Atlas des oiseaux nicheurs Ontario Breeding Bird Atlas

INSTRUCTIONS FOR POINT COUNTS

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BIRDS CANADA OISEAUX CANADA

OFO

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Thank you very much to the Ontario Breeding Bird Atlas Supporters

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1. Introduction

Welcome! This guide provides directions on how to conduct point counts for Atlas-3. Remember to register as a participant before undertaking point counts. All participants should read the Instructions for General Atlassing for information on how to participate in this project.

Doing point counts is optional for atlassers. However, our aim is to get at least 25 points in as many atlas squares as possible, so we encourage you to help if you are able. We have two options for conducting point counts: traditional point counts and digital recordings.

If you are able to identify most of the species in your square by sight and song and you can still hear all of the species expected in your region, including those with high frequency songs, you should be able to do traditional point counts. The most challenging (but ultimately rewarding) skill needed for doing point counts is learning the songs and calls of local birds. The majority of birds, regardless of habitat, are more often heard than seen. Even if you can't do the point counts in the first year of the Atlas, you may find that with study of bird songs and more time in the field, you will be able to do point counts before the end of the five-year atlas period.

If you are already able to identify birds by songs and calls, you may also be able to help with interpreting point counts done with digital recordings.

If you are not yet comfortable identifying most species by sound, you can also help by using a digital recorder to make point counts, which will later be interpreted by more experienced birders.

1.1 Point count basics

Point counts are the most commonly used method currently available for determining the relative abundance of most land birds. These counts are extremely valuable to supplement general checklist-based atlassing because they allow us to quantify how populations are changing over time, for example by comparison with data from Atlas-2. In addition, with appropriate correction factors, they can be used to estimate actual population sizes for many species which helps to support conservation planning.

A **traditional point count** involves standing at a predetermined location, often along the road-side for the atlas, and counting all birds seen or heard during a set period of time. For the Ontario atlas, standard point counts are 5 minutes long, but birds identified in the first three minutes should be recorded separately from those detected only in the last two minutes. This information will help for combining data from different surveys with other protocols (for example the North American Breeding Bird Survey which has 3-minute point counts). There is also an option to record data in distance bands which will help to estimate the actual densities of birds in the landscape.

A **digital point count** involves using a suitable type of digital recorder to record all the birds that can be heard at each point. Because most birds, even on traditional point counts, are detected primarily by the sounds they make (calls and songs) it is possible to get very similar

data with recorders compared to traditional point counts. Recordings have the advantage of creating a permanent record that can be reviewed at any time in the future. Someday, it may also be possible to train computers to identify the bird species, but at present, experienced birders must interpret the recordings. An online platform called WildTrax will be used to facilitate managing and interpreting recordings.

For all methods, point counts for the atlas should be done during the peak breeding season and in the early morning hours when most birds are singing or calling most actively.

1.2 Safety

It is important that atlassing be enjoyable and collect valuable data on bird populations, but safety comes first. Please review the safety information provided in Appendix A of the Instructions for General Atlassing (https://www.birdsontario.org/instructions/).

When conducting road-side point counts, ensure that your vehicle is parked in a safe location. Where possible, park your vehicle off the road and walk to the point count location. If a proposed point count location is in an unsafe location, such as along a busy road with narrow shoulders, follow the instructions below to choose an alternative location.

1.3 Practicing and improving your skills

Practicing the protocol and brushing up on your bird song identification ahead of time will help ensure that you collect the best data possible. Everyone gets a little rusty over the winter so refreshing your memory, especially for bird songs and calls, before the first point counts of the season will go a long way to ensuring that species are not missed. If you have never done a point count, have limited experience, or have never split one into two segments before, try doing a few practice runs before heading out, listen to some practice recordings, and consider attending an atlasser training workshop.

There are several ways you can practice and improve your bird identification skills. The freely available, online training tool, Dendroica (www.natureinstruct.orga/dendroica), initially developed to support atlases in Canada, allows you to select a group of species (such as forest birds in southern Ontario) and quiz yourself on the songs and calls. If you log in as a registered user, you can create your own customized lists to focus on species that you find challenging. The program will save and remember your settings among sessions. Check out the training video to learn more about this program. There are also a number of commercial apps for smartphones that can help you refine your birdsong identification -- see the learning resources page of the atlas website for more suggestions.

When you are ready to practice point counts by ear, you can check out the practice recordings on WildTrax (links to these will be available soon on the learning resources page of the atlas website). However, don't panic if you don't detect every bird that other people reported on the recordings -- everybody misses a few birds, especially those that are quiet, far away or only call briefly or at the same time as another bird. Also, even experts will sometimes disagree on the identification of a song. It is generally more challenging to identify birds on recordings than

when you are in the field, so if you are able to detect and identify 80-90% of what other users reported on the practice recordings, you should be ready to do your own point counts. The most important thing is to ensure that you have good hearing and can correctly identify most of the birds you do hear.

For a list of additional helpful resources see the learning resources page of the atlas website. We will also be posting a number of training videos to the Atlas YouTube channel as they become available.

2. Getting started

The goal is to conduct at least 25 point counts per atlas square over the five-year Atlas period. Each point count only has to be surveyed once during the atlas.

2.1 Contact your Regional Coordinator

Please let your Regional Coordinator know if you plan to undertake point counts, and where you plan on doing them, even if you are only planning to do so in later years once you are more comfortable birding by ear.

2.2 Where to do point counts

There are two types of locations for Atlas point counts: road-side and off-road. In most squares, the target coverage is 20 road-side point counts, and 5 off-road points. However, if there are fewer than 20 pre-selected roadside points available, then you should increase the number of off-road points to bring the total up to 25. The Atlas square resources, including the atlas square maps (Figure 1) and the square summary sheets indicate the target number of off-road points to conduct in each habitat. If you have time and inclination, you may conduct additional point counts, but be sure to complete the recommended coverage first. If you enjoy doing point counts, you can also check with your Regional Coordinator if there are additional squares in the region that may require support for point counts. The Coverage map shows squares across the province where point counts have and have not been completed.

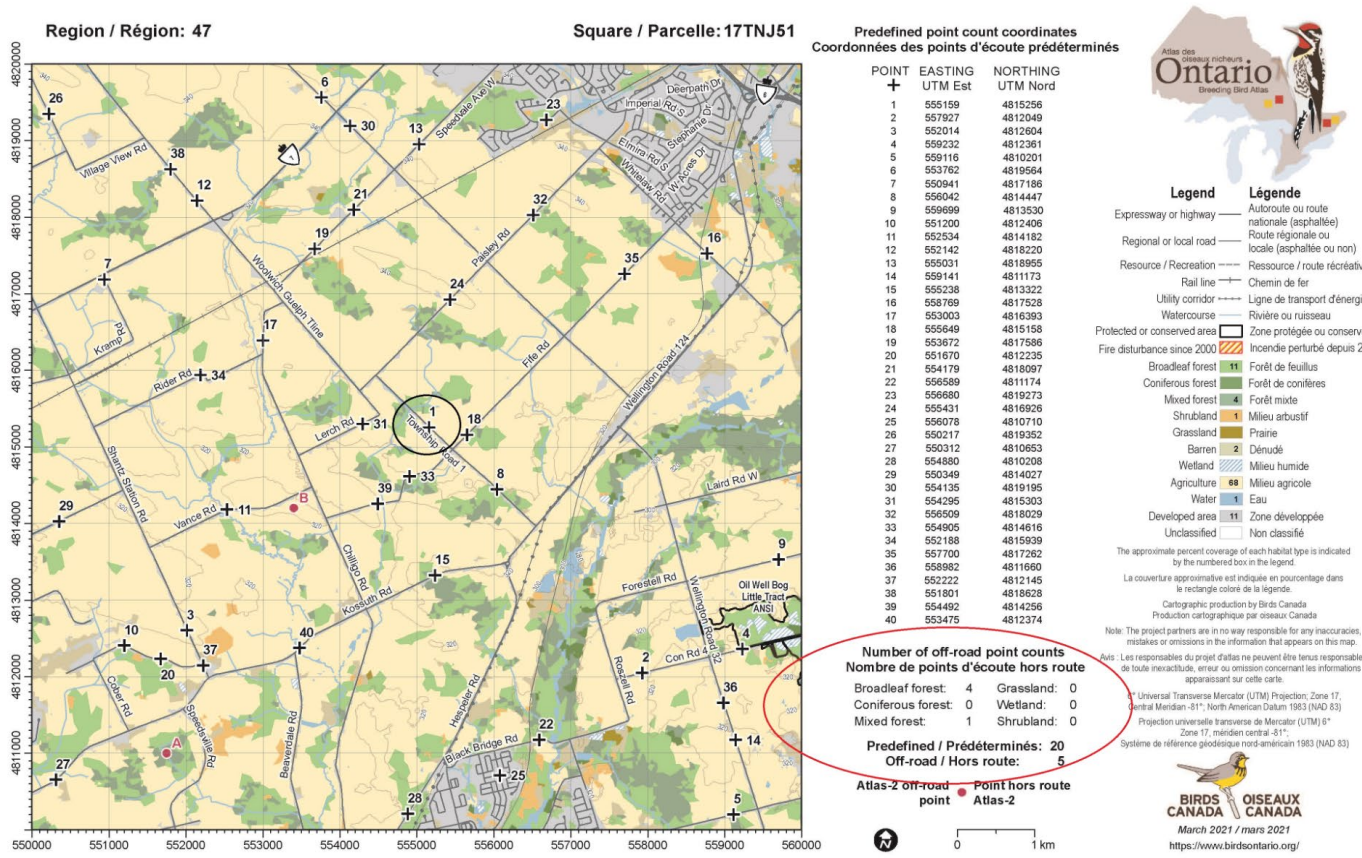


Figure 1. A 10-km square map, available on the NatureCounts website, shows the 40 road-side point count locations and the location of Atlas-2 off-road point counts. Point number 1 is circled in black. The target number of off-road points to conduct in each habitat is circled in red.

2.2.1 Predefined road-side locations

Square maps show up to 40 predefined road-side points per square, from which you choose the lowest numbered 20 suitable points from the list (or fewer if there are less than 20 available off-road point counts for the square). Normally, these would be points 1 to 20. Please try to conduct each point count as close as possible to the indicated location, but for safety reasons, you may choose to do the count up to 50m from the designated location (for example, if the original location is on a sharp corner where you cannot see traffic or stand safely). In some cases, stations may be on busy roads, on roads that are no longer accessible, in noisy spots (e.g., machinery or barking dogs) or in other locations unsuited to point counts such as roads lacking shoulders where you cannot stop safely. In this case, you should eliminate these locations from consideration and add locations with higher numbers to make up your total. For example, if your initial set of points is 1-20, but stations 5 and 13 are unsafe, drop those and add numbers 21 and 22 to make up your total to 20. Some locations may be suitable only in the early morning, especially on weekends, before traffic noise builds up. It is important to follow the procedure given here when selecting points to ensure that count stations are

randomly distributed, and not biased towards especially productive habitats or a particular portion of the square.

Once you have selected your stations, you can cover them in any order that seems efficient. You can find these locations from the UTM coordinates printed on the maps, or you can download the coordinates in a variety of formats from the Square Resources page to load into your smartphone or GPS to help with navigation. It isn't necessary to do all the point counts on the same day or even in the same year. For example, you could do a few point counts every day, perhaps interspersed with general atlassing, as long as they remain in the early morning time window and during peak breeding season (see below).

2.2.2 Off-road locations

Although point counts along roads are the most efficient way to get large sample sizes for trend analysis, densities of birds along roadsides may differ from those away from roads. To improve our estimates of Ontario bird populations, we are asking for at least 5 off-road point counts in each square, within the main natural habitats in the square. The 10-km square maps (e.g., Figure 1) and the Square Summary Sheets indicate how many off-road points to put in each habitat type. For example, in the map in Figure 1, the request is to do 4 point counts in broadleaf forest, and one in mixed forest. You can choose your own location for these points within each habitat type, based on areas that are accessible, but please select these locations ahead of time, based on information on the maps. You should try to select your locations to be representative of the target habitats in your square. You should not be tempted to put in a station simply because there is an interesting bird in a particular spot. You may be able to use some locations that were sampled in Atlas-2 to contribute to this total (see below), but you should ensure that you get at least the minimum number of points requested in each target habitat. It is acceptable to choose locations that are along a narrow trail, but you should avoid locations along roads or tracks that are wide enough to create a large gap, especially in forested habitats. Make sure all points are at least 300m apart and do your best to ensure they are placed 100m from an adjacent habitat type so that most of the habitat within 100m is of the target habitat (this will not always be possible). You may want to combine your off-road point counts with general atlassing in between points. For example, you may choose to spend a couple of hours atlassing within a patch of forest, stopping periodically to do point counts when you get to your preselected locations.

If any of your proposed off-road point counts might be on private property, please see Appendix C of the Instructions for General Atlassing, for guidance around getting permissions.

Please record the precise UTM coordinates or latitude and longitude (in decimal degrees) for each off-road point count, preferably using either a dedicated GPS or the NatureCounts data entry app on your smartphone. If neither of these options is available, you can mark your position as precisely as possible on your square map, then record the appropriate location during online data entry, either by clicking on the appropriate location on the map interface, or by typing the UTM coordinates.

For more information on reading the UTM coordinates from the grid on the square map see "Recording UTM Coordinates" in Appendix G of the Instructions for General Atlassing.

2.2.3 Repeating Off-road Point Counts from Atlas-2

If off-road point counts were undertaken in your square in Atlas-2, the maps also show up to 10 of these points, marked with a distinct symbol (a purple dot) and a letter (A-K, skipping the letter I to avoid confusion with the number 1). The corresponding coordinates for each marked point are provided on the square summary sheets and can be downloaded onto your phone or GPS from the Square Resources page along with the road-side point count locations. If you are able to find and safely access these points (with appropriate permissions if they are on private property), you should try to survey as many of these points as possible. If they are in suitable habitat, these points can be included in your total off-road points to meet the required totals for each habitat. Repeating these points will help with trend analysis, but should be considered optional. If you are unable to access these locations, or do not have time, the highest priority is to complete the required number of off-road point counts by habitat, even if they are in new locations.

2.3 When to do point counts

Season: Point counts should be done in the peak of the breeding season. The acceptable range of dates are:

- Southern Ontario (Regions 1-35 and 45-47): **24 May-10 July**
- Northern Ontario excluding the Hudson Bay Lowlands (Regions 34, 36-42 and 44): **1 June-10 July**
- Hudson Bay Lowlands (Region 43): **1 June -17 July**

Because different species breed on different schedules, we encourage you to spread out point counts on different dates throughout this period in each square. However, if you don't have the luxury of doing so, it is acceptable to do all of them during a single visit. Note that, later in the season, many birds are singing much less, so it is preferable to complete as many counts as possible by the end of June. Also, be aware that in late May, some species may still be on migration. You should still record these species on your point count, but they would not be considered as breeding species.

Time of Day: Point counts can be done anytime between half an hour before sunrise and five hours after sunrise. Be sure to check local sunrise times before heading out. It is not necessary that counts be done only in the very early morning. In fact, some birds aren't active until an hour or two after sunrise. However, later in the season, birds often stop singing much earlier in the day, so it can be much more productive to do point counts within the first couple of hours after sunrise.

Weather: You should only conduct point counts when it is not raining and the wind is not too strong (Table 1). Otherwise, fewer birds will be singing, and you will have a harder time hearing those that are calling.

Table 1. The Beaufort Wind Scale. The shaded area indicates wind conditions in which point counts should not be conducted.

Force		Km/h	Characteristics
0	Calm	<2	Smoke rises vertically
1	Light Air	2 – 6	Wind direction shown by smoke drift
2	Light Breeze	7 – 12	Wind felt on face, leaves rustle
3	Gentle Breeze	13 – 19	Small branches move (only conduct point counts if you feel you can still hear birds fairly well)
4	Moderate Breeze	20 – 30	Small trees sway (do not conduct point counts)
5	Strong	31 – 40	Large branches move (do not conduct point counts)

2.4 Planning your point counts

You may wish to scout out point count locations ahead of time--you could do this while doing some general atlassing in your square. Doing so will allow you to find a safe place to park and will avoid any last minute changes to plans. You can also complete your points over multiple days, so you will be less rushed.

If you have a GPS enabled device, such as a dedicated GPS or a smartphone with an appropriate app, load the coordinates of the roadside point count locations (available for download on the website- see Appendix F of the Instructions for General Atlassing) for easy navigation. If you are using the NatureCounts app, the predefined roadside point counts and the offroad points from the 2nd atlas will be available through the app. However, if you will be working in an area without network coverage, make sure you download this information ahead of time -- check out the instructions for using the NatureCounts app for more details.

You should also make sure you have some appropriate blank data forms or a notebook for recording data. These are useful even if you are entering data directly with the NatureCounts app, to make sure you don't forget information and as a backup in case your smartphone battery runs out!

If you are planning to do digital recordings, make sure you are familiar with all of the controls on the recorder and have set up the recorder with all the appropriate settings (e.g., file type, file naming conventions, microphone setup, and recording levels) as described in the detailed instructions for your recorder type (see Appendix 1). You will also need a notebook to write down the details on location information (square number and point count number for roadside or coordinates for off-road points), date and start time for each recording.

3. Conducting point counts

Once you've arrived at your selected location, on a suitable date and time, with good weather, you are ready to conduct your point count. The methods differ for traditional versus digital recordings.

3.1 How to do Traditional Atlas Point Counts

Recording Data: You can record point count data in a notebook, on preprinted point count data forms (which you can download from the atlas website; be sure to bring enough forms), or directly into the NatureCounts app. Familiarize yourself with the required format and necessary data before heading out to do point counts. If you are recording your data in a notebook, you should put a copy of the preprinted form in the notebook to serve as a reminder of the key "header" information needed for each point, or else print that information on the first page of your notebook.

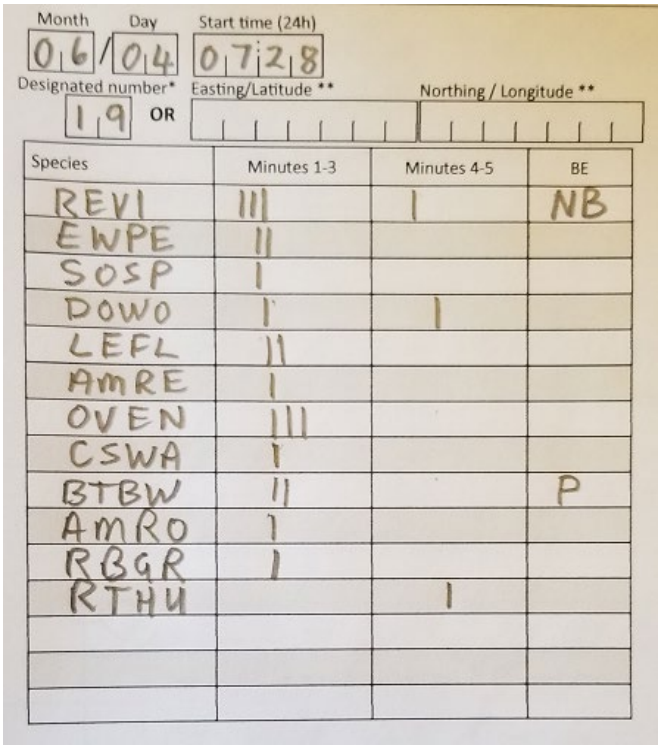
If you are planning to use the app for point counts, please watch the instructional video on the atlas YouTube channel and do a few practice counts ahead of time to make sure you can quickly and easily enter the required data (but remember not to submit your practice counts - if you accidentally submit them, you can log into your account on the web page and delete them afterwards). If you are not comfortable entering data "real-time" in the app (e.g., if you cannot type quickly enough), you may prefer to write the data in your notebook during the point count, and then enter them into the app when you are done the count or at a later time, or you may prefer to enter the data via the NatureCounts atlas web portal (**please note** there are separate entry pages for point counts with time bands only, and point counts with time and distance bands).

Before you start, make sure to record (1) the square number, (2) the designated number for each predetermined road-side point count or the coordinates for each off-road point, (3) the date, and (4) the start time. For off-road points, you can record the coordinates as UTM Easting and Northing as precisely as you can (which you can read from the map), or you can record latitude and longitude (in decimal degrees) if you have those from a GPS. If you enter data real time using the atlas app, it will prefill the location, date and time based on when you started the app. However, make sure you adjust these if you are entering data at a later time when you are no longer at the same location or start time.

For entering bird observations, there are various ways that you can record your data. If you are recording data on a plain point count form or in a notebook (Figures 2 and 3), one method is to write the four-letter code for each species as you detect it, then use columns beside that to tally the number of individuals first detected in each time period (see Figure 2 and Figure 3). If you are going to purchase a notebook for recording your point count data, try to find one with columns already drawn in. You can complete a column for breeding evidence as well, if you find evidence higher than 'possible'. Notebooks are also well suited to recording additional information, such as distance and direction for records you would like to follow up later. You can download blank data forms from the atlas website.

If you are recording data by distance bands as well as time intervals, see below, you can use a similar approach with 6 columns to tally the number of birds detected in each of the three distance bands for each of the two time periods, see Figure 3. However, when recording data by distance bands, many observers prefer to mark their observations onto a “map” consisting of several concentric circles representing each of the distance bands Figure 4). Every individual bird is marked using its 4-letter code. Birds detected only during the final time period can be marked with a superscript 2 or underlined to differentiate them (see example in Figure 4). You can download blank point count map forms for printing from [the atlas website](#) , or you can draw them into your notebook.

(a)



(b)

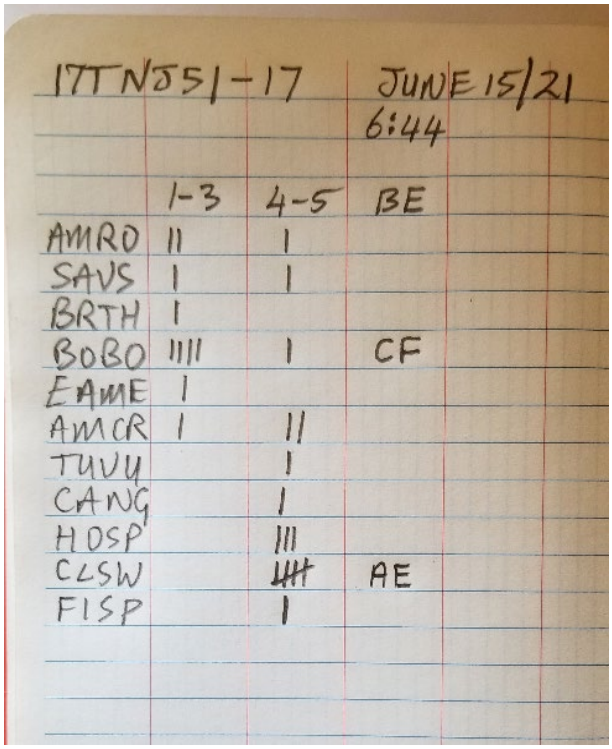
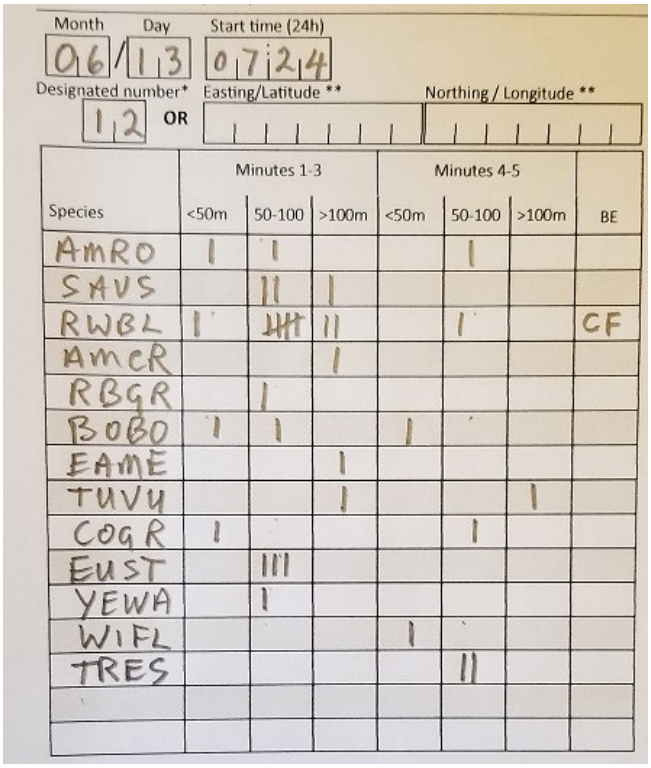


Figure 2. Example of completed point count data forms and notebook data entry. Figure 2a shows a completed data form with two time intervals: 1-3 minutes and 4-5 minutes. Note also the final column for breeding evidence codes other than “Possible breeding”. Figure 2b shows an example of a point count recorded in a notebook using the two time intervals.

(a)

(b)



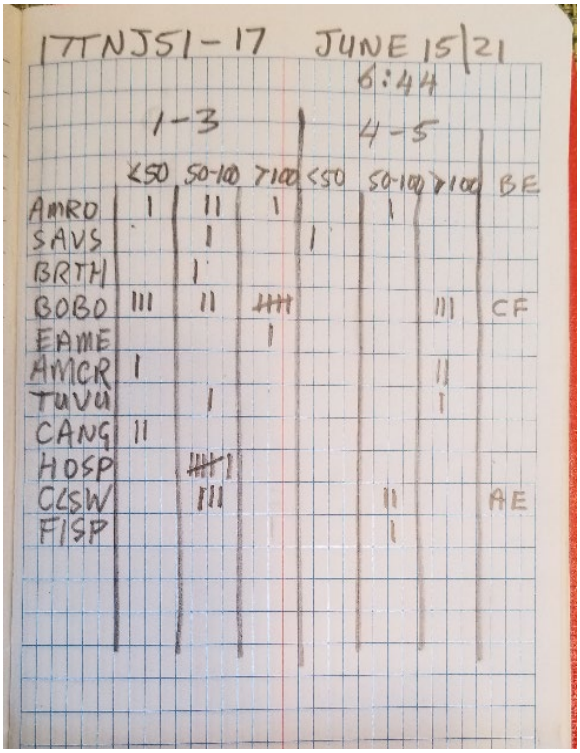


Figure 3: Examples of point count data recorded using both time and distance intervals. Species are reported using standardized 4-letter codes. Figure 3a shows a completed data form using the two time intervals, 1-3 and 4-5 minutes, as well as three distance bands: less than 50m, between 50 and 100m, and greater than 100m; as well as a final column for reporting breeding evidence (see below). Figure 3b is an example of using a notebook for the same purpose.

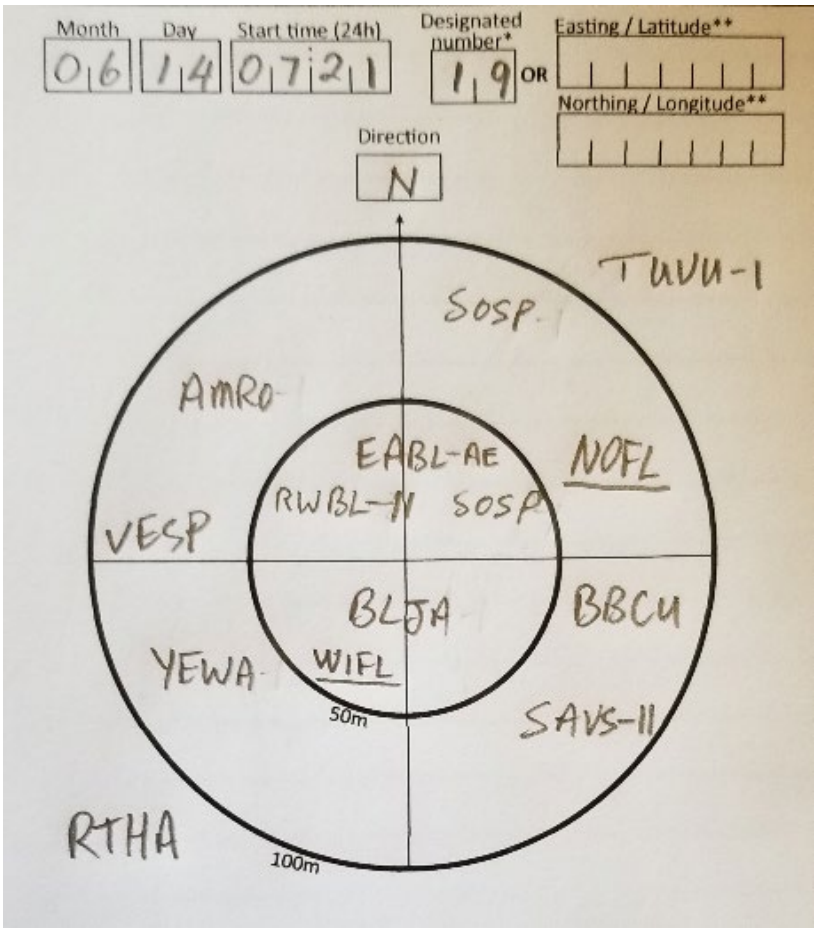


Figure 4: An example of recording point count data on a “map” when using distance bands. Note that birds are recorded in the distance band in which they are first seen. In this example, underlining is used to show birds first detected during the second time interval (4-5 minutes), and a confirmed breeding code (AE) is added for Eastern Bluebird.

Conducting your Point Count: Atlas point counts consist of standing quietly and recording birds at one location for 5 minutes, divided into two segments; a 3-minute segment followed by a 2-minute segment.

During the first 3 minutes (minutes 1-3) count all birds seen and heard, even if they are very far away or are only flying by.

During the last 2 minutes (minutes 4-5) count all new birds detected, that is, any individual bird not detected during the first three minutes. For example, as in Figure 2a, if you observe 2 American Robins in minutes 1-3 and then one more during minutes 4-5, record 1 in the second time period.

The time periods should be adhered to exactly (to the second). We recommend using a digital watch or cell phone to keep track of time. Some smartphone apps allow you to run multiple

timers so you get a sound after 3 minutes, then another sound at the end of 5 minutes. Alternatively, you can set your timer for 5 minutes, but glance at the timer before writing down birds to see whether you have passed the 3 minute mark to ensure you write them in the correct time period.

During the point count remain in place, but turn around from time to time during the count so as not to miss any birds which may be flying or calling behind you. If you are simultaneously recording your point count, be careful not to make too much noise with your feet!

Most birds you observe while doing point counts will be “Possible” breeders, i.e., either in suitable breeding habitat or singing in suitable breeding habitat. You should record the highest level of breeding evidence for any species that is not a “Possible” breeder. That is, you should record breeding evidence for all species that are an “X” (non-breeder) or a Probable or Confirmed breeder: see Figure 2 and 3. We will assume all other species are possible breeders and those codes will be added automatically following data entry, so you don’t have to keep track of ‘Possible’ breeding evidence on your data form or enter those data into the computer.

If an individual bird is heard from more than one point count location, record it at both locations.

Remember, if you find that you are unable to identify more than three species per point count, please do not submit the count and continue learning.

Distance Bands: Optionally, observers are encouraged to estimate the distance away from the observer that each bird is first detected in one of three distance bands: less than 50m, between 50m and 100m, and greater than 100m. This information increases the value of the data, by allowing estimation of the average detection distance of each species in various locations and habitats. In turn, this allows point count totals to be used to estimate density (numbers of birds per hectare) and total population sizes (number of breeding pairs in Ontario). It is quite acceptable to do some points without recording distance bands, then start recording data later in distance bands once you start to feel more comfortable estimating distances.

Before you start, it is important to practice estimating distances. This is easiest to practice with roadside point counts, especially if there are telephone or electric poles along the road. You should measure the distance between two poles (you can pace them, use a GPS or use a laser rangefinder if you have one) and then use that as a reference to estimate various distances in a circle around you. For birds that you can only hear, you should first estimate where the sound is coming from (e.g., a particular tree or patch of bushes), then estimate the distance to that spot. With practice, you should be able to assign each bird to one of the three distance bands with moderate accuracy fairly quickly.

See Figures 2 and 3 for examples of the various data forms that can be used for recording point count data, in addition to the NatureCounts app.

3.2 How to do Digital Point Counts

Digital point counts should only be done using a model of digital recorder that has been reviewed and approved by the atlas committee, to ensure it meets the required specifications. To make recordings as comparable as possible to point counts done by skilled birders, the recorder should be able to record birds in high quality, uncompressed stereo sound (preferably .wav format), with microphones that face 180 degrees away from each other to help the listener separate different birds calling at the same time from different directions, and to ensure birds are detected equally in all directions. Currently, the recommended recorder for manual recording is the Zoom H2N (or the comparable older Zoom H2) which has the added advantage of being quite affordable compared to many other models. The atlas has purchased a number of Zoom H2N recorders to loan out to interested atlassers or you may wish to purchase your own if you will do a lot of recordings. Please contact your Regional Coordinator if you would like to borrow one.

It is also possible to record point counts using various models of Autonomous Recording Units (ARUs) which have been especially designed for bird song recording, including the Wildlife Acoustics Songmeter (SM2, SM3, SM4, or SM-mini) or the Frontier Labs BAR-LT recorder. Many of these units will be used by atlas collaborators to make point count recordings over the course of the atlas. In most situations, these units will be deployed in an offroad location, particularly in remote northern Ontario, and programmed to make multiple recordings at various times of day when the observer is not there. However, they can also be used for manually recording individual point counts in the same way as described here for the Zoom H2N. Instructions for programming and using ARUs will be described in separate Appendices (coming soon).

Before starting a recording, please read the detailed instructions in Appendix 1 to ensure that you have used all the recommended settings - using different settings will result in lower quality data.

To make a digital point count, you should head to your preselected location and place the recorder on a tripod or similar support. If you are able to park at the precise point count location, you may be able to mount the recorder on your vehicle, but some vehicles make a lot of noise as they cool down, which will affect the recording quality, in which case it is better to put the recorder on a tripod several metres in front of the car (not behind it - the noise is louder there). Before you start, write down key information in your notebook: the square number, the point count location (either the point number for a roadside point, or the UTM or latitude and longitude coordinates [decimal degrees] for an off-road point), the date and the time. You should then turn on the recorder, make sure that the recording lights indicate it is actually recording, and clearly read out loud the key information, for example: “Jean Lejean June 10th, 2021 5:35 AM ET square 17TPH48 point 2 Start”. If it is an off-road point, please state the coordinates instead of the point number. You should then step back 5 to 10 meters, say loudly “Start” and turn on your timer. While the point count is being recorded, you should try to remain as still and quiet as possible. It can be very hard to hear birds over the sounds of crunching gravel from an observer walking around! Once your timer has reached 5 minutes,

say “stop” – and then you can walk back to the recorder, turn it off, pick it up and move to the next stop.

Especially for your first few recordings, we strongly recommend that you use a pair of headphones to listen to the recording to make sure that your voice announcement of the key information is clearly audible, that you did not create too much background noise, and that you can hear many of the same birds that you heard while standing there. If something went wrong, you can try the recording again, before moving to the next location. If you do repeat a point count, make sure to update the start time in your notebook and make a note that it is a repeat recording, so people know to ignore the first one (you don’t need to delete it on the recorder to avoid the risk of accidentally deleting a good recording).

You should add one minute of recording for each traffic event (one vehicle or a group of vehicles) that passes up to a maximum of five extra minutes (ten minutes total). If there is continuous traffic or other loud noises (e.g. loud noise from running water, nearby machinery or a barking dog), consider abandoning the point count, and either try again on another day, or record another designated point count location instead. If you already completed a noisy recording, you could still submit it - we are still working on techniques to reduce the effect of noise and might be able to use it).

At the end of each day, or when you return from the field if you are on a longer trip, if you have Internet access, we recommend that you upload all of the recordings to ensure that they are safely saved -- see the instructions in Appendix 1. If that is not possible or practical, you should return the unit with its memory card full of recordings to your Regional Coordinator who will arrange to have them uploaded, once you are done with recording your point counts for the season.

For a video demonstration on how to conduct digital point count surveys, watch the tutorial on the Atlas YouTube channel.

3.3 Simultaneous Traditional and Digital Point Counts

If you are an experienced atlasser conducting traditional point counts, you may choose to record those counts simultaneously if you have your own recorder. If you do that, make sure that the point count coordinates, date and start time announced on the recording match exactly, so that we can link them during analysis. This can be useful to provide a comparison dataset to allow analysts to estimate species-specific differences in detectability between traditional point counts and digital point counts. The recordings can also be a useful way to validate an identification if there were one or two species that you heard but were uncertain in your identification.

However, the priority for any of the atlas owned recording units will be for them to be used by atlassers who are not able to conduct a traditional point count.

If you are less experienced, and primarily conducting a digital point count, you are welcome to write down any birds you hear or see in your notebook and include them in an Atlas Checklist, but please do NOT submit them as a point count data form.

3.4 After the point count

Do not add ANY individuals or species that you first detect after five minutes, unless you realize they had been calling earlier and you had not written them down**.** While it may be tempting to add a new species to the point count list that first calls seconds after the end of the count, please do not succumb to this temptation. Point counts are certain to miss some species, and their absence is an indicator that those species may be relatively uncommon in the area. Any species or breeding evidence detected before or after point counts can still be recorded on an associated Atlas Checklist.

Fill out a Rare/Colonial Species Form (https://www.birdsontario.org/instructions/) for any rare species or breeding colonies observed during the point count, or, if you are using the app, record the requested details on the app.

Review the Point Count Form to ensure all required fields are filled and that there are no errors or omissions in your species list, counts, or breeding evidence codes.

4. Submitting point count data

We highly recommend that you review your data at the end of each atlassing visit and submit the data soon thereafter. This strategy helps to reduce errors and omissions since the details will still be fresh in your mind; it also allows everyone to track the Atlas progress more effectively. Entering your data promptly online also allows your data to be regularly updated on maps and square summary sheets throughout the breeding season to better track progress, avoid duplication of effort, and direct effort as needed.

You must submit all of your point count data online, either using the NatureCounts smartphone app, or the Ontario atlas website (**please note** there are separate entry pages for point counts with time bands only, and point counts with time and distance bands). Videos are available for how to enter point count data using the app, or the website. For instructions on how to collect and enter point count data using the app, see this video. To enter data for point counts with only two time bands, see this video. To enter data for point counts with both two time bands and three distance bands, see this video. For the 2022 season, website data entry for the two types of point counts (two time bands vs two time bands and three distance bands) will be combined, and a video explaining the new methodology will be produced.

The annual deadline for data submission is **August 31st**. Your diligence with data submission ensures ample time to have all data peer-reviewed by experts.

5. Thank you and good luck!

Thank you for participating in the Atlas and doing Atlas point counts. Your contributions will have a lasting impact on bird conservation in the province.

If you have any questions, please contact your Regional Coordinator or contact the Atlas Office directly.