

CORMORANT ADVISORY GROUP MEETING #4
Wednesday December 10, 2008
6:30 p.m. to 9:00 p.m.
Mennonite New Life Centre, 1774 Queen St. East, Toronto

FINAL MEETING NOTES

Present:

Ralph Toningner, TRCA
Karen McDonald, TRCA
Andrea Luger, TRCA
Suzanne Barrett, Barrett Consulting
Gail Fraser, York University
Ainslie Willock, Canadians for Snow Geese*
Liz White, Animal Alliance of Canada*
Julie Woodyer, Zoocheck Canada*
Leslie Coates, City of Toronto
Janette Harvey, City of Toronto
Catherine MacFarlane, Aquatic Park Sailing Club
Paul Scott, Aquatic Park Sailing Club
David Moore, CWS
Lynne Freeman, Toronto Ornithological Club
Glenn Coady, Local Expert
Bernie Taylor, York University

(* denotes member of Cormorant Defenders International)

These notes reflect the general nature of the meeting discussion. If there are errors or omissions, please contact K. McDonald at kmcdonald@trca.on.ca or 416-661-6600 ext. 5248.

Comments contained herein reflect the opinion of the individual and do not necessarily reflect the position of the organization they represent.

1. Welcome

S. Barrett welcomed the Advisory Group members and everyone introduced themselves. S. Barrett then presented the evening's agenda.

2. Review of Previous Meetings

S. Barrett reviewed the foundations and framework of the project and the accomplishments of the Advisory Group to date. The following topics were addressed:

- Objectives
- Public consultation summary

- List of Advisory Group members
- Summary of Advisory Group meeting accomplishments
- Ongoing concerns of the Advisory Group
- Key points from the public meeting
- Authority meeting overview & recommendations

3. Review of 2008 Colonial Waterbird Data and 2008 Cormorant Management Strategy

R. Toningier began his presentation with a review of the 2008 Cormorant Management Strategy which was approved by the Authority Board in May 2008. The 2008 Strategic Approach matrix (Table 1) is very similar to the approach we will adopt for 2009, which will be the focus of our next Advisory Group meeting in February 2009 (see 6. Next Steps).

Table 1. 2008 Strategic Approach

	Peninsula A	Peninsula B	Peninsula C	Peninsula D
Pre-nesting Deterrents				*
Post-Breeding Deterrents			*	*
Enhanced Ground Nesting	*	*		
Restoration	*	*	*	*
Experimental Egg Oiling		*		

Due to the timing of the approval only part of the Strategy was implemented for the 2008 breeding season. The management strategy that was applied included pre-nesting and post-breeding deterrents on Peninsula D; York University's egg oiling study on Peninsula B; and some habitat restoration activities. Human presence (researchers and the public) on Peninsula D was successful at deterring DCCO from the area during the nesting period without the need to escalate deterrence techniques. During the post-breeding season, DCCO attempted to use Peninsula D for roosting, and again simple human presence was adequate to discourage roosting. There were no direct post-breeding deterrents used on Peninsula C.

Several restoration projects were implemented in and around the colonies this fall. However, spring plantings respond better at this site, therefore more restoration work will occur in spring 2009.

Due to colony activity during spring and summer, ground nest enhancements were not started until fall and will continue throughout the winter until the pre-nesting period begins next spring.

R. Toninger then addressed the following TTP data:

- Colonial waterbirds nest numbers, 2008
- DCCO nest numbers, 1998-2008
- BCNH nest numbers, 1980-2008
- BCNH numbers by peninsula, 1980-2008
- DCCO nest numbers by peninsula, 1990-2008

R. Toninger noted that DCCO nest numbers were down slightly from last year, however, this is consistent with the numbers from the rest of the Lake Ontario Basin. The BCNH nest numbers have been steadily declining since 2002, reaching a 14 year low in 2008; however, long term data show that the population is quite variable. The BCNH colony at TTP is significantly larger than any other BCNH colony in the Great Lakes Basin (representing 75% of the Lake Ontario population), and based on CWS data the TTP population affects data for the whole basin. In 2008 the TTP BCNH colony decreased by over 300 nests from 2007. While nest and population numbers have dropped for both BCNH and DCCO this year, management decisions will not be based on this short term data.

J. Woodyer asked if TRCA knows why the BCNH colony size decreased. R. Toninger replied that the population fluctuations are not completely understood and that the decline could be due to competition for nesting space with DCCO. BCNH are increasingly nesting at the edges of the forest habitat and may be subject to increased disturbance due to public activity. J. Woodyer commented that this would not explain the province wide population drop, that there must be some other reason. G. Fraser suggested that BCNH are at the northern end of their habitat range, where fluctuations in population size would be expected anyway, so this could simply be a long term phenomenon. R. Toninger agreed and reiterated that decisions cannot be made based on short term data. For example, based on 2003 data TRCA felt it might be the beginning of a DCCO population decline, but it was just a short term decrease and subsequently the population has continued to increase. He also indicated that the TTP colony decrease accounted primarily for the regional drop because of the size of the colony. G. Coady suggested that immigration from other colonies could be the reason for the continuous DCCO population increase at TTP. J. Woodyer commented that DCCO management practices at other colonies coincide with the population increase at TTP. G. Coady then mentioned that while the population of one colony may not be successful in a given year, another colony may do extremely well in that same year regardless of management action. R. Toninger wrapped up the discussion by talking about the importance of banding/marking and tracking adult DCCO to better understand migration among colonies. They are highly mobile birds, and once tagged, their activities across the province may be traced.

R. Toningner described ground nesting on Peninsula B and the number of trees nested in per year. The data show that the total number of trees occupied has decreased in recent years since there are fewer trees available for nesting due to complete die-off on Peninsula A and a significant decrease on Peninsula B. To sustain the DCCO population there will need to be a switch from tree nesting to ground nesting. This is a natural progression for an isolated colony that is not migrating to other nesting locations. G. Coady commented that DCCO have the ability to maintain stasis by increasing the number of nests in each tree. R. Toningner replied that TRCA will produce density data and noted that the ground nesting colony on Peninsula B supports about 1000 DCCO pairs in an area measuring approximately 400 square meters and another 1000 pairs in the tree canopy [over 20,000 square meters]. G. Coady offered that as the tree canopy decreases DCCO will increase the density of nests in the trees, however, BCNH will not. They tend to move into shrubs or will leave the colony all together. He noted that we must think of the GTA and the Great Lakes Basin population as a whole. R. Toningner said that efforts should continue to document BCNH nesting and foraging sites, especially smaller locations like farmer's fields. When large numbers of BCNH from TTP are "lost" we cannot track them to other locations since we are not aware of all the existing nesting sites. This contrasts with Caspian Tern populations - when the TTP Caspian Tern population decreases there is a measurable increase in the population elsewhere (Hamilton Harbour). The long term dynamic is the key piece.

P. Scott asked if the tree health data are a measure of management success on Peninsula C, and if the data have been collected. R. Toningner replied that the data have been collected and more details will be forthcoming about this at the next meeting. It has been obvious from the peninsulas first colonized that tree health decreases as nesting increases. A map will be created to illustrate nesting tree use and health; typically the longer a tree is nested in by DCCO the lower the health. New trees or BCNH nest trees are in better health, but once occupied by DCCO health decreases. R. Toningner noted that tree health on Peninsula C has declined much more rapidly than on the other peninsulas.

4. Update on York University Studies

G. Fraser presented a progress report on her projects at TTP. The first project, on common terns, was carried out by a MSc student (Department of Biology, York University) was the second year of a two year study. The research investigated diurnal sources of disturbances to the terns, a comparison of productivity between an island and floating platforms, and various data on diet.

The group also received an update on the raccoon predation study on DCCO and BCNH carried out by G. Fraser and an undergraduate student volunteer, which was the second year of a three year project. Compared to 2007 raccoon activity was higher, more heron nests were estimated to be negatively impacted due to this activity and there was more raccoon activity in trees with nesting cormorants. L. White asked if the increased activity could be due to increased raccoon populations. G. Fraser said that there is no current raccoon population/density data for the site, but there are records of illegal release of raccoons at TTP. L. White said she knows of 33 raccoons that were illegally released in 2008 at TTP. She contacted the Ministry of Natural Resources, however no one has done anything about it. R. Toningner requested to be contacted

immediately if anyone observed wildlife release at TTP so that he could engage the TRCA enforcement team. L. White said she has the name and address of the offender. G. Coady asked if there is a list of individuals with permits to drop wildlife off at the park. L. White replied that nobody has such a permit. She believes there should be increased enforcement in the spring when raccoons are most active. G. Coady asked if TRCA has a list of people releasing wildlife and if so, have they been contacted? R. Toningier replied that has been done, based on a list containing both licensed and non-licensed trappers and that TRCA had recently contacted an individual observed releasing raccoons. R. Toningier also noted that licensed trappers are not supposed to release raccoons more than one kilometer away from where they were caught due to risk of rabies. L. White asked if the number of dead raccoons at the park has increased. R. Toningier replied that it has not, but that the coyotes may be preying or scavenging them. G. Coady commented that there have been a lot more raccoon road kills this year in the High Park area.

The third project described the effects of egg oiling on the behaviour of ground nesting cormorants and was carried out by Gail Fraser and a MES student. Methods for the project were peer-reviewed by Drs. Bridget Stutchbury (York University) and David Moore (CWS) and approved by the Animal Care Committee at York University. The methods reviewed originally included experimental design for examining the effects of banding adults on the nest; however this was not carried out because the amount of ambient light from the city would make it difficult to safely capture adults. The experiment was conducted at night to reduce gull predation. The experimental design had three groups: control (eggs not handled), treatment (eggs handled and sprayed with oil) and sham (eggs handled and sprayed with water). Each group had thirty nests initially and nests were randomly placed in each group as the researchers moved through the colony. One egg from each nest was floated to estimate egg age; in the treatment and sham groups all the eggs were 13 days of age or less, based on goose egg floating data from the Humane Society (2004; no cormorant specific information was available). Behavioural data were collected using both instantaneous scans and focal (15 min) observations. Each nest was observed 2x a week using the former and 1x a week using the latter. Observations were conducted approximately 2x a week throughout the nesting season from a blind which was accessed primarily by kayaking to the study area and walking a brief distance to the blind. Investigator disturbance was also measured during periods of accessing/leaving the blind as well as any activities that occurred during focal observations.

G. Fraser presented two main sets of data: behaviours during the first three weeks immediately following the experiment (May 28 to June 13; pre-chick stage) and entire season data on nest occupancy. Some of the statistics were not yet finalized and thus conclusions from the work were presented as preliminary. In all cases, sample sizes for each group were less than 30 because of issues around visibility of the nest from the blind and varied depending on the data (e.g., instantaneous observations did not require full visibility of the nest whereas focal observations did). During the pre-chick stage, based on focal observations, there was no difference among the three groups for the first three weeks in the average proportion of time spent incubating, average proportion of time the mate was present, and the average proportion of time spent egg turning. Based on instantaneous observations across the breeding season, on average, treatment birds spent more time incubating (sitting on eggs) than did sham or

control birds. Sham and control groups, on average had longer nest attendance (average length of attendance for the whole season) than did treatment birds. The average date of nest abandonment for treatment birds was July 8, which corresponded with the date by which control and sham nests all had chicks. The average proportion of time when a mate was present for the treatment group gradually declined as the season progressed. There were 5 nighttime investigator disturbances (mean time off nest \pm SD = 33 ± 50 min) which included administering the experiment, re-staking nests, and modification of the blind. There were 20 diurnal disturbances (mean time off nest \pm SD = 9.1 ± 9.7 min), 19 by investigators and 1 by a deer which ran through the colony during our observations. Only four disturbances caused the whole subcolony to temporarily leave their nests, the remainder caused only part of the subcolony to temporarily leave their nest.

Based on these preliminary findings G. Fraser concluded that egg oiling applied at night did not cause immediate abandonment of birds in the treatment group. Pre-chick comparisons for some nesting behaviours revealed little differences in the groups, but importantly the mate was present for birds in the treatment group. Treatment birds abandoned the nest site at a time which corresponded to when sham and control groups all had chicks – thus treatment birds were using cues from their neighbors on when to abandon their breeding attempt. This is a similar point made by A. Duerr and is linked with return rates to colony sites in subsequent years; it is important to have successful nests interspersed among non-successful nests. This project will be concluded in the 2009 breeding season once re-occupancy of experimental nest sites has been observed.

By request of the Advisory Group the application process was recorded using an infrared video camera. The study nests were marked and treated on May 27, 2008 by four individuals between approximately 10-11pm. J. Woodyer commented that she would have liked to have seen the video showing the DCCO disturbance over the entire colony rather than just the oiling activity. S. Barrett replied that this could not have been done without artificial lighting. G. Fraser noted that all of the ground nesting DCCO were flushed off their nests during the oiling application process. J. Woodyer inquired if G. Fraser has completed any daytime egg oiling studies that could be compared with the night oiling study. G. Fraser replied that she has not, but A. Duerr might be able to provide information about this. K. McDonald noted that during daytime RBGU nest counts in the DCCO ground nesting area, DCCO would flush off their nests into the adjacent waters and gulls were regularly observed predated DCCO nests.

5. Discussion

L. White commented that in the spring she requested permission to observe the nest counts, but this did not occur. She then asked if we can assure this for next year. R. Toningier replied that he had a discussion with L. White at the board meeting asking her if she wanted to come out in the field with the TRCA staff. Concern was raised regarding the disturbance to the colony and R. Toningier indicated that any additional people would increase the level of disturbance. It was agreed upon at that time that L. White did not want to create additional disturbance to the colony. He stated that if L. White or anyone else wanted to take part in our field work to please contact him directly and, we can make arrangements to take part in some aspects of our field work in the spring.

L. White thanked G. Fraser for floating the eggs since it is a humane issue. It shows that the dates G. Fraser found eggs floating high (> than 18 days old). She requested that TRCA use the egg floating approach for other oiling activities such as Canada Geese and Ring-billed Gulls. R. Toningner replied that TRCA closely monitors the managed gull colony and initiates oiling activities as soon as full clutches are noted – early in the nesting season. He noted that egg floating as an additional check is a good idea.

J. Woodyer asked where the DCCO went, once flushed. G. Fraser replied that it was hard to tell where all the birds went because of the darkness. R. Toningner noted that daytime disturbances cause DCCO to flush to the adjacent water, however, at night it appeared that most DCCO appeared to move away from the disturbance but remained fairly close to the nests. D. Moore said that flushing distance depends on the time of year - during incubation birds don't move very far, but that later in the season on they will move further away. He reiterated that timing is very important. J. Woodyer asked if there was anything in animal protocol about not flushing the nests after the eggs are greater than 13 days old. G. Fraser replied that there is not, only for oiling and that the protocol was actually no oiling after 18 days (G. Fraser used a stricter protocol of 13 days or less). In her study, egg age was only determined for oiling, not flushing off nests.

R. Toningner noted that G. Fraser's research has provided some very valuable insights about the TTP DCCO colony. The research has led TRCA to review monitoring and management activities. TRCA has always conducted colony work during the day but since there appears to be significantly less disturbance at night, TRCA will endeavour to conduct colony work at night whenever feasible. He also noted that access into the colony will also be reviewed. If water access shows fewer disturbances then it will also be used whenever feasible. D. Moore commented that the degree of disturbance is based on many factors including weather and time. A specific number can't just be picked; there is no golden rule about what is good, one must look at the physiological response of each bird species.

L. White commented that the colony has constant human activity on weekends with public access, plus there are piles of researchers and other activities. She raised the question as to whether the colonies should be left alone during the breeding season. R. Toningner stated that TRCA generally supports research, having considered overall disturbance to the colonies and the research value. D. Moore replied that activity can be quantified, but what is the actual disturbance? R. Toningner noted that "best practices" for colony work should be developed, and that a closer look is needed at the nature of activities and disturbance. He noted that the Common Terns nesting in Embayment A, close to public viewing and water access, are much more tolerant of human activities than the terns nesting in Cells 1 and 2, which are further from public viewing and are not accessible. G. Fraser suggested that it would be worthwhile to look at guidelines for work given weather, temperature, etc., and remarked that a paper by Nisbet (see - Nisbet, Ian C.T. 2000. Disturbance, Habituation, and Management of Waterbird Colonies. *Waterbirds* 23(2): 312-332.) noted that colonial waterbirds can become habituated to human activity and therefore less disturbed by human presence. She concluded that habituation is likely a very positive technique for TTP.

G. Coady commented that on page 6 of the board communication the term voracious is used to describe the appetite of Mute Swans. He feels this is an pejorative and inaccurate term and should not be used. Otherwise the document is accurate.

6. Next Steps

R. Toningner continued his presentation and discussed the proposed ground nesting enhancement project. The goal is to enhance and encourage ground nesting on Peninsulas A and B. The ground nesting site will be enhanced using decoys, recordings, and artificial and natural nest structures.

G. Fraser is developing a study to look at conspecific DCCO ground nest attraction. She described a study completed in Oregon where DCCO ground nesting was encouraged using tires and decoys. This study was carried out adjacent to another nesting colony and was very successful at attracting birds to nest on the ground. G. Coady commented that the densest DCCO colonies in North American history have all been ground nests. J. Woodyer asked if there were trees in the area where the study was conducted. G. Fraser replied that there were several islands in the study area, some of which had DCCO nesting in trees and others where the DCCO were nesting on the ground even though there were trees present. More information about this study will be presented at the next Advisory Group meeting in February.

R. Toningner continued to explain the plans for ground nesting enhancements at TTP. There are two components: to encourage ground nesting above and beyond G. Fraser's experimental design and to create conditions that would be testable for other studies. R. Toningner explained that the bulk of the ground nesting enhancements will occur on Peninsula A to develop a new ground nest colony and that enhancements on Peninsula B would be made to encourage the expansion of the current ground nesting colony. A section on Peninsula A will be reserved for G. Fraser's ground nesting study. A photograph of Peninsula B was shown, illustrating the tires that have been put in place in preparation for the spring. J. Woodyer asked if the tires were already there and if they will be filled with nesting material. R. Toningner replied that some tires have been installed on Peninsula B and will be filled with nesting material before DCCO arrive in the spring, but ideally we would like to pursue more natural techniques other than tires. J. Woodyer asked if the tires would be camouflaged. R. Toningner replied that they will use straw bales to hide the tires and provide nest material. If the tires prove to be successful they could be removed at a later date leaving the nesting material left in place. G. Coady raised the concern that the tires could leach toxic substances.

R. Toningner then explained the restoration component of the strategic approach. The goal is to plant site appropriate vegetation in strategic locations. G. Coady asked what kind of shrubs will be planted, and if TRCA has looked into planting shrubs that are more tolerant to disturbances and are suited for nesting. He commented that this is how to keep the BCNH population at TTP as they will shift from nesting in the trees to nesting in shrubs if the timing is right. R. Toningner replied that the shrubs will be planted at the edge of the existing colony on Peninsulas B and C. G. Fraser asked if TRCA is thinking about planting shrubs further out on Peninsula C, as the BCNH may not want to move further inland. K. McDonald replied that the larger issue with moving the BCNH out on the peninsula is the amount of guano rain on newly planted young

trees and shrubs. R. Toningner noted that TRCA are open to suggestions. J. Woodyer commented that there was a guano issue at the Stanley Park (Vancouver) Great Blue Heron colony and that to overcome it they used deep layers of mulch. They were not managing the birds as much as they were managing the situation below the canopy to maintain the trees. R. Toningner replied that that is why soil amendments have been included in the restoration strategy in addition to planting. He also explained that at TTP the understory is affected by guano burning the leaves, and not only by the acidity or nutrients in the soil. The soil on the Peninsulas is very sandy and nutrient poor as the majority of nutrients added by guano are leached into the lake. The soil doesn't have the properties to keep the ions balanced. G. Coady commented that topography guides soil chemistry and the health of trees. J. Woodyer noted that colonies using swamp habitats appear to have healthier trees.

G. Coady asked what the response would be if BCNHs move to Peninsula D, would this shift be tolerated? R. Toningner replied that the tree canopy on Peninsula D is different than on Peninsula C and may not be as attractive. G. Coady commented that Peninsula D is similar to other areas where the BCNH nested in the past. R. Toningner replied that Peninsula D has been planned as a public access area and disturbance may deter colonial waterbirds from nesting. G. Coady said that it would be a public relations nightmare if BCNHs were to establish on Peninsula D because the DCCO would follow them.

R. Toningner wrapped this section up by saying that reforestation activities will occur first where there were trees present in the past, such as on the east side of Peninsula A. Fast growing shrubs will be used, focusing on shrub species that could attract support the BCNH colony. The tips of Peninsulas A and B are being assessed from a shoreline perspective to determine if they need stabilization.

7. Wrap-Up and Next Meeting

R. Toningner briefly presented the proposed strategic approach for 2009. Pre-nesting deterrents are proposed at the edge of the colonies on Peninsulas C and B to discourage DCCO from nesting further into the park zone. This will be discussed more at the next meeting.

S. Barrett discussed the timeline for the next meeting. It was agreed that the next meeting will be held on Wednesday February 4, 2009. At this meeting, ground nesting enhancements will be further discussed as well as the proposed strategic approach for 2009. J. Woodyer asked if Mart Gross will be invited as he was valuable at past meetings. R. Toningner replied that since Eric Davies (M. Gross' graduate student) will not be pursuing further graduate research on the colonies, M. Gross is no longer a member of the Committee. He would prefer to include an academic with expertise on colonial waterbirds. He requested that if any members of the group were aware of an academic colonial waterbird expert that might be interested in participating in the group to please forward their name(s) to him.