# ONTARIO BIRDS

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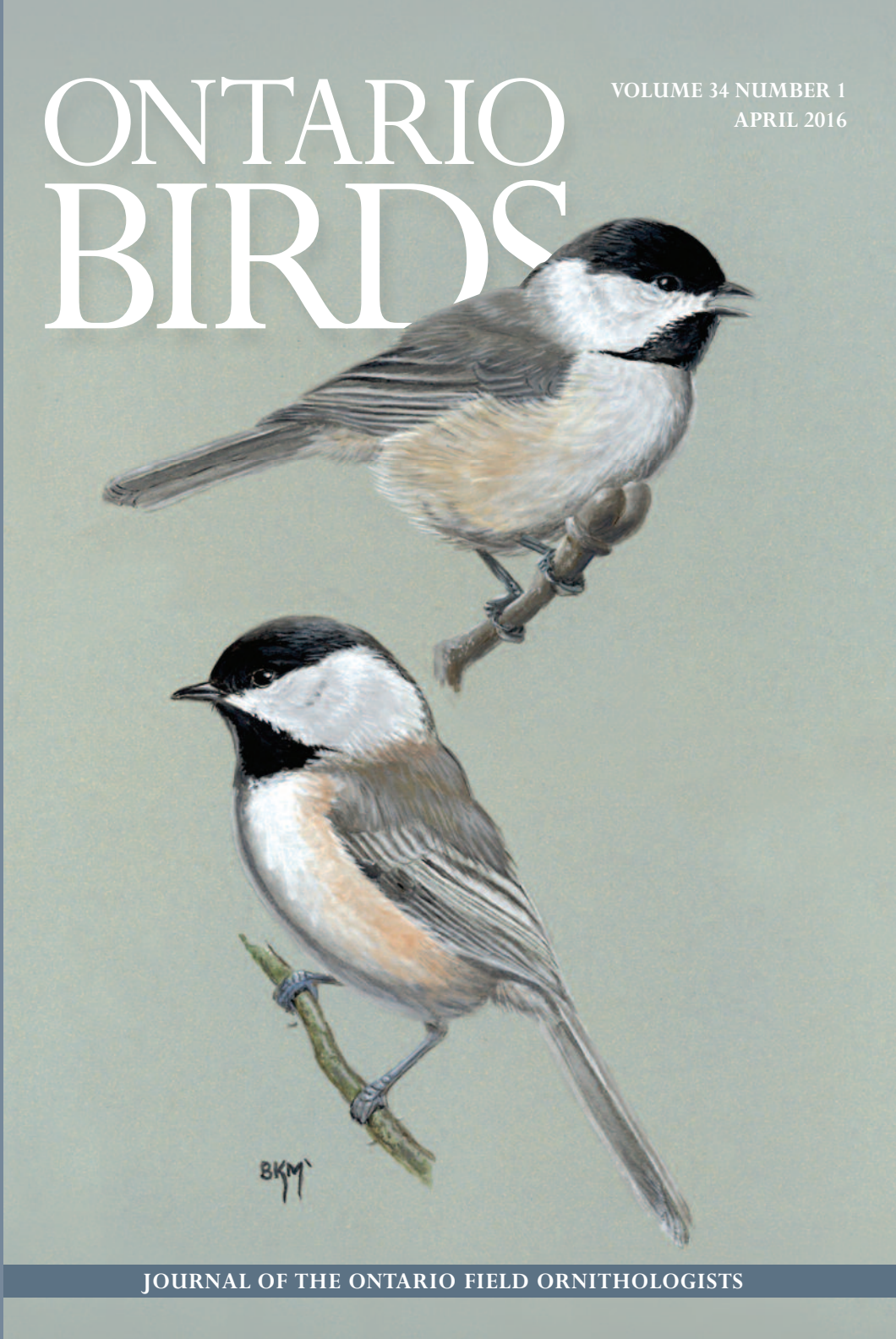


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# ONTARIO BIRDS

VOLUME 34 NUMBER 1
**APRIL 2016**
PAGES 1 — 48

2 Carolina Chickadee: Second record for Ontario and Canada
*Brandon R. Holden and David M. Bell*

14 Trumpeter Swans and Mute Swans compete for space in Ontario
*H.G. Lumsden*

24 Pre-season duck banding in Ontario, 1918-2014 and distribution of hunter recoveries
*Shawn W. Meyer and Christopher M. Sharp*

42 Snow Buntings observed foraging in wild-rice bed
*Donald A. Sutherland, William J. Crins and Warren I. Dunlop*

45 In Memoriam: Ron Scovell
*Glenn Coady*

48 Corrections: December 2015, Volume 33(3)

Cover Illustration: *Carolina (top) and Black-capped (bottom) Chickadees by Barry Kent MacKay*

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# Carolina Chickadee: Second record for Ontario and Canada

*Brandon R. Holden and David M. Bell*

## Introduction

On 13 May 2013 at roughly 0640 EDT, we were birding just south of the Sparrow Field at Point Pelee National Park, Essex County, when we spotted an unusual chickadee in close proximity to a typical Black-capped Chickadee (*Poecile atricapilla*). Our attention was immediately drawn to its grayscale, low-contrast appearance and slightly atypical GISS (general impression of size and shape). Our impression was that this was a Carolina Chickadee (*Poecile carolinensis*), yet both of us knew that there was only one previously accepted record of this species for Ontario and Canada: a single bird observed on 18 May 1983 at Long Point (Tip), Norfolk (Weir 1983, James 1984). This prompted us to begin taking ample photographs in an attempt to properly document the individual. Although we each had previous experience with Carolina Chickadee in the species' core range, the identification is notoriously difficult (Kaufman 1990). After several minutes of observation, the bird remained silent and we continued onwards with the morning's birding.

Later that day at the park's visitor centre, we queried the available references for new insight into this difficult identification. The popular field guides focused heavily on two features: a white vs gray nape and brighter vs paler edging on the flight feathers for Black-capped and Carolina, respectively (Sibley 2000, Peterson 2008). Review of our photographs revealed a bird with faint feather edging, suggesting Carolina, but inconclusive as the lighting and angle in various photographs seemed to change the appearance dramatically. Feeling stuck, we did little more in the short term, other than Holden posting some photos with a request for opinions on his web log (Holden 2013a).

We continued to bird in the Point Pelee area over the next two days and discussed the sighting with other birders. On 14 May, Peter S. Burke commented that the amount of white edging on the greater coverts was an excellent mark for helping to identify individuals of this complex, and that the bird in our photographs looked much better for Carolina. On the

**Figure 1. Carolina Chickadee at Point Pelee National Park showing rounded head shape and small bill. 13 May 2013.** *Photo: Brandon R. Holden.*

morning of 15 May, we were witnessing a moderate reverse migration at the Tip of Point Pelee when various observers (including Peter S. Burke) began arriving and informed us that they too had seen the subject chickadee at various times around the Tip area. All agreed that it was easily detected among Black-capped Chickadees due to its relatively distinctive appearance.

At roughly 0800 EDT on 15 May, we had the opportunity to observe the subject chickadee at the extreme Tip with two typical Black-capped Chickadees. Once again it stood out immediately due to its greyscale, low contrast appearance and different GISS. It was present for a short period of time before flying northwards away from the Tip. Alan Wormington had independently recognized the bird from some distance to the south and simultaneously pursued the bird northwards. As various observers moved north, multiple Black-capped Chickadees were detected around the Point causing considerable confusion. Regrettably the subject chickadee was not observed again.

After additional information from the 15 May sighting was posted online (Holden 2013b), we received photographs of the subject bird taken just north of the Tip of Point Pelee on 12 May by Hayden J. Bildy. He was birding with R. Gordon Payne at the time, who also observed the bird (Burrell and Charlton 2015).

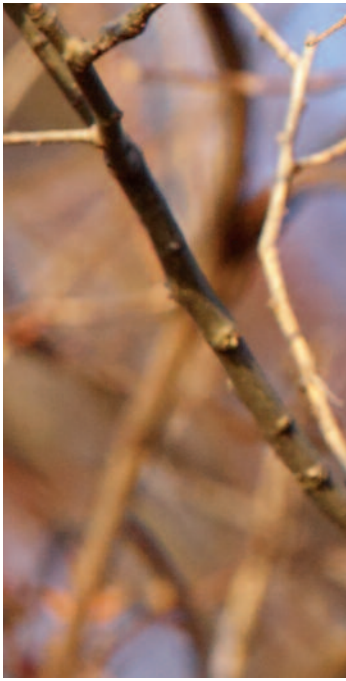

Figure 2. Carolina Chickadee at Point Pelee National Park showing rounded head shape and small bill. 13 May 2013. *Photo: David M. Bell.*

Over the next several months, we conducted extensive research on our observation. Presented below are the results of that research and why it supports the identity of this bird as a Carolina Chickadee (as concluded by the Ontario Bird Records Committee (OBRC, see Burrell and Charlton 2015)).

## Identification

In this section, we highlight the following identification criteria, derived from numerous sources: head size and shape, bill size and shape, bib size and shape, nape colouration, cheek patch vs breast colouration, secondary and tertial edging, greater coverts base shade and edging, tail feather edging and tail length/wing chord ratio. Regrettably no vocalizations were heard by any observers. Our analysis compares the Point Pelee individual with the criteria for known Carolina Chickadee and Black-capped Chickadee. A detailed comparison of each trait with photo examples was submitted to the OBRC (Holden 2013b, Holden 2013c, Holden and Bell 2014) and is archived at the Royal Ontario Museum (ROM).

***Head Size and Shape:*** A review of many photographs of Black-capped and Carolina chickadees showed that Carolina frequently appears to have a smaller and rounder head in contrast to Black-capped Chickadee which frequently shows a proportionately larger head, appearing as a horizontal oval in shape. The Point Pelee individual was a better match to known Carolina Chickadees (Figures 1, 2).

Figure 3. Carolina Chickadee at Point Pelee National Park. 13 May 2013. The small and well defined bib is revealed in a rare instance where the bird was not in motion. The bird was distinctive in having only three rectrices. *Photo: Brandon R. Holden.*

***Bill Size and Shape:*** This is difficult to properly quantify from photos. After reviewing hundreds of Black-capped Chickadee photographs from southern Ontario, our impression was that the Point Pelee bird had a smaller and shorter bill (Figures 1, 2). It does not appear to show any dramatic differences from known Carolina Chickadees when compared to photographs from various online sources. Pyle (1997) lists the exposed culmen of Black-capped as measuring 7.6-10.5mm and of Carolina as 6.6-9.5mm.

***Bib Size and Shape:*** In some identification guides, Carolina Chickadee is described as having a smaller and more sharply defined bib than Black-capped Chickadee (e.g., National Geographic 2002). Approximately 100 photos were taken of the Point Pelee individual by the authors, which revealed a remarkable range in bib size and shape. This range was most pronounced during periods of activity, with the bird stretching or twisting its neck to obtain food or move to a new perch. During the few moments when the bird was at rest, the bird's bib size and shape was well defined and small and was a better match for Carolina Chickadee than examples of Black-capped Chickadee (Figure 3).

***Nape Colouration:*** Although this character is frequently referenced in field guides (e.g., Peterson 2008), we had a difficult time assessing this feature when using images. Variations in exposure settings yielded results from pure white to neutral gray. We felt that this feature was not useful when studying photographs although perhaps it would be a better feature when scrutinized with a live specimen in hand.

***Cheek Patch vs Breast Colouration:*** During formal review of the record by the OBRC, Peter S. Burke identified a potential feature of Carolina Chickadee on the Point Pelee individual stating that the breast appeared to be a duller gray than the bright white cheek patches (Sibley 2014). Photos of Black-capped Chickadee often show a breast that is as bright/white as the cheek patches. This feature

Figure 4. Carolina Chickadee at Point Pelee National Park. 13 May 2013. This frozen moment in time provides the best available view of the greater coverts, displaying their uniform gray appearance.
*Photo: Brandon R. Holden.*

was not examined on skins or as extensively with photographs as other field marks noted here, yet it appears to support the identification of the Point Pelee bird as a Carolina Chickadee.

***Secondary and Tertial Edging:*** Examination of photographs online and of the Point Pelee bird shows that this feature is variable depending on angle and camera settings, even with a single individual. Carolina Chickadee is reported to show a more muted pattern, compared to Black-capped Chickadee (Sibley 2000). When considering the approximately 100 images of the Point Pelee individual, our overall impression was of a bird that fell within the range for Carolina Chickadee (Figure 2), but appearing as an outlier in the variation observed in Black-capped Chickadee.

***Greater Covert Base Shade:*** A field mark rarely referenced is the base shade or colour of the centres of the greater primary and secondary coverts. It is reported to be gray in Carolina Chickadee, whereas in Black-capped Chickadee it is black (Crossley 2011). The greater coverts in photographs of the Point Pelee individual in which the bird had spread wings are a medium gray, matching Carolina Chickadee (Figure 4), although the sample

size was small. Holden studied nearly 300 skins of both species at the ROM and found that this feature is not reliable in direct comparison. We presume it is simply a difference in impression, with Black-capped appearing more contrasting than the uniform gray of Carolina.

***Greater Covert Edging:*** Another field mark that is occasionally referenced is the contrasting white edges to the greater coverts of Black-capped Chickadee whereas Carolina shows a uniform gray edge. While it appears possible for Black-capped Chickadee to lose these white edges due to feather wear (especially in spring as chickadees do not do a pre-alternate molt (Pyle 1997)), our examination of photographs has shown it to be rare. The Point Pelee individual shows a uniform gray edge on all feathers on each wing, matching known examples of Carolina Chickadee (Figure 5).

***Rectrices:*** Pyle (1997) states that Black-capped Chickadee can be separated from Carolina Chickadee "by the [presence of] white edging to the outer rects." Despite only retaining three rectrices, the Point Pelee individual clearly shows a white edge, which was originally identified as a problem in the identification of this bird as a Carolina Chickadee. We set out to confirm the validity of this feature and discovered that many Carolina Chickadees from the central and northern parts of the species range show white edges on the rectrices (Holden 2013d). Thus the white edging on the Point Pelee bird appears well within the variation shown by pure Carolina Chickadee and does not contradict that identification. Review of specimens at the ROM also showed that this is a feature frequently shown by Carolina Chickadee including the first provincial record (Holden 2014). Review of Black-capped

**Figure 5. Carolina Chickadee at Point Pelee National Park. 13 May 2013. The greater coverts show a uniform gray edge on the folded wing. The white edging can be seen on the tail.** *Photo: Brandon R. Holden.*

Chickadee photographs has shown a bolder and more prominent edge to the rectrices than Carolina Chickadee.

***Tail Length/Wing Chord Ratio:*** Pyle (1997) states that tail length is the most useful character in separating Black-capped from Carolina Chickadees. Although impossible to accurately measure without a bird in-hand, tail length relative to wing chord can be useful as the "tail/wing ratio can then provide further means for separation: 0.886-1.032 (usually >0.9) for Black-capped, 0.819-0.922 (usually <0.9) for Carolina" (Pyle 1997: 335). Using photographic samples of 10 known Black-capped Chickadees, 10 known Carolina Chickadees and 15 of the Point Pelee bird, we set out to see if the tail/wing ratio could be useful in this case. For this analysis to be conducted, photos that showed the bird in profile were chosen because the wing and tail were held at approximately the same angle to the photographer. We used the ruler tool in Adobe Photoshop CS4 to determine lengths of wing chord and tail for each photo. These values were then inserted into a Microsoft Excel spreadsheet which calculated the tail/wing ratio (tail length divided by wing chord). We then sorted the values into Black-capped Chickadee (BCCH), Carolina Chickadee (CACH) and examined them (Table 1).

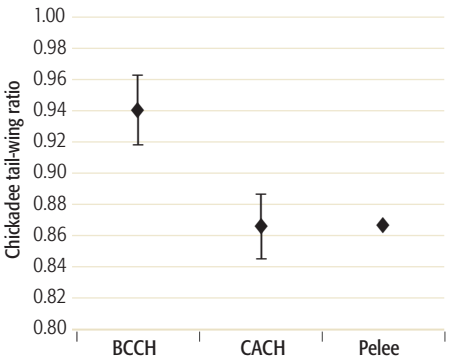


Figure 6. Average tail/wing ratios for 10 Black-capped and Carolina Chickadees and the Point Pelee individual. Whiskers show 95% confidence limits (CL). Averages and CL were calculated from photo measurements (pixels) in Table 1. A tail/wing ratio of 0.9 separates the two chickadee species; the Black-capped Chickadee has a proportionally longer tail (Pyle 1997).

Four (of 10) photos of Black-capped Chickadee resulted in values that were within the overlap range (0.886-0.922), but still above the 'usual' cut-off of 0.9. Three (of 10) photos of Carolina Chickadee resulted in values that were similarly within the overlap range, with one (CACH5) being above the 'usual' cut-off of 0.9 but still within variation for Carolina Chickadee (Table 1). All other photos fell within the expected range for their respective species. The 15 photos of the Point Pelee bird showed an average tail/wing ratio of 0.8667 and a standard deviation of 0.0086 (1%) showing that measuring error (possibly due to differences in posture) was minimal. The values obtained for the Point Pelee bird were all within the variation for Carolina Chickadee, and more importantly, all were below the minimum ratio for Black-capped Chickadee. Figure 6 shows the average tail/wing ratios and the 95% confidence limits (CL) for the ten individual Black-capped and Carolina Chickadees and the average tail/wing ratio for the Point Pelee bird. The Point Pelee bird was within the 95% CL for the Carolina Chickadee.

Table 1. Measurements of wing chord and tail length from photographs of the Point Pelee chickadee and Black-capped and Carolina Chickadees. Note that the Point Pelee photo numbers correspond to the photo numbers posted on Holden's web log (Holden 2013c).

| Photo # | Wing Chord (pixels) | Tail Length (pixels) | Tail/Wing Ratio | Species Supported |
|---|---|---|---|---|
| Point Pelee 3 | 235.51 | 207.96 | 0.8830 | CACH |
| Point Pelee 10 | 237.31 | 203.54 | 0.8577 | CACH |
| Point Pelee 34 | 215.47 | 184.1 | 0.8544 | CACH |
| Point Pelee 39 | 312.44 | 269.05 | 0.8611 | CACH |
| Point Pelee 47 | 298.52 | 259.82 | 0.8704 | CACH |
| Point Pelee 49 | 286.82 | 249.24 | 0.8690 | CACH |
| Point Pelee 61 | 332.5 | 287.33 | 0.8642 | CACH |
| Point Pelee 62 | 334.5 | 292.85 | 0.8755 | CACH |
| Point Pelee 66 | 333.65 | 292.83 | 0.8777 | CACH |
| Point Pelee 73 | 299.45 | 259.61 | 0.8670 | CACH |
| Point Pelee 82 | 579.27 | 495.54 | 0.8555 | CACH |
| Point Pelee 87 | 475.53 | 416.91 | 0.8767 | CACH |
| Point Pelee 88 | 567.97 | 489.45 | 0.8618 | CACH |
| Point Pelee 89 | 551.24 | 479.41 | 0.8697 | CACH |
| Point Pelee 91 | 554.94 | 475.67 | 0.8572 | CACH |
| BCCH 1 | 209.75 | 192.63 | 0.9184 | BCCH |
| BCCH 2 | 203.06 | 187.27 | 0.9222 | BCCH |
| BCCH 3 | 199.85 | 186.26 | 0.9320 | BCCH |
| BCCH 4 | 264.2 | 250.73 | 0.9490 | BCCH |
| BCCH 5 | 1407.48 | 1339.43 | 0.9517 | BCCH |
| BCCH 6 | 319.64 | 329.07 | 1.0295 | BCCH |
| BCCH 7 | 203.02 | 187.17 | 0.9219 | BCCH |
| BCCH 8 | 222.69 | 207.55 | 0.9320 | BCCH |
| BCCH 9 | 587.31 | 529.35 | 0.9013 | BCCH |
| BCCH 10 | 233.5 | 221.06 | 0.9467 | BCCH |
| CACH 1 | 119.76 | 105.42 | 0.8803 | CACH |
| CACH 2 | 96.5 | 86.44 | 0.8958 | CACH |
| CACH 3 | 147.85 | 123.23 | 0.8335 | CACH |
| CACH 4 | 405.09 | 332.71 | 0.8213 | CACH |
| CACH 5 | 265.52 | 241.96 | 0.9113 | BCCH |
| CACH 6 | 209.3 | 182.8 | 0.8734 | CACH |
| CACH 7 | 645.34 | 541.6 | 0.8392 | CACH |
| CACH 8 | 259.08 | 232.55 | 0.8976 | CACH |
| CACH 9 | 429.88 | 377.74 | 0.8787 | CACH |
| CACH 10 | 300.13 | 247.43 | 0.8244 | CACH |

***General Impression (GISS):*** A final thought, which is once again difficult to quantify, we and other observers were readily able to detect the bird when it was present, due to its distinctive GISS. The general colour, low contrast appearance and atypical shape combined to produce a very noteworthy individual. Many field marks presented here were unknown to us at the time of observation, and have been correlated with the Point Pelee bird only after additional research was conducted.

***Conclusion:*** While many features listed above are overlapping, there is no single feature present on the bird that is outside the range of Carolina Chickadee.

### Subspecific Identity

Pyle (1997) noted that geographic variation in Carolina Chickadee is weak and clinal where the ranges of subspecies meet. Mostrom *et al.* (2002) list four subspecies, following Snow (1967) and Phillips (1986) which are detailed below.

*P. c. atricapilloides*. A large, gray subspecies that occurs from south Kansas through central Texas.

*P. c. agilis*. A medium sized, gray subspecies occurring from south Arkansas to southeast Texas and south Louisiana.

*P. c. carolinensis*. A small, dark gray subspecies with an olive tinge occurring from north Arkansas-southeast Louisiana through to southeast Virginia-Florida, synonymous with *P.c. impiger*.

*P. c. extima*. A large and slightly more colourful subspecies, noted as having more extensive white on the secondaries, sides and flanks. This subspecies occurs north of *P.c. carolinensis* west to eastern Missouri. Subspecific name formerly "*extimus*" (AOU 2000).

We compiled approximately 300 photos of Carolina Chickadees from various online and published sources. Study of *P.c. carolinensis* reveals the strongest differences from the Point Pelee individual, being darker and less contrasting overall. An examination of birds from within the ranges of *P. c. atricapilloides* and *P. c. agilis* also showed differences, especially as few individuals showed white on their outer retrices as well as showing a more uniform gray appearance overall. The white on the outer rectrix of the Point Pelee Carolina Chickadee matches known individuals from the northern tier of the species range such as Illinois, Ohio, Indiana and Pennsylvania — all of which would fall within the range of *P. c. extima*. After further examination, there were no differences between the Point Pelee bird and photos of birds within the range of *P. c. extima*; leading us to believe that it is the appropriate subspecific identification for this bird.

### Hybridization

Hybrids between the Black-capped and Carolina Chickadees have been detected wherever the contact zone between them has been studied (Sibley 2009). The same article states that hybrids are less fit than pure birds, leaving hybrid populations small and stable. Given that the Point Pelee bird showed no outward sign of

**Carolina Chickadee at Point Pelee National Park. 13 May 2013.** *Photo: Brandon R. Holden.*

hybridization in the form of intermediate characteristics of head size and shape, bill size and shape, bib size and shape, cheek patch vs breast colouration, secondary and tertial edging, greater coverts base shade and edging, tail feather edging and tail length/wing chord ratio, the authors felt it was reasonable to identify it as a pure Carolina Chickadee.

## Discussion

Canada's first Carolina Chickadee record, initially listed as *P. c. impiger* by James (1984), was later published as the synonymous subspecies *P. c. carolinensis* by Gustafson (1987). After a thorough examination of the specimen, Parkes (1988) changed the subspecific identity to *P. c. extimus* (now *P. c. extima*), which is the same as our identification of the Point Pelee individual. A query of the eBird database shows the stable northern boundary of the Carolina Chickadee range surprisingly close to our observations at Point Pelee, measured to as little as 80km SSW at Findlay, Ohio (eBird 2014). With other records of vagrants occurring in northern Illinois (American Ornithologists Union 1998), southeast Michigan (Reinoehl 1997), northern Ohio (Williams 1944) and western New York (Bent 1946), the Carolina Chickadee has a well-established pattern of short-distance vagrancy in the Great Lakes region. The contact zone between Carolina and Black-capped chickadees has been slowly moving northwards (Taylor *et al.* 2014) and has a female biased dispersal. While impossible to know, the quiet nature of the Point Pelee bird may have been due to the possibility that it was a wandering female. It is not outlandish to suggest that future records will materialize in southern Ontario. Perhaps

the only limiting factor is the high degree of difficulty in detecting, identifying and properly documenting any future observations.

The sighting from 12-15 May 2013 at Point Pelee National Park was accepted by the OBRC as the second record for Ontario and Canada (Burrell and Charlton 2015).

**Note.** A possible occurrence of Carolina Chickadee in Ontario has been published (Jarvis 1965), based on song only, the bird was never seen. However, this report was not accepted by the OBRC (Wormington 1985).


### Acknowledgements

The authors would like to recognize Rod Brook for making Figure 6.


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# Trumpeter Swans and Mute Swans compete for space in Ontario

*H.G. Lumsden*

## Introduction

Trumpeter Swans (*Cygnus buccinator*) (henceforth trumpeters) in North America occupy freshwater marshes, ponds, lakes and occasionally rivers (Mitchell 1994). They were extirpated over much of their range east of the Rocky Mountains by the 1930s. Their restoration in Ontario started in 1982 and has been very successful. In 2010, 594 trumpeters were counted on their wintering grounds in southern Ontario (Lumsden 2012). In a wider aerial survey in winter 2015, covering shorelines and coastal marshes of the lower Great Lakes and some inland areas of Ontario, 924 trumpeters were counted. Some Ontario swans winter in the United States and thus were not counted. In the Fort Francis, Dryden and the Kenora area of northwestern Ontario, aerial surveys in summer 2015 found 1,076 swans (Badzinski and Earsom 2015).

Mute Swans (*Cygnus olor*) (henceforth mutes) range extensively across Eurasia (Dement'ev and Gladkov 1967), occupying large open lakes with extensive shallows, deltas, sluggish rivers and saltwater inlets (Cramp and Simmons 1977). Releases of mutes in New York State over 100 years ago (Swift *et al.* 2013) and releases 70 years ago in Michigan (Michigan DNR 2003) established mutes in North America. Colonization of Ontario followed and the first documented nesting in Ontario occurred in 1965 (Peck 1966). A 2011 survey in the lower Great Lakes of Ontario recorded 3,062 mutes (Meyer *et al.* 2012). Barney and Badzinski (2015) reported 3,028 mutes in the same Lower Great Lakes Study Area in a summer survey in 2014, and 109 adults and 22 broods in an Inland Survey Area.

There are now substantial numbers of both trumpeters and mutes spread over the wetlands of southern Ontario. The similarity of their habitat choices and their overlapping breeding distribution makes potential competition for territories, nest sites and food inevitable. This paper examines aggression between trumpeters and mutes and their competition for space in Ontario (Figure 1).

Figure 1. A Trumpeter Swan family confronts two Mute Swans at LaSalle Park, Burlington, Ontario. *Photo by Susan Grexton.*

## Methods

Aggressive encounters between trumpeters and mutes were recorded at LaSalle Park, Burlington Ontario, (43° 19' N, 79° 47' W), using activity budget samples of 15 seconds every 2 minutes. Observations were made on a boat launching ramp and at different locations on a beach. Counts were made opportunistically during two time periods: in spring from 16 March-2 April 2011 (147 observation periods on 4 days) and in the winter from 22 November 2011-14 March 2012 (602 observation periods on 17 days). Weather records were provided by Environment Canada for the Royal Botanical Gardens at Hamilton, Ontario.

The two species of swans are accustomed to being fed at the LaSalle Park banding station. A person standing on the shore usually attracted a stable mixed group of expectant swans. A handful of corn scattered on the water held a small group. At lengthy intervals, when needed to discourage the group from dispersing and to facilitate capture for banding, more corn was scattered. The species directing a single peck at a victim was tallied only if there was physical contact. The age and sex of the trumpeters in the groups were determined by their wing-tags and for cygnets additionally by their partially grey plumage. Mute cygnets were not individually distinguishable because they were not wing-tagged and most were the "Polish" white morph (Scott 1972). To compare trumpeter and mute aggression, the total number of attacks/hour was calculated and these were standardized to reflect single attackers attacking single victims. Means and standard deviations are presented and t-tests applied for significance.

Because differences in nest phenology between species can influence their level of aggression, nest initiation dates for both species were recorded. Nest phenology for Ontario mutes was recorded by nest visits in 1984-1990. Nest initiation dates for trumpeters were determined in 1993-2014 from nest visits and egg dates. Because size can be important in the outcome of agonistic interactions, the body mass of trumpeters and mutes weighed in Montana and Idaho and in England were compared.

## Results

### *Intraspecific and interspecific aggression at LaSalle Park*

At LaSalle Park in 2011 and 2012, the numbers and group sizes of trumpeters and mutes participating in the feeding groups varied by season. In spring (16 March-2 April 2011), the mean group size for trumpeters was 8.75 and for mutes was 13.75. In winter (22 Nov 2011-6 February 2012), mean group size was 8.0 for trumpeters and 7.4 for mutes. In late winter (13 February-14 March 2012) mean group size was 13.5 for trumpeters and 12.0 for mutes.

In the winter of 2011-2012, the frequency of attack of mute on mute ($\bar{x}$ = 0.29 ± 0.25/hour) and trumpeter on trumpeter ($\bar{x}$ = 0.45 ± 0.39/hour) (Table 1) did not differ significantly (t = 1.4532, degrees of freedom (df) 30, not significant (NS)). Similarly, in the spring of 2011, the frequency of attack by mute on mute (0.48 ± 0.63/hour) and trumpeter attack on trumpeter ($\bar{x}$ = 0.23 ± 0.13/hour) did not differ significantly (t = 1.7912, df 6, NS).

In the winter of 2011-2012, trumpeters attacked mutes 22 times more frequently than they received attacks from mutes ( $\bar{x}$ = 0.43 ± 0.41/hour versus $\bar{x}$ = 0.02 ± 0.02/hour). In the spring of 2011, trumpeters attacked mutes 55 times more frequently than mutes attacked trumpeters ($\bar{x}$ = 0.49 ± 0.51/hour versus $\bar{x}$ = 0.0089 ± 0.0049/hour) (Table 1).

**Table 1. Aggressive attacks/hour between Trumpeter Swans and Mute Swans at LaSalle Park in Spring (16 March to 2 April 2011) and Winter (22 November 2011 to 14 March 2012). Standardized to show attacks by 1 aggressor on 1 victim/hour (Mean ± S.D).**

| | Spring | Winter |
|---|---|---|
| Time span of observations | 11:05-15:58 | 10:50-16:02 |
| Mean temperature at 12:00 | 4.9° C | 1.97° C |
| Trumpeter vs Mute/hour<br>1 attack 1 victim/hour | 42.58 ± 9.67 N =191<br>0.49 ± 0.51 | 24.91 ± 10.84 N = 493<br>0.43 ± 0.41 |
| Mute vs Trumpeter/hour<br>1 attack 1 victim/hour | 1.54 ± 1.04 N = 6<br>0.0089 ± 0.0049 | 1.95 ± 2.40 N = 20<br>0.02 ± 0.02 |
| Mute vs Mute/hour<br>1 attack 1 victim/hour | 44.53 ± 16.29 N = 202<br>0.48 ± 0.63 | 26.85 ± 23.76 N = 439<br>0.29 ± 0.25 |
| Trumpeter vs Trumpeter/hour<br>1 attack 1 victim/hour | 22.70 ± 11.63 N = 108<br>0.23 ± 0.13 | 26.73 ± 11.86 N = 531<br>0.45 ± 0.39 |

Figure 2. A mixed group of Trumpeter Swans and Mute Swans at LaSalle Park, Burlington, Ontario, on 22 March 2011. The trumpeter cygnet with yellow wing tag H88 is attacking an adult Mute Swan. *Photo by H.G. Lumsden.*

The attacks of both species were very brief, amounting to a single peck. Pecks by mutes were directed at the head of an opponent. The aggressor usually missed but sometimes gripped the neck of the opponent. In contrast, trumpeters directed their attacks at the body of the victim (Figure 2).

When threatening an opponent, trumpeters typically bob the head and wave the open wings while trumpeting while mutes threaten with secondary feathers fanned and raised over the back. These displays did not precede the attacks counted at LaSalle Park, although on 2 April 2012, the mutes sometimes raised the wings slightly without spreading them. At the termination of a fight, the victor typically grasps the back feathers of a victim, swims and flaps in hot pursuit across the water. This behaviour was not seen at LaSalle Park during the activity budget attacks. There was no retaliation by the victim.

### *Nest Phenology*

Mute nests were initiated 21-31 March (3 nests, 2% of total nest numbers), 1-10 April (39 nests, 33% of total), 11-20 April (50 nests, 42% of total), 21-30 April (21 nests, 18% of total) and 3-10 May (6 nests, 5% of total). Trumpeters nested later, 1-10 April (1 nest, 2% of total nests), 11-20 April (4 nests, 9% of total), 21-30 April (27 nests, 63% of total) and 1-10 May (11 nests, 26% of total) (Figure 3).

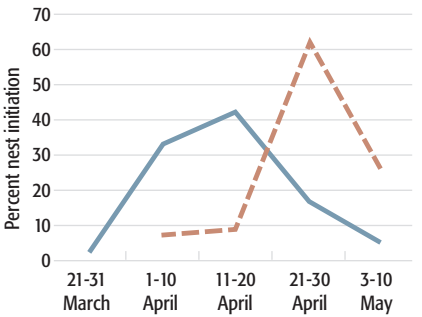


Figure 3. Percent of nest initiation by date in southern Ontario by Mute Swans (1983-1990, solid line) and Trumpeter Swans (1993-2010, broken line). Data pertain only to first clutches.

## Discussion

### *Intraspecific and interspecific aggression at LaSalle Park*

Aggression plays an important part in relationships within swan social groups, especially at times such as brood breakup and territory establishment. The swans observed at LaSalle Park were not defending territories or broods at the times when observations were made. They were responding to another swan at close quarters with one quick peck. I suggest that they were maintaining individual distance. Conder (1949) defined individual distance as "an area round a bird, which moves with it, has no topographical reference and into which no other individual is allowed to come." The swans at LaSalle Park maintained a distance of at least one body length from one another (about 0.7m). It is likely that crowding the swans due to the distribution of food increased the frequency of these aggressive encounters. This is not likely, however, to have altered the relationship between the species.

In winter, the two species had similar rates of intraspecific aggression, i.e. frequency of attacks of mute on mute did not differ from those of trumpeter on trumpeter. One might expect that a species closer to the peak of its breeding cycle might register a higher level of aggression than those with a later peak, however, this was not the case. In spring, the frequency of intraspecific attacks by the earlier nesting mute on mute did not differ compared with the frequency of attacks by later nesting trumpeter on trumpeter. This indicates that intraspecific aggressive behaviour was similar between the species and did not alter with the approach of the breeding season.

In contrast to intraspecific aggression, interspecific aggression was not similar between species. In winter, trumpeters attacked mutes 22 times more frequently than they received attacks from mutes. In spring, trumpeters attack mutes 55 times more frequently than mutes attacked trumpeters. The frequency of these attacks appeared to be more than a response to violation of individual distance. The trumpeters recognised mutes as more than just associates and as something different from themselves.

### *Nest Phenology*

That mutes nest earlier than trumpeters by about two weeks suggests that mutes should have an advantage over trumpeters in establishment of territories (i.e., pre-emptive exclusion competition). Their lack of dominance in individual encounters as documented here in the non-breeding season, if it carries through to the breeding season, may offset this possible advantage. They often must yield their territories to trumpeters (see below).

### *Body Mass of Trumpeters and Mutes*

Large species can be expected to dominate small species. The mean winter mass of male (11.9 ± 1.1 kg) and female (10.3 ± 1.0 kg) trumpeters from Idaho and Montana (Drewien and Bouffard 1994) is comparable to winter mass of mute males (11.8 ± 0.89 kg) and female (9.67 ± 0.69 kg) in the Upper Thames Valley, England (Reynolds 1972) (Table 2).

Table 2. Body mass (kg) of male and female Trumpeter Swans and Mute Swans [Mean ± S.D. (N)].

| | | |
|---|---|---|
| **Winter Trumpeter Swans**<br>Idaho and Montana: November-January<br>(Drewien and Bouffard 1994) | ♂ 11.9 ± 1.1 kg<br>(N=152) | ♀ 10.3 ± 1.0 kg<br>(N=120) |
| **Winter Mute Swans**<br>England, Upper Thames Valley:<br>September-March (Reynolds 1972) | ♂ 11.8 ± 0.89 kg<br>(N = 59) | ♀ 9.67 ± 0.69 kg<br>(N=35) |

These mass records indicate no significant difference between the North America trumpeters and the European mutes. Trumpeter dominance over mutes is, therefore, not because of superior size.

### *Brood Breakup*

Norman (1977) found that the grey plumage of juvenile mutes largely protected them from attacks by adults. I assume that the grey juvenile plumage of trumpeter cygnets serves the same function. In late March 2011, the trumpeter cygnets were well advanced in the molt and were dorsally predominantly white although still grey on the rest of their bodies. The broods were breaking up and particularly parent females (recognised by their wing-tags), were aggressively attacking and pursuing their own tagged cygnets.

### *Territory sizes of Trumpeters and Mutes*

Trumpeter territories are relatively large. They were 60 ha on Peninsula Lake in Alaska. On the Copper River basin, nests were 1.6 km apart (Hansen *et al.* 1971). At Swan Lake in the Red Rock Lakes National Wildlife Refuge, Montana, which is shallow with irregular shoreline and numerous islands, seven pairs shared 500 acres (28 ha/pair). On the deeper, less well screened Lower Lake in that refuge, 10 pairs shared 1500 acres (60 ha/pair) (Banko 1960). In Yellowstone Park, occupancy by a single pair was found on 29 lakes, some as small as 3.6 ha (Condon, 1941 MS and unpublished data cited in Banko 1960). On the entire 1200 ha of Wye Marsh, in Ontario, where trumpeters have nested since 1993, an aerial survey in July 2010 found five pairs, or 240 ha/pair. In spring 2015, there were four pairs, or about 300 ha/pair. In Ontario, small isolated lakes or wetlands are also occupied by single pairs.

Mutes in England, on the Windrush Trout Stream, held 12-20 territories on 39 km (1.9-3.3 km/pair). On the Upper Thames River, England, there were 7-12 territories on 40 km (3.3-5.7 km/pair) (Bacon 1980). Mutes sometimes nest colonially: at Abbotsbury, England, on the marine tidal Fleet, nests were within a few metres of one another (Birkhead and Perrins 1986); in colonies at FulehØj, Denmark, territories were limited to 1-2 m surrounding the nest (Bloch 1970). These marine colonies were supported by superabundant food, usually in the form of beds of eelgrass (*Zostera marina*). At a shallow weedy fresh water lake at Alstar, Germany, territory size was 0.22 ha (150 x 300 m) (Hilprecht 1970, in Birkhead and Perrins 1986).

In Ontario, on the 16 ha Cranberry Marsh, seven pairs of mutes nested in 1983, holding territories of 2.3 ha/pair. In 1984, eight pairs held 2.0 ha/pair (Lumsden, unpub data.). Their assessment of adequate food for cygnets presumably cued these pairs to acquire and hold such small territories. Mutes defend their territories as vigorously as trumpeters and in rare instances, they can seriously injure or even kill antagonists (Ogilvie 1967, Birkhead and Perrins 1986).

*Photo by Susan Grexton.*

### *Changes in Territory Occupation in Ontario*

While trumpeters have wintered in substantial numbers within the Ontario Mute Swan breeding range, they have only recently begun to nest there in any numbers. Domination by trumpeter pairs of mute pairs in breeding areas is usually accomplished by direct attack. At the Second Marsh in Oshawa, Ontario (43° 52' N, 078° 48' W), a trumpeter pair evicted the nesting mute pair in 2003 and successfully raised cygnets. In 2004-2006, the trumpeter pair did not raise cygnets. They raised four cygnets in 2007 but failed again to raise any in 2008-2010 (D. McLaughlin, pers. comm.). From 2005 to 2009, mutes were present in this large marsh but did not nest. On a pond near Caledon, Ontario (43° 52' N, 80° 00' W), a sub-adult trumpeter, H19, and his mate evicted a pair of mutes in 2010 from the territory the mutes had occupied since 2008. In 2011, at the Valley Inn Marsh (47° 17' N, 79° 53' W) west of Burlington, Ontario, an adult trumpeter, A59, and his mate chased a mute female off her nest, built their own nest at the other end of the marsh and hatched four cygnets (B. Kingdon, pers. comm.). In an encounter on 26 April 2011 at the mouth of the Credit River, Ontario (43° 33' N, 79° 35' W), an adult trumpeter male, E90, severely beat a territorial male mute (M. Bowers, pers. comm.). The pair, however, are not known to have nested there subsequently. On 19 September 2011, at LaSalle Park, an aggressive male mute with three cygnets charged a pair of non-territorial trumpeters, 548 and E32. There was a fight and the mute was badly beaten. The male trumpeter chased the mute for over 200 m across the water, gripping the mute's back feathers and swimming and flapping in hot pursuit before he let go. The female trumpeter then joined her mate for a triumph ceremony (K. Intini, pers. comm.).

There are other marshes in Pickering, Ontario, including McLaughlin Bay (43° 52' N, 78° 47' W) and the Hydro Marsh (43° 52' N, 79° 02' W), in which mute pairs formerly bred and where trumpeters

*Photo by Susan Grexton.*

now nest. It is not known if the trumpeters drove the mutes out or if the mutes moved away or died. There are three large wetlands in which several pairs of mutes now breed and have bred for many years: these are at the mouth of the Rouge River (43° 48' N, 79° 07' W), on Frenchman's Bay (43° 49' N, 79° 05' W) and Cranberry Marsh (43° 51' N, 78° 56' W). Trumpeters have bred in each but it is not known if they ousted a mute competitor at that time (H. Lumsden, pers. obs.).

Territorial mutes are sometimes able to defend their territories against subadult and unmated trumpeters. On 28 October 2011, a territorial pair of mutes in the cove at Bellhaven near LaSalle Park, chased seven unmated trumpeters. The male mute did not make contact with any, but flew and swam after them going from one bird to another, whichever was closest. He chased them for about 15 minutes and the trumpeters did not retaliate (K. Intini, pers. comm.).

Meyer *et al.* (2012) conjectured that "trumpeters were introduced into Cootes Paradise in 1982 with the hope that they would displace and exclude mutes. To date this has not happened. Instead Mute Swans appear to be outcompeting Trumpeter Swans for nest sites." The authors present no data in support of their conjecture of competition for nest sites. There were no trumpeters released in Cootes Paradise in 1982; the first release consisting of six yearling trumpeters occurred there in August 1988. It is not known when trumpeters first nested there. A pair nested successfully in 2005. Two pairs nested in 2014 but they failed to raise cygnets. One male was conspicuously aggressive to mutes. In 2015, a trumpeter pair excluded 30-40 non-territorial mutes from an extensive area;

however, they and another pair are not known to have bred. (T. Theismeyer, pers. comm.).

In Europe, the Whooper Swan (*Cygnus cygnus*), although smaller than the mute (Cramp and Simmons 1977) dominated both mutes and Tundra Swans (*Cygnus columbianus bewickii*) at the Caerlaverock National Nature Reserve in Scotland (Black and Rees 1984).

## Conclusion

The activity budgets at LaSalle Park and the observations of displacement of territory holders during the breeding season shows that trumpeters consistently dominate mutes in Ontario. Trumpeters will prove to be very formidable competitors with the more established mute swans and I suggest they will eventually occupy the best habitat within the present Ontario Mute Swan range.


## Acknowledgements

Beverley and Raymond Kingdon, Kyna Intini and Julie Kee ran the trumpeter banding station at LaSalle Park and made many observations of trumpeter behaviour. Diana Lumsden typed many drafts of this paper. Susan Grexton provided photographs of trumpeter aggression on a mute pair. David McLaughlin helped with much of the early field work and banding of mutes. I thank Vernon Thomas for critical assessments of the manuscript and provision of references. I thank the referees whose comments greatly improved this paper.


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# Pre-season duck banding in Ontario, 1918-2014 and distribution of hunter recoveries

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## Introduction

Research and management of native migratory game birds are important requirements to ensure the protection of those birds listed under the *Migratory Birds Convention Act*, to set sustainable hunting regulations and to maintain biodiversity. To fulfill these requirements, both government and non-government organizations collect data on various bird species. These data are vital to informing policies and setting regulations related to the conservation and management of migratory birds in Ontario. In particular, the monitoring of migratory game birds is important because population, survival and harvest data are used to set policy and regulations that ensure sustainable harvest and support the reduction of species populations that are causing environmental or economic damage. For example, the policy related to the issuance of nest management permits in urban areas (i.e., Damage/Danger Permits) and the decision to liberalize hunting regulations for temperate breeding Canada Geese (*Branta canadensis*) are directly informed by population and banding data.

To properly manage a game species, data regarding its abundance and distribution are required with habitat use and survival also providing key information. Bird banding is one monitoring tool that provides data for each of these information needs. As popular game birds in North America, ducks are specifically monitored with intensive annual banding efforts during the pre-hunting season (hereafter pre-season). The pre-season is defined as the period of time after ducks finish breeding in July and before the hunting season begins in September; pre-season banding is especially important to determine annual harvest and survival rates related to hunting.

The objective of this paper is to summarize pre-season duck banding efforts in Ontario between 1918 and 2014 and hunter recoveries of those banded birds. We present information regarding banding locations, the number and species banded and large scale trends in the distribution of hunter recoveries. Lastly, we highlight some interesting hunter recoveries.

American Black Ducks. *Barry Kent MacKay*

## Methods

In Ontario, ducks are banded by government agencies, (primarily the Ontario Ministry of Natural Resources and Forestry (OMNRF, formerly the Department of Lands and Forest, 1920-1972 and Ontario Ministry of Natural Resources 1972-2014) and Environment and Climate Change Canada's Canadian Wildlife Service (CWS)), environmental non-government organizations (ENGOs), Conservation Authorities (CAs), avocational banders and government and academic researchers. Ducks are typically captured during the pre-season by using bait traps; however, other methods include airboats, drive traps, mist nets and cannon and rocket and pneumatic nets (Canadian Wildlife Service Waterfowl Committee 2013). Once captured, ducks are retrieved and typically placed in holding boxes where they are held until banding begins. After all of the ducks are confined, they are removed one by one and their plumage (body, wing and tail feathers) and bill are used to identify species, age and sex; a cloacal examination is sometimes also used to determine age and sex. Recorded data include band number, species, age, sex, banding location and date. A band is then placed around the duck's leg and crimped shut. Depending on the study, a number of different auxiliary markers (e.g., coloured tarsal bands, neck collars, patagial wing tags) may then also be placed on the bird before it is released. Once all of the banding has been

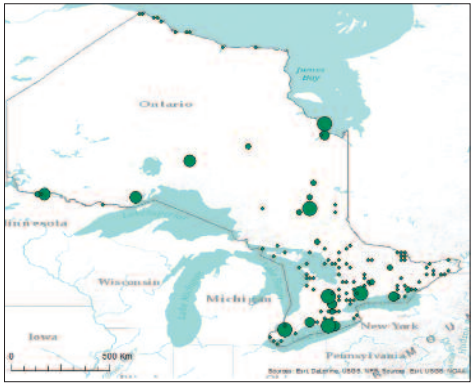
completed, the data are submitted to the Bird Banding Office for inclusion in an international Bird Banding Laboratory (BBL) database.

Once banded and released, a duck becomes available on the landscape for an encounter. By far the most frequent encounter is a bird shot and reported by a hunter (i.e., hunter recovery) but other encounters include recaptures during banding operations, sight records (i.e., a band number or auxiliary marker is sometimes read with binoculars or a spotting scope), dead birds (e.g., found on a beach), birds collected under authority of a scientific permit and birds captured after striking a human structure (e.g., building, car). For this paper, we focused on hunter recoveries because they are the most frequent encounter type thereby providing the most data (e.g., 91% of Mallard (*Anas platyrhynchos*) encounters are reported as recovered by hunters) and also likely provide the most unbiased sample. For example, recoveries from either dead birds or birds collected under a scientific permit may not represent normal bird behaviour and, until recently, not all recapture data have been included in the BBL database. Banding and encounter data for all ducks banded in Ontario from 1918 to 2014 were extracted from GameBirds (USGS BBL 2015). The pre-season timeframe was defined as the period between 1 July and 30 September. Although there is the potential overlap between pre-season banding and the opening of the hunting season in mid-to late-September in some years, this end date was chosen because of the difficulty in verifying that pre-season duck banding finished in all areas in all years before the duck hunting season commenced. For example, the duck hunting season has started as early as 15 September in 2012, with the introduction of a Waterfowler Heritage Day, and as late as 15 October in 1949 in Southern Ontario. Moreover, excluding pre-season bands from September would remove 44.1% of all pre-season banding data from the analyses. Hunter recoveries were not limited to any specific month because open duck hunting season dates were not available for all areas (e.g., South America, Caribbean Islands, etc.) and represent both direct (i.e., recovery during the period before, during or immediately following the first period of migratory movement following banding) and indirect (i.e., during the second migration period following banding or later) recoveries. Hunter recovery data were then summarized for all ducks but recovery density distribution maps were only created for those species with at least 500 recoveries. Recovery densities were calculated based on the proportions of all band recoveries for each species at each geographical location and therefore represent a relative density for each species. Banding locations and recovery density locations were analyzed using ArcMap 10.1 software. Recovery data were analyzed using the kriging tool to interpolate species-specific recovery densities.

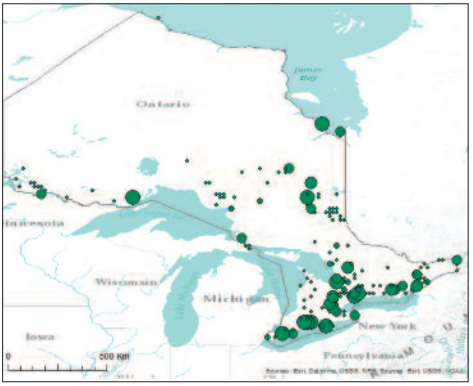
## Results

### *Banding*

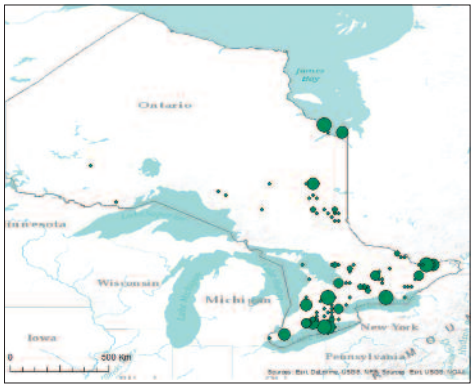
Overall, the distribution of pre-season duck banding locations in Ontario has covered much of the province; however, there has been noticeable geographic variation in the distribution over time with




Locations Pre 1966




Locations 1966 to 1975




Locations 1976 to 1985


Locations 1986 to 1995


Locations 1996 to 2005


Locations Post 2005

Figure 1. Temporal changes in pre-season duck banding locations and numbers banded in Ontario.

Bands Deployed: < 200 200-500 500-1000 1000-2000 >2000

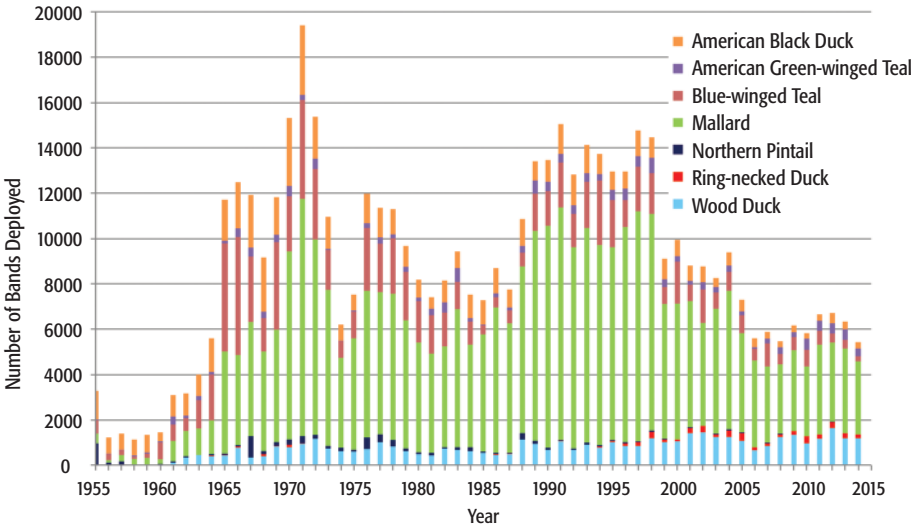



Figure 2. Number of ducks banded by species by year during pre-season banding (1 July to 30 September) in Ontario, 1955 to 2014. Only 7,281 total ducks were banded between 1918 and 1954, 2,760 of which were banded in 1954.

long-term banding efforts focused near populated areas in central and southern Ontario that are easily accessible (Figure 1). Between 1918 and 2014, 548,974 ducks of 24 species (including Barrow's Goldeneye (*Bucephala islandica*), a species at risk) were banded during the pre-season by 182 authorized permit holders at these sites (Table 1). The most ducks banded in any year was 19,586 in 1971 (Figure 2). An average of 13,720 (1988 to 1998) and 6,742 (2004 to 2014) ducks was banded per year during the pre-season in Ontario (Figure 2).

### *Recoveries*

Of the 548,974 ducks banded between 1918 and 2014, 82,220 individuals (~15%) of 19 species and one hybrid, were reported as hunter recoveries. Of these, 41.4% were in Canada with 91.9% and 2.5% of those occurring in Ontario and Quebec, respectively (Table 1). Outside Canada, ducks from Ontario were most frequently reported from U.S. states in the Mississippi Flyway (31.9%), followed by the Atlantic Flyway (24.2%) and the Central Flyway (1.3%) (Table 1). Within North America, hunters recovered Ontario-banded ducks in the Caribbean Islands (0.6%, mostly Blue-winged Teal, *Anas discors*), the Pacific Flyway (0.08%, mostly Mallards), Central America (0.04%, mostly Blue-winged Teal) and Alaska (0.002%). Of the remaining birds (0.5%), two Northern Pintails (*Anas acuta*, henceforth pintail) were recovered in Russia and one Blue-winged Teal was recovered in Europe; the remaining 98 recoveries did not have a specific location attributed to them (Table 1).

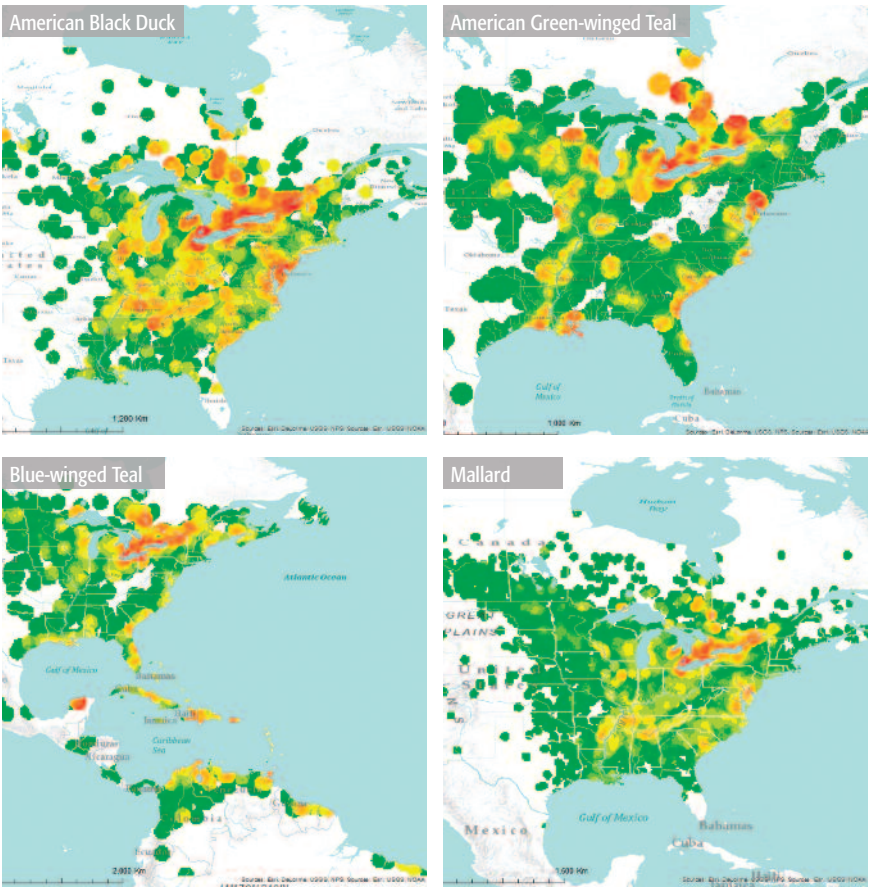



Figure 3A. Relative density of hunter recoveries for select duck species banded during pre-season banding (1 July to 30 September) in Ontario, 1918 to 2014. Species-specific relative densities: Lowest relative density = dark green; medium relative density = yellow; highest relative density = red.

The top five species reported by hunters were Mallard, American Black Duck (*Anas rubripes*, henceforth black duck), Wood Duck (*Aix sponsa*), Blue-winged Teal and American Green-winged Teal (*Anas carolinensis*, henceforth green-winged teal) (Table 1). Three species have only been reported once by a hunter over this timeframe, namely Black Scoter (*Melanitta americana*), Canvasback (*Aythya valisineria*) and Greater Scaup (*Aythya marila*). No hunter recoveries have been reported for Barrow's Goldeneye, Bufflehead (*Bucephala albeola*), Common Eider (*Somateria mollissima*), Red-breasted Merganser (*Mergus serrator*) or White-winged Scoter (*Melanitta fusca*) although fewer than 10 individuals have been banded for each of these species.

Table 1. Number of ducks banded during the pre-season in Ontario and hunter recoveries by location from 1918 to 2014. Species in bold have more than 500 hunter recoveries.

| Species | Total Banded | Alaska | Atlantic Flyway | Total | Canada ON | QC |
|---|---|---|---|---|---|---|
| **American Black Duck** | **64,137** | | **2,937** | **4,948** | **4,499** | **412** |
| American Black Duck Dominant X Mallard Hybrid | 30 | | 1 | 2 | 2 | |
| American Wigeon | 2,092 | | 131 | 124 | 106 | 15 |
| Barrow's Goldeneye | 1 | | | | | |
| Black Scoter | 4 | | | 1 | 1 | |
| **Blue-winged Teal** | **89,208** | | **563** | **2,561** | **2,162** | **308** |
| Bufflehead | 7 | | | | | |
| Canvasback | 7 | | | 1 | 1 | |
| Common Eider | 1 | | | | | |
| Common Goldeneye | 1,280 | | 31 | 123 | 115 | 7 |
| Common Merganser | 65 | | | 1 | 1 | |
| Gadwall | 363 | | 20 | 27 | 25 | 2 |
| Greater Scaup | 16 | | 1 | | | |
| **American Green-winged Teal** | **16,315** | | **437** | **392** | **359** | **28** |
| Hooded Merganser | 3,120 | | 223 | 129 | 128 | 1 |
| Lesser Scaup | 79 | | 7 | 7 | 7 | |
| **Mallard** | **310,518** | **1** | **12,325** | **22,604** | **20,986** | **1,086** |
| Mallard Dominant X American Black Duck Hybrid | 19 | | 1 | | 171 | 10 |
| Mallard X American Black Duck Hybrid | 2,827 | | 134 | 186 | 2 | |
| Mallard X American Black Duck Intermediate | 15 | | 1 | 2 | | |
| **Northern Pintail** | **7,305** | **1** | **299** | **289** | **211** | **71** |
| Northern Shoveler | 173 | | 6 | 12 | 6 | 6 |
| Red-breasted Merganser | 6 | | | | | |
| Redhead | 729 | | 15 | 58 | 51 | 7 |
| **Ring-necked Duck** | **4,430** | | **391** | **245** | **234** | **7** |
| Ruddy Duck | 41 | | 1 | 1 | 1 | |
| White-winged Scoter | 1 | | | | | |
| **Wood Duck** | **46,185** | | **2,348** | **2,357** | **2,241** | **112** |
| **GRAND TOTAL** | **548,974** | **2** | **19,872** | **34,070** | **31,309** | **2,072** |

| Carribbean | Central Flyway | Central America | Mississippi Flyway | Other | Pacific Flyway | South America | GRAND TOTAL |
|---|---|---|---|---|---|---|---|
| | **16** | | **2,820** | **12** | | | **10,733** |
| | | | 1 | | | | 4 |
| 1 | 2 | | 73 | | | | 331 |
| | | | | | | | 0 |
| | | | | | | | 1 |
| **500** | **70** | **28** | **753** | **5** | **1** | **265** | **4,746** |
| | | | | | | | 0 |
| | | | | | | | 1 |
| | | | | | | | 0 |
| | 1 | | 21 | | | | 176 |
| | | | 1 | | | | 2 |
| | | | 7 | | | | 54 |
| | | | | | | | 1 |
| | **62** | **5** | **886** | **1** | **15** | | **1,798** |
| | 1 | | 48 | | | | 401 |
| | | | | | | | 14 |
| | **860** | **1** | **19,958** | **73** | **50** | | **55,872** |
| | | | | | | | 1 |
| | 2 | | 151 | | | | 473 |
| | | | 1 | | | | 4 |
| **6** | **28** | | **216** | **3** | **7** | **2** | **851** |
| | | | 11 | | | | 29 |
| | | | | | | | 0 |
| | 2 | | 23 | | | | 98 |
| **1** | **5** | | **86** | | | | **728** |
| | | | 2 | | | | 4 |
| | | | | | | | 0 |
| | **42** | | **1,144** | **7** | | | **5,898** |
| **508** | **1,091** | **34** | **26,202** | **101** | **73** | **267** | **82,220** |

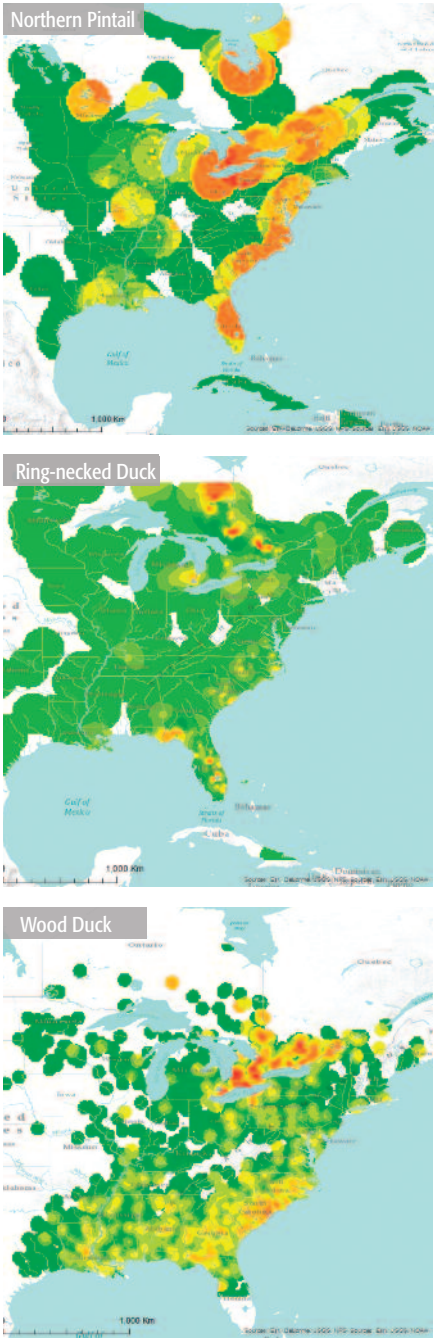



Figure 3B. Relative density of hunter recoveries for select duck species banded during the pre-season (1 July to 30 September) in Ontario, 1918 to 2014. Lowest relative density = dark green; medium relative density = yellow; highest relative density = red.

With respect to the distribution of those species with more than 500 reported recoveries, namely black duck, green-winged teal, Blue-Winged Teal, Mallard, pintail, Ring-necked Duck (*Aythya collaris*) and Wood Duck, areas with consistently high species-specific recovery density are evident. The lower Great Lakes and the Atlantic coast represent areas with high recovery density for all species, except Ring-necked Ducks (Figures 3A, 3B). Concentrations of recoveries for Ontario pintails, Blue-winged Teal, green-winged teal, Wood Ducks and Ring-necked Ducks were also reported from Florida and Blue-winged Teal were reported as far south as Brazil. Recovery densities for black duck and green-winged teal were high in both the Mississippi and Atlantic Flyways. Within Canada, areas along the Hudson-James Bay coastline had a high recovery density for pintail while Mallards, black ducks and green-winged teal showed high recovery densities along the lower Great Lakes (Figures 3A, 3B). Black ducks and Blue-winged Teal showed low recovery densities in Quebec and the Maritime Provinces while green-winged teal, Ring-necked Duck and black duck recovery densities were high in the boreal forest of Ontario.

## Discussion

### *Distribution of Pre-Season Banding Locations*

Over the years, there has been an impressive effort to band ducks in Ontario during the pre-season. OMNRF and CWS, in conjunction with biologists at Conservation Authorities, the United States Fish and Wildlife Service (USFWS), state agencies and ENGOs along with members of the public have played an important role in this effort. The OMNRF, however, has been vital to the success of pre-season duck banding in the province since the 1950s. Numerous OMNRF district and area offices had well-established duck banding programs beginning in the 1960s and continuing into the mid-2000s, resulting in a widespread effort throughout much of Ontario, including the north (Figure 1). During this period, over 267,000 ducks were banded by these district OMNRF offices. Declining levels of support, however, resulted in the loss of local banding programs over time and hence, changes in the distribution of banding efforts occurred. OMNRF continues to operate some district duck banding stations (e.g., Temagami, North Bay and Kemptville) and administers a contract banding program, with financial support from the Atlantic and Mississippi Flyway Councils, which helps to fund banding efforts by local banders throughout the province. Furthermore, OMNRF established an airboat banding program in 1996 with support from both Councils. This program operates throughout southern and northeastern Ontario and has averaged over 2,700 ducks banded per year since 2010 (Buchanan *et al.* 2014). The airboat also enables banding of species that are not generally captured using bait traps; since 2012, the airboat program has banded over 95% of all green-winged teal, Blue-winged Teal and Ring-necked Ducks banded in Ontario.

The majority of pre-season duck banding effort has been centered in southern Ontario or near more populated areas in northern Ontario, but there have been targeted efforts to band ducks in the boreal region of northern Ontario, which includes the Hudson Bay Lowlands (Figure 1). Beginning in the 1950s, provincial, federal and US state biologists began banding ducks in the Lowlands. Early efforts were sporadic, but by 1965, OMNRF was conducting annual duck banding operations along the southern James Bay coastline; occasional banding was attempted along the Hudson Bay coastline. Annual banding efforts in the Lowlands continued until 1990 and resulted in about 12,000 ducks banded in the region and accounts for approximately 58% of all pintails ever banded in Ontario. In addition to efforts in the Lowlands, the USFWS conducted banding operations in northwestern Ontario from 1989-1998 near Weagamow Lake (52° 56' 13" N, -91° 18' 45" W) which, in part, explains the increase in total ducks banded during this period. Although the OMNRF airboat program continues to band annually in the boreal region, and a few banding stations remain there, no duck banding has occurred in the remoter areas of the region since 1998 and no ducks have been banded in the Lowlands since 1990. While banding in this region is logistically and financially challenging,

renewing efforts should be considered given that this is a region of continental importance for many species (Abraham 2014) and there may be a possible re-distribution of species farther north with a changing climate.

### Diversity of Banded Species

Mallards, black ducks and Wood Ducks were three of the four most frequently banded species. All of these species are abundant breeders in Ontario and comprise a large percentage of the total observations during waterfowl breeding pair surveys (Canadian Wildlife Service Waterfowl Committee 2015). Pre-season banding programs also regularly target these three species because they represent the bulk of the duck harvest in Ontario (Canadian Wildlife Service Waterfowl Committee 2015), are easily captured using conventional techniques (e.g., bait trap and air boat) and are often conservation priority species (Environment Canada 2014).

While the proportion of Mallards, Wood Ducks and Green-winged Teal in the banded sample has remained relatively constant over time, the proportions of other species have varied substantially. Blue-winged Teal, for instance, is the second most banded species in Ontario since 1918 (Table 1), however, its numbers in the banding sample have dropped off substantially since the mid-1990s (Figure 2). Although the mechanism for the decrease in banded Blue-winged Teal is unclear, it seems reasonable to assume that it is linked to the dramatic decline in the breeding population in Ontario. The breeding Blue-winged Teal population has declined 5.9% per year since 1971, with the most dramatic decline occurring between 1971 and 1995 (Ross 2007, Canadian Wildlife Service Waterfowl Committee 2015). Although Blue-winged Teal are thriving in the Canadian Prairies (Dooley *et al.* 2015) and Prairie teal do migrate through Ontario (Bellrose 1976), it is unclear what proportion of Blue-winged Teal banded during the pre-season in Ontario are Prairie versus Ontario natal teal. Answering this question, in addition to identifying the proportion of Prairie versus Ontario natal Blue-winged Teal harvested by hunters, would help direct future conservation initiatives aimed at reversing the population decline of Blue-winged Teal breeding in Ontario.

Changes in pintail banding have been primarily affected by banding effort. The Hudson Bay Lowlands represent the primary breeding area for pintail in Ontario (Gendron 2007). As a result, when efforts were made to band ducks in the Lowlands, the number of pintails banded annually increased markedly, with peak numbers reaching over 900 (Figure 2). Since 1990, however, an average of only 22 pintails have been banded per year in Ontario, which also coincides with the last year of banding in the Lowlands. While Prairie pintails have shown a considerable population decline (Canadian Wildlife Service Waterfowl Committee 2015), pintails in the Lowlands in Ontario continue to do well (Gendron 2007). As a result, renewing banding efforts in the Lowlands may be advantageous in determining why these two populations are experiencing different population trajectories.

The increased use of airboats for capturing ducks has resulted in more Ring-necked Ducks and Hooded Mergansers (*Lophodytes cucullatus*) being banded since 1996 than in the past. Bait trapping is not conducive to the capture of these species due to their preference to forage on aquatic vegetation, invertebrates and fish by diving. As a result, they tend to use more open deep water areas compared to dabbling ducks; these areas are often unsuitable for bait trapping operations because of water depth. Because an airboat is highly mobile and does not rely on birds to concentrate in a specific area prior to capture, it is much more efficient at targeting these ducks than bait trapping. Prior to the airboat program, fewer than 20 Ring-necked Ducks and five Hooded Mergansers were banded annually, on average, in Ontario; since the airboat was introduced this average has increased to 180 and 162 ducks banded per year, respectively. This improvement, particularly for Ring-necked Ducks, has provided data for continental monitoring and managing harvest of this species. This is important because the Ring-necked Duck is consistently one of the top five duck species harvested in Eastern Canada (Leckie 2007) and Ontario has banded over 50% of all Ring-necked Ducks banded in Eastern North America since 2005.

In addition to the focal species mentioned above, the high diversity of ducks (e.g., 24 species of dabblers, divers and sea ducks) banded during the pre-season in Ontario was somewhat unexpected (Table 1). While many of these less common species were likely captured as bycatch in traps targeting other species or captured opportunistically, some species may be targeted in small scale projects focussing on species of conservation concern or local interest. Although the total number of banded ducks was often fewer than ten per species, it was surprising that species such as Barrow's Goldeneye, Bufflehead, Common Eider, Red-breasted Merganser, White-winged Scoter and Black Scoter have been banded in Ontario during the pre-season. Not only are some of these species rare in accessible parts of Ontario, especially from August to September, but many are also difficult to catch due to their tendency to use inaccessible offshore areas.

### Distribution of Recoveries

Mallards, black ducks and Wood Ducks are the species with the most recoveries which is not surprising as they are often the focus of banding efforts and are highly sought after by hunters. (Canadian Wildlife Service Waterfowl Committee 2015, Raftovich *et al.* 2015). The high availability of banded birds on the landscape undoubtedly explains the relatively high species-specific recoveries in many local areas as well as in/around Ontario. At a local scale, most ducks tend to remain in the area where they were banded well into the hunting season as birds mature and/or deposit fat reserves for migration. Then, as autumn progresses, flights begin to occur with species demonstrating different migration phenology. For example, Ring-necked Ducks and Wood Ducks tend to migrate earlier than Mallards and black ducks with most leaving Ontario by mid-November; many Mallards and black ducks remain in Ontario or northern US

states throughout the entire winter. As a result, there is a relatively high proportion of banded birds in Ontario well into the hunting season and, depending on the species' migration phenology, some of these banded birds may never be available to hunters further south. This explains, in part, why a large proportion of Ontario pre-season banded ducks are harvested in Ontario and around the lower Great Lakes in general, compared to mid- and lower US states (Figures 3A, 3B). Other differences in recovery distribution are also affected by species-specific migration phenology. For example, hunter recoveries for Mallards that were banded during the pre-season in Ontario show a declining trend with latitude within the Mississippi Flyway: Michigan (total = 22%), Ohio (13%), Tennessee (15%), Mississippi (5%), Alabama (5%) and Louisiana (3%). Conversely, proportionally more Ontario Wood Ducks were harvested in Louisiana (23%), Alabama (21%) and Mississippi (15%) compared to Michigan (8%), Ohio (8%) and Tennessee (6%). Roy *et al.* (2015) also showed a high band recovery for ducks in southern Ontario and Iverson *et al.* (2014) showed a similar result for Canada geese banded in Ontario.

Changes in the distribution and population of duck species, duck banding stations and banding effort have resulted in shifts in the proportion of Ontario ducks recovered in the Mississippi and Atlantic Flyways. Since 1920, the Mississippi Flyway has accounted for approximately 57% of all recoveries between the Mississippi and Atlantic Flyways (Table 1). This proportion, however, has varied considerably over the last

50 years. For example, during the 1966 to 1975 and 1976 to 1985 decades, the Mississippi Flyway accounted for approximately 49% of hunter recoveries. Then, from 1986 to 2005, the proportion increased to approximately 64% with some years reaching 68% and 69% of total recoveries. Since 2006, the proportion of recoveries has declined back to 53%. Undoubtedly, some of these changes correspond to changes in the breeding population of ducks in Ontario as species such as Mallards and Wood Ducks have increased dramatically from the 1970s (Canadian Wildlife Service

A typical pre-season bait trap at Thunder Bay, Ontario. *Photo: Dan Bascello*

Waterfowl Committee 2015). However, changes in the distribution of banding stations over time have also resulted in changes in the composition of species banded, which, in turn, may influence the distribution of recoveries (Figure 2). For example, the proportion of Mallards banded in Ontario increased significantly from 1986 to 2005; many of these ducks were banded in southwestern Ontario in areas west of Toronto and, therefore, were more likely to travel down the Mississippi Flyway. Before then, black ducks and Blue-winged Teal comprised a higher proportion in the banded species composition (Figure 2). Ontario banded Blue-winged Teal tend to use the Atlantic Flyway more than the Mississippi Flyway (Figure 3A) and over 30% of the black ducks were banded in Eastern Ontario (e.g., Cornwall) pre-1986. Since 2006, banding stations in western and northeastern Ontario have closed while new stations have opened further east (e.g., Ottawa); other stations (e.g., Lake St. Clair) have been unable to band as many ducks, mainly Mallards,during the preseason in some years because of lake water levels. All of these changes undoubtedly affect flyway hunter recoveries as ducks

in southwestern Ontario and northeastern Ontario tend to use the Mississippi River valley while those further east travel south through the Atlantic Flyway (Zimpfer and Conroy 2010, Baldassarre 2014).

As evident from the recovery density distribution maps (Figures 3A, 3B), many Ontario banded ducks used the mid-to southern Atlantic coast states during fall and overwintered in these locations. For species such as the black duck, this is not unusual given the high historical and current overwintering use of this area. For example, data from the USFWS Mid-Winter Waterfowl Survey (MWS) for the Atlantic Flyway show that on average between 2012 and 2015 approximately 240,000 black ducks overwintered in this area with approximately 45% using New Jersey (USFWS 2015). Baldassarre (2014) also summarized the importance of the area between Long Island, New York, and North Carolina for wintering black ducks. In fact, the black duck is one of the focal species for major conservation initiatives (e.g., Chesapeake Bay Program, Atlantic Coast Joint Venture) and refuge management (e.g., Edwin B. Forsythe National Wildlife Refuge) in this area. Similarly, southern Atlantic coast states, particularly North Carolina and South Carolina, respectively, had on average approximately 70% and 16% of all overwintering green-winged teal and 76% and 11% of all overwintering pintails in the Atlantic Flyway between 2012 and 2015 (MWS $\bar{x}$ = 106,000 green-winged teal and 85,000 pintails in the Atlantic Flyway) (USFWS 2015). Clearly, this area is important to many ducks from Ontario.

The Clay Belt of northeastern Ontario, which extends from approximately Lake Timiskaming near New Liskeard, north to Cochrane and west to Hearst, represents an important area for breeding and migrating ducks. Ross *et al.* (2002) found that the Clay Belt had a higher density of breeding waterfowl compared to surrounding boreal areas with Mallard, Ring-necked Duck, black duck and Common Goldeneye (*Bucephala clangula*) being the most common ducks detected during waterfowl breeding pair surveys (see also Cadman *et al.* 2007, Baldassarre 2014). The area is also important to autumn migrating ducks. Specifically, black duck, green-winged teal and Ring-necked Duck had a high recovery density in this area. This is, in part, not surprising given the concentrated banding effort in this area (Figure 1), resulting in a high availability of banded ducks as well as a proportionately large hunting population in the area. Although it is part of the Canadian Shield, the Clay Belt contains relatively productive clay soil with high water tables and, therefore, intensive large scale agricultural operations are common within this area (Abraham 2014). With continuing land conversion of forest and wetlands to agriculture within the Clay Belt, there is some concern that land use change may be negatively affecting some duck species (e.g., black duck) while benefiting others (e.g., Mallard). Future banding in this area should shed light on possible changes in species distribution and abundance over time.

The Blue-winged Teal was, by far, the longest distance migrant of all ducks banded during the pre-season in Ontario. Hunter recoveries of these ducks were reported from British Columbia to Newfoundland and as far south as the Caribbean Islands, Columbia, Venezuela, Peru and Brazil. Various accounts show that the Blue-winged Teal is a long distance migrant (Rohwer *et al.* 2002, Baldassarre 2014) and our results confirm this observation. Interestingly, our recovery density figure for Blue-winged Teal also confirms Bellrose's (1976) migration map that shows a sizeable segment of these teal migrate directly east to as far as the Maritimes and then south. This supports the hypothesis that Blue-winged Teal from the Canadian Prairie are being banded in Ontario. Interestingly, many of the distant recoveries of several species are drakes which likely are pairing up with females on the wintering grounds and then dispersing with them back to their natal grounds. For example, of the banded Mallards, three were reported near Great Slave Lake in the Northwest Territories (two of these were males, one was unknown), 17 were reported in California (12 males and five females), one male was reported in Mexico and one female was reported in Alaska. Five green-winged teal (four females and 1 male) and 17 Blue-winged Teal (15 males and two females) were recovered in Mexico. In Cuba, five pintails (four females and one male), one female Ring-necked Duck and one female American Wigeon (*Anas americana*) were recovered. Other pintails have been recovered as far away as Russia (***n*** =2), California (***n*** = 5) and Venezuela (***n*** =1). One Blue-winged Teal was recovered in Europe in 1971 (Azores, Portugal) and two extralimital Wood Ducks were recovered, one in Colorado and one along the James Bay coastline in Ontario.

Results from this paper show that significant effort has gone into delivering a successful pre-season duck banding program in Ontario. Recovery maps show many high density areas, many of which have been corroborated by various waterfowl surveys (e.g., MWS, CWS Great Lakes Decadal Waterfowl Survey [Smith *et al.* 2013], waterfowl breeding pair surveys). It must be realized, however, that the main purpose of pre-season duck banding in Ontario (and elsewhere) is to provide information for harvest management for many species. Documenting the proportion of recovered bands by species in relation to the total number of annual available bands on the landscape for that species is fundamental in determining how much harvest pressure is occurring on a population of migratory game birds. This, combined with population monitoring, determines how hunting regulations are changed to allow sustainable harvest. Lastly, identifying migration patterns and important overwintering areas from recoveries helps link breeding population monitoring efforts to wintering areas (i.e. migratory connectivity), as well as encouraging local habitat management initiatives in those areas (e.g., refuge management), in order to ultimately, conserve those species.

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# Snow Buntings observed foraging in wild-rice bed

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**The diet of the Snow Bunting** (*Plectrophenax nivalis*) is reported to include mainly forb and grass seeds, as well as invertebrates when available (Montgomerie and Lyons 2011). In fall and winter, the diet may comprise as much as 97% seeds of herbaceous forbs, including knotweed (*Polygonum* spp.), ragweed (*Ambrosia* spp.), amaranth (*Amaranthus* spp.), goosefoot (*Chenopodium* spp.), aster (*Aster* spp., *Symphiotrichum* spp.) and goldenrod (*Solidago* spp.), as well as grasses, particularly bluegrass (*Poa* spp.) and foxtail (*Setaria* spp.), and grains such as wheat (*Triticum* spp.), oats (*Avena sativa*) and barley (*Hordeum vulgare*) (Gabrielson 1924, Montgomerie and Lyons 2011).

Foraging by Snow Buntings has been reported to be always on the ground with a preference shown for open, treeless habitats such as cultivated fields, pastures, ruderal (disturbed) grasslands and beaches (Montgomerie and Lyons 2011). Seeds typically are gleaned from the ground or picked from low vegetation; however, on taller stems, seeds are occasionally taken by leaping up, jumping against the stems to scatter them, or by ascending or alighting on the stems to bend the stems over (Montgomerie and Lyons 2011). This note reports an instance of apparent foraging by Snow Buntings on wild-rice (*Zizania palustris*) over open water.

On 25 October 2014, while observing waterbirds on Pigeon Lake from the west end of Cork Line, Selwyn Twp., Peterborough County (44.456381 N, -78.476384 W), the authors observed a flock of approximately 30 Snow Buntings circling and landing in a dense bed of wild-rice approximately 500 m offshore (Figure 1). The wild-rice bed is just over a kilometer in length and averages about 200 m in width. Water depth is 1-2 m on the near-shore side of the bed and 2-3 m on the offshore side (Figure 2).

The buntings were observed alighting on the tops of the wild-rice plants, bending them down under their weight to within a few centimeters of the water surface before taking flight. Several times the

Figure 1. Pigeon Lake, looking west from the west end of Cork Line, Peterborough Co., with the extensive straw-colored wild-rice beds in the middle background. *Photo: D.A. Sutherland*


Figure 2. Location of sighting (red arrow) showing the relative position and extent of the wild-rice bed in Pigeon Lake west of Cork Line, Peterborough Co., Ontario. *Image adapted from Fish On-Line (OMNRF 2012).*

flock would arise, shift position and repeat this process. The buntings appeared to be gleaning either rice grains or possibly invertebrates from the panicles, although unfortunately, this could not be determined with certainty with 60X spotting scopes over the stated distance.

In a survey of the literature, we can find no reported instances of Snow Bunting either feeding on wild-rice or foraging in offshore beds of wild-rice (Gabrielson 1924, Dore 1969, Aiken *et al.* 1988, Cramp and Perrins 1994, Montgomerie and Lyons 2011).

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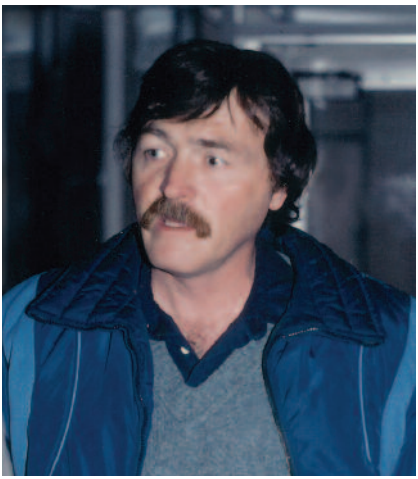
# In Memoriam
# Ron Scovell

*Glenn Coady*

**Terence Ronald "Ron" Scovell** was born on 7 January 1933 in Toronto to Floyd Alexander Scovell and Beatrice Edna Scovell. Both he and his brother Doug developed a keen interest in the natural world from a very young age in their local rambles around High Park, Sunnyside and the marshes of the lower Humber River in west Toronto. Both soon became quite knowledgeable birders, and like a legion of other young men of the era, they soon gravitated to the open door policy of Jim Baillie, the Royal Ontario Museum's Assistant Curator of Ornithology, to become regular "museum rats". As they grew older, Doug and Ron were often invited to join Baillie's inner circle of friends on birding adventures around Ontario. In addition to their shared passion for birds, Ron would go on to become an expert in ferns and flowering plants and Doug would specialize in butterflies.

Ron was a graduate of Humberside Collegiate Institute, the University of Toronto and the Ontario College of Art. He then attended the Ontario College of Education and pursued a career as a high school teacher. He taught biology and physical education, first at Bathurst Heights Collegiate Institute, and later at Etobicoke Collegiate Institute, where he spent the bulk of his career prior to his retirement in 1990. During his teaching career he coached many sports including



Ron Scovell at the founding annual general meeting of the Ontario Field Ornithologists at Aldershot High School in Burlington on 13 November 1982. *Photo: OFO Archives.*

*Ron was a man with many passions and pursued lifelong interests in a love of all aspects of nature... art, classical music, book collecting, canoeing, skiing, golf, hockey, baseball and world travel.*

football, basketball and hockey. I first met Ron in birding circles in my late teens, but it wasn't until discussions years later that we realized I had played high school basketball against teams he had coached

He was a man with many passions and pursued lifelong interests in a love of all aspects of nature (with a special focus on birding and botany), art, classical music, book collecting, canoeing, skiing, golf, hockey, baseball and world travel.

In the era of the internet and the advent of Ontbirds, eBird, social media, smart phones, text messaging, e-mail and global positioning systems, it might seem quaint to some that in the 1950s and 1960s the nerve centre for Ontario birding information was the office of Jim Baillie at the Royal Ontario Museum (ROM). Through his extensive network of contacts and the sheer volume of telephone calls and letters he received on a daily basis, he was able to keep a large group of friends connected to the latest information on interesting bird occurrences. Many other people looked forward to accessing this information by means of Baillie's weekly newspaper column in the *Toronto Telegram*. With Baillie's death in May 1970, that information network was lost and Ron was to play a pivotal role in ushering in its replacement. Combining his own network of contacts with those of other long-time Toronto birders like Gerry Bennett, Harry Kerr and Don Perks, they started the Toronto Rare Bird Alert (TORBA) hotline, a subscription-based typical telephone tree service with a review list of rarities for which members would make mandatory telephone calls to quickly disseminate information on sightings in the Toronto area. Outreach was then made to contact and include active birders in all other regions of Ontario so that a true province-wide network for rarity notification was established. Co-founded and managed by Ron, this arrangement served birders quite admirably for more than two decades.

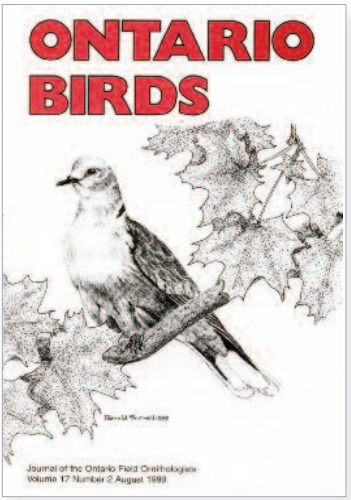
Ron combined his love of art and birds to develop an impressive expertise in the history of art in ornithology. He became a collector of a wide selection of original bird art. When the Ontario Field Ornithologists produced its first special publication, *Ornithology in Ontario,* he was chosen to select the broad spectrum of art included, obtained the necessary permissions for usage, and he wrote the appendix of biographies of Ontario's most influential bird artists.

In addition, he was a talented wildlife artist in his own right. He produced the cover art for five issues of *Ontario Birds* as follows: Black-capped Chickadees and Blue-gray Gnatcatcher (Vol. 3, No. 2, October 1985); Broad-billed Hummingbird (Vol. 8, No. 1, April 1990);

European Starling (Vol. 8, No. 3, December 1990); Eurasian Collared-Dove (Vol. 17, No. 2, August 1999); and Townsend's Warbler (Vol. 19, No. 2, August 2001).

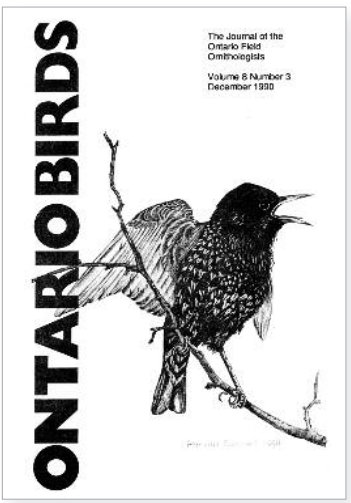
Besides his fondness for art, Ron was a true bibliophile and amassed one of the finest Ontario collections of interesting and rare ornithological monographs since that of James H. Fleming more than seventy-five years prior. A visit to his basement book fortress was always a highlight for any birder invited to his home. He was always willing to help others source hard-to-find bird books. His Herculean efforts to move an enormous weight of bird books to the various venues for the OFO convention's annual book sale benefitted countless Ontario birders. In a couple of cases in which he could not help me find a particular title, he even sold me his own copy! Many a time a quick phone call to Ron to look up something from a reference in his collection saved me a special trip to the ROM library.

Ron was a founding life member of the Ontario Field Ornithologists and contributed to the organization for much of the remainder of his life by leading outings, contributing a bird-finding guide for the Hamilton area to Ontario Birds, providing cover art, writing and fundraising for Ornithology in Ontario, organizing the ever-popular annual book sale at the OFO convention for many years, serving on its board and eventually serving as its fifth President in 1990 and 1991.




August 1999, Eurasian Collared-Dove. *Ron Scovell*

*Ron was a talented wildlife artist in his own right. He produced the cover art for five issues of Ontario Birds.*




December 1990, European Starling. *Ron Scovell*

Ron was a very social birder. In addition to his participation in OFO, he was an active member of the Toronto Ornithological Club, the South Peel Naturalists, the Brodie Club, Bird Studies Canada, the Federation of Ontario Naturalists and the Field Botanists of Ontario. He was often the ringleader of a coterie of talented birders that included Lou Marsh, John Keenleyside, Luc Fazio, Dan Salisbury, Alec Dobson and Doug Scovell.

Ron passed away on 22 March 2015 at Kitchener at the age of 82. He is survived by his son Ted (and wife Emily) and his daughter Summer (and husband Robert) and his five grandchildren Holden, Paisley, Griffen, Tyler and Daniel. He is also survived by his siblings Ken, Phyllis, Murray and Dorothy and his nine nieces and nephews, as well as by his former wife Dorothy Henley (née Duffin) and long-term partner Joan O'Donnell. He was predeceased by his brother Doug. His spirit and drive are also missed by a large contingent of the Ontario birding community who were privileged to have come to know him.

When I think of Ron, I always remember his infectious and mischievous grin and I hope somehow that he and Doug are reunited and gleefully exchanging excruciatingly bad puns with old friends Gerry Bennett and Jim Baillie.

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**Corrections: December 2015, Volume 33(3)**

We made a pagination error in the December 2015 issue of *Ontario Birds*: Volume 33(3), for which we greatly apologize. The issue should have started with page 113 and ended on page 160 as is shown on the enclosed corrected Table of Contents. We recommend that all members simply over-write the page numbers in 33(3) with a pen. A corrected pdf is available on the OFO website.

Also, the reference "**Tomazzoni, A.C., E. Pedro** and **S.M. Hartz**. 2004. Food habits of Great Horned Owls (*Bubo virginianus*) in the breeding season in Lami Biological Reserve, southern Brazil. Ornitologia Neotropical 15:279-282" should have been inserted on old page # 57 immediately above the Tozer 2013 reference.

# ONTARIO BIRDS



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**All persons interested in bird study, regardless of their level of expertise, are invited to become members of the Ontario Field Ornithologists. Membership rates can be found on the OFO website or from the address below. All members receive *Ontario Birds* and *OFO News*.**

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