WildResearch Nightjar Survey Final Annual Report

Report prepared by

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The WildResearch Nightjar Survey is a program under the non-profit organization, WildResearch.

WildResearch's mission is to build, train, and educate a community that contributes to conservation science.

In-kind support for the WildResearch Nightjar Survey in 2019 was provided by Birds Canada, the Community Mapping Network, and many other naturalist organizations across Canada.

The WildResearch Nightjar Survey is made possible by the dedicated Citizen Scientists who generously donate their time to survey for and report on these cryptic birds.

Thank you to all WildResearch Nightjar Survey volunteers!

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Executive Summary

The WildResearch Nightjar Survey is a volunteer-run citizen science program that conducts nocturnal roadside surveys for three highly understudied species of conservation concern: the Common Nighthawk, the Common Poorwill, and the Eastern Whip-poor-will. All three species belong to the nightjar family, which is a group of cryptic migratory birds that forage for flying insects primarily at twilight or during the night. All three species are understudied because their nocturnal habits typically preclude their detection during other survey programs like the Breeding Bird Survey. The data available for nightjars indicate that their populations are in decline. The Common Nighthawk and Eastern Whip-poor-will are both listed as Threatened under Canada's *Species at Risk Act* due to these perceived declines, although the Common Nighthawk was reassessed in April 2018 as Special Concern by the Committee on the Status of Endangered Species in Canada (COSEWIC). The Common Poorwill has been assessed as Data Deficient by COSEWIC because sufficient surveys have not been completed. Citizen science surveys are an ideal way to study nightjars and contribute to their conservation because they can efficiently collect reliable data over a large geographic extent.

The WildResearch Nightjar Survey expanded once again in 2019! We launched a new chapter in Manitoba and welcomed with it many new volunteers and a new regional coordinator, Alicia Korpach. Citizen scientists (113 volunteers and 113 assistants) surveyed and submitted data for 146 routes in 2019. In total, 731 Common Nighthawks, 24 Common Poorwills and 46 Eastern Whip-poor-wills were detected. In addition, 8 Automated Recording Units (ARUs) were deployed in the Cumberland House region of Saskatchewan, which is one of the last remaining holdouts known for Eastern Whip-poor-wills in Saskatchewan (the North Westernmost portion of their range). Also, an experienced Nova Scotia birder shared with us some historical observations of both their own and of an interview conducted with their friend dating back to 1945. The WildResearch Nightjar Survey coordinator team also gave presentations to the Miramichi Naturalist Club and at the Nightjar Monitoring Roundtable meeting in 2019.

Behind the scenes, it was decided that now is the time for the WildResearch Nightjar Survey program to leave the nest. Program Manager Elly Knight "is beyond thrilled and proud to share that what was once just a little nightjar program (with 3 survey routes conducted in the inaugural year) has grown up to become the Canadian Nightjar Survey, and has a found a new, permanent home at Birds Canada. The WildResearch Nightjar Survey has shown how valuable nocturnal monitoring is for nightjar conservation, and the program joins an important suite of long-term citizen science surveys that are supported by Environment and Climate Change Canada. The capable and bilingual Andrew Coughlan will be taking over the reigns as Program Manager and guiding the Canadian Nightjar Survey into its next phase of operation."

The WildResearch Nightjar Survey would not be possible without our invaluable community of citizen scientists. From the bottom of our hearts, thank you!

1. THE WILDRESEARCH NIGHTJAR SURVEY LEAVES THE NEST

By Elly Knight, Program Manager

As we enter a new decade, the WildResearch Nightjar Survey turns ten years old. The program began in 2010 with three trial surveys for Common Poorwill in the south Okanagan of British Columbia by one of WildResearch's founders, Mike Boyd. The next year, the program was kept afloat by our first volunteer, who completed a handful of surveys on his own in the Okanagan-Similkameen region of BC. In 2012, I stepped in as Program Manager at Mike's request as I was concurrently studying grassland birds in the Okanagan for my M.Sc. Thanks to some key assistance with advertising, that same year, the program started to gather momentum and the program recruited nine more volunteers.

Fast forward eight years, and what was then the BC Poorwill Survey has become the WildResearch Nightjar Survey, with hundreds of volunteers across most of Canada, a standardized national protocol, and an emphasis on all three of Canada's breeding nightjar species!

And now it's time for the program to leave the nest. I am beyond thrilled and proud to share that our little nightjar program has grown up to become the Canadian Nightjar Survey, and has a found a new, permanent home at Birds Canada. We've shown how valuable nocturnal monitoring is for nightjar conservation, and the program joins an important suite of long-term citizen science surveys that are supported by Environment and Climate Change Canada. The capable and bilingual Andrew Coughlan will be taking over the reigns as Program Manager and guiding the Canadian Nightjar Survey into its next phase of operation.

Birds Canada is exactly the right long-term home for the Canadian Nightjar Survey as they are experts in long-term monitoring programs and the WildResearch Nightjar Survey was initiated with just such a goal in mind. The data from the WildResearch Nightjar Survey has shown its value for a wide range of conservation and management applications, nevertheless the most important usage is and always has been population monitoring. We've suspected since 2010, and have recently shown, that other bird survey programs do not adequately monitor the population trends of this group of cryptical, nocturnal beauties. However, without accurate population trend monitoring, wildlife managers can't determine when and how species need help to prevent declines.

Birds Canada has vast experience in working with volunteers to help citizen science projects flourish. Although we've loved every minute, we at WildResearch have been running these surveys as volunteers with a limited budget for the last decade; and the Canadian Nightjar Survey needs a stable home with more resources to ensure it fulfills its potential. Birds Canada is at the forefront of conservation citizen science in North America and has the knowledge and infrastructure to take the Canadian Nightjar Survey to that next level.

We're currently busy working with Andrew and the Birds Canada team to make sure the transition is as smooth as possible. We're thrilled that the Canadian Nightjar Survey will be retaining the regional coordination format; so you'll continue to have that personal, local, first line of contact. Birds Canada staff are currently busy building a shiny new website and data management system, which will enter the data directly into Nature Counts (where the rest of the

dataset is already housed and freely available). We'll be sure to keep all our volunteers up to date as things progress and we approach the 2020 survey season!

The maturation of the WildResearch Nightjar Survey over the last ten years would not have been possible without nourishment from many individuals and organizations, and so there are many thanks in order! Firstly, to Mike Boyd, your foresight and initiative is what started this whole crazy ride. A similarly huge thanks is extended to all our Regional Coordinators since 2015, who really made it possible for Nightjar Surveys to become more than just a British Columbia initiative: Paul Preston, Gabriel Foley, Andrea Sidler, Rhiannon Pankratz, Alex and Virginia Noble-Dalton, Samuel Haché, Elora Grahame, Shayna Hamilton, Alicia Korpach, and Amélie Roberto-Charron. Thank you to all members of the WildResearch Board of Directors over the years, whose assistance and support helped guide the program and keep it on track. Special thanks as well to the hard-working technicians that really helped the WildResearch Nightjar Survey grow in 2014-2016: Virginia Noble-Dalton, Azim Shariff, and Alessandra Hood. Thanks to Rob Knight of the Community Mapping Network, who spent countless hours helping with design, hosting, and management of the Nightjar Atlas, without which we wouldn't have been able to run the program. Of course, thank you to the many funders that helped build the program: MEC, the TD Friends of the Environment Foundation, the Nature Trust of British Columbia, the Pacific Conservation Assistance Fund, the Birds Canada Baillie Fund, the BC Naturalists' Foundation, and the Government of Canada Science Horizons and Canada Summer Jobs programs. In-kind advertisement support from Birds Canada and a huge array of naturalist and non-profit organizations across Canada has also been pivotal in helping build our volunteer base across Canada.

Most importantly, the WildResearch Nightjar Survey would not be possible without our invaluable community of citizen scientists. From the bottom of our hearts, thank you! Many of you have been with us for several years now, with a few veterans reaching seven years of surveys. The growth of the WildResearch Nightjar Survey has not always been without growing pains, so thank you for your patience and commitment as we work together towards the common goal of bird conservation.

Here's to the future! We at WildResearch are confident that the next phase of the program with Birds Canada will continue to further the conservation science and outreach goals of the program. Most importantly, we are confident that the Canadian Nightjar Survey will make a meaningful contribution towards reversing nightjar population declines in Canada. It's been a real honour and privilege to steward this program in the first decade of its inception, and we can't wait to see it continue to grow and flourish!

2. BACKGROUND

1.1. Family Caprimulgidae: Nightjars

Nightjars are a family of cryptic birds that forage for flying insects primarily at twilight or during the night. Due to their feeding habits, nightjars belong to a larger guild of birds called the aerial insectivores. Many of these species are highly migratory, spending their winters as far south as Argentina. These beautiful birds have giant mouths for catching insects in flight and are highly camouflaged because they roost during the day and nest on the ground. There are three species of nightjars that regularly occur in Canada: Common Nighthawk (*Chordelies minor*), Common Poorwill (*Phalaenoptilus nuttallii*), and Eastern Whip-poor-will (*Antrostomus vociferus*).

A Common Nighthawk roosts on a rocky bluff. Photo: Dwayne Gaschermann

1.2. Why Survey Nightjars?

Relatively little is known about the population trends of nightjars due to their nocturnal habits and cryptic nature; however, steep population declines of other aerial insectivore species have been detected across North America. Although nightjar species are often missed by other bird survey programs, Breeding Bird Survey data indicate that many nightjar populations in Canada are also in decline. The Common Nighthawk and Eastern Whip-poor-will are federally listed as Threatened under Canada's *Species at Risk Act* due to these perceived declines, although the Common Nighthawk was reassessed in April 2018 as Special Concern by the Committee on the Status of Endangered Species in Canada (COSEWIC). The Common Poorwill has been assessed as Data Deficient by COSEWIC because sufficient surveys have not been completed.

1.3. How to Survey Nightjars?

Nocturnal roadside citizen science surveys are an ideal method to study nightjars in Canada and contribute to conservation. The nocturnal nature of these birds requires that survey stations must be easily accessible for surveyor safety. Travelling by car allows surveyors to travel quickly between stations that are far enough apart to ensure that birds are not counted twice. Citizen science surveyors allow for survey coverage of large geographic areas, which is important because nightjars are found across Canada. Data collected by citizen scientists during nocturnal roadside surveys will allow for analyses of habitat associations, long-term population monitoring, distribution and abundance mapping, and environmental assessment of these cryptic birds. Lastly, citizen scientists contribute invaluable local knowledge to the project including incidental nightjar reports and information about route accessibility and local habitat.

A Common Poorwill roosts at night. Photo: Alan Burger

1.4. Program Objectives

The goal of the WildResearch Nightjar survey is to contribute to the conservation and recovery of nightjars in Canada. To achieve this goal, the program has several multi-species objectives and one single-species objective per species.

1.4.1. Multi-species Objectives

- Collect baseline inventory data on nightjar populations in Canada.
- Determine best survey methods for nightjars in Canada and compare to other existing monitoring programs.

- Raise awareness on nightjar conservation and biology in Canada.

1.4.2. Single-species Objectives

- **Common Nighthawk:** investigate habitat associations in Canada.
- **Common Poorwill:** determine the extent of the species range in British Columbia, Alberta, and Saskatchewan.
- **Eastern Whip-poor-will:** determine the extent of the potential range contraction in Saskatchewan, Manitoba, Ontario and the Maritimes.

1.5. Program Background

The WildResearch Nightjar Survey began in south-central British Columbia in 2010 and expanded to the rest of the province in 2014. The first four years of the program were conducted in the Okanagan region to target an area where Common Nighthawk and Common Poorwill are abundant. Surveys collected from 2010 to 2013 followed a standardized survey protocol designed by the Nightjar Survey Network in the United States. In 2014, the program was expanded to survey for the Common Nighthawk across their range in British Columbia. Also in 2014, the BC Nightjar Survey protocol was revised to create separate protocols reflecting the two species varying ranges and life histories. Surveys across British Columbia continued in 2015, with several trial surveys also conducted in Alberta and Saskatchewan. There was a major expansion of the WildResearch Nightjar Survey in 2016 as the survey officially launched in 5 new regions: Alberta, Saskatchewan, New Brunswick, the Yukon, and the Northwest Territories. The expansion was made possible by two major accomplishments. First, the Nightjar Atlas was introduced, hosted by the Community Mapping Network, and allowed for automated route sign-up to ease the workload of volunteer coordination. Second, a new standardized Canada Nightjar Survey Protocol ensured that all citizen science nightjar surveyors across the country would follow the same survey methods. In 2018, the survey continued to expand. The program launched another region in Ontario at the heart of the Eastern Whip-poor-will range, and the New Brunswick region was renamed as the Maritimes region with the inclusion of Prince Edward Island and Nova Scotia. This past year (2019), with the recent COSEWIC assessment of the Common Nighthawk noting that “the species is still relatively abundant and widely distributed throughout the province” of Manitoba; a Manitoba chapter of the WildResearch Nightjar program was introduced.

2. WILDRESEARCH NIGHTJAR SURVEY METHODS

2.1. Survey Protocol

Roadside surveys, beginning at dusk, are used to survey Canada’s three nightjar species. Each survey route is a series of 12 survey stations along a public road, which are spaced at least 1.6 km apart. At each survey station, a six-minute passive point count is conducted with an unlimited radius. In other words, the citizen scientist listens quietly for six minutes and records each nightjar detected. Information on wind speed, cloud cover, cars passing, and moon visibility is also collected at each survey station. Each route is sampled once a year between June 15 and July 15. In areas where Common Poorwills or Eastern Whip-poor-wills occur, volunteers are

encouraged to survey within one week of the full moon when these birds call most frequently. Surveys start at 30 minutes before sunset and require approximately 2 hours to complete.

For further details, please visit the WildResearch website for copies of the Canadian Nightjar Survey Protocol (both English and French): http://wildresearch.ca/programs/nightjar-survey/

2.2. Survey Locations

Per the Canadian Nightjar Survey Protocol, the WildResearch Nightjar Survey uses Breeding Bird Survey (BBS) routes because these routes are randomly selected and will allow us to compare the Canadian Nightjar Survey Protocol to the BBS for long-term trend monitoring. The WildResearch Nightjar Survey also incorporates survey routes from: other previous Nightjar surveys, randomly selected routes in British Columbia that were selected earlier in the program's history, some subjectively placed routes based on the occurrence of nightjars, and some routes in locations where Eastern Whip-poor-will have been historically detected.

3. SUMMARY OF 2019

The WildResearch Nightjar survey program expanded once again in 2019! We launched a new chapter in Manitoba and welcomed with it many new volunteers and a new regional coordinator. The surveys continued in the 7 previously established regions across Canada: Alberta, British Columbia, Maritimes, Northwest Territories, Ontario, Saskatchewan, and the Yukon. The program welcomed many returning and new volunteers. In addition, 8 Automated Recording Units (ARUs) were deployed in the Cumberland House region of Saskatchewan, which is one of the last remaining holdouts known for Eastern Whip-poor-will in Saskatchewan. Also, an experienced Nova Scotia birder shared with us some historical observations of both their own and of an interview conducted with their friend dating back to 1945. The WildResearch Nightjar Survey coordinator team also gave presentations to the Miramichi Naturalist Club and at the Nightjar Monitoring Roundtable meeting in 2019.

3.1. Volunteer Effort

In 2019, citizen scientists surveyed and submitted data for 146 routes (Table 1). Surveys were completed by 113 volunteers and 113 assistants, for a total of 226 volunteers in 2019! In total, volunteers contributed nearly 300 survey hours in addition to time required to reconnaissance routes and complete data entry for a total of over 800 volunteer hours.

The number of routes surveyed in 2019 was similar to the year prior. Across Canada, there were 59 surveys conducted in British Columbia, 19 in Alberta, 5 in Saskatchewan, 9 in Manitoba, 26 in Ontario, 14 in the Yukon, 3 in the Northwest Territories, 7 in New Brunswick, 4 in Nova Scotia, and 0 on Prince Edward Island. When compared to 2018, the number of surveys per province was relatively consistent. British Columbia had the greatest reduction in survey effort (14) with a reduction in effort also seen in the Maritimes (6). Comparatively, Ontario continued to build support in its second year in the survey program, with 11 more routes in 2019 compared to 2018. Similarly, Manitoba had a very good inaugural season with a total of 9 surveys completed. The reduction in surveys in some of the established regions may have been due to the absence of a

paid intern to boost survey numbers and help with volunteer recruitment, and weather events occurring on weekends.

Table 1. *Number of WildResearch Nightjar Survey routes, stations and observers per year since 2010.*

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Routes surveyed	3	3	16	29	141	154	192	146	150	146	**980**
Stations surveyed	19	33	156	301	1,716	1,837	2,066	1,681	1,692	1,671	**11,172**
Observers	2	2	10	20	73	99	139	103	106	113	**667**

3.2. Common Nighthawk

Common Nighthawks were detected at 95 of the 146 routes surveyed (65%), and at 384 of the 1,671 stations surveyed (23%). In total, 731 Common Nighthawks were detected in 2019. The mean number of Common Nighthawks per station was 0.44 across all stations and 1.90 at stations where they were detected (Figure 1).

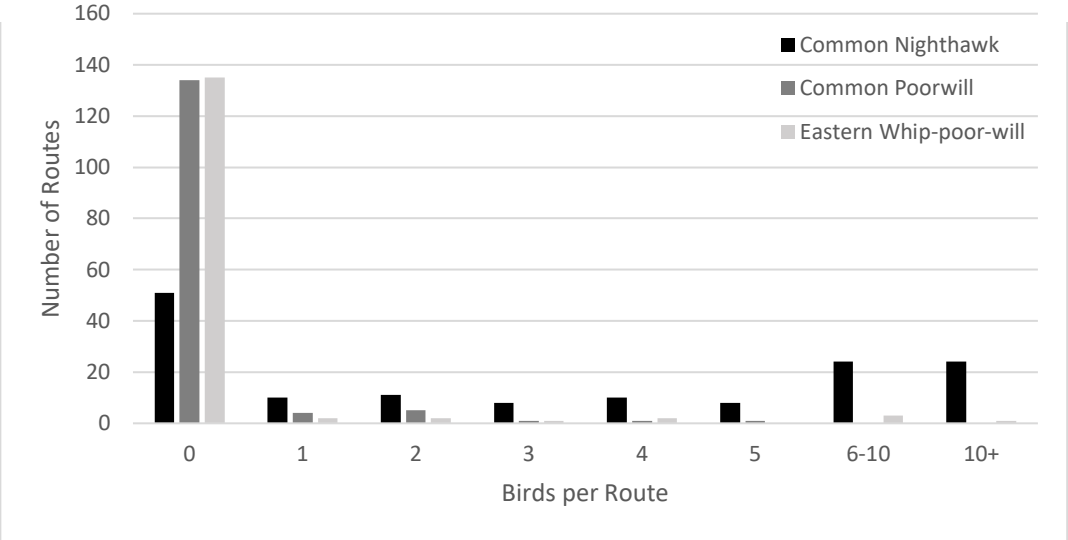

Figure 1. *Frequency of mean number of nightjars detected per survey route in 2019.*

Common Nighthawks were detected across all regions surveyed in 2019 (Figure 2). The highest number of nighthawks for an individual station was 8 in south-central British Columbia near Kamloops. The highest number of nighthawks per route was 29 on 3 different routes: 1) Grand Forks North, in south-central British Columbia 2) McGregor Creek, in south-central Yukon and 3) Skukum Lake, in central Alberta near the Saskatchewan border. Relatively high abundances of

Common Nighthawks continue to be detected along routes on Vancouver Island, in south-central British Columbia, in central Alberta, and throughout the southern Yukon. There were also smaller more localized hotspots of Common Nighthawks in the central Northwest Territories, south Saskatchewan, southwestern Ontario and in the Maritimes in both southern New Brunswick and southwest Nova Scotia.

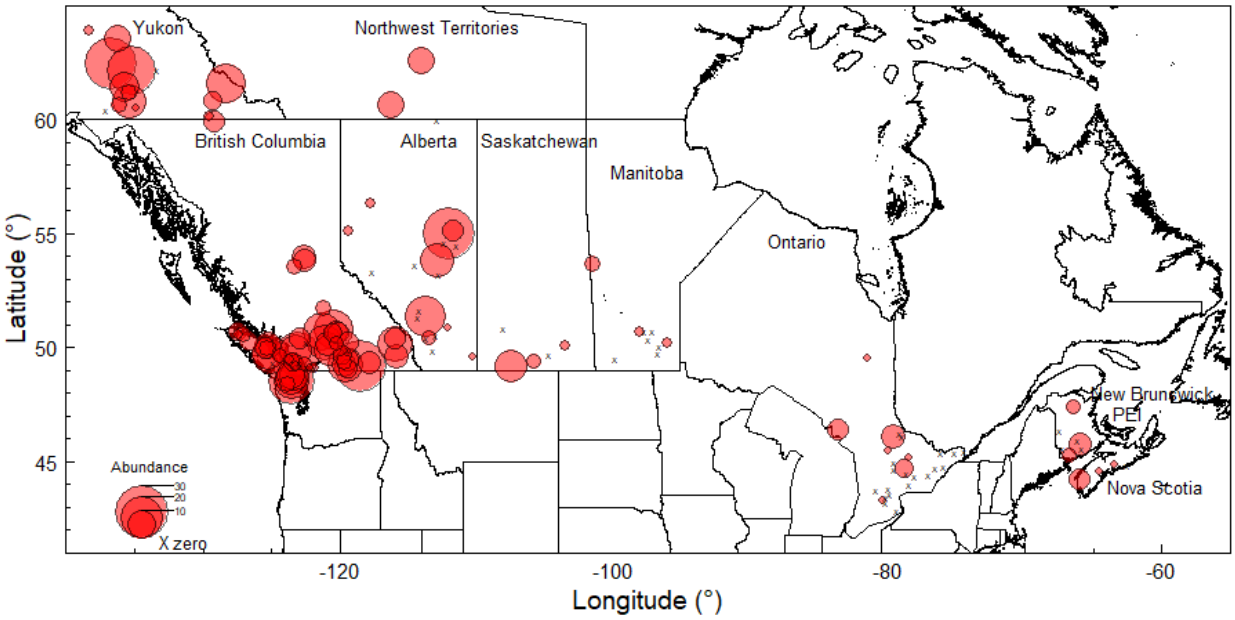

Figure 2. *Abundance of Common Nighthawks detected per route surveyed in 2019.*

A female Common Nighthawk incubates her eggs in northern Alberta. Photo: Elly Knight

3.3. Common Poorwill

In total, 24 Common Poorwills were detected in 2019. This total number of Common Poorwills detected is only approximately one third of the total detections in 2018 (70). The mean number of Common Poorwills per station was 1 at stations where they were detected (Figure 1). The maximum number of Common Poorwills detected at a station was 2 on 2 different routes: 1) Anarchist, in south-central British Columbia, and 2) Thelma, in southeastern Alberta (Figure 3). The highest number of Common Poorwill per route was 5 on the White Lake route in the Okanagan Valley of central British Columbia. This is comparatively much lower than the maximum number detected for a route of 16 in 2018. True to their range, Common Poorwills were detected in central British Columbia, and southeastern Alberta (Figure 3). As in previous years, citizen scientists recorded abundances of Common Poorwills in the southern most area of central British Columbia (Okanagan Valley). The two Common Poorwills detected in Alberta, on the Thelma route, were the second and third for the province in the WildResearch Nightjar Survey program, with the first occurring on the same route in 2018.

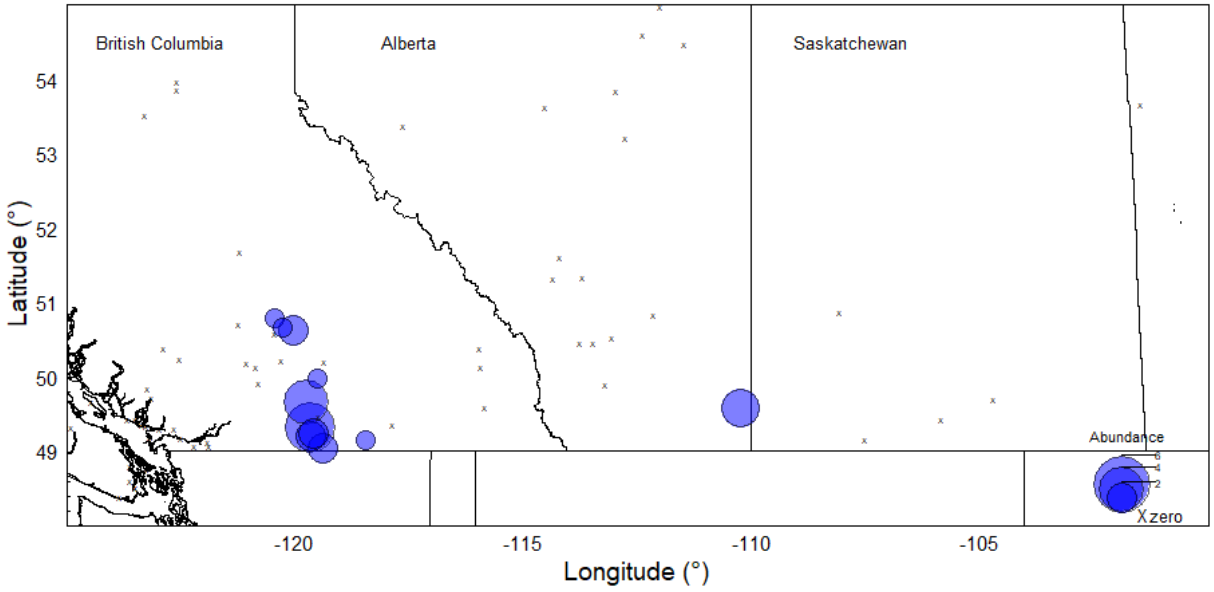

Figure 3. *Abundance of Common Poorwills detected per route surveyed in 2019.*

3.4. Eastern Whip-poor-will

46 Eastern Whip-poor-wills were detected during the 2019 WildResearch Nightjar Survey. The total number of detections in 2019 is over double the number of detections identified in 2018 (21); which is greatly aided by the addition of the Manitoba routes where 23 Eastern Whip-poor-wills were detected in 2019. The highest number of Eastern Whip-poor-wills per station was 3 at 5 different stations on 3 different routes: 1) Woodroyd in south-central Manitoba (3 different stations), 2) Stony Hill in southeastern Manitoba, and 3) Little Rapid in central Ontario. The highest number of Eastern Whip-poor-wills per route was 12 on the Woodroyd route in south-central Manitoba (Figure 4). Eastern Whip-poor-wills were again detected in Southeastern Ontario, approaching their known northern range at the Quebec border. There were also 4 Eastern Whip-poor-will detections in New Brunswick.

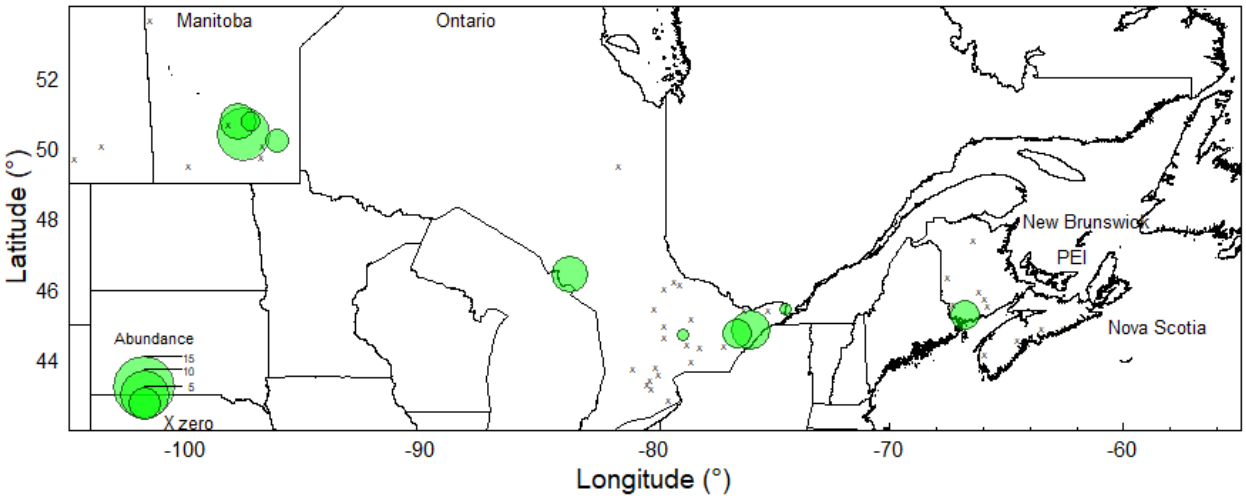

Figure 4. *Abundance of Eastern Whip-poor-will detected per route surveyed in 2019.*

3.5. Regional Updates

3.5.1. British Columbia

By Paul Preston, British Columbia Regional Coordinator

This year, the WildResearch Nightjar Survey in British Columbia covered 59 routes, a few less than last year. As per usual, we had many volunteers in the Southwest of the province as well as in the Okanagan and Thompson regions. Over the last couple of years, our numbers of surveyors in the central and northern part of the province have been increasing which is very exciting.

Of those 59 routes that were surveyed this year, 53 of them picked up Common Nighthawks and 10 of them detected Common Poorwills. These numbers are quite similar to last year even though fewer routes were surveyed! Hopefully this number of detections continues to rise!

Thank you to all the very patient and enthusiastic volunteers this year and I look forward to see what happens in 2020! Happy Birding!

3.5.2. Alberta

By Elly Knight, Alberta Regional Coordinator

Huge thanks to all the nightjar surveyors in Alberta this year! We surveyed 19 routes across the province this year, from north of Peace River to the Cypress Hills. Seventy-seven Common Nighthawks were detected at eight of those surveyed routes. All of those routes had Common Nighthawks repeatedly performing their aerial wing-boom display, suggesting breeding in many areas of the province. The highest counts of Common Nighthawks were detected in the sandy pine areas around Edmonton and Lac La Biche. This year, surveyors also detected three Common Poorwills for the province

One of the sandy jack pine areas that Alberta's boreal Common Nighthawks occupy. Photo: Elly Knight

on the Thelma route that runs through the Cypress Hills! This is the second year the species has been detected in Alberta, and the highest count yet.

3.5.3.Saskatchewan

By Gabriel Foley, Saskatchewan Regional Coordinator

In Saskatchewan, the survey season of 2019 started out ambitiously. Two-dozen routes were adopted, and volunteers were eager to count nightjars. But as hard as they tried, the weather across the province refused to cooperate. Sometimes it was rain, sometimes it was wind, usually it was both. At the end of the survey season, a scant total of five routes had been surveyed. Of those routes, two had Common Nighthawks: one had three, and the other had thirteen! Unfortunately, there were no Common Poorwills or Eastern Whip-poor-wills detected this year. Our volunteers deserve a massive thanks for putting up with the discouraging weather this past year and doing their best to get any surveys they could completed. Next summer, if you would like to contribute to conserving nightjars, you can either participate by adopting a route yourself or you can cross your fingers for more suitable weather – either would be appreciated!

In other Saskatchewan news, Regional Coordinator, Gabriel Foley, is stepping down to take a full-time position coordinating the Breeding Bird Atlas in Maryland and DC. To fill the Saskatchewan Regional Coordinator role, Nicole Lerminiaux, a long-time WildResearch volunteer, is coming on board. Nicole was introduced to nightjars in 2013, while working with another Regional Coordinator, Paul Preston. Paul was doing his masters on Common Poorwill biology, and Nicole was his field technician. She learned that, while all birds are good birds, nightjars are the best birds and has continued to run surveys for them ever since. Now, Nicole is a PhD student at the University of Regina studying how different microbes either compete or cooperate with each other. Welcome aboard, Nicole!

3.5.4. Ontario

By Elora Grahame, Ontario Regional Coordinator

With the help of both returning and new volunteers, the second year of Ontario Nightjar Surveys was a great success! We increased the number of surveys completed from 15 routes last year to 26 routes monitored this past summer. In 2019, ten routes yielded nightjar detections, and the remaining 16 routes provided equally valuable absence data for the province. In addition to the 23 Common Nighthawks and 19 Eastern Whip-poor-wills detected during the 2019 season, Ontario volunteers recorded three American Woodcocks, two Barred Owls, and one Virginia Rail across a number of survey routes. I hope that in 2020, we can increase our coverage of Ontario and encourage even more volunteers to participate in the program. Thank you to all of our volunteers for your continued support!

3.5.5.Manitoba

By Alicia Korpach, Manitoba Regional Coordinator

Eastern Whip-poor-will. Photo: Alicia Korpach

Manitoba has an active and engaged birding community, so I am not surprised that the inaugural season of nightjar surveys in this province was so successful. Eight volunteers completed surveys on nine routes, with several more attempts thwarted by rainy weather. The surveyed routes were geographically diverse, ranging between Brandon, Lac du Bonnet, and The Pas. While both nighthawks and whip-poor-wills were detected throughout the surveys, whip-poor-wills were detected much more frequently. Twelve individuals were heard singing on one route during a calm, warm, full moon night in June – the kind of night that both humans and whip-poor-wills enjoy! The presence of these noisy birds is no surprise to residents and cottagers in the open forests of the Parkland and Boreal regions of Manitoba but given their status as a Species-At-Risk, we were delighted to hear so many whip-poor-will songs during our surveys.

We greatly appreciate the participation of volunteers who are already so busy conducting other bird surveys during the summer. They cover a lot of ground to monitor bird populations, and I hope that the Nightjar Survey Program continues to attract new and experienced birders in Manitoba.

3.5.6. Yukon

By Andrea Sidler, Yukon Regional Coordinator

The 4th year of the Yukon WildResearch Nightjar Survey has come and gone – and once again we had a very successful season. A big thank you to all the dedicated volunteers who surveyed the Yukon routes, collected data, and made this survey season happen.

This year, 9 people surveyed 14 routes. A total of 132 Common Nighthawks were detected in the Yukon – 13 more than in 2018. Birds were detected on routes throughout the territory, which has also been the case in previous years, and suggests that nighthawks are consistently using a variety of different boreal habitats. Overall, 48 birds were detected performing repeat wing-booms. As in 2018, the McGregor Creek route had the highest number of total detections with

29 birds. The Little Salmon River route was a close 2nd with 27 individuals. Of these 27 birds, 24 were repeat wing-booming males, which is about at 10% increase in wing-booming males on this route from 2018.

This was a smoky year for surveyors and nighthawks alike. There were several wildfires burning throughout the territory, bringing with them hazy skies and vividly coloured sunsets to accompany the flurry of peents and booms into the evening. In light of the number of active wildfires across the territory this year, it will be interesting to see whether there is a rise in 2020 nighthawk counts.

Female Common Nighthawk in the Little Salmon River burn. Photo: Andrea Sidler

In other Yukon new, Andrea Sidler will be spending the next few years exploring the Northwest Territories and Shyloh van Delft will be taking over as Yukon Regional Coordinator. Shyloh is a born and raised Yukoner who completed her undergraduate degree in Environmental & Conservation Sciences through the University of Alberta last spring. She is a keen birder, involved on the Yukon Bird Club's Board of Directors, and has experience with an array of research and citizen science projects, including Bird Canada's Nocturnal Owl Surveys. She is excited about branching out into the fascinating world of nightjars and is looking forward to getting to know the team of Yukon volunteers. Welcome to the team Shyloh!

Thanks again to all our fantastic volunteers!! We appreciate all you do - we couldn't run this program without all of your efforts! As well, thanks to the Whitehorse Canadian Wildlife Service office for contributing their data to this project. Looking forward to another great season in 2020!

3.5.7. Maritimes

By Virginia & Alex Noble-Dalton, Maritimes Regional Coordinators

Thank you to all the Maritimes' volunteers who volunteered their time this past year to participate in the WildResearch Nightjar Survey program, without you this valuable data wouldn't be collected and there wouldn't be a survey program at all.

The 2019 Nightjar Survey season was the 4th season of the WildResearch Nightjar Survey in New Brunswick, the 3rd season in Nova Scotia and the 2nd year for the program on Prince Edward Island. Overall, interest remains high throughout the region for the Nightjar Survey but unfortunately the 2019 season had the fewest number of routes undertaken to date. As in 2018 (when 5 New Brunswick routes were removed), the survey protocol removed 2 available routes in Nova Scotia, which had no nightjars detected for two consecutive years.

Overall, a total of 11 survey routes were surveyed in the Maritimes in 2019 (with interest in an additional 13 routes). 8 of these survey routes were also surveyed during a previous survey season (6 in New Brunswick and 2 in Nova Scotia), and thus it is exciting to see the time series for these routes both beginning and continuing. 3 of the survey routes have now been surveyed in all 4 years of the survey program in the Maritimes.

During the surveys, a total of 21 Common Nighthawks were observed, 11 of which were recorded to be wing-booming. Interestingly 3 of the 4 routes surveyed in Nova Scotia had Common Nighthawks repeatedly performing their wing-boom display, suggesting breeding in a variety of areas of the province. 4 Eastern Whip-poor-wills were also detected on the McDougall Lake route in the Southwest of New Brunswick. This is the second time that this survey route has detected Eastern Whip-poor-wills; there were two detected in 2017. The highest occurrence of Common Nighthawks was on the Cambridge-Narrows, NB route (south-central New Brunswick), with 7 individuals. 2019 was the first time that the Cambridge-Narrows route had been surveyed, so it is exciting to have potentially identified another little nightjar hotspot. The surveys also recorded 3 Chimney Swifts in Southwest New Brunswick and an American Woodcock near Halifax, NS.

Prior to the survey season, a Chuck-will's-widow, another nightjar species was also observed near Halifax, NS; this is quite a rare sighting for the region and was very exciting for those that were able to observ it. We were lucky enough to witness roughly 100 Common Nighthawks migrating through St. Andrews, NB, on September 3rd, 2019. We were enjoying dinner on a friend's deck when we easily counted 34 Common Nighthawks that flew by as we ate. As we continued for a walk around town, we kept counting the birds as they flew towards Maine, USA. It was an amazing sight to see!

Also, prior to the survey season, we had the opportunity to give a presentation about nightjars and the WildResearch Nightjar Survey to the Miramichi Naturalist Club; the presentation was well-attended and the audience was excited to learn more.

We look forward to next year's Nightjar Survey and continuing to see and hear what nightjars are out there. A big thank you goes out to the Maritimes Naturalist clubs and all who helped us advertise the program.

3.5.8. Northwest Territories

By Amélie Roberto-Charron, Northwest Territories Regional Coordinator

A sincere thank you to those that ran routes in the territory this past year! Three individuals in the Northwest Territories ran three routes in 2019, and a total of 18 Common Nighthawks were counted! Of the 36 sites surveyed, over a quarter (28%) had Common Nighthawks. Where Common Nighthawks were detected, over half (60%) had additional detections, with one site having four birds! Two routes this year each detected 9 individuals, with the third detecting none. Thank you again to those that participated in the 2019 season and looking forward to the 2020 season!

4. VOLUNTEER SPOTLIGHT: HISTORICAL DATA

By Alex Noble-Dalton, Maritimes Regional Coordinator

As Carl Sagan once said, "You have to know the past to understand the present." The key so often is making sure that knowledge is not lost through the process of time.

This past year, an experienced Nova Scotia birder, Jo Bishop, shared with us some historical observations of both her own and of an interview conducted with her friend, Jean Timpa. Jean's family has owned a piece of property in Bear River, Annapolis County, Nova Scotia since 1945. "Her mother was a keen and knowledgeable birder who sparked a life-long interest in birds in Jean". Jean has been going to the property every summer since 1945. The following are all sightings reports from this same property:

"Nighthawks were part of every summer in Bear River from 1945 to date. The peak period for these birds was 1945 to the mid 1960's, when they like the Tree and Barn Swallows began to decline in numbers. One particular summer in the 1958 to 1962 period, (Jean) remembers an evening when the "small red flying ants" began to emerge and fly. Several hundreds of Swallows and then Common Nighthawks arrived and went on a feeding frenzy that lasted for some time. The same thing went on the next night, by which time the ant hatch was over." Jean estimates that over 500+ nighthawks took part each evening.

Jean still hears and sees nighthawks at the property in July and sees them in August every year. However, these last few years 20+ birds a night is a large number. In 2016, Jean and Jo visited the property in mid-August and observed 13+ nighthawks swooping over the mowed pasture after flies. They flew in from the Northwest, stayed around for approximately 10 minutes and then flew off to the Southeast. The same could be said for 2017, when 17+ nighthawks crossed the property. The summer of 2019 however only yield a pair of observations.

Comparatively, Eastern Whip-poor-wills have never been seen or heard in the Bear River area in all those summer visits (74 years). However, an Eastern Whip-poor-will was observed ~132 KM to the northeast of Bear River in the Greenwich, Nova Scotia area in the summer of 1954. The Atlantic Coast experienced some 16 severe tropical storms that year, with 10 of them being hurricanes. These storms started in early July and lasted until mid- October. In early July and continuing to late August, an Eastern Whip-poor-will was heard calling from the brook marsh south of the village. The storms of that same summer also brought a Brown Pelican and a Baltimore Oriole to the same area.

At Acadia University's Denton Hall in Wolfville, Nova Scotia, in July 1979, Jo recalls being dive bombed by a Common Nighthawk and it taking her ball cap right off her head. Over the succeeding weeks until early August, two Common Nighthawks were observed constantly coming and going from the flat roof; where they had likely nested. Birds continued to be seen on that same roof for the next 4 or 5 subsequent years but then failed to return and unfortunately have not been seen there since.

If you have a time-series of nightjar observations, we would love to know about it! These observations can support what little is known about the population trends of nightjars. To share, please contact your regional coordinator, as we are always excited to hear more about nightjars.

5. DALY POINT NATURE RESERVE, SCIENCE FOR ALL VIDEO

In 2019, a small group of young volunteers led by the Daly Point Nature Reserve (Bathurst, New Brunswick) participated in the WildResearch Nightjar Survey. The Daly Point Nature Reserve produced this video to not only help with the promotion and mandate of citizen science but also to highlight the need for a "succession" plan for volunteers. They strive to engage our youth in environmental issues. They promoted the 2019 survey as one of their "adventures" for youth ages 12 to 17, and took the opportunity to also conduct some wilderness survival training, camping overnight after the survey. The volunteers responded positively and felt they would be ready for another such "adventure" next year. What better way to facilitate their journey to self-discovery, and a sense of pace in the natural world!

Check out this awesome video of the experience on our website at http://wildresearch.ca/programs/nightjar-survey/ and a huge thank you to the Daly Point Nature Reserve for sharing it with us! Find out more about the Daly Point Nature Reserve at: https://www.bathurst.ca/en/services/recreation-and-tourism/76/daly-point-nature-reserve.

6. OTHER ACCOMPLISHMENTS IN 2019

In addition to the citizen science surveys completed in 2019 the WildResearch Nightjar Survey also completed several other objectives.

6.1. Automated Recording Units Listening in Saskatchewan

By Gabriel Foley, Saskatchewan Regional Coordinator

Aerial insectivores are, due to several poorly understood factors, declining severely. Eastern Whip-poor-wills are not immune to this decline, and they have largely disappeared from the North Westernmost portion of their range. This portion of their range lies in Saskatchewan. The highway leading to the low-lying and sparsely populated Cumberland House region is one of the last remaining holdouts known in Saskatchewan. Cumberland House is a small community about a six-hour drive from Saskatchewan's capital, Regina. On the cusp of the boreal forest, it shares many of the boreal forest's data collection problems: remote, inaccessible, and often overlooked. A few birders in Saskatchewan know of the Eastern Whip-poor-will's occurrence there, and if they need it for their list they'll make the trek. Otherwise, this area goes largely unnoticed, at least in terms of data collection. Since species that are declining

Automated Recording Unit (ARU) Photo: Gabriel Foley

often disappear from the edges of their ranges first, WildResearch decided this location would be a good place to determine if any Eastern Whip-poor-wills remained in the area and, if so, approximately how many might there be. So I drove eight automated recording units, or ARUs, up to Cumberland House and deployed each of them 30 meters off the road and ten kilometers apart. From mid-April to mid-June, from sunset to sunrise, for ten minutes at the top of each hour, the ARUs would record data. If a whip-poor-will called nearby, WildResearch would know about it. Additionally, I timed the pick-up of the ARUs to coincide with the full moon and conducted a Nightjar Survey route in Cumberland House. The thought was that this would provide an early indication as to whether any nightjars were around. Unfortunately, I did not detect any on the survey. However, the ARU data is awaiting analysis to determine whether Cumberland House did indeed have whip-poor-wills in 2019. We shall have to wait and see!

6.2. Northeastern Nightjar Monitoring Roundtable

WildResearch was invited to participate in a full day roundtable meeting about nightjar monitoring in northeastern North America. The roundtable was hosted by the Maine Natural History Observatory and the goal was to bring researchers and managers from the northeastern region to share about their projects and find opportunities for collaborative monitoring, management, and research. WildResearch was represented by Program Manager Elly Knight, Maritimes Coordinators Virginia and Alex Noble-Dalton, and future Canadian Nightjar Survey Program Manager Andrew Coughlan. We shared what the Nightjar Survey program has accomplished here in the Maritimes Region and across Canada since the program's beginning. And our Ontario Coordinator, Elora Grahame, gave a great keynote talk on her PhD research on Common Nighthawks and Eastern Whip-poor-wills!

6.3. Appreciation Project

We always like to send our volunteers a little token of appreciation, and this final 2019 survey season is no exception! But we've got something special up our sleeves this year, courtesy of our Ontario Coordinator and artist extraordinaire, Elora Grahame. Make sure to watch your mailbox for this special surprise!

6.4. Route Assessment

Following the Canadian Nightjar Survey Protocol, survey routes are reassessed every year to transition the program from habitat objectives to long-term monitoring objectives. Routes that have been surveyed for two years without a nightjar detection are removed from the regular list of available routes to a "zero" route list. These zero routes will be made available again every five years to ensure monitoring is capable of documenting range expansions. 2017 was the first year of survey route assessment. Prior to the 2018 season, a total of 17 routes were removed from the pool of available routes with highest number occurring in Alberta (6) but affecting 4 different regions (Table 2). Survey route assessment took place again following the 2018 season and another 10 routes will be removed from the pool of available routes for 2019 with highest number occurring again in Alberta (5). Survey route assessment has taken place once again following the 2019 season and another 10 routes will be removed from the pool of available routes for 2020 with highest number occurring again in 4 different regions (2): Alberta, New Brunswick, Ontario and Saskatchewan.

Table 2. *Number of WildResearch Nightjar Survey routes removed from the pool of available routes.*

	AB	BC	MB	NB	NS	NWT	ON	PE	SK	YT	Total
2017	**6**	**0**	**NA**	**5**	**NA**	**0**	**NA**	**NA**	**3**	**3**	**17**
2018	**5**	**2**	**NA**	**0**	**2**	**0**	**NA**	**NA**	**1**	**0**	**10**
2019	**2**	**1**	**NA**	**2**	**0**	**0**	**2**	**NA**	**2**	**1**	**11**

7. FUTURE PLANS

The WildResearch Nightjar Survey is at a turning point! The program is being transferred to Birds Canada for long-term management. WildResearch will continue to collaborate on the use of our data by students and researchers across Canada, including analysis by our own team, but will be turning over management of the surveys for future years! Below is an introduction to the new program and Program Manager, Andrew Coughlan.

7.1. The Canadian Nightjar Survey joins other large-scale monitoring initiatives at Birds Canada

By Andrew P. Coughlan, Canadian Nightjar Survey Program Manager

The WildResearch Nightjar Survey was developed by the determined, dynamic and farsighted group at WildResearch back in 2010. Since then, the team, with its impressive breadth of knowledge of nightjar biology and ecology, has invested considerable personal time and effort to grow the survey from the provincial BC Poorwill Survey into the solid, successful, internationally-respected, long-term, national monitoring project that it is today.

As well as its own internal strengths, the team at WildResearch has been able to draw on the knowledge and support of the bilingual national group that it successfully united to advise on protocol development and provide regional insight. It has also formed a network of nine exceptional volunteer regional coordinators, active from British Columbia to the Maritimes, and, most importantly, engaged hundreds of volunteer community scientists, without whom it would be impossible to collect the huge amount of data that this project helps generate.

Back in 2015, with the project having rapidly expanded in British Columbia and considering a provincial expansion into Alberta and Saskatchewan, WildResearch approached Birds Canada for support through a Baillie Fund grant. That year, theirs was the highest scoring application, furthering all the objectives of the Fund—notably contributing to the understanding of birds in their natural environment; increasing Canadians' appreciation of wild birds and their habitats; and advancing the conservation of Canadian birds. Comments from the Trustees included, "Sound proposal, strong volunteer component, important species and topic, and seems to be well focused on what needs to be done.", "…this new monitoring initiative is an excellent fit to the Baillie Fund criteria and is well thought-out and laid out.", and "I am very impressed with this

group... WildResearch has consistently expanded this project since its early days. Aerial foragers are of great concern. Excellent volunteer involvement."

Last year, Elly Knight, keen to ensure the perennity of the Survey, began discussions with Birds Canada and Environment and Climate Change Canada at the International Ornithological Congress in Vancouver. One of the particularly urgent conservation concerns for Birds Canada is the rapid decline of aerial insectivores and it already conducts work on diurnal species within this guild, such as Chimney Swifts and swallows. It has long appreciated the importance of the Nightjar Survey and was keen to help ensure its future. Environment and Climate Change Canada was also convinced of the long-term value of the project for determining trends and informing conservation actions, and earlier this year, after discussions with WildResearch it provided support to Birds Canada to assume national coordination. With this transfer, the Canadian Nightjar Survey joins ranks with over 40 long-term monitoring projects, including the national Nocturnal Owl Survey and Canadian Lakes Loon Survey, and the international Project FeederWatch and Christmas Bird Count.

Birds Canada's National Data Centre team, particularly Catherine Jardine, who has long been associated with the Nightjar Survey, has been working this year to develop the new bilingual data entry and management portal in NatureCounts, which the project will be using in future years. Although there will be some differences with the online atlas for route selection and data entry that has been used in the past, Birds Canada is confident that returning participants will quickly adapt to these.

The goal of the NatureCounts website, which is managed by Birds Canada and is already a storehouse for the WildResearch Nightjar Survey data, is to facilitate the collection, management, analysis and sharing of natural inventory and monitoring data, with a particular focus on birds. NatureCounts is also the first Canadian node of the Avian Knowledge Network, a group dedicated to the understanding of the patterns and dynamics of bird populations across the Western Hemisphere. Through NatureCounts, participants will be able to enter and review their data online, and visitors will be able to view data summaries and access data.

Birds Canada is delighted to be able to help the continued expansion of the survey developed by WildResearch, and, in the future, hopes to be able to establish a scholarship for students working on nightjars, particularly studies using data from the Canadian Nightjar Survey. It is also hoped that the valuable data collected by the volunteer community scientist who participate in this project will inform future issues of the *State of Canada's Birds* report, hopefully showing improved trends for aerial insectivores. public.

7.2. New Quebec Chapter

By Andrew P. Coughlan, Quebec Regional Coordinator

Andrew Coughlan out conducting bird surveys!

We are pleased to announce that as of 2020, there will be an active chapter of the Canadian Nightjar Survey in Québec, where both the Common Nighthawk and the Eastern Whip-poor-will breed. The Second Atlas of the Breeding Birds of Southern Québec that was published earlier this year classified both species as uncommon migratory breeders with contracting ranges and declining populations. Given this and their current federal status, and the fact that they are likely to be provincially listed as threatened or vulnerable, it is important that long-term monitoring efforts are established in Québec to help inform conservation actions.

In Québec, the Common Nighthawk breeds up to about the 55th parallel and the Eastern Whip-poor-will, up to about the 50th parallel. The latter species, which is at the northeastern edge of its range in the province, breeds primarily in the St. Lawrence Lowlands and along the lower edge of the Southern Laurentians. Although some individuals do breed further north, its distribution is much sparser beyond the 47th parallel.

Andrew Coughlan will be responsible for coordinating efforts in Québec and is looking forward to helping ornithologists from the province collaborate in this national community science initiative. I have been the Québec regional director for Birds Canada since 2008. In particular, I coordinate the Marsh Monitoring Program, Nocturnal Owl Survey and Beached Bird Survey for the province, and am a member of the Management Committee of the Québec Breeding Bird Atlas. I obtained a master's degree in forest science from Laval University in 1998, and have a wide range of experience working with birds. Before taking up my position with Birds Canada, I worked for 10 years as a research officer at Laval University. I am also a member of the Scientific Committee of the Observatoire d'oiseaux de Tadoussac and the secretary of the Baillie Fund.

8. THANK YOU

By Virginia Noble-Dalton, WildResearch Director

The WildResearch Board of Directors would like to thank Elly Knight for her hours of volunteer dedication to growing the Canadian Nightjar Survey program to where it is today. In 2014, Elly expanded the BC Nightjar Survey from the Okanagan to all of BC and within a few years she has turned the program into a national program! Elly embodies WildResearch's mission, which is to build, train and educate a community that contributes to conservation science. Elly has: helped train hundreds of citizen scientists across Canada to conduct nightjar surveys, she has mentored

and trained 3 early career biologists and a number of undergraduate students, and she has fostered nightjar conservation efforts through collaborative relationships and strong scientific analysis. It is impossible to not fall in love with nightjars after having a conversation with Elly. It takes a special kind of person to grow a project nationally in one's volunteer time. We are proud of Elly for everything that she has accomplished as Program Manager and we are happy that she is staying on as Regional Coordinator of Alberta and look forward to more of her scientific publications on nightjars. We are excited to see how the Canadian Nightjar Survey continues to grow under the management of Birds Canada and new program manager Andrew Coughlan. Thank you Elly.