



Landbirds at Risk in Forested Wetlands Project

2017 GUIDE FOR VOLUNTEERS

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This is a multi-year project. This document pertains to field surveys for 2017 only.

For more information, please visit the project website:

LandbirdSAR.merseytobeatic.ca

OR

Email the Volunteer Coordinator

LandbirdSAR@merseytobeatic.ca

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Project Overview

Background: The Canada Warbler, Olive-sided Flycatcher, and Rusty Blackbird are three landbird Species at Risk (SAR) that breed in forested wetlands in Nova Scotia. These habitats are important but poorly understood; like these SAR landbirds, forested wetlands are declining due to direct or indirect human impacts. Effective conservation of these landbird SAR in Nova Scotia requires an understanding of what constitutes quality breeding habitat and how it is distributed across the landscape. Currently, a lack of such information presents a significant challenge to developing strategies to reverse population declines.

The *Landbirds at Risk in Forested Wetlands Project* builds on research, monitoring and stewardship activities led by Dr. Cindy Staicer and her students at Dalhousie University between 2010 and 2016. These include PhD research conducted by Dr. Alana Westwood on breeding habitats of these SAR and a partnership for landbird conservation with the Mersey Tobeatic Research Institute. The current project is aligned with forested wetland bird and habitat work conducted by Dr. John Brazner, Nova Scotia Department of Natural Resources, and by Bird Studies Canada and their volunteers in parts of New Brunswick, Nova Scotia, and Prince Edward Island.

This project is also an important component of a larger, collaborative three-year initiative entitled *Biodiversity and Ecosystem Functioning of Forested Wetlands across Atlantic Canada*. This project aims to synthesize existing knowledge, and to generate new knowledge, in order to achieve a better understanding of forested wetlands in this region. This knowledge will increase the capacity for conservation of forested wetland habitat and its biodiversity, including landbird SAR and other species at risk, and will produce a framework for reducing impacts of land use and climate change on biodiversity and ecosystem function of forested wetlands.

Purpose and scope: The Landbirds at Risk Project is recruiting volunteers to conduct field surveys for Canada Warbler, Olive-sided Flycatcher, and Rusty Blackbird across Nova Scotia in 2017 and 2018. The focus is on revisiting sites where these SAR have been found in recent years, such as during the last Maritime Breeding Bird Atlas. The purpose is to determine which sites still support breeding populations of these birds and thus should be a priority for conservation.

Impact: This project is expected to enhance conservation efforts for Canada Warbler, Olive-sided Flycatcher, and Rusty Blackbird in Nova Scotia by improving understanding about what constitutes high quality habitat and by identifying sites that are most important to conserve. It will also provide information useful in assessing the conservation needs of these species and in evaluating the relative value of different lands.

Short-term objectives: (1) Survey sites across Nova Scotia for these SAR; (2) quantify the habitat at these sites; (3) rank sites by the quality of breeding habitat they provide, based on the density of SAR individuals, level of breeding evidence, and persistence of their populations; (4) determine how habitat differs between these sites of higher and lower quality; and (5) characterize the bird communities associated with different types of forested wetlands.

Longer-term objectives: (1) Identify high-quality sites with significant breeding populations in Nova Scotia; (2) develop models to predict the distribution of high quality breeding habitat in Nova Scotia; (3) work with stakeholders to steward the breeding habitat at important sites; (4) provide data on current distribution and relative abundance; and (5) provide a foundation for monitoring populations of these birds into the future and allow changes in bird populations to be tracked over time.

Volunteering for the Project

Dalhousie Biology staff and students will be conducting surveys for these birds and quantifying their habitat in spring and summer of 2017 and 2018. The scope of these efforts can be greatly enhanced by contributions from volunteers across Nova Scotia. This guide explains how to participate, from determining your participation level and registering, to conducting surveys and submitting observations.

Anyone can participate as a volunteer! Observers of all birding skill levels can make meaningful contributions to this project. Your contribution can range from submitting “casual observations” when you encounter these birds, to completing a structured survey at pre-determined sites. Each observation will help identify breeding sites that still support these SAR.

Please note: By volunteering for this project, you are agreeing to participate at your own risk and expense.

To participate in field surveys, you must be able to identify Rusty Blackbirds, Olive-sided Flycatchers, and Canada Warblers by sight and sound. Volunteers will be emailed a 30-sec mp3 file for each SAR to help them learn the vocalizations of these birds. Additional training resources and links can be found on our project website: **landbirdsar.merseytobeatic.ca**.

Thank you for participating as a volunteer in the Landbird Species at Risk in Forested Wetlands Project! We appreciate your assistance. The data you collect will help conserve these birds and their habitats in Nova Scotia.

Survey Levels

Three Survey Levels, ordered below by increasing effort and skill level, have been developed to accommodate volunteers with a range of skill levels, interests, equipment, and time availability. Please choose a Survey Level that suits you. Keep in mind that *all observations of these SAR are valuable*. Also please note that information about where the birds *were not* found is important too and will help to conserve these birds and their habitats!

Survey Level 1 consists of making “casual observations,” or observations of any of our three SAR outside of a structured survey (e.g. while birding, hiking, camping, or canoeing). These observations help us identify new areas where these birds may be breeding. If you wish, the Volunteer Coordinator can suggest sites to visit.

Survey Level 2 consists of a structured playback survey at sites where one or more of our three SAR have been previously observed (sites provided by the Volunteer Coordinator). These surveys include a 5-min *listening component* followed an 11.5-min *playback component* that targets the three SAR. These surveys will help us determine which sites still support these birds.

Survey Level 3 consists of a structured point count and playback survey at sites where one or more of our three SAR have been previously observed (sites provided by the Volunteer Coordinator). These surveys include a 10-min *point count* where individuals of all bird species are recorded, followed an 11.5-min *playback component* to target the three SAR. These surveys will help us determine which sites still support these birds as well as document the avian community. To participate at this level you must be able to identify most landbird species in Nova Scotia by sight and sound, particularly the songs of the males and other species-specific sounds, such as woodpecker drums. *Note:* If you wish to conduct point counts but are uninterested or unable to do playback surveys, please sign up for survey level 3a (point counts without playbacks).

Comparison of Survey Levels

Detail	Level 1	Level 2	Level 3
Survey Name	Casual Observation	Listening and Playback Survey	Point Count and Playback Survey
Survey Components	- Incidentally observe target SAR - Four habitat photos	- 5-minute listening period - 11.5-minute playback period - Four habitat photos	- 10-minute point count - 11.5-minute playback - Four habitat photos
Effort	Low	Moderate	High
Time of Year	April 24 - July 31	April 24 - July 9	May 25 - July 9
Time of Day	Any time of day	<i>Rusty Blackbird only:</i> - April 24 through May 24 (western NS) or May 31 (eastern NS): All day <i>All three SAR:</i> - May 25 (western NS) or June 1 (eastern NS) through July 9: Between 30-mins minutes after sunrise and 10:00 AM	- May 25 (western NS) or June 1 (eastern NS) through July 9 - Between 30 minutes after sunrise and 10:00 AM
Survey Duration	5 minutes	16.5 minutes, not including set up or travel time to / from site	21.5 minutes, not including set up or travel to / from the site
Skill Required	Ability to identify at least one of the three SAR by sight and/or sound	Ability to identify all three SAR by sight and sound	Ability to identify most landbirds of Nova Scotia by sight and sound, including the three SAR
Required Equipment	- Survey Level 1 datasheet - Camera (includes phone camera) - Pencil/pen	- Site map and directions - Survey Level 2 datasheets - Code Sheet - "Survey Level 2" mp3 file - Portable speaker - Binoculars - Camera (includes phone camera) - Timepiece - Clipboard - Pencil/pen	- Site map and directions - Survey Level 3 datasheets - Code Sheets (2) - "Survey Level 3" mp3 file - Portable speaker - Binoculars - Camera (includes phone camera) - Timepiece - Clipboard - Pencil/pen
Optional Equipment	- Code Sheet - GPS, smartphone, or map to get coordinates	- GPS, smartphone, or map to get coordinates	- GPS, smartphone, or map to get coordinates
Protocol (in brief)	- If you see or hear a target SAR, complete the datasheet - Take 4 habitat photos at 90° directions	- Fill out site and weather information on your datasheet - Begin survey by starting the "Survey Level 2" mp3 - Listen and look for SAR during a 5-minute listening period, recording SAR on the datasheet - Make observations while vocalizations of SAR play in sequence, each followed by a short listening period - Take 4 habitat photos at 90° directions	- Fill out site and weather information on your datasheet - Begin survey by starting the "Survey Level 3" mp3 - Listen and look for all birds during a 10-minute point count, recording all birds on the point count datasheet - Make observations while vocalizations of SAR play in sequence, each followed by a short listening period - Take 4 habitat photos at 90° directions

Please note that all equipment except for datasheets, maps, and mp3 files, must be provided by volunteers

Registration

Once you have decided on your participation level, please visit the “Register to Volunteer” page of our website (landbirdsar.merseytobeatric.ca/sign-up-to-volunteer) and complete the registration form. If you are able to volunteer for a structured survey (Levels 2 and 3) but are also willing to submit casual observations of birds you happen to encounter (Level 1), you can register for multiple Survey Levels.

Once you have registered, you will receive a confirmation email. If you would like to change any information you provided during registration (e.g. Survey Level or number of surveys you would like to complete), please email us at landbirdsar@merseytobeatric.ca and we will update your information.

Information for Participants

Identifying Your Location

If you are submitting casual observations (Survey Level 1), you must tell us where you found a SAR. You may do this by providing a description (e.g. by #73 SE St, Yarmouth, at the southwest end of Broad Brook Wetland Park) or coordinates (latitude/longitude or UTM, recommended). Providing coordinates allows us to pinpoint the exact location of a SAR, which is important information for this project.

Even if you are visiting a pre-determined site (Survey Levels 2 and 3), providing location information in coordinates is recommended to verify the location of your survey. Coordinates can be determined using a map, GPS, or smartphone.

Using a GPS to Find Coordinates

Marking a waypoint on a GPS will display the coordinates. If using UTM's, ensure the device is set to **NAD83 datum**. If a different datum is used, coordinates may be incorrect by up to several hundred meters.

Using a Smartphone and Google Maps / iPhone Maps to Find Coordinates

This technique requires having a smartphone with the Google Maps or iPhone Maps app, cellular data, and the *location/GPS* function of the phone enabled. Open the map app and your location will be indicated by a blue dot. Zoom in and drop a pin by holding your finger down on the screen over the dot. The coordinates of the pin will be displayed. For more tips on finding coordinates, see these short instructional videos for iPhone and Android:

iPhone: https://www.youtube.com/watch?v=HgL_PzImfO0.

Android: <https://www.youtube.com/watch?v=mm3z0YbmVHM>

Habitat Photos

We are asking volunteers to take four digital photos of sites they surveyed. These photos will document the habitat and help us describe the range of suitable breeding habitat for our three SAR. These photos may be taken with digital cameras or phone cameras.

Take four photos at approximately 90° angles to one another at the site. For example, you can take a photo in each cardinal direction (north, south, east, and west) or simply pick a random direction for the first photo, and rotate 90° for each of the next three photos.

If you are unable to take habitat photos, we still want your observations!

Minimizing Disturbance

As Rusty Blackbirds, Olive-sided Flycatchers, and Canada Warblers are species at risk, special care must be taken to minimize disturbance. When you find one of these SAR, please observe it from a distance for the duration of your survey, but then leave the area to avoid causing the bird stress. If you locate a nest of any species, please DO NOT touch it or take photos! Leave the area and make note of the nest on a datasheet. Lingering around a nest will needlessly agitate the adult birds and may draw the attention of predators. Every effort must be made to promote the success of nests, not only of our SAR, but of all bird species.

Please also note that the forested wetlands that our SAR inhabit may be home to many rare and sensitive plant species. We ask that you take as much precaution as possible to avoid trampling the vegetation.

Breeding Codes (optional)

An important objective of this project is to determine whether Rusty Blackbirds, Olive-sided Flycatchers, and Canada Warblers are actually breeding at sites where they are found. To that end, volunteers have the option to record breeding evidence codes for each observation of these species. These codes help us confirm if a bird is breeding, based on observing the bird and its behaviour.

We are using codes modified from the Maritimes Breeding Bird Atlas (www.mba-aom.ca). The relevant codes are listed below from lower to higher level of breeding evidence: observed (X), possible (S), probable (P, D, V, A), and confirmed breeding (NB, FY, FS, CF, AN).

Please record the highest-level code (e.g. if you see a male Canada Warbler singing [code S], and later interacting with a female [code D], you should record “D”). The use of these codes is *optional*. If you are unsure, please leave the field blank.

Breeding Code	Description
X	Species observed in its breeding season (no additional information)
S	Singing males(s) present
P	Pair observed
D	Courtship or display, including interaction between a male and a female, such as chasing, courtship feeding or copulation
V	Visiting probable nest site
A	Agitated behaviour or anxiety calls of an adult
NB	Nest building or carrying nesting materials
FY	Recently fledged young, including incapable of sustained flight
FS	Adult carrying fecal sac
CF	Adult carrying food for young
AN	Adult at nest

Weather and Noise Codes

Volunteers for Casual Observations (Level 1) can skip this section.

For the structured surveys (Levels 2 and 3), we are asking volunteers to record weather conditions and excessive noise during the surveys. The reason is that bird activity, and our ability to hear and see birds, is affected by weather and noise. Volunteers for Levels 2 and 3 will receive a one-page Code Sheet with weather and noise codes to print and carry on surveys. These are described below.

The **Beaufort Scale** is a standard measure of wind condition. If the wind code is higher than 3, do not survey as your hearing and bird activity will be impacted.

Wind (Beaufort Scale)
0 = Calm, smoke rises vertically (<2 km/h)
1 = Light air movement, wind direction shown by smoke drift (2-5 km/h)
2 = Slight breeze, wind felt on face, leaves rustle (6-12 km/h)
3 = Gentle breeze, small twigs in constant motion, light flags extend (13-19 km/h)
4 = Moderate breeze, small branches move, dust raised (20-29 km/h); NO SURVEY
5 = Fresh breeze, small trees sway (30-38 km/h); NO SURVEY

Record the **Cloud Cover and Precipitation** code that best fits at the time you start your survey. If the precipitation code is 3 (rain), do not survey as your hearing and bird activity will be impacted.

Cloud Cover	Precipitation
1 = 0-25%	1 = None
2 = 25-50%	2 = Trace (drizzle)
3 = 50-75%	3 = Rain; NO SURVEY
4 = 75-100%	
5 = Fog	

Noise could be due to cars or airplanes, running water, frogs, or a number of other sources. Use your judgement – if you arrive at your site and you think noise is too loud to hear a distant bird, consider waiting until the noise subsides, revisiting when there is less traffic (either earlier in the day or on a weekend), or in the case of a fixed noise such as loud running water, contact us to assign another site for you. Also please record the number of vehicles that pass you during the survey if you are along a road.

Noise Level
1 = None or slight, relatively quiet, little interference
2 = Moderate, some interference with broadcast and/or listening
3 = High, substantial interference with broadcast and/or listening; NO SURVEY
4 = Excessive noise, extreme interference with broadcast and/or listening; NO SURVEY

Playback as a Tool

Volunteers submitting Casual Observations (Level 1) can skip this section.

Broadcasting playback (recordings of bird vocalizations) greatly increases the chance of an observing a species. Playback of male song mimics a male intruder of the same species, which is perceived as a threat to territory and mate. In response, the territorial male often sings or approaches or does both, making its presence known, to

ward off the intruder. Thus playback can make a bird detectable that would otherwise remain hidden during a survey. Using playback will allow volunteers to more accurately determine if a SAR is present or absent at a site.

Nonetheless, playback must be used cautiously. To minimize possible negative effects, our surveys use only 30 seconds of playback of a species, a very brief period. Please DO NOT broadcast SAR playbacks more than once at a site, and never broadcast them outside of your survey. The welfare of these birds must be a priority.

Speakers for Playback

Volunteers submitting Casual Observations (Level 1) can skip this section.

Volunteers planning to conduct Level 2 or 3 surveys will need a small, portable, outdoor speaker to broadcast the required mp3 file during playback surveys. Suitable speakers include the *Pyle portable PA system* that plays mp3 files from a USB stick, phone, or mp3 player. Speakers are suitable if they can pass the test described below.

Speaker Test

This test takes about 10 minutes to complete and should be done before your survey (but not at your survey site!). Two people are needed for this test.

Find an open, quiet area. One person should operate the speaker while the other stands 100 paces (approximating 100 m) away. The 30-sec Canada Warbler vocalization file (emailed to you for training) should then be played at the maximum volume possible without being distorted. The person 100 m away should be able to hear the Canada Warbler vocalizations clearly.

Safety

To keep your volunteering experience enjoyable and safe, please take a few precautions before heading to your survey site:

- Tell someone where you will be and when you plan to return
- Whenever visiting an area off the beaten path, please bring a friend
- Bring a cell phone
- Wear suitable clothing and footwear; rubber boots may be needed for some sites
- Bring insect repellent, sunscreen, and a hat
- Be familiar with black bear and coyote safety. For tips, read this [Parks Canada brochure](#)
- Always keep a safety kit nearby, with items such as:
 - small first aid kit that you can carry with you
 - whistle
 - pocketknife
 - water
 - flashlight
 - raincoat and/or safety blanket
 - high-energy snacks (granola bars, trail mix, chocolate)

Submitting Your Survey Data

****** If you surveyed a site but did not find any SAR, we still need your datasheets! Information about where a species was NOT found is just as important as information about where it WAS found. Both are important in determining what sites still support SAR and which do not.******

How to Submit Datasheets

When you have finished your surveys, please submit completed datasheets either by mail or email:

(1) Mail to: Dr. Cindy Staicer
P.O. Box 15000
Biology Department, Dalhousie University
Halifax, Nova Scotia, B3H 4R2

(2) Email scanned sheets to the Volunteer Coordinator at: **landbirdSAR@merseytobeatic.ca**

How to Submit Habitat Photos

Habitat photos should be taken *regardless of whether SAR were detected*. See Page 7 for more details.

If you can rename your photos, please do so using the following format:

name_sitename_ddmmmyyyy_photo#

For example, if Sydney Bliss surveyed site BogRd on May 23, her second photo would be called: sbliss_BogRd_23may2017_2.

Please email habitat photos to **landbirdSAR@merseytobeatic.ca**, and include the observer/scribe name and site name in the body of the email. If you surveyed multiple sites, please send each set of photos in a separate email.

Deadlines

Datasheets for **Surveys Levels 2 and 3** should be returned as soon as your surveys are complete and by **July 10** at the latest. The information you provide will be used to prioritize sites for habitat surveys in July and August.

Datasheets for **Casual Observations (Level 1)** should be returned by **July 31**.

Instructions Specific to the Three Survey Levels

The remainder of this guide provides detailed instructions for participating as a volunteer at each of the three levels. You only need to read the parts that pertain to your participation level. If you have any questions, please email us at **landbirdSAR@merseytobeatic.ca**

Thank you for your participation! Good luck, and have fun!

Survey Level 1: Casual Observations

Participating in Survey Level 1 consists of making “casual observations,” or observations of any of our three SAR outside of a structured survey (e.g. while walking in a park, on a hike, while birding,). These observations will help us identify new breeding sites. If you wish, the Volunteer Coordinator can suggest sites to visit.

When to Conduct Your Survey

Casual observations can be recorded at any time of the day between *April 24* (when Rusty Blackbirds begin to arrive at breeding sites in Nova Scotia) and *July 31, 2017* (when the breeding season of all three SAR is complete and migration begins).

How to Conduct Your Survey

The *Checklist and Protocol* below shows what you need and the steps involved in the survey. Before conducting your survey, please examine the Volunteer Casual Observation Datasheet and ensure you understand how to complete it. See *How to Complete the Survey Level 1 Datasheet* (page 13) and the *Example of a Completed Volunteer Casual Observation Datasheet* (page 14). If you have any questions, please contact us.

You will be emailed the datasheet required to complete your survey. You can also download the datasheet from our website (landbirdsar.merseytobeatic.ca/downloads).

Checklist and Protocol (Level 1)

<i>Checklist:</i>	
Survey Components	<input type="checkbox"/> Volunteer Casual Observation Datasheet <input type="checkbox"/> Four habitat photos
Location	Anywhere you find a Rusty Blackbird, Olive-sided Flycatcher or Canada Warbler
Time of year	April 24 to July 31, 2017
Time of day	Any time of day
Survey Duration	About 5 minutes to complete the Volunteer Casual Observation Datasheet
Skill	Able to identify at least one of the three SAR by sight and/or sound
Materials	<input type="checkbox"/> SAR Volunteer Casual Observation datasheet <input type="checkbox"/> Camera or cell phone for taking habitat photos <input type="checkbox"/> Pencil/pen <input type="checkbox"/> Code Sheet (optional; includes Breeding Evidence Codes) <input type="checkbox"/> GPS, smartphone, or map to determine coordinates (optional)
<i>Survey Protocol:</i>	
<ol style="list-style-type: none"> 1. If you find a Rusty Blackbird, Olive-sided Flycatcher or Canada Warbler, complete a <i>Volunteer Casual Observation Datasheet</i>, using the <i>Code Sheet</i> to assign a breeding code (optional). 2. Take four habitat photos of the site at 90° directions. 3. Submit the datasheet and photos by July 31, 2017. 	

How to Complete the Datasheet (Level 1)

The table below explains the fields on the Casual Observation datasheet. An example is shown on page 14.

General Information	
Observer name(s)	First and last name of everyone who saw the SAR.
Date	Format day-mon-year (write out the month: MAY, JUN, JUL).
Province	We accept casual observations from other Atlantic provinces, but our focus is NS
Nearest municipality	Name of the nearest city, town or village.
Did you take four habitat photos?	Check YES! or NO.
Characterize the habitat	Check all boxes that apply to the site, and/or describe in your own words
Details to re-locate the site (a)	Describe how to get to the site where you saw the SAR. Be specific (e.g. along what road or lake, near what address, on what hiking trail, how far from what trailhead, in what park, other useful landmarks).
Details to re-locate the site (b)	Coordinates of the site in latitude/longitude (decimal degrees) or UTMs
Georeference method	Method used to get coordinates in (b) – circle one of GPS, phone, or map
Species at Risk Information	
Species	Circle the SAR you observed (Rusty Blackbird, Olive-sided Flycatcher, or Canada Warbler). If you found more than one species at the same site on the same visit, fill out a separate datasheet for each species (but only fill in the name(s) and date sections on the additional data)
Number of birds	Number of adult males, adult females, and young you observed. If unsure of the age and sex of the bird(s), record as “Unknown”
Time	Approximate time you saw the SAR. Check AM or PM
Detection	Circle how you detected the SAR (only seen, only heard, or both saw and heard)
Closest distance to the bird	Estimate how far away you were from the SAR. If it was moving around, estimate how close the bird got to your position. Check metres or feet
Direction to bird	If known, circle N, NE, E, SE, S, SW, W, or NW. If unknown, leave blank.
Behaviour	What the SAR was doing when you observed it. Check all that apply. If you are unsure of the behaviours listed, or there were additional behaviours, describe the behaviour in the “Additional observations or comments” section.
Additional observations or comments	Anything else about the observation of interest or concern.
Breeding code (optional)	Refer to the Code Sheet. Do not record a code unless you are sure it is correct. No code is better than an incorrect code.

eBird: Checklist sharing option

If you have an eBird account, you can submit casual observations by sharing your checklist with our project account! You can share a checklist in one of two ways: (a) after submitting a checklist, click the “Share w/ Others in Your Party” link on the right of the confirmation page, (b) from the Manage My Checklists page, click the “Share” link. Either of these methods will open the Checklist Sharing page. Simply enter our username, **LandbirdSAR**, under “To” and click “Share Checklist.” A stationary checklist is most useful. If possible, please make the location of the checklist the specific site where you saw a Rusty Blackbird, Olive-sided Flycatcher, or Canada Warbler to pinpoint exactly where you found the SAR.

Example of a Completed Casual Observation Datasheet (Level 1)

Landbirds at Risk in Forested Wetland Project 2017 – Volunteer Casual Observation Datasheet (Survey Level 1)

If you have questions about how to fill in certain fields, please contact landbirdsar@merseytobeatic.ca for clarification. If you are unable to contact us, please leave those fields blank. Incomplete sheets are still acceptable!

Please fill out a new sheet for each Species at Risk found at the same site.

General Information	
Observer name(s): <u>Sydney Bliss, Laura Achenbach</u>	
Date: <u>4</u> / <u>JUL</u> / <u>2017</u> Province: <u>NS</u> Nearest municipality: <u>Annapolis Royal</u> <small>dd mmm yyyy</small>	
Did you take four habitat photos? <input checked="" type="checkbox"/> YES! <input type="checkbox"/> NO (remember to send your photos along with this form)	
Please characterize the habitat at the site by checking all boxes that apply and/or briefly describing in words below:	
<input type="checkbox"/> treed bog/fen <input type="checkbox"/> shrub bog/fen <input type="checkbox"/> open bog/fen <input type="checkbox"/> swamp <input type="checkbox"/> floodplain along river <input checked="" type="checkbox"/> alder thicket <input type="checkbox"/> lakeshore <input checked="" type="checkbox"/> marsh <input type="checkbox"/> conifer forest <input type="checkbox"/> deciduous forest <input type="checkbox"/> mixed forest <input type="checkbox"/> regenerating forest <input type="checkbox"/> clearcut <input type="checkbox"/> roadside ditch <input type="checkbox"/> residential <input type="checkbox"/> farm	
<u>In a clump of shrubs by a marshy pond. Very close to roads and residential areas. Few trees</u>	
Provide details needed to re-locate the site. You may (a) describe how to get there and/or (b) provide coordinates.	
(a) Description of how to locate this spot. Be specific (e.g. along what road or lake, near what address, on what hiking trail, how far from what trailhead, what park, other useful landmarks):	
<u>French Basin Trail in Annapolis, ^{halfway} along the trail at the far side of the pond near the lookoff</u>	
(b) Coordinates in either Decimal degrees or UTM's: Georeference method (circle one): GPS <u>phone</u> map	
Decimal degrees: Latitude: <u>44.745529</u> ° Longitude: <u>-65.507473</u> °	
OR	
UTM (NAD 83): Zone Easting, 6 digits Northing, 7 digits	
Species at Risk Information – remember to fill out a separate sheet for each species at risk	
Species (circle one): Rusty Blackbird Olive-sided Flycatcher <u>Canada Warbler</u>	
Number of birds: Males <u>1</u> Females <u> </u> Young <u> </u> Unknown <u> </u> Time: <u>9</u> : <u>30</u> <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM <small>hr min</small>	
Detection (circle one): bird(s) seen only / <u>heard only</u> / seen and heard	
Closest distance to the bird(s): <u>15</u> <input type="checkbox"/> m <input checked="" type="checkbox"/> ft Direction to bird (circle if known): N, NE, E, SE, S, SW, W, NW	
Behaviour (check all that apply): Additional observations or comments: <u>Heard singing in the bushes across the trail from the pond. Only sang once. Tried to catch a glimpse with my binoculars but for about 10 min but no luck</u>	
<input checked="" type="checkbox"/> singing male <input type="checkbox"/> female seen or heard <input type="checkbox"/> male & female interacting <input type="checkbox"/> nest or carrying nest material <input type="checkbox"/> carrying food <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> young observed	
Breeding code (optional – see Code Sheet): <u>S</u>	

Please submit completed sheets in one of two ways:
 (1) Mail sheets to Dr. Cindy Staicer, Biology Department, PO Box 15000, Dalhousie University, Halifax NS, B3H 4R2; or
 (2) Scan sheets and email to landbirdsar@merseytobeatic.ca

Survey Level 2: Listening and Playback Survey

Participants in Survey Level 2 will conduct a structured playback survey at sites where one or more of our three SAR have been previously observed (sites provided by the Volunteer Coordinator). These surveys will include a 5-min *listening component* followed an 11.5-min *playback component* that targets the three SAR. These surveys will help us determine which sites still support these birds.

When to Conduct Your Survey

Rusty Blackbird surveys can be done at any time of day from April 24 through May 24 or 31 (*western or eastern NS, respectively*). During this period, the other two SAR may not have arrived. Also, Rusty Blackbirds are vocal all day, while Olive-sided Flycatchers and Canada Warblers are mainly vocal in the morning.

Surveys for all three SAR can be done from May 25 or June 1 (*western or eastern NS, respectively*) **through July 9**. Surveys must be conducted between 30-mins after sunrise and 10:00 AM. [Environment Canada Weather and timeanddate.com](#) are online resources that give sunrise times for most communities in NS.

Weather affects bird activity, and wind and other noise affects our ability to hear birds. Surveys should only be done in conditions where you can hear well – don't survey in steady rain, when wind is greater than 20 km/hr, or if there is excessive noise at the site.

Playback Component

Please review the section *Playback as a Tool* (Page 9) and *Test your speakers* (Page 10) before your survey.

An mp3 file will be emailed to Survey Level 2 volunteers. This file must be played over a speaker for the entirety of your survey to keep track of the different survey components. This file is 16.5-mins long and titled "Survey Level 2." It begins with 5 minutes of silence (the *listening component*) followed by the 11.5-minute *playback component*.

The *playback component* begins with a 30-sec playback of Rusty Blackbird vocalizations, followed by a 2.5-min listening period. Then, 30 seconds of Olive-sided Flycatcher vocalizations plays, followed by a 2.5-min listening period. Finally, 30 seconds of Canada Warbler vocalizations plays, followed by a 5-min listening period. This will ensure everyone listens for at least 5 minutes following each species' vocal playback.

During the playback component of Survey Level 2, volunteers need to indicate whether each SAR was detected before its species' playback started or after it started (e.g., did the Canada Warbler start singing after the Canada Warbler recording started to play, or had it already sung earlier in the survey?). This is important as we can then examine the effect of playback on SAR detectability and the effectiveness of playback as a survey tool.

How to Conduct Your Survey (Level 2)

You will be emailed the datasheet required to complete your survey. You can also download a copy from our website (landbirdsar.merseytobeatic.ca/downloads).

Before conducting your survey, please examine the Volunteer Listening and Playback Survey Datasheet and ensure you understand how to complete it. For instructions, see *How to Complete the Datasheet* on Page 17. An example of a completed datasheet is shown on Page 18. If you have any questions, please contact us.

Please note that volunteers must provide their own equipment and supplies required to complete these surveys.

Checklist and Protocol (Survey Level 2)

Checklist:	
Survey Components	<ul style="list-style-type: none"> • 5-minute listening period • 11.5-minute playback • Four habitat photos
Location	At pre-determined sites provided by the Volunteer Coordinator
Time season and day	Rusty Blackbird only: April 24 – May 24 (western NS) or May 31 (eastern NS): All day All three species: May 25 (western NS) or June 1 (eastern NS) through July 9: Between 30-minutes after sunrise and 10:00 AM
Survey Duration	16.5-mins, not including travel time to and from the site: <ul style="list-style-type: none"> • 5-min listening period • 11.5-min playback
Skill	Able to identify all three SAR by sight and sound
Equipment	<ul style="list-style-type: none"> <input type="checkbox"/> Clipboard for datasheets <input type="checkbox"/> Survey site map and directions <input type="checkbox"/> Volunteer Listening and Playback Survey Datasheet <input type="checkbox"/> Code Sheet <input type="checkbox"/> “Survey Level 2” mp3 file <input type="checkbox"/> Portable speaker <input type="checkbox"/> Binoculars <input type="checkbox"/> Camera or cell phone with camera <input type="checkbox"/> Timepiece (watch or cell phone) <input type="checkbox"/> Pencil/ pen <input type="checkbox"/> (Recommended) GPS, smartphone, or map to determine coordinates
Survey Protocol:	
<ol style="list-style-type: none"> 1. Travel to the site provided by the Volunteer Coordinator. Give yourself plenty of time to ensure you can arrive and complete the survey by 10:00 AM. If possible, test-run your travel route and find the location the day before. 2. Once at the site, fill in the blank fields at the top of the <i>Volunteer Listening and Playback Survey Datasheet</i> (not the table). Refer to the <i>Code Sheet</i> for Cloud, Precipitation, Wind, and Noise codes. 3. Begin survey by playing the “Survey Level 2” mp3 file on your portable speaker; a beep starts the 5-min silent listening period. Ensure the speaker volume is set as determined in the Speaker Test (Page 10). 4. Listen and look quietly for the three SAR during the 5-min listening period. If you detect a SAR during this period, record it in the table on the datasheet, indicating it was detected <i>before</i> playback. 5. Immediately after the 5-min listening, playback of SAR vocalizations will start. Record any SAR observed in the table on the datasheet, indicating whether or not you detected it <i>before</i> or <i>after its own species’ playback started</i>. Give each individual bird its own line on the table. The sequence of playback is: 30 seconds of Rusty Blackbird songs and calls, 2.5 minutes of silence, 30 seconds of Olive-sided Flycatcher songs and calls, 2.5 minutes of silence, 30 seconds of Canada Warbler songs and calls, and 5 minutes of silence, followed by a beep to mark the end of the survey. 6. Take four habitat photos of the site at 90° intervals. 7. Check datasheet for completeness. 8. Leave site and travel home. 9. Submit datasheets and photos by July 10, 2017. 	

How to Complete the Datasheet (Level 2)

The table below explains the fields on the Volunteer Listening and Playback Survey datasheet. The following page shows an example of a completed datasheet.

Observer(s)	First and last name of everyone who participated in the survey; put the scribe's name first.
Site	Name of the site as provided by the Volunteer Coordinator.
Date	Format day-mon-year.
Coordinates (recommended)	Coordinates of the site as determined by the volunteer (in decimal degrees or UTM's). This is optional, but it helps us confirm that you were able to get to the correct site.
Georeference method	Method used to get coordinates – circle one of GPS, phone, or map.
Did you test your speakers?	Check Yes! or No. Remember to test speakers before you reach your survey site.
Did you take 4 habitat photos?	Check Yes! or No. This is to remind you to take photos while standing at the site, in 90° intervals (e.g., N, E, S, W)
Start time	Format hour : minute. Check AM or PM (but note, these surveys should be done in the AM)
Clouds	Refer to the Code Sheet for the amount of cloud cover at the beginning of your survey.
Precipitation	Refer to the Code Sheet to indicate drizzle or rain at the beginning of your survey. If it is raining, do not survey .
Wind	Refer to the Code Sheet to indicate wind speed at the beginning of your survey. If the wind code is 4 or greater (>20 km/h), do not survey .
Noise Level	Refer to the Code Sheet to indicate the amount of ambient noise that might interfere with your ability to survey. If the noise level code is 3 or greater (high or excessive noise), do not survey . This category is subjective; use your best judgement!
Vehicles (#)	Record the number of vehicles that passed by if your survey was along a road.
Bird #	A reference number for each SAR you record in the table.
Species	Which SAR you observed (Rusty Blackbird, Olive-sided Flycatcher, and/or Canada Warbler).
Detected before or after playback of its own species began?	<p>If you see or hear a SAR <i>before</i> that species' playback starts, put "Y" in the Before column. If you see or hear a SAR at any point <i>after</i> that species' playback starts, put "Y" in the After column. If you see or hear the same individual SAR both <i>before</i> and <i>after</i> its playback, record "Y" in both columns. Both columns should say either "Y" or "N", based on when you detected (or didn't detect) the SAR.</p> <p><i>E.g.</i> An Olive-sided Flycatcher was heard during the 5-min listening component and Rusty Blackbird playback, but wasn't detected during or after the Olive-sided Flycatcher playback Put "Y" for Before? and "N" for After?</p> <p><i>E.g.</i> An unseen Canada Warbler was heard singing after the Canada Warbler playback was broadcast, but not before. Put "N" for Before? and "Y" for After?</p>
Bird seen?	Did you see the SAR? Answer Yes or No.
Closest distance to bird	Estimate how far away you were from the SAR. If it was moving around, estimate how close the bird got to your position. Check metres or feet.
Behaviours	What you observed the SAR doing. Check all that apply. If you are unsure of the behaviours listed, or there were additional behaviours, describe the behaviour in the Notes section.
Breeding Code (optional)	Refer to the Code Sheet. Do not record a code unless you are sure it is correct. No code is better than an incorrect code.
Notes	Anything else about the observation of interest or concern, using the Bird # to refer to individual SAR. <i>E.g.</i> #1 sang from the top of dead tree; birds #3 and 4 were paired

Example of a Completed Listening and Playback Survey Datasheet for Survey Level 2

Landbirds at Risk in Forested Wetlands Project 2017 - Volunteer Listening and Playback Survey Datasheet (Survey Level 2)

Start survey by playing the "Survey Level 2" mp3 file over your speaker. Record each **Rusty Blackbird**, **Olive-sided Flycatcher**, and **Canada Warbler** you detect during the survey (both the 5-min listening component and playback component). Remember to note whether you detect each individual both BEFORE and/or AFTER the beginning of playback of *its own species' songs and calls*.

Observer(s): Sydney Bliss Site: Three Brooks - 17 Date: 29 / MAY / 2017
dd mmm yyyy

Coordinates in either Decimal degrees or UTM's: Georeference method (circle one): GPS phone map

Decimal degrees: Lat.: 45.723407 ° Long.: -62.663944 °

OR UTM (NAD 83): _____
Zone Easting, 6 digits Northing, 7 digits

Did you test your speakers?
 Yes! No

Did you take 4 habitat photos?
 Yes! No

Start time: 8:14 AM PM Clouds: 5 Precipitation: 2 Wind: 3 Noise level: 1 Vehicles (#): 0
hr min

Bird #	Species (Rusty Blackbird; Olive-sided Flycatcher; Canada Warbler)	Detected before or after playback of its own species began?		Bird seen? (Y/N)	Closest distance to bird <input checked="" type="checkbox"/> m <input type="checkbox"/> ft	Behaviours (check all that apply)		Breeding Code (optional; see Code Sheet)
		Before? (Y/N)	After? (Y/N)			<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	
1	Canada Warbler	Y	Y	N NO	30	<input checked="" type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	S
2	Rusty Blackbird	Y	N	Y NO	10	<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	X
3						<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	
4						<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	

Notes (refer to Bird # when necessary) Bird #2 was perched in a tree when we approached the site and left before the Rusty Blackbird playback started.

Survey Level 3: Point Count and Playback Survey

Survey Level 3 consists of a structured point count and playback survey at sites in NS where our three SAR have been previously observed (sites provided by the Volunteer Coordinator). These surveys include a 10-min *point count* where all bird species are recorded, followed an 11.5-min *playback component* to target the three SAR. These surveys will help us determine which sites still support these birds as well as document the avian community. To participate at this level you must be able to identify most landbird species by sight and sound.

When to Conduct Your Survey

Surveys should be done at the peak of the breeding season for most species. In western NS, you can start on May 25; in eastern NS you can start on June 1. Surveys should not be conducted after July 9.

Surveys can be conducted anytime between 30-mins after sunrise and 10:00 AM. [Environment Canada Weather and timeanddate.com](#) are online resources that give sunrise times for most communities in NS.

Weather affects bird activity, and wind and other noise affects our ability to hear birds. Surveys should only be done in conditions where you can hear well – don't survey in steady rain, when wind is greater than 20 km/hr, or if there is excessive noise at the site. Please review the Weather and Noise Codes section for details. You will need a copy of the Codes Sheet for this survey.

Point Counts

The point count is a common tool to measure landbird abundance. Rather than providing a complete inventory of the birds at a site, a point count provides a standardized sample, essentially a snapshot of the birds present and detectable during a given time period. Most birds (typically over 90%) that are detected in point counts are only heard, and not seen. Thus, before you can conduct a point count, you will need to make sure you are able to identify most, if not all, landbirds in Nova Scotia by their vocalizations. Please practice if necessary.

Conduct your point count by standing quietly at the prescribed site for 10 minutes, recording all birds you see and hear during that period. It is important that you count for 10 minutes – no more, no less – to ensure your data is comparable with other point counts in the project. You may detect additional species before or after the 10-minute period. Additional species can be noted (this is optional) at the bottom of the point count data sheet.

Playback Component

Please review the section *Playback as a Tool (Page 9)* and be sure to *Test your Speakers (Page 10)* before conducting your survey.

An mp3 file will be emailed to Survey 3 volunteers. This file is 21.5-minutes long and titled "Survey Level 3." It begins with 10 minutes of silence (when you will conduct your *point count component*) followed by the 11.5-min *playback component*. This file must be played over a speaker for the entirety of your survey to keep track of the different survey components.

The *playback component* begins with a 30-sec playback of Rusty Blackbird vocalizations, followed by a 2.5-min listening period. Then, 30 seconds of Olive-sided Flycatcher vocalizations plays, followed by a 2.5-min listening period. Finally, 30 seconds of Canada Warbler vocalizations plays, followed by a 5-min listening period. This will ensure everyone listens for at least 5 minutes following each species' vocal playback.

During the playback component of Survey Level 2, volunteers need to indicate whether each SAR was detected before its species' playback started or after it started (e.g., did the Canada Warbler start singing after the Canada Warbler recording started to play, or had it already sung earlier in the survey?). This is important as we can then examine the effect of playback on SAR detectability and the effectiveness of playback as a survey tool.

How to Conduct Your Survey (Level 3)

You will be emailed all the datasheets required to complete your survey. You can also download copies from our website (landbirdsar.merseytobeatic.ca/downloads).

Please note that volunteers must provide their own equipment and supplies required to complete these surveys.

Before conducting your survey, please examine the Volunteer Point Count Datasheet and Volunteer Playback Component Datasheet to ensure you understand how to complete them. See Pages 21-22 for How to Complete the Datasheets and Pages 23-24 for Examples of Completed Datasheets. If you have questions, please contact us for clarification. The sections below list what you need for the survey and the steps to take when conducting it.

Checklist: Level 3 Survey components	<ul style="list-style-type: none"> • 10-min point count • 11.5-min playback • Four habitat photos
Location	At pre-determined sites provided by the Volunteer Coordinator
Time of year	May 25 (western NS) or June 1 (Eastern NS) to July 9, 2017
Time of day	Between 30-mins after sunrise and 10:00 AM
Survey Duration	21.5 mins, not including travel time to and from the site: <ul style="list-style-type: none"> • 10-min point count • 11.5-min playback
Equipment	<ul style="list-style-type: none"> <input type="checkbox"/> Survey site map and directions <input type="checkbox"/> Volunteer Point Count Datasheet <input type="checkbox"/> Volunteer Playback Component Datasheet <input type="checkbox"/> Code Sheets (weather, noise, breeding evidence, and species 4-letter codes) <input type="checkbox"/> "Survey Level 3" mp3 file <input type="checkbox"/> Portable speaker (and extra batteries if battery powered) <input type="checkbox"/> Binoculars <input type="checkbox"/> Camera (or camera phone) <input type="checkbox"/> Timepiece (watch or phone) <input type="checkbox"/> Clipboard or other flat surface to write on <input type="checkbox"/> Pencil/ pen <input type="checkbox"/> GPS, smartphone, or map to determine coordinates (<i>recommended</i>)
Survey Protocol:	
<ol style="list-style-type: none"> 1. Travel to the site provided by the Volunteer Coordinator. Give yourself plenty of time to ensure you can complete the survey by 10:00 AM. If possible, please find the location on a previous day. 2. Once at the site, fill in the blank fields at the top of the <i>Volunteer Point Count Datasheet</i>. Refer to the <i>Code Sheet</i> for the Cloud, Precipitation, Wind, and Noise Level codes. 3. Begin survey. Play the "Survey Levels 3" mp3 file on your portable speaker; a beep starts the 10-mins of silence for the point count. Ensure the speaker is at the volume you set during the Speaker Test. 4. Listen and look quietly for birds during the 10-min point count. Record each individual bird you detect (see the <i>Bird Species 4-letter Code Sheet</i>). Indicate how each bird was detected (e.g. song, call, visual). 	

5. After the 10-min point count, **immediately** switch to the *Volunteer Playback Component Datasheet*. Record any SAR observed in the table on the datasheet, indicating whether or not you detected it *before or after its own species' playback started*. Give each individual bird its own line on the table. The sequence of playback is: 30 seconds of Rusty Blackbird songs and calls, 2.5 minutes of silence, 30 seconds of Olive-sided Flycatcher songs and calls, 2.5 minutes of silence, 30 seconds of Canada Warbler songs and calls, and 5 minutes of silence, followed by a beep to mark the end of the survey.
6. Take four habitat photos of the site at 90° intervals.
7. Check both datasheets for completeness.
8. Leave site and travel home.
9. Submit datasheets and photos by **July 10, 2017**.

How to Complete the Datasheets (Level 3 - Point Count and Playback Surveys)

The table below explains the fields on the Point Count datasheet. See example of a completed sheet on page 23.

Observer	First and last names of everyone who participated in the survey; put the scribe's name first.
Site	Site name as provided by the Volunteer Coordinator.
Location (recommended)	Coordinates of the site as determined by the volunteer (in decimal degrees or UTM's). This is optional, but it helps us confirm that you were able to get to the correct site
Georeference method	Method used to get coordinates – circle one of GPS, phone, or map
Did you test your speakers?	Check Yes! or No. Remember to check your speakers before you reach your survey site!
Date	Format day – mon – year (e.g., 05-JUN-2016).
Start time	Format hour : minute
Clouds	Refer to the Code Sheet and record the cloud cover at the start of the survey.
Precipitation	Refer to the Code Sheet to indicate drizzle or rain at the beginning of your survey. If it is raining, do not survey .
Wind	Refer to the Code Sheet to indicate wind speed at the beginning of your survey. If the wind code is 4 or greater (>20 km/h), do not survey .
Temp (°C) (optional)	If you have a portable or car thermometer, record the temperature in degrees Celsius
Bird #	A reference number for each bird you record in the table
Species common name	The full common name of each bird detected in the point count. This can be filled out after you have finished your survey.
Species Code	The 4-letter code for the species. Refer to the Species Code Sheet for species often found in these habitats
Bird seen?	If you saw the bird – Yes or No.
Sound	Record all detections of each bird (song, call, drum, none).
Notes	Record anything else about the observation, such as interactions with other birds, particularly if the bird is a SAR.
Noise Level	Refer to the Code Sheet to indicate the amount of ambient noise that might interfere with your ability to survey. If the noise level code is 3 or greater (high or excessive noise), do not survey . This category is subjective; use your best judgement!
Vehicles (#)	Record the number of vehicles that drove by during your survey that were loud enough to influence your ability to listen for birds.
Additional species	Record any birds observed before or after the 10-min point count. <i>This is optional.</i>
Other comments	Anything about the survey of interest or concern.

The table below explains the fields on the Playback Component datasheet. See example of a completed datasheet on page 24.

Observer(s)	First and last name of everyone who participated in the survey; put the scribe's name first.
Site	Name of the site as provided by the Volunteer Coordinator.
Date	Format day-mon-year.
Coordinates (recommended)	Coordinates of the site as determined by the volunteer (in decimal degrees or UTM's). This is optional, but it helps us confirm that you were able to get to the correct site.
Georeference method	Method used to get coordinates – circle one of GPS, phone, or map.
Did you test your speakers?	Check Yes! or No. This is to remind you to test speakers before you reach your survey site.
Did you take 4 habitat photos?	Check Yes! or No. Remember to take 4 photos while standing at the site, in 90° directions (e.g., N, E, S, W)
Start time	Format hour : minute. Check AM or PM (but note, these surveys should be done in the AM)
Clouds	Refer to the Code Sheet to indicate the amount of cloud cover at the start of your survey.
Precipitation	Refer to the Code Sheet to indicate drizzle or rain at the start of your survey. If it is raining, do not survey.
Wind	Refer to the Code Sheet to indicate wind speed at the start of your survey. If the wind code is 4 or greater (>20 km/h), do not survey.
Noise Level	Refer to the Code Sheet. Indicate the level of ambient noise that might interfere with your ability to survey. If noise is 3 or greater (high or excessive noise), do not survey. This category is subjective; use your best judgement!
Vehicles (#)	Record the number of vehicles that passed by if your survey was along a road.
Bird #	A reference number for each SAR you record in the table.
Species	Which SAR you observed (Rusty Blackbird, Olive-sided Flycatcher, and/or Canada Warbler).
Detected before or after playback of its own species began?	<p>If you see or hear a SAR <i>before</i> that species' playback starts, put "Y" in the Before column. If you see or hear a SAR at any point <i>after</i> that species' playback starts, put "Y" in the After column. If you see or hear the same individual SAR both <i>before</i> and <i>after</i> its playback, record "Y" in both columns. Both columns should say either "Y" or "N"</p> <p><i>E.g.</i> An Olive-sided Flycatcher was heard during the 5-min listening component and Rusty Blackbird playback, but wasn't detected during or after the Olive-sided Flycatcher playback Put "Y" for Before? and "N" for After?</p> <p><i>E.g.</i> An unseen Canada Warbler was heard singing after the Canada Warbler playback was broadcast, but not before. Put "N" for Before? and "Y" for After?</p>
Bird seen?	Did you see the SAR? Answer Yes or No.
Closest distance to bird	Estimate how far away you were from the SAR. If it was moving around, estimate how close the bird got to your position. Check metres or feet
Behaviours	What you observed the SAR doing. Check all that apply. If you are unsure of the behaviours listed, or there were additional behaviours, describe the behaviour in the Notes section.
Breeding Code (optional)	Refer to the Code Sheet. Do not record a code unless you are sure it is correct. No code is better than an incorrect code.
Notes	Anything else about the observation of interest, using the Bird # to refer to individual SAR. <i>E.g.</i> #1 sang from the top of a dead tree for most of the survey; or #3 and 4 were paired

Example of a Completed Point Count Datasheet for Survey Level 3 (Point Count and Playback Surveys)

Landbirds at Risk in Forested Wetlands Project 2017 - Volunteer Point Count Datasheet (Survey Level 3)

Start the survey by playing the "Survey Level 3" mp3 file over your speaker. Ensure that your *Volunteer Playback after Point Count Survey Datasheet* is ready for use immediately following the 10-min point count.

Observer: Laura Achenbach Site: Bag Rd 17

Location in Decimal degrees: Latitude: _____ ° Longitude: _____ °

OR UTM's (NAD 83): 20 361193 4991479
Zone Easting, 6 digits Northing, 7 digits

Date: 21 / JUN / 2017 Start Time: 7 : 48 Clouds: 2 Precipitation: 1 Wind: 1 Temp (°C): ✓
dd mmm yyyy hr min

Did you test your speakers?
 Yes! No

Record your point count data in the table below. Put each individual bird you detect during the 10-min point on its own line.

Bird #	Species common name	Species code	Bird seen? (Y/N)	Sound (song, call, drum, none)	Notes (e.g., flew over the site, likely paired with #2; counter-singing with #3; singing from the forest in the distance; heard across lake)
1	Common Yellowthroat	COYE	Y	call	likely paired w #2
2	Common Yellowthroat	COYE	N	song	" " #1
3	Alder flycatcher	ALFL	N	S/C	
4	Olive-sided flycatcher	OSFL	Y	S	singing from top of dead tree
5	Yellow Warbler	YEWA	N	S	
6	Palm Warbler	PAWA	N	S	
7	Common Yellowthroat	COYE	N	C	
8	Red-eyed vireo	REVI	N	S	
9	Common grackle	COGR	Y	none	flew over the site
10	Common grackle	COGR	Y	"	"
11	Common grackle	COGR	Y	"	"
12	red-eyed vireo	REVI	N	S	
13	Hermit Thrush	HETH	N	S	
14	Palm Warbler	PAWA	Y	S	
15	Dusky Woodpecker	DOWO	Y	drum	
16					
17					
18					
19					
20					

Noise level: 2 Vehicles (#): 2 Other comments: Wind changed to 2 by end of survey

Additional species, if any, detected before or after the 10-minute count period: SOSP, AMRE, RLJA

Please submit completed sheets in one of two ways:
 (1) Mail sheets to Dr. Cindy Staicer, Biology Department, PO Box 15000, Dalhousie University, Halifax NS, B3H 4R2; or
 (2) Scan sheets and email to landbirdsar@merseytobeatic.ca

Example of a completed Playback Component Datasheet for Survey Level 3 (Point Count and Playback Surveys)

Landbirds at Risk in Forested Wetlands Project 2017 - Volunteer Playback Component Datasheet (Survey Level 3, following Point Count)

Immediately after the 10-min point count, the 11.5-minute playback component will begin. Please record each **Rusty Blackbird**, **Olive-sided Flycatcher**, and **Canada Warbler** you detect during the playback component. Remember to note whether you detect each individual BEFORE and/or AFTER the beginning of playback of its own species' songs and calls. If you detected a SAR in the point count, or before its own species playback began, write 'Yes' in the 'Before?' column. If you detect the species anytime after playback of its own species began, write 'Yes' in the 'After?' column. If you detect the same individual both before and after playback of its own species, write 'Yes' in both columns. Write 'No' if not detected 'Before?' and/or 'After?'

Did you take 4 habitat photos?
 Yes! No

Observer: Laura Achenbach Site: Bog Rd 17 Date: 21 / JUN / 2017
dd mmm yyyy

Bird #	Species (Rusty Blackbird; Olive-sided Flycatcher; Canada Warbler)	Detected before or after playback of its own species began?		Bird seen? (Y/N)	Closest distance to bird <input checked="" type="checkbox"/> m <input type="checkbox"/> ft	Behaviours (check all that apply)		Breeding Code (optional; see Code Sheet)
		Before? (Y/N)	After? (Y/N)			<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	
1	Olive-sided Flycatcher	Y	Y	Y	70	<input checked="" type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	S
2	Canada Warbler	Y	N	Y	10	<input type="checkbox"/> singing <input checked="" type="checkbox"/> calling <input type="checkbox"/> carrying food	<input checked="" type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	P
3	Canada Warbler	N	Y	N	10	<input checked="" type="checkbox"/> singing <input checked="" type="checkbox"/> calling <input type="checkbox"/> carrying food	<input checked="" type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	P
4						<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	
5						<input type="checkbox"/> singing <input type="checkbox"/> calling <input type="checkbox"/> carrying food	<input type="checkbox"/> probable pair <input type="checkbox"/> carrying fecal sac <input type="checkbox"/> carrying nest material	

Notes (refer to bird # when necessary) #1 Sang from top of dead tree starting ~ halfway through point count until end of survey. #2+3 probable pair. #2 ♀ seen calling and foraging near the ground, #3 singing nearby

Appendix A: Bird Species 4-letter Codes for Point Counts

Species	Code
Ring-necked Pheasant	RIPH
Ruffed Grouse	RUGR
Rock Pigeon	ROPI
Mourning Dove	MODO
Black-billed Cuckoo	BBCU
Common Nighthawk	CONI
Chimney Swift	CHSW
Ruby-throated Hummingbird	RTHU
Virginia Rail	VIRA
Wilson's Snipe	WISN
American Woodcock	AMWO
Common Loon	COLO
American Bittern	AMBI
Osprey	OSPR
Bald Eagle	BAEA
Sharp-shinned Hawk	SSHA
Northern Goshawk	NOGO
Broad-winged Hawk	BWHA
Red-tailed Hawk	RTHA
Barred Owl	BDOW
Belted Kingfisher	BEKI
Yellow-bellied Sapsucker	YBSA
Downy Woodpecker	DOWO
Hairy Woodpecker	HAWO
Northern Flicker	NOFL
Pileated Woodpecker	PIWO
American Kestrel	AMKE
Olive-sided Flycatcher	OSFL
Eastern Wood-Pewee	EAWP
Yellow-bellied Flycatcher	YBFL
Alder Flycatcher	ALFL
Least Flycatcher	LEFL
Eastern Phoebe	EAPH
Great Crested Flycatcher	GCFL
Blue-headed Vireo	BHVI
Red-eyed Vireo	REVI
Gray Jay	GRAJ
Blue Jay	BLJA
American Crow	AMCR
Common Raven	CORA
Tree Swallow	TRES
Barn Swallow	BARS
Black-capped Chickadee	BCCH
Boreal Chickadee	BOCH
Red-breasted Nuthatch	RBNU
White-breasted Nuthatch	WBNU
Brown Creeper	BRCR
Winter Wren	WIWR
Golden-crowned Kinglet	GCKI
Ruby-crowned Kinglet	RCKI

Species	Code
Veery	VEER
Swainson's Thrush	SWTH
Hermit Thrush	HETH
American Robin	AMRO
Gray Catbird	GRCA
European Starling	EUST
Cedar Waxwing	CEDW
Ovenbird	OVEN
Northern Waterthrush	NOWA
Black-and-white Warbler	BAWW
Tennessee Warbler	TEWA
Nashville Warbler	NAWA
Common Yellowthroat	COYE
American Redstart	AMRE
Cape May Warbler	CMWA
Northern Parula	NOPA
Magnolia Warbler	MAWA
Bay-breasted Warbler	BBWA
Blackburnian Warbler	BLBW
Yellow Warbler	YEWA
Chestnut-sided Warbler	CSWA
Blackpoll Warbler	BLPW
Black-throated Blue Warbler	BTBW
Palm Warbler	PAWA
Yellow-rumped Warbler	YRWA
Black-throated Green Warbler	BTNW
Canada Warbler	CAWA
Chipping Sparrow	CHSP
Savannah Sparrow	SAVS
Nelson's Sparrow	NESP
Fox Sparrow	FOSP
Song Sparrow	SOSP
Lincoln's Sparrow	LISP
Swamp Sparrow	SWSP
White-throated Sparrow	WTSP
Dark-eyed Junco	DEJU
Scarlet Tanager	SCTA
Rose-breasted Grosbeak	RBGR
Red-winged Blackbird	RWBL
Rusty Blackbird	RUBL
Common Grackle	COGR
Brown-headed Cowbird	BHCO
Baltimore Oriole	BAOR
Pine Grosbeak	PIGR
Purple Finch	PUFI
Red Crossbill	RECR
White-winged Crossbill	WWCR
Pine Siskin	PISI
American Goldfinch	AMGO
Evening Grosbeak	EVGR