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Band Encounters of Canada Geese Banded in Ottawa, 1987–2011

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Introduction

Prior to European colonization, the nesting range of Canada Geese (*Branta canadensis*) in southern Ontario was probably limited to prairie areas in the extreme southwest since much of the rest of the province was completely forested (Hanson 1965, Lumsden 1981, Dennis 1999). With colonization, early settlers harvested Canada Geese for food leading to a decline in their numbers until they were extirpated by the 1890s (Lumsden 1981, Dennis 1999). In the 1960s, a formal reintroduction program began and since then, the temperate-breeding population (TBP) in Ontario has increased dramatically and these geese are now thriving throughout southern Ontario (Lumsden and Dennis 1998). The highly adaptable behaviour of this bird, in conjunction with habitat changes such as clearing of forests for agriculture and the development of golf courses and manicured waterfront parks and lawns, has favoured the growth and range expansion of TBP Canada Geese in Ontario (Smith *et al.* 1999, Hughes and Abraham 2007). Now, TBP Canada Geese breed throughout southern Ontario to the extent that human-goose conflicts are a management concern in some areas (Environment Canada 2010).

Canada Geese demonstrate strong breeding, staging and wintering philopatry. During breeding, if a pair successfully raises a brood, they will often return to the exact same nesting site (Anderson *et al.* 1992). Moreover, goslings of both sexes exhibit strong natal philopatry (*i.e.*, return to breed and nest

Canadian Wildlife Service, Ontario Region

close to their natal site) but females return at much higher rates than those demonstrated by males; males commonly disperse from their natal area if they pair with a female from a different geographical area (Lessells 1985). During migration, TBP Canada Geese also consistently use traditional migration routes but there is some annual variability in site selection due to water and food availability (Lessells 1985, Mowbray *et al.* 2002). Finally during winter, Canada Geese consistently return to traditional wintering areas such as Chesapeake Bay.

Annually in Ontario, TBP Canada Geese have been banded by a number of organizations including local bird

observatories, individuals and government agencies. Within the City of Ottawa (hereinafter referred to as Ottawa), Innis Point Bird Observatory banded TBP Canada Geese from 1987 until 1991. The Canadian Wildlife Service has banded TBP Canada Geese in Ottawa annually since 1999. Auxiliary coloured-plastic tarsal markers were also attached to Canada Geese at a few locations in Ottawa from 1999 to 2002. Band encounter data provide an opportunity to investigate the philopatric behaviour of these birds in Ontario. Our objective is to examine movement patterns of TBP Canada Geese from a long-term banding location in Ontario. We predicted that TBP Canada Geese, which were banded as goslings, and later encountered as adult females would have the shortest distance between banding and encounter locations, followed by second year females, adult males, and second year males due to the strong natal philopatry that exists in this bird.

Methods

Banding and encounter data from Canada Geese banded as goslings between 1987 and 2011 in Ottawa were extracted from GameBirds (USGS Bird Banding Laboratory [BBL] 2012). Only encounter data from Canada Geese banded as goslings were used to ensure that natal origin was known. Banding and encounter locations were identified as 10 minute blocks in the BBL database. To examine movement patterns, encounters were summarized into four time periods: May – August (brood rearing), September (local movements near natal or breeding sites), October – November (peak fall migration), and December – January (wintering). For each time period, encounters were summarized by type: (1) foreign recapture — a goose recaptured during banding outside of Ottawa, (2) geese found dead and reported, (3) geese which were shot by a hunter and reported and (4) sight record which represent an encounter where either the band number or an auxiliary coloured tarsal marker was reported. To summarize average distance travelled during each time period, the distances between each banding site and the location of its encounter were measured and the mean (± standard error) for each time period was calculated using ArcMAP (vers. 10). Lastly, we summarized encounter data for *unexpected encounters* which were defined as encounters outside of expected movement patterns (*e.g.*, an encounter during May – August or October – November on the wintering grounds, an encounter during October – November north of the banding location, or an encounter outside of the Atlantic Flyway).

We measured the average distance between banding and encounter location for geese reported during the May – August period for (1) first year birds, (2) second year birds and (3) adults (≥3 years of age) to compare differences in natal philopatry among age and sex classes. We analyzed the effect of sex and age on distance between banding and encounter locations using a non-parametric Kruskal-Wallis ANOVA on

ranks because the data were not normally distributed. All statistical analysis was conducted using R (R Development Core Team 2008) and results were considered significant at $p<0.05$.

Results

A total of 1,662 Canada Geese was banded as goslings between 1987 and 2011 in Ottawa. Of these bands, 26.6% or 443 encounters were reported between 1989 and 2011; there were no encounters during 1987 and 1988. Foreign recapture and found dead encounters represented 5.6% of all encounters combined, while shot birds and sight records represented 68.4% and 26.0%, respectively (Table 1). Most sight record encounters occurred during May – August with the majority (95%) reported from geese that were marked with an auxiliary coloured tarsal marker. Shot birds were encountered mostly during September and December – January. The number of foreign recaptures and birds found dead were similar during May – August; shot and sight record encounters were also similar during October – November.

May-August

Between 1989 and 2011 during the months of May – August, 94 encounters of goslings banded in Ottawa were reported (Table 1). During this timeframe, the majority of the encounters were from sight record (75.5%), followed by foreign recapture (11.7%) and found dead (10.6%). Canada Goose goslings were banded in five locations, three along the Ottawa River and one each in Nepean and Stittsville. Eighty-four of the reported encounters occurred in Ottawa while seven were reported in Québec, two occurred along the St. Lawrence River and one in New Jersey (Figure 1). The maximum distance between banding location and its encounter was 616.4 km and occurred in New Jersey (Appendix 1). During these months, the average distance between banding and encounter location was approximately 24 km (SE = 7 km).

Table 1. Band encounters (by type) of Canada Geese banded as goslings in the City of Ottawa during each time period, 1987 – 2011.

	TOTAL BY ENCOUNTER TYPE				
TIME PERIOD	FOREIGN RECAPTURE	FOUND DEAD	SHOT	SIGHT RECORD	TOTAL
May-August	11	10	2	71	94
September	0	1	65	9	75
October – November	1	2	38	34	75
December – January	0	0	198	1	199
Total	12	13	303	115	443

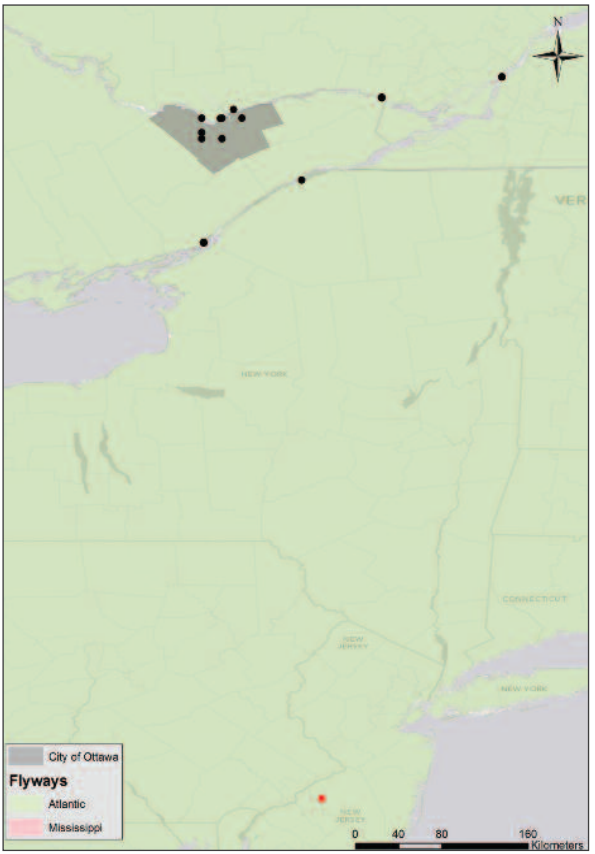

Figure 1. May to August band encounter locations of Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011. Unexpected encounters are shown as red.

Distance between encounter and banding location was shortest for first year males (7 ± 16 km) followed by first year females (10 ± 9 km), second year males (19 ± 13 km), second year females (24 ± 16 km), adult females (30 ± 11 km) and adult males (30 ± 10 km) (Figure 2). There were no significant differences among age and sex classes (H = 1.49, df = 5, P = 0.91). Of these geese, all first year geese (n = 19) were encountered in Ottawa, followed by 8 out of 9 second year males, 5 of 6 second year females, 12 of 15 adult females, and 10 of 12 adult males.

September

There were 75 reported encounters of Canada Geese during September, which had been banded as goslings in Ottawa. Of these encounters, shot geese were the most numerous (86.7%) followed by sight record (12.0%) (Table 1). These goslings were banded in seven locations in Ottawa. On average, the distance between banding and encounter location was 114 km (SE = 19 km) with the majority of encounters occurring in Ontario (Figure 3). Forty encounters were reported within 40 km of where they were banded (Ottawa or Québec) with 26 other encounters elsewhere in Ontario (e.g., near Georgian Bay, Lake Huron and the St. Lawrence River) and

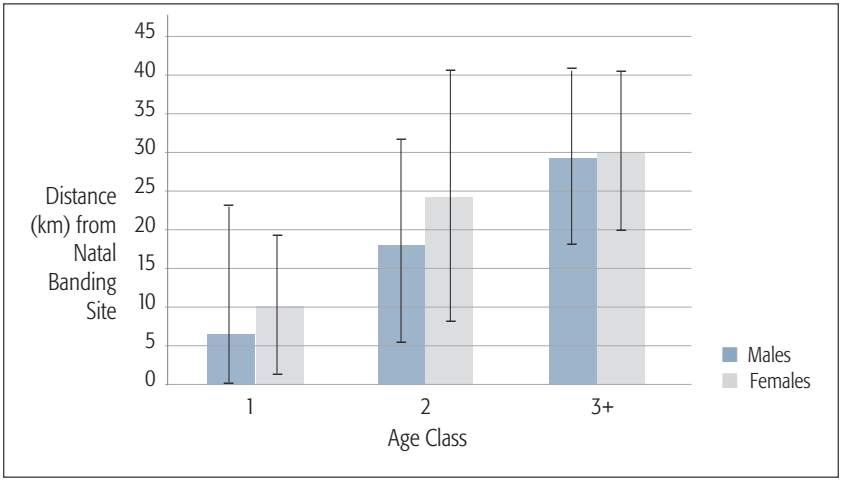

Figure 2. Average distance (±1 standard error) between natal banding and encounter location by age class during May – August for Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011.

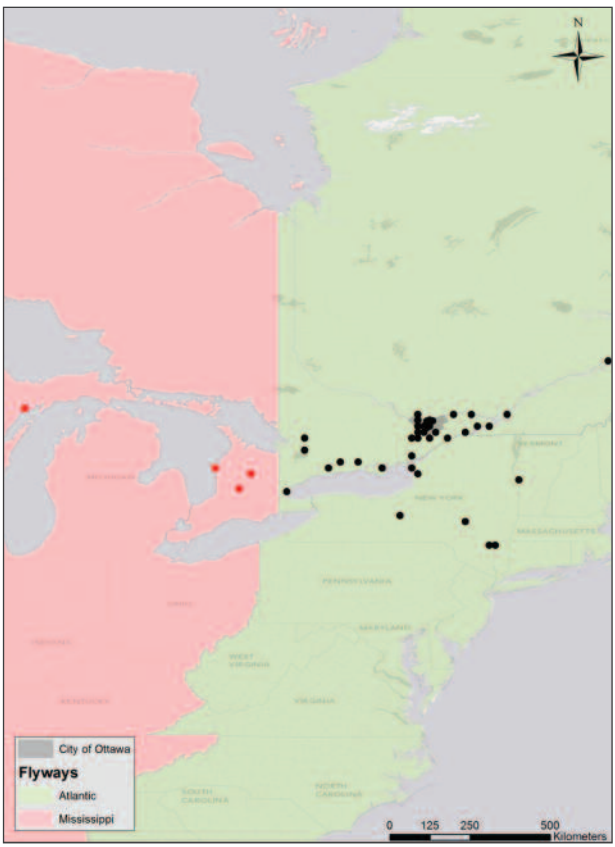

Figure 3. September band encounter locations of Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011. Unexpected encounters are shown as red.

Québec (Cap Tourmente National Wildlife Area). Seven geese were shot in New York state and one each in Vermont and Michigan. The furthest distance of a reported encounter from its banding location was 885 km in Michigan (Appendix 1)

October-November

In the months of October and November, 75 Canada Geese encounters were reported, mostly as shot (50.7%) or a sight record (45.3%) (Table 1). These encounters were from goslings banded in four locations in Ottawa. Over this time period, the average distance between banding and encounter location was 155 km (SE = 31 km). Forty-seven of the encounters occurred in the Ottawa Region (Ottawa or Québec) within 40 km of their banding location (Figure 4). Of the remaining 28 encounters, 13 occurred elsewhere in Ontario (8) or Québec (5) and 15 were reported in the states of New York (8), New Jersey (1), Maryland (1), Delaware (1), Pennsylvania (1), Wisconsin (1), Michigan (1), and Missouri (1) (Figure 4). The maximum distance between a banding location and its encounter was 1,502 km and occurred in Missouri (Appendix 1).

December-January

The most encounters (n = 199) during all time periods were reported during the months of December and January (Table 1). These encounters were almost entirely shot geese (99.5%). These encountered goslings were banded in nine locations in Ottawa. During this time period, on average the distance between banding and encounter location was 538 km (SE = 13 km). Of the 198 shot geese, two were reported in Ottawa and the rest in the following States: New York (54), Pennsylvania (44), New Jersey (41), Maryland (27), Delaware (21) and Virginia (9) (Figure 5). The maximum distance between a banding location and its encounter location was 926 km and occurred in Virginia (Appendix 1).

Discussion

Our results show that TBP Canada Geese banded in Ottawa are highly philopatric to their natal site and almost all birds remain within the Atlantic Flyway. In Ontario, the management boundary line between the Atlantic Flyway (AF) and Mississippi Flyway (MF) is 80° longitude with the AF situated to the east of this line and the MF to the west. Our results show that 435 of the 443 encounters reported occurred east of 80° longitude. Of the eight encounters that occurred west of 80° longitude, four were reported in each of Ontario and the US. These eight encounters are unusual because we expected that Canada Geese banded in the AF would stay within the AF throughout their annual cycle. Moreover, since Ottawa is located at approximately 75° longitude (well east of 80° longitude), we did not expect any of these banded geese to be encountered outside of the AF. While it is difficult to determine whether these eight encounters were due to inaccurate reporting

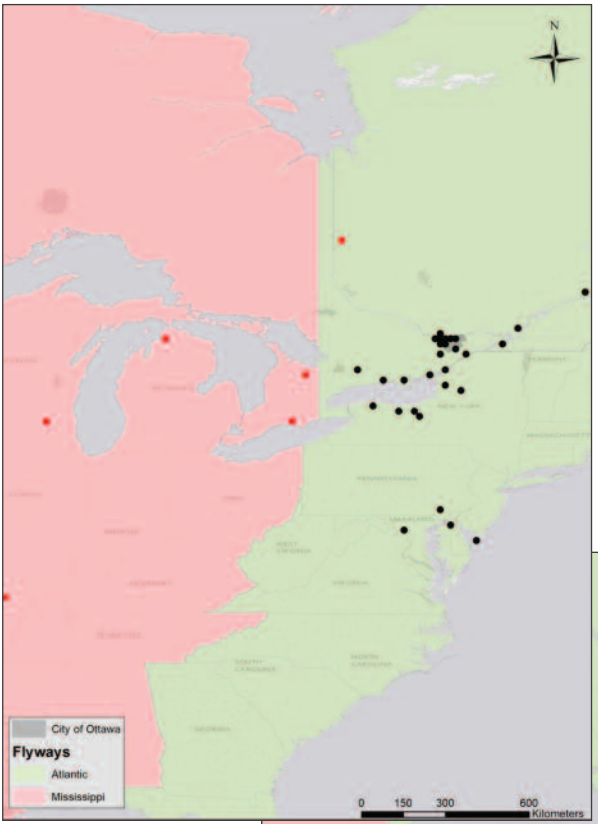

Figure 4. October to November band encounter locations of Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011. Unexpected encounters are shown as red.

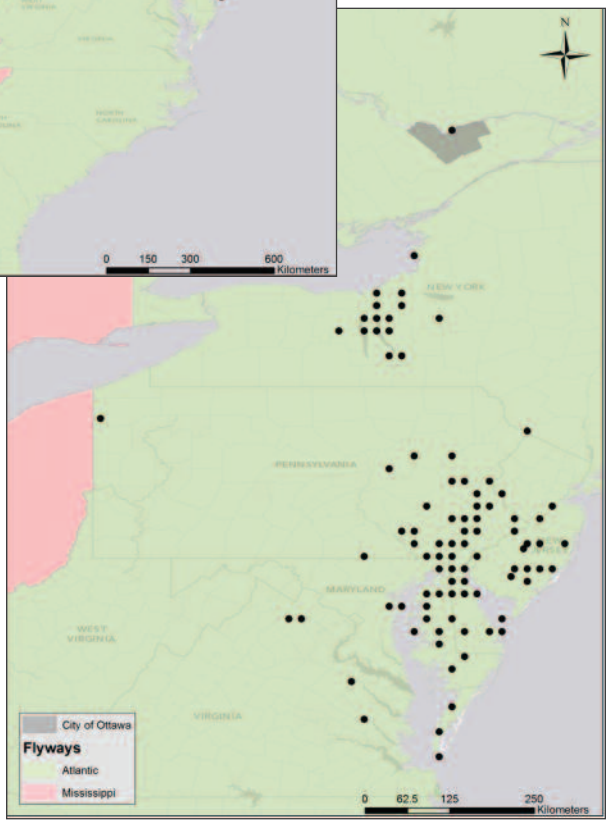

Figure 5. December to January band encounter locations of Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011.

(*e.g.*, a hunter reports a shot bird from their home location instead of the harvest location), our results confirm that AF TBP Canada Geese from Ottawa generally stay within the AF. This result is contradictory to TBP Canada Geese banded in the MF portion of Ontario (*i.e.*, west of 80° longitude) which commonly winter outside of their natal flyway, with half of the US harvest occurring in the AF (Environment Canada 2010).

Pair bonding in Canada Geese occurs before arrival on the breeding grounds (Mowbray *et al.* 2002) and would commonly take place where temperate-breeding populations from various states and provinces are mixed during wintering or spring migration. Since a male will follow a female back to her natal site to breed (Lessells 1985), it is surprising that very few adult males banded in Ottawa have been encountered outside of the Ottawa area. However, Raveling (1979) indicated that in TBP Canada Geese, associations formed on the breeding grounds may last throughout the year, resulting in pairs consisting of individuals from the same natal area. Such a mechanism could help explain the results of our findings.

TBP Canada Geese banded as goslings in Ottawa demonstrated strong philopatry to this area. Our results show that during the breeding season (May – August), almost 90% of the encounters occurred in Ottawa and all first year geese returned to their natal site. While this conclusion is interesting, it is not surprising given that family groups of Canada Geese will often stay together for the first year and, thus, first year birds would return to their natal sites with their parents (Mowbray *et al.* 2002). For second year and adult geese, however, our results differ from other studies which demonstrated overall lower return rates and fewer males than females returning to their natal sites (Lessells 1982). In our study, more than 80% of second year and adult geese were encountered near their natal site during the breeding season independent of age class and sex. A possible explanation for the high overall return rate is the high survival rates of urban TBP Canada Geese. Iverson *et al.* (unpublished data) have shown that TBP Canada Geese in Ontario that successfully raised a brood have higher survival rates than either moulting or unsuccessful breeders. As a result, more TBP Canada Geese may be returning back to Ottawa because more are surviving compared to other geographical areas. In addition, the availability of unoccupied breeding habitat in the Ottawa region likely results in short prospecting distances for young birds from their natal site to find suitable breeding habitat. A final explanation for males is that they are pairing with local females during their second year on their natal area. These factors may explain why more males are returning to Ottawa compared to other studies.

During September, TBP Canada Geese from Ottawa are susceptible to harvest in Ontario and Québec. During late summer/early fall, Canada Geese begin to fly short distances for feeding,

roosting and strengthening muscles for migration. During this time, early Canada Goose hunting seasons open (Environment Canada 2012).Consequently, 88% of the encounters during this time period are geese shot by hunters within 100 km of Ottawa. Our results also show that approximately 21.4% of the total number of geese that were shot by hunters occurred during this time period. Similarly, other studies and analyses have shown high harvest of AF TBP Canada Geese during the early goose hunting season within the state or province in which they were banded (Canadian Wildlife Service – Ontario Region 2011, Klimstra and Padding 2012).

During October and November, the majority of TBP Canada Geese from Ottawa are still within Ontario but the number of shot encounters is substantially lower than during other periods of the hunting season. One possible explanation is that remaining TBP Canada Geese become educated to hunting and learn the locations of safe roosting and feeding sites. As a result, they may preferentially use these areas reducing their probability of harvest. October also marks the point when large numbers of sub-arctic breeding Canada Geese from the Atlantic Population (AP), which nest in northern Québec, begin arriving in the Ottawa area en route from their northern breeding areas. An influx of these geese into an area has been shown to result in a shift in harvest among Canada Geese populations with more AP Canada Geese harvested compared to TBP Canada Geese during the hunting season (Klimstra and Padding 2012). This suggests that during this period, AP Canada Geese may be buffering the harvest of TBP Canada Geese in the Ottawa region, resulting in the decreased number of shot encounters we observed during this time period. This possibility has important management implications for both TBP and AP Canada Geese in Ontario because of the effect of hunting regulations on both populations during the regular Canada Geese hunting season in eastern Ontario.

During December and January, TBP Canada Geese winter and are heavily harvested in the States of Pennsylvania, New Jersey, Delaware and Maryland. High use of these areas by Canada Geese during winter has been historically documented during the Mid-Winter Waterfowl Survey and areas, such as Chesapeake Bay in Maryland, are renowned for their high waterfowl use during winter (Hestbeck *et al.* 1991, USFWS and USGS 2012). Of all the shot encounters reported during the hunting season, two-thirds were harvested during this time period with all but two shot in the US. These results show that management decisions in the US may have a significant effect on the TBP Canada Geese population in eastern Ontario. TBP Canada Geese in Ontario are also harvested during the late winter hunting season in Ontario (*i.e.*, late February – early March). Although we did not examine encounter data from this time period because there are

few areas with an open hunting season in eastern Ontario during this time. We suggest that future studies examine harvest of TBP Canada Geese during this season to further inform future management decisions.

Marking Canada Geese with auxiliary coloured tarsal markers is highly effective in documenting movement patterns throughout the year. Our results show that Canada Geese with coloured tarsal markers are easier to observe and are more likely to be reported by the public compared to standard aluminum leg bands. Other studies (*e.g.*, Trumpeter Swan and Great Egret) have also shown reporting rates of auxiliary markers to be high and an effective method to monitor or extrapolate population size (Lumsden *et al.* 2012, C. Weseloh, pers. comm.). Our encounter data, however, also suggest that many auxiliary coloured tarsal marked geese were shot within the first year of marking especially on the wintering grounds. To our knowledge, high harvest rates of auxiliary coloured marked waterfowl have been reported for collars but not tarsal markers (Samuel *et al.* 1990; Castelli and Trost 1996, Caswell *et al.* 2012). We suggest that future studies should examine whether coloured tarsal marked geese are harvested at higher rates compared to standard aluminum leg bands in order to help inform possible effects on future study findings.

Although these results show that hunting can be an effective tool for managing TBP Canada Geese, many questions remain regarding these geese in Ontario especially in urban areas. For example, where do these geese go given that they have high survival rates (>0.70) [Iverson *et al.* (submitted)]? Over the last five years, there has been an average of approximately 160,000 breeding TBP Canada Geese in Ontario with a growth rate of approximately 4.0% per year (Canadian Wildlife Service Waterfowl Technical Committee 2012). This growth rate is for the area south of 46°N and excludes urban areas. Consequently, how do urban TBP Canada Geese mix with rural geese and do urban geese disperse and breed in rural areas? Although band encounter data from this study suggest that Canada Geese in Ottawa do not move very far from the city to breed, deployment of auxiliary coloured markers or telemetry would help inform such movement patterns. As such, we suggest that future studies examine movement patterns of urban TBP Canada Geese through the use of these marking techniques. Results from such a study would help determine the amount of movement among different segments of the population (urban versus rural) of TBP Canada Geese in Ontario in order to inform future management decisions.

Encounter data from Canada Geese banded as goslings in Ottawa from 1989 to 2011 show that, for the most part, these geese stay within the AF. Our band encounter data also show auxiliary coloured tarsal markers work well for documenting movement patterns during breeding, staging and migration.

Lastly, these data show that harvest of TBP Canada Geese is highest during September in Ontario and during December – January in the U.S. To inform TBP Canada Geese management in Ontario, we suggest that future studies examine harvest of TBP Canada Geese in Ontario during the late winter hunting season. Moreover, encounter data of TBP Canada Geese in areas where nuisance complaints are highest and hunting is not possible, such as Toronto, should be analysed to examine possible solutions to reduce human-goose conflicts in the future. Future TBP Canada Geese banding in urban areas could be augmented with deployment of auxiliary coloured markers to help document movement patterns and harvest locations.

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Appendix 1. Summary of Unexpected Band Encounters of Canada Geese banded as goslings in the City of Ottawa, 1987 – 2011.

BAND NUMBER	TIME PERIOD	ENCOUNTER LOCATION	SEX	YEAR BANDED	YEAR ENCOUNTERED	ENCOUNTER TYPE
104876068	May – Aug	Cherry Hill, NJ	Female	2009	2011	Foreign Recapture
104876349	Sept	Escanaba, MI	Female	2009	2010	Shot
094821714	Sept	Point Clark, ON	Female	2001	2006	Shot
097804861	Sept	Minto, ON	Female	2004	2005	Shot
097805898	Sept	Mitchell, ON	Male	2005	2007	Shot
104876101	Oct – Nov	Gallichan, QC	Female	2009	2010	Shot
100872444	Oct – Nov	Duck Creek, MO	Male	2006	2010	Shot
096895186	Oct – Nov	Whitewater, WI	Female	2000	2001	Shot
099857096	Oct – Nov	Little Traverse Bay, MI	Male	2006	2008	Shot
100872434	Oct – Nov	Alymer, ON	Male	2006	2007	Shot
102886078	Oct – Nov	Grey Highlands, ON	Male	2007	2011	Shot

Examining a Large Reverse Migration of Songbirds off Fish Point, Pelee Island, Ontario

Kenneth G. Burrell

Introduction

From 26 April to 20 May 2010-2012, as part of my Master's degree research, I conducted daily diurnal surveys monitoring reverse migration (RM) off Fish Point, Pelee Island. On 10 May, James Burrell, Mike Burrell, Brandon Holden, Eric Holden, Jennifer Bock and I observed a large movement of songbirds streaming south overhead off Fish Point. The flight of 5,811 birds on 10 May 2011 was the largest flight observed during my three seasons of spring field surveys (2010-2012). This paper describes and examines this large movement.

RM, as it is used here, refers to the diurnal movement of songbirds in a southerly direction during spring migration (*i.e.*, the opposite direction one would normally expect of a spring migrant in Ontario). Very little has been published regarding RM; documented RM is limited to just a few locations throughout North America and Fennoscandia (Richardson 1978, Alerstam 1978, Richardson 1982, Lindstrom and Alerstam 1991, Akesson 1999, McLaren *et al.* 2000), suggesting it is a localized phenomenon. While RM is known to occur at a limited selection of sites, it has been found to be a relatively common component to the dynamic of spring bird migration in the Point Pelee area and other sand spits along the lower Great Lakes (O'Neill 2006; K. Burrell pers. obs.). RM has

Dickcissel reverse migrating off Fish Point, Pelee Island. 3 May 2012 . *Photo: Brandon R. Holden*

been documented more in the spring than in the fall within the Great Lakes region (Lewis 1939, Gunn 1951).

Two papers have studied RM in the Pelee area examining the role of weather (Lewis 1939, Gunn 1951). Lewis (1939) found that species that were common during RM become increasingly uncommon to completely absent in days following intense RM. Gunn (1951) found that flights generally occurred between one and four hours after sunrise, and were most intense in May. Heavy flights of RM were linked to approaching inclement weather, and it was found that birds commonly will fly against the wind (Gunn 1951).

During my field surveys at Fish Point, close to 50,000 songbirds participating in RM events were documented over the course of three seasons of monitoring, representing impressive counts for several species (K. Burrell unpublished data). Of those species that were identified, a relatively high proportion were species at risk, species noted to be vagrants or unusual species in the Pelee area, indicating that surveys for reverse migrants could be a useful tool for learning about species at risk and vagrant species.

Among the three seasons, spring 2011 stood out as the most interesting. Good influxes of birds on Pelee Island occurred over three distinct periods (25-27 April , 30 April and 6 May) leading up to the large movement on 10 May. Surprisingly, no large movements of songbirds had been observed departing south from Fish Point until 10 May. Leading up to this date, vagrants and other unusual species had been observed relatively frequently (*e.g.*, Eared Grebe (*Podiceps nigricollis*), Glossy Ibis (*Plegadis falcinellus*), Laughing Gull (*Leucophaeus atricilla*), Acadian Flycatcher (*Empidonax virescens*), Kentucky Warbler (*Geothlypis formosa*), Yellow-throated Warbler (*Setophaga dominica*), Henslow's Sparrow (*Ammodramus henslowii*), Summer Tanager (*Piranga rubra*), Dickcissel (*Spiza americana*) and Western Meadowlark (*Sturnella neglecta*) (Glossy Ibis and Henslow's Sparrow are reported in Cranford 2012)).

Methods

From 26 April - 20 May, daily observations were made from the southern tip of Fish Point (N41°43.5', W82°40.3'). Fish Point is located at the extreme southwest corner of Pelee Island in Essex County, Ontario (Figure 1). Pelee Island is situated within the western Lake Erie basin and is part of the Pelee archipelago, constituting the largest island within the basin (Henson *et al.* 2010, Nature Conservancy of Canada 2012).

I structured a standardized fixed point survey similar to those of the Long Point Bird Observatory (Long Point Bird Observatory 2005) and Thunder Cape Bird Observatory (Wojnowski *et al.* 2010) migration monitoring protocols, while also taking into account the methods of Gunn (1951) and Wiedner *et al.* (1992) and my own personal observations.

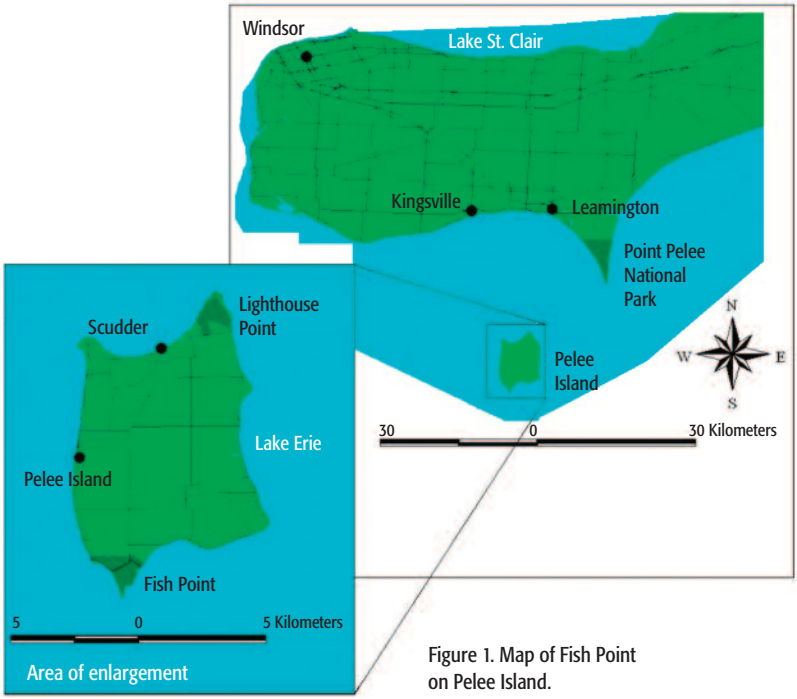

Figure 1. Map of Fish Point on Pelee Island.

I situated myself at the tip of Fish Point, along the edge of the last vegetated bushes. This allowed for an unobstructed view of the sky, while being close enough to identify individual birds. Bird observations were collected during the first three hours (roughly 06:00-09:00) following sunrise, and sometimes extended after the three hours, if the volume of flight warranted more observation.

Birds were recorded as RM only if they were observed to be flying in a persistent southerly direction out over Lake Erie. Birds were identified to species when possible, otherwise each individual bird was assigned an identification as close to species level as possible (*e.g.*, blackbird species). Only songbirds (Passeriformes), excluding swallows, were counted as these species have been shown to actively undergo RM (Lewis 1939, Gunn 1951). Swallows were excluded because they are aerial insectivores and can range quickly over large areas, making it difficult to properly record true numbers of individuals (Kerlinger 1995, Faaborg 2002) and determine whether they are true reverse migrants.

Weather conditions were recorded twice daily (07:00 and 19:00) on site, using a Kestrel 3000 Weather Meter (Pacific Data Systems 2009) portable weather device. Temperature, humidity, wind strength and barometric pressure

were measured using the Kestrel unit while wind direction and percent cloud cover were measured manually. Rainfall data were collected using Environment Canada's historical climate data (Environment Canada 2012).

Results

For nearly a week prior to the evening of 9/10 May, close to no precipitation was recorded on site. Temperatures from 7-9 May were seasonal, ranging from a low of 7.2° C to a high of 18.7°C. Winds overall were light and out of the north throughout the period. Pressure was relatively low (~97-98kpa) and stable (Environment Canada 2012). Thunderstorms began in the evening of 9 May and rolled intermittently through the area in the hours leading up to sunrise on 10 May (sunrise occurred at 06:13).

In the early hours of 10 May, Fish Point (and the rest of Pelee Island) experienced light rain, with light-moderate winds (10-20km/hr) out of the northeast, going east-south-east around 06:00. Temperature was steady overnight through the morning, ranging from 10-13° Celsius. A band of moderate-heavy precipitation went through the area shortly after 05:30; however, this precipitation quickly abated. Pressure slowly decreased throughout the morning, ranging from 99.43-99.20kpa (Environment Canada 2012).

Upon arriving at Fish Point before sunrise, bird activity was relatively subdued, giving the impression that few birds were around. Shortly after sunrise, the wind started to shift more out of the east. Around 06:30 songbird activity started to increase with dozens of birds flying off Fish Point, heading south. Activity continued at this pace, picking up towards 08:00. Shortly after 08:00

Table 1. Warbler species observed on 10 May 2011 to be reverse migrating

SPECIES	TOTAL
Black-and-white Warbler (*Mniotilta varia*)	10
Prothonotary Warbler (*Protonotaria citrea)*	1
Tennessee Warbler (*Oreothlypis peregrine*)	2
Orange-crowned Warbler (*Oreothlypis celata*)	1
Nashville Warbler (*Oreothlypis ruficapilla*)	407
American Redstart (*Setophaga ruticilla)*	45
Kirtland's Warbler (*Setophaga kirtlandii*)	1
Cape May Warbler (*Setophaga tigrina*)	5
Northern Parula (*Setophaga americana*)	13
Magnolia Warbler (*Setophaga magnolia*)	104
Bay-breasted Warbler (*Setophaga castanea*)	7
Blackburnian Warbler (*Setophaga fusca*)	27
Yellow Warbler (*Setophaga petechia*)	67
Chestnut-sided Warbler (*Setophaga pensylvanica*)	54
Black-throated Blue Warbler (*Setophaga caerulescens*)	24
Palm Warbler (*Setophaga palmarum*)	253
Pine Warbler (*Setophaga pinus*)	1
Yellow-rumped Warbler (*Setophaga coronata*)	292
Black-throated Green Warbler (*Setophaga virens*)	31
Canada Warbler (*Cardellina canadensis*)	3
Wilson's Warbler (*Cardellina pusilla*)	1
Unidentified warbler sp.	2516
Total	**3865**

songbirds (predominantly warblers) were observed to be flying off the point at an estimated rate of 20-30 individuals per minute, lasting until 10:30.

A total of 5,811 songbirds was observed flying south, with warblers making up the bulk (67%) of migrants, involving 21 species and a total of 3,865 birds (Table 1). Other neotropical migrants were relatively common throughout the flight, with four non-warbler species representing 8.7% of total migrants (Table 2). Rare and unusual species were detected in this movement. Single Kirtland's Warbler (*Setophaga kirtlandii*), Prothonotary Warbler (*Protonotaria citrea*) (Figure 2; Cranford 2012) and a Summer Tanager were the standouts. Also noteworthy was the relatively high count (84) of Bobolink.

Table 2. Additional neotropical migrants noted on 10 May 2011

SPECIES	TOTAL
Eastern Kingbird (*Tyrannus tyrannus*)	85
Scarlet Tanager (*Piranga olivacea*)	35
Bobolink (*Dolichonyx oryzivorus*)	84
Baltimore Oriole (*Icterus galbula*)	304

Discussion

Weather is a well-known influence on bird migration (Hassler *et al.* 1963, Gauthreaux and Able 1970, Richardson 1978, Bloch and Bruderer 1982), and the event on 10 May is no exception. It appears the relatively high night-time temperatures and light winds helped

Figure 2. Female Prothonotary Warbler reverse migrating off Fish Point, Pelee Island. 3 May 2012. *Photo: Brandon R. Holden.*

create events conducive for a heavy nocturnal migration on the night of 9/10 May. Precipitation that occurred overnight and in the very early morning hours created 'fallout' conditions (Weidensaul 1999), forcing thousands of songbirds onto Pelee Island, likely resulting in the large flight of songbirds reverse migrating off Fish Point the next morning (10 May).

Common explanations for RM do not seem to apply to the movement observed on 10 May, contradicting the hypotheses formulated by Lewis (1939) and Gunn (1951). In the days following this RM event, inclement weather did not form; temperatures stayed at normal levels and no precipitation fell as Pelee Island experienced relatively high pressure and stable conditions (Environment Canada 2012). Birds often reverse migrate when winds are out of the south (Gunn 1951, K. Burrell pers. obs.), and during and after inclement weather conditions; winds during the night of 9/10 May consisted largely of east-northeast winds and weather was calm and uneventful for several days following 10 May.

The flight occurring on 10 May 2011 was the largest RM that took place over the course of my entire study (2010-2012). A total of 5,811 birds was observed, vastly outnumbering the next largest RM event of 3,295 taking place on 30 April 2012 (Table 3). Only six dates have had greater than 2,000 birds participating in RM, signifying the magnitude of the flight on 10 May.

Table 3. Six largest single day counts of reverse migrants during my study (2010-2012)

RANK	TOTAL	DATE
1	5,811	10 May 2010
2	3,295	30 April 2012
3	2,318	3 May 2012
4	2,159	13 May 2012
5	2,089	30 April 2010
6	2,039	5 May 2010

Other days with high counts of RM consisted largely of blackbirds and warblers, similar to the flight on 10 May. It is not surprising that the bulk of the species participating in the flight on 10 May were warblers, as mid-May is typically when the highest numbers of warblers pass through southern Ontario (Hince 1999, Ridout 2010). Similarly, flights during the second half of April typically consist of blackbirds, as these are the most abundant passerines migrating through the region at this time of year (Hince 1999, Ridout 2010). Depending on the time of year, it is likely that the most abundant species group at that time will likely be the most abundant species group taking part in RM. Additionally, it is not surprising that high counts of other neotropical migrants (*e.g.*, Eastern Kingbird and Baltimore Oriole) were also observed on the event of 10 May, given these species' similar migration phenology.

The paucity of information on RM, particularly in the Great Lakes region, and its apparent prevalence during spring and to a lesser extent fall migration (Lewis 1939, Gunn 1951), highlights the importance of the results presented by this study. Research of this nature provides a valuable measure of songbird numbers passing through the Great Lakes region. Much remains to be learned about the relationship between weather and bird migration, particularly with regards to RM. Further study is warranted, particularly at locations where this phenomenon regularly occurs.

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Giant Ragweed (*Ambrosia trifida*) as a Food Source for Autumn Migrants and Winter Birds in the Grand River Basin

Kenneth W. Dance, Kevin S. Dance and Michael B. Dance

Introduction

An intense interest in foods of birds in southern Ontario has led us to prepare a series of papers over the last 25 years, starting with Dance (1986).

During research for one of these papers, on the use of Black Alder (*Alnus glutinosa*) by birds in southern Ontario, it was observed that the seeds of Giant Ragweed *(Ambrosia trifida*), a prominent woodland edge and field species, were being consumed consistently by birds at a study site in the Nith River floodplain, Oxford County (Dance 2008).

Subsequent literature research and discussions with colleagues revealed the following:

- Giant Ragweed is a native plant with a widespread distribution across Canada and the United States;
- it favours riparian habitats, particularly where flooding and erosion have occurred — this apparently facilitates establishment of this annual plant from seed (Abul-Fatih and Bazzaz 1979a, b);
- Giant Ragweed is becoming an aggressive, invasive weed in cropland in

Figure 1. Size and shape of Giant Ragweed seeds.

"Knowing what a bird eats is fundamental if not central to understanding the mysteries of its survival"

(Heinrich 2003)

the mid- U.S. and Asia (Ishikawa *et al.* 2003, Kong *et al.* 2007, Shutte 2007);

- some colleagues (K. Parker pers. comm. and W.G. Wilson pers. comm.) think that it has become more widespread in the Grand River basin during the last two decades;
- Giant Ragweed was considered to pose only a minor threat as an invasive weed, to upland natural areas (White *et al.* 1993);
- the seeds of this plant have been known to have high nutritional value for millennia, as witnessed by native peoples cultivation and consumption of Giant Ragweed seeds in the Mississippi basin 3000 to 5000 years ago (McCann 1999);
- Giant Ragweed is also of broad ecological and economic interest since it has recently been confirmed to be the first weed species in Ontario to be resistant to Roundup (glyphosate) —

a herbicide in widespread use to control weeds in soybean and corn fields (Ontario Farmer 2010, 2011); and

- from a wildlife perspective, the high nutrient content of the seeds (Willson and Harmeson 1973) is of value to migrating and wintering bird species.

The size and shape of Giant Ragweed seeds are shown in Figure 1.

When first observed by us at one study site in 2005, Giant Ragweed grew in small patches. Following a significant flood in April 2008 (one of the two largest floods during the preceding 50 years [*Ayr News* 2009, *Waterloo Region Record* 2009, 2010]), we observed that the Giant Ragweed patches were several times larger in area during the growing season of 2008, than they had been in 2005. Presumably the scouring, silt deposition and attendant widespread seed transport had created suitable conditions for a localized expansion of the Giant Ragweed population. This situation seemed to be ideal for documenting the nature of bird species' use of the seeds and cover provided by the large dense Giant Ragweed beds present following the April 2008 flood.

Documentation of wild birds consuming Giant Ragweed seed in North America is limited but includes: Black-capped Chickadee (*Poecile atricapillus*), Tufted Titmouse (*Baeolophus bicolor),* Northern Cardinal (*Cardinalis cardinalis*) and Common Redpoll (*Acanthis flammea*) (Fox 1940, Shepherd 2007).

Other authors have reported Red-breasted Nuthatch (*Sitta canadensis*) and Red-winged Blackbird (*Agelaius phoeniceus*) foraging for arthropods on Giant Ragweed plants (Miller 1914, Fischer 1953).

Martin *et al.* (1961) reported on the occurrence of ragweed seeds in bird stomachs sampled across the United States. They did not differentiate between Giant Ragweed and Common Ragweed (*Ambrosia artemisiifolia*), which is more widespread and abundant in Ontario (Montgomery and Switzer 1967). There are also additional Ambrosia species within the United States which do not occur in Ontario.

The Martin *et al.* (1961) findings indicate that ragweeds in general are consumed by a variety of chickadee and titmouse, Emberizid, cardinal and ally and blackbird taxa.

Martin *et al.* (1961) also list ragweed among the plant taxa that bear their seeds high enough that they are not covered by snow, making it a taxon that has seeds available as bird food during much of the winter.

The principal purpose of the present study was to document the relative magnitude of use by autumn migrants and winter birds of a weedy herb which may increase in prominence in riparian habitats in the future. A secondary purpose was to document, in a preliminary way, the use of Giant Ragweed by spring migrants and breeding birds at two Southern Ontario sites.

Methods

Detailed notes were kept on the species, numbers, uses and behaviour of birds observed on or immediately adjacent to the plants and stands of Giant Ragweed. The observation period ranged between 5 September 2005 and 30 December 2010. Specific use(s) by birds were observed during 91 trips.

More than 95% of the observations were recorded in the Nith River valley, Blandford-Blenheim Township, Oxford County, Ontario. Many observations (September 2005 to December 2008) were near the confluence of Wolverton Creek (a coldwater stream) and the Nith River (17T 538500E 4790100N NAD 1983). Giant Ragweed stands line the banks of both Wolverton Creek and portions of the Nith River in this location.

The second principal location of observations was along the Nith River upstream and downstream of the Silver Bridge, located on Blenheim Road, south of County Road 29 in Blandford-Blenheim Township, Oxford County (17T 539951E 4787789N NAD 1983). The Nith River is a tributary of the Grand River. Less frequently observations were recorded in Cambridge, Ontario, near the mouth of the Speed River and its confluence with the Grand River.

The two principal study sites are within the extreme northern tip of the Norfolk Sand Plain (Chapman and Putnum 1973).

Most observations were made in the morning, shortly after dawn, when birds were active. Over 90% of the observation dates were between 21 September and 21 March.

Results

Ten bird species were observed consuming Giant Ragweed seed with Black-capped Chickadee and Northern Cardinal being observed the most frequently foraging on Giant Ragweed seeds (Table 1).

We observed seven bird species foraging on Giant Ragweed plants for arthropods (Table 2). More intensive observation effort during bird migration seasons would undoubtedly have revealed additional species searching for arthropods in the dense Giant Ragweed stands present in the riparian zone.

Table 1. Bird species observed consuming Giant Ragweed seed.

SPECIES	NUMBER OF DATES WHEN SEED CONSUMPTION WAS OBSERVED
Downy Woodpecker (*Picoides pubescens)*	14
Black-capped Chickadee (*Poecile atricapillus)*	49
Tufted Titmouse (*Baeolophus bicolor)*	1
Song Sparrow (*Melospiza melodia)*	6
White-throated Sparrow (*Zonotrichia albicollis)*	1
Dark-eyed Junco (*Junco hyemalis)*	1
Northern Cardinal (*Cardinalis cardinalis)*	24
Red-winged Blackbird (*Agelaius phoeniceus)*	18
Purple Finch (*Haemorhous purpureus)*	2
House Finch (*Haemorhous mexicanus)*	1
Total # Observation Dates	**91**

Twenty-four bird species which were observed making other use(s) of Giant Ragweed plants are shown in Table 3. Many of these bird species benefited from the cover and perch sites provided by Giant Ragweed. Since Black-capped Chickadees fed on Giant Ragweed seed so frequently, separate observations of cover use and perching by chickadees were not recorded.

Two species were found nesting in or under Giant Ragweed stands and two species appeared to consume the pollen of this plant (Table 3).

Table 2. Bird species observed foraging for arthropods on Giant Ragweed plants

SPECIES	NUMBER OF OBSERVATIONS
Golden-crowned Kinglet (*Regulus satrapa)*	2
Ruby-crowned Kinglet (*Regulus calendula)*	2
Nashville Warbler (*Oreothlypis ruficapilla)*	1
Yellow-rumped Warbler (*Setophaga coronata)*	1
Common Yellowthroat (*Geothlypis trichas)*	2
Song Sparrow (*Melospiza melodia)*	1
Red-winged Blackbird (*Agelaius phoeniceus)*	1

Table 3. Bird species showing other uses of Giant Ragweed

SPECIES	OTHER USES*
Canada Goose (*Branta canadensis)*	C(1)
Mallard (*Anas platyrhynchos)*	C(2)
Wild Turkey (*Meleagris gallopavo)*	N(3)
Killdeer (*Charadrius vociferus)*	C(1)
Spotted Sandpiper (*Actitis macularius)*	C(1)
Ruby-throated Hummingbird (*Archilochus colubris)*	PO(1)
Downy Woodpecker (*Picoides pubescens)*	PE(4)
Tufted Titmouse (*Baeolophus bicolor)*	PE(2), C(1)
Winter Wren (*Troglodytes hiemalis)*	P(1)
American Robin (*Turdus migratorius)*	C(1), P(1)
American Tree Sparrow (*Spizella arborea)*	C(4)
Chipping Sparrow (*Spizella passerina)*	C(1)
Fox Sparrow (*Passerella iliaca)*	C(1)
Song Sparrow (*Melospiza melodia)*	C(16), PE(22)
Swamp Sparrow (*Melospiza georgiana)*	C(2), PE(2)
White-throated Sparrow (*Zonotrichia albicollis)*	C(4), PE(3)
Dark-eyed Junco (*Junco hyemalis)*	C(6), PE(2)
Northern Cardinal (*Cardinalis cardinalis)*	C(6), PE(6)
Indigo Bunting (*Passerina cyanea)*	PE(1), PO(1)
Red-winged Blackbird (*Agelaius phoeniceus*)	C(5), PE(4), N(3)
Common Crackle (*Quiscalus quiscula)*	C(2)
Pine Siskin (*Spinus pinus)*	PE(2)
American Goldfinch (*Spinus tristis)*	C(3)
House Sparrow (*Passer domesticus)*	PE(1)

* Number of observations: C – provision of cover, N – nest cover, PO – pollen consumption and PE – perching

Discusssion

Four bird species were observed to make considerable use of Giant Ragweed seeds as a food source: Downy Woodpecker (*Picoides pubescens)*, Black-capped Chickadee, Northern Cardinal, and Red-winged Blackbird. The latter three species have been documented to utilize ragweed seeds previously in North America (Martin *et al.* 1961, Brewer 1963, Smith 1991, Ritchison 1997). We have found, however, no previous reports in the literature of Downy Woodpecker feeding on Giant Ragweed.

Woodpeckers are known to feed on fruit, nuts and plant seeds. Although Red-bellied Woodpeckers (*Melanerpes carolinus*) and Hairy Woodpeckers (*Picoides villosus*) were present in the study area and both species are known to feed on plant seeds (Backhouse 2005), neither of these species were observed on Giant Ragweed plants, nor consuming the seeds. Red-bellied Woodpeckers, in particular, were consistently present flying over the ragweed patches in winter.

Flocks of up to 600 Red-winged Blackbirds were observed feeding on Giant Ragweed seed during autumn migration, suggesting Giant Ragweed seeds can be valuable food for migrants to regain their energy stores. It is noteworthy that a flock of between 7 and 12 Red-winged Blackbirds were observed feeding on seeds or were seen immediately adjacent to Giant Ragweed stands on two winter dates: 16 January and 27 February 2010.The first three months of 2010 had very little snow and the Giant Ragweed seed crop had not been knocked down by snow, ice or floods.

Song Sparrows (*Melospiza melodia*) were observed eating Giant Ragweed seeds on six dates. The consumption of these seeds by Song Sparrows is probably much higher than reflected in the data since detectability of this activity is so difficult due to the dense cover present in a Giant Ragweed stand. Between 30 December 2009 and 20 March 2010 there were nine dates on which Song Sparrows were observed in the Giant Ragweed stands being studied. On these dates, the Song Sparrows were documented using the stand for cover and/or perching. Also, on 27 December 2008, four Song Sparrows were present together in a large Giant Ragweed stand.

The Tufted Titmouse is considered to be an occasional species in fall and winter in Oxford County. This is defined as very few records, normally absent. As far as breeding status is concerned, Skevington *et al.* (2010) indicated that there is no evidence of breeding in Oxford County.

The Tufted Titmouse overwinters successfully in the study area during mild winters, but can be locally extirpated by extreme weather events such as spring season ice storms (K.W. Dance unpublished data). South of the Great Lakes, in its original range, Tufted Titmice have been observed consuming Giant Ragweed seeds (Shepherd 2007).

In the present study, we had two dates on which a single Tufted Titmouse was observed. On 5 November 2008, a titmouse was observed perched on a Giant Ragweed plant, but when we arrived it moved away with a band of Black-capped Chickadees without seed consumption being observed. On 13 February 2010, a single Tufted Titmouse was observed using Giant Ragweed for perching, cover and foraging on its seeds. We saw the titmouse opening a Giant Ragweed seed on two occasions by pounding it with the beak while holding it on a Manitoba Maple (*Acer negundo*) branch. The Tufted Titmouse was part of a mixed flock using the Giant Ragweed patch, which included Black-capped Chickadees, Northern Cardinals and Song Sparrows.

Our observation of Tufted Titmouse feeding on Giant Ragweed seeds are not unexpected since this species feeds on larger seeds, including acorns and beech nuts (Grubb 1998); furthermore, this species is known to winter in river-bottom habitats that provide protection from severe weather (Dunn and Tessaglia-Hymes 1999).

When summarizing the importance of Ambrosia to wildlife, Martin *et al.* (1961) indicated that Common Ragweed (*Ambrosia artemisiifolia*) was of major consequence as wildlife food and Giant Ragweed was of little value. The reasoning for this was that the seeds of the latter are large and have a tough coat, so birds use it little. Martin *et al.* (1961) relied on bird stomach content analysis to determine food use. Stomach analysis, however, may underestimate the use of Giant Ragweed by bird species such as Black-capped Chickadee and Downy Woodpecker, which break through and remove the seed coat and consume the seed in pieces. We doubt that fragments of Giant Ragweed seed would be identifiable to species in bird stomachs.

The data on birds foraging for arthropods on Giant Ragweed plants (Table 2) should be considered preliminary since the level of observation effort during peak migration periods was quite low. We, however, did confirm seven bird species foraging for arthropods on Giant Ragweed plants. The results do suggest that the abundant insect emergence from the Nith River could provide a rich source of arthropod food to be found by birds on Giant Ragweed plants, as was the case on adjacent Black Alder trees (Dance 2008).

A considerable variety of birds (24 species) was found to use Giant Ragweed plants as perches, including singing perches, and as cover. Of interest were observations of a Wild Turkey (*Meleagris gallopava*) nest sheltered from above by dried Giant Ragweed stalks and Red-winged Blackbirds carrying food into pure stands of Giant Ragweed. We did not search for nests until winter, so as not to disturb the breeding blackbirds. In winter, we were not able to find the nests.

At close range, one of us clearly saw Indigo Buntings (*Passerina cyanea*) pluck pollen from Giant Ragweed flower heads. On a single date, one of us saw a

Figure 2. Height of Giant Ragweed ensures seeds remain available to birds in autumn (October 2008) (2a) and winter (24 January 2010) (2b) (red circles show locations of seed clusters).

Ruby-throated Hummingbird (*Archilochus colubris*), which also appeared to pluck pollen from a Giant Ragweed flower head. Illinois Wildflowers (2008) has reported the Honey Bee (*Apis mellifera*) gathering Giant Ragweed pollen.

Seasonal Availability of Ragweed Seeds

In the autumn and winter, Giant Ragweed seeds are available to birds by virtue of their location high above the ground (Figure 2). The height of Giant Ragweed plants relative to a 173 cm tall adult human is shown in Figure 2a (October 2008). Most seeds (in red circles) are located on the upper half of the Giant Ragweed plant. This makes the seeds potentially available to birds well into the winter, as snow depths increase. This assumes that the stalks remain sound and are not weakened or broken down by combinations of natural forces such as rain, snow, wind or river ice. The force of floodwater and ice shearing off Giant Ragweed plants can be seen within the red circle (Figure 3, 2 January 2009). Following this flood, there were no ragweed seeds available to birds from standing stalks for the remainder of the winter. The stalks and seed heads (outlined in red) are shown in comparison to one of the junior authors (184 cm tall) standing in one of the primary study areas (Figure 2b, 24 January 2010). Seeds on upright stalks remained available to birds until at least 20 February 2010, since there was little snow cover and floods and ice movement had not sheared off Giant Ragweed plants.

Figure 3. Force of floodwater and ice on Giant Ragweed plants.

The seasonal availability of Giant Ragweed seed on standing stalks depends on three primary factors: (1) resilience of stalks relative to weather, floods and ice, (2) depletion of the seed crop as a result of consumption by seed predators and (3) numbers of seeds that fall out of the seed holding receptacles.

Harrison *et al.* (2003) report that mice and ground beetles are predators of Giant Ragweed seed; furthermore these authors found that in Ohio during winter, 43% of the seeds are depredated and that for the entire year the percentage rises to 88% of seeds. In Ohio, rodents were the dominant predators of ragweed seeds during fall and winter.

Although significant effort was not expended to determine the quantity of seed remaining on standing Giant Ragweed stalks in late winter, we did make notes on this factor during three winters. On 20 March 2009, standing stalks had no seeds. On 13 February 2010, some plants had only two or three seeds left. Despite this observation, flocks of 12 chickadees and 12 cardinals were feeding in ragweed stands on 20 February 2010. On 29 January 2011, forty standing Giant Ragweed plants were examined and were found to have an average of 1.3 good seeds and 4.1 hollow seeds left per plant. The literature reports the number of seeds produced by a Giant Ragweed plant to be 275 in Canada (Bassett and Crompton 1982) and 247 per plant in Japan (Ishikawa *et al.* 2003).

Unless the seeds are buried by sedimentation, damaged by abrasion and mould or consumed by other seed predators, Giant Ragweed seeds can be an important food source for spring season migrants. We had spring season records of the following bird species feeding on Giant Ragweed seed on the ground or within tangles of fallen stalks: Black-capped Chickadee, Song Sparrow, Northern Cardinal and Red-winged Blackbird.

This "weed" species was observed to provide bird food on dates between 13 September and 27 March; thus in some years Giant Ragweed seeds are consumed by wintering birds and both autumn and spring migrants.

Nutritional Value of Giant Ragweed Seeds

Local sources of food that are available throughout the cool and cold seasons are essential to small active birds. Many species operate on extremely thin margins of metabolic safety and can starve to death in hours if deprived of food or subjected to harsh weather that causes them to burn more metabolic "fuel" than they can quickly replace. Birds cannot afford to store heavy food materials within their bodies for long periods and usually need a constant supply of nutrients to sustain activity.

Several publications were found which contain information on the nutritional characteristics of Giant Ragweed seeds. These publications indicated Giant Ragweed seeds as having high nutritional value; key nutritional information is summarized below:

- Seeds of Giant Ragweed contain about 19% edible oil content (W.J. Beal Botanical Garden 2007).

- Giant Ragweed seeds contain more metabolized energy by weight than corn (University of Missouri 2008). Giant Ragweed seeds consist of 47% crude protein and 38% crude fat (Harrison *et al.* 2003).
- Although slightly more than eight sunflower (*Helianthus annus*) seeds weigh one gram, it takes 28 ragweed seeds to attain this weight (Willson and Harmeson 1973)(Table 4). One gram of ragweed seed contains 29% more calories than does one gram of sunflower seed and the protein content of ragweed kernels is more than twice that of sunflower (Willson and Harmeson 1973).
- Lipid percent in the kernel of ragweed is 43% higher than that of sunflower (Willson and Harmeson 1973).

The data reported by Willson and Harmeson (1973) are of interest because they compared the metabolic content of Giant Ragweed seeds from Illinois with those of commercial sunflower seed, which is a main component of most bird seed mixes because of its high nutritional value. In feeding experiments, Willson and Harmeson (1973) found that when the diet of Northern Cardinals was considered by weight, Giant Ragweed was predominant. They also found that at cold temperatures (0°C) cardinals chose seeds yielding calories at high rates such as hemp (*Cannabis sativa*) and Giant Ragweed, over three other seed choices.

In addition to the need for adequate winter food sources for resident birds, suitable food sources in feeding areas spaced along migratory flyways are equally as important. If migrating birds are forced to fly too far between stopovers, they can become stressed and starve (Proctor and Lynch 1993).

Large flocks of hungry Red-winged Blackbirds are a frequently observed phenomenon in river valleys in late summer and autumn. Heinrich (2003) stated that flocks of Red-winged Blackbird functionally are like a giant vacuum cleaner, consuming large quantities of food. Red-winged Blackbird flocks were observed feeding in large numbers (often 80 to 600 birds) at three different Giant Ragweed patches located within the two principal study areas. Feeding was observed on 18 dates, 14 dates being during autumn migration: 13 September to 23 October. Single dates of occurrence in January and February were also recorded. Red-winged Blackbirds

Table 4. Nutritional Value of Giant Ragweed Compared with Sunflower.

	NO. SEEDS/g	CALORIES/ KERNEL	CAL/g KERNEL	% PROTEIN IN KERNEL	% LIPID IN KERNEL
Giant Ragweed	28	141.8	7355	34	42
Commercial Sunflower	8+	368.0	5256	15	24

Source: Willson and Harmeson, 1973

can find Giant Ragweed populations along much of the length of their fall migration routes since this plant has been documented to be a dominant herb in the riparian habitats used by birds between Ontario and the Rio Grande Valley (Baltosser 1986, Johnston 1942 and Zimmerman and Tatschl 1975).

Although the Nith River valley has been observed to be an important autumn migration route for Blue Jays (*Cyanocitta cristata*) (K.W. Dance, unpublished data), this species was not observed to consume Giant Ragweed seed, nor to perch or seek cover among the stems of this plant.

Winter Bird Populations Sustained by Giant Ragweed

Much of the present paper is devoted to a discussion of the variety of bird species which were observed making some use of Giant Ragweed. An additional question is: how many individual birds are placing some reliance on Giant Ragweed as a winter food source?

For many species (*e.g.* Downy Woodpecker, and sparrow species), we usually observed only a few (less than five) individuals feeding among the Giant Ragweed patches. There were occasions, however, when we were able to accurately count the number of individuals of a particular bird species entering or leaving a Giant Ragweed patch. Our observations indicate that the Giant Ragweed patches can support considerable numbers of Black-capped Chickadee and Northern Cardinal (Table 5).

Black-capped Chickadee

Average winter flock size of Black-capped Chickadees at the Giant Ragweed stands was around 6.6 individuals, with typical flocks ranging from 6 to 8 members. Large flocks are considered to comprise of 8 to 10 individuals (Smith 1991).

Where there is an "unusually rich food source" flock ranges may overlap and the birds will mingle, forming what is called a "compound flock" (Smith 1991). Examples of unusually rich food sources included deer carcasses and well-stocked bird feeders.

There were 11 selected dates when 10 or more chickadees were observed feeding together, in a Giant Ragweed patch (Table 5). The largest number was 26 chickadees, accurately counted, as they moved out of a Giant Ragweed patch via a narrow vegetated corridor flanking the riverbank.

By Smith's (1991) definition these would have been large flocks. On three of the 11 dates, two smaller flocks were seen to combine in or around a Giant Ragweed patch, to form what Smith (1991) has defined as a compound flock. It seems reasonable to conclude that the Giant Ragweed stands can be considered to be an unusually rich food source, since large and compound Black-capped Chickadee flocks were observed to be associated with the ragweed stands. The data from two sites and three different winters, confirm the importance of Giant Ragweed seeds as food for wintering Black-capped Chickadee flocks (Table 5).

Table 5. Number of Black-capped Chickadee and Northern Cardinal in large flocks entering or leaving a patch where feeding on Giant Ragweed was observed*

SPECIES	NUMBER OF INDIVIDUALS	DATE	COMMENTS
Black-capped Chickadee	10	18 November 2005	
	16	27 November 2005	also gleaning on willow trees, eating Black Alder seed
	12	10 December 2005	
	10	12 February 2006	
	11	23 November 2008	
	10	5 December 2008	2 flocks noted together
	10	24 January 2010	
	12	7 February 2010	2 flocks noted together
	26	13 February 2010	
	12	20 February 2010	
	11	6 March 2010	two flocks: 7 + 4
Northern Cardinal	11	5 December 2008	
	11	28 November 2009	
	13	29 November 2009	
	11	12 December 2009	
	12	5 January 2010	
	12	10 January 2010	
	11	16 January 2010	
	10	30 January 2010	
	12	20 February 2010	

* large flock defined as 10 or more individuals

Northern Cardinal

There were nine dates during two different winters that Northern Cardinal flocks of as many as 10 to 13 individuals were recorded feeding in or immediately adjacent to Giant Ragweed patches (Table 5). Smaller flocks were observed on other dates and in areas away from the ragweed stands. Our data suggest that winter survival and flock maintenance depended to some extent on the Giant Ragweed seed as a food source.

Osborne (1992) reports autumn/winter flock sizes ranged between four and 60 in Texas. In Ontario, where temperatures are more extreme and wild food resources can be patchy due to snow cover, a flock of 60 Northern Cardinals would be considered to be very

large. Brooman (1954) records that 35 Northern Cardinals were counted along a short stretch of the Thames River bank within Elgin County on 1 January 1946. Kelly *et al.* (1963) report that winter flocks of 20 to 55 Northern Cardinals were observed where food supply was plentiful in the Detroit-Windsor area between the mid-1940s and 1950s.

A search of inventory data from three winter bird population studies (WBPS), which the senior author and others have conducted in three urban natural areas located in York and Waterloo Regions, reveals that typical winter flock sizes of cardinals are often in the range of three to six individuals (Dance 1989, Dance and Geddes 1993, Dance and Dance MS). All three of these natural areas were close to bird feeders, which would have provided supplemental food to the winter flocks of Northern Cardinals. Two were at inland sites with no river corridor present, while the third included riparian habitat of a small river, but there was no Giant Ragweed present.

At Lakeside Park, located in the Region of Waterloo, and where winter bird data were collected routinely between 1981 and 1993, average numbers of Northern Cardinals present in the 14.2 ha study area were in the range of three to six. On 11 dates, however, between eight and 17 cardinals were counted. This study area had up to 42 stocked bird feeders present around its perimeter (Dance and Geddes 1993).

Smith *et al.* (1981) reported on WBPS results from seven Toronto ravines (with plot sizes of 5 to 20 ha). These authors indicated that counts of two to three Northern Cardinals were typical. On one date in one ravine, a maximum count of nine Northern Cardinals was obtained.

Dunn and Tessaglia-Hymes (1999) confirm that flocks of 50 or more cardinals are expected only by feeder owners in the United States. The vast majority of feeder owners see fewer than five at once, with one or two cardinals being more typical. These authors reported on counts at bird feeders throughout the U.S. and Canada.

Our observations of flocks containing 10 to 13 Northern Cardinals associated with the Giant Ragweed patches at two sites along the Nith River, suggest the presence of a rich food source which attracts relatively large numbers of overwintering cardinals.

Studies have shown that dispersing cardinals tend to follow river systems (Dow 1994). It is therefore not unexpected that relatively large flocks of cardinals would be found to be concentrated around abundant energy-rich food sources in winter, within the riparian areas where Giant Ragweed can be found.

Summary

To some, Giant Ragweed may be an undesirable invasive native weed in their gardens and croplands, but based on the observations of this study at natural sites in floodplains, it appears that this species provides several valuable functions particularly to winter birds, but also for spring and autumn migrants. Winter

birds are typically concentrated around areas that provide shelter or food or both (as Giant Ragweed stands do). Based on our observations, birders should consider adding Giant Ragweed stands as productive areas to search when doing general birding in winter, leading naturalist club outings for winter birds or Christmas Bird Counts. For land owners and managers of riparian habitats, it is important to consider the nutritional value of Giant Ragweed seeds to the survival of birds and mammals during harsh winter months.

Flannery (2005) predicts that as the climate warms, rainfall will increase. The incidence of flooding is also predicted to increase if the climate warms. It is expected that Giant Ragweed will benefit from disturbances caused by more flooding, since its seeds will be carried farther upslope to be deposited in rich sediments left by the receding waters. It may be that riparian zone bird communities will benefit from an expansion in the extent of Giant Ragweed stands in the future.

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IN MEMORIAM
Edmund D. Johns (1933–2012)

Kayo J. Roy

By any measurement, Ed Johns was a very special person. His was a gallant and useful life.

Edmund David Johns, a deeply respected and loved member of the Toronto and Scarborough community, died on Sunday, 3 June 2012, at the age of 79. He had been in poor health for a number of years, and without question, showed great courage in his fight with a difficult health issue. Ed spent many summers in the Magnetawan area, where he met and fell in love with Jean Miller. They married on 15 October 1955 and were about to celebrate their 57th wedding anniversary.

David Sibley (left) with Ed Johns at Cape May, New Jersey on 18 September 1988. *Photo by an unknown tour participant.*

Born in Toronto, of Welsh descent, on 14 March 1933, his passing marked the end of a lifelong interest in birds, especially warblers and shorebirds. In 1944, at age 11, while delivering the Globe and Mail newspaper, one of his customers saw him admiring the birds in a front yard tree. This was his introduction to the world of wood-warblers and Ed was hooked for life.

For some 35 years, Ed participated in the annual Toronto Christmas Bird Count and he played a key role over

many years in the Toronto Spring Warbler Count. He was fully committed to the five-year Ontario Breeding Bird Atlas (1981 – 1985), but his illness prevented him from participating in the second Atlas. Ed took many trips to observe birds around North America. Two favourite areas for him were Churchill in Manitoba and British Columbia. He loved to visit Cape May, New Jersey, and he truly enjoyed birding in Florida, Texas and California. There is no question that his late-June 1987 visit to Alaska (Kodiak Island, St. Paul Island in the Pribilofs and the Yupik Eskimo village of Gambell on St. Lawrence Island) remained his very favourite birding experience.

In June 1985, we took our wives on a trip to Western Canada and while in Churchill, Ed elected to arrange for the rental of a vehicle for three days. His frugal nature came into play as he rented the lowest priced vehicle available. The car had virtually no floorboards, but as he exclaimed, 'the price was right.' We drove many miles on dirt and gravel roads, but because of the missing floorboards, at times we were unable to see the ladies, who were sitting in the back. Ed was in serious trouble as Jean and Diane did not get the dust out of their hair until we were in Edmonton four days later. 'No matter' Ed said 'we got crushing views of the pair of Ross's Gulls.'

Those of us, who knew Ed through his deep-rooted passion for birds, are also aware of his intense love of nature and his genuine concern for the environment. He was a strong advocate of protecting the environment and was not afraid to voice his concerns at every opportunity. A long-time member of the Toronto Ornithological Club, the Ontario Field Ornithologists and the Federation of Ontario Naturalists (now Ontario Nature), his presence will be deeply missed at the meetings and field trips of these highly respected organizations.

In addition to his interest in birds, Ed was an accomplished photographer. He had a great eye for capturing images of birds, flowers and nature that won him many ribbons and honourable mentions from the Toronto and Scarborough Camera Clubs. He truly loved the outdoors.

Ed was a tremendous sports fan, especially hockey, where his knowledge was extensive. For over twenty years he found the time to coach pewee to midget aged players in the old Metropolitan Toronto Hockey League.

He was, by his calling, a long-time valued, dedicated and hardworking, self-employed insurance and financial advisor. His career spanned some 40 years with Mutual Life of Canada. Ed enjoyed his work and was determined to devote his time and expertise in helping his many clients reach their financial goals.

By any measurement, Ed Johns was a very special person. His was a gallant and useful life. The combined strength of his courage, his love, his honesty and his integrity gave his lifestyle a meaning. He wore life with good grace, never complained even once about how the cards were dealt, and he walked out of it with dignity. Yes, we do mourn his passing and our lives are diminished, but we are profoundly grateful for the rich privilege of having known Ed, and each one of us, in our own way, sharing with him the adventure of life.

He leaves his wife Jean, whose love and consummate care of Ed over the many years of his illness speaks volumes of the character and substance of this lady, his three sons David, Glen and Gerald, and six grandchildren.

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Editors' note: a similar version of this tribute was published in the Newsletter of the Toronto Ornithological Club.

Fred Bodsworth circa mid-1980s. *Photo: Bodsworth family archives.*

IN MEMORIAM
Fred Bodsworth (1918 - 2012)

Glenn Coady

CHARLES FREDERICK "FRED" BODSWORTH was born on 11 October 1918 in Port Burwell, Ontario. His mother was Viola May Williams from Haughton Corners and his father, Arthur John Bodsworth, had emigrated from Watford, England to Port Burwell less than a decade earlier. He was named after an uncle who had been killed in the Great War.

Fred graduated from Port Burwell public and high schools and after working in the tobacco fields and on tug boats in Elgin County, he decided that there had to be an easier and more interesting way to make a living. He went on to pursue a career in journalism, working freelance for the *Port Burwell Enterprise*, *London Free Press* and *Woodstock Sentinel-Review* during the Great Depression, as a full-time reporter for the *St. Thomas Times-Journal* (1940-1943), a reporter and editor for the *Toronto Daily Star* and *Weekly Star (*1943-1946) and staff writer and editor at *Maclean's Magazine* (1947-1955). Since 1955, Fred had pursued a career as a freelance writer and editor, publishing four novels: *Last of the Curlews* (1955, Toronto and New York, Dodd Mead); *The Strange One* (1959, Toronto and New York, Dodd Mead); *The Atonement of Ashley Morden* (1964, Toronto and New York, Dodd Mead); and *The Sparrow's Fall* (1967, Toronto, McClelland and Stewart and New York, Doubleday). Fred also wrote and edited for several non-fiction titles including: *The People's Health: Canada and WHO* (with Brock Chisholm), Canadian Association for Adult Education, Toronto, 1949; *Maclean's Canada: Portrait of a Country* (one essay among many others by famous Canadians), McClelland and Stewart, 1960; *The Pacific Coast* volume of the *Illustrated Natural History of Canada*, a Natural Science of Canada series, 1970; and *Wilderness Canada* (with other authors), Clarke Irwin, Toronto, 1970. In his freelance writing assignments, he often warned of the coming perils of global warming long before it had become a household term. In 2003, he was honoured by the Writers' Trust with the Matt Cohen Award for lifetime achievement in writing. On 11 June 2005, he was hosted at a ceremony in his hometown when the Elgin County Library Board re-named their Port Burwell library branch in his honour. Fred was a voracious life-long learner and self-taught naturalist whose keen observations and insights in the field, combined with an extensive array of natural history knowledge, earned him the respect of both his birding peers and scientific ornithologists around the world.

His love of nature started as a very young boy with an interest in butterflies, and later birds, in his hometown of Port Burwell. In what might almost be considered heresy for any Canadian boy of that era, Fred traded a pair of his skates and a bicycle pump for his first butterfly guide. Obviously it was clear pretty early on where his priorities lay. By his teens, Fred was scouring the woods, meadows, beaches and the shores of Otter Creek as he began to focus on a life-long interest in all aspects of the natural world. In the late 1930s, he and friends built a box trap to capture Bank Swallows for banding studies on the many high sand banks over Lake Erie.

On 6 June 1942, he organized a field hike for the St. Thomas Nature Club at Springwater Park which was attended by a large group of local teachers. Among those teachers was a lady named Margaret, who Fred described as the

Fred birding in the early 1950s. *Photo: Hugh Halliday;* **9 weeks old in Port Burwell, Ontario in December 1918.** *Photo: C. Gamble;* **Fred with his canoe in the mid-1940s.** *Photo: Bodsworth family archives.*

most beautiful woman in the county. A quote from his diary that day reads: "Met Marg Banner and dated her up for a week from Sunday". The two dated for a couple of years, often seeing free movies at the theatre courtesy of Fred's press pass, and on 8 July 1944 they were married. They spent their honeymoon at Camp Billie Bear in Muskoka, a retreat that became their introduction to the Precambrian Shield, its towering white pines, deep, cool waters and the flora and fauna of Ontario's north. It was here during his honeymoon that Fred first met Jim Baillie of the Division of Ornithology at the Royal Ontario Museum and began a close friendship of over a quarter century that helped in introducing him to the many naturalists in Toronto as well as opening many doors in furthering his ornithological pursuits. After moving to Toronto, Fred and Margaret bought a home in the Kew Beach area and started a family, having daughters Barbara and Nancy and son Neville in the ensuing years.

Fred Bodsworth banding Bank Swallows just east of Port Burwell circa 1939.
Photo: Frank Stephenson

In the early 1950s, Fred was formally diagnosed with dystonia musculorum deformans, a hereditary neurological movement disorder, that he suffered with from childhood, and to varying degrees, for the rest of his life. In late 1946, the condition had become so problematic that he was eventually fired from his job with the Toronto Star. With a natural "glass is half-full" aplomb, Fred came to see this as the best thing that ever happened to him, as it led to his signing on as a writer and editor with *Maclean's* magazine, gaining national exposure and a life-long friendship with fellow editor Pierre Berton.

In the spring of 1954, Fred wrote a short novelette for the 15 May issue of *Maclean's* magazine entitled "Last of the Curlews", accompanied by illustrations by well-known editorial cartoonist Duncan Macpherson. In that era, Maclean's magazine was a far more literary publication than it is today, more akin to the *New Yorker* than to a news magazine like *Time*, as in its current incarnation. Many of Canada's most famous and successful writers often published short pieces of fiction in its pages. When *Last of the Curlews* was published in *Maclean's*, the overwhelming positive reader response far eclipsed that of any other work the magazine had ever published and Fred was encouraged to expand the work into a larger novel format. The completed

Fred and Margaret Bodsworth on their honeymoon at Camp Billie Bear in Muskoka in 1944.
Photo: Bodsworth family archives.

Fred Bodsworth employing his home-made box trap for capturing and banding Bank Swallows from the sandy banks high above Lake Erie. *Photo: Frank Stephenson*

novel version of *Last of the Curlews*, accompanied by over 40 peerless scratchboard illustrations by artist/naturalist Terry Shortt, provided a fictionalized account of the last pair of Eskimo Curlews and was published by Dodd Mead in February 1955.

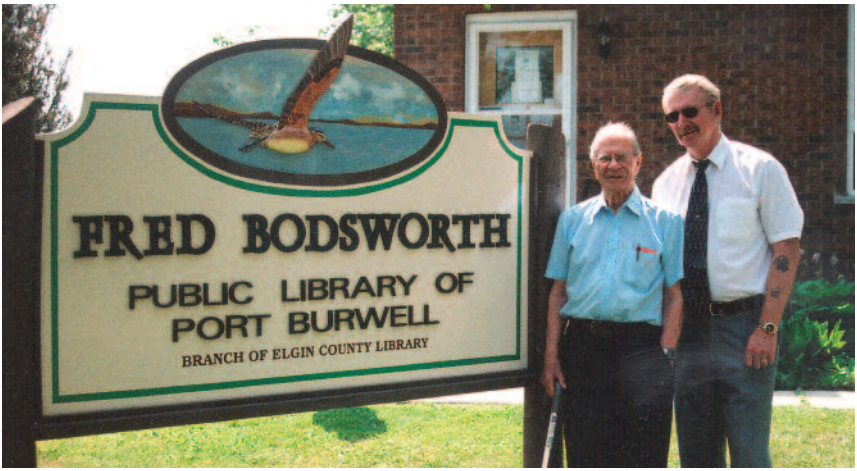
The book was immediately received enthusiastically by the public. It has since been widely cited as one of the finest pieces of natural history-based fiction ever written. The novel's genius is that it transforms the reader's appreciation for the extraordinary life experiences that migratory birds encounter and the challenges they must overcome on a daily basis. It uses the tragic story of the Eskimo Curlew as a parable to impart a sense of both the gravity of extinction and the sinister role played by the often wanton hand of mankind on the natural world. The book was chosen for inclusion as a *Readers' Digest* novel selection and eventually went on to sell in excess of three million copies — an improbable result for a love story with no human characters, nor any dialogue. His use of the 'Gantlet' sections as a literary device, in order to explain what was known of Eskimo Curlew life history to the unfamiliar reader, was blended masterfully with the fictional story. In all the years since it was first published it has never been out of print. The book has been translated into twelve foreign languages and was adapted into an animated film by Hanna-Barbera Productions that first aired on the American Broadcasting Corporation's After School Special on 4 October 1972. It won an Emmy Award for Outstanding Achievement in Children's Programming in 1973.

Fred made incalculable contributions to natural history in Ontario. His correspondence on natural history matters stretches back even to a personal relationship with W.E. Saunders, the

legendary London-area naturalist of the late-19th and early-20th centuries and one of Fred's early heroes. On 27 July 1949, Fred discovered the first Hooded Warbler nest for Canada at the White's Woods section of Springwater Conservation Area southwest of Aylmer. Fred wrote a very nice account of this find in an essay in the 2004 monograph *Birds of Elgin County – A Century of Change* published by the Naturalists of Elgin County. The used nest was collected and is in the nest collection of the Royal Ontario Museum. In the 1960s and 1970s, Fred was a much-sought leader of worldwide ornithological tours to various destinations including Japan, Poland, Africa and India, to name but a few. In 1985, he and Margaret were able to tour both Poland and parts of the Soviet Union with Russian ornithologists with the local royalties from sales of *Last of the Curlews* that were not permitted to be taken out of Russia. Fred's own lifetime of personal ornithological records was heavily drawn upon in the production of the 2004 monograph *Birds of Elgin County – A Century of Change*. He served as President of the Toronto Field Naturalists in 1960 and 1961. Fred was a long-time Director and former President (1964-1967) of the Federation of Ontario Naturalists (now Ontario Nature) and was instrumental in their establishment of the Dorcas Bay Nature Reserve. He was an Honorary Director (since 1970) of the Long Point Bird Observatory and Bird Studies Canada, and Chair of the Board of Trustees of the James L. Baillie

Fred participating in wilderness survival skills training in the early 1950s. *Photo: Canadian National Defense Department*

Memorial Fund for Ornithology (1975-1989), which was very appropriate, since the late Jim Baillie had been a close personal friend of his for many years. Fred was one of the longest-serving members of the Brodie Club (since 1953), the Toronto Ornithological Club (since 1949; becoming an honorary member in 2002) and the Ontario Field Ornithologists (since 1983) at the time of his death, and he always thoroughly enjoyed the meetings of each of these clubs, where he was still a regular attendee into the summer of this year. True to Fred's style and sense of whimsy, his 90th birthday party was held in Kerr Park and featured a tour of the adjacent Bracebridge sewage lagoons. Among many speeches made after a walk around the lagoons, Fred delivered the line of the day when he finished his speech with the words "Oh, to be 80 again!."



In 2005, Fred was hosted in his hometown at a ceremony where the Port Burwell branch of the Elgin County Library was named in his honour. *Photo: Tara Hannah*

Fred Bodsworth and Glenn Coady examining specimens of Eskimo Curlew in the Royal Ontario Museum bird room in 2002. *Photo: Leslie Johnston*

There is likely no better way to describe Fred's novels than by using his own words (as he prepared them for a brief biography in *Canada Writes!*, the Writers' Union of Canada's first members' directory in 1977): "The major part of my work has been novels linking human and animal characters in a fiction format with strong natural history content and wilderness backgrounds. The nature storyteller who uses birds or mammals in fictional situations treads a narrow path if he wishes to be scientifically authentic and portray them as they really are. On the one hand, he has to personalize his animal as well as his human characters or he simply has no dramatic base for his story. Yet if the personalizing of animal characters goes too far and begins turning them into furry or feathered people — the nature writer's sin of anthropomorphism — the result is maudlin nonsense that is neither credible fable nor fiction. I enjoy the challenge of presenting wildlife characters as modern animal behaviour studies are showing them to be — creatures dominated by instinct, but not enslaved by it, beings with intelligence very much sub-human in some areas yet fascinatingly super-human in others. Out of the

blending of human and animal stories comes the theme that I hope is inherent in all my books: that man is an inescapable part of all nature, that its welfare is his welfare; that to survive he cannot continue acting and regarding himself as a spectator looking on from somewhere outside."

I cannot envision capturing the essence of Fred's writing more completely or eloquently. The impact of Fred's writing, particularly that of *Last of the Curlews*, was equally as influential as Aldo Leopold's *A Sand County Almanac* (1949) and Rachel Carson's *Silent Spring* (1962) in the stirring up of a collective ecological conscience among society that gave impetus and urgency to the popular post-War environmental movement.

Perhaps the most telling fact that I could share about Fred's life is that among the many hundreds of friends and acquaintances that I have shared with Fred over our friendship of several decades, I have never heard a single one of them utter anything but praise and admiration for his knowledge, wisdom, infectious inquisitiveness, sense of both humour and fairness, and his love for family, community, birds and the environment. That truly is the exemplary hallmark of a life well lived.

Fred passed away peacefully on Saturday, September 15th at Toronto's Scarborough General Hospital. He was predeceased by his loving wife Margaret Banner on 17 February 1998, and is survived by his daughters Barbara and Nancy, his son Neville, grandchildren Wendy, Erin, Lisa, Lori, Tyler, Tara, Margaret, Aidan and Cameron, and great-grandchildren Cristian and Holden.

I learned the intricacies of shorebird identification leaning heavily on books crafted by men named Fuertes, Forbush, Peterson and Godfrey, but fully comprehending them as "minute specks of earthbound flesh challenging an eternity of earth and sky" was a gift bestowed on me by Fred Bodsworth.

A fond adieu to our friend Fred — he will be dearly missed by countless friends and fans alike.

One of my own favourite pieces of Fred's writing is an article entitled "Why Wilderness?", a call-to-arms for enlightened wilderness preservation, which was published in the December 1967 issue of *The Ontario Naturalist*. Here is one of my favourite passages:

"Conservationists are not trying to stop progress or to halt further development of soil and forest resources; but if we believe that man's heritage includes not only the works of man but also the works of creation, we have an obligation to the future to ensure that good samples of creation's multformity of natural patterns are preserved. To argue that wilderness preservation is ludicrous because we already have too much Canadian wilderness is like arguing that we don't need to preserve our Tom Thomsons or Krieghoffs because we have galleries full of other paintings."

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Distinguished Ornithologist
Jim Richards

By Glenn Coady

IT IS ALWAYS A HIGH POINT in any Ontario Field Ornithologists Annual Convention to honour one of our members with the Distinguished Ornithologist Award. This year (2012) the award is presented to James M. Richards. Given that it was Jim who wrote the guest editorial ("Once upon a time ...") in the inaugural issue of Ontario Birds, outlining the genesis of OFO with an idea that sprung from a conversation with James L. Baillie at the Royal Ontario Museum (ROM) in 1968, this award feels like an appropriate culmination of a fairy tale for a life's pursuit of field ornithology in Ontario.

Jim was born and raised in Oshawa, and he first took an interest in nature at age 7, when he found a Red Eft while on a fishing trip with his father. At age 10, he took up the then popular schoolboy hobby of collecting birds' eggs. By his early teens, Jim was hooked on birding and he was issued a collecting permit by the Canadian Wildlife Service in 1964 and a banding permit in 1968. During the 1960s, Jim teamed up with Dennis Barry in building and maintaining a 400 box Eastern Bluebird trail on the Oak Ridges Moraine, and eventually in the banding of several hundred bluebirds.

Jim Richards (left) accepts the 2012 OFO Distinguished Ornithologist Award from Glenn Coady at the OFO Annual Convention in Cobourg on 15 September 2012. *Photo: Kim Gunn*

From the mid-1950s, Jim's birding interests were influenced by his association with members of the Oshawa Naturalists Club, including Murray Speirs, Edge Pegg, Margaret Bain, Ora Sands, Esther Allin, Al Wood and George Scott. It was during this time that Jim met another young member, Ron Tozer, with whom he has struck a life-long friendship. During the 1960s, the two joined forces to research the birds of the Oshawa area. This research led to their 1974 publication of *Birds of the Oshawa-Lake Scugog Region, Ontario*, one of the most well-respected regional bird monographs ever produced in Ontario. Jon Dunn, one of the principal authors and editors of the *National Geographic Field Guide to the Birds of North America* and *The Birds of Southern California*, has often referred to this as "one of the finest regional bird books in North America."

Through the considerable time he spent in the division of ornithology at the ROM, first as a volunteer, and then while researching the book, Jim soon became good friends with Jim Baillie. As Assistant Curator at the ROM, Baillie introduced Jim to many others who were doing research there, such as Charlie Long, Helen Quilliam, Ott Devitt, Ross James, George Peck and many others.

It is perhaps Jim's work in the realm of conservation for which his ornithological legacy is best known. It is no exaggeration to suggest that we likely would not have retained an undeveloped Oshawa Second Marsh, one of the finest marshes on Lake Ontario, were it not for his efforts. It was during the late 1960's that Jim undertook what proved to be a long and often bitter political battle to save the Oshawa Second Marsh from being turned into a deep water port. In doing so, he fought with the City of Oshawa and the provincial and federal governments for over twenty years. The organization he founded (Second Marsh Defence Association, later to become Friends of Second Marsh) had a membership of about 450 people as well as many partner conservation organizations. Finally, in 1983, Jim and the Friends of Second Marsh won the prolonged battle and the wetland remains today for all to enjoy. Jim stayed on as the Executive Director of the Friends of Second Marsh until 2003 to spearhead a $3.5 million habitat restoration plan.

Jim, who was employed by General Motors of Canada at the time, approached them in 1990 with the idea of converting the adjacent fallow fields of their new corporate headquarters into an area for wildlife and passive recreation. Given that this land linked Darlington Provincial Park to the east and Oshawa Second Marsh to the west, it was a perfect fit, and fortunately General Motors accepted the idea. They formed a one-person department with Jim as Manager tasked with creating the McLaughlin Bay Wildlife Reserve and overseeing the development of the area. This included walking trails, ponds for waterfowl and shorebirds, a trail for the visually impaired, and the creation of habitat by planting 35,000 trees and shrubs. Jim held this position from 1990

until the plan was completed in 2006, at which time Jim retired.

Jim is also well-known for being one of the finest nature photographers in Ontario with an impressive body of work spanning across six decades with over two thousand of his images published. His photos adorn the covers of *A Nature Guide to Ontario*, *The Birds of Presqu'ile Provincial Park*, *Ontario Birds at Risk – Status and Conservation*, *Oak Ridges Moraine* and *Birds Worth Watching* among others. His photographic documentation of the nesting Little Gulls in Durham Region in the early 1970s has been published countless times and represents the best work on this species in North America. He has worked for over thirty-five years with photography partner Bruno Kern as well as with George and Mark Peck in documenting breeding birds at the nest. In conjunction with his photography, he has been one of the most prolific contributors of nest record cards to the Ontario Nest Records Scheme since its inception. Jim Baillie used to laud Jim to others by saying that Jim was second in nest-finding in Ontario only to the Brown-headed Cowbird!

In addition to his work on the Birds of Oshawa-Lake Scugog and on Little Gull breeding in Ontario, he has documented the first Durham Region nestings of Ruddy Duck, Black-crowned Night-Heron, Northern Goshawk and Brewer's Blackbird and wrote the Ruddy Duck account in the first Ontario Breeding Bird Atlas. He co-authored a chapter on the era of egg collecting in *Ornithology in Ontario,* Special Publication No. 1 of the Ontario Field Ornithologists. Jim is a Founding Life Member of the Ontario Field Ornithologists and a former President of the Durham Region Naturalists.

Since the 1980s, Jim has developed a strong passion for Arctic birds and has made eight trips to Churchill, Manitoba and twelve trips to his favourite location in Cambridge Bay, Nunavut to photograph and observe Arctic birds at the nest, on adventures he has shared with Bob Taylor, Bruno Kern, George Peck, Mark Peck, Glenn Coady, Mike McEvoy, Tyler Hoar, Dan Strickland and Glen Fox. In 2002, Jim co-authored the first authoritative checklist to the birds of Nunavut. He produced a second edition of this list in 2008, and is now in the process of producing bird checklists for most of the individual hamlets in Nunavut.

Jim's bird photography has taken him to many places, including much of Canada and the United States, Costa Rica, the Caribbean, Galapagos, Kenya and Tanzania.

He has always been diligent to acknowledge that much of what he has accomplished in six decades of involvement with field ornithology and conservation would not have been possible without the support and understanding of his wife of over fifty years, Sherri, his children Kim and Scott, and granddaughters Mackenzie and Jennifer-Lyn.

It is my distinct pleasure to present the 2012 OFO Distinguished Ornithologist Award to my good friend Jim Richards.

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Ontario Field Ornithologists

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Ontario Field Ornithologists is an organization dedicated to the study of birdlife in Ontario. It formed in 1982 to unify the ever-growing numbers of field ornithologists (birders/birdwatchers) across the province, and to provide a forum for the exchange of ideas and information among its members. The Ontario Field Ornithologists officially oversees the activities of the Ontario Bird Records Committee (OBRC); publishes a newsletter (*OFO News*) and a journal (*Ontario Birds*); operates a bird sightings listserv (ONTBIRDS), coordinated by Mark Cranford; hosts field trips throughout Ontario; and holds an Annual Convention and Banquet in the autumn. Current information on all of its activities is on the OFO website (www.ofo.ca), coordinated by Doug Woods. Comments or questions can be directed to OFO by e-mail (ofo@ofo.ca).

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 obtained from the address below. All members receive *Ontario Birds* and *OFO News*.

Please send membership enquiries to:
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