

CORMORANT ADVISORY GROUP MEETING #6

Tuesday December 15, 2009

6:30 p.m. to 9:00 p.m.

Metro Hall, Room 304, 55 John Street, Toronto

FINAL MEETING NOTES

Attendees:

Ralph Toning, TRCA
Karen McDonald, TRCA
Andrea Luger, TRCA
Gail Fraser, York University
Ilona Feldmann, York University
Paul Scott, Aquatic Park Sailing Club
Janette Harvey, City of Toronto
Bernie Taylor, City of Toronto
Julie Woodyer, ZooCheck Canada*
Ainslie Willock, Canadians for Snow Geese*
Liz White, Animal Alliance of Canada*
Anne-Marie Leger, Toronto Ornithological Club
(*Denotes member of Cormorant Defenders International)

These notes reflect the general nature of the meeting discussion. If there are errors or omissions, please contact A. Luger at aluger@trca.on.ca or 416-661-6600 ext. 5772.

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

1. Welcome and Introductions

R. Toning welcomed the group and noted that the purpose of tonight's meeting is to summarize the management strategy and data collected during the 2009 field season at Tommy Thompson Park. The minutes from Advisory Group Meeting #5 (February 2009) were finalized by email in the spring and are available on the cormorant website. Everyone then introduced themselves. R. Toning noted that some representatives could not attend the meeting, but that Advisory Group members from provincial and federal agencies were aware of the data. The data were presented at the Waterbird Society Annual Meeting in Cape May, New Jersey in November 2009. R. Toning concluded the welcome by stating that the meeting was meant to be informal and that questions should be asked as they come up. He also noted that the meeting location had changed to Metro Hall and hoped that this was convenient for everyone. If anyone had paid for underground parking for the meeting they could bring their receipt to A. Luger for reimbursement.

2. Review of the 2009 Colonial Waterbird Data and Cormorant Management Strategy

R. Toningier started the presentation with a review of the goals of the cormorant management strategy. The goal is to achieve a balance between the continued existence of a healthy, thriving DCCO colony and the other ecological, educational, scientific and recreational values of TTP. The specific objectives of the strategy are to: increase public knowledge, awareness and appreciation of colonial waterbirds; deter DCCO from nesting on Peninsula D; limit further loss of tree canopy on the peninsulas beyond the existing DCCO colonies; and continue research on colonial waterbirds in an urban wilderness context. Public consultation in 2009 consisted of two advisory group meetings (February and December), a TRCA Board communication (March), and a display and tours of the bird colonies at the Spring Bird Festival (May). The Spring Bird Festival was a great success; over 2,000 participants came out and the colonial waterbird display was well attended. The 2009 Strategic Approach (Table 1) was approved by the Authority Board in March and was implemented during the spring, summer and fall.

Table 1: 2009 Strategic Approach Matrix

Method	Peninsula A	Peninsula B	Peninsula C	Peninsula D
Pre-nesting Deterrents		*	*	*
Post-Breeding Deterrents			*	*
Enhanced Ground Nesting	*	*		
Egg Oiling Research (follow-up on next attendance)		*		
Habitat Restoration	*	*	*	*

Overall, DCCO numbers were slightly higher in 2009 than in 2008, totaling 7564 nests. Other colonial waterbird species were mostly successful; GREG numbers were up from 2008, RBGU numbers were roughly the same or just slightly lower, and COTE were also strong, with nesting on all four reef rafts and the Cell One Tern Island. Unfortunately, the BCNH colony was almost completely abandoned by the middle of the breeding season.

The DCCO colonies at TTP are very interesting as there are four distinct sub-colonies that formulate the overall, major colony. The overall colony experienced a population increase in 2009, and a population reduction was seen in tree nesting cormorants. The population increase was solely due to an increase in the ground nesting colony. This is the expected natural progression as nesting trees die, and provides one rationale for the ground nesting enhancements. The 2009 Cormorant Strategy (deterrence activities and ground nest enhancements) may have also contributed to the increase in ground nesting DCCO.

P. Scott asked how it is known that ground nest numbers are due to enhancements and not natural progression. R. Toningier replied that it can be seen by looking at tree availability on the Peninsulas. DCCO have a choice between tree and ground nesting when 'un-nested' trees are still available in the colonies. This has not yet been confirmed for TTP since the 2009 data review and analysis has not yet been completed. P. Scott then inquired whether the ground nesting numbers could be broken down by Peninsula as is done with the trees. R. Toningier responded that there is presently only a ground nesting colony on Peninsula B.

While BCNH numbers appeared to have increased at the time of the nest counts, it was evident that the colony had moved into a new location on Peninsula C. In late June a near complete nest abandonment was experienced, resulting in a lower nesting population that predates counts from the late 1980s. L. White asked if the BCNH abandoned nests with eggs or with chicks. K. McDonald replied that they did abandon eggs, but probably not chicks (if chicks were abandoned they were likely very young). R. Toningier continued by illustrating the movement in the colony location throughout the years. 2009 was the first year that the colony moved heavily into the trees beyond established colony signage and consequently came into more contact with park users. Fencing was erected to keep people out of the new area; however, BCNH had abandoned the new nesting area by late June.

Tree health in 2009 was compared to 2006. The same pattern that had been seen over the years continues to prevail. Die back is significant in the core of Peninsula C and is occurring at a faster rate than on Peninsulas A and B. It has only taken about five years of nesting for the trees to experience significant health decline on Peninsula C.

P. Scott asked where the remaining (~50) BCNH nests are located. R. Toningier responded that G. Fraser probably has a better idea as TRCA minimized staff presence colony during nesting season. G. Fraser said that they remained in the traditionally used BCNH area. P. Scott inquired if this area was as close to nesting DCCO. G. Fraser replied that the BCNH were intermixed with DCCO. L. White asked how long BCNH stayed in the new location. K. McDonald replied that a nest recount was completed around June 12th, at which point it was noticed that they appeared to have abandoned. P. Scott asked if the new location was ideal habitat. K. McDonald responded that the trees are smaller in that area and are of mixed species with thicker understory vegetation, also, the area is closer to the water, the pedestrian trail and the beach which attracts a large number of park visitors and traffic through the area. G. Fraser commented that there are also higher densities of fire ants in this area. L. White inquired if the smaller trees encourage fire ants to access them. G. Fraser responded that they don't yet know; they were tracking ant movement this past summer. R. Toningier concluded that this area is marginal habitat based on BCNH nesting history at TTP. It has always been a concern that colony expansion would eventually come into conflict with park use and pedestrians.

Peninsula A and the tip of Peninsula B are classified as DCCO Conservation Zones, areas where DCCO are encouraged to nest and loaf. Restoration plantings have been completed at the base of Peninsula A to re-vegetate and delineate the area. Regulatory signage intended to keep people out is posted across access points to the Conservation Zones; however, people are sometimes found in the colonies claiming that they are not disturbing the birds. People have also been seen accessing the areas from the water. Regulatory signage will be posted along the shorelines for the 2010 breeding season to keep boaters away as was done by the COTE raft in Embayment D.

G. Fraser/I. Feldmann commented that she witnessed a 'Shark Attack' tourist boat entering Embayment A that flushed the DCCO she was observing on Peninsula B. She is concerned that experiences like this will impact the ground nesting colony. I. Feldman added that these boats enter the embayment fast, creating large waves and making a lot of noise. P. Scott commented that the waves indicate that the boats are traveling at speeds beyond the legal limit, and inquired about the navigation rights in the embayment. R. Toningier replied that Embayments A, B and the eastern portion of C are considered navigable. J. Woodyer asked if CWS can enforce illegal entry into the colonies. R. Toningier replied that the TRCA Conservation Officer has been asked to increase enforcement and that the MNR regularly patrols the park. So far TRCA has not, and is not aware that anyone has prosecuted offenders, but will continue working hard to enforce the regulations.

The enhanced ground nesting locations are on Peninsula A and the tip of Peninsula B. The ground nest colony population increase observed in 2009 occurred adjacent to the current ground nest colony on Peninsula B. A variety of treatments in a number of combinations were applied to the enhancement areas. Treatments included the installation of wooden stakes, woody debris, tires, nest material and DCCO decoys. L. White asked if there appears to be a preference for treatment combination. R. Toningier responded that was the question TRCA and York University were hoping to answer. The treatments were selected based on the results of efforts conducted in other locations; the example from Presqu'île was used where stakes were erected in a grid pattern successfully attracted DCCO to nest. At TTP there was considerable prospecting and loafing in the enhancement areas, and DCCO were observed taking the straw that was supplied for nesting material. Attraction to a site may not be based solely on seeing an ideal location, but by seeing successful nests. Based on this, chick decoys are being considered for use in 2010.

Although DCCO were not attracted to nest in the enhancement area in 2009, RBGU liked the structural enhancements (particularly the tires) and nested in and around the enhancement area. Opportunistic observations showed an increase in DCCO activity on Peninsula A compared to previous years. It is possible that RBGU may need to be deterred from the enhancement areas earlier in the season, similar to the CATE strategy employed in the 1990s. G. Fraser asked if RBGU were nesting on Peninsula B when DCCO started to move to the ground from the trees. K. McDonald replied that RBGU were nesting in that location, but that the population of that sub-colony was unknown.

Pre-nesting deterrents were carried out as per the 2009 Strategy. Active deterrents took place only on the tips of Peninsula C and D, and were successful at preventing DCCO from nesting in cormorant conservation zones, with the exception of several trees on Peninsula C. 74 person hours of monitoring, including behaviour and location preferences before, during and after deterrent activities, were completed in the 2009. Observers noticed that DCCO nesting on Peninsula C frequented the waters of Embayment C when disturbed. Deterrent activities were carried out based on a scale of escalation (Figure 1). Activities commenced on April 14th with human presence and escalated to noise makers on April 23rd on Peninsula C. Human presence and activity on Peninsula D was sufficient to deter DCCO from nesting, although there was one old squirrel nest that was investigated by a pair.

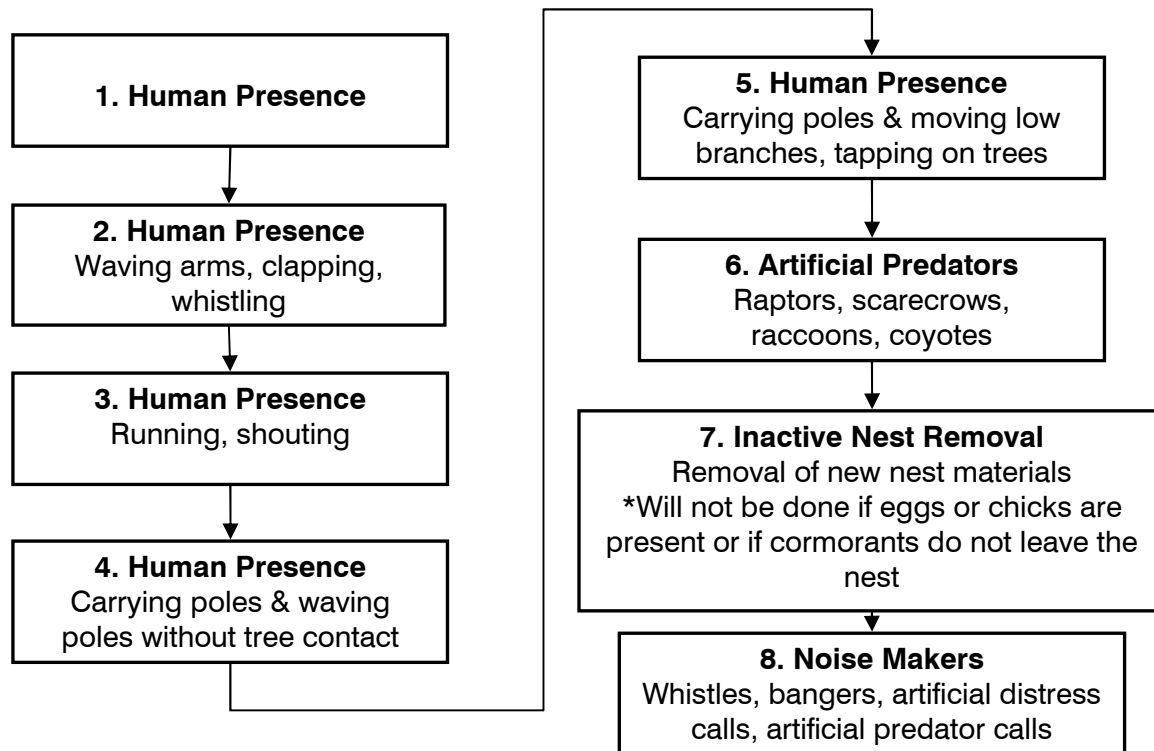


Figure 1: DCCO Deterrent Activity Escalation Scale

P. Scott inquired as to the date that deterrent activities ended. R. Toningher replied that they ended on May 25th. A. Willock commented that the term ‘artificial predators’ used in the escalation scale suggests that predators were introduced to the area. She also suggested clarifying that ‘nest removal’ is for inactive nests only. R. Toningher clarified that the term ‘artificial predator’ means a non-living, decoy type method and further that only inactive or incomplete nests were removed (nests with an incubating bird/eggs were not removed). J. Woodyer asked about deterrents ending on June 12th as listed in the presentation. K. McDonald replied that active deterrents ended May 25th but that every time TRCA entered the colony it was considered at deterrent, so the last colony visit occurred June 12th. P. Scott asked why nest removals were not carried out (a specific date was not indicated on the flowchart in the presentation). K. McDonald responded that new nest material was removed prior to egg laying, a specific date was not listed as it was an on-going activity. She estimated that there were 10 instances of nest material removal; this number can be confirmed upon further review of the data. J. Woodyer asked if the hawk kites were effective. K. McDonald replied that unfortunately they were not, mainly because it is hard to fly a kite in the trees. R. Toningher added that the kite was kept low to the ground to localize the disturbance. K. McDonald added that an immature bald eagle passed through the area in early August and flushed every DCCO in the area. G. Fraser commented that a lot of money was spent on deterrents, and she wondered if the cost of a live animal (falcon) had been estimated. K. McDonald replied that the constraint of using a live animal is that it must be trained for the specific species it is intended to target. For example, at the Toronto City Centre Airport the falcons are trained to deter CAGO. G. Fraser asked if there were birds trained to deter DCCO at the airport. R. Toningher replied that they are only trained for CAGO and that they are very

expensive. The Toronto City Centre Airport is looking into the risks of colonial waterbirds at the facility.

Although part of the 2009 Strategy, it was determined that post-breeding deterrents were not required on Peninsula C as DCCO were not loafing in the area. Most loafing was documented on the sandbars along Peninsula B.

Overall in 2009 there was no expansion of DCCO onto Peninsula D, ground nesting population increase by 94 per cent and the number of trees used by nesting DCCO decreased. The BCNH colony abandonment is not well understood and TRCA will monitor the colony closely in 2010. BCNH colonies along the Niagara River had increased populations in 2009; however, BCNH from TTP may have forgone breeding for this year after the failed attempts at the park late in the breeding season.

3. Update on York University Studies

G. Fraser began her presentation mentioning that she worked on three projects related to DCCO colonies in 2009: distribution and abundance of European fire ants, DCCO conspecific attraction experiment on Peninsula A, and the effects of raccoon predation on BCNH. As an aside she noted that the DCCO ground nesting colony appears to be doing very well and that it is not a significant target by predators.

Conspecific Attraction Study

This experiment was aimed at determining what attracts DCCO to the nesting site by adding DCCO decoys in high density, low density or not at all to plots of tires or stakes. The study site was located on Peninsula A around the same area where TRCA carried out ground nest enhancements.

She compared TRCA deterrence activities on Peninsula C to DCCO visits to Peninsula A, which showed that as the amount of deterrents increased so did the number of visits by DCCO to Peninsula A. DCCO visits to Peninsula A (measured in number per month) decreased as the season progressed.

She also tracked randomly chosen nests of BCNH and DCCO on Peninsulas B and C, and the ground nesting colony. She found that the ground nests are synchronous in their breeding/nesting activities. Activities in the trees were much more asynchronous. These data were then compared to visits to the experimental plot on A.

Literature shows that prospecting birds are more likely to visit sites when there are chicks present. Although the data has not fully been analyzed, G. Fraser has not made this observation at TTP for Peninsula A. DCCO visit Peninsula A primarily to collect straw for nest material. However, some prospecting was observed.

J. Woodyer asked if it is more work for DCCO to nest on the ground rather than in a tree. G. Fraser did not compare tree nesting to ground nesting in this respect. However, she did describe an interesting observation in which ground nesting adults still fed their chicks after they had fledged from the nest; adults would be at the nest site with no chicks present, then a fully feathered chick would return for a feed.

DCCO visits to the treatment plots on Peninsula A were recorded. DCCO visits to plots with decoys were greater than to plots without. Some of the plots were preferred over others which may have been related to the location of the access tunnel. J. Woodyer asked why the plot nearest the tunnel was not liked. G. Fraser replied that it is hard to know why, but that it could have been the visual barrier.

Researchers were not the only creatures using the tunnel. Evidence of other species was obtained from a remote camera that was setup in the tunnel. Visitors included RBGU, BCNH, raccoon, coyote and skunk. J. Woodyer asked how many photos were taken with the trail camera per night. G. Fraser replied that the camera ran for three days at a time and hundreds of images were generated. When reviewing the photos she was very conservative with counting visitors, and unknowns were not included. L. White asked if the number of raccoons is known. R. Toningier replied that the hope is to know that this coming year. The MNR may be looking into a raccoon census.

The data from this study show that there appears to be a relationship between deterrence activities on Peninsula C and visits by DCCO to Peninsula A. It is harder to decipher breeding chronology and visits. There is some preference for plots with decoys. The audio of breeding DCCO also appears to be important. J. Woodyer asked if the audio was used in specific areas. G. Fraser responded that nesting DCCO calls were played on Peninsula A within range of the study plots. She also mentioned that the audio system was problematic, but was set up to play 12 hours of looped DCCO calls. The system used in the Columbia River study was much more advanced, but cost \$2000 USD plus shipping. J. Woodyer then asked if the treatments of tires and stakes were mixed within a plot. G. Fraser replied that they were not, the additional treatment would have conflicted with the experiment, which was limited by funding and space, and therefore in number of variables that could be applied. J. Woodyer then inquired about the cost of DCCO decoys. K. McDonald responded that the handmade decoys are approximately \$70-\$80 USD (same decoys as used in the Columbia River study) and the plastic standing decoys are \$30-\$40 USD (actually GRCO with the white patch painted black). J. Woodyer asked if one decoy is more effective than the other. G. Fraser answered that she only used the handmade decoys in her study to decrease the variables. K. McDonald said that she thinks the standing, plastic decoy may be more effective, but has no data to support this.

BCNH and Raccoon Predation Study

For this study, G. Fraser followed 144 BCNH nests on Peninsula C in trees that were wrapped with either aluminum foil or a predator guard (sheet of metal). Of the 144 nests followed, only 11 nests fledged young. She noticed that there were many re-nesting attempts made by BCNH and some nests were even initiated as late as mid-June. 51% of the failures were due to raccoon predation, a significant increase from previous years. It appeared that some raccoons may have “specialized” in BCNH nest predation this year. J. Woodyer asked if the raccoons target DCCO or RBGU in the area. G. Fraser replied that DCCO are not a preferred item, but that RBGU nests are definitely predated. J. Woodyer asked if DCCO fight back. G. Fraser answered that they vomit as a defense and raccoons eat the fish regurgitated by DCCO. Additionally, BCNH generally nest lower in the trees than DCCO which may make them an easier meal. J. Woodyer inquired if DCCO nesting in the same tree as BCNH could be beneficial to BCNH. G. Fraser replied that from the study, successful BCNH nests in the same tree as DCCO were positioned in the higher location.

41 BCNH nests on Peninsula B were followed in 2009. 100% of these nests failed. Fifty-eight per cent of the failures were attributed to raccoon predation. No re-nesting attempts were observed in this sub-colony, and it was evident that predator guards were not effective. J. Woodyer asked if the predator guards would be more effective if they were longer in length. G. Fraser replied that in mid-June she added second guards to the remaining BCNH nest trees on Peninsula C, doubling the length. She attributes the longer predator guard length as the reason for the success of 9 nests. K. McDonald commented that if a guarded BCNH tree is beside a tree without a guard, the raccoon will jump from the unguarded tree to the guarded one. G. Fraser said that it may be the same group of raccoons causing all the damage, and they have keyed in on the abundant supply of food.

The claw mark index from the aluminum foiled trees indicated that BCNH trees are visited by raccoons at a higher rate than DCCO trees. The amount of activity in 2009 was very similar to the activity in 2008; the raccoons were simply more effective at getting the BCNH in 2009.

Regulations state that the release of a captured wild animal must be done in a greenspace within one kilometer of the capture location. There is concern that raccoons are being captured from the local community and released at the park; however, a travel distance of 5 kilometers is not an obstacle for a raccoon, they can travel that in one night. So, it is possible that local raccoons released at TTP do not stay at the park, and that the population on the peninsulas may have originated from locations further than 5 kilometers away. L. White said that Animal Alliance of Canada is working with the MNR regarding licensing for removal of wildlife. Currently, anyone can purchase a trap and remove the nuisance wildlife.

Distribution and Abundance of European Fire Ants

This study has been designed to determine if fire ants are impacting the success of tree nesting waterbird species. At TTP, in areas where there is vegetation there are high populations of fire ants, but in areas where there is little vegetation, there are few to no ants. There is no vegetation at the ground nesting colony on Peninsula B and there are no ants. L. White asked if BCNH are known to live with ants. K. McDonald replied that the ants are a recent introduction to TTP, and that BCNH likely nested at the park prior to this introduction. G. Fraser presumes that BNCH may abandon nests impacted by ants.

Follow-up to 2008 Egg Oiling Experiment

G. Fraser quantified the nest occupancy of the nests that were oiled in 2008. It was expected that nests that had been oiled, thus unsuccessful in 2008, would be occupied last in 2009. However, in 2009 all ground nests were occupied from the beginning of the breeding season indicating that there did not seem to be any significant impact to nest selection (although individual DCCO could not be tracked). L. White commented that DCCO have abandoned Gull Island in Presqu'île Provincial Park where all eggs are oiled persistently. G. Fraser replied that the intent of this study was to look at the effects of sporadic oiling which is very different from persistent oiling. K. McDonald added that TRCA made considerable efforts to not enter the colony during breeding season, and if necessary to enter only at night when disturbances are less intrusive.

Discussion

L. White asked if the raccoons at TTP are traveling through the area or if they are residents. K. McDonald replied that raccoons have been observed sleeping at the park in the daytime. R. Toner added that there are both travelers and residents. Raccoons are seen throughout the

spring and summer in all life stages, but that they move off the Spit during the winter. P. Scott asked if the raccoons responsible for predation are from a local population and if so, what the population is. G. Fraser replied that they are likely from local sources, but that the population is unknown. She continued to say that there appears to be a plentiful food supply at TTP during the summer and given their territoriality she guesses that the summer population is between 25-30 individuals. R. Toningier added that anecdotally numbers have increased in recent years and they are being seen on a more regular basis. There has been a definite spike in the last five years; however, there is no quantifiable data to support this.

G. Fraser commented that she hopes BCNH will return. She added that nest usurpation rates in 2009 were on par with previous years indicating that the 2009 Strategy did not appear to impact usurpation. J. Woodyer asked if anyone knows where BCNH went after nest abandonment. R. Toningier replied that he was aware of an increase in the population in the Niagara area early in the season, but this was seen at TTP as well. Signs indicate that they continued to forage in the Toronto area, but no one has reported a significant increase in nesting or roosting numbers. Most BCNH colonies consist of 70-80 pairs, so an increase by 300 individuals would have been significant and likely someone would have reported it.

4. Next Steps & Discussion

R. Toningier introduced ideas for the 2010 strategy, which will be based upon data collected in 2009. The strategic approach will include continuation of the ground nesting enhancement, continued support of G. Fraser's research, additional restoration plantings and a possible partnership with the MNR regarding raccoons. In spring 2010 we will find out if the BCNH abandonment was a one year move or a new reality. When BCNH first colonized the area the population numbers fluctuated significantly. TRCA continues to share this information with CWS.

L. White commented that at Presqu'ile BCNH nest in low shrubs. K. McDonald replied that they nest in low shrubs in most colonies; TTP seems to be an exception. J. Woodyer commented that raccoons could be part of the reason for tree nesting at TTP. K. McDonald responded that the dogwood shrubs at TTP seem difficult for raccoons to climb. G. Fraser added that European fire ants can easily access dogwood. R. Toningier noted that artificial nesting structures could be considered. G. Fraser replied that it is hard to compare techniques used in other colonies since they are all islands. Plus, BCNH should not be encouraged to nest lower to the ground due to their susceptibility to predation.

P. Scott asked when the population census was completed. K. McDonald replied that it was completed the week of May 27th. R. Toningier added that additional nest data was collected in the BCNH expansion area on June 12th and that the exact date of abandonment is unknown. R. Toningier described the new area marginal BCNH habitat. Expansion into this area began prior to the Spring Bird Festival on May 23rd. P. Scott inquired if the fate of the tree nests at the end of the season can be graphed. R. Toningier replied that the count is only completed once at the peak of nesting. J. Woodyer asked if anything else is going on to make the BCNH abandon their nests. R. Toningier replied that the newly colonized area in 2009 was in an area that may be affected by strong winds and is close to publicly used spaces. G. Fraser added that a single wind storm could blow down many nests. A. Willock asked if raccoons could have influenced the BCNH movement. R. Toningier responded there was probably more BCNH-raccoon interaction near public areas. G. Fraser noted that this was not true abandonment, that most likely BCNH only left after attempting to nest multiple times and not every BCNH pair

left the colony. There were probably multiple factors in the abandonment including the weather. R. Toning concluded by stating that it was an odd spring. Colonial waterbirds at other locations also experienced nesting difficulties; therefore the success of a colony cannot be based on a single year. The poor nesting location this year at TTP made them susceptible to many problems.

5. Wrap-Up

L. White thanked the presenters for the very interesting information they shared at the meeting.

R. Toning said the meeting notes would be circulated to the Advisory Committee for internal review before the next meeting. L. White asked if the PowerPoint presentation could be sent via email. R. Toning replied that it can be converted to a PDF and published on the website since it will be too large to send by email. L. White wondered when it would be posted as she would like the presentation to provide information to the EA branch as an alternative to lethal management. R. Toning promised it would be posted as soon as possible.

R. Toning concluded the meeting by thanking everyone for participating and wished everyone Happy Holidays.