulnerable, low nature areas.	NPCA Staff/ NPCA Coordinated Volunteers	3	MOU/SLA, Grants, Partners, Sponsor, NPCF
Corporate Stewardship Program	1.3, 2.3, 3.2, 4.2, 6.2	Ha of restored area # of volunteers engaged	Focus on creating opportunities for private corporations and businesses to engage their staff in fulfilling their corporate social responsibility goals, including reducing their environmental footprint. Activities may include invasive species removal, stream/park cleanups, tree plantings, pollinator gardens, habitat structure building.	Corporate volunteers	3	Fee-for-service