2021

YEARLY BANDING REPORT

Prince Edward Point Bird Observatory

PRINCE EDWARD POINT BIRD OBSERVATORY

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Cover: *Photograph of a Bay-breasted warbler by Dale Smith*

PREFACE

Despite 2021 Ontario Covid-19 restrictions, PEPtBO was able to carry out a full year of standardized monitoring. With Covid-19 safety measures (e.g., masks, social distancing) our staff and volunteers were kept safe throughout the process. There were many exciting changes in 2021, including the addition of four Measuring Avian Productivity and Survivorship (MAPS) banding stations, a pilot hawk watch site, sizeable grants and donations, and hiring of our Bander-in-charge, Phil Mercier, on a permanent basis. Hiring Phil is a huge step for PEPtBO to ensure consistency from year to year but also support, including but not limited to, our data management, reporting, grant applications, and outreach. We were also supported in 2021 by three wonderful banders, Jessica Bao (assistant bander-in-charge), Kirsten Lachance (banding intern), and Jessica Daze (banding intern). Jessica Daze, who is currently completing her undergraduate degree at Trent, is preparing a manuscript related to Bobolink that we hope to publish in 2022. I would also like to thank all the volunteers, including those who sit on the Banding, Research, and Training (BRT) committee.

Nick Bartok, Board Member and Chair
Banding, Research and Training Committee

PRINCE EDWARD POINT BIRD OBSERVATORY

Prince Edward Point Bird Observatory (PEPtBO) began monitoring bird populations in 1995 and has continued to do so for 26 consecutive years. Throughout the years, we have learned and gathered more and more valuable information on bird populations and trends. Our mission is to monitor, report and promote research on birds throughout their migration and breeding seasons. We also serve as the caretakers of Prince Edward County South Shore Important Bird and Biodiversity Area (IBA), which includes the Canadian Wildlife Service's (CWS) Prince Edward Point National Wildlife Area.

Our vision is to acknowledge that the scientific data PEPtBO collects contributes to local, national, and international action to protect and manage key habitat and to reduce threats along migratory pathways for birds. Birds are important in many

ways, including controlling pest species, pollinating plants, and dispersing seeds which helps reforest or revegetate disturbed areas. Because of its unique position on the juxtaposition of both the Atlantic and Mississippi flyways, PEPtBO is a key location to monitor birds and to help identify the issues threatening their populations. Through our education and outreach programs, we aim to inform generations of people to advocate for the preservation of our wildlife and their habitats. Spending one day at PEPtBO helps visitors to understand the importance and value of bird diversity and survivorship.

Our guiding principles are aimed at forming an inclusive partnership with government organizations, other non-profits organizations, educational institutions, the public and other experienced biologists to work together for bird conservation. We put the birds' safety first by following the North American Banding Councils (NABC) banders code of ethics and we act as stewards of the IBA while promoting stewardship to all visitors and volunteers. Through hands-on training and education, we hope to create lifelong passions for nature and spread appreciation for the environment for generations to come. Our organization also aims its efforts at inclusivity for all, through representation and opportunities for marginalized groups such as racialized groups, Indigenous Peoples, LGBTQ+ communities, and persons of all genders and differing abilities.

CANADIAN MIGRATION MONITORING NETWORK

The Canadian Migration Monitoring Network (CMMN) is an organization composed of twenty-five active and three no longer active bird observatories throughout Canada. Birds Canada, Environment Canada, and other bird observatory members have roles within the CMMN to ensure all stations obtain accurate and comparable data from year to year. Annual data from all stations is combined to make reasonable estimates of avian population trends. PEPtBO has been a part of the CMMN since its inception and continues to contribute data annually to the network. We are committed to running our strict standardized program to get observable data trends from year to year, contributing to our conservation efforts. The data collected at PEPtBO is sent to the CMMN and to the Canadian Wildlife Service banding office for analysis. PEPtBO aims to continue its contribution to the CMMN and strengthen its partnership for the indefinite future.

YEAR IN REVIEW

1 | Adult Scarlett Tanager

This year was a banner year for PEPtBO. We banded 13,694 birds of 99 species throughout our 3 banding seasons. We recaptured 2741 birds of 67 species as seen in (**Appendix B**). Of the birds recaptured only 3 were foreign recaptures and they were all Northern Saw-whet Owl. The other birds recaptured had been banded by PEPtBO previously. This allows us to track the age and health of these birds throughout their migratory journeys. Each season offered different challenges, but we managed to accomplish all of our goals with the support of our banding staff and volunteers. We ran our Spring Migration Monitoring Program, Monitoring Avian Productivity and Survivorship (MAPS) Program, and our Fall Migration Monitoring Program. In addition, we ran two special monitoring programs, Bobolink research and Northern Saw-whet Owl banding, which culminated the 7-month research season. The Covid-19 pandemic forced us to reduce our spring operation to the bare bones staff of our banding team meaning that we ran the station with a just a 3-person team. On the bright side, the spring season gave us wonderful weather permitting banding most days. Our summer season of breeding bird monitoring also proved quite inspiring, with the opportunity to visit new parts of Prince Edward County and explore the different bird communities. We ran a MAPS program for the first time this year, exploring four different breeding bird communities of Prince Edward County and initiating an important monitoring program that will provide essential data as development pressures increase in Prince Edward County. Finally, our fall season was a big swing back into the semi-regular action with a full team of banders and volunteers leading to a fantastic fall season. Our Bobolink and Northern Saw-whet Owl programs both ran smoothly and gave us a thrilling representation of our research species. With a remarkable display of migratory birds in both spring and

fall and our brand-new summer MAPS program we were kept extremely busy and produced a banner year for bird banding and migration research at PEPtBO.

PEPtBO opted to remove our Hawk netting operation this year due to the low monitoring value from the data collected. It was felt that our visual observations provide an adequate account of the raptor populations moving through PEPtBO,

Five new nets were added to the standard array to account for habitat changes that have taken place at PEPtBO over the past 25 years. We placed these nets in habitats similar to those shown in photos from the early 2000s at PEPtBO. The goal was to monitor species diversity and identify any negative effect of habitat change on shrub habitat species, in particular sparrows. We will maintain the habitat around the new nets diligently to compare species captures from one year to the next. Eventually these nets will join our standard net array providing the data prove to be significantly relevant to bird population monitoring.

Again, this year Prince Edward Point proved to be an exciting location for birding, over the course of our two migration programs we observed 199 species of birds. A single species not observed at the point but encountered at our MAPS station was the Clay-colored Sparrow totalling our observations at 200 species for the year. Throughout the county, not all observed by PEPtBO staff, 250 species of bird were reported from April to October 2021 but, we consider the diversity of species documented through our net lanes and along Lake Ontario very impressive. Observations were on par with typical years observations, and we were witness to a variety of bird displays. Such displays included flocks of Blue Jay filling the sky by the hundreds in the spring and impressive landfalls of migrants throughout both migration seasons.

MIGRATION MONITORING PROGRAM

SPRING MIGRATION *(APRIL 10–MAY 31)*

In the beginning of the spring season, Covid-19 cases started rising and it was necessary to institute new limitations for personnel. As a result, early in the season our team was reduced to just three employees. Our volunteers were only able to work a total of 36 hours with the banding staff before the new Covid-19 regulations came into effect. The rest of the banding effort was conducted by our 3-person team comprised of Phillip Mercier (Bander in Charge), Jessica Bao (Assistant Bander in Charge), and Jessica Daze (Banding Intern). We ran 24 mist nets, and our team was able to band birds for 50 of the 52 spring migration monitoring days. We lost only two days of banding due to the weather, one for snow in early April and the second for high winds in late May. This allowed us to band birds for 7,099 net hours. The crew spent 300 hours in the field to band the 3,759 birds of 86 species. This spring total is quite impressive and reinforces PEPtBO's position as a high volume banding station with 53 birds per 100 net hours (low volume stations average 35 birds per 100 net hours). This high number of birds shows that spring 2021 demonstrated important movement of birds through PEPtBO. Full banding totals available in (**Appendix A**)

The spring's top 10 species (**Table 1**) is exactly as we expect from one year to the next. Blue Jay (BLJA) often form huge flocks in the spring while migrating to breeding locations, which inevitably brings them down to feed offered in our jay trap and ground traps for energy. Of the 365 BLJA banded, 80% of them come from captures in our ground and jay traps. Brown-headed Cowbird (BHCO) are also in our top 10 thanks to ground traps. Without these ground traps, monitoring these populations would not be possible through other banding efforts. Typical songbirds to find in the spring top 10 are Ruby-crowned Kinglet (RCKI), Magnolia Warbler (MAWA), White-throated Sparrow (WTSP), and Myrtle Warbler (MYWA). All migrate through Prince Edward Point and have healthy population numbers. There was also a high count of Yellow Warbler (YEWA), and many chose to breed around the station. Rarely was a morning not greeted by the "sweet-sweet-sweet, shredded wheat" song of the YEWA. The early start of spring monitoring resulted in the

inclusion of Slate-colored Junco (SCJU) in a top 10 spot. We banded almost 300 birds in the first two days of the season, with 20% of them being SCJU. Typically, we do not see bird numbers like this in spring until the warblers arrive; therefore, this was a nice surprise and good start to the spring season.

Table 1: *Spring top 10 birds banded*

SPECIES	INDIVIDUALS BANDED
Blue Jay	*365*
Ruby-crowned Kinglet	*323*
Magnolia Warbler	*228*
White-throated Sparrow	*223*
Slate-colored Junco	*184*
Yellow Warbler	*171*
Myrtle (Yellow-rumped) Warbler	*130*
Swainson's Thrush	*118*
Brown-headed Cowbird	*108*
Gray Catbird	*102*

Highlights of the spring banding season, and some of the birds most admired by the crew, were Golden-winged Warbler (GWWA), Blue-winged Warbler (BWWA), Hooded Warbler (HOWA), and Orchard Oriole (OROR). The GWWA were the most shocking to find in our nets, we were lucky to have not one, but three individuals caught during the spring migration. This species at risk is important to monitor, and the capture of 3 individuals this year indicated a high proportion of individuals on sight compared to the last 7 years where the average capture was only one. We add our observations of 5 more GWWA to the list to indicate a good movement of them at the point . With more years of monitoring, we hope to see their population numbers

2 | One of the three GWWA banded in the spring

continue to increase. It was serendipitous to find the OROR in the nets after observing multiple individuals throughout the week. For the BWWA and HOWA, we managed to band one individual of each, but they added excitement to our banding mornings. These seldom captured species are exciting for us because they are difficult to detect through observations, but our captures indicate that these species move through Prince Edward Point during migration.

In the spring PEPtBO typically does not capture or observe the large movement of raptors seen the fall. This means that our one Sharp-shinned Hawk captured was exciting. Raptor movements are much better described and observed in kettle movements typically associated with fall migration. The proximity to a large open body of water potentially prevents raptors from venturing to PEPtBO unless they are looking for locations to breed.

As demonstrated in (**Figure 1**) the number of birds banded and the species banded followed a similar undulation throughout the spring showing that an increased number of birds likely results in a high species diversity. The outlier at the early start of the season is likely due to a build up of early migrating birds using PEPtBO as a stopover sight which then moved on as favourable weather conditions on the night of April 11th helped them further north.

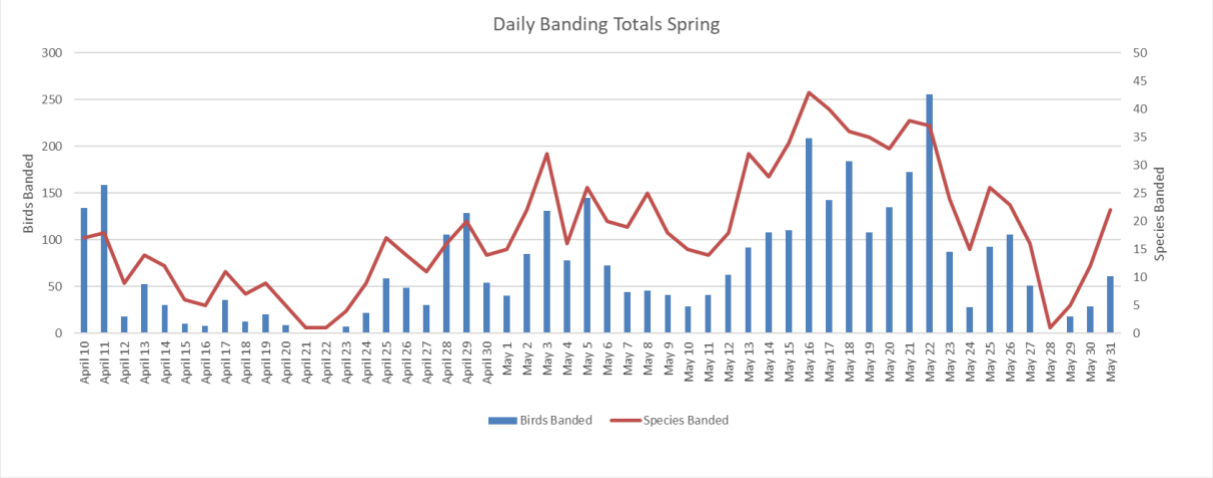

Figure 1: *Comparison of species banded & the number of birds banded*

Census

Our census program was continued stringently throughout the year. Every morning at sunrise a qualified observer would record all birds within the netting area and along our waters to count birds at PEPtBO. This spring census was conducted every day for 52 days. Spring census totaled 26 hours of observations and 64.5 km of walking. Our highest count of species for one day was 52 within 30 minutes. This occurred three times over the spring, during the last two weeks of May. Spring bird songs and calls makes for easier species detection on census than in the fall. On average 39 species of birds per day were encountered throughout the spring. Census data is considered our most valuable data because it is a quick primary survey of the birds in an area, over a short period of time. The most rewarding parts of census for us is often detecting the first arrival of new species returning from their wintering grounds.

Daily Estimated Totals

Our Daily Estimated Totals (DETs) take the combination of banding data, census data, as well as general observations by the banding crew to determine the overall presence of birds in and around PEPtBO (~20ha). This is the best representation of the total number of each species present on site on any given day. Our most diverse DET was May 16th with 95 species observed throughout our 6-hour banding period. This is thanks to a busy banding morning, combined with a strong movement of all species including the arrival of some late migrants as well as early lingering migrants. The diversity of birds remained high throughout the migration season as migrants moved north to breed and local birds established their habitats and started nesting. Therefore, the middle of migration tends to be the time of highest diversity. This is clearly reflected in the banding data seen in (Figure 1). In terms of waterbirds, we observed healthy populations of Long-tailed Duck (LTDU), White-winged Scoter (WWSC), and Double-crested Cormorant (DCCO). The former two species slowly became replaced by the latter throughout the spring until only breeding DCCO remained. Another interesting observation was the prevalence of Caspian Tern (CATE) observed displaying breeding behaviour around the Prince Edward Point.

There are several bird highlights of this banding season, yet the Yellow-throated Warbler (YTWA) stands out as the most impressive species seen. It was observed on May 2nd, a day where many migrants arrived at PEPtBO, giving everyone great views of the birds. As the news spread many visiting birders came to see the individual and some lucky few got the chance to see it. The bird was not spotted again, but the

day it spent at PEPtBO was fantastic. As temperatures fluctuate and increase more and more over time, we are expecting to see an increase in vagrant species that typically breed in more southern areas of the province. Those whose breeding ranges are close to our southern border such as the YTWA may end up appearing more regularly at PEPtBO.

FALL MIGRATION *(AUGUST 15 – OCTOBER 31)*

Finally, after two years of working within Covid-19 limitations, the banding team was able to have the full support of its volunteers for the fall migration season. The banding team composed of Phillip Mercier (BIC) Jessica Bao (ABIC), Jessica Daze (banding intern), Kirstin Lachance (banding intern), managed to band birds for 73 out of 78 days giving us a total of 9,478.5 net hours. This means that the banding staff and volunteers worked over 438 hours throughout the fall to band birds. This impressive number of hours allowed us to band 8,612 birds of 77 species. It is of note that on October 6th the number of birds caught was so high that we were not able to band them all and released 350 birds un-banded. Our lost days were mostly due to heavy winds often encountered throughout the fall season. Although we raised nets for 73 days many of those were limited hours due to the high levels of rain and wind. Typically, with 73 days and 24 nets, our net hours would be 10,520 meaning we lost over one thousand hours of banding due to weather. Despite the weather shutting us down, our effort was very high due to the team diligently weaving through weather systems to have the most coverage possible throughout the fall. Full banding totals available in (**Appendix A**).

This year we encountered a very large movement of birds in early October. This varies year to year based on the cyclical population size of birds and whether they land at PEPtBO or not. Myrtle Warbler (MYWA) are a species that have population fluctuations directly correlated to the amount of food available in the boreal forest. This is usually associated with Spruce Budworm outbreaks and other moth species. This year we had multiple Lymantria dispar (Ldd) moth outbreaks and the Spruce Budworm populations are still very high. This meant that there was high productivity for the MYWA which in turn brought over 1,000 individuals into our nets this fall as seen in (table 2). Another cause of the MYWA's high numbers might be a slightly above average crop of Red Cedar fruit. Ruby-crowned Kinglet (RCKI), taking the number one spot, is not uncommon since they are an explosive species in the fall and their numbers are always found in the top birds banded by most

stations in the area in combination with the Golden-crowned Kinglet (GCKI). A good species to note is the high number of Blackpoll Warbler (BLPW) banded. This species uses land points near water as stop over sites on their way to the eastern shores of the continent. This is after they breed in the boreal forest and before departing towards South America which they often do in one long continuous flight from the eastern shores of North America. The high number of BLPW banded indicate that PEPtBO is an important stop over site making the land and area around it important for the protection of BLPW. This year was another record-breaking fall for the Swainson's Thrush (SWTH), which suggests this species is increasing in numbers. The question remains whether this finding is the result of overall increasing population or change in habitat at PEPtBO. These questions are part of why we do research.

Table 2: *Top 10 species banded in the Fall*

SPECIES	INDIVIDUALS BANDED
Ruby-crowned Kinglet	*1190*
Myrtle (Yellow-rumped) Warbler	*1037*
Golden-crowned Kinglet	*954*
Blue Jay	*500*
Blackpoll Warbler	*473*
Magnolia Warbler	*378*
Northern Saw-whet Owl	*336*
Swainson's Thrush	*334*
Red-eyed Vireo	*315*
Bobolink	*304*

Three of the top 10 species not represented in the fall but observed in the spring are the BHCO, YEWA, and Gray Catbird (GRCA). The main reason why their numbers were not as high in fall as in the spring is that their migration begins extremely early in comparison to other species. YEWA begin migrating almost instantly once completing their formative molt (the first molt of a juvenile bird after fledging its nest) in the case of young birds, or basic molt (the annual molt of adult birds) in the case of older birds. BHCO similarly start to flock together once the parasitic rearing is completed. GRCA breed in the habitat around PEPtBO but after breeding move away from the Observatory before migrating, although there are a few GRCA seen in fall. Differing migratory routes from spring to fall is also not uncommon amongst many other species whose amounts differ from spring.

3 | One of the three Carolina Wren banded in the fall. As seen by its 'rough' appearance this bird was in the middle of molting its plumage and was showing remnant signs of breeding conditions indicating that it possibly bred near the banding station.

The highlights for our daylight fall migration season were three Carolina Wren (CARW) that we banded as well as a Merlin (MERL) that found its way into our nets during the Bobolink monitoring program. The CARW are interesting captures because their populations have been moving north for a while now and experts expect them to become more and more prevalent throughout southern Ontario. This phenomenon has been observed before with Northern Cardinal (NOCA) that are now found commonly at most backyard feeders in southeastern Canada. Observations and banding of CARW has increased over time at PEPtBO, but this year was the first in which three of them were banded. They also showed some signs of recent breeding conditions which indicates to us that some of these individuals may have been breeding on site. Over the course of the fall, we continued to observe CARW in the same spot for over a month.

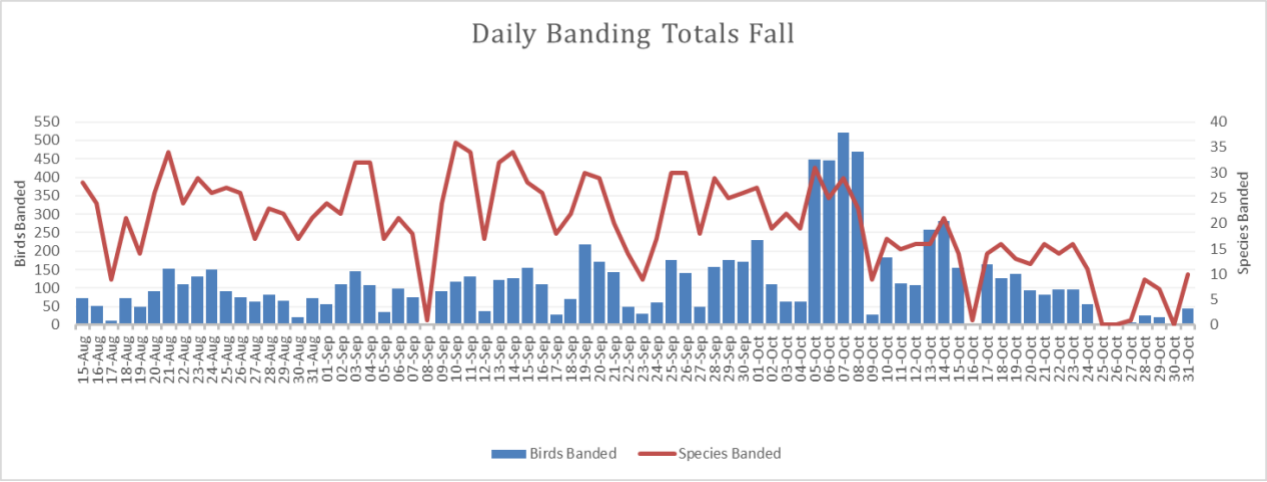

Figure 2: *Daily banding totals, fall*

We can attribute steady migration in the fall due to the lack of breeding pressure when birds migrate south. This means that strategic timed migration has proved to be beneficial for birds migrating in the fall. Our outlier in **Figure 2** is related to the abundance of high brood capacity species like the MYWA and the kinglet family (RCKI and GCKI). Kinglets have a high production of young since their small size makes them vulnerable to migration and their coping strategy is to produce as many young as possible every year to achieve the highest survival rate through the difficult fall migration. This does mean that our recapture rate for Kinglets is low, but their population demographics give us a good indication of their population health.

On the night of October 4th, the winds were blowing from the north which means birds were moving south towards the point in huge numbers. Throughout the morning of the 5th, flocks of birds continued to 'fall from the sky' into our netting area. The winds and weather continued to be favorable for large movements of birds over the next few days resulting in 4 days of banding with over 400 birds each. On October 6th, the day started strong resulting in over 800 birds captured that day, 400 in one net round, which led to us shutting our nets early and releasing over 300 birds unbanded for bird safety. The following two days remained steady with over 500 birds on the 7th and 450 birds on the 8th.

In these 4 days, 1,879 birds were banded, half the number of birds banded in the entire spring season this year as a comparison. This number of birds in a four-day period has not been encountered at PEPtBO since 2005.

Our top 10 species as seen in (**Table 3**) accounted for 90% of the birds banded during the fallout week. The main species banded during this period were Yellow-rumped (Myrtle) Warbler, Ruby-crowned Kinglet, Golden-crowned Kinglet, and Brown Creeper. It is also important to note the movement of Tennessee Warbler, Nashville Warbler, and Blackpoll Warbler. These three species are considered late September peaking migrants, so it was interesting to see a large push of them in early October.

Table 3: *Top 10 Species banded during the fallout*

SPECIES	INDIVIDUALS BANDED
Myrtle Warbler	*589*
Ruby-crowned Kinglet	*445*
Golden-crowned Kinglet	*277*
Brown Creeper	*105*
Slate-colored Junco	*58*
Blue-headed Vireo	*54*
Blue Jay	*50*
Tennessee Warbler	*39*
Nashville Warbler	*37*
Blackpoll Warbler	*34*

Despite the removal of our raptor banding nets we managed to capture 19 Sharp-shined Hawk (SSHA), which is significant considering our nets are typically built to capture songbirds. Being the smallest of the hawks in our area, we are optimistic that we can continue to monitor hawk population demographics with the number of SSHA captured in our standard mist nets. The only other raptor captured during our fall migration monitoring program was a MERL, a small falcon often seen roaming the skies above fields hunting for birds, large insects, and small rodents.

Census

4 | Myrtle Warbler, the star of the show during fallout week in early October

Census carried on in the fall and as a continued effort we managed to record on average 20 species per day in the first 30 minutes after sunrise. The lower average fall versus spring daily census totals, is a result of difficulties in detection because the birds are not singing and because fall migration is spread over a longer time. On the census a total of 97 km was walked during 39 hours of

observing. Census observations this fall were consistently hit or miss with the number of species observed. Weather conditions impact bird movements significantly; therefore, it was common to have a better census on days where birds were halted in migration because of wind conditions before making the jump over Lake Ontario. The most impressive census moments of the fall revolved around the presence of MYWA. On many mornings in late September and early October upwards of 200 MYWA could be observed moving around the habitat surrounding the banding station. Flocks of warblers continued to arrive at the point most mornings during the census period. These spectacular arrivals gave censurers a good challenge when trying to estimate the quantity of birds present at the point.

Daily Estimated Totals

Our highest daily estimated total was observed on September 10th where 75 species of birds were detected in one day. This number is much lower than our highest count in the spring (i.e., 95). Standout fall species were not easily identifiable since the sheer quantity of each species gave us plenty to look at. We estimated numbers more than twice as large as those we obtained from our banding data due to daily observations and census. This is because birds were often present on site but remained just out of reach of our netting area. This fall we had some very warm conditions for the better part of the season meaning our waterfowl did not return as quickly as anticipated. As Double-crested cormorant were the main species seen in Lake Ontario as the season progressed a few individual ducks started reappearing such as the White-winged Scoter and Long-tailed Duck. Many Red-breasted Merganser also started showing up later in the season.

SPECIAL PROGRAMS

MONITORING AVIAN PRODUCTIVITY AND SURVIVORSHIP

This year PEPtBO began a summer research program on the breeding birds of Prince Edward County. The program created by the Institute of Bird Populations (IBP) is called the Monitoring Avian Productivity and Survivorship (MAPS) program. This program is highly standardized and combines data from all around the US and Canada to monitor bird populations on their breeding grounds. It requires a lighter workload per station due to the banding requirements being once during each10-day period throughout the breeding season. This gave PEPtBO the opportunity to monitor multiple locations within the County. Four MAPS stations were set up in alliance with four different organizations: Canadian Wildlife Services (CWS), Hastings Prince Edward Land Trust, Nature Conservancy Canada (NCC), and Sandbanks Provincial Park. Over the course of the summer (June 1st to August 8th) we banded birds for 28 days resulting in the banding of 982 birds of 53 species. This total is typical of most MAPS programs since it is local birds that are being banded. The MAPS program requires a minimum of 5 years of data for true analysis, but our pilot year is turning out to be quite interesting.

Rocky Point MAPS station (ROMP) is located in the Prince Edward Point National Wildlife Area, 1.5 km from our migration station. This station, in association with CWS, was the first site created by our team. Located close to the north shore of Lake Ontario at Prince Edward Point, this area had a variety of habitats making it a great location for species diversity. Due to the first week of the MAPS breeding program overlapping the tail end of some species migration we also captured some migratory birds still inching their way north. Such species included Blackpoll Warbler, Northern Parula, Gray-cheeked Thrush, and White-crowned Sparrow. These species were all banded on the first day and never encountered again until migration banding in the fall. Our most abundant species at the ROMP station was the Yellow Warbler (YEWA), a common bird found throughout the County. We banded 115 YEWA which accounts for over 1/3rd of the birds banded at ROMP. Overall, this station was the most productive, allowing us to capture 326 birds of 36 species. This is a strong indication that over 30 species used this habitat to breed throughout the summer. The most interesting species caught here was an American Woodcock, our first and only individual for the year.

The Miller Family Nature Reserve (MFNR) station is located on Hilltop Road in association with the Hastings Prince Edward Land Trust. This location was chosen due to its diverse habitat as well as its proximity to a wetland and mature forest. We banded 207 birds of 36 species at this station. The species diversity was quite high in this area due to its edge habitat adjacent to open areas, mature forests, and wetlands. Edge habitat is the buffer zone between open air habitats and a more mature or dense forest stand. Edge habitats can also be present between multiple biomes such as wetlands, rocky savannas, mature forests, etc. Although not many birds were caught in comparison to our ROMP station, the diversity remained high. Our most banded species here was the Song Sparrow with 36 individuals banded. Apart from its diversity, this location offered us the opportunity to capture mature forest species such as Eastern Wood Peewee and Ovenbird.

The Maple Cross Coastline Reserve (MACR) station is located in the conservation area of the same name, on Helmer Road, in association with Nature Conservancy Canada (NCC). Partnered with NCC, we set up a station within a diverse habitat of the coastline reserve that has plenty of edge habitat. MACR was a perfect mix of open grassland, eastern red cedar savanna and shrub habitat. We managed to band 271 birds of 29 species in this location with Song Sparrows being our most prevalent with 43 individuals banded. A close second, worthy of note was the Gray Catbird (GRCA) with 41 individuals banded. GRCA are known as shrub type habitat birds and edge specialists; therefore, it is not surprising that MACR produced so many individuals. Our most fascinating find at this location was Clay-colored Sparrow (CCSP). The CCSP is typically considered a western species, yet a few populations exist in the east. Luckily our location happens to be within their breeding habitat allowing us to identify at least two breeding pairs from banding data (2 males and 2 females) with another male singing further away from our banding station. This could potentially indicate an increase in CCSP in the County with many reports of them already on eBird. Monitoring these breeding pairs over the next few years will be interesting to see if their young return and expand their range into our banding station.

The Sandbanks Provincial Park (SAND) station is located along the Dunes Trail in association with Ontario Parks. This habitat is the most unique habitat of our summer MAPS program. We set up our station just off the centre point of the Dunes Trail and into the surrounding habitat types. We attempted to cover all habitat types present throughout the dunes. We banded birds within the pans (seasonal wetlands), eastern white cedar thickets, scots pine plantations, open sand shrub habitat, and dense mixed vegetation habitat. We managed to band 178 birds of 28 species, which is quite impressive considering how little habitat is available for

birds to breed there. Our most abundant species was once again the Song Sparrow with 48 individuals banded. Although the site did not provide us with as many birds as the other stations, we did catch an Eastern Kingbird which we had not encountered at any of our other locations. The most interesting find of SAND this year was its ability to be a staging ground for early migrants as well as molt migrants which perform their yearly molt as adult birds part ways throughout their migration to their wintering grounds. Most molt migrants can spend up to one month in a single location before continuing their migratory journey. We encountered early migrants such as the Northern Waterthrush and Cape May Warbler. In terms of molting birds, we encountered the Chestnut-sided Warbler, Myrtle Warbler, Tennessee Warbler, and Swainson's Thrush. These four individuals were all caught while molting at SAND before their migration south in the fall.

Each of the MAPS stations provided a unique habitat that had the potential to allow us to monitor a high diversity of species within Prince Edward County. PEPtBO expects to continue this monitoring program and continually monitor the bird populations in Prince Edward County and other key areas for breeding birds in southern Ontario. See the (Table 4) below for the full banding totals per station. PEPtBO has an option of expanding the program, since it runs on a multiple location, 10-day cycle, pending future funding.

Table 4: *Total number of each species banded at our MAPS stations*

	ROMP	MFNR	MACR	SAND
AMWO	*1*	*0*	*0*	*0*
DOWO	*1*	*0*	*3*	*1*
YSFL	*1*	*0*	*0*	*0*
EAWP	*3*	*3*	*0*	*0*
YBFL	*3*	*1*	*2*	*0*
TRFL	*3*	*2*	*8*	*0*
LEFL	*0*	*1*	*0*	*1*
EAPH	*0*	*2*	*0*	*0*
GCFL	*2*	*0*	*2*	*0*
EAKI	*0*	*0*	*0*	*1*
REVI	*11*	*5*	*3*	*0*
BLJA	*3*	*1*	*0*	*2*
BCCH	*7*	*14*	*20*	*22*
BRCR	*0*	*0*	*1*	*0*
HOWR	*1*	*10*	*11*	*8*

	ROMP	MFNR	MACR	SAND
VEER	*0*	*1*	*1*	*0*
GCTH	*1*	*0*	*0*	*0*
SWTH	*0*	*1*	*2*	*0*
WOTH	*1*	*2*	*1*	*0*
AMRO	*13*	*28*	*15*	*11*
GRCA	*16*	*7*	*41*	*10*
BRTH	*4*	*3*	*2*	*6*
CEDW	*4*	*4*	*3*	*3*
TEWA	*1*	*0*	*0*	*1*
NAWA	*0*	*2*	*4*	*0*
NOPA	*1*	*1*	*0*	*0*
YEWA	*115*	*1*	*35*	*12*
CSWA	*0*	*0*	*0*	*1*
CMWA	*0*	*0*	*0*	*2*
MYWA	*0*	*0*	*0*	*1*
BBWA	*1*	*1*	*0*	*0*
BLPW	*1*	*0*	*0*	*0*
BAWW	*1*	*4*	*9*	*0*
AMRE	*2*	*2*	*4*	*0*
OVEN	*0*	*7*	*1*	*0*
NOWA	*3*	*1*	*1*	*2*
MOWA	*3*	*0*	*0*	*0*
COYE	*21*	*16*	*26*	*2*
EATO	*0*	*3*	*1*	*1*
CHSP	*0*	*5*	*3*	*0*
CCSP	*0*	*0*	*4*	*0*
FISP	*1*	*14*	*11*	*10*
SOSP	*69*	*36*	*43*	*48*
SWSP	*2*	*1*	*0*	*0*
WTSP	*0*	*9*	*11*	*0*
EWCS	*1*	*0*	*0*	*0*
NOCA	*0*	*5*	*0*	*1*
RBGR	*15*	*4*	*3*	*1*
RWBL	*4*	*0*	*0*	*19*
COGR	*1*	*4*	*0*	*1*
BHCO	*0*	*1*	*0*	*4*
BAOR	*7*	*0*	*0*	*2*
AMGO	*2*	*5*	*0*	*3*
TOTAL	326	207	271	178
SPECIES	36	36	29	28

BOBOLINK RESEARCH

5 | BOBO in fall plumage

Large numbers of Bobolink (BOBO) migrate through PEPtBO prior to their journey south in the fall, giving PEPtBO an opportunity to monitor this species. PEPtBO has banded this species at risk (BOBO) with the use of an audio lure, every fall since 2008; the only known Canadian migration banding program of this species. Monitoring of the BOBO in 2021 went off without a hitch.

The 6 BOBO nets were raised for 27 days with a total effort of 550 net hours. We banded 304 bobolinks. Our Summer Intern, Jessica Daze, is currently working on a research report using PEPtBO's data to determine whether temperature and precipitation during the breeding season affects the age ratios of the BOBO migrating through the Observatory. Migration phenology/timing of the BOBO, as a function of age and sex, will also be looked at. The most captivating part of the BOBO banding is the surprises that we get in the nets. This year we were delighted to find a Merlin waiting for us in the net, it was probably chasing BOBO through our open eastern red cedar savannah before being caught. Overall, the BOBO program provided average results this year and we will be happy to see Jessica's analysis of the 14 years of BOBO data.

HAWK WATCH PILOT

PEPtBO has been looking to further expand research aspects in addition to the MAPS program. This fall explored the potential for a Hawk Watch monitoring program. Our location along a Lake Ontario, accommodates the movement of raptors. This is because raptors migrate during the day and tend to not cross large bodies of water unless necessary. This means raptors will soar along the shores of

the County with the goal of going south. To explore whether Prince Edward Point was a significant location for raptor migration monitoring we set up a 2-day event, September 18th and 19th, encouraging volunteers to assist with an all-day hawk watch. As a result, the skies were monitored from 8am to 4pm for those two days. These days were selected within the known peak migration period for raptors in southern Ontario. Over the two-day period, we noticed some widely spaced and low diversity of species of hawks moving over the Observatory. Turkey Vulture (yes, they are raptors) were the most abundant species documented over the weekend. Although diversity was not high, we had a nice display of Bald Eagle and Sharp-shined Hawk. We noticed a stronger movement on the 19th due to wind and temperature conditions more favourable to raptor migration. On this day there was a nice movement of Sharp-shined Hawk. The Hawk Watch helped us determine that while there was a good movement of raptors it was not quite up to the number encountered in other established Hawk Watch stations. We plan to continue a Hawk Watch pilot program in 2022 to compare annual raptor movements through Prince Edward County and at PEPtBO. Of interest was a fascinating observation made on the 16th of October. A large raptor movement, of over 150 individuals, made its way through PEPtBO in the afternoon. The raptor observation was diverse and abundant in species but, simply a casual observation; therefore, we had no way to determine whether these raptors had been moving through all day or in the moment of observation. The raptors observed were, Red-shouldered Hawk, Coopers Hawk, Golden Eagle, Bald Eagle, Turkey Vulture, Red-tailed Hawk, Northern Harrier, Sharp-shinned Hawk, and Merlin.

NORTHERN SAW-WHET OWL

PEPtBO makes a special effort each fall to band Northern Saw-whet Owl (NSWO). We do this to help monitor this small raptor's population numbers and movements. Since the NSWO is the most recaptured bird by foreign operations as seen in (Appendix C) this makes tracking their movements within a season much easier than regular passerine banding. This year we were able to open NSWO nets for 37 of the possible 42 nights. We had 1,752 net hours and captured and banded 336 NSWO. Along with the targeted NSWO, we often encounter other owl species. Barred Owl, Eastern Screech Owl, and Long Eared Owl are the three most common species encountered in our NSWO program. This year we were delighted to capture and band a Long-Eared Owl, which is not as common as the four Barred Owl and one Eastern Screech Owl banded this year. Relative to previous years' totals our

NSWO program was on par with expected numbers of owls captured. On October 17th we encountered the highest capture night of NSWO with 74 individuals banded. It was a loud evening with NSWO calling in all directions throughout PEPtBO, which to no surprise, resulted in this impressive night of banding. The night ended with a surprise Barred Owl, no doubt following the sound of its occasional prey, the NSWO.

WILDLIFE HIGHLIGHTS

MAMMALS

PEPtBO is host to a variety of animal species, including mammals. We keep note of the species we encounter at PEPtBO to produce casual observation reports for the Prince Edward Point National Wildlife Area. This year we noticed a high number of White-tailed Deer in the spring, which was unusual compared to previous years. The potential explanation for the increase in abundance of deer on the property was fewer members of the public at PEPtBO due to the Covid-19 protocols, as well the standardization of our protocol restricting access to the netting area of the station. This means that the lack of human presence offered comfortable dwelling for the deer.

Other mammals present were the American Red Squirrel, and Eastern Chipmunk, these two species seemed to have a very healthy population. Rodents and lagomorphs (rabbits and hares) tend to be the most abundant around the station as they like to feed on our ground trap feed remnants. Another interesting and regular observation was that of a North American Beaver in the NWA harbour all through the spring. Although not seen again it is possible that the beaver moved on from the harbour once fishing boats and birders increased at the harbour as the weather became warmer. Beavers tend to prefer calm waters hence their desire to damn all running streams. The prevalence of Coyote and Red Fox is noted by their continued calls filling the silence of dusk and night. Sometimes seen with prey in their mouths, the fox would run across the field in front of the station and head towards the eastern red cedar savannas. Finally, the observation of a pair of River Otters made for a great end to fall migration since they are not frequently observed at the station.

HERPTILES

6 | Two water snakes found along the trail and moved off the path to continue with banding operations

The great thing about PEPtBO is that it is home to a high diversity and quantity of herptiles as well as our mammals and birds. We encountered multiple examples of this with the prevalence of Eastern Garter Snake and Northern Water Snakes. The occurrence of the Eastern Milk Snake (a species listed as special concern, both federally and provincially) and the ever so beautiful Smooth Green Snake also made some top headlines for the observers at PEPtBO. It was quite disheartening to see the number of roadkill snakes present on our road, so we ask any future visitors of PEPtBO to take care when traveling down the road to the Prince Edward Point National Wildlife Area. As well, we encountered Ontario's smiling turtle, the Blanding's Turtle. This species is considered threatened both federally under the Species at Risk Act and provincially under the Endangered Species Act. Gray Treefrog continued to be an ever-present species with their calls echoing all year. Note that it may be confusing to distinguish a Gray Treefrog call to that of a Red-bellied Woodpecker, so keeping one's ears sharp is key. Since herptiles are sensitive species that require undisturbed habitats to thrive, we encourage all volunteers and visitors to take care when driving and walking on paths to help protect this fragile group of animals. Other species that were observed around PEPtBO were the American Toad, Midland Painted Turtle, Snapping Turtle, Dekay's Brown Snake, Northern Leopard Frog, and a Unisexual Mole Salamander.

ARTHROPODS

Last but not least we must not forget about the smallest critters encountered at PEPtBO. Arthropods are invertebrate members of the animal kingdom and are one of the most diverse groups of organisms found at PEPtBO. We encountered countless numbers of invertebrates such as 11 species of butterflies and moths. The Eastern

7 | Polyphemus Moth posed on a tree waiting for night

Giant Swallowtail caterpillar was one of our highlights. We were also witness to a large number of Monarch Butterflies flooding the National Wildlife Area which is promising for this species that has been at risk for decades due to the removal of milkweed plants required by the species throughout their breeding season and migration. Although the outbreak of Lymantria dispar (Ldd) was prevalent in many parts of Canada this year, Prince Edward Point seemed to be exempt from the damage. On several occasions we attempted to go "mothing" which required a black light and a white sheet. This combination draws moths to land on the sheet giving us the opportunity to examine them. Our favorite moth found was the Polyphemus Moth, which we observed the morning after a night of mothing.

We cannot speak of insects without mentioning our very famous midges. This year the tiny flies were a perfect source of food for all our neotropical migrants and insectivores coming through PEPtBO. In 2021, we saw a very healthy population of midges with quite a few spawns over the months of April- August. These midges are important to birds which means our staff and volunteers are more than happy to accept their numbers.

The hordes of dragonflies that migrate through the point are our final large number of insects that we observe at PEPtBO. Their numbers are quite astonishing with thousands flying overhead especially through the fall. We were able to identify most of the dragonflies as Green Darner and some days more than 15,000 were observed. As remarkable as their occurrence is, our banding team sometimes needs to diligently remove them from our mist nets. It gives us much more practice at extracting delicate creatures from our nets making bird extractions simpler.

Overall, our arthropods keep us nearly as interested as our birds do which makes sense considering our birds rely on the insects in many cases for survivorship.

ACKNOWLEDGEMENTS

STAFF

Phillip Mercier
Station Manager/Bander-in-Charge

Jessica Bao
Assistant Bander-in-Charge

Jessica Daze
Intern

Kirstin LaChance
Bander

BOARD MEMBERS

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Julie White

Vice President
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Past President
Cheryl Anderson

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Dale Boyd

Secretary
Lisa Martell
Tiina Liinamaa (part year)

DIRECTORS:

Nick Bartok

Joanne Barrett

Peter Christie

John Hirsch

Ketha Gillespie

JoAnne Sulzenko

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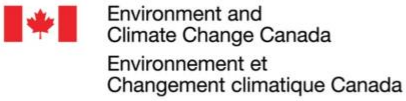

HOW YOU CAN HELP

8 | Adult Indigo Bunting

Ways to help PEPtBO can be limitless yet our volunteers play a big role in our daily activities. PEPtBO always welcomes volunteers from any background to help support our operations. In-kind support is always welcome as we are constantly requiring materials to operate the station.

The best way to help the bird observatory is through generous donations. PEPtBO has multiple events throughout the year that we promote on our Facebook and Instagram that all help us continue our monitoring. One-time donations, monthly subscriptions and legacy donations are the best way to directly help the observatory. Our final way to help PEPtBO is to buy our bird friendly coffee which both helps us and directly supports organizations that promote bird friendly farming on their wintering grounds.

APPENDICES

APPENDIX A: ALL CAPTURES

COMMON NAME	ALPHA CODE	SPRING	SUMMER	FALL	TOTAL
Sharp-shinned Hawk	*SSHA*	*1*	*0*	*19*	*20*
Merlin	*MERL*	*0*	*0*	*1*	*1*
Black-billed Cuckoo	*BBCU*	*0*	*0*	*2*	*2*
Mourning Dove	*MODO*	*4*	*0*	*0*	*4*
American Woodcock	*AMWO*	*0*	*1*	*0*	*1*
Eastern Screech Owl	*EASO*	*0*	*0*	*1*	*1*
Barred Owl	*BDOW*	*0*	*0*	*3*	*3*
Long-eared Owl	*LEOW*	*0*	*0*	*1*	*1*
Northern Saw-whet Owl	*NSWO*	*0*	*0*	*336*	*336*
Yellow-bellied Sapsucker	*YBSA*	*6*	*0*	*10*	*16*
Downy Woodpecker	*DOWO*	*4*	*5*	*7*	*16*
Hairy Woodpecker	*HAWO*	*1*	*0*	*0*	*1*
Yellow shafted Flicker	*YSFL*	*12*	*1*	*4*	*17*
Eastern Wood pewee	*EAWP*	*13*	*6*	*11*	*30*
Yellow-bellied Flycatcher	*YBFL*	*43*	*6*	*47*	*96*
Trails Flycatcher	*TRFL*	*22*	*13*	*33*	*68*
Least Flycatcher	*LEFL*	*41*	*2*	*50*	*93*
Eastern Phoebe	*EAPH*	*3*	*2*	*49*	*54*
Great crested Flycatcher	*GCFL*	*4*	*4*	*13*	*21*
Eastern Kingbird	*EAKI*	*2*	*1*	*0*	*3*
Blue-headed Vireo	*BHVI*	*17*	*0*	*205*	*222*
Warbling Vireo	*WAVI*	*0*	*0*	*5*	*5*
Philadelphia Vireo	*PHVI*	*16*	*0*	*24*	*40*
Red-eyed Vireo	*REVI*	*76*	*19*	*315*	*410*
Cliff Swallow	*CLSW*	*3*	*0*	*0*	*3*
Blue Jay	*BLJA*	*365*	*6*	*500*	*871*
Black-capped Chickadee	*BCCH*	*77*	*63*	*38*	*178*
Red-breasted Nuthatch	*RBNU*	*23*	*0*	*41*	*64*
White-breasted Nuthatch	*WBNU*	*4*	*0*	*28*	*32*

COMMON NAME	ALPHA CODE	SPRING	SUMMER	FALL	TOTAL
Brown Creeper	*BRCR*	*70*	*1*	*283*	*354*
Carolina Wren	*CARW*	*0*	*0*	*3*	*3*
House Wren	*HOWR*	*38*	*30*	*30*	*98*
Winter Wren	*WIWR*	*14*	*0*	*44*	*58*
Golden-crowned Kinglet	*GCKI*	*95*	*0*	*954*	*1049*
Ruby-crowned Kinglet	*RCKI*	*323*	*0*	*1190*	*1513*
Veery	*VEER*	*24*	*2*	*33*	*59*
Gray-cheeked Thrush	*GCTH*	*12*	*1*	*65*	*78*
Swainson's Thrush	*SWTH*	*118*	*3*	*334*	*455*
Hermit Thrush	*HETH*	*71*	*0*	*133*	*204*
Wood Thrush	*WOTH*	*17*	*4*	*0*	*21*
American Robin	*AMRO*	*74*	*67*	*12*	*153*
Gray Catbird	*GRCA*	*102*	*74*	*37*	*213*
Brown Thrasher	*BRTH*	*20*	*15*	*18*	*53*
Cedar Waxwing	*CEDW*	*7*	*14*	*8*	*29*
Blue-winged Warbler	*BWWA*	*1*	*0*	*0*	*1*
Golden-winged Warbler	*GWWA*	*3*	*0*	*0*	*3*
Tennessee Warbler	*TEWA*	*13*	*2*	*84*	*99*
Orange-crowned Warbler	*OCWA*	*0*	*0*	*4*	*4*
Nashville Warbler	*NAWA*	*64*	*6*	*125*	*195*
Northern Parula	*NOPA*	*7*	*2*	*78*	*87*
Yellow Warbler	*YEWA*	*171*	*163*	*24*	*358*
Chestnut-sided Warbler	*CSWA*	*42*	*1*	*15*	*58*
Magnolia Warbler	*MAWA*	*228*	*0*	*378*	*606*
Cape May Warbler	*CMWA*	*6*	*2*	*16*	*24*
Black-throated Blue Warbler	*BTBW*	*42*	*0*	*194*	*236*
Myrtle Warbler	*MYWA*	*130*	*1*	*1037*	*1168*
Black-throated Green Warbler	*BTNW*	*27*	*0*	*132*	*159*
Blackburnian Warbler	*BLBW*	*12*	*0*	*24*	*36*
Pine Warbler	*PIWA*	*2*	*0*	*3*	*5*
Western Palm Warbler	*WPWA*	*35*	*0*	*91*	*126*
Yellow Palm Warbler	*YPWA*	*1*	*0*	*0*	*1*
Bay-breasted Warbler	*BBWA*	*20*	*2*	*125*	*147*
Blackpoll Warbler	*BLPW*	*5*	*3*	*473*	*481*
Black and White Warbler	*BAWW*	*35*	*14*	*26*	*75*
American Redstart	*AMRE*	*75*	*8*	*162*	*245*

COMMON NAME	ALPHA CODE	SPRING	SUMMER	FALL	TOTAL
Ovenbird	*OVEN*	*36*	*8*	*47*	*91*
Northern Waterthrush	*NOWA*	*25*	*7*	*19*	*51*
Mourning Warbler	*MOWA*	*9*	*3*	*5*	*17*
Common Yellowthroat	*COYE*	*48*	*65*	*96*	*209*
Hooded Warbler	*HOWA*	*1*	*0*	*0*	*1*
Wilson Warbler	*WIWA*	*11*	*0*	*22*	*33*
Canada Warbler	*CAWA*	*27*	*0*	*24*	*51*
Scarlet Tanager	*SCTA*	*10*	*0*	*20*	*30*
Eastern Towhee	*EATO*	*13*	*5*	*18*	*36*
American Tree Sparrow	*ATSP*	*2*	*0*	*0*	*2*
Chipping Sparrow	*CHSP*	*35*	*8*	*11*	*54*
Clay-colored Sparrow	*CCSP*	*0*	*4*	*0*	*4*
Field Sparrow	*FISP*	*15*	*36*	*8*	*59*
Savannah Sparrow	*SAVS*	*3*	*0*	*0*	*3*
Fox Sparrow	*FOSP*	*6*	*0*	*4*	*10*
Song Sparrow	*SOSP*	*40*	*196*	*51*	*287*
Lincolns Sparrow	*LISP*	*23*	*0*	*3*	*26*
Swamp Sparrow	*SWSP*	*25*	*3*	*4*	*32*
White-throated Sparrow	*WTSP*	*223*	*20*	*115*	*358*
Eastern White-crowned Sparrow	*EWCS*	*74*	*1*	*27*	*102*
Slate-colored Junco	*SCJU*	*184*	*0*	*170*	*354*
Northern Cardinal	*NOCA*	*8*	*6*	*6*	*20*
Rose-breasted Grosbeak	*RBGR*	*42*	*23*	*26*	*91*
Indigo Bunting	*INBU*	*5*	*0*	*2*	*7*
Bobolink	*BOBO*	*0*	*0*	*304*	*304*
Red-winged Blackbird	*RWBL*	*42*	*23*	*0*	*65*
Common Grackle	*COGR*	*82*	*6*	*58*	*146*
Brown-headed Cowbird	*BHCO*	*108*	*5*	*0*	*113*
Orchard Oriole	*OROR*	*1*	*0*	*0*	*1*
Baltimore Oriole	*BAOR*	*5*	*9*	*4*	*18*
Purple Finch	*PUFI*	*10*	*0*	*23*	*33*
House Finch	*HOFI*	*4*	*0*	*0*	*4*
American Goldfinch	*AMGO*	*0*	*10*	*8*	*18*
House Sparrow	*HOSP*	*1*	*0*	*0*	*1*
	Total	3759	982	8953	13694
	Species	86	53	81	99

APPENDIX B:
ALL RECAPTURES

COMMON NAME	ALPHA CODE	SPRING	SUMMER	FALL	TOTAL
Mourning Dove	*MODO*	*0*	*0*	*1*	*1*
Yellow-bellied Sapsucker	*YBSA*	*3*	*0*	*0*	*3*
Downy Woodpecker	*DOWO*	*2*	*0*	*2*	*4*
Eastern Wood pewee	*EAWP*	*0*	*1*	*0*	*1*
Yellow-bellied Flycatcher	*YBFL*	*1*	*0*	*1*	*2*
Trails Flycatcher	*TRFL*	*0*	*2*	*3*	*5*
Least Flycatcher	*LEFL*	*0*	*0*	*5*	*5*
Eastern Phoebe	*EAPH*	*0*	*1*	*0*	*1*
Great crested Flycatcher	*GCFL*	*2*	*0*	*0*	*2*
Eastern Kingbird	*EAKI*	*1*	*0*	*0*	*1*
Blue-headed Vireo	*BHVI*	*0*	*0*	*4*	*4*
Philadelphia Vireo	*PHVI*	*0*	*0*	*3*	*3*
Red-eyed Vireo	*REVI*	*5*	*4*	*80*	*89*
Blue Jay	*BLJA*	*73*	*0*	*156*	*229*
Black-capped Chickadee	*BCCH*	*53*	*14*	*97*	*164*
Red-breasted Nuthatch	*RBNU*	*10*	*0*	*5*	*15*
White-breasted Nuthatch	*WBNU*	*0*	*0*	*8*	*8*
Brown Creeper	*BRCR*	*12*	*0*	*69*	*81*
Carolina Wren	*CARW*	*0*	*0*	*2*	*2*
House Wren	*HOWR*	*34*	*6*	*6*	*46*
Winter Wren	*WIWR*	*1*	*0*	*0*	*1*
Golden-crowned Kinglet	*GCKI*	*12*	*0*	*128*	*140*
Ruby-crowned Kinglet	*RCKI*	*36*	*0*	*264*	*300*
Veery	*VEER*	*0*	*0*	*13*	*13*
Gray-cheeked Thrush	*GCTH*	*1*	*0*	*7*	*8*
Swainson's Thrush	*SWTH*	*1*	*0*	*51*	*52*
Hermit Thrush	*HETH*	*19*	*0*	*35*	*54*
American Robin	*AMRO*	*50*	*5*	*3*	*58*
Gray Catbird	*GRCA*	*7*	*17*	*13*	*37*
Brown Thrasher	*BRTH*	*11*	*1*	*11*	*23*
Tennessee Warbler	*TEWA*	*1*	*0*	*5*	*6*
Nashville Warbler	*NAWA*	*5*	*0*	*5*	*10*
Northern Parula	*NOPA*	*0*	*0*	*7*	*7*

COMMON NAME	ALPHA CODE	SPRING	SUMMER	FALL	TOTAL
Yellow Warbler	*YEWA*	*41*	*28*	*3*	*72*
Chestnut-sided Warbler	*CSWA*	*1*	*0*	*1*	*2*
Magnolia Warbler	*MAWA*	*6*	*0*	*87*	*93*
Black-throated Blue Warbler	*BTBW*	*2*	*0*	*42*	*44*
Myrtle Warbler	*MYWA*	*3*	*0*	*70*	*73*
Black-throated Green Warbler	*BTNW*	*0*	*0*	*15*	*15*
Pine Warbler	*PIWA*	*0*	*0*	*1*	*1*
Western Palm Warbler	*WPWA*	*0*	*0*	*6*	*6*
Bay-breasted Warbler	*BBWA*	*0*	*0*	*34*	*34*
Blackpoll Warbler	*BLPW*	*0*	*0*	*26*	*26*
Black and White Warbler	*BAWW*	*8*	*2*	*6*	*16*
American Redstart	*AMRE*	*11*	*0*	*14*	*25*
Ovenbird	*OVEN*	*5*	*0*	*4*	*9*
Northern Waterthrush	*NOWA*	*2*	*0*	*5*	*7*
Common Yellowthroat	*COYE*	*11*	*33*	*22*	*66*
Hooded Warbler	*HOWA*	*1*	*0*	*0*	*1*
Wilson Warbler	*WIWA*	*0*	*0*	*2*	*2*
Canada Warbler	*CAWA*	*0*	*0*	*12*	*12*
Eastern Towhee	*EATO*	*10*	*1*	*7*	*18*
Chipping Sparrow	*CHSP*	*25*	*1*	*0*	*26*
Field Sparrow	*FISP*	*7*	*10*	*0*	*17*
Song Sparrow	*SOSP*	*20*	*42*	*28*	*90*
Swamp Sparrow	*SWSP*	*1*	*1*	*0*	*2*
White-throated Sparrow	*WTSP*	*65*	*4*	*20*	*89*
Eastern White-crowned Sparrow	*EWCS*	*8*	*0*	*5*	*13*
Common Grackle	*COGR*	*49*	*1*	*0*	*50*
Brown-headed Cowbird	*BHCO*	*43*	*0*	*0*	*43*
Slate-colored Junco	*SCJU*	*113*	*0*	*97*	*210*
Northern Cardinal	*NOCA*	*6*	*2*	*2*	*10*
Rose-breasted Grosbeak	*RBGR*	*0*	*3*	*2*	*5*
Bobolink	*BOBO*	*0*	*0*	*1*	*1*
Red-winged Blackbird	*RWBL*	*11*	*1*	*0*	*12*
Purple Finch	*PUFI*	*3*	*0*	*2*	*5*
American Goldfinch	*AMGO*	*1*	*0*	*0*	*1*
	Total	793	180	1498	2471
	Species	47	22	53	67

APPENDIX C:
ALL FOREIGN RECOVERIES

BAND NUMBER	SPECIES	ORIGINAL BANDING DATE	OBSERVATORY	LOCATION	RECOVERY DATE	LOCATION
1104-27169	*Northern Saw-whet Owl*	*2020-10-16*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-03-21*	*Hebron, Potter County Pennsylvania USA*
1014-98775	*Northern Saw-whet Owl*	*2020-10-29*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-03-25*	*Rochester, Monroe county, New York USA*
2651-83321	*Brown-headed Cowbird*	*2019-04-15*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-04-18*	*Angola, Erie county, New York USA*
2621-87040	*Slate-colored Junco*	*2019-10-11*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-05-03*	*Gaffney, Cherokee County, South Carolina USA*
2920-07962	*House Wren*	*2020-08-17*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-05-15*	*Towner, Bradford County, Pennsylvania USA*
2860-02053	*Ruby-crowned Kinglet*	*2018-10-26*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2019-05-10*	*Erie Bird Observatory, Frys landing, New York USA*
1104-27127	*Northern Saw-whet Owl*	*2020-10-13*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-10-20*	*Carpenter Town, Lackwanna county, Pennsylvania USA*
1372-77140	*Blue Jay*	*2019-09-25*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-10-09*	*Belleville, Ontario Canada*
1104-26928	*Northern Saw-whet Owl*	*2019-10-19*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-11-01*	*Brooktondale, Tomkins County, NY*
0816-84442	*Coopers Hawk*	*2018-09-14*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2019-01-01*	*Glen Miller, Ontario Canada*
1104-26913	*Northern Saw-whet Owl*	*2019-10-18*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2020-10-30*	*Tommy Thomson Park, Toronto, Ontario Canada*
1014-98849	*Northern Saw-whet Owl*	*2017-10-05*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2018-10-23*	*Valparaiso, Indianna USA*
1014-98849	*Northern Saw-whet Owl*	*2017-10-05*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2018-10-24*	*Valparaiso, Indianna USA*
1014-98849	*Northern Saw-whet Owl*	*2017-10-05*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2018-11-02*	*Valparaiso, Indianna USA*
1014-98442	*Northern Saw-whet Owl*	*2016-09-24*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2018-11-11*	*Genezer Estates, Worcester county, Maryland USA*
2417-14527	*Mallard*	*2019-05-19*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2022-01-26*	*Elizabeth City, Pasquotank County, North Carolina USA*
2791-52384	*Swainson's Thrush*	*2020-09-10*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2020-09-21*	*Columbus, Polk County, North Carolina USA*
1104-27500	*Northern Saw-whet Owl*	*2021-10-18*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-10-24*	*Nogies Creek, Ontario Canada*

BAND NUMBER	SPECIES	ORIGINAL BANDING DATE	OBSERVATORY	LOCATION	RECOVERY DATE	LOCATION
1104-27347	*Northern Saw-whet Owl*	*2021-09-28*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-10-23*	*Livingston Manor New York USA*
1104-27441	*Northern Saw-whet Owl*	*2021-10-13*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2021-10-23*	*Manitou Beach, Monroe County, NY*
1283-88364	*Northern Saw-whet Owl*	*2001-10-09*	*Prince Edward Point Bird Observatory*	*Milford, ON*	*2001-11-06*	*Bergton, Rockingham County, VI*
1014-96618	*Northern Saw-whet Owl*	*2020-10-07*		*Mississauga, ON*	*2021-10-01*	*PEPtBO*
1124-24212	*Northern Saw-whet Owl*			*Michigan USA*	*2021-10-16*	*PEPtBO*
0924-68417	*Northern Saw-whet Owl*	*2018-11-30*		*Malden Centre, ON*	*2021-10-30*	*PEPtBO*