Tommy Thompson Park Double-crested Cormorant Management Report 2020

Prepared by Andrea Chreston

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Background

Tommy Thompson Park (TTP) is located on the Leslie Street Spit, a constructed landform that extends five kilometres into Lake Ontario in Toronto, Ontario (Figure 1). Originally intended for port-related infrastructure, construction of the peninsula began in the 1950s, but through natural succession and habitat enhancement efforts by Toronto and Region Conservation Authority (TRCA), it has become the largest area of natural habitat on the central Toronto waterfront. The final size of the Spit is approximately 500 hectares, including the associated water lots.

FIGURE 1. TOMMY THOMPSON PARK/LESLIE STREET SPIT

The Spit was designated as an Important Bird Area (IBA) in 2000 based on the globally significant numbers of colonial waterbirds under the general congregatory threshold, and nationally significant numbers of waterfowl during spring and fall migration as well as during winter depending on ice conditions (Wilson & Cheskey, 2001). Six species of colonial waterbirds breed regularly at Tommy Thompson Park (Figure 2). Two species are predominately tree-nesters: Black-crowned Night-Heron (*Nycticorax nycticorax*) and Great Egret (*Ardea alba*); and four species are ground-nesters: Double-crested Cormorant (*Phalacrocorax auritus*, hereafter cormorant), Ring-billed Gull (*Larus delawarensis*), Herring Gull (*Larus argentatus*) and Common Tern (*Sterna hirundo*) (not

shown in the figure, but nested on a raft in Embayment D and one nest was identified in the Cell 2 wetland). Caspian Terns (*Hydroprogne caspia*) historically nested at TTP, disappeared from 2004 to 2011, then attempted ground-nesting with varying success from 2012 to 2016. Until 2012, cormorants were predominantly a tree-nesting species at TTP, however, since 2013 the majority of nests have been on the ground.

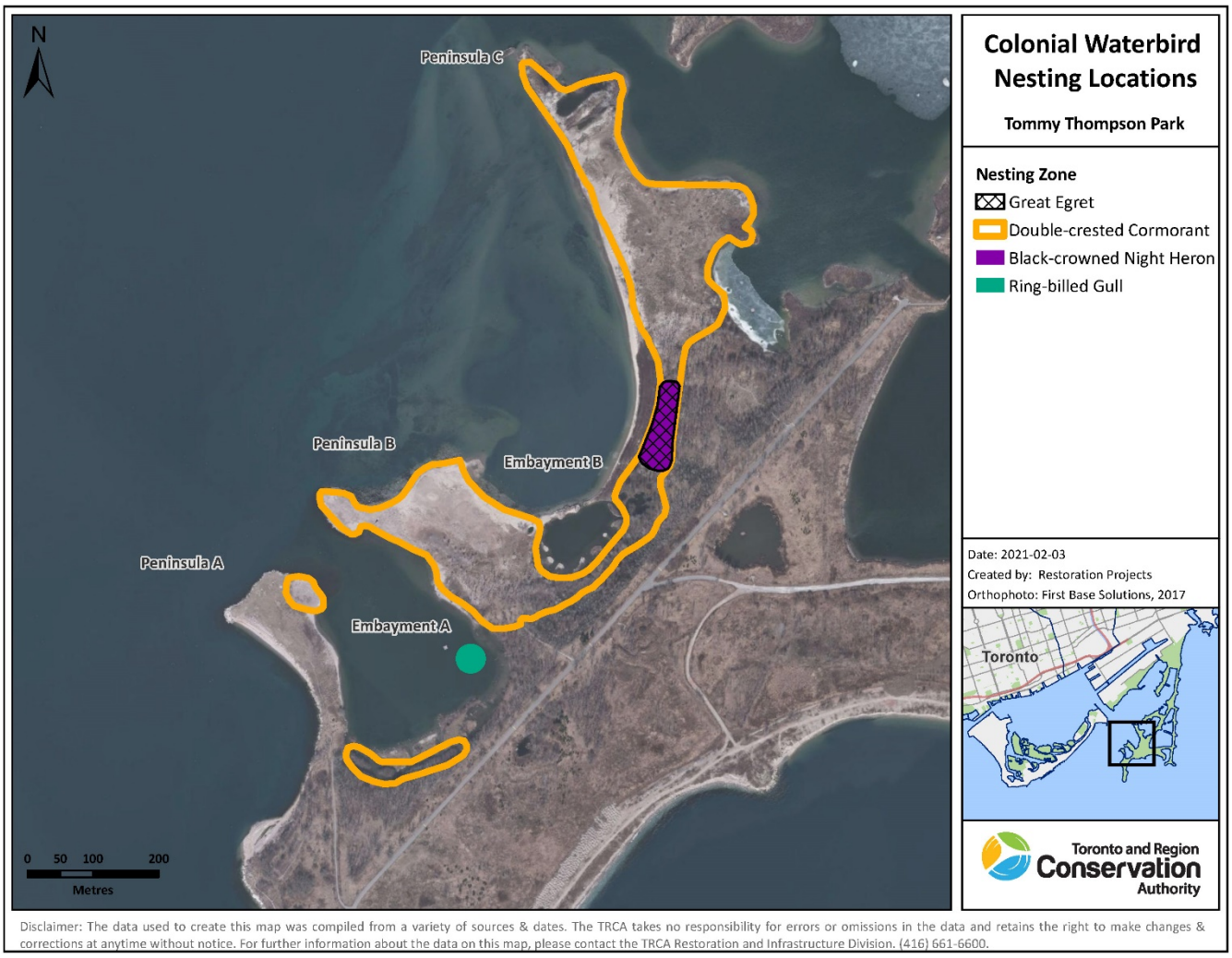

FIGURE 2. COLONIAL WATERBIRD NESTING LOCATIONS, TOMMY THOMPSON PARK, 2020

Cormorants began nesting on Peninsula B in 1990 (Wilson & Cheskey, 2001) and expanded to Peninsula A the following year. The population steadily increased and expanded onto Peninsula C in 2000, followed by ground-nesting on Peninsula B in 2002, likely in response to fallen trees (due to the negative health implications of their tree-nesting behavior) as well as an increase in the overall Great Lakes population (Weseloh, et al., 1995). Today, cormorants nest on three of the four peninsulas at the park, Peninsulas A, B and C (Figure 2).

Cormorant Management Strategy

In 2008, TRCA developed the Tommy Thompson Park Double-crested Cormorant Management Strategy in response to the significant decline and public concern for the loss of forest habitat on the peninsulas (Toronto and Region Conservation Authority, 2008, 2009, 2010, 2012, 2013, 2014, 2016, 2018, 2020). The development of the strategy involved founding a Cormorant Advisory Group of stakeholders and experts, including

conservationists, academics and interest groups from across the spectrum to provide advice and input on the management plan. The inaugural meeting was in late 2007 and the group continued to meet annually to review management results and provide input on proposed management scenarios until 2016 (Toronto and Region Conservation Authority, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016).

The overall goal of the Double-crested Cormorant Management Strategy, as established by the Cormorant Advisory Group in 2008, 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 (Toronto and Region Conservation Authority, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016, 2018, 2020).

To achieve the goals and objectives of the Double-crested Cormorant Management Strategy, TRCA employed a suite of management techniques between 2009 and 2011 which included inactive nest removals, pre-nesting deterrents, active nest removals, habitat enhancements and post-nesting deterrents. Results from annual population counts during this time showed an increase in the ground-nesting colony and a leveling off in the tree-nesting colonies. These data suggested that the techniques had been successful in changing the nesting behaviour of cormorants. In 2012, TRCA slightly modified the strategy to reduce pre-nesting deterrents to assess whether a reduced level of intensity would be effective. Results from the 2012 season confirmed reduced pre-nesting deterrents remained as effective. However; since 2014 there has been an annual increase in the pre-nesting deterrents required to prevent cormorants from expanding their tree nesting range into new areas.

Current Status

The TTP cormorant colony currently comprises three sub-colonies: Peninsula A (tree- and ground-nesting), Peninsula B (tree- and ground-nesting) and Peninsula C (tree-nesting). The ground-nesting colonies are classified as Cormorant Conservation Zones (Figure 3), where cormorant nesting and roosting is encouraged and enhanced. The tree-nesting colonies are classified as Deterrent Areas, where cormorant nesting is discouraged through management activities. Management in the Deterrent Areas is complicated by the presence of non-target species, Black-crowned Night Herons and Great Egrets. At the time of the IBA designation, the night-heron colony was estimated as one of the largest in Canada, representing 30 percent of the national breeding population (Wilson & Cheskey, 2001). TRCA takes precautions to ensure management efforts do not adversely impact non-target species. Peninsula D is the only remaining forested peninsula in the park, and is not occupied by nesting colonial waterbirds.

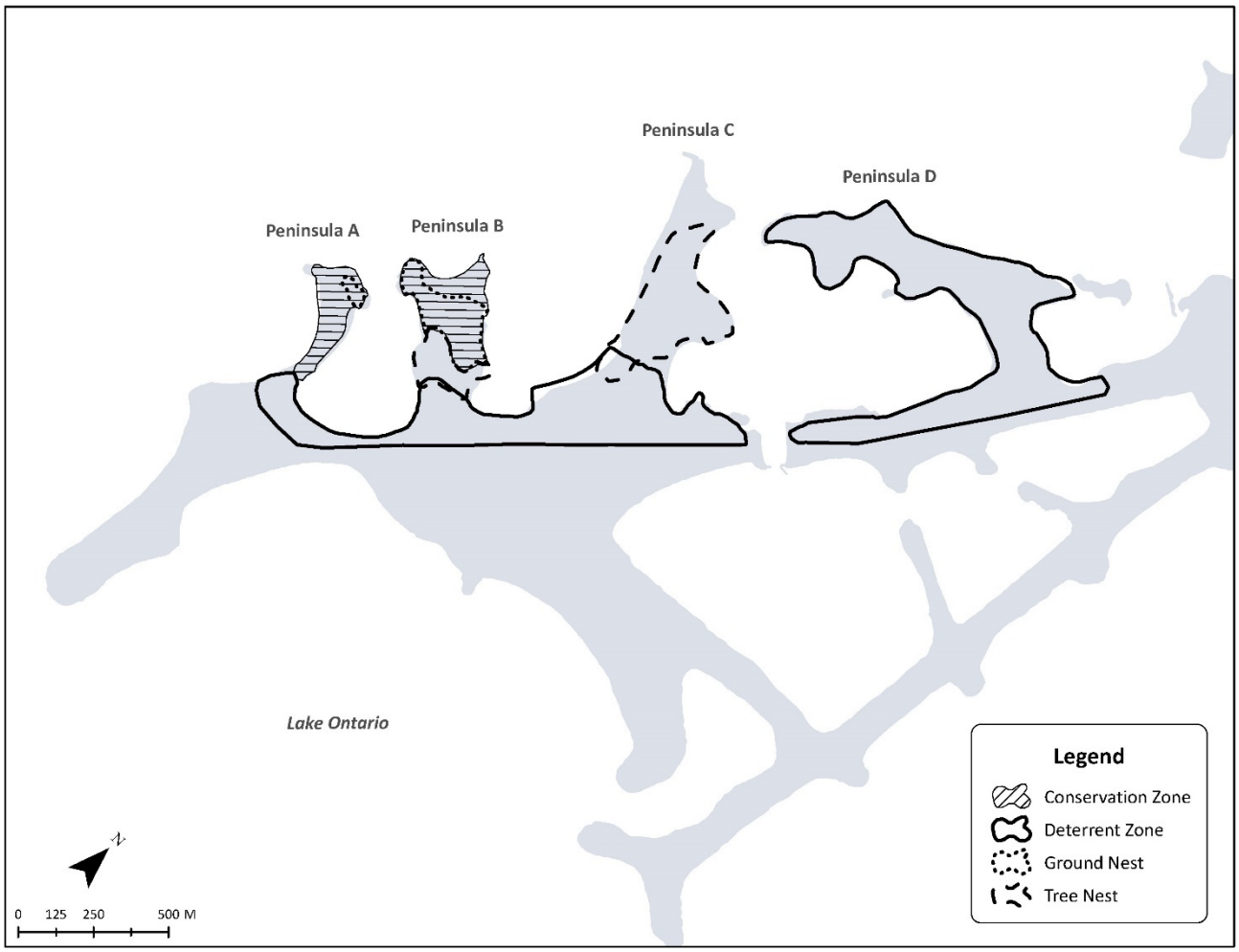

FIGURE 3. CORMORANT MANAGEMENT ZONES AT TOMMY THOMPSON PARK

2020 Population and Tree Health

Breeding Census

Cormorants began to arrive at TTP from their wintering grounds on 18 March 2020, with two individuals observed on Peninsula B. The breeding cormorant population at TTP decreased in 2020 with 11,446 nests counted at the peak period in mid-June (Table 1, Figure 4). The percent of the overall colony represented by ground-nesting decreased to 59% compared to 64% in 2019 as management was not undertaken during the breeding season due to COVID-19 restrictions. The total number of tree-nests decreased by 747 on Peninsula B from 2019 but increased on Peninsulas A and C by 421 and 116 respectively. Tree nesting density decreased in all locations with 2.52 nests/tree on Peninsula A, 5.96 nests/tree on Peninsula B and 4.91 nests/tree on Peninsula C.

TABLE 1. TOMMY THOMPSON PARK CORMORANT NEST COUNT 2011 TO 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Pen A	19	13	5	14	14	4	0	0	53	474
Pen A Ground	-	-	-	10	541	1525	1821	1445	2354	741
Pen B	1262	982	1310	1316	1184	1007	2474	1815	1962	1215
Pen B Ground	4547	5812	6986	7799	7608	8555	5836	9061	6327	5982
Pen C	5546	4934	3689	3270	2561	2184	2710	2194	2918	3034
Total	**11374**	**11741**	**11990**	**12409**	**11908**	**13275**	**12841**	**14515**	**13614**	**11446**

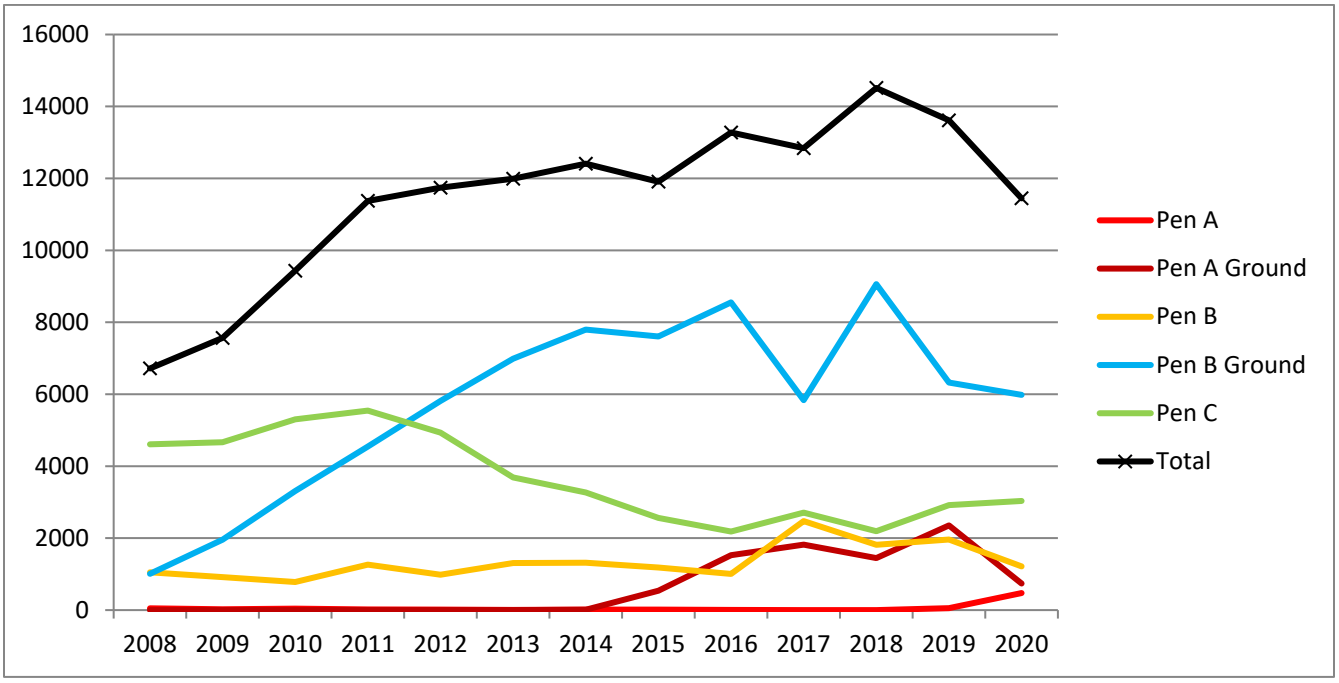

FIGURE 4. CORMORANT NEST COUNT AT TOMMY THOMPSON PARK 2008 TO 2020

Chick Banding

Due to COVID-19, chick banding was not conducted in 2020.

Tree Health

The health of trees in the nest areas is evaluated annually through a qualitative ranking system that scores the tree based on the degree of impact, with 1 being no impact and 5 being a severely damaged or standing dead tree (Figure 5). This survey has been completed in late August to early September since the 1990s. With over 20 years of data showing a clear decline in forest health due to cormorant nesting, tree health surveys were modified in 2012 to randomly sample the target deterrent areas on Peninsulas C and B, as well as the control area on Peninsula D.

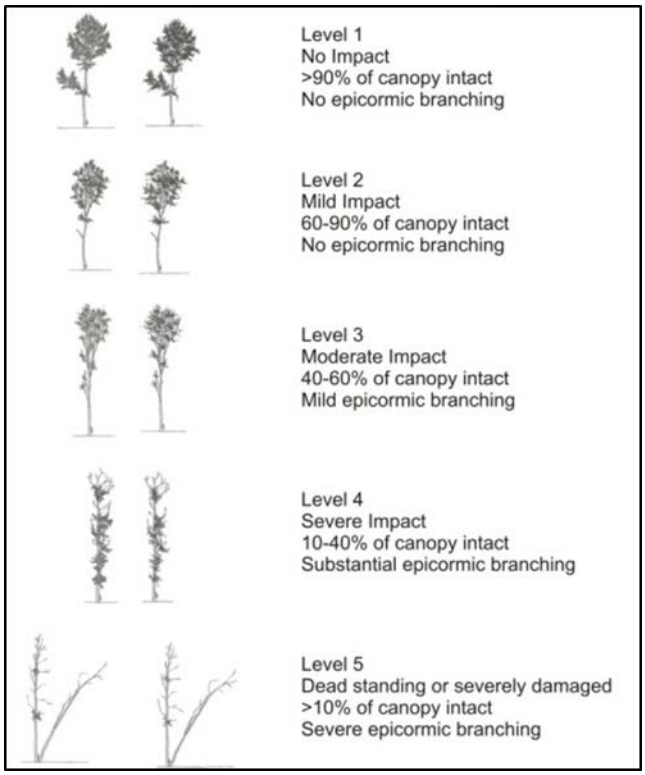

FIGURE 5. COTTONWOOD TREE HEALTH RANKING SCHEME

Tree health surveys were not completed in 2020. As of 2017, tree health on the Peninsulas at Tommy Thompson Park is also influenced by prolonged periods of standing water, as a result of the record high Lake Ontario water levels in 2017 and 2019. All low-lying areas in the park, which includes most of Peninsulas B and C were under a metre of water for approximately 8 weeks, from mid-May to mid-July in both years.

2020 Management Review

Due to the global COVID-19 pandemic outbreak in March 2020, personal protective equipment required for working in the cormorant colony was unavailable and therefore breeding season deterrent activities (including pre-nesting deterrents and active nest removals) were not conducted as outlined in the 2020 Strategic Approach (Table 2).

TABLE 2. 2020 STRATEGIC APPROACH MATRIX

	Peninsula A	Peninsula B	Peninsula C	Peninsula D
Inactive Nest Removal (prior to 2020 breeding season)		*	*	
Enhanced Ground Nesting	*	*		
Pre-Nesting Deterrents	*	*	*	*
Active Nest Removals	*	*	*	*
Post-Breeding Deterrents	*	*	*	*

Increasing Public Knowledge, Awareness and Appreciation

Increasing public knowledge and fostering an appreciation for cormorants is an important aspect of the management plan at Tommy Thompson Park. Due to COVID-19 the viewing blind was not installed on Peninsula C and regular interpretation was not conducted. However, the Tommy Thompson Park Cormorant Management Strategy was highlighted in the *Accidental Wilderness*, a CBC The Nature of Things documentary that originally aired February 14, 2020 and available for steaming on https://www.cbc.ca/natureofthings/episodes/accidental-wilderness-the-leslie-street-spit. It was also highlighted in two other news articles *In the wilds of Toronto: The fight to let nature reign on the Leslie Street Spit* by Sam Riches on TVO.org, and *In Ontario, it's open season on cormorants. But is the hunt based on science?* by Emma McIntosh on Canada's National Observer.

https://www.tvo.org/article/in-the-wilds-of-toronto-the-fight-to-let-nature-reign-on-the-leslie-street-spit

https://www.nationalobserver.com/2020/08/13/news/ontario-its-open-season-cormorants-hunt-based-science

Inactive Nest Removal

Inactive nest removal took place on four days in early 2020, with 233 nests removed on Peninsulas A and B. Many nests remained in trees within the deterrent areas which were to be removed during the pre-nesting deterrent activities in April. Since breeding season management did not occur as scheduled and cormorants expanded their nesting range into deterrent areas and previously un-nested trees, 939 inactive nests were removed in December 2020. The method used to remove the cormorant nests was the same as previous years. Trained staff used arborist poles to safely poke nests off of the branches.

Enhanced Ground Nesting

Ground nesting enhancements were not applied in 2020.

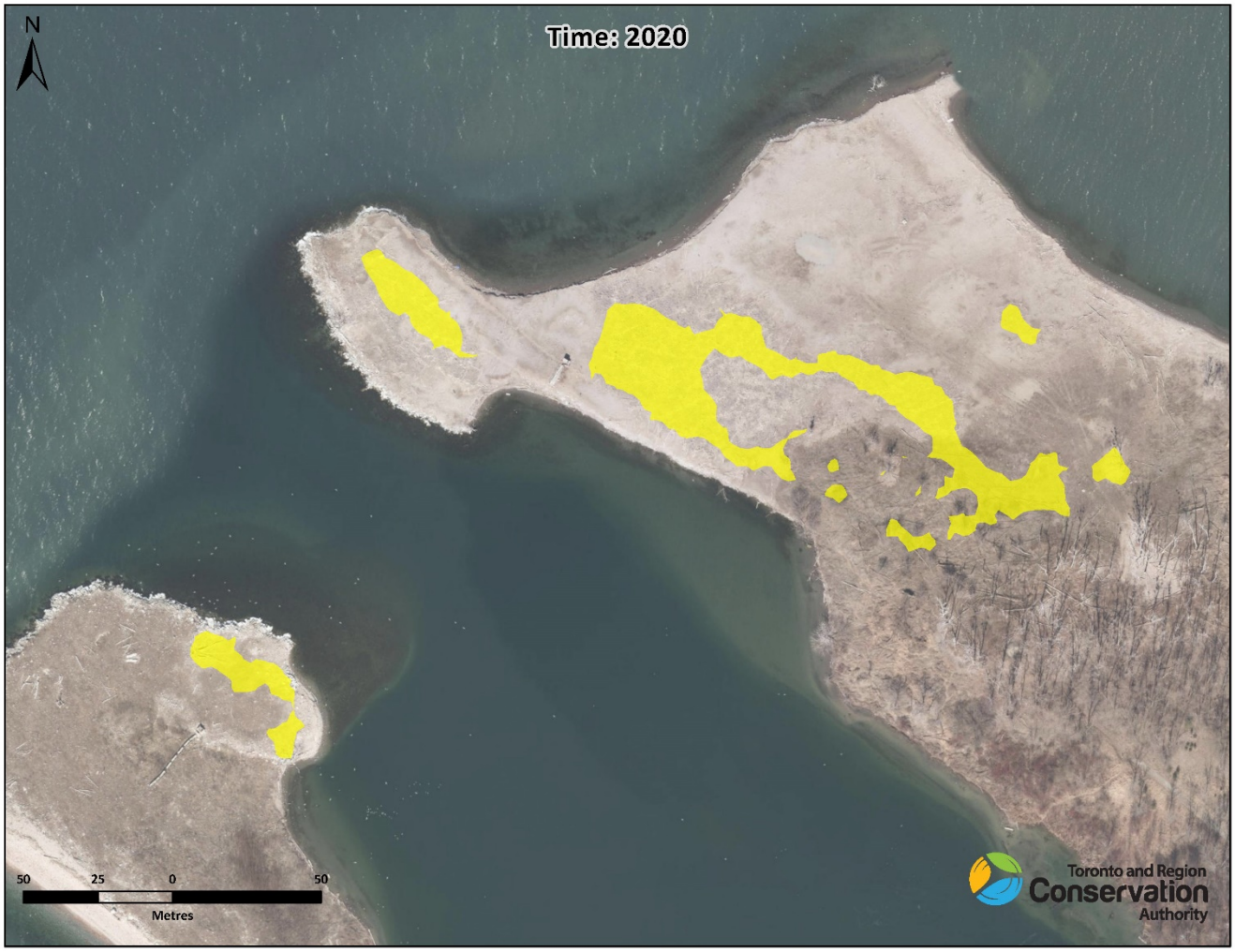

FIGURE 6. 2020 CORMORANT GROUND-NEST COLONIES ON PENINSULAS A AND B

Pre-nesting and Active Deterrents

Pre-nesting and active deterrents were not implemented in 2020 due to COVID-19.

Active Nest Removal

Active nest removals were not conducted in 2020 due to COVID-19.

Post Breeding Deterrents

Post breeding deterrents were identified for Peninsulas A, B, C and D but were not required as cormorants did not roost in the trees.

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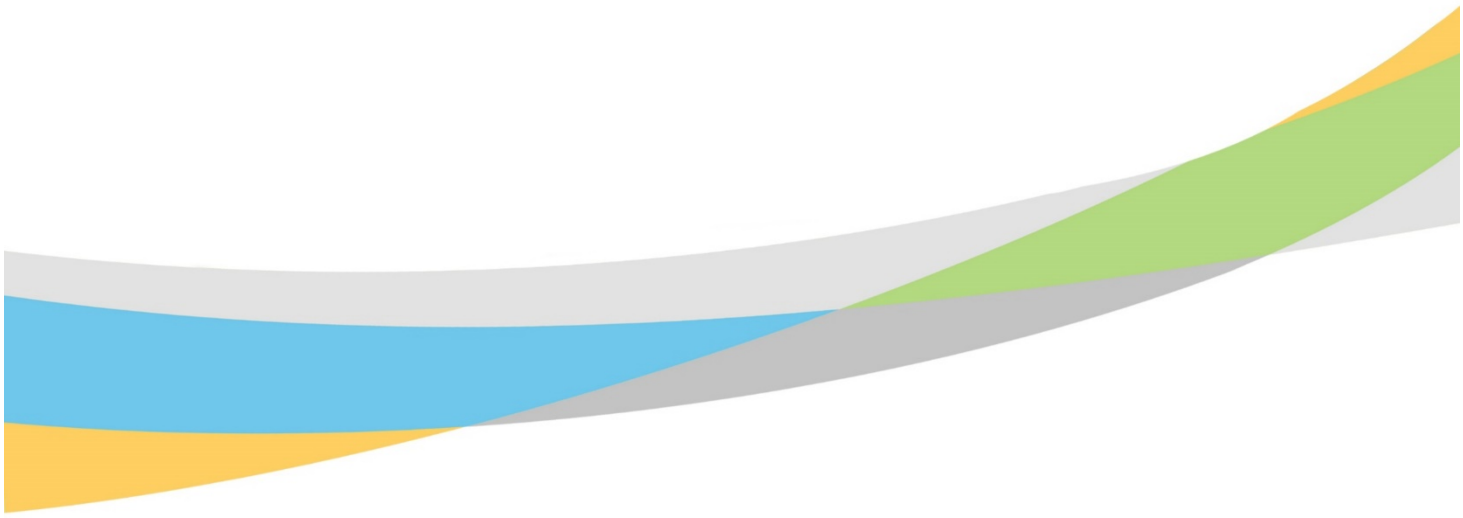

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