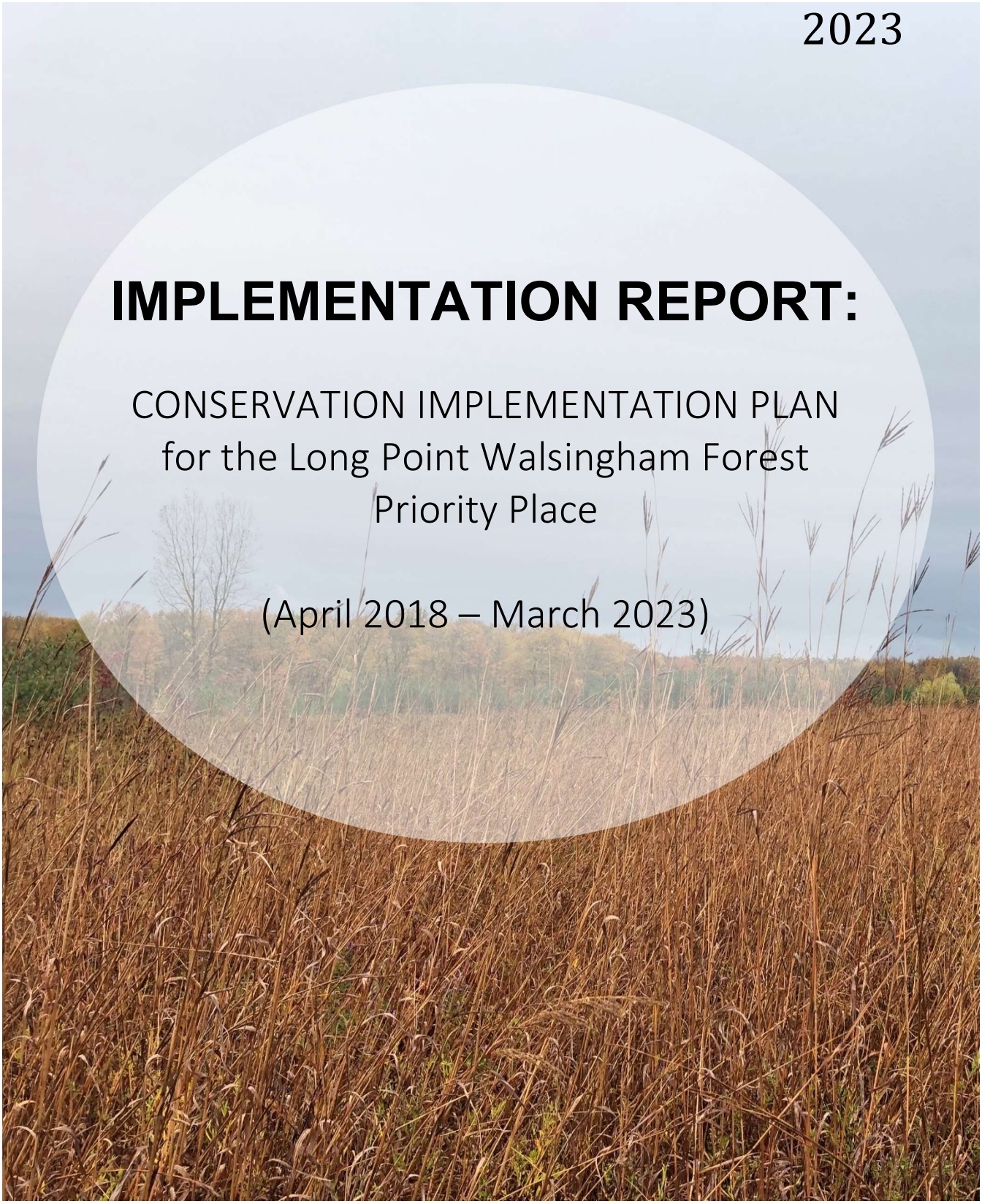
Environment and Climate Change Canada | Environnement et Changement climatique Canada

2023

IMPLEMENTATION REPORT:

CONSERVATION IMPLEMENTATION PLAN for the Long Point Walsingham Forest Priority Place

(April 2018 – March 2023)



Cover Photo: Stephanie Giles, ALUS Norfolk, Tallgrass prairie restoration project, 2021

Prepared by Britney MacLeod, Samantha Calabrese, Angela Darwin, Julia Sunga and Heather Braun, Environment and Climate Change Canada – Canadian Wildlife Service.

Contacts:
Julia Sunga
Environment and Climate Change Canada: Canadian Wildlife Service – Ontario
4905 Dufferin Street, Toronto, ON, M3H 5T4
Email: Julia.sunga@ec.gc.ca

Britney Macleod
Environment and Climate Change Canada: Canadian Wildlife Service – Ontario
4905 Dufferin Street, Toronto, ON M3H 5T4
Email: Britney.macleod@ec.gc.ca

Table of Contents

Land Acknowledgment

We recognize that the Long Point Walsingham Forest Priority Place is situated upon the Treaty Lands and Territory of the Mississaugas of the Credit First Nation and the Traditional Territory of the Haudenosaunee and Huron-Wendat. We recognize and acknowledge the continued impacts of colonialism and residential schools that disrupted Indigenous Peoples relationships with the lands. Southern Ontario is home to many First Nations and Métis Peoples and through this acknowledgement it is our intent to show respect for the people who have stewarded these lands and waters since time immemorial and those who continue to care for them. Through this acknowledgement, we are reminded of our connection to this land and commit ourselves to learn and work together in the spirit of reconciliation.

Pan-Canadian Approach to Transforming Species at Risk Conservation in Canada

The federal government, in collaboration with the provinces and territories, has agreed to the implementation of the Pan-Canadian Approach to Transforming Species at Risk Conservation in Canada. This approach shifts from a single-species approach to conservation to one that focuses on multiple species and ecosystems. Collaborative efforts are being focused on priority places, species, sectors and threats across Canada. This will enable conservation partners to work together to achieve better outcomes for species at risk. The Pan-Canadian approach will also seek to renew and strengthen relationships and collaboration with Indigenous Peoples. The federal government is committed to engaging with Indigenous Peoples and other partners and stakeholders on these priority species at risk initiatives.

Important principles guide collaborative work under the Pan-Canadian approach, these include:

- shared priorities and leadership
- Indigenous engagement
- strengthened evidence-base for decision making, and;
- aligned investments

Priorities are identified using defined criteria, followed by:

- cooperative action planning
- investment and implementation of actions
- monitoring and reporting of results

The results and benefits of action under the Pan-Canadian approach are:

- better conservation outcomes for more species at risk
- improved return on investment
- increased co-benefits for biodiversity and ecosystems

Priority Places

A priority place is an area of high biodiversity value that is seen as a distinct place with a common ecological theme by the people who live and work there. There are now 11 priority places identified under the Pan-Canadian approach. The places selected have significant biodiversity, concentrations of species at risk, and opportunities to advance conservation efforts. These 11 priority places are complemented by a suite of Community-Nominated Priority Places (CNPP) that were identified through an open call for applications.

In each priority place, the federal and provincial or territorial governments have been working with partners, Indigenous Peoples and stakeholders to develop conservation action plans. Using a defined planning approach (such as the Open Standards for the Practice of Conservation or Healthy Country Planning), these action plans identify key actions to address the greatest threats to species. Plans are adjusted as necessary as we assess the effectiveness of our actions. Within the priority places, the conservation action plans are funded by multiple government and non-government partners and stakeholders, including contributions under the Canada Nature Fund.

Conservation action plans provide the foundation for collaborative action on-the-ground. They are informed by science, research and Indigenous knowledge and supported by:

- dedicated partner and stakeholder engagement in planning and delivery,
- strong governance to ensure everyone's efforts are aligned, and
- enhanced data and information management to strengthen decision making.

Preface

This document reports on implementation of the Long Point Walsingham Forest (LPWF) Priority Place Conservation Implementation Plan (CIP) between April 2018 and March 2023 by members of the LPWF Collaborative and its five Working Groups (Table 1). Results have been achieved with contributions from Environment and Climate Change Canada; the Ministry of Natural Resources and Forestry; the Ministry of Environment, Conservation and Parks; and the partners listed below.

Table 1. Members of the LPWF Collaborative identified by Working Group.

Invasive Species Working Group	Roads Working Group	Open Country Working Group	Agricultural Runoff Working Group	Forest and Treed Swamp Working Group
Lead: Nature Conservancy of Canada (NCC)	Lead: Ontario Road Ecology Group (OREG)	Lead: Nature Conservancy of Canada (NCC)	Lead: ALUS Norfolk	Co-lead: Birds Canada
Ontario Ministry of Natural Resources & Forestry (MNRF)	Norfolk County	Natural Resource Solutions Inc. (NRSI)	ALUS Canada	Co-lead: Long Point Basin Land Trust
Environment and Climate Change Canada - Canadian Wildlife Service (ECCC-CWS)	Long Point World Biosphere Region Foundation (LPWBRF)	Ontario Nature	Norfolk County	St. Williams Conservation Reserve Community Council
Long Point Region Conservation Authority (LPRCA)		Tallgrass Ontario	Long Point Region Conservation Authority	Norfolk Woodlot Owners Association
Birds Canada		Long Point Basin Land Trust (LPBLT)	Ontario Ministry of Agriculture, Food & Rural Affair (OMAFRA)	Long Point Region Conservation Authority
The Long Point Phragmites Action Alliance (LPPAA)		ALUS Norfolk	Carolinian Canada Coalition (CCC)	
University of Toronto		Ontario Parks		
		Ontario Plant Restoration Alliance		
		St. Williams Conservation Reserve Community Council (SWCRCC)		

The Long Point World Biosphere Reserve Foundation (LPWBRF) has led and coordinated communications for the LPWF Collaborative. While these communication efforts are not explicitly

identified in the CIP, they are integral to sharing the messaging about the work done by members of the Collaborative. More information on the LPWF Priority Place and LPWF Collaborative, including the Situation Analysis and CIP reports and communication material developed by the LPWBRF can be found on the LPWF Priority Place website.

Definitions

The following tables define terminology used to indicate the status of the objectives, actions, results, and outcomes as defined in the Conservation Implementation Plan.

Measures of Success

Status	Definition
Continuing	The objective has been met but further work will occur to maintain or exceed the results achieved
Achieved	The objective has been met
On Track	Progress towards this objective is proceeding as expected. Can provide a percent completion where information/baseline is available.
Delayed	Progress towards this objective is being made but objective may not be met by current date
No Progress	There are so far no results contributing towards meeting this objective
Not Known	The status of this objective is unknown

Note: A complete percentage is provided where a baseline measure is available.

Action Tracking Status

Status	Definition
Continuing	This action has been performed and further activity is expected
Completed	This action has been performed and no further activity is expected
On Track	This action is currently being implemented and on schedule
Minor Issues	This action is currently being implemented but is behind schedule due to small delays
Major Issues	This action is being implemented behind schedule with significant delays or has not yet been started due to progress interruptions.
Scheduled for Future	This action has not yet been started for expected reasons.
Abandoned	This action is no longer planned
Not Known	The status of this action is unknown

Results Tracking

Status	Definition
Achieved	The desired result has occurred
On Track	The collaborative is on track to achieve this result
Partially achieved	The collaborative is working towards this result but it has not yet been met
Not Achieved	This result has not been achieved despite implemented actions
Not Yet	There is so far no progress towards this result but progress is still expected
No longer relevant	Due to changes in implemented actions, this result is no longer expected
Not Known	The status of this expected result is unknown

Outcomes Tracking

Status	Definition
Achieved	This outcome has been achieved (for outcomes where a finite result exists)
Improving	Conditions are becoming more favourable for SAR/biodiversity/habitat
No Progress	Conditions have not changed
Worsening	Conditions are becoming less favourable for SAR/biodiversity/habitat
Not Known	The status is unknown or has not been assessed

Summary of Implementation Results

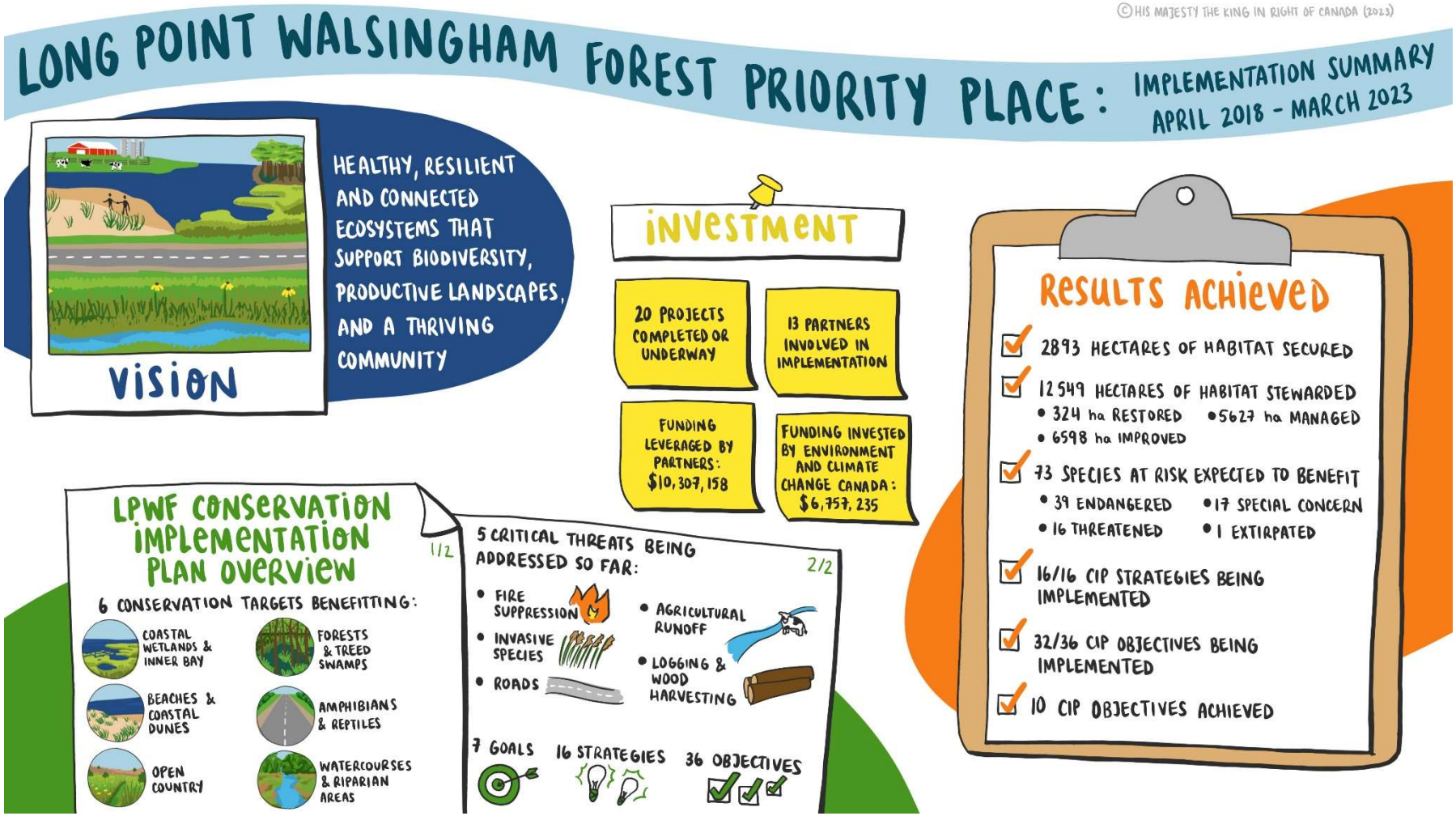


FIGURE 1. ILLUSTRATION SUMMARIZING PROGRESS OF IMPLEMENTATION RESULTS AS OF AUGUST 11, 2023. NUMBERS IN THIS IMAGE MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL ACTIVITIES HAVE BEEN COMPLETED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS

Implementation of the Action Plan

STRATEGY 1: Plan and conduct site specific management of *Phragmites australis* in the Long Point coastal wetlands

Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes
Direct Threat(s) Addressed: Invasive Species
Species at Risk Expected to Benefit: 21 (see appendix A)
Implementation Status: On Track

Implementation Summary:
The Invasive Species Working Group has led implementation of this strategy since 2019 (Table 1). This strategy refers to the ongoing maintenance of *Phragmites australis* (hereafter Phragmites) on provincial and private lands in the Long Point coastal wetlands that was initiated in 2016 by the MNRF and NCC through an Emergency Use Registration (ER) from the Pest Management Regulatory Agency (PMRA). It also refers to the treatment of Phragmites in the Long Point coastal wetlands at the two National Wildlife Areas (NWA) found in the LPWF Priority Place (Long Point (LPNWA) and Big Creek (BCNWA)) initiated in 2019.

April 2018 – March 2019: NCC improved 104 ha of coastal wetland habitat on public and private lands by reducing biomass of dead Phragmites stands previously treated with herbicide through rolling, burning and/or manual or mechanical cutting. Additionally, the LPRCA improved 3 ha using herbicide to manage Phragmites.

April 2019 – March 2020: CWS initiated implementation at three pilot sites on the two NWAs: Brown's Marsh at BCNWA, Long Pond at LPNWA and Otter Pond at LPNWA. 8 ha of Phragmites was treated by ground herbicide application and rolled to reduce standing dead biomass. Additionally, NCC improved 40 ha on other public and private lands in the Long Point coastal wetlands using herbicide and biomass management. LPRCA improved 6 ha using herbicide.

April 2020 – March 2021: CWS treated 104 ha of Phragmites with herbicide (by air and ground) at the BCNWA and the Thoroughfare Unit of LPNWA.75 of the 104 ha was subsequently managed to reduce biomass. NCC treated 18 ha by ground application on other public and private lands. The LPRCA improved 117 ha using herbicide to treat Phragmites in the Lee Brown Marsh (Lee Brown Waterfowl Management Area) and at the privately owned Murray Marsh. NCC also partnered with Birds Canada to undertake Great Lakes Marsh Monitoring surveys at five sites and collaborated with the University of Toronto to produce and rear Phragmites biocontrol agents (*Archanara neurica* and *Lensia gempinipuncta*) for introduction at research sites in 2021.

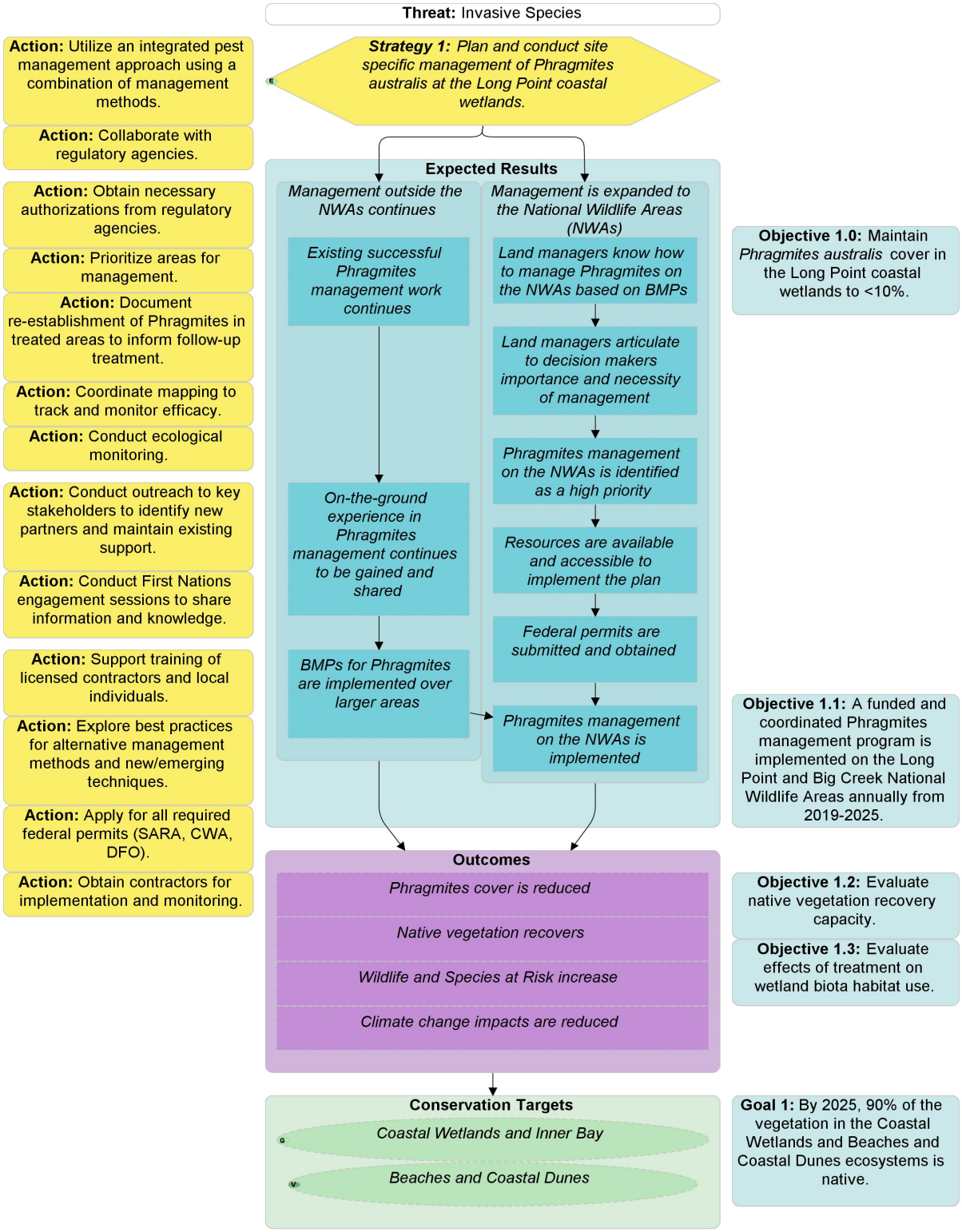
April 2021 – March 2022: CWS treated 248 ha of Phragmites with herbicide (by air and ground) at the BCNWA and the LPNWA including retreatment at the Otter Pond site, initially treated in 2019. In addition, 122 ha of Phragmites, that had been treated by herbicide in 2020 or 2021 underwent winter management to reduce biomass (85 ha in the BCNWA Big Creek Unit and 37 ha in the LPNWA Thoroughfare Unit). NCC treated 25 ha by ground application on other public and private lands. In addition to the on-the-ground management, NCC also partnered with Birds Canada to continue undertaking Great Lakes Marsh Monitoring surveys at five sites. In collaboration with the University of

Toronto, biocontrol species (*Archanara neurica* and *Lensia gempinipuncta*) were released at targeted times to stands of Phramgites in research sites. These sites will be monitored to assess the efficacy of overwintered eggs on-site and monitored for feeding damage.

April 2022 – March 2023: CWS treated 249 ha of Phragmites with herbicide (by air and ground) at the LPNWA. In addition, 145 ha treated by herbicide in 2021 underwent winter management to reduce biomass. Due to high treatment efficacy in 2019, high water levels in 2019 and 2020, and the regrowth of other species in 2021, no herbicide application was required at Brown's Marsh in 2022. Monitoring of Otter Pond showed the re-treatment of Phragmites in 2021 had high efficacy resulting in no significant regrowth or treatment required in 2022. Due to time and access restraints, Phragmites in Long Pond was not managed or monitored in 2022. Birds Canada continued their assessment of the five restored sites using the Great Lakes Marsh Monitoring Protocol and undertook species at risk surveys in restored areas at the tip of Long Point.

The University of Toronto has continued monitoring the success of biocontrol rearing and release methods, which included establishing 6 new release locations and adding insects to 2 previous 2021 sites, as potential nurse sites in South Ontario. A total of 6455 eggs, larvae, and pupae of *Archanara neurica* and *Lenisa geminipuncta* were released in 2022. Monitoring for potential establishment at release locations in 2022 was very encouraging with confirmation of localized damage at release points and within the release patches, successful overwintering, and completion of at least one generation of the new biocontrol agents at 6 of the previous years release locations.

Theory of Change



Measures of Success

Objective	Baseline[1]	Indicators	Results[2]	Status
1.0: Maintain *Phragmites australis* cover in the Long Point coastal wetlands to <10% of the area	711 ha Phragmites (+33% margin of error) 9-12% of Phragmites cover	# ha habitat improved	922[3]	**On Track** (90%)
		% of Phragmites cover	In progress	
1.1: A funded and coordinated Phragmites management program is implemented on the Long Point and Big Creek National Wildlife Areas annually from 2019-2025	No funded and coordinated Phragmites management program 16-21% of Phragmites cover	Program established	Completed	**Continuing**
		# ha habitat improved	590[4]	
		% of Phragmites cover	1-5%	
		% change in Phragmites cover based on vegetation plots	Three years post-treatment: average stem density reduced by 100%, suggesting 100% reduction in Phragmites cover	
		% change in Phragmites cover based on satellite imagery	One-year post-treatment: 2019 pilot sites at Brown's Marsh and Long Pond indicate an average 79% change. Overall project results are in progress	
1.2: Evaluate native vegetation recovery capacity	Average % native cover in NWA treatment plots pre-treatment: 11% Estimated # of stems of Swamp Rose-Mallow in the Big Creek Unit pre-treatment: 786[1]	% native cover	Three years post-treatment: average % native cover in treated vegetation plots on the National Wildlife Areas is 7%[5]. Results are in progress	**On Track**
		% change in estimated # of Swamp Rose-Mallow stems before and after treatment	Two years post-treatment: increase of 571%. Results are in progress	
		% native seedlings	In progress	

Objective	Baseline[1]	Indicators	Results[2]	Status
1.3: Evaluate effects of treatment on wetland biota habitat use	No treatment on the NWAs	Relative abundance of turtles in treated vs untreated areas	In progress	**On Track**
		Change in habitat use of turtles before and after treatment	In progress	
		Richness of marsh birds in treated vs untreated areas	Three years post-treatment: no significant effect of treatment on the richness of marsh birds on the NWAs. Results are in progress.	
		Richness of anurans in treated vs untreated areas	Three years post treatment: no significant effect of treatment on the richness of marsh birds on the NWAs. Results are in progress	
		% conversion of Phragmites to fish habitat	One-year post-treatment: 92% of Phragmites converted to fish habitat. *Results are in progress	

[1]Baseline numbers are from before action started. For most objectives, baseline is 2018. Some such as estimated # stems of Swamp Rose-Mallow are from 2020).

[2] April 2018-March 2023

[3]As of March 31, 2023, includes all Phragmites management in the Long Point coastal wetlands; new treatment on private lands by NCC and LPRCA, and new treatment on the NWAs, plus winter management on treated areas by NCC. Additional treatment is planned for 2023-2024.

[4]As of March 31, 2023, includes the estimated non-overlapping Phragmites management on the Big Creek and Long Point National Wildlife Areas.

[5]Treatment sites are predominately open water, which will populate with native vegetation over time. 'Native cover' currently includes the endemic non-native cattail species (T. angustifolia, T x glauca).

Action Tracking

Action	Progress	Status
Utilize an integrated pest management approach using a combination of management methods	Multiple methods are being used to manage Phragmites: herbicide, prescribed fire, cutting and mowing	**Continuing**
Collaborate with regulatory agencies	Collaboration with regulatory agencies is ongoing	**Continuing**
Document re-establishment of Phragmites in treated areas to inform follow-up treatment	Treatment efficacy is being evaluated annually on federal and non-federal lands to assess re-establishment and retreat as necessary	**On Track**
Obtain necessary authorizations from regulatory agencies	Necessary authorizations and permits are obtained annually as needed	**Continuing**
Coordinate mapping to track and monitor efficacy	Mapping of management areas to monitor efficacy, regrowth, and habitat changes is underway on NWAs via the remote classification of high-resolution satellite imagery	**On Track**
Conduct ecological monitoring	Ecological monitoring on the NWAs is ongoing since 2019 to assess: species at risk plants and habitat features, effects of herbicide application, vegetation recovery capacity, water and sediment, marsh birds, turtles and snakes, fish, and anurans	**On Track**
Prioritize areas for management	Areas that will be managed on the NWAs have been identified. Ongoing maintenance off the NWAs is also prioritized as necessary	**Completed**
Explore best practices for alternative management methods and new/emerging techniques	Biocontrol methods are being investigated as part of the suite of Phragmites management approaches. Research is ongoing and led by the University of Toronto at various sites across Southern Ontario	**On Track**
Conduct outreach to key stakeholders to identify new partners and maintain existing support	Annual public engagement meetings and notifications (roadside signage, newspaper ad, informational signs); engagement with the health unit; continued correspondence with surrounding private landowners; request and receipt of letters of support from key stakeholders for the ER	**On Track**
Conduct First Nations engagement sessions to share information and knowledge	Between April 2018 and March 2023, three engagement session were held; one led by the province in 2018 (CWS did not participate), one in-person meeting in 2019, and a virtual meeting in 2021. Communications are ongoing annually	**On Track**

Support training of licensed contractors and local individuals	Workshops and/or training sessions for practitioners expected in the near future to support local Phragmites management	**Scheduled for Future**
Apply for all required federal permits (SARA, CWA, DFO)	Applicable federal and provincial permits received to enable Phragmites management on and off NWAs	**Continuing**
Obtain contractors for implementation and monitoring	Multiple contractors engaged to support implementation and ecological monitoring	**Continuing**

Results Tracking

Expected Results	**Status**
Existing successful Phragmites management work continues	**On Track**
On-the-ground experience in Phragmites management continues to be gained and shared	**On Track**
BMPs for Phragmites are implemented over larger areas	**On Track**
Land managers know how to implement Phragmites management on the NWAs based on BMPs	**Achieved**
Land managers articulate to decision makers the importance and necessity of management	**Achieved**
Phragmites management on the NWAs is identified as a high priority	**Achieved**
Resources are available and accessible to implement the plan	**Achieved**
Federal permits are submitted and obtained	**Achieved**
Phragmites management on the NWAs is implemented	**On Track**

Outcomes	**Status**
Phragmites cover is reduced	**Improving**
Native vegetation recovers	**Not Known**
Wildlife and Species at Risk Increase	**Improving**
Climate change impacts are reduced	**Not Known**

STRATEGY 2: Plan and conduct *Phragmites australis* management within the Big Creek watershed to reduce spread into the Long Point coastal wetlands

Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes, Watercourses and Riparian Areas, Forests and Treed Swamps
Direct Threat(s) Addressed: Invasive Species
Species at Risk Expected to Benefit: 18 (see appendix A)
Implementation Status: On Track

Implementation Summary:
The Invasive Species Working Group has led implementation of this strategy since 2019 (Table 1). It contributes to addressing the threat of Phragmites in the Long Point coastal wetlands by managing source populations in the Big Creek watershed.

April 2018 – March 2019: NCC developed the Big Creek Watershed Implementation Plan – a muli-phased plan that for comprehensive Phragmites management in areas of the Big Creek watershed that drain to the coastal wetlands. Guidance on the development of this plan was provided by a subcommittee of the LPPAA, established by NCC. The Plan includes: protocols for managing Phragmites, a stakeholder engagement plan with roles and responsibilities, and an annual timeline with an estimated budget. In addition, NCC conducted herbicide retreatment of 0.3 ha of previously treated and managed Phragmites, and LPRCA improved 26 ha using herbicide to manage Phragmites on several properties. LPRCA also distributed a brochure with information on Phragmites to 1,487 landowners along municipal drains.

April 2019 – March 2020: Phase 1 of the Big Creek Watershed Phragmites Implementation Plan was initiated. NCC conducted surveys of 704 properties and identified 181 that included Phragmites and 523 without. 112 of the 181 properties with Phragmites granted NCC permission to conduct ecological surveys. This resulted in 4.3 ha of Phragmites being treated with herbicide on 38 properties. The LPRCA treated 1.7 ha of Phragmites with herbicide on several properties and along municipal drains. LPRCA also distributed a brochure with information on Phragmites to 2,035 landowners along municipal drains.

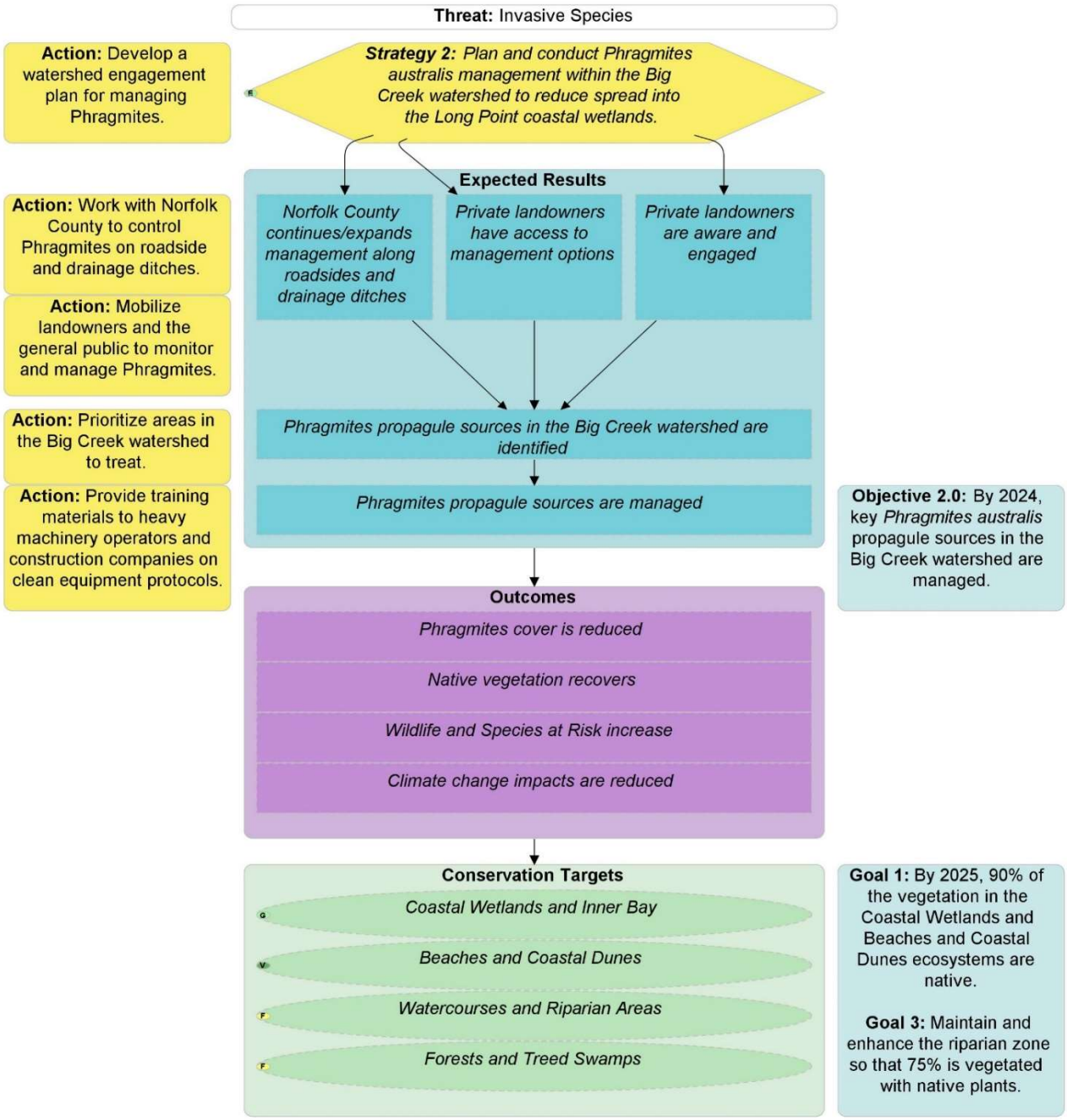
April 2020 – March 2021: Implementation of the Big Creek Watershed Phragmites Implementation Plan was expanded in 2020-2021 to include Phases 2 and 3, which encompasses a total of 2,081 land parcels. NCC staff used an elimination process to remove parcels which roadside surveys suggested they did not have or were unlikely to have Phragmites. They also raised public awareness of the program and encouraged enrollment through email, newspaper ads and roadside signage which reached 42,000 people. Ultimately 314 landowners owning 735 parcels were targeted through modified engagement efforts due to the COVID-19 pandemic. NCC enrolled 92 new parcels for surveys and treated 8.5 ha of Phragmites on 39 properties and Norfolk County road allowances. They also engaged 56 landowners, 6 of whom were trained to manage Phragmites. The LPRCA improved 5.2 ha using herbicide to treat Phragmites along municipal drains and in the Lee Brown Marsh.

April 2021 – March 2022: Implementation of the Big Creek Watershed Phragmites Control Program was expanded in 2021-2022 to include Phase 4, which encompasses a total of 3,687 land parcels. Like the previous year, NCC staff eliminated parcels which they confirmed did not have or were unlikely to have Phragmites. They also raised public awareness of the program and encouraged enrollment through mail, newspaper ads, radio ads, and a website sign-up portal. Ultimately 123 landowners enrolled in the

program, resulting in 6.43 ha of Phragmites being treated, including 3.7 ha over 39 properties and 2.7 ha of Norfolk County road allowances. Winter management took place on private lands where needed, with a total of 2.8 ha being cut. NCC also trained one licensed aquatic exterminator for the purpose of Phragmites management and worked with Giles Restoration Services, which employs three full time staff trained to manage Phragmites.

April 2022 – March 2023: NCC led management efforts in partnership with the CWS and LPPAA members under the Emergency Use Registration permit. 32 ha of Phragmites was treated on public and private lands, and treatment was expanded using a township approach to focus priorities in different sections of Norfolk County annually. Houghton Township was selected for treatment, with 952 parcels surveyed for Phragmites, 111 new landowners joining the control program, and resulting in Phragmites management on 64 properties. Winter cutting management occurred over 1.2 ha across Norfolk County on new treatment properties. Norfolk County Road allowances within the watershed were not treated with herbicide. Winter management also took place on private lands where needed, for a total of 2.8 ha cut. An additional 11 ha at flight Marsh and 4 ha at Silver Lake were rolled within the Priority Place for a total of 17.8 ha of winter management.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
2.0: By 2024, key *Phragmites australis* propagule sources in the Big Creek watershed are managed	No coordinated management in the Big Creek watershed	# ha improved	62	**On Track**
		# km restored	2	
		# landowners participating in management	111	
		# individuals trained to manage Phragmites	0	

Action Tracking

Action	Progress	Status
Develop a watershed engagement plan for managing Phragmites	Big Creek Watershed Implementation Plan (NCC, 2019)	**Completed**
Mobilize landowners and the general public to monitor and manage Phragmites	As part of a landowner engagement plan, participants are asked to visit the Phragmites on their property and identify if there is re-growth	**On Track**
Prioritize areas in the Big Creek watershed to treat	Eight potential phases identified on a map in the Big Creek Watershed Implementation Plan as well as mapped sites for Phase 1 (NCC, 2019). Management work was expanded using a township approach to focus priorities in different sections of Norfolk County	**Completed**
Provide training materials to heavy machinery operators and construction companies on clean equipment protocols	Workshops and/or training sessions for practitioners expected in the near future to support local Phragmites management	**Scheduled for Future**
Work with Norfolk County to manage Phragmites on roadside and drainage ditches	Norfolk County is a member of the Long Point Phragmites Action Alliance Big Creek Subcommittee. In 2020, Phragmites was treated along all Norfolk County road allowances in the LPWF Priority Place and collaboration with Norfolk County is continuing	**On Track**

Results Tracking

Expected Results	Status
Private landowners are aware and engaged	**On Track**
Private landowners have access to management options	**On Track**
Norfolk County continues/expands management along roadsides and drainage ditches	**On Track**
Phragmites propagule sources in the Big Creek watershed are identified	**On Track**
Phragmites propagule sources are managed	**On Track**

Outcomes	Status
Phragmites cover is reduced	**Improving**
Native vegetation recovers	**Improving**
Wildlife and Species at Risk Increase	**Not Known**
Climate change impacts are reduced	**Not Known**

STRATEGY 3: Develop policy guidance on invasive species management that supports ecosystem restoration for Species at Risk

Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes
Direct Threat(s) Addressed: Invasive Species
Species at Risk Expected to Benefit: 10 (see appendix A)
Status: On Track

Implementation Summary:
Phragmites is known to be an extremely difficult species to manage, but efforts to manage the plant in Ontario were further hindered by a lack of management tools and policies, notably, the lack of a registered herbicide product and permits necessary for management on Federal land. In the years leading up to the LPWF CIP and between 2018 and 2021, several significant activities were initiated that addressed these challenges and advanced ecosystem restoration for species at risk (SAR):

A Best Management Practices (BMPs) guide for invasive Phragmites (developed in 2011 and updated in 2020, Ontario Invasive Plant Council) provides input on developing an integrated pest management approach depending on several factors, including size and extent of the Phragmites stand, capacity and project objective. For large, dense stands of Phragmites like those in the coastal wetland areas of the Priority Place, the most effective and efficient BMP consists of the use of an herbicide applied during the fall, followed by mechanical management to knock down standing dead biomass during the winter and retreatment as necessary in subsequent years. Lack of a registered herbicide for over water use meant this BMP could not been implemented and Phragmites spread exponentially throughout the region, impacting wetlands and SAR.

In 2016 the province of Ontario, NCC and a suite of partners recognized the threat of Phragmites on SAR. The province applied for an Emergency Registration (ER) authorization from the Pest Management Regulatory Agency of Health Canada to use the herbicide RoundUp Custom for Aquatic and Terrestrial Use – (a.i. glyphosate) to address the threat of Phragmites in the Long Point region. Between 2016 and 2018, this BMP was used to manage hundreds of hectares of Phragmites on provincial and private lands in the LPWF. Ecological monitoring conducted by conservation partners indicated that the herbicide was safe to aquatic life and the public and the response by native plants and wildlife to the management was positive.

By 2019, the majority of Phragmites remaining in the coastal wetlands of the LPWF was on the two NWAs. Habitat management projects on federal lands are regulated under the *Canada Wildlife Act* and the *Species at Risk Act* (and other acts) and the presence of Critical Habitat and SAR requires activities be permitted and monitored. In particular, lifecycle timing windows must be considered to ensure that any potential impacts to SAR are minimized.

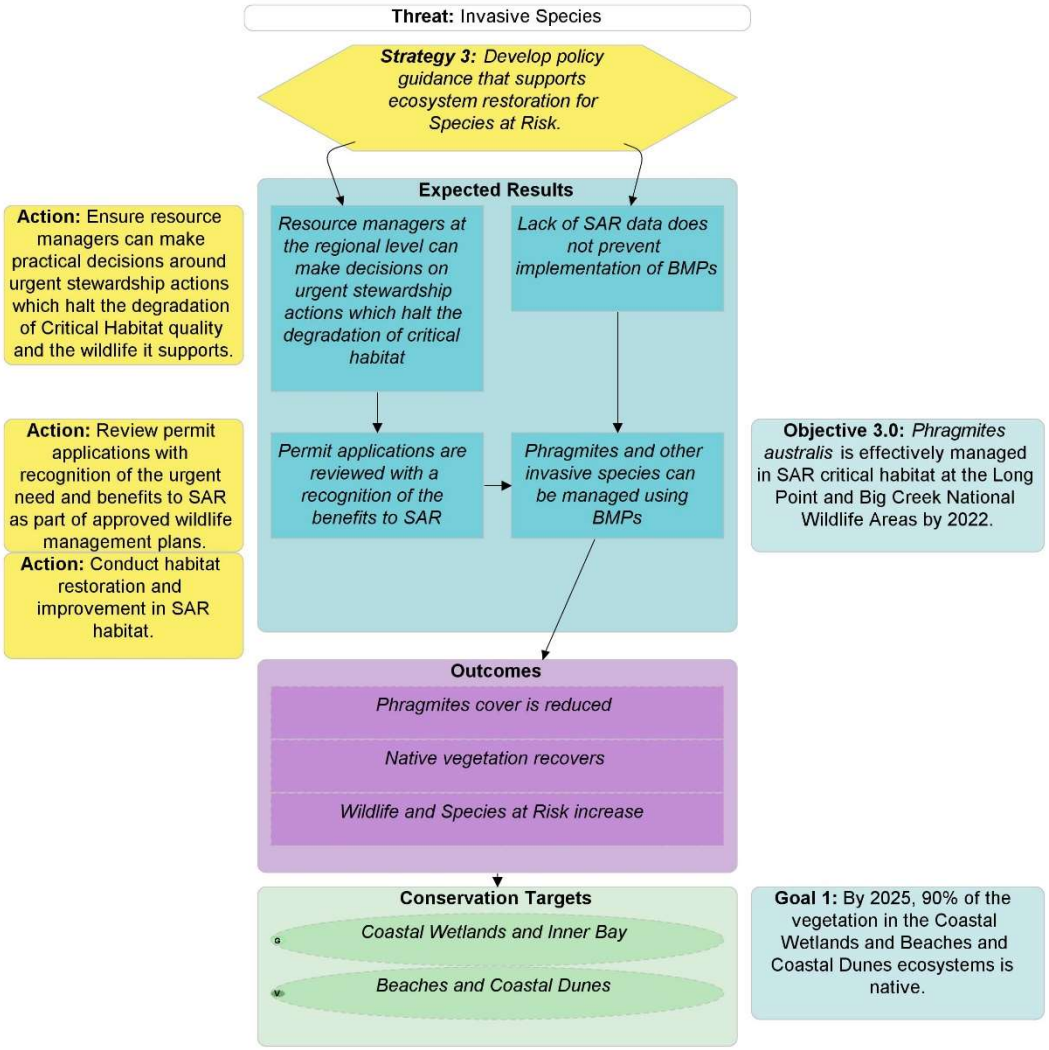
In 2019, CWS received SARA permits from ECCC and DFO to implement Phragmites management on the NWAs. In partnership with the ER received by the province, CWS conducted a small-scale management and monitoring project at three small areas of the Big Creek and Long Point NWAs. CWS initiated a comprehensive ecological monitoring program, evaluating impacts to SAR, vegetation, and other wildlife, as well as drinking water, and managed 8 ha of Phragmites. Management was conducted in the fall and winter to avoid key lifecycle windows for SAR.

In 2020, CWS submitted a joint application in partnership with the MNRF for the ER of RoundUp Custom. The ER was approved and CWS also received a SARA permit from ECCC and a Fisheries Act Authorization from DFO to conduct the BMP on 104 ha of Phragmites on federal land. The province of Ontario and NCC also conducted management on some remaining stands on crown, park, and private lands.

In 2021, with few areas left to be treated on provincial land, CWS led an application to the PMRA for an ER of RoundUp Custom to continue to treat Phragmites on the Long Point and Big Creek NWAs and treated 248 ha. Most significantly, the herbicide Habitat Aqua was approved by Health Canada for the treatment of Phragmites in wet areas, increasing the tools available for BMPs. In 2022, an additional 249 ha was managed on federal lands. Phragmites management is planned throughout the LPWF in 2023 and 2024 to achieve CIP goals.

Ecological monitoring continues on both federal and provincial land to assess the efficacy of the BMP on Phragmites, impacts to non-target vegetation and wetland wildlife. CWS continues to monitor the effects of the herbicide in both soil and water, and vegetation and wildlife, including SAR turtles, snakes, and habitat for Spotted Gar.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
3.0: *Phragmites australis* is effectively managed in SAR critical habitat at the Long Point and Big Creek National Wildlife Areas by 2022	0 ha	# ha of SAR critical habitat improved	590	**Continuing**

Action Tracking

Action	Progress	Status
Ensure resource managers can make practical decisions around urgent stewardship actions which halt the degradation of Critical Habitat quality and the wildlife it supports	Some progress as evidenced by delegation of permit authority to regional staff	**On Track**
Review permit applications with recognition of the urgent need and benefits to SAR as part of approved wildlife management plans		**On Track**
Conduct habitat restoration and improvement in SAR habitat		**On Track**

Results Tracking

Expected Results	Status
Lack of SAR data does not prevent implementation of BMPs	**On Track**
Resource managers at the regional level can make decisions on urgent stewardship actions which halt the degradation of critical habitat	**On Track**
Permit applications are reviewed with a recognition of the benefits to SAR	**On Track**
Phragmites and other invasive species can be managed using BMPs	**On Track**

Outcomes	Status
Phragmites cover is reduced	**Improving**
Native vegetation recovers	**Improving**
Wildlife and Species at Risk Increase	**Not Known**

STRATEGY 4: Increase awareness on the threat of roads to wildlife and engage the local community in stewardship efforts

Benefitting Conservation Target(s): Amphibians and Reptiles
Direct Threat(s) Addressed: Roads
Species at Risk Expected to Benefit: 14 (see appendix A)
Status: On Track

Implementation Summary:
The Roads Working Group has led the implementation of this strategy since 2019-2020 (Table 1). It addresses the threat of roads to amphibians and reptiles by increasing the local community's awareness and engaging them in efforts to mitigate the threat.

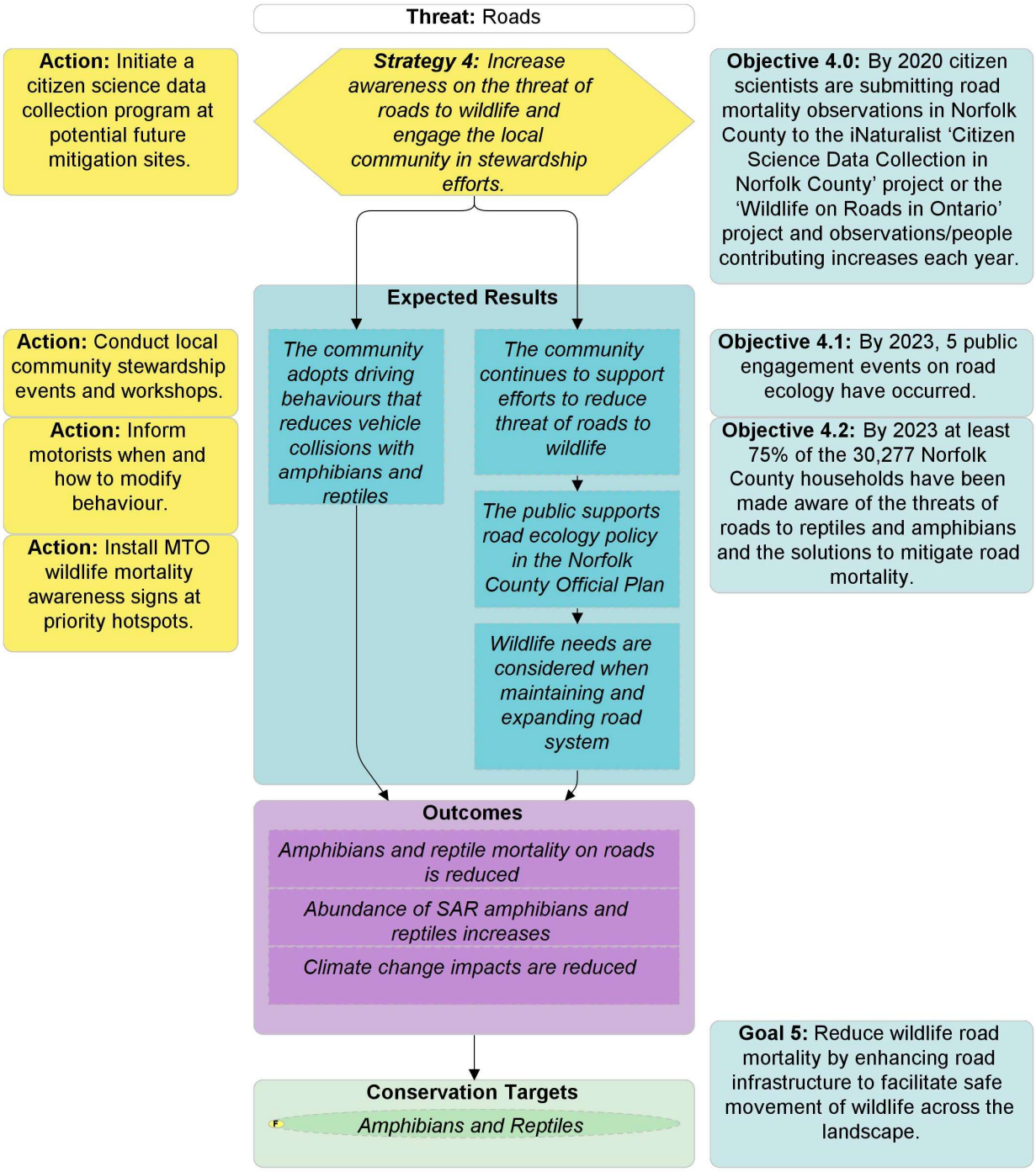
April 2019 – March 2020: Two road ecology workshops were held in Norfolk County with the purpose of recruiting local citizen scientists to undertake road mortality monitoring on Norfolk County roads. Nineteen people attended the first recruitment workshop and 11 people attended the second workshop which was a training session on the use of the iNaturalist app for reporting sightings. In addition to the workshops, a local nature artist developed an educational road ecology postcard for CWS that highlighted four ways to help reptiles and amphibians in the community.

April 2020 – March 2021: The educational road ecology postcard developed in 2019-2020 was mailed out to all households, apartments, farms, and post-boxes in Norfolk County. OREG also engaged 1,270 people through four online stewardship events targeting residents and naturalists in Norfolk County and 6 events attended by people in Ontario outside Norfolk County. The purpose of the engagement was to raise awareness about the threats of roads to wildlife in the LPWF Priority Place and provide recommended stewardship activities to help mitigate the threats. Additionally, 20 Ministry of Transportation Ontario (MTO) Wildlife Mortality Awareness signs were purchased and planned for posting at ten road mortality hotspots in Norfolk County. Citizen scientist road ecology data collection continued in 2020.

April 2021 – March 2022: Continued public engagement activities continued through articles in the Port Rowan Good News and the Port Dover Maple Leaf, the Long Point World Biosphere Region 9th Annual Research & Conservation Conference, partner newsletter articles as well as frequent Facebook posts and shares by partners. Citizen scientist road ecology data continued to be collected around identified hotspots in the LPWF Priority Place. Initial outreach took place to assemble a Wildlife Road Watch team for spring 2022 to help wildlife move safely across roads and monitor and report any suspicious behaviours, such as poaching.

April 2022 – March 2023: Members of the Working Group launched the Wildlife Road Watch Program in LPWF with 14 dedicated participants covering 3 hotspot sites in 2022-2023. Approximately 400 wildlife/road observations were added to the iNaturalist Wildlife on Roads in Ontario database between April 2022 to 2023 in the Norfolk County area. There were multiple public engagement methods including: the Long Point Rate Payers Annual General Meeting, Wildlife Road Watch Workshops, Long Point World Biosphere Region Annual Research Conference, and other speaking events. The number of people reached exceeded 10,000 from outreach activities such as newsprint publications, social media, in-person events, and flyers.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
4.0: By 2020, citizen scientists are submitting road mortality observations in Norfolk County to the iNaturalist 'Citizen Science Data Collection in Norfolk County' project or the 'Wildlife on Roads in Ontario' project and observations/people contributing increases each year	No coordinated collection of citizen scientist data on amphibian and reptile road mortality in Norfolk County	# of people (citizen scientists) conducting road mortality surveys on Norfolk County roads	156	**Continuing**
		# of road mortality observations submitted to the iNaturalist 'Citizen Science Data Collection in Norfolk County' project or the 'Wildlife on Roads in Ontario' project (in Norfolk County) to inform future management	1,144	
4.1: By 2023, 5 public engagement events on road ecology have occurred	0 public engagement events	# of public engagement events	13 local events	**Continuing**
		# attendees at each event	1,590	
4.2: By 2023, at least 75% of the 30,277 Norfolk County households have been made aware of the threats of roads to reptiles and amphibians and the solutions to mitigate road mortality	0% of households have been made aware	# of households reached and/or residents reached	30,277	**Continuing**
		# MTO wildlife mortality awareness signs posted at priority hotspots	26 signs posted in 2022-2023.	

Action Tracking

Action	Progress	Status
Conduct local community stewardship events and workshops	2 local workshops were held in 2019; 4 online stewardship events in 2020; 2 workshops, 1 conference, and 1 webinar were held for the local community in 2021; and 2 events were attended and 1 workshop hosted in 2022	**Continuing**

Inform motorists when and how to modify behaviour	An educational road ecology postcard was mailed out in March 2021 to all households, apartments, farms and post-boxes in Norfolk County (30,277)	**Continuing**
Install MTO wildlife mortality awareness signs at priority hotspots	26 MTO Wildlife Mortality Awareness signs were posted at priority hotspots in Norfolk County in 2022-2023	**Completed**
Initiate a citizen science data collection program at potential future mitigation sites	Program was initiated in 2019 with two workshops, one to recruit volunteers and the second to train them on iNaturalist	**Continuing**

Results Tracking

Expected Results	**Status**
The community continues to support efforts to reduce threat of roads to wildlife	**Achieved**
The community adopts driving behaviours that reduces vehicles collisions with amphibians and reptiles	**Not Known**
The public supports road ecology policy in the Norfolk County Official Plan	**Not Yet**
Wildlife needs are considered when maintaining and expanding road system	**On Track**

Outcomes	**Status**
Amphibians and reptile mortality on roads is reduced	**Not Known**
Abundance of SAR amphibians and reptiles increases	**Not Known**
Climate change impacts are reduced	**Not Known**

STRATEGY 5: Incorporate road ecology mitigation policy and guidelines in the Norfolk County Official Plan and Road Asset Management Plan

Benefitting Conservation Target(s): Amphibians and Reptiles
Direct Threat(s) Addressed: Roads
Species at Risk Expected to Benefit: 14 (see appendix A)
Status: On Track

Implementation Summary:
The Roads Working Group has led implementation of this strategy since 2019-2020 (Table 1). It addresses the threat of roads by working to incorporate road ecology and biodiversity policy into municipal planning and management documents such as the Official Plan and the Roads Asset Management Plan.

April 2019 – March 2020: OREG worked to establish a local Senior Project Leadership Team, developed an electronic road ecology mitigation resource folder for Norfolk County municipal staff to inform road ecology mitigation, and organized and delivered a wildlife road mitigation conference. The establishment of a Senior Project Leadership Team ran into roadblocks after 2019 due to high municipal staff turnover. However, the wildlife road mitigation conference for municipal staff and partners (LPRCA, Long Point Causeway Improvement Program (LPCIP), LPWBR, LPBLT, Parks Canada, and MNRF) was hosted in early 2020 in Simcoe and was a great success. The purpose of the conference was to help guide Norfolk County's integration of road ecology principles and practices into their roads management and engineering. Sixty-five participants attended including eight Norfolk County staff and councillors. Six presentations were given by experts on the topics of road ecology policy, road ecology mitigation infrastructure and installation, stewardship/citizen science, GIS mapping and prioritizing mitigation sites, roadside vegetation management for biodiversity and municipal maintenance cost savings and the important of collaboration for success.

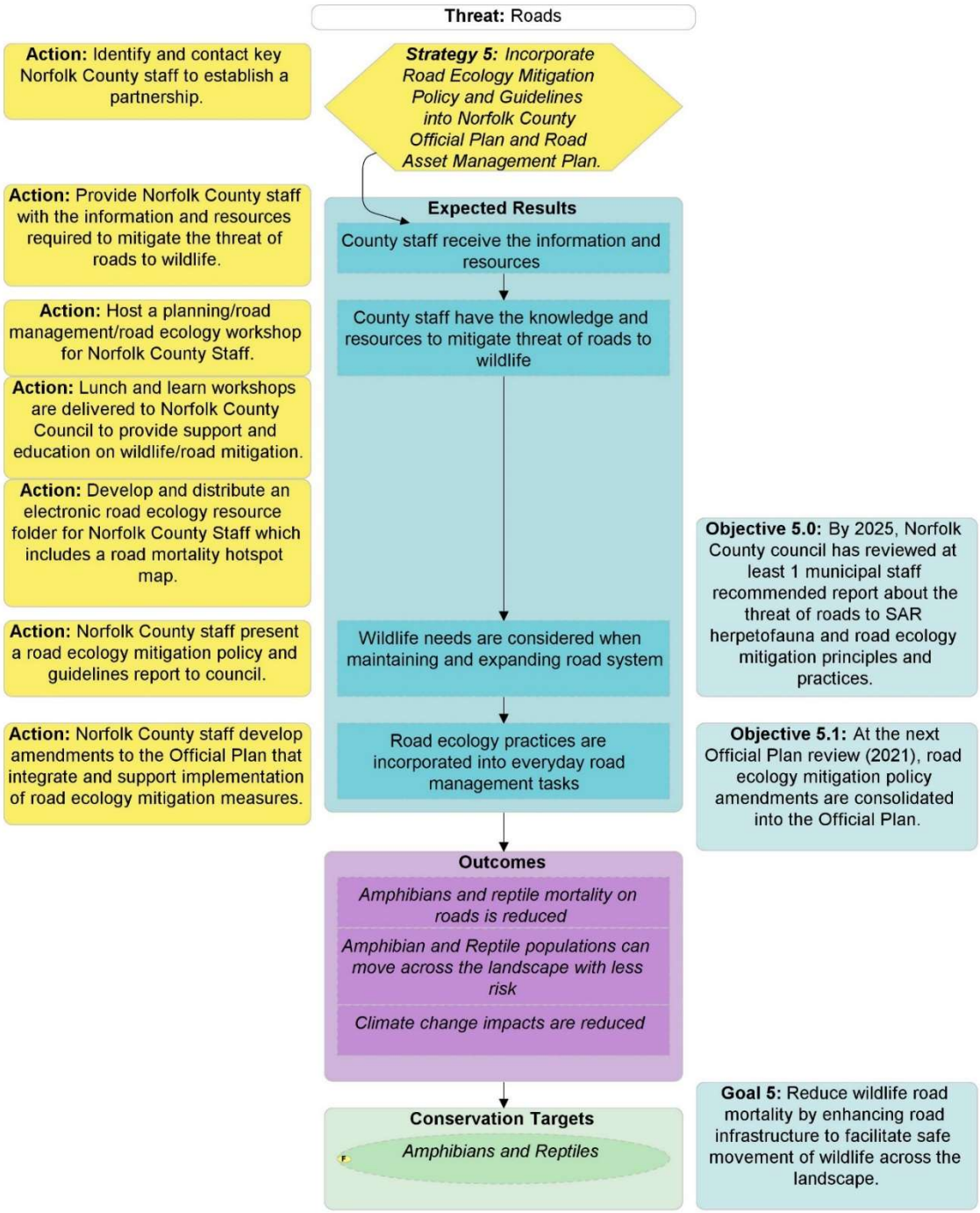
April 2020 – March 2021: OREG collaborated with Norfolk County Directors from different County departments on integrating road ecology concepts into capital road project designs, budgets, development of the up-dated engineering design standards, and other municipal processes such as implementation of the Norfolk County Climate Change Adaptation Plan (Risk 6: Damage to the environment including reduction in biodiversity), and Official Plan amendments. OREG continues to foster a productive partnership with the County to advance road ecology and contribute to the protection of SAR reptiles and amphibians from the threat of roads. OREG will contribute to the development of the County's Design Criteria (overseen by Norfolk County's Engineering Department) as well as the Climate Change Adaptation Plan as it was advised these documents would have the greatest influence on planning practises that could integrate road ecology practices. The collaboration between OREG and Norfolk County is ongoing.

April 2021 – March 2022: The Norfolk County Engineering Department (Director and Managers) provided the County's Design Criteria Document and welcomed review of the document with a road ecology lens. They also are interested in ways to reduce mortality at wildlife road crossings. The Design Criteria Document provides a clear and concise description of the County's Engineering review processes and design standards. Currently, wildlife passages and corridors are not considered in the document. In addition, the Norfolk County Climate Change Adaptation Plan presents an opportunity to incorporate road ecology in the implementation of the strategies. Integrating road ecology into County documents

facilitates the process of updating the Official Plan to incorporate the strategies into guiding policies and other planning documents (e.g., the development of a county-wide Natural Heritage System Strategy).

April 2022 – March 2023: Continued review of multiple municipal documents including the Norfolk County Official Plan, the Climate Change Adaptation Plan, and the Design Criteria. The Design Criteria was the focus as this document is under municipal review for updates in 2023. The Norfolk County Engineering Department worked with the Road Ecological Working Group to discuss road ecology recommendations to be integrated in the updated document.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
5.0: By 2025, Norfolk County council has reviewed at least 1 municipal staff recommended report about the threat of roads to SAR herpetofauna and road ecology mitigation principles and practices	No reports have been reviewed	# reports reviewed	In progress	**On Track**
5.1: At the next Official Plan review (2021), road ecology mitigation policy amendments are consolidated into the Official Plan	No road ecology mitigation policy in the Official Plan	An updated Norfolk County Official Plan which includes road ecology mitigation policy amendments	Not achieved for 2021, still in progress	**Delayed**

Action Tracking

Action	Progress	Status
Norfolk County staff present a road ecology mitigation policy and guidelines report to council	Continuing to build awareness among Norfolk County Council	**On Track**
Lunch and learn workshops are delivered to Norfolk County Council to provide support and education on wildlife/road mitigation		**Not Known**
Norfolk County staff develop amendments to the Official Plan that integrate and support implementation of road ecology mitigation measures	Continuing to build awareness among Norfolk County Council	**Not Known**
Provide Norfolk County staff with the information and resources required to mitigate the threat of roads to wildlife	Continuing to build awareness among Norfolk County Council	**On Track**
Identify and contact key Norfolk County staff to establish a partnership	In 2021-2022, OREG has worked with the Norfolk County Engineering Department staff on the Design Criteria and Climate Change Adaptation Plan which may benefit or be integrated into Official Plan policies in the future. In addition, OREG is being consulted regarding the development of a County-wide Natural Heritage System Strategy, offering opportunity to integrate road ecology practices on the landscape. OREG	**Completed**

	continues to engage and reach out to municipal staff across several departments. In 2022-2023, the Road Ecology Working Group reviewed several municipal documents, with a focus on the Design Criteria which is being updated in 2023. The working group discussed recommendations with the Norfolk County Engineering Department.	
Develop and distribute an electronic road ecology resource folder for Norfolk County Staff which includes a road mortality hot spot map	In 2019-2020 An electronic resource folder was developed and distributed to municipal staff. Populated with 60 documents that relate to multiple aspects of road ecology from mitigation design and installation to improved roadside habitat management strategies.	**Completed**
Host a planning/road management/road ecology workshop for Norfolk County Staff	A wildlife road mitigation conference was hosted in 2020 in Simcoe, Ontario.	**Completed**

Results Tracking

Expected Results	**Status**
County staff receive the information and resources	**On Track**
County staff have the knowledge and resources to mitigate threat of roads to wildlife	**On Track**
Wildlife needs are considered when maintaining and expanding road system	**On Track**
Road ecology practices are incorporated into everyday road management tasks	**Not Yet**

Outcomes	**Status**
Amphibians and reptile mortality on roads is reduced	**Not Known**
Amphibian and reptile populations can move across the landscape with less risk	**Improving**
Climate change impacts are reduced	**Not Known**

STRATEGY 6: Install and maintain dedicated road mitigation infrastructure for Species at Risk amphibians and reptiles

Benefitting Conservation Target(s): Amphibians and Reptiles
Direct Threat(s) Addressed: Roads
Species at Risk Expected to Benefit: 14 (see appendix A)
Status: On Track

Implementation Summary:
The Roads Working Group has led the implementation of this strategy since 2019-2020 (Table 1). It addresses the threat of roads to amphibians and reptiles through the use of mitigation infrastructure such as crossing structures, fencing and signage.

April 2018 – March 2019: To overcome the challenges of habitat fragmentation for amphibians and reptiles in the LPWF Priority Place, SAR herpetofauna road mortality hotspot maps were generated by Eco-Kare International in collaboration with OREG. The results of the analysis revealed there were 10 significant hotspots for all SAR herpetofauna species groups. These maps were used as a starting point to develop and propose mitigation strategies.

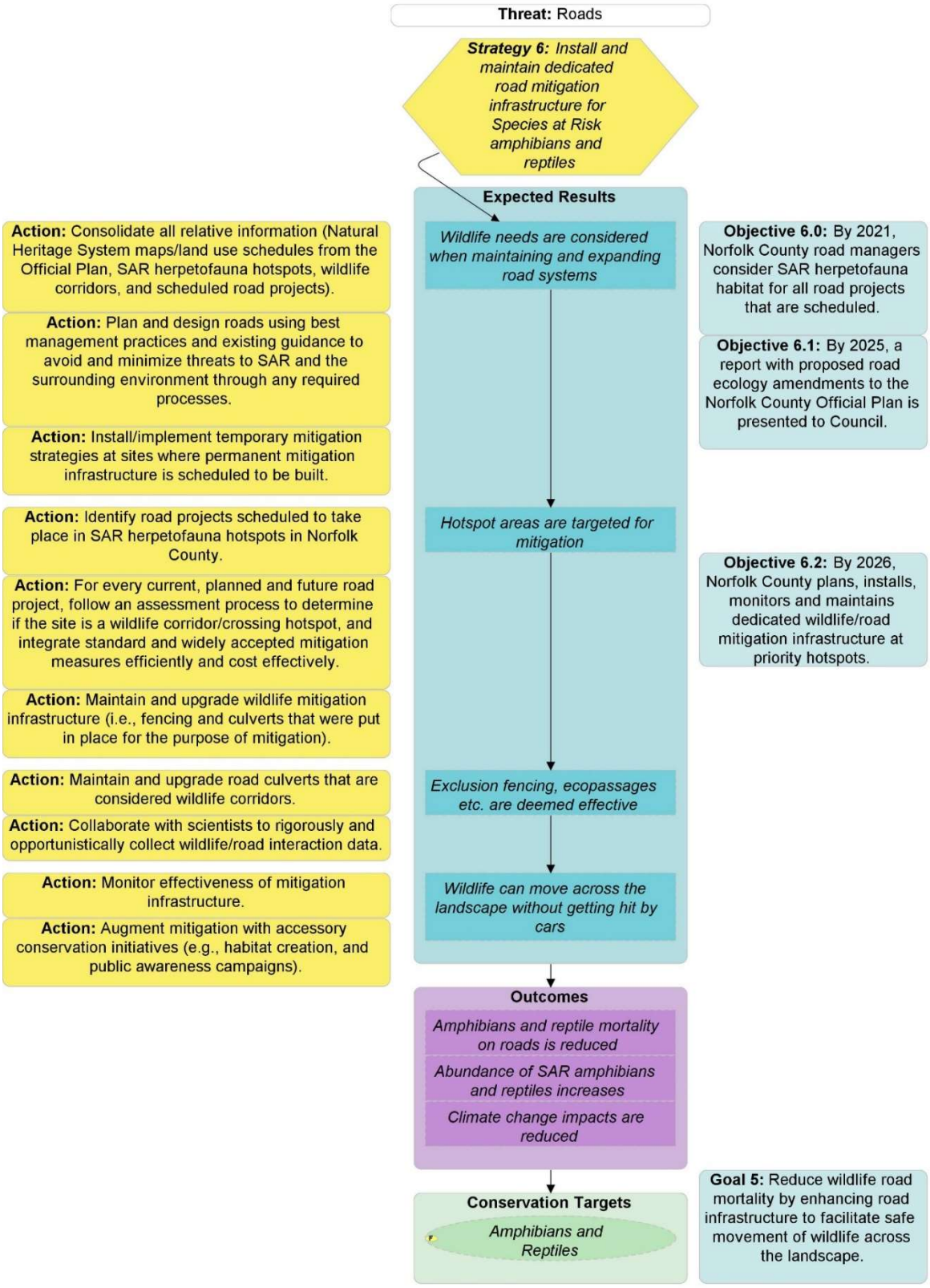
April 2019 – March 2020: Refinements were made to the SAR herpetofauna road mortality hotspots maps.

April 2020 – March 2021: OREG worked with Norfolk County staff to incorporate mitigation measures that improve landscape connectivity for safe wildlife passage across roads into upcoming Capital Road Projects that align with identified SAR road mortality hotspots. OREG also continues to up-date and refine the hotspot maps with new data in order to prioritize and inform mitigation strategies to protect SAR herpetofauna from the threats of roads.

April 2021 – March 2022: OREG collaborated with Norfolk County staff on upcoming Capital Road Projects that align with identified SAR road mortality hotspots, based on project data collection and analyses, to augment plans to include mitigation measures that raise awareness and improve landscape connectivity for safe wildlife passage across roads. OREG continues to collect data, up-date and refine hotspot and landscape maps to prioritize and inform mitigation strategies to protect SAR herpetofauna from the threats of roads.

April 2022 – March 2023: Three hotspot road segments were identified, and signs were posted, and monitoring was undertaken to help reduce road mortality of SAR herpetofauna. Additionally, a relationship was forged with Norfolk County Engineers who design and review capital road projects so that when opportunities arise, road ecology is integrated. In addition, collaborations and support with local landowners and other partners were formed and strengthened to increase connectivity of people and landscapes that support safe SAR herpetofauna movement.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
6.0: By 2021, Norfolk County road managers consider SAR herpetofauna habitat for all road projects that are scheduled	SAR herpetofauna habitat is not or rarely considered	% road project proposals that include an assessment of the potential for herpetofauna road mortality		**Not Known**
		% projects include considerations for SAR herpetofauna		
6.1: By 2025, a report with proposed road ecology amendments to the Norfolk County Official Plan is presented to council	No road ecology policy in the Norfolk County Official Plan	Road ecology amendments to the Norfolk County Official Plan are completed		**Not Known**
		# presentations to Council on road ecology amendments	1	
6.2: By 2026, Norfolk County plans, installs, monitors and maintains dedicated wildlife/road mitigation infrastructure at priority hotspots	No dedicated wildlife/road mitigation infrastructure being installed or maintained by Norfolk County	# wildlife road mitigation infrastructure projects being maintained and/or implemented at priority SAR herpetofauna hotspots		**On Track**
		# projects that are inspected/ repaired per year		
		# projects for which surveys are conducted to measure effectiveness in reducing road mortality		

Action Tracking

Action	Progress	Status
Identify road projects scheduled to take place in SAR herpetofauna hotspots in Norfolk County		**Scheduled for Future**
Consolidate all relative information (Natural Heritage System maps/land use schedules from the Official Plan, SAR herpetofauna hotspots, wildlife corridors, and scheduled road projects)		**Not Known**
For every current, planned and future road project, follow an assessment process to determine if the site is a wildlife corridor/crossing hotspot, and integrate standard and widely accepted mitigation measures efficiently and cost effectively as required	The Norfolk County Engineering Department worked with Road Ecology Working Group to discuss road ecology recommendations to be integrated in the updated Design Criteria	**On Track**
Plan and design roads to avoid and minimize threats to SAR and the surrounding environment through any required processes		**Not Known**
Install/implement temporary mitigation strategies at sites where permanent mitigation infrastructure is scheduled to be built		**Not Known**
Augment mitigation with accessory conservation initiatives (e.g., habitat creation, and public awareness campaigns)	Wildlife Road Watch Program was established in 2022 -2023 with 14 dedicated participants monitoring 3 hotspots	**On Track**
Monitor effectiveness of mitigation infrastructure		**On Track**
Collaborate with scientists to rigorously and opportunistically collect wildlife/road interaction data	Eco-Kare International was contracted to collect data.	**On Track**

Results Tracking

Expected Results	Status
Wildlife needs are considered when maintaining and expanding road systems.	**On Track**
Hotspot areas are targeted for mitigation.	**On Track**
Exclusion fencing, ecopassages, etc. are deemed effective.	**On Track**
Wildlife can move across the landscape without getting hit by cars.	**On Track**

Outcomes	Status
Amphibians and reptile mortality on roads is reduced.	**Not Known**
Abundance of SAR amphibians and reptiles increases.	**Not Known**
Climate change impacts are reduced	**Not Known**

STRATEGY 7: Maintain a geospatial database for tallgrass habitat with information on management and monitoring activities

Benefitting Conservation Target(s): Open Country
Direct Threat(s) Addressed: Fire Suppression in Tallgrass Communities
Species at Risk Expected to Benefit: 10 (see appendix A)
Status: On Track

Implementation Summary:
Natural Resource Solutions Inc. (NRSI), in collaboration with the Open Country Working Group, led the development and maintenance of a geospatial tallgrass habitat database for the LPWF Priority Place. The database was created to understand the amount and status of tallgrass habitat and track current and future restoration efforts.

April 2019 – March 2021: Over the course of two years, NRSI reviewed existing data layers for LPWF in the Tallgrass Ontario database and ground-truthed sites to confirm their current status. Each site was visited and the presence of prairie, savanna, oak woodland, or degraded communities with indicator species suggesting the historic presence of these community types was recorded. Notes were taken regarding restoration potential, wildlife observations and management considerations. In addition to the tallgrass habitats mapped within the LPWF Priority Place, the Delhi-Simcoe Rail Line was identified as supporting important remnant tallgrass prairie. This area is located just north of the Priority Place but has been included in the database in the spirit of documenting the tallgrass communities and identifying future connections with habitats within the LPWF Priority Place area. The following table provides a breakdown of the amount of tallgrass habitat type in LPWF.

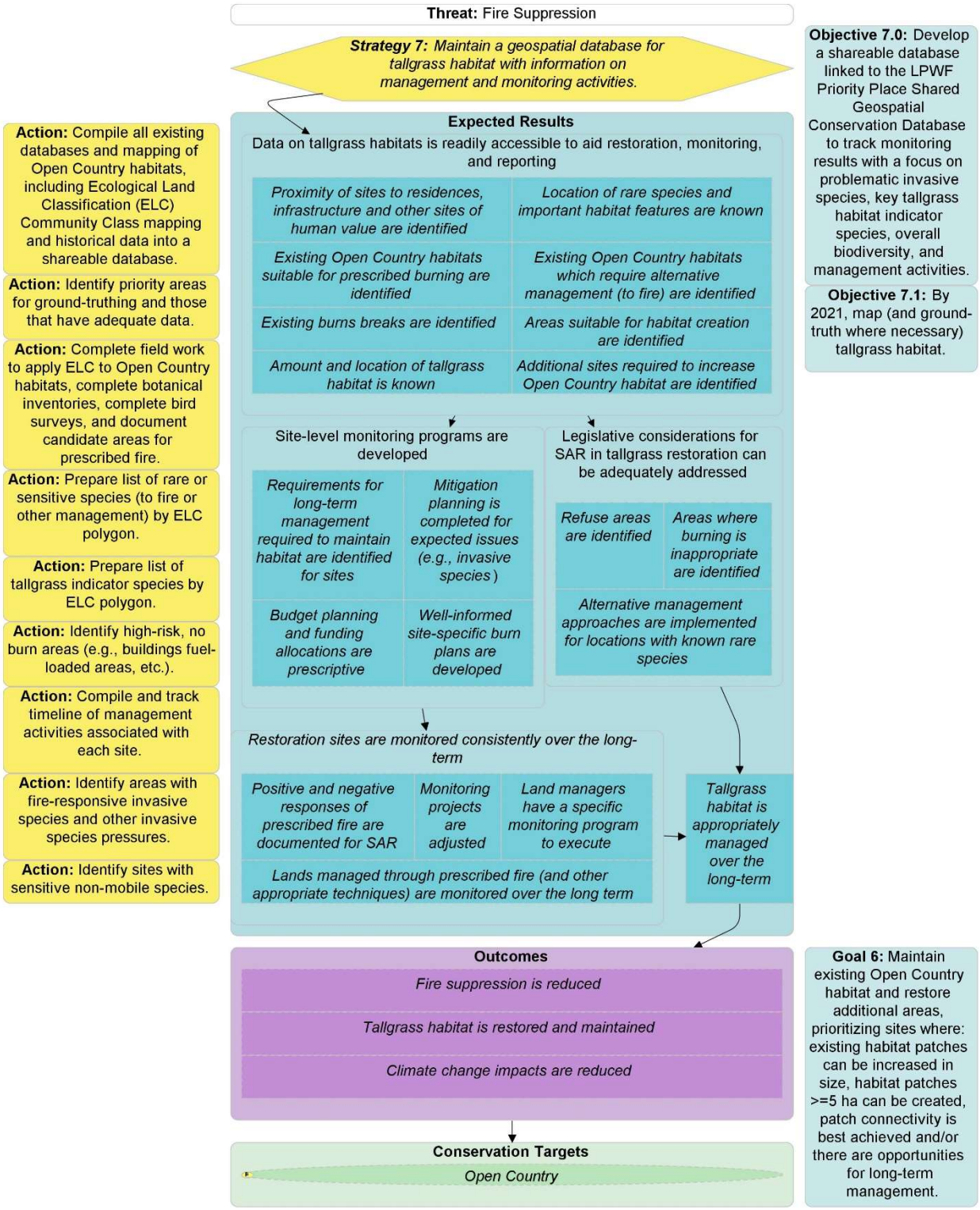
Tallgrass Habitat Area Coverage as of March 31, 2021.

Tallgrass Habitat Type	Number of Distinct Patches	Land Cover Area (ha)	Percent of Total Tallgrass Habitat Area
Tallgrass prairie	62	217.46	13.45%
Oak Savanna	81	442.98	27.39%
Sand Barren Savanna	6	33.34	2.06%
Oak Woodland	138	923.40	57.10%
Total	**289**	**1617.17**	**100%**

In 2021, the database was converted to an ArcGIS Online Web Mapping Application that allows multiple stakeholders to view the information. The application ("Tallgrass Habitat Database in LPWF") includes all the data relevant to the land cover ground-truthing exercise, existing restoration sites (including the actions taken at these sites to date), representative tallgrass prairie photographs and prescribed burn photographs, sites with existing management plans, results of prescribed burns, and wildlife and vegetation observations within existing restoration sites by NRSI. Existing tallgrass communities have been highlighted along with key areas for restoration. In addition to identify and ground-truthing existing tallgrass sites, NRSI also identified sites that could be established for connectivity corridors and opportunities to increase patch size of tallgrass habitat for restoration projects in the future.

The database is updated on an ongoing basis with project data from the Open Country Working Group.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
7.0: Develop a shareable database linked to the LPWF Shared Geospatial Conservation Database to track monitoring results with a focus on problematic invasive species, key tallgrass habitat indicator species, overall biodiversity, and management activities	No comprehensive database for LPWF Priority Place	An updated geospatial database for tallgrass habitat is created	Tallgrass Database completed	**Achieved**
7.1: By 2021, map (and ground-truth where necessary) tallgrass habitat	Some mapping of remnant sites in the Tallgrass Ontario database for LPWF Priority Place	Tallgrass habitat is mapped in a geospatial database	By 2021, 281 distinct patches of tallgrass habitat (prairie, savanna and woodland) were mapped and ground-truthed where necessary	**Achieved**

Action Tracking

Action	Progress	Status
Compile all existing databases and mapping of Open Country habitats, including Ecological Land Classification (ELC) Community Class mapping and historical data into a shareable database	Data layers have been compiled in the ArcGIS Online Web Mapping Application "Tallgrass Habitat Database in LPWF"	**Completed**
Identify priority areas for ground-truthing and those that have adequate data	Sites were identified in 2019-2020	**Completed**
Compile and track timeline of management activities associated with each site	Ongoing, activities are tracked in the Tallgrass Habitat Database in LPWF	**Continuing**
Complete field work to apply ELC to Open Country habitats, complete botanical inventories, complete bird surveys, and document candidate areas for prescribed fire		**Completed**
Identify areas with fire-responsive invasive species and other invasive species pressures		**On Track**
Identify sites with sensitive non-mobile species		**Not Known**
Prepare list of tallgrass indicator species by ELC polygon		**Not Known**
Prepare list of rare or sensitive species (to fire or other management) by ELC polygon		**Not Known**

Identify high-risk, no burn areas (e.g. buildings, fuel-loaded areas, etc.)		**Not Known**

Results Tracking

Expected Results	**Status**
Proximity of sites to residence, infrastructure and other sites of human value are identified	**On Track**
Location of rare species and important habitat features are known	**On Track**
Areas suitable for habitat restoration are identified	**On Track**
Existing Open Country habitats which require alternative management (to fire) are identified	**On Track**
Existing burns breaks are identified	**On Track**
Existing Open Country habitats suitable for prescribed burning are identified	**On Track**
Amount and location of tallgrass habitat is known	**On Track**
Additional sites required to increase Open Country habitat are identified	**On Track**
Refuse areas are identified	**On Track**
Areas where burning is inappropriate are identified	**On Track**
Alternative management approaches are implemented for locations with known rare species	**On Track**
Requirements for long-term management to maintain habitat is identified for sites	**On Track**
Mitigation planning is completed for expected issues (e.g. invasive species)	**On Track**
Budget planning and funding allocations is prescriptive	**On Track**
Well-informed site-specific burn plans are developed	**On Track**
Tallgrass habitat is appropriately managed over the long-term.	**On Track**
Positive and negative responses of prescribed fire are documented for SAR.	**On Track**
Lands managed through prescribed fire (and other appropriate techniques) are monitored over the long term	**On Track**
Monitoring projects are adjusted	**On Track**
Land managers have a specific monitoring program to execute	**Not Known**

Outcomes	**Status**
Fire suppression is reduced	**Improving**
Tallgrass habitat is restored and maintained	**Improving**
Climate change impacts are reduced	**Not Yet**

STRATEGY 8: Implement a landscape-level Open Country habitat management plan to restore and maintain Open Country habitat on private and public conservation lands

Benefitting Conservation Target(s): Open Country
Direct Threat(s) Addressed: Fire Suppression
Species at Risk Expected to Benefit: 21 (see appendix A)
Status: On Track

Implementation Summary:
The Open Country Working Group is leading the implementation of this strategy. It addresses the threat of fire suppression to tallgrass habitat by restoring and maintaining it on private and public conservation lands.

April 2018 – March 2019: SWCRCC undertook invasive species management activities on over 180 ha of oak savanna habitat. They also completed two prescribed burns in April 2018, improving 8 ha of oak savanna habitat.

April 2019 – March 2020: ALUS Norfolk restored 3.6 ha of tallgrass prairie through wildflower reseeding. SWCRCC improved oak savanna by managing invasive species over 83 ha of oak savanna and brushing 2.5 ha to prepare for prescribed burning.

April 2019 – 2020 and 2020 – 2021: NRSI collaborated with NCC on a project to continue restoration of a 40 ha mixed meadow habitat to tallgrass prairie and tallgrass savanna on properties owned by NCC. This included extensive invasive species management, a large prescribed burn and over-seeding. In addition to the habitat restoration, NRSI undertook pre and post prescribed burn surveys of vegetation, breeding birds and pollinating insects in the restoration area. This work has resulted in the creation of four patches of Open Country habitat greater than 5 ha.

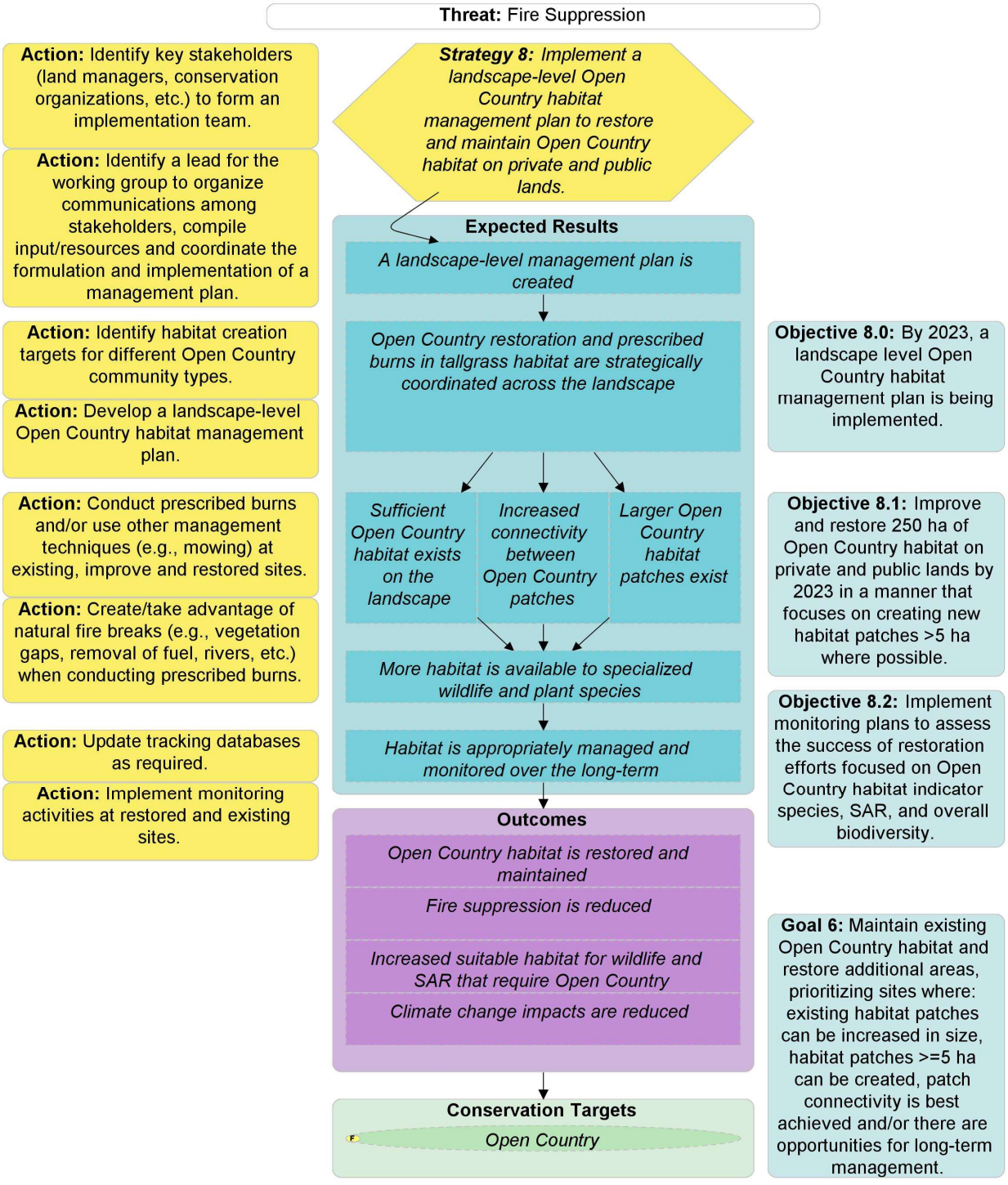
April 2020 – March 2021: The Open Country Working Group achieved significant progress in implementing this strategy. The team completed tallgrass habitat improvement activities on over 600 ha of habitat. This included: invasive herbaceous and woody species management, prescribed burns on 16 ha of tallgrass prairie and savanna habitat, native seed installation on three sites totaling 18.5 ha, felling on 15.5 ha of monoculture pine stands to transition these sites to oak savanna and oak woodland habitats, and woody invasive species mulching on 11 ha. Pre- and post-restoration data was collected at two habitat improvement sites. This work has resulted in the creation of two patches of Open Country habitat greater than 5 ha.

April 2021 – March 2022: The Open Country Working Group improved over 700 ha of tallgrass habitat through activities that include invasive herbaceous and woody species management over 634 ha, prescribed burning over 8 ha, pine harvesting, native vegetation seeding over 28 ha, and woody invasive species mulching. This work resulted in the creation of one new patch of habitat greater than 5 ha. A systematic monitoring program is being implemented at 67 sites by NCC, Ontario Nature, SWCRCC, and NRSI, and NRSI is also collecting pre- and post- restoration data at 45 sites.

April 2022 – March 2023: The Open Country Working Group improved over 580 ha of tallgrass habitat through activities that include invasive herbaceous and woody species management over 340 ha, prescribed burning over 68 ha, pine harvesting, native vegetation seeding over 67 ha, and woody

invasive species mulching. This work resulted in the creation of 10 new patch of habitat greater than 5 ha. A systematic monitoring program is being implemented at 154 sites pre- and post- restoration data is being collected at 37 sites. Moreover, CCC collaborated with SWCRCC to improve 27 ha through vegetation planting and prescribed burning. Additionally, NRSI completed the draft Best Management Practices document for conducting prescribed burns in SAR habitat, which included a comprehensive literature review, interviews, and follow-ups with a range of partners such as land managers, burn practitioners, First Nations communities and Knowledge Holders, and agency staff. They also completed associated survey work including small mammal trapping to assess food resource availability for SAR snakes in burned and unburned habitat, mapped Eastern Flowering Dogwood and other SAR on NCC lands proposed for burning in Spring 2023.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
8.0: By 2023, a landscape level Open Country habitat management plan is being implemented	No landscape level Open Country habitat management plan	A landscape level Open Country habitat management plan is created for LPWF Priority Place	Plans are being implemented in some areas and site specific plans are in development for others	**On Track**
		# ha covered by a restoration plan	1,222	
8.1: Improve and restore 250 ha of Open Country habitat on private and public lands by 2023 in a manner that focuses on creating new habitat patches >5 ha where possible	0	# projects funded	37	**Achieved**
		# ha habitat restored	19	
		# ha habitat improved	1912	
		# new Open Country habitat patches created >5 ha	17	
		# ha of tallgrass habitat improved using prescribed burn or other methods for reducing woody encroachment and invasive species	187	
8.2: Implement monitoring plans to assess the success of restoration efforts focused on Open Country habitat indicator species, SAR, and overall biodiversity	0	# sites with pre and post restoration data is collected	110	**Continuing**
	0	# sites where a systematic monitoring program has been implemented	235	

Action Tracking

Action	Progress	Status
Identify key stakeholders (land managers, landowners, conservation organizations etc.) to form an implementation team	The Open Country Working Group has been established	**Completed**

Identify a lead for the working group to organize communication among stakeholders, compile input/resources and coordinate the formulation and implementation of a management plan	The Nature Conservancy of Canada has been identified and is working as the lead of the working group	**Completed**
Identify habitat creation targets for different Open Country community types		**Not Known**
Develop a landscape-level Open Country habitat management plan which includes: • Description and mapping of existing Open Country communities, landscape-level habitat connectivity, and sites suitable for habitat restoration and improvement • Recommendations for the proportion of different successional stages within the landscape (e.g., X number of ha should be maintained as tallgrass prairie, X number of ha should be maintained as savanna, etc.) • Identification of high-priority management needs (e.g., sites where canopy closure threatens Open Country communities, invasive species are prevalent, etc.) • Identification of site-specific habitat management objectives, prescriptions and cycles (e.g., Property A should be maintained as oak savanna through prescribed fire every 10-15 years). Identification of existing natural and required fire breaks • Identification of existing and desired habitat linkages • Specific areas where Open Country habitat patches can be increased in overall size identified • Recommendations for short and long-term monitoring • Recommendations for seed collection and assisted dispersal		**On Track**
Conduct prescribed burns and/or use other management techniques (e.g. mowing) at existing, improved and restored sites		**On Track**
Create/take advantage of natural fire breaks (e.g., vegetation gaps, removal of fuel, rivers etc.) when conducting prescribed burns		**On Track**
Update tracking databases (e.g., the LPWF Shared Geospatial Conservation Database) as required		**On Track**
Implement monitoring activities at restored and existing sites		**On Track**

Results Tracking

Expected Results	**Status**
A landscape-level management plan is created	**Not Yet**
Open Country restoration and prescribed burns in tallgrass habitat are strategically coordinated across the landscape	**On Track**
Sufficient Open Country habitat exists on the landscape	**On Track**
Increased connectivity between Open Country patches	**On Track**

Larger Open Country habitat patches exist	**On Track**
More habitat is available to specialized wildlife and plant species	**On Track**
Habitat is appropriately and managed and monitored over the long-term	**On Track**

Outcomes	**Status**
Open Country habitat is restored and maintained	**Improving**
Fire suppression is reduced	**Improving**
Increased suitable habitat to wildlife and SAR that require Open Country	**Improving**
Climate change impacts are reduced	**Not Yet**

STRATEGY 9: Increase public awareness about the importance of Open Country communities and the use of fire as a management tool in maintaining tallgrass habitat

Benefitting Conservation Target(s): Open Country
Direct Threat(s) Addressed: Fire Suppression
Species at Risk Expected to Benefit: 16 (see appendix A)
Status: On Track

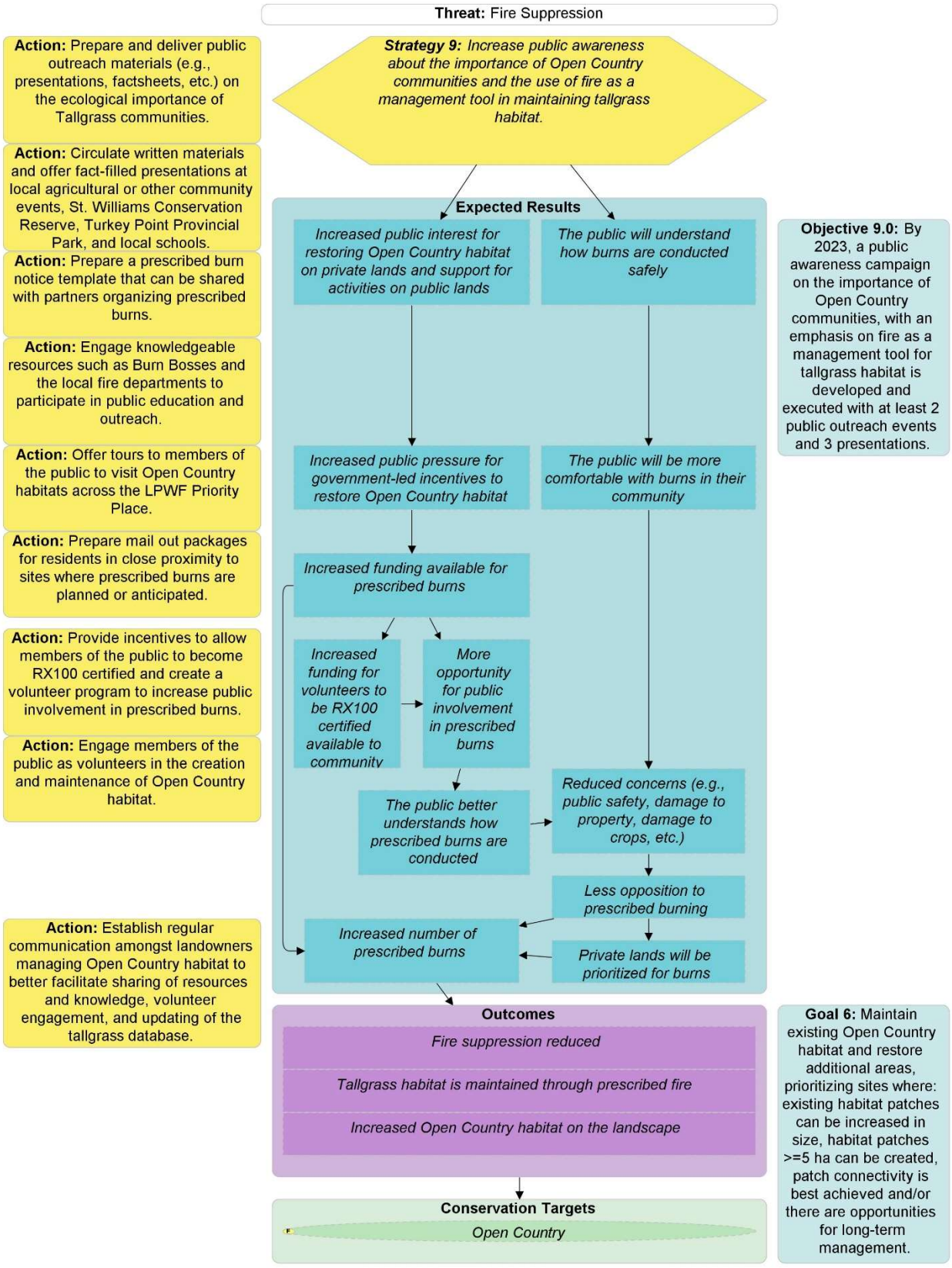
Implementation Summary:
The Open Country Working Group has led the implementation of this strategy since 2020-2021. It addresses the threat of fire suppression to tallgrass habitat by increasing public awareness and knowledge on the importance of the habitat and how fire is used as a management tool to maintain it.

April 2020 – March 2021: A workshop was led by St. Williams Conservation Reserve Community Council to engage and train the public in native seed collecting and restoration. This resulted in 4 events and 21 individuals trained. A virtual presentation was also given to the Woodstock Field Naturalists to engage 15 individuals in the stewardship of tallgrass prairie, oak savanna and woodland habitats. Additionally, 6 private landowners in close proximity to conservation lands with tallgrass prairie, oak savanna and woodland were provided with site-specific advice on management of these habitats resulting in 3 conducting habitat improvement activities on their lands for these habitats.

April 2021 – March 2022: Public engagement, workshops and knowledge sharing engaged 224 individuals in open country habitat improvement, restoration, management, SAR surveys provided hands on training in Ontario Nature's Long-Term Monitoring Protocol for snakes. Targeted engagement efforts by ALUS Norfolk resulted in 7 private landowners participating in habitat enhancement work on their properties. The LPWF Priority Place initiative has fostered increased communication and information sharing between the partners in the Open Country working group, as well as other organizations.

April 2022 – March 2023: Public engagement presentations reached over 200 individuals, with presentations to Naturalist Groups and University Students given by NRSI. These presentations centered on Mottled Duskywing, its recovery, and the preservation of tallgrass communities.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
9.0: By 2023, a public awareness campaign on the importance of Open Country communities, with an emphasis on fire as a management tool for tallgrass habitat is developed and executed with at least 2 public outreach events and 3 presentations given	No public awareness campaign	# public outreach events	14	**Continuing**
		# presentations	5	
		# people engaged in events and presentations	327	
		# private landowners with Tallgrass communities engaged in outreach	16	

Action Tracking

Action	Progress	Status
Prepare and deliver public outreach materials (presentations, factsheets etc.) on the ecological importance of Open Country habitat	1 presentation given in 2020-21	**Continuing**
Circulate written materials and offer fact-filled presentations at local agricultural or other community events, St. Williams Conservation Reserve, Turkey Point Provincial Park, and local schools	4 presentations given to students in 2022-2023	**Continuing**
Prepare mail out packages for residents in close proximity to sites where prescribed burns are planned or anticipated		**Not Yet**
Prepare a prescribed burn notice template that can be shared with partners organizing prescribed burns	SWRCC routinely issues media release and provides notice to nearby landowners prior to prescribed burns	**Continuing**
Engage members of the public as volunteers in the creation and maintenance of Open Country habitat	SWRCC routinely engages qualified (RX100) volunteers in prescribed burn preparation and implementation	**Continuing**
Provide incentives to allow members of the public to become RX100 certified and create a volunteer program to increase public involvement in prescribed burns	20 individuals received Rx100 training in 2022-23	**On Track**
Engage knowledge resources such as burn bosses and the local fire departments to participate in public education and outreach		**Not Yet**
Offer tours to members of the public to visit Open Country habitats across the LPWF Priority Place		**Not Yet**

Results Tracking

Expected Results	Status
Increased public interest for restoring Open Country habitat on private lands and support for activities on public lands	**On Track**
The public will understand how burns are conducted safely	**On Track**
Increased public pressure for government-led incentives to restore Open Country habitat	**Not Yet**
The public will be more comfortable with burns in their community	**Not Yet**
Increased funding available for prescribed burns	**Partially achieved**
Increased funding for volunteers to be RX100 certified available to community	**On Track**
More opportunity for public involvement in prescribed burns	**Not Yet**
The public better understands how prescribed burns are conducted	**On Track**
Reduced concerns (e.g. public safety, damage to property, damage to crops, etc.)	**Partially achieved**
Less opposition to prescribed burning	**Not Yet**
Increased number of prescribed burns	**Not Yet**
Private lands will be prioritized for burns	**Not Yet**

Outcomes	Status
Fire suppression is reduced	**Improving**
Tallgrass habitat is maintained through prescribed fire	**Improving**
Increased Open Country habitat on the landscape	**Improving**

STRATEGY 10: Provide support and opportunities for landowners to manage, restore and maintain Open Country habitat on private lands

Benefitting Conservation Target(s): Open Country
Direct Threat(s) Addressed: Fire Suppression
Species at Risk Expected to Benefit: 12 (see appendix A)
Status: On Track

Implementation Summary:
The Open Country Working Group is leading the implementation of this strategy (Table 1). This strategy addresses the threat of fire suppression to tallgrass habitat by focusing restoration and management efforts on private non-conservation lands in the Priority Place.

April 2018 – March 2019: Tallgrass Ontario undertook 5 site surveys to prepare for prescribed burns to occur in the 2019-2020 year on private lands.

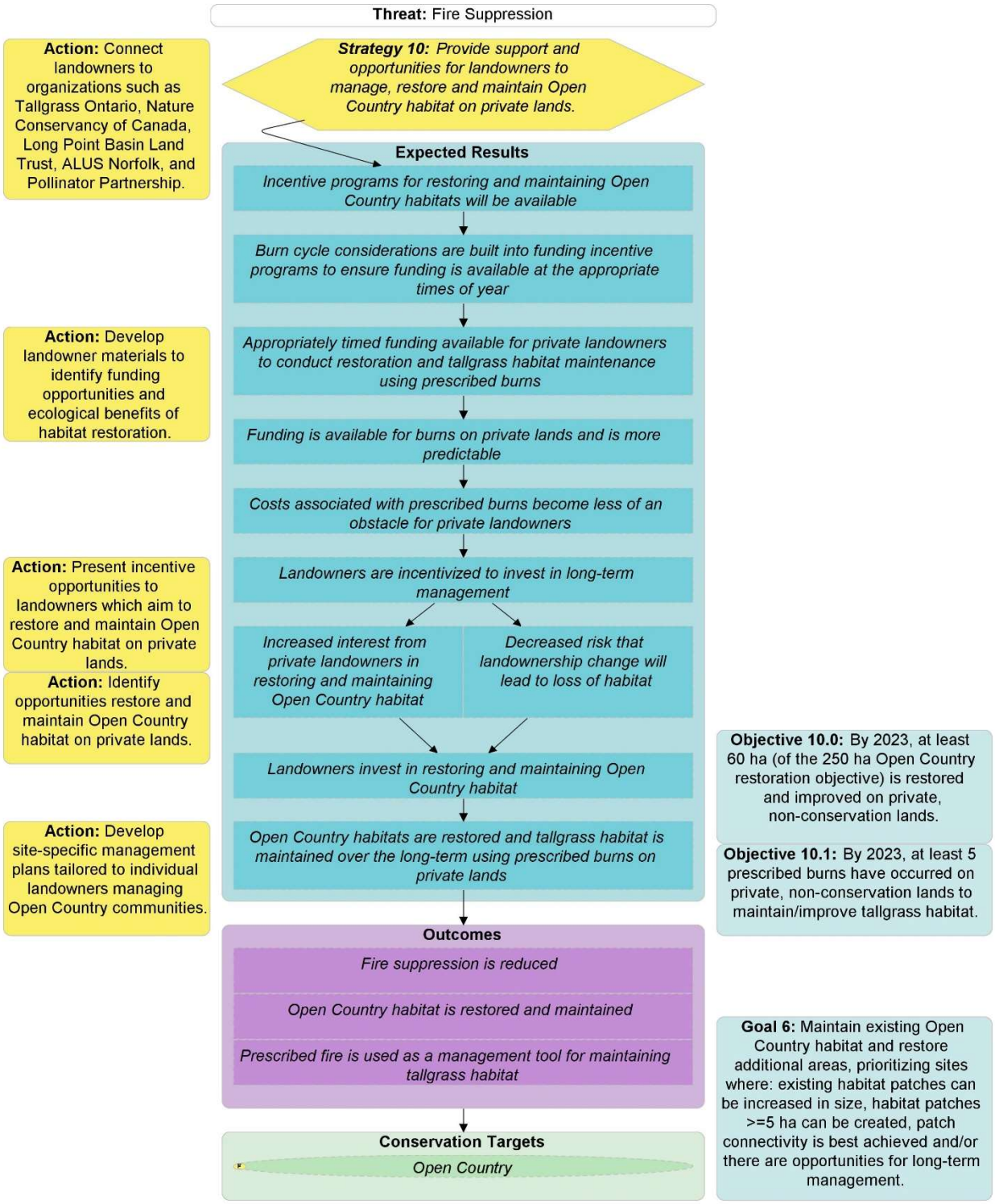
April 2019 – March 2020: Tallgrass Ontario undertook 8 prescribed burns at tallgrass prairie sites on private lands throughout the spring, improving 42 ha. They then conducted post burn species surveys. CCC worked with private landowners to improve tallgrass prairie on their lands, resulting in the improvement of 23 ha through vegetation planting and an additional 26 ha through prescribed burns.

April 2020 – March 2021: Invasive species management was conducted on 20 ha of Open Country habitat.

April 2021 – March 2022: ALUS Norfolk collaborated with private landowners to in 5 ha through vegetation planting and 7.75 ha through prescribed burning.

April 2022 – March 2023: CCC collaborated with a private landowner to improve 3.6 ha through vegetation planting.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
10.0: By 2023, at least 60 ha (of the 250 ha Open Country restoration objective) is restored and improved on private, non-conservation lands		# ha restored on private non-conservation lands	4	**Achieved**
		# ha improved on private non-conservation lands	104	
10.1: By 2023, at least 5 prescribed burns have occurred on private, non-conservation lands to maintain/improve tallgrass habitat		# prescribed burns conducted on private non-conservation lands	10	**Achieved**
		# ha of habitat improved on private non-conservation lands through prescribed burns	76	

Action Tracking

Action	Progress	Status
Identify opportunities to restore and maintain Open Country habitat on private lands		**On Track**
Develop site-specific management plans tailored to individual landowners managing Open Country communities		**On Track**
Present incentive opportunities to landowners which aim to restore and maintain Open Country habitat on private lands (government led incentive programs, seed give-a-ways, education on habitat creation and maintenance, etc.)		**On Track**
Develop landowner materials to identify funding opportunities and ecological benefits of habitat restoration		**Not Known**
Connect landowners to organizations such as Tallgrass Ontario, Nature Conservancy of Canada, Long Point Basin Land Trust, ALUS Norfolk, and Pollinator Partnership		**On Track**

Results Tracking

Expected Results	Status
Incentive programs for restoring & maintaining Open Country habitats will be available	**On Track**
Burn cycle considerations are built into funding incentive programs to ensure funding is available at the appropriate times of year	**On Track**
Appropriately timed funding available for private landowners to conduct restoration and tallgrass habitat maintenance using prescribed burns	**On Track**
Funding is available for burns on private lands and is more predictable	**On Track**
Costs associated with prescribed burns become less of and obstacle for private landowners.	**Not Known**

Landowners are incentivized to invest in long-term management	**Not Known**
Decreased risk that landownership change will lead to loss of habitat	**Not Known**
Increased interest from private landowners in restoring and maintaining Open country habitat	**Not Known**
Landowners invest in restoring and maintaining Open Country habitat	**Not Known**
Open Country habitat are restored and tallgrass habitat is maintained over the long-term using prescribed burns on private lands	**Not Yet**

Outcomes	**Status**
Open Country habitat is restored and maintained	**Improving**
Fire suppression is reduced	**Improving**
Prescribed fire is used as a management tool for maintaining tallgrass habitat	**Improving**

STRATEGY 11: Restore, improve, and maintain natural features on agricultural lands

Benefitting Conservation Target(s): Watercourses and Riparian Areas, Coastal Wetlands and Inner Bay, Open Country, Forests and Treed Swamps, Beaches and Coastal Dunes
Direct Threat(s) Addressed: Agricultural Runoff
Species at Risk Expected to Benefit: 22 (see appendix A)
Status: On Track

Implementation Summary:
ALUS Norfolk has led the implementation of this strategy since 2018-2019 and as of 2020-2021 they led implementation through the Agricultural Runoff Working Group (Table 1). This strategy addresses the threat of agricultural runoff by restoring and maintaining habitat on marginal agricultural lands.

April 2018 – March 2019: ALUS Norfolk restored 4 ha of Monarch supporting tallgrass prairie habitat on marginal agricultural land and entered into 5-year conservation agreements with the landowners to secure those 4 ha.

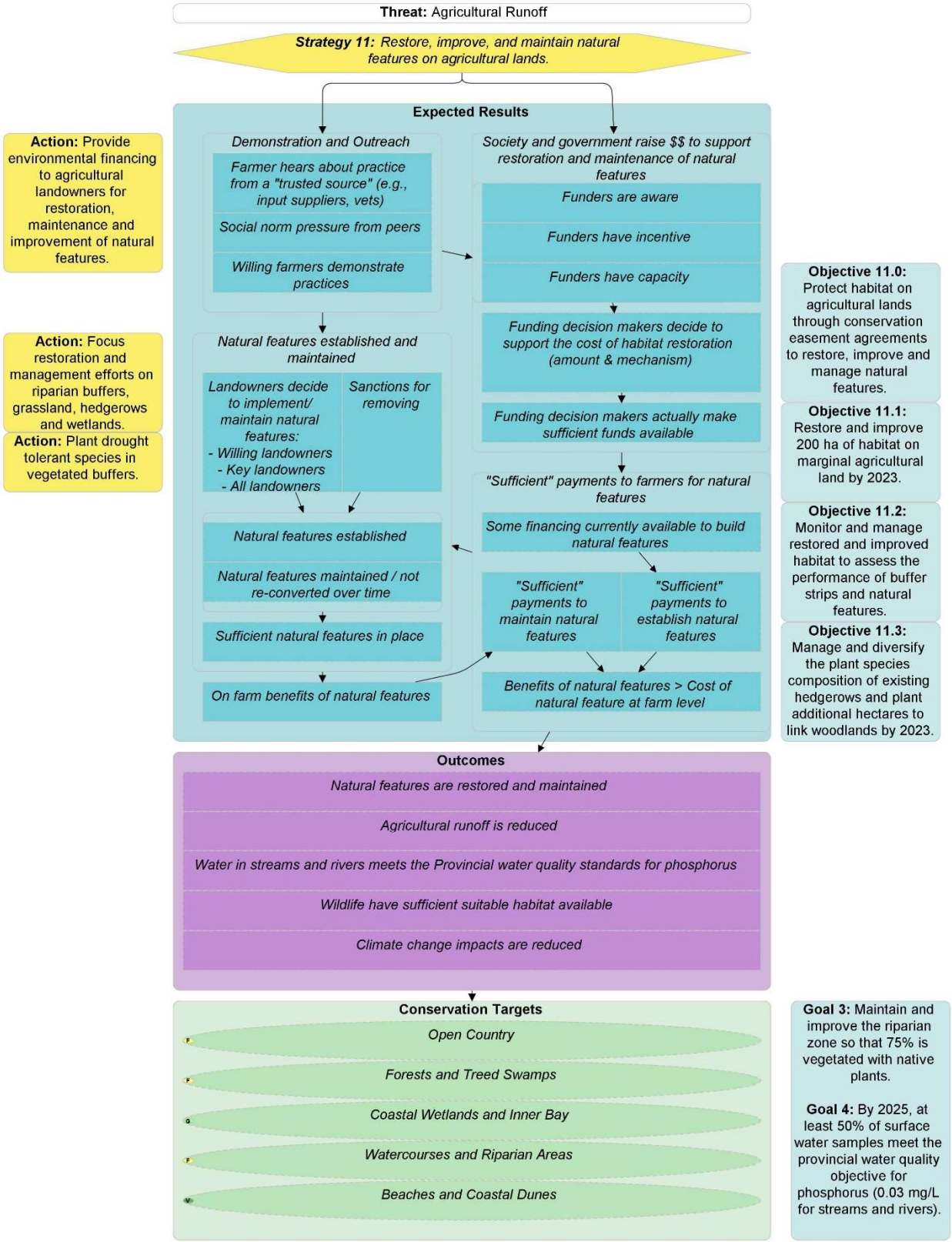
April 2019 – March 2020: ALUS Norfolk restored 16 ha of habitat (6 ha of Monarch supporting tallgrass prairie, wetlands, reforestation, and windbreaks) on marginal agricultural land. They also entered into conservation agreements to secure the restored habitat and renew existing agreements for a total of 557 ha secured.

April 2020 – March 2021: ALUS Norfolk restored 36 ha of habitat (6 ha of Monarch supporting tallgrass prairie, wetlands, hedgerows, and other native grassland plantings) and improved 2 ha. They secured 556 ha of habitat through conservation agreements with the landowners. 579 ha of habitat was monitored to assess quality and provide management recommendations to the landowners. Additionally, the Working Group restored 20 km of drain buffers through plantings and 10km of drain corridor was improved through modified practices.

April 2021 – March 2022: The Agricultural Runoff Working Group restored 29.3 ha and managed 618.9 hectares of natural features to effectively maintain or improve habitat health. This work included 21.1 ha of wetland projects, 255.7 ha of reforestation projects (including 13.76 ha of hedgerows), 7.1 ha of modified agricultural projects (delayed haying to protect ground-nesting SAR) and 344.9 ha of open country projects. Additionally, 39.6 ha of natural habitat was renewed for an additional 5 years of management and protection and 29.3 ha were restored. Norfolk County worked to improve 15 km and maintain 81.8 km of drain corridors and remove invasive species, and plant tallgrass prairie and other native seed mixes along 15 km of existing drain corridors, which ultimately aims to reduced sedimentation in waterways and improve SAR habitat. Silt socks were also used to further reduce sedimentation.

April 2022 – March 2023: The Agricultural Runoff Working Group removed 95.1 ha of invasive species and established 5.4 ha of permanent groundcover in areas prone to sedimentation and agricultural runoff. Additionally, 56.5 ha of natural features were restored and managed, including 1.7 ha of hedgerows, 2 ha improved with vegetation planting, 15 kms of drain corridors were improved through vegetation planting and 50 kms of drain corridors were maintained through modified maintenance. The LPRCA completed 16 structural erosion control projects to improve natural features by reducing sedimentation in waterways and stabilize edge habitat along municipal drains.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
11.0 Protect habitat on agricultural land through conservation easement agreements to restore, improve and manage natural features	0 ha	# ha secured	1,192	**On Track**
11.1: Restore and improve 200 ha of natural features on marginal agricultural land by 2023	0 ha	# ha restored	212	**Achieved**
		# km restored	35	
		# ha improved	162	
		# km improved	92	
11.2: Monitor and manage restored and improved habitat to assess the performance of buffer strips on natural features	0 ha	# ha monitored	863	**On Track**
		# ha managed		
11.3: Manage and diversify the plant species composition of existing hedgerows and plant additional hectares to link woodlands by 2023	0 ha	# ha hedgerows managed	13	**On Track**
		# ha hedgerows planted	4	

Action Tracking

Action	Progress	Status
Provide environmental financing to agricultural landowners for restoration, maintenance and improvement of natural features	Provided through ALUS Norfolk programs	**On Track**
Focus restoration and management efforts on riparian buffers, grassland, hedgerows and wetlands	Majority of restoration, management and improvement activities are focused on the noted habitats	**On Track**

Results Tracking

Expected Results	Status
Society and government raise money to support restoration and maintenance of natural features (funders are aware of the benefit, they have incentive and capacity to support)	**On Track**
Sufficient payments are made to farmers to restore and maintain natural features on agricultural lands	**On Track**
Demonstrations and outreach occurs (farmers hear about practices from trusted sources)	**On Track**

Willing farmers demonstrate best management practices	**On Track**
Natural features are established and maintained	**On Track**
There are sufficient natural features on place	**On Track**
Farmers see on farm benefits to natural features	**On Track**

Outcomes	**Status**
Natural features are restored and maintained	**Improving**
Agricultural runoff is reduced	**Improving**
Water in streams and rivers meets the Provincial water quality standards for phosphorus	**Improving**
Wildlife have sufficient suitable habitat available	**Improving**
Climate change impacts are reduced	**Not Known**

STRATEGY 12: Promote the adoption of agricultural BMPs through existing incentive programs

Benefitting Conservation Target(s): Watercourses and Riparian Areas, Coastal Wetlands and Inner Bay, Open Country, Forests and Treed Swamps, Beaches and Coastal Dunes
Direct Threat(s) Addressed: Agricultural Runoff
Species at Risk Expected to Benefit: 22 (see appendix A)
Status: On Track

Implementation Summary:
The Agricultural Working Group has led the implementation of this strategy (Table 1). Existing Agricultural BMPs and incentive programs have been promoted and supported in the LPWF Priority Place. This includes the ALUS program, Farmland Health Check-up/LEADS, Carolinian Canada Coalition's In the Zone and a winter cover crop program managed by Long Point Region Conservation Authority.

April 2018 – March 2019: ALUS Norfolk reached 450 individuals including 106 attendees that they hosted at their annual Stewardship Tour, from which they received 18 expression of interest forms in the ALUS program. They also hosted two additional outreach events.

April 2019 – March 2020: ALUS Norfolk developed and distributed 30 Agricultural BMP guides to ALUS participants and the public for projects related to tallgrass prairie restoration, reforestation, wetlands and erosion control. Overall, they reached over 300 individuals, including 80 attendees that they hosted at their Annual Stewardship Tour, from which they received 17 expression of interest forms in the ALUS program. They also collaborated with the Long Point Region Conservation Authority (LPRCA) to host 3 workshops for 160 attendees on the significance of habitat creation for SAR.

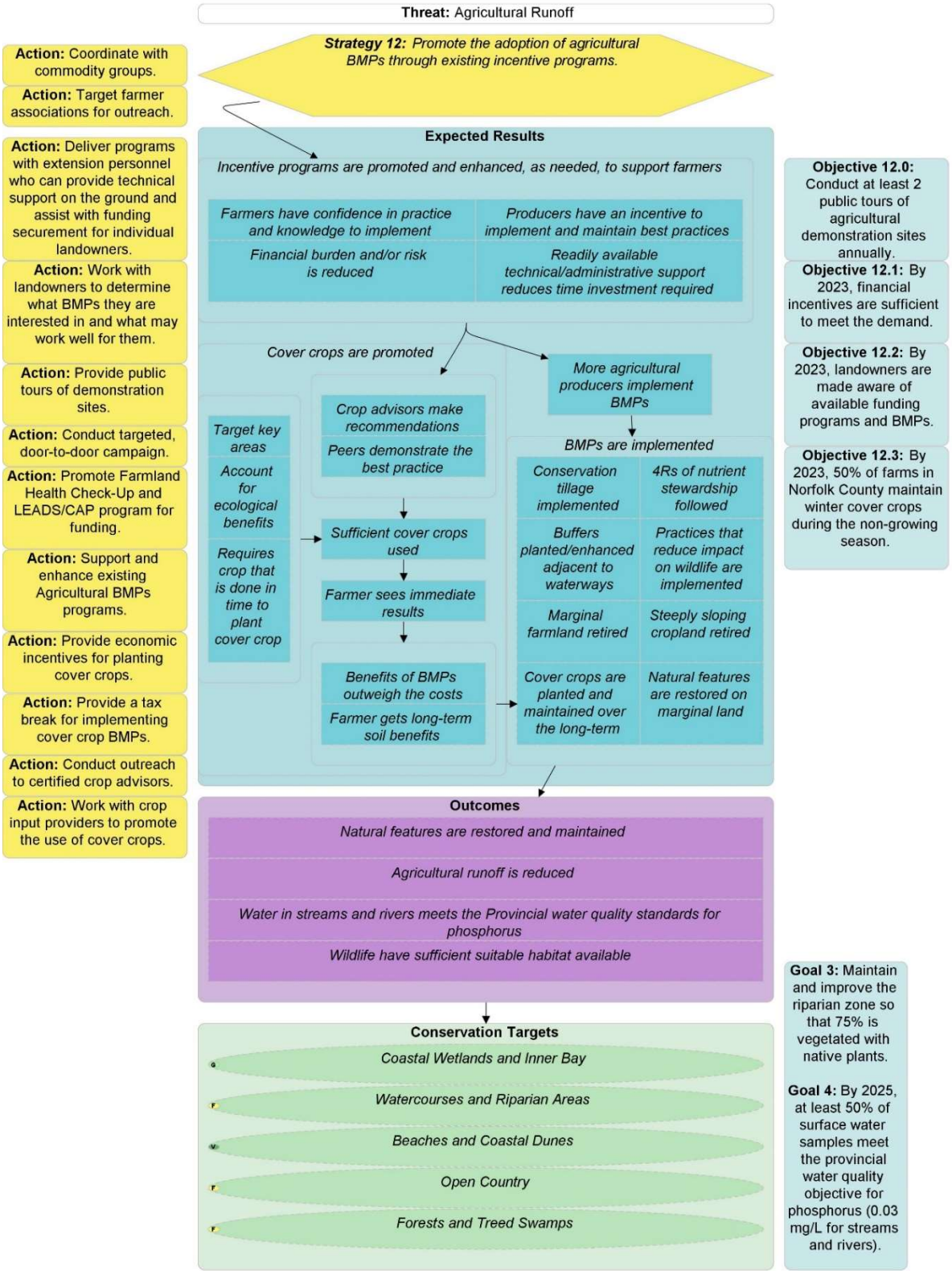
April 2020 – March 2021: While the COVID-19 pandemic made outreach and communications with landowners challenging the Agricultural Working Group still made progress to implement this strategy. In lieu of ALUS Norfolk's Annual Stewardship Tour, they distributed 100 information packages containing milkweed seed to members of the community. Three virtual BMP workshops were hosted with practices promoted to 10 landowners and 80 Agricultural BMP guides were distributed to ALUS participants. Carolinian Canada Coalition also engaged 47 landowners in the In the Zone program and distributed 12 monthly newsletters promoting the program. Additionally, the LPRCA launched their winter cover program incentive program helping farmers try different varieties of cover crops in their field crop rotations to build better soil structure and provide erosion control, 4 landowners maintained 64 ha of winter cover crops in 2020-2021.

April 2021 – March 2022: LPRCA worked to plant and maintain 926.7 ha of diversified over winter cover crops across 14 farms, helping to stabilize soil and allow for the slower flow of cleaner water and thus a reduction in sedimentation and harmful runoff. In conducting landowner outreach, BMPs were recommended to enhance the landowner's stewardship efforts and allow for cost-sharing to carry out management in the best way possible. Additionally, ALUS Norfolk engaged 74 landowners to promote BMPs, and 54 said they could adopt BMPs in the following growing season. CCC reached 100 landowners through their In the Zone program with regards to BMPs.

April 2022 – March 2023: 518.1 ha of farmland were planted into cover crops and maintained over winter. ALUS Norfolk conducted 2 farm tours, with 30 people reached, 28 of which were farmers that indicated they would implement BMPs. The LPRCA met with 38 landowners, 30 of which will be

adopting BMPs in 2023-2024. Norfolk County installed 12 interpretive signs to raise awareness on the use of BMP's implemented on site to enhance a municipal drain into a SAR habitat and interpretive trail. CCC reached 60 landowners through their In the Zone network and Landowner Leaders program and over 5900 people received wildlife strip communications.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results[2]	Status
12.0: Conduct at least 2 public tours of agricultural demonstration sites annually		# of tours/year	• 2018-2019: 1 ALUS stewardship tour • 2019-2020: 1 ALUS stewardship tour • 2020-2021 & 2021-2022: 0 ALUS stewardship tours due to COVID-19 pandemic • 2022-2023: 2 ALUS stewardship tours	**Achieved**
		# of farmers attending tours/year	• 2018-2019: 106 • 2019-2020: 80 • 2022-2023: 28	
		# of farmers indicating they will implement one or more BMPs in the following growing season[1]	• 2018-2020: 18 • 2019-2020: 17 • 2021-2022: 54[2] • 2022-2023: 28	
12.1: By 2023, financial incentives are sufficient to meet the demand		% of qualifying funding applications that are funded		**Not Known**
12.2: By 2023, landowners are made aware of available funding programs and BMPs.		# of individuals reached	1760	**On Track**
12.3: By 2023, 50% of farms in Norfolk County maintain winter cover crops during the non-growing season	546 (42%) farms in Norfolk County maintaining winter cover crops	# farms in Norfolk County maintaining at least a single field of winter cover crops	43	**Delayed (45%)**
		# ha of winter cover crops	1414	

[1]This indicator also captures results for the previous indicator "# expressions of interest in the ALUS program following the event".
[2]Stewardship Tours did not take place in 2021-2022 due to the COVID-19 pandemic. Instead, individual outreach was undertaken resulted in 54 landowners indicating they would implement BMPs in the following season.

Action Tracking

Action	Progress	Status
Deliver programs with extension personnel who can provide technical support on the ground and assist with funding securement for individual landowners		**On Track**
Work with landowners to determine what BMPs they are interested in and what may work well for them		**On Track**
Provide public tours of demonstration sites	2 ALUS Norfolk demonstration farm tours have occurred since 2018-2019. This action was paused during the COVID-19 pandemic but resumed in 2022-2023	**On Track**
Conduct targeted, door-to-door campaign	Although not door-to-door, both ALUS and LPRCA send mailouts on projects/programming.	**Not Yet**
Promote Farmland Health Check-Up and LEADS/CAP program for funding		**On Track**
Coordinate with commodity groups		**Not Known**
Support and enhance existing Agricultural BMP programs	Norfolk County works directly with ALUS to target drain sites and informs on opportunities to partner on establishing buffers along drains.	**On Track**
Conduct outreach to certified crop advisors		**Not Known**
Work with crop input providers to promote the use of cover crops		**Not Known**
Target farmer associations for outreach		**On Track**
Provide economic incentives for planting cover crops	LPRCA initiated a cover crop program in 2020-2021	**On Track**
Provide a tax break for implementing cover crop BMPs		**Not Known**

Results Tracking

Expected Results	Status
Incentive programs are promoted and enhanced, as needed, to support farmers	**On Track**
Cover crops are promoted (farmers have the confidence in the practices and the knowledge to implement; the financial burden and/or risk is reduced; producers have an incentive to implement and maintain best practices and technical/administrative support is readily available)	**On Track**
BMPs are implemented (conservation tillage; buffers; marginal farmland retired; cover crops planted and maintained; 4Rs of nutrient stewardship followed; practices that reduce impact to wildlife are implemented)	**On Track**

Outcomes	Status
Natural features are restored and maintained	**On Track**
Agricultural runoff is reduced	**On Track**
Water in streams and rivers meets the Provincial water quality standards for phosphorus	**Not Known**
Wildlife have sufficient suitable habitat available	**Not Known**

STRATEGY 13: Implement a management plan for forest connectivity and diversity in Forests and Treed Swamps

Benefitting Conservation Target(s): Forests and Treed Swamps
Direct Threat(s) Addressed: Logging and wood harvesting
Species at Risk Expected to Benefit: 6 (see appendix A)
Status: On Track

Implementation Summary:
Some progress was made on this strategy by Birds Canada through the Forest Birds at Risk (FBAR) Program in 2019 – 2020 and 2020 – 2021, as well as St. Williams Conservation Reserve Community Council (SWCRCC) through the Habitat Stewardship Program, and the Long Point Region Conservation Authority (LPRCA) and ALUS Norfolk through the Agricultural Runoff Working Group. As of 2021-2022 implementation of this strategy is being led by the Forest and Treed Swamp Working Group (Table 1).

April 2019 – March 2020: Birds Canada completed over 100 site surveys on 41 private and public properties in the LPWF Priority Place that have the potential to host SAR forest birds. They engaged 10 of those landowners in habitat conservation and threat mitigation on their properties as well as 113 private and public landowners through two conferences. They detected 69 target SAR individuals as well as nearly 200 forestry related and invasive species threats at SAR-occupied sites and managed 208 ha of SAR bird habitat. All information on species occupancy and threats were shared with the landowners to help them in their property management plans. They developed a conservation index to rank landowners in their level of stewardship to evaluate their efforts and changes in landowner stewardship and implementation of BMPs for target SAR over time. They also built on existing relationships and developed new working relationships with stakeholders in the forest sector through participating in conferences and one-on-one communications, as well as identified landowners for additional relationship-building and engagement in 2020 to help them mitigate identified imminent forestry-related threats to SAR habitat.

April 2020 – March 2021: Support for the FBAR program continued and was focused on initiating working relationships with private and public landowners and the forestry industry. The COVID-19 pandemic made it difficult to meet with stakeholders in person and resulted in Birds Canada not being able to visit private landowners in 2020. SAR forest bird surveys were focused on public lands where permissible. One landowner from the forestry sector was engaged and 8 private landowners were informed about forestry related and invasive species threats at SAR-occupied sites. 20 ha of Louisiana Waterthrush habitat was managed. Additionally, the LPRCA managed 215 ha of their forested lands through invasive species management, ALUS Norfolk restored 3.4 ha through tree planting, and SWCRCC improved 58 ha through conifer thinning.

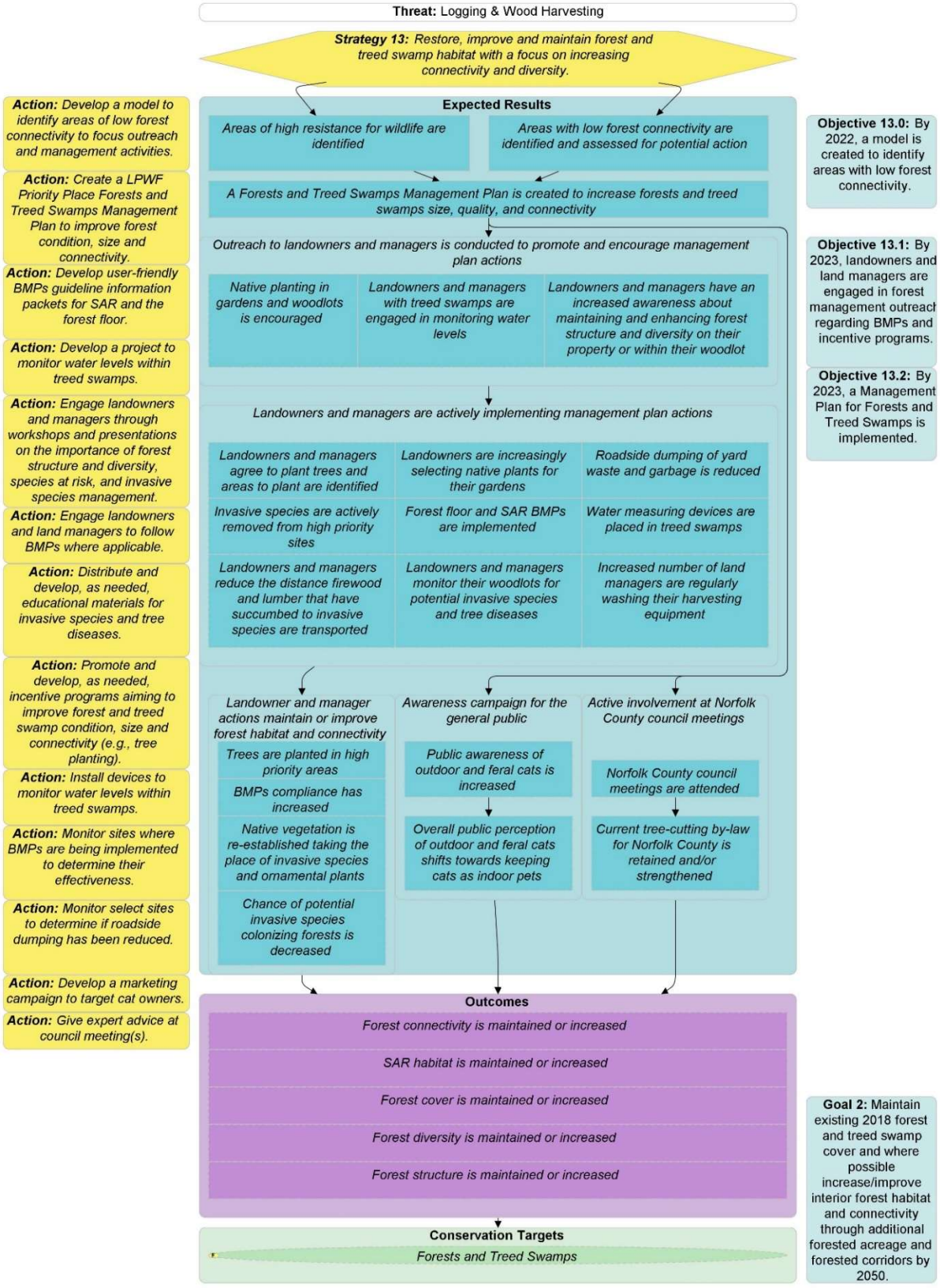
April 2021 – March 2022: The Forests and Treed Swamps Working Group improved and managed more than 1,200 ha through a variety of activities including exotic species management, woody invasive species management and removal of non-native conifers. Additionally, ecological surveys for SAR, including American Chestnut and Eastern Flowering Dogwood, and pre-harvest vegetation surveys were completed on over 2,400 ha of public lands to identify areas requiring invasive species management in 2022-2023. Moreover, SWCRCC has been monitoring recreational use on public lands and are making efforts to mitigate inappropriate use.

Through the FBAR program 4,274.7 ha were surveyed for SAR and woodlot health in LPWF with a total of 64 target SAR individuals detected. This information will be used to continue monitoring population trends of the target SAR and other declining forest birds and approach landowners to incorporate SAR BMPs into their land management practices. The FBAR program expanded to establish Prothonotary Warbler monitoring, which included building and installing nest boxes at new and historical locations, and engaging landowners in SAR BMPs and habitat management. This monitoring work also involved initiating a treed wetlands monitoring project to ensure habitat is available for Prothonotary Warbler. Eighteen data loggers were deployed on several properties with treed wetlands LPWF. LPBLT also assessed structural connectivity in LPWF to identify areas with low forest connectivity. They analyzed three structural connectivity models to emulate movement patterns of a general forest species, an interior forest species and a riparian/wetland species using a circuit theory approach with a (wall-to-wall) method that forces current through the spatially explicit landscape. All models showed high, but varying levels of connectivity throughout a broad section of forested land in the LPWF, much of which is composed of treed swamp wetlands.

April 2022 – March 2023: The Forests and Treed Swamps Working Group improved more than 1,050 ha through a variety of activities including closing unauthorized trails to conserve SAR habitats, properly signing authorized trails to manage pedestrian traffic, and preventing unauthorized access to sensitive habitats. Additionally, over the 2022 field season, 3,820 hectares were surveyed for SAR within or adjacent to LPWF, and some areas within these 3,820 hectares were surveyed multiple times for a total of 13,750 hectares of survey effort. Results of surveys have also been used to inform management activities and develop Property Management Plans. In cooperation with Ontario Parks, additional measures were also implemented to more effectively close 11 km of unauthorized trails at the St. Williams Conservation Reserve. Finally, NCC restored 20 ha of new forest habitat through direct drill seeding of native species including grasses, shrubs, trees, and wildflower and hand planting of 31,000 native Carolinian trees.

The FBAR Program continued long-term abundance, occupancy, and productivity monitoring of 5 target SAR birds. This included monitoring and erecting additional Prothonotary Warbler nest boxes (27 over two years), with two new nest boxes occupied with successfully fledged young. Moreover, a second year of data was collected for water level monitoring in treed ephemeral wetlands. In total of 3,820 ha were surveyed for target SAR in 2022-23, and there were continued increases in the numbers of Acadian Flycatcher, Louisiana Waterthrush, and Prothonotary Warbler. Additionally, Cerulean Warbler BMPs were nearly finalized in 2022-23, and are anticipated to be implemented in 2023-24.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
13.0: By 2022, a model is created to identify areas with low forest connectivity	No model created	# ha identified as area with low forest connectivity		**Achieved**
13.1: By 2023, landowners and land managers are engaged in forest management outreach regarding BMPs and incentive programs		# landowners implementing BMPs	36	**On Track**
		# land managers implementing BMPs	15	
		# landowners or land managers engaged in BMP outreach	146	
		# ha habitat managed based on BMPs	6158	
		# ha habitat improved	3283	
		# ha habitat restored	29	
		# trees planted to increase forest cover	42,400	

Action Tracking

Action	Progress	Status
Develop a model to identify areas of low forest connectivity to focus outreach and management activities	LPBLT completed a model to identify areas of low forest connectivity in 2021-2022	**Completed**
Develop, promote, implement, and monitor Best Management Practices for species at risk and the forest floor		**On Track**
Give expert advice at Norfolk County Council meetings on tree-cutting by-laws	The Norfolk County tree cutting bylaw was updated in 2022 after considerable public input including input from Forest and Treed Swamp working group members	**On Track**
Engage landowners and land managers to follow BMPs where applicable		**On Track**
Distribute and develop, as needed educational materials for invasive species and tree diseases		**On Track**
Promote and develop, as needed, incentive programs aiming to improve forest condition, size and connectivity		**Not Known**
Monitor water levels within treed swamps	Birds Canada monitoring water levels in treed swamps for Prothonotary Warbler	**On Track**

Monitor select sites to determine if roadside dumping has been reduced		**Not Known**
Determine effects of forestry on breeding birds		**Not Known**
Implement a tree planting program on private lands		**Not Known**

Results Tracking

Expected Results	**Status**
Areas with low forest connectivity are identified and assessed for potential	**Not Yet**
Areas of high resistance for wildlife are identified	**Not Yet**
A Forests and Treed Swamps Management Plan is created to increase forests and treed swamps size, quality and connectivity	**Not Yet**
Norfolk County council meetings are attended	**Not Known**
Public awareness of outdoor and feral cats is increased	**No longer relevant**
Current tree-cutting by-law for Norfolk County is retained and/or strengthened	**Not Known**
Overall public perception of outdoor and feral cats shifts towards keeping cats as indoor pets	**No longer relevant**
Landowners and managers have an increased awareness about maintaining and enhancing forest structure and diversity on their property or within their woodlot	**On Track**
Native planting in gardens and woodlots is encouraged	**Not Known**
Landowners and managers with treed swamps are engaged in monitoring water levels	**On Track**
Landowners and managers agree to plant trees and areas to plant are identified	**Not Known**
Landowners are increasingly selecting native plants for their gardens	**Not Known**
Roadside dumping of yard waste and garbage is reduced	**Not Known**
Invasive species are actively removed from high priority sites	**On Track**
Forest floor and SAR BMPs are implemented	**On Track**
Water measuring devices are placed in treed swamps	**On Track**
Landowners and managers reduce the distance firewood and lumber have succumbed to invasive species are transported	**Not Known**
Landowners and managers monitor their woodlots for potential invasive species and tree diseases	**On Track**
Increased number of lands managers are regularly washing their harvesting equipment	**Not Known**
Trees are planted in high priority areas	**On Track**
Native vegetation is re-established taking the place of invasive species and ornamental plants	**Not Known**
Rate of invasive species colonizing forests is decreased	**Not Known**
BMPs compliance has increased	**On Track**

Outcomes	**Status**
Forest connectivity is maintained or increased	**Not Known**
SAR habitat is maintained or increased	**Improving**
Forest cover is maintained or increased	**Improving**
Forest diversity is maintained or increased	**Improving**
Forest structure is maintained or increased	**Not Known**

STRATEGY 14: Acquire significant land through fee simple purchases and conservation easements

Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes, Open Country, Watercourses and Riparian Areas, and Forests and Treed Swamps
Direct Threat(s) Addressed: Housing and Urban Areas, Annual and Perennial Non-Timber Crops, Other Ecosystem Modifications
Species at Risk Expected to Benefit: TBD (see appendix A)
Status: On Track

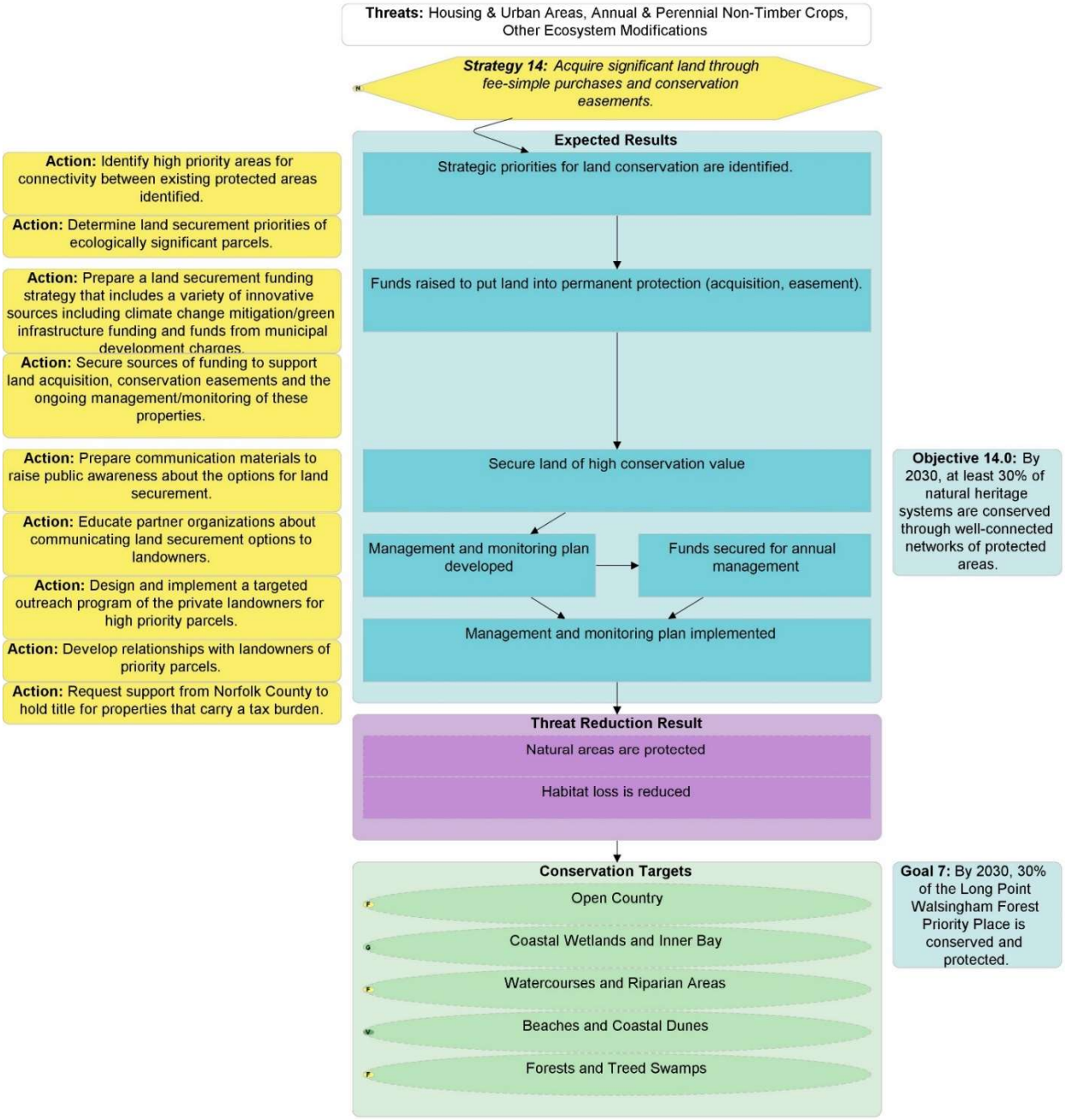
Implementation Summary:
There are many partners contributing to the implementation of this strategy across multiple conservation targets. The acquisition and easement of lands within the Priority Place serve to protect habitat in multiple conservation targets from potential threats and pressures in the region.

April 2018 – March 2019: The LPBLT acquired the 78 ha Trout Creek Nature Reserve.

April 2021 – March 2022: The LPBLT acquired the 20 ha Stackhouse Forest Sanctuary and the 21 ha Harlow Dune Nature Reserve. The NCC worked with Norfolk County to secure 50 ha known as the Paul DeCloet Forest as well as the 25 ha Hammond Hemlock Slough Reserve through a collaboration with LPBLT. Birds Canada secured 500 ha through verbal agreements with private landowners that are implementing or will be implementing BMPs on their properties. ALUS Norfolk secured 624.5 ha through entering into five-year conservation easement agreements with agricultural landowners.

April 2022 – March 2023: Birds Canada secured 906.1 ha through verbal agreements with private landowners that are implementing or will be implementing BMPs on their properties.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
14.0: By 2030, at least 30% of natural heritage systems are conserved through well-connected networks of protected areas		# ha acquired through fee-simple purchase	194	**On Track**
		# ha secured through registered conservation easement	624.5	
		# ha secured through other conservation agreements	1,406	

Action Tracking

Action	Progress	Status
Identify high priority areas for connectivity between protected areas		**Not Known**
Determine land securement priorities of ecologically significant parcels		**Not Known**
Prepare a land securement funding strategy that includes a variety of innovative sources including climate change mitigation/green infrastructure funding and funds from municipal development charges		**Scheduled for Future**
Secure sources of funding to support land acquisition, conservation easements and the ongoing management/monitoring of these properties		**On Track**
Prepare communication materials to raise public awareness about the options for land securement • Design and implement a targeted outreach program of the private landowners for high priority parcels • Educate partner organizations about communicating land securement options to landowners		**Scheduled for Future**
Develop relationships with landowners of priority parcels		**Not Known**
Request support from Norfolk County to hold title for properties that carry a tax burden		**Scheduled for Future**

Results Tracking

Expected Results	Status
Strategic priorities for land conservation are identified	Not Known
Funds raised to put land into permanent protection (acquisition, easement)	On Track
Secure land of high conservation value	On Track
Management and monitoring plan developed	On Track
Funds secured for annual management	On Track
Management and monitoring plan implemented	On Track

Outcomes	Status
Natural areas are protected	Improving
Habitat loss is reduced	Improving

STRATEGY 15: Identify and develop a “Natural Heritage System” and strategy for Norfolk County

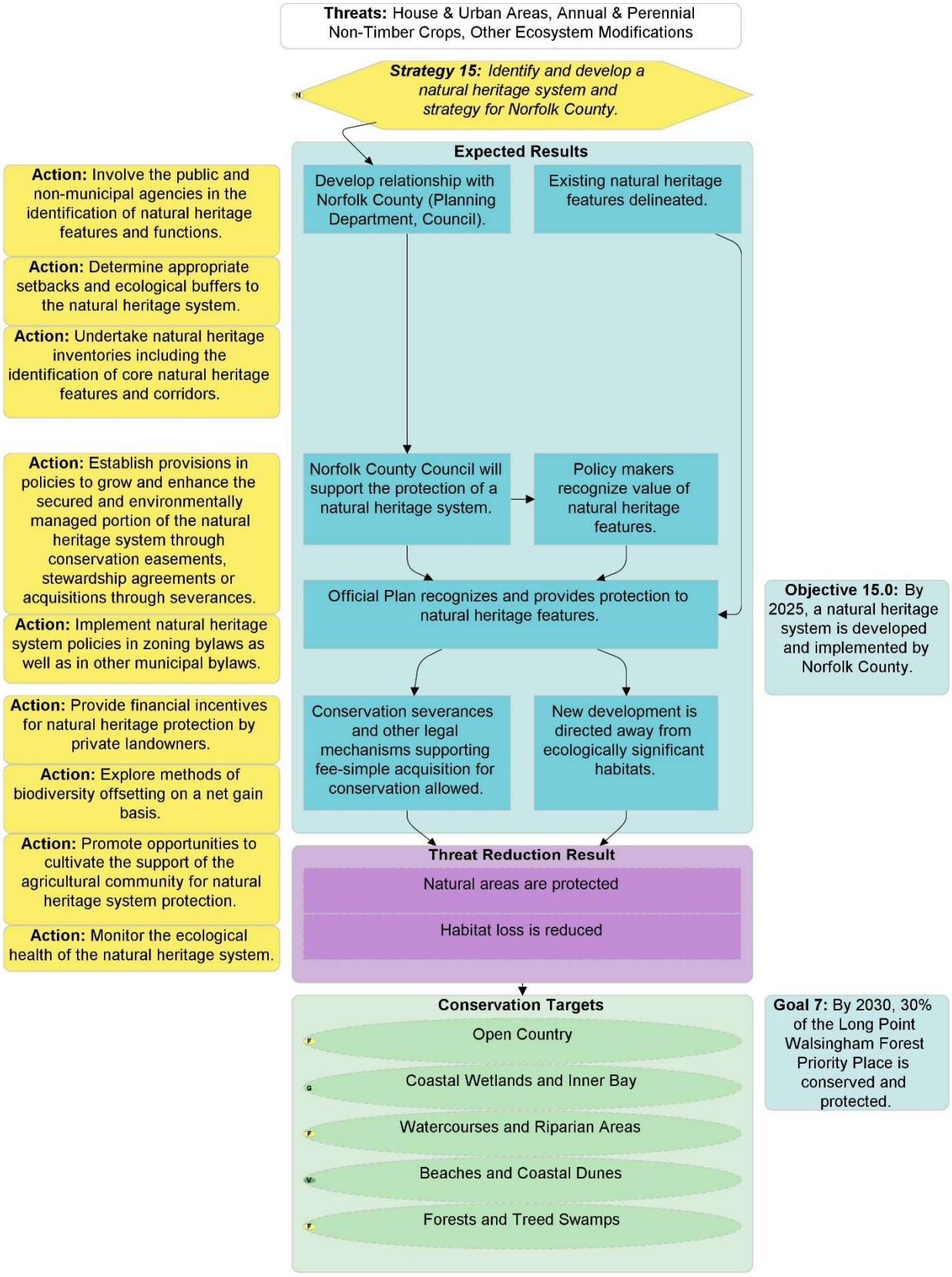
Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes, Open Country, Watercourses and Riparian Areas, and Forests and Treed Swamps
Direct Threat(s) Addressed: Housing and Urban Areas, Annual and Perennial Non-Timber Crops, Other Ecosystem Modifications
Species at Risk Expected to Benefit: TBD (see appendix A)
Status: On Track

Implementation Summary:
Beginning in 2021, The Long Point Biosphere Reserve and Norfolk Field Naturalist have taken on leading efforts to incorporate a Natural Heritage System into the next iteration of the Norfolk County Plan. Current efforts focus on information gathering on existing Natural Heritage Systems and inventories of the Natural Heritage Features within the county, as well as communications with Norfolk County Council. The incorporation of a Natural Heritage System will contribute to the ongoing protection of important ecological spaces throughout Norfolk County.

April 2021 – March 2022: CWS contracted Dougan and Associates to review municipal approaches to natural heritage system identification in Ontario, inventoried existing data and mapping of natural heritage features within Norfolk County and outlined next steps for the development of a Natural Heritage System for the County.

April 2022 – March 2023: CWS contracted Dougan and Associates to compile existing GIS data layers and mapped the proposed Norfolk County Natural Heritage System. Initial meetings of the Natural Heritage System working group, and communications have been prepared for Norfolk Council and the general public. Norfolk County Council is now on board and interested in implementing a Natural Heritage System by the next Official Plan in 2028.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
15.0: By 2025, a natural heritage system is developed and implemented by Norfolk County		Existing natural heritage features delineated	Completed ELC mapping update for entire Norfolk County	**Delayed**
		Official Plan recognizes and provides protection to natural heritage features	Next County Plan expected 2028	

Action Tracking

Action	Progress	Status
Involve the public and non-municipal agencies in the identification of natural heritage features and functions		**Not Yet**
Determine appropriate setbacks and ecological buffers to the natural heritage system		**Not Yet**
Undertake natural heritage inventories including the identification of core natural heritage features and corridors		**On Track**
Establish provisions in policies to grow and enhance the secured and environmentally managed portion of the natural heritage system through conservation easements, stewardship agreements or acquisitions through severances		**Not Yet**
Implement natural heritage system policies in zoning bylaws as well as in other municipal bylaws		**Not Yet**
Provide financial incentives for natural heritage protection by private landowners		**Not Yet**
Explore methods of biodiversity offsetting on a net gain basis		**Not Yet**
Promote opportunities to cultivate the support of the agricultural community for natural heritage system protection		**Not Yet**
Monitor the ecological health of the natural heritage system		**Not Yet**

Results Tracking

Expected Results	Status
Develop relationship with Norfolk County (Planning Department, Council)	**On Track**
Existing natural heritage features delineated	**Achieved**

Expected Results	Status
Norfolk County Council will support the protection of a natural heritage system	**On Track**
Policy makers recognize value of natural heritage features	**On Track**
Official Plan recognizes and provides protection to natural heritage features	**Not Yet**
Conservation severances and other legal mechanisms supporting fee-simple acquisition for conservation allowed	**Not Yet**
New development is directed away from ecologically significant habitats	**Not Known**

Outcomes	Status
Natural areas are protected	**Improving**
Habitat loss is reduced	**Not Known**

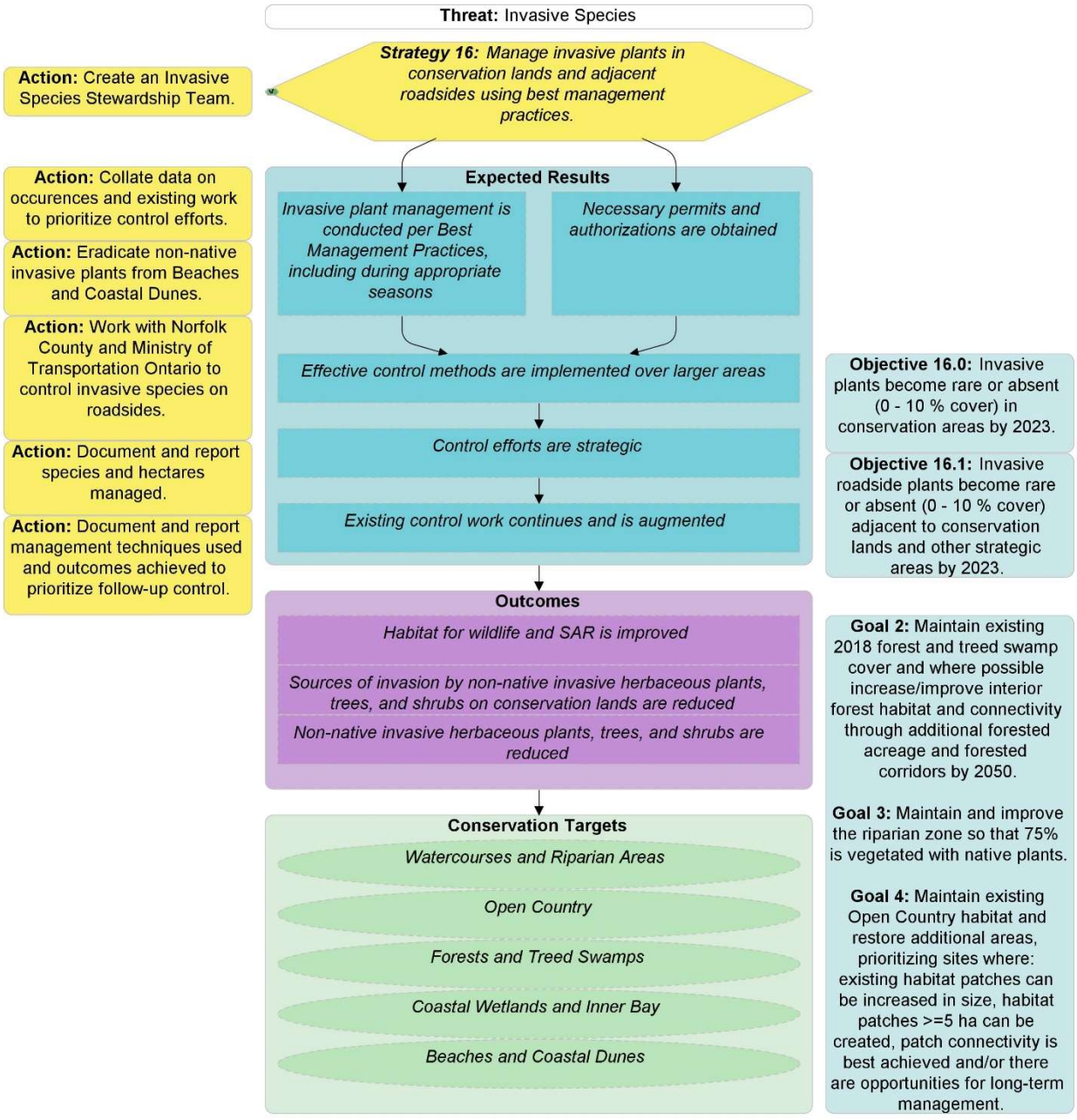
STRATEGY 16: Manage invasive plants in conservation lands and adjacent roadsides using best management practices

Benefitting Conservation Target(s): Coastal Wetlands and Inner Bay, Beaches and Coastal Dunes, Open Country, Watercourses and Riparian Areas, and Forests and Treed Swamps
Direct Threat(s) Addressed: Invasive Species
Species at Risk Expected to Benefit: TBD (see appendix A)
Status: On Track

Implementation Summary:
A new strategy for the 2022-2023 iteration of the Conservation Implementation Plan, this strategy refers to the management of any invasive species on conservation lands or adjacent roadsides. Under this strategy, work dating back to 2019 on invasive species is included in the results summary.

Up to March 2023: Invasive plants managed in conservation areas or adjacent roadsides are counted towards this summary. Much of this work has been carried out by NCC, Long Point Basin Land Trust, Long Point Region Conservation Authority, St. William's Conservation Reserve and through contracts for work in the Long Point and Big Creek NWAs.

Theory of Change



Measures of Success

Objective	Baseline	Indicators	Results	Status
16.0: Invasive plants become rare or absent (0-10% cover) in conservation areas by 2023		# hectares managed		**On Track**
		# hectares improved	2,821	
16.1: Invasive roadside plants become rare or absent (0-10% cover) adjacent to conservation lands and other strategic areas by 2023		# km managed		**On Track**
		# km improved	6.1	

Action Tracking

Action	Progress	Status
Create an Invasive Species Stewardship Team	An Invasive Species Stewardship Team was created in 2021	**Completed**
Collate data on occurrences and existing work to prioritize management efforts		**Scheduled for Future**
Eradicate non-native plants from Beaches and Coastal Dunes	Invasive species management has begun in Beaches and Coastal Dunes habitats	**On Track**
Work with Norfolk Country and Ministry of Transportation Ontario to manage invasive species on roadsides		**Scheduled for Future**
Document and report species and hectares managed		**On Track**
Document and report management techniques used and outcomes achieved to prioritize follow-up control	A variety of herbicide-based and manual removal techniques have been used. Outcomes to be monitored in coming years to prioritize follow-up control	**On Track**

Results Tracking

Expected Results	Status
Invasive plan management is conducted per Best Management Practices, including during appropriate seasons	**On Track**
Necessary permits and authorizations are obtained	**On Track**
Effective management methods are implemented over larger areas	**On Track**
Management efforts are strategic	**On Track**
Existing management work continues and is augmented	**On Track**

Outcomes	Status
Habitat for wildlife and SAR is improved	**Improving**
Sources of invasion by non-native invasive herbaceous plants, trees, and shrubs on conservation lands are reduced	**Not Known**
Non-native invasive herbaceous plants, trees, and shrubs are reduced	**Improving**

Appendix A: Species at risk expected to benefit by Strategy

The following table lists species at risk expected to benefit from activities under each Long Point Walsingham Forest Priority Place strategy, Species expected to benefit were based on species named in work plans contributing to each strategy, cross-referenced with known occurrences of each species in the locations where strategies are being implemented. Thus, this table represents a minimum estimate of species expected to benefit. Not all species within the LPWF Priority Place are listed as not all species have been listed to benefit specifically from a conservation strategy. Strategies 14-16 are newer additions to the CIP, have not yet been assessed for species benefitting, and so are not included in this table.

	Strategy												
Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13
Acadian Flycatcher											■	■	■
American Badger *jacksoni* subspecies							■	■	■	■	■	■	
American Chestnut													■
Bank Swallow											■	■	
Barn Swallow	■	■									■	■	
Bent Spike-rush (Great Lakes Plains population)	■		■										
Bird's-foot Violet								■	■				■
Blanding's Turtle (Great Lakes / St. Lawrence population)	■	■	■	■	■	■							
Bobolink							■	■	■	■	■	■	
Cerulean Warbler													■
Colicroot								■					
Common Hoptree	■	■											
Common Nighthawk							■	■	■	■			
Eastern Flowering Dogwood													■
Eastern Foxsnake (Carolinian population)	■	■	■	■	■	■	■	■	■	■	■	■	
Eastern Hog-nosed Snake	■	■		■	■	■	■	■	■	■	■	■	
Eastern Meadowlark							■	■	■	■	■	■	

Eastern Milksnake													
Eastern Musk Turtle													
Eastern persius Duskywing													
Eastern Ribbonsnake (Great Lakes population)													
Eastern Whip-poor-will													
False-foxglove Sun Moth													
Fern-leaved Yellow False Foxglove													
Fowler's Toad													
Golden-winged Warbler													
Grasshopper Sparrow, pratensis subspecies													
Gray Ratsnake (Carolinian population)													
Henslow's Sparrow													
Horsetail Spike-rush													
Jefferson Salamander													
King Rail													
Least Bittern													
Little Brown Myotis													
Louisiana Waterthrush													
Midland Painted Turtle													
Monarch													
Mottled Duskywing (Great Lakes Plains population)													
Northern Map Turtle													
Northern Myotis													
Piping Plover *circumcinctus* subspecies													
Prothonotary Warbler													
Queensnake													

Red-headed Woodpecker													
Short-eared Owl													
Snapping Turtle													
Spiny Softshell													
Spotted Turtle													
Swamp Rose-mallow													
Tri-colored Bat													
Unisexual Ambystoma Jefferson Salamander dependent population													
Virginia Goat's-rue													
Woodland Vole													
Yellow-banded Bumble Bee													

Appendix B: Threats Addressed

FIGURE 2. SUMMARY OF IMPLEMENTED ACTIVITIES AND RESULTS RELATED TO THE AGRICULTURAL RUN-OFF THREAT AS OF AUGUST 11, 2023. VALUES MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL RESULTS WERE OBTAINED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS.

FIGURE 3. SUMMARY OF IMPLEMENTED ACTIVITIES AND RESULTS RELATED TO THE FIRE SUPPRESSION IN TALLGRASS COMMUNITIES THREAT AS OF AUGUST 11, 2023. VALUES MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL RESULTS WERE OBTAINED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS.

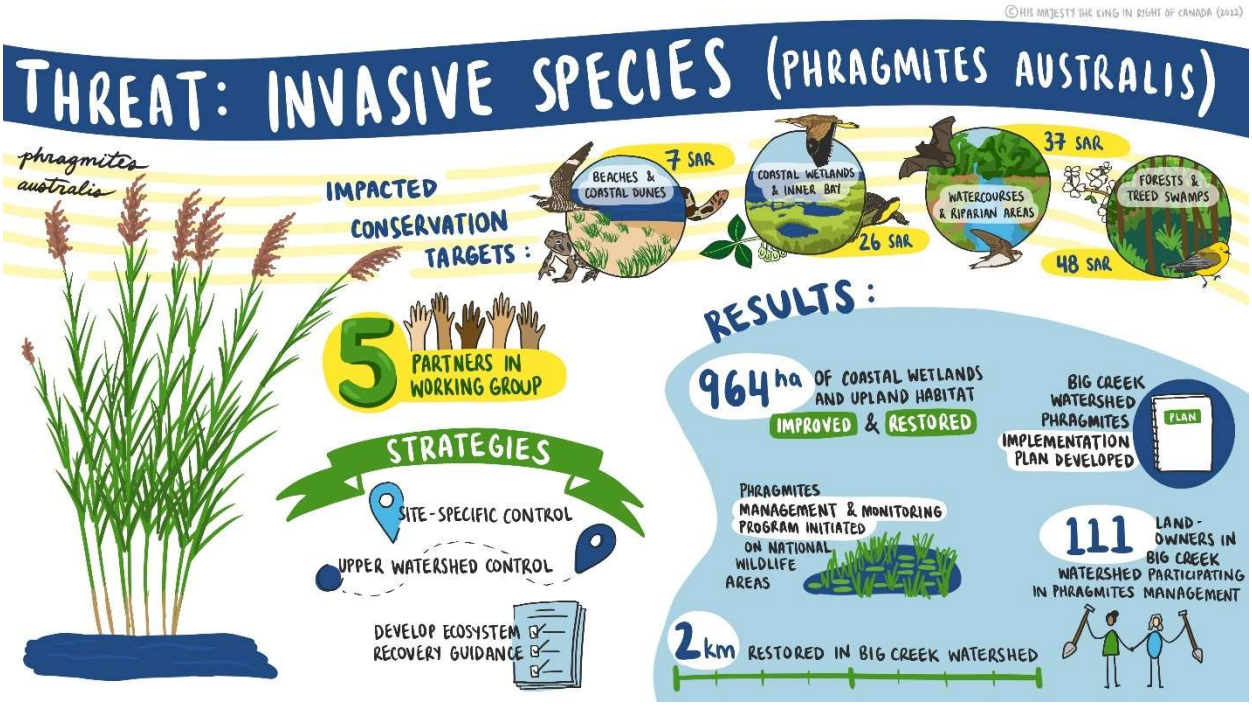


FIGURE 4. SUMMARY OF IMPLEMENTED ACTIVITIES AND RESULTS RELATED TO THE INVASIVE SPECIES THREAT AS OF AUGUST 11, 2023. VALUES MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL RESULTS WERE OBTAINED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS.

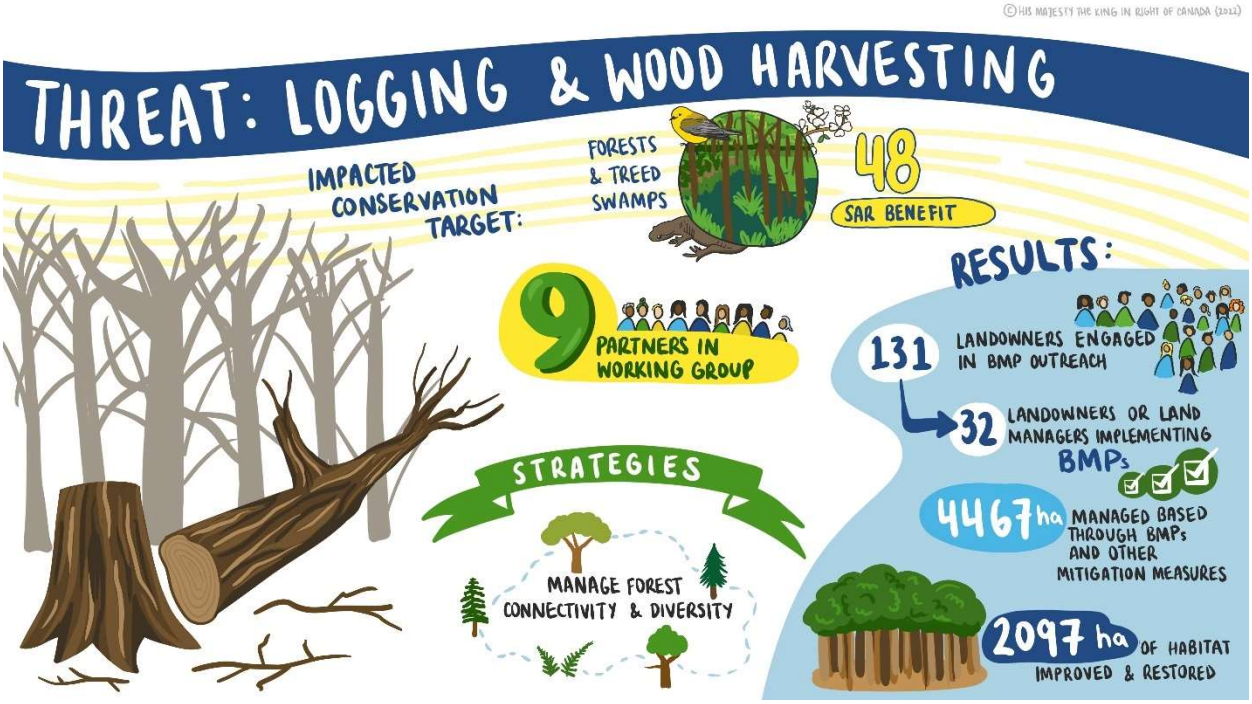


FIGURE 5. SUMMARY OF IMPLEMENTED ACTIVITIES AND RESULTS RELATED TO THE LOGGING AND WOOD HARVESTING THREAT AS OF AUGUST 11, 2023. VALUES MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL RESULTS WERE OBTAINED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS.

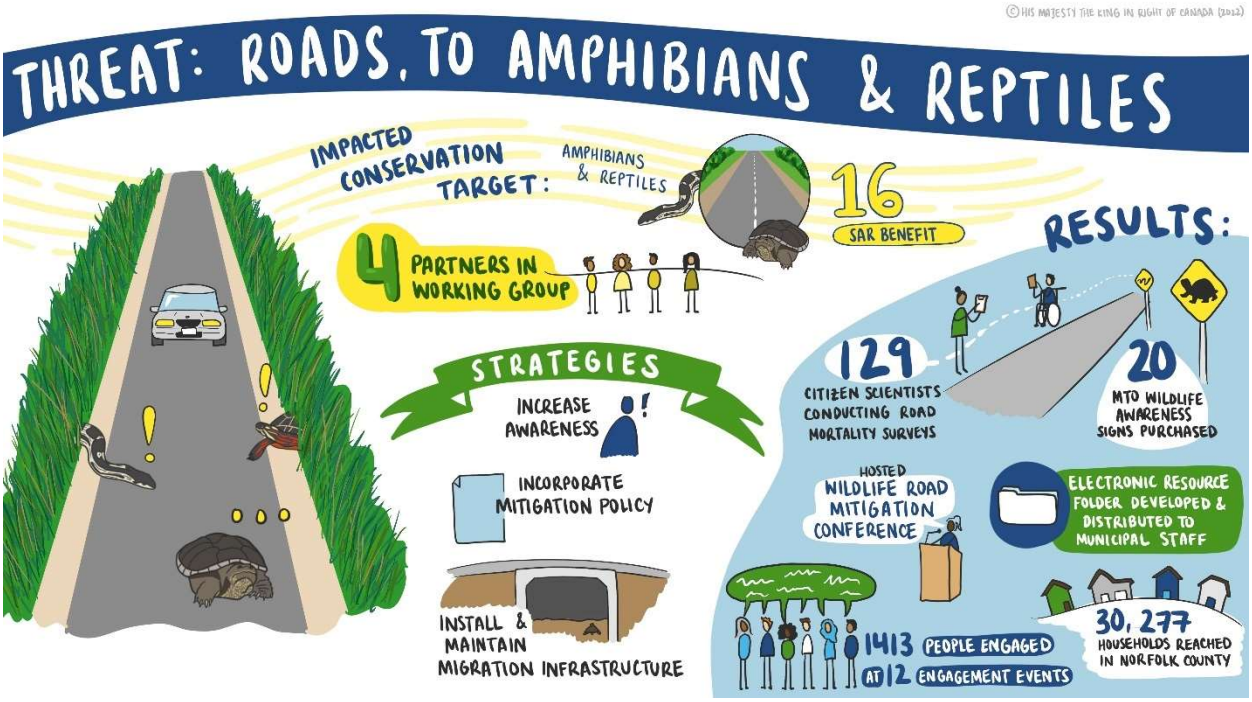


FIGURE 6. SUMMARY OF IMPLEMENTED ACTIVITIES AND RESULTS RELATED TO THE ROADS THREAT AS OF AUGUST 11, 2023. VALUES MAY DIFFER FROM THOSE IN THE REPORT, AS ADDITIONAL RESULTS WERE OBTAINED SINCE THE CREATION OF THIS IMAGE. GRAPHIC CREATED BY EMMA RICHARDS.