

Section I – Items for Board of Directors Action

TO: Chair and Members of the Board of Directors
Meeting #4/20, Friday, May 22, 2020

FROM: Moranne McDonnell, Director, Restoration and Infrastructure

RE: **TOMMY THOMPSON PARK CORMORANT MANAGEMENT STRATEGY**
Biennial Update

KEY ISSUE

To provide an update on 2018-2019 Double-crested Cormorant management at Tommy Thompson Park and to request approval to continue annual implementation of the current strategy until any significant changes are required.

RECOMMENDATION

THAT staff be directed to continue annual implementation of the TTP Cormorant Management Strategy until any significant changes are required;

THAT staff be directed to work with the Ontario Ministry of Natural Resources and Forestry, the Canadian Wildlife Service, and any other required regulatory agency to seek approval for the annual management strategy for cormorants at TTP;

THAT staff be directed to continue to actively participate in local, regional and binational committees/working groups addressing the management and protection of colonial waterbirds;

AND FURTHER THAT staff report back to the TRCA Board of Directors regarding the management of Double-crested Cormorants at Tommy Thompson Park when significant changes to the management strategy are required.

BACKGROUND

Tommy Thompson Park (TTP) is located on the Leslie Street Spit, on the central Toronto waterfront. It is a wilderness park that supports diverse communities of flora and fauna, including the world's largest breeding colony of Double-crested Cormorants (hereafter cormorants). The ecological significance of the site is apparent through designations of Environmentally Significant Area and globally significant Important Bird Area.

Cormorants are colonial waterbirds that nest in high densities along the shores of freshwater lakes within the Great Lakes region. Reportedly an abundant species in North America pre-European settlement, cormorants have experienced two population crashes since the 1800s, and recently made a remarkable recovery from near extirpation in the Great Lakes following the impacts of DDT on their reproductive success. Cormorants are a controversial species; like the American Beaver they are ecosystem engineers – their acidic guano negatively impacts the health of the trees used for nesting, ultimately killing trees and thereby altering the habitat available for other species and resulting in aesthetic implications, and they also have a reputation for impacting local fisheries through their voracious appetites and successful foraging skills. At TTP the only true impact of cormorant nesting is on tree health resulting in the reduction of habitat available for other species. Based on more than 30 years of TRCA coastal monitoring data along the Toronto waterfront, there is no evidence that cormorants have impacted the local fishery.

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Cormorant nesting behaviour varies between colonies – they are a tree nesting species in some areas and ground nesting in others; at TTP they are both. Cormorants began nesting in Cottonwood trees at the tip of Peninsula B at TTP in 1990 and the breeding population expanded rapidly, colonizing the forested Peninsulas A and C by 2000. A ground nest colony developed in a deforested area at the tip of Peninsula B in 2002. TRCA has monitored the nesting population of cormorants at TTP since 1990 by conducting annual nest census at peak breeding in June and a tree health survey in late-August. This data has allowed careful tracking of the expansion of the colony and the associated effects on tree health. In 2007 TRCA identified that 24% of the forest cover at TTP had been negatively impacted by nesting cormorants and initiated a process to develop the TTP Cormorant Management Strategy. The Strategy was developed through a transparent process with extensive consultation with a Cormorant Advisory Group comprised of experts, academics, naturalists and local stakeholders. The 2008 Cormorant Management Strategy was approved by the Authority Board as per Resolution #A110/08, and until 2014 TRCA reported to the Authority Board annually on the management strategy:

In 2009 as per Resolution #A22/09,
In 2010 as per Resolution #A23/10,
In 2011 as per Resolution #A49/11, and
In 2012 as per Resolution #A19/12.

At Authority Meeting #11/13, held on January 31, 2014, Resolution #A226/13 was approved, in part, as follows:

...THAT staff report back to the Authority bi-annually regarding the management of Double-crested Cormorants at Tommy Thompson Park or more frequently should the Strategic Approach be significantly changed;...

And TRCA reported to the Authority Board in 2016 as per Resolution #A15/16, and in 2018 as per Resolution #A40/18 which was approved as follows:

...THAT staff report and present to the Authority on a biennial basis regarding the management of Double-crested Cormorants at Tommy Thompson Park or more frequently should the management strategy be significantly changed.

TRCA has been managing cormorants at TTP since 2008 without any significant changes in the strategy. Given the demonstrated success of the management strategy, staff recommend only reporting back to the Board of Directors if a significant change in the strategy is required.

TTP Cormorant Management Strategy Overview

The goal of the TTP Cormorant Management Strategy is to achieve a balance between the continued existence of a healthy, thriving cormorant colony and the other ecological, educational, scientific and recreational values of TTP. The objectives of the Strategic Approach are to:

1. Increase public knowledge, awareness, and appreciation of colonial waterbirds;
2. Deter cormorant expansion to Peninsula D;
3. Limit further loss of tree canopy on Peninsulas A, B and C; and
4. Continue research on colonial waterbirds in an urban wilderness context.

The management strategy at TTP is a unique approach to managing cormorants because unlike most other colonies, TRCA spatially manages the nesting distribution of cormorants using non-lethal deterrent techniques. Through the exclusion of human presence during breeding season,

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cormorants are encouraged to nest in 'Conservation Zones' on the ground within previously deforested areas of Peninsulas A and B (Attachment 1). Staff discourage cormorants from nesting in healthy trees within 'Deterrent Zones' by implementing targeted management activities (Attachment 2) including:

- Inactive nest removal – tree nests are removed from Deterrent Zones before April;
- Pre-nesting deterrents – cormorants are discouraged from tree nesting in Deterrent Zones through an escalating scale of measures in April and May;
- Active nest removal – newly placed nest material is removed from trees in Deterrent Zones in May and June. This conservative technique follows the protocol for estimating embryo development prepared by the Humane Society of the United States to ensure nests with developed embryos are not removed; and
- Post-breeding deterrents – though identified as a management technique, it has not been undertaken as cormorants have not roosted in trees in the Deterrent Zones during the post-breeding period.

Increasing public knowledge, awareness and appreciation of colonial waterbirds is an important objective of the Management Strategy. A viewing blind is installed at the edge of the tree nesting colony on Peninsula C to provide visitors the opportunity to see nesting cormorants; staff provide interpretation of the colony at various public events and to numerous corporate, academic and naturalist groups on park tours or off-site presentations; and staff respond to media and documentary film requests regarding cormorants.

The non-traditional management strategy has been recognized as ground-breaking among colonial waterbird researchers and managers. In collaboration with York University, TRCA published a paper in the June 2018 volume of the scientific journal *Waterbirds* on the unique management strategy at TTP (McDonald, K., R. Toninger, A. Chreston, I. R. Fledmann and G. S. Fraser. 2018. *Living with Double-crested Cormorants (Phalacrocorax auritus): a Spatial Approach for Non-lethal Management in Toronto, Canada. Waterbirds 41: 208-220*). The strategy has also influenced the management of cormorants at other nesting colonies. In December 2018 the provincial government announced proposed legislation changes to the Fish and Wildlife Conservation Act to allow cormorants to be hunted from March 15 through December 31 in Ontario as a population management tool. TRCA submitted comments on the proposal while it was available on the Environmental Registry of Ontario. In December 2019 legislation was passed to allow for regulations to be developed that would permit cormorant flesh to spoil. Based on municipal firearm regulations, the TTP colony should not be directly impacted by the proposed hunting season, however, nesting pressure may increase as cormorants potentially relocate from other breeding colonies where they are being hunted in the Lake Ontario basin.

Management results for 2018 and 2019 are outlined in the following sections. Detailed annual 'Management Summary Reports' describing management actions are available upon request.

2018 Cormorant Management Results

Following the impacts of flooding in 2017 which resulted in a 24 per cent decline in the ground nesting population, the ground nesting population increased by 37 per cent in 2018, representing 72 per cent of the overall TTP nesting population. Tree nesting declined by 23 per cent and cormorants were effectively deterred from expanding their nesting range into Deterrent Zones. Overall, in 2018 the population increased by 13 per cent.

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	# nests	% change from 2017
Ground nesting	10,506	37
Tree nesting	4,009	-23
Total	14,515	13

2019 Cormorant Management Results

Record high water levels in Lake Ontario resulted in impacts to ground nesting areas in 2019 with a 17 per cent decrease in ground nesting. Flooding increased nesting pressure on trees within the Deterrent Zones and implementation of deterrent techniques was complicated by flooding as staff were required to wear chest waders to navigate through deep water while avoiding underwater trip hazards. Additional staff were deployed to deter cormorants on Peninsula D and Embayment A. By peak breeding season, staff were successful at preventing cormorants from nesting on Peninsula D, however removal of all tree nests in Embayment A was not possible.

Ultimately, the overall population declined six per cent in 2019. The proportion of the overall population represented by ground nesting dropped to 64 per cent. Tree nesting increased by 23 per cent as a result of flooding, which is approximately a third of the tree nesting increase that occurred during the 2017 flooding.

	# nests	% change from 2018
Ground nesting	8,681	-17
Tree nesting	4,933	23
Total	13,614	-6

RATIONALE

A high level of concern has been expressed regarding cormorant populations and their management. Concerns have been raised from both sides, on the one hand calling for management and the preservation of forest canopy, and on the other hand for protection of the birds and their nesting colonies. TRCA has an obligation to manage TTP as directed by the Tommy Thompson Park Master Plan as approved under the Environmental Assessment Act. To meet the intent of the Master Plan, staff believe that there is a strong rationale for undertaking the management of cormorants at TTP.

Since November 2007, TRCA has involved stakeholders and the public in assessing the need for management and developing a strategy for cormorants at TTP. Generally, throughout the process there has been agreement that some form of management is appropriate, providing that the methods are humane to cormorants and do not affect other wildlife.

Population monitoring data collected since the initiation of the Cormorant Management Strategy in 2008 show that the management techniques are a successful means of meeting and maintaining the goal and objectives of the strategy. Despite new challenges including regular flooding events and the proposed cormorant hunting legislation, TRCA is confident that continued implementation of the strategy (Attachment 2) will preserve the ecological integrity of the adjacent habitats and ecosystems within TTP, while maintaining a healthy, thriving cormorant colony.

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Relationship to Building the Living City, the TRCA 2013-2022 Strategic Plan

This report supports the following strategies set forth in the TRCA 2013-2022 Strategic Plan:

Strategy 3 – Rethink greenspace to maximize its value

Strategy 7 – Build partnerships and new business models

Strategy 8 – Gather and share the best sustainability knowledge

FINANCIAL DETAILS

Funds are available in the Tommy Thompson Park Interim Management account 210-19 in the approved 2020 budget. These municipal funds are being leveraged to secure additional funding in 2020-2021. Over the 2018-2019 and 2019-2020 federal funding cycles, a total of \$47,500 was secured for TTP Cormorant Management through the Remedial Action Plan (RAP) Governance Fund. This funding has been critical to successful management given the high Lake Ontario water levels and flooding in recent years. Continued high lake levels and flooding in the future will require additional funding to successfully manage cormorants at TTP.

DETAILS OF WORK TO BE DONE

A suite of techniques will be utilized in an integrated and adaptive approach to help achieve the original goal and objectives of the Double-crested Cormorant Management Strategy from 2008. Attachment 2 – Table 2 provides an overview of the strategy.

Increase Public Knowledge, Awareness and Appreciation

- Maintain TRCA cormorant webpage, including compelling images of cormorants;
- Conduct interpretive tours for school and interest groups, and at TTP special events;
- Maintain opportunities to view colonial waterbirds with viewing blinds and platforms;
- Present information at conferences and forums;
- Respond to media and documentary film inquiries; and
- Participate in working groups on colonial waterbirds.

Inactive Nest Removal

- Remove nests from target trees within Cormorant Deterrent Zones during the winter, prior to the breeding season.

Enhanced Ground Nesting

- Avoid daytime disturbance to the ground nesting areas during the breeding season so that cormorants are not deterred from nesting on the ground; and
- Deploy straw bales to the ground nesting areas at the beginning of the nesting season to encourage nesting.

Pre-nesting Deterrents

- Utilize the suite of deterrence techniques on an increasing scale of activity to prevent expansion of tree nesting within the Deterrent Zones;
- Prevent cormorant nesting on Peninsula D via the operation of the TTP Bird Research Station and public access; and
- Monitor the effects of deterrent activities on the cormorants to ensure they are effective and monitor the effects on non-target species to ensure they do not have an adverse impact.

Post-breeding Deterrents

- Utilize the suite of deterrence techniques on an increasing scale of activity to prevent cormorant tree roosting in the Deterrent Zones.

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Monitoring, Research and Reporting

- Undertake annual nest census for colonial waterbirds;
- Conduct annual tree health surveys within Deterrent Zones;
- Continue to collaborate with York University and other interested researchers on colonial waterbird research; and
- Complete annual management summary reports.
- Meet with Cormorant Advisory Group to review data and discuss whether changes are required.

Report prepared by: Andrea Chreston, extension 5362;

Emails: andrea.chreston@trca.ca

For Information contact: Karen McDonald, extension 5248; Andrea Chreston, extension 5362

Emails: karen.mcdonald@trca.ca; andrea.chreston@trca.ca

Date: April 3, 2020

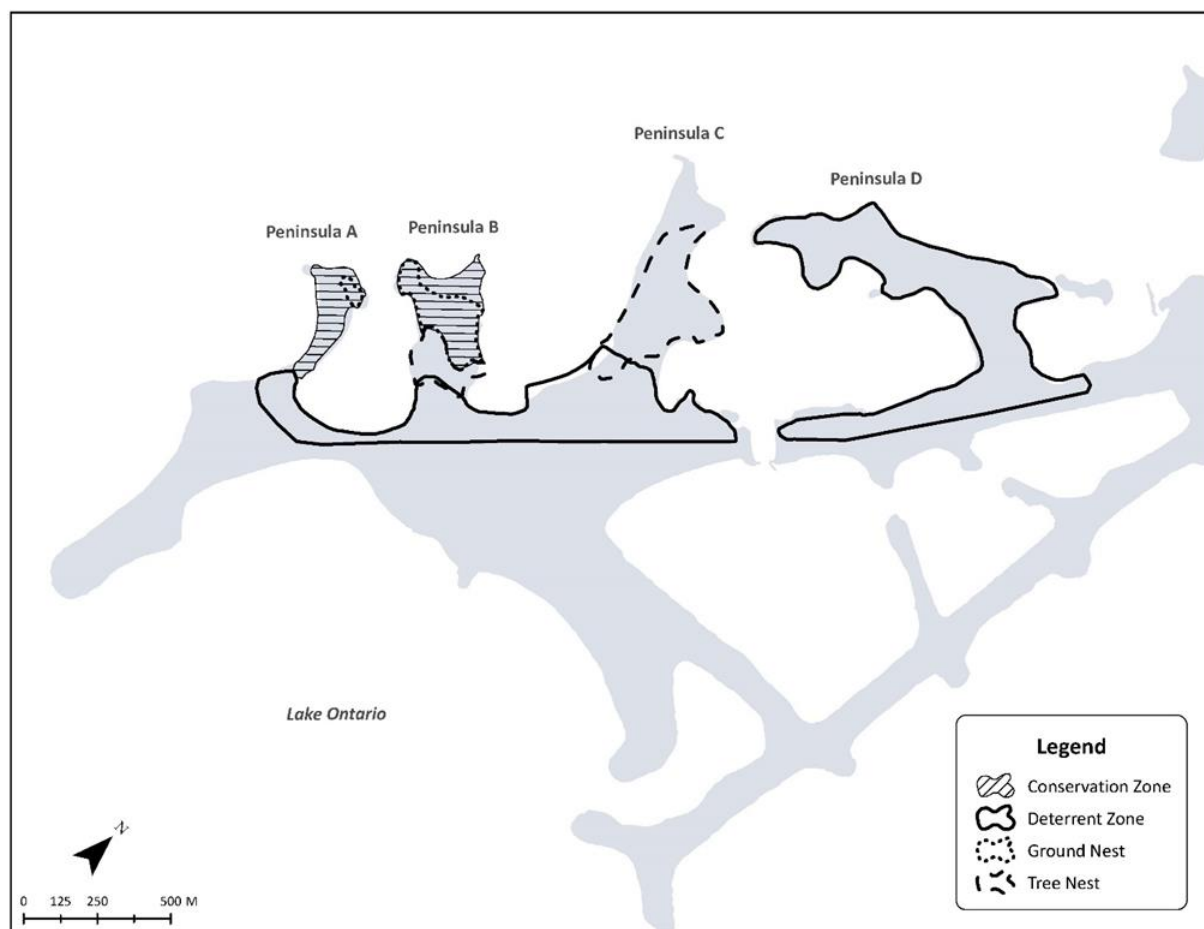
Attachments: 2

Attachment 1: Cormorant Management Zones at Tommy Thompson Park

Attachment 2: TTP Cormorant Management Matrix

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Attachment 1: Cormorant Management Zones at Tommy Thompson



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Attachment 2: TTP Cormorant Management Matrix

	Peninsula A	Peninsula B	Peninsula C	Peninsula D
Inactive Nest Removal (prior to the breeding season)		*	*	
Enhanced Ground Nesting	*	*		
Pre-nesting Deterrents		*	*	*
Post-breeding Deterrents (as required)			*	*