Maine Breeding Bird Atlas Volunteer Handbook 2018-2022

January 2020, version 1.9

A Project of the Maine Department of Inland Fisheries and Wildlife

TABLE OF CONTENTS

BACKGROUND & OVERVIEW

Bird atlases have been conducted worldwide with the aim at mapping the distribution, and often abundance, of species over a large geographic area at a specific moment in time. They follow a standardized methodology and are intended to be repeated at 20-year intervals. In North America, several states and provinces conducted "first generation" breeding bird atlases that collected comprehensive distribution information on breeding birds in their defined region. While the methods for these early atlases were different than the efforts currently being planned, these atlases now serve as a baseline to which subsequent atlas efforts can be compared.

Maine conducted its first breeding bird atlas between 1978 and 1983. Over 200 volunteers documented 201 breeding species in Maine with an additional 15 species of uncertain status. With the conclusion of the first atlas over 30 years ago and a lack of any state-wide assessment of wintering birds, our comprehensive understanding of bird diversity and distribution in the state is sorely out-of-date. Thus, the goal of the current atlas effort is to conduct Maine's second breeding bird atlas with updated methods that can still compare to the original effort and to implement Maine's first wintering bird atlas to expand our knowledge of birds in the state.

This handbook describes how volunteers can contribute records of breeding birds to the Maine Atlas effort. A second handbook will describe how to contribute records for wintering birds. Field work for the Maine Breeding Bird Atlas will be completed from 2018-2022 and will document the current distribution of breeding birds in Maine. In simple terms, this survey of breeding birds involves recording birds observed within specific areas (Blocks) and determining whether each species is a confirmed, probable, or possible breeder based on direct observations. For this atlas effort, we subdivided each topo quad used in the first atlas into six areas, creating 4,082 Blocks. We selected 974 of these Blocks for priority surveying to ensure an even coverage of the state by volunteer survey efforts. In addition, abundance sampling through standardized point counts will be conducted state-wide during the same atlas timeframe by trained research technicians that have been screened for bird identification skills.

Observers of all skill levels can make valuable contributions to the atlas. We want to involve as many people as possible, including younger generations, in the Maine Bird Atlas. The success of Maine's second bird Atlas will rely in large part on the efforts of many volunteer birders, both those who volunteer to focus field efforts on specific Blocks and those that contribute incidental observations. Atlas participants will form a statewide network of birders whose skills, local knowledge, and organization will contribute to the completion of the atlas. We hope this project will provide an opportunity for bird enthusiasts to get out in the field together, have some fun, make new friends, encourage and train young and new birders, and learn more about the natural history of birds while contributing to bird research and conservation in Maine.

This handbook provides information on the general structure of the Maine Breeding Bird Atlas and details how volunteers can contribute their observations of birds to the atlas. Don't be intimidated by the process. Observers of all skill levels can participate and make valuable contributions to the atlas.

For questions, visit the Maine Bird Atlas webpage, or contact the Project Coordinator: Glen Mittelhauser, Maine Natural History Observatory, 317 Guzzle Road, Gouldsboro, ME 04607, E-mail: mainebirdatlas@gmail.com, Phone: 207-963-2012; or Project Director: Dr. Adrienne Leppold, Maine Department of Inland Fisheries and Wildlife, 650 State Street, Bangor, ME 04401, E-mail adrienne.j.leppold@maine.gov, Phone: 207-941-4482.

PURPOSE & OBJECTIVES

The purpose of this project is to provide a comprehensive understanding of the abundance and distribution of Maine's bird populations. It will be invaluable in guiding current and future species status assessments, priority species needs, and identifying and conserving important wildlife habitats. Specifically, Maine's breeding bird atlas will: 1) provide current information on the distribution of breeding birds; 2) determine geographic patterns of abundance for breeding birds, especially for species of greatest conservation concern; 3) compare current distribution information to historical data from the original atlas (1978-1983); 4) identify priority bird habitats and regions based on species diversity and abundance estimates ; 5) compare results to adjacent states/provinces to determine Maine's importance for conservation of species; and 6) provide a platform for education and communication to inspire nature appreciation through the enjoyment of Maine's birds.

ATLAS BLOCK SYSTEM

The Atlas Block (each Block is approximately 3.0 x 2.9 miles) is the basic survey unit of the Maine Bird Atlas. All observations of birds submitted to the atlas must be attributed to the appropriate Atlas Block. As is the standard for many other state atlases, Maine has been gridded into 706 7.5 minute U.S. Geological Survey quads (often called topo maps) and we have subdivided each quad into 6 Atlas Blocks for a total of 4,082 Blocks (we removed coastal Blocks without any land and Blocks along the Maine border completely within another state or province). Each Block has a unique name based on the name of the corresponding topo map name plus a 2 letter code based on their position within the topo map (Figure 1).

While we would ideally like to survey the entire state for breeding birds, given the remoteness of many of the Atlas Blocks and distribution and number of observers, this would be very difficult. Therefore, we have identified 974 Blocks for priority surveying. These Blocks for priority surveying are systematically distributed across Maine and include additional Blocks based on historic records of breeding birds of conservation concern. We encourage atlas volunteers to focus their efforts on these Priority Blocks until all of them have been adequately covered in their region. While the importance of covering Priority Blocks is critical, there is no restriction on reporting breeding birds in non-priority Blocks. Our goal is to adequately survey all 974 Priority Blocks and then as many non-priority Blocks as time and effort allows over the 5 year duration of the project. Because we are only mapping Maine birds, we will not include observations from adjacent states or provinces for Blocks that are only partially within Maine borders.

WAYS TO VOLUNTEER

Anyone with an interest in birds can contribute records to the atlas - well, having binoculars helps too. Whether you spend many hours surveying or report just a single nest you discovered in your backyard, your contribution will help to build the Maine Breeding Bird Atlas.

There are 2 main ways you can contribute breeding bird sightings to the atlas:

* **Adopt and Survey Atlas Blocks.** Volunteers are encouraged to take responsibility for surveying one or more Priority Blocks. To sign up to adopt a Block, go to the Maine Bird Atlas webpage (www.maine.gov/birdatlas) to peruse a map of Blocks in your region, see which Blocks are targeted for priority surveying, see which Blocks have been adopted already in your region, and fill out a Block adoption request form. You can also contact the Regional Coordinator (Appendix 1) and ask which Blocks are available. Adopting a Block does not prevent someone else from reporting birds in that Block, but serves to help us more evenly distribute effort. By signing

Pemadumcook Lake NW	Pemadumcook Lake NE
Pemadumcook Lake CW	Pemadumcook Lake CE
Pemadumcook Lake SW	Pemadumcook Lake SE

Figure 1. Sample Block naming convention, using the Pemadumcook Lake topo map (represented by bold outline) as an example. In this example, "Pemadumcook Lake" is the name of the topo map and the last 2 letters refer to the Block's location in relation to the topo map (NW = northwest, NE = northeast, CW = center west, CE = center east, SW = southwest, and SE = southeast).

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up for a Block, you are agreeing to roughly 20 person-hours surveying the Block for breeding birds during the year, attempting to confirm breeding for as many species as possible, regularly submitting your data through eBird or through paper Field Forms (Appendix 2), and providing additional details requested by our Regional Coordinators if further verification is needed to document rare or priority species. We encourage enthusiastic, experienced birders to sign up for multiple Blocks (particularly Blocks difficult to access) in the same year. If you are a beginning birder and not yet comfortable with your ability to identify birds, you should consider joining with a more experienced group or partner in the first year as you gain experience.

Please note, when you adopt a Block, you are responsible for:

- Adequately surveying your Block for breeding birds (approximately 20 hrs of field surveys)
- Submitting your data to the Maine Bird Atlas eBird portal (or through paper Field Forms) in a timely fashion, ideally as you complete surveys
- Providing additional details for observations of rare or priority species

* **Incidental Observations.** We encourage volunteers to adopt and survey a Block (or multiple Blocks) and avoid focusing their efforts on Blocks assigned to other individuals. However, incidental observations of breeding birds anywhere in Maine, even in Blocks adopted by others, are welcome and an important source of breeding bird records for habitats or species that may otherwise receive less survey coverage. We welcome and encourage volunteers to submit all incidental observations from any Block, even if visited only briefly. However, it is very important that all observations be precisely plotted and identified at the Block level.

We are also looking for a network of volunteers to be available to help birders with technical issues such as getting started with eBird and issues in using phones or tablets or GPS units in the field. This group of volunteers will also enter data off of paper forms into eBird. To volunteer for this "Birds and Nerds" group, email the Atlas Coodinator, Glen Mittelhauser, at mainebirdatlas@gmail.com.

SURVEY METHODS: DATA COLLECTION, RECORDING, & SUBMISSION

Surveying a Block

To effectively document breeding birds, the goal is not to identify a bird and move on. The goal is to watch and observe birds you have identified to determine if they are breeding or not. The best way to do this is to spend time watching behaviors of individual birds. Don't spend your time canvasing the landscape for bird nests - these are often extremely difficult to spot. Each species needs to be confirmed as a breeder only once in a Block for the entire 5-year field effort of the atlas, although we do encourage you to submit complete lists of all birds seen and the breeding evidence observed every time you are in the field.

Awareness of the Atlas Block name, your location within the Block, and your observations at that location are all critical for accurate surveying for the Maine Bird Atlas. If you do not have a GPS, you can work out the location of your observations by using the eBird app (in areas with or without cell phone coverage), Google Earth, or paper maps. Record all of your observations of birds on every survey trip you make. Keep separate species lists for distinct areas and habitats in your Block. It is helpful to keep separate lists by County if your Block is divided by a County line. Also note that some Blocks include parts of New Hampshire or Canada, but you should include birds documented for only those portions of the Block within the borders of Maine.

All observations for the Maine Bird Atlas should include, as a minimum:

- List of observer(s) contributing bird records.
- Date of the survey in the field.
- Observation type, which can be "traveling" = observations made while birding over a specific distance; "stationary" = observations made from a fixed location (i.e., observer moving less than 30 meters) and duration; or "incidental" = observations made when birding was not your primary purpose. Choose whichever category best represents your list of species.
- Exact time the survey started. Currently the eBird system flags a checklist as nocturnal if the survey starts more than 40 minutes before sunrise or more than 20 minutes after sunset, so please make separate checklists for nighttime and daytime observations.
- Duration of survey in minutes, needed for "traveling" and "stationary" observation types.
- Survey distance in miles. Note that the distance traveled is the one-way distance. Do not count the distance you backtrack along the same track.
- Precisely determined location within the survey Block (note that eBird has track recording that can record your survey effort and location for you).
- Species observed. Tentative identifications should not be recorded. Contact the Regional Coordinator if you observe a potential rare bird, but are not able to confirm identification.
- Count or estimate of the number of individuals observed for each species at your location noted above. Coming up with an accurate number can be challenging, but is an important part of the atlas effort. It is fine to estimate the number instead of giving an actual count, provided it is reasonably accurate. An educated guess is preferable to no count at all. The number should be the total number of birds seen or heard, not a projected estimate of the number that may be present in the area but were not detected.

- Highest breeding code observed for each species. The breeding codes in Appendix 3 are sorted according to level of confidence that a species is breeding in your Block given the observed behavior. So the "observed or flyover", "possible breeding", "probable breeding", and "confirmed breeding" categories are listed here in increasing levels of evidence for breeding. Within each of these categories, the breeding codes in Appendix 3 are also sorted to show the level of confidence a species is breeding, with codes closer to the top of the page within each category having greater evidence of breeding than the codes lower down on the page.

One of the advantages of using eBird to record your data for the atlas is that the data entry process can help automatically track some of these data and also prompt you to include all of these details with your submissions so you won't forget a key piece!

When the time comes to document breeding bird observations in your Block, you will want to be as organized as possible to make the most of your valuable time. The following approach is a suggested strategy for effective surveys once you have become familiar with the materials presented in this handbook, the layout of your Block, and the potential breeding birds you may encounter.

* **Organize.** Once an Atlas Block has been assigned to you:
  - Obtain a map of your Block from the Maine Bird Atlas webpage or from your Regional Coordinator. At the Maine Bird Atlas website, you can download digital color maps (in PDF format for easy printing) of Atlas Blocks in your region with either topographic or satellite imagery backgrounds. You can also download a file that can be added to your Google Earth app on your smartphone, tablet, or computer that will allow you to overlay the Atlas Blocks over other maps of Maine.
  - Study habitats, topography, roads and trails, and the boundaries of your Block.
  - If possible, visit your Block before the breeding season starts so that access and route issues can be addressed before the breeding season.
  - Assess whether you will need to request permission to access important areas of private property in your Block.
* **Timing.** Try to spread out your Block surveying over multiple visits throughout the breeding season. Surveys for some breeding birds can begin in February as owls begin courtship and continue, for some species, into October when the last young fledge from the nest. The breeding season for most species spans from late May through early August and most field work should be conducted during these months. June is a great month for building a list of species for the Block as most breeding birds are on territory and are very vocal and actively building nests. Early- to mid-July is ideal for putting birds into the confirmed nesting and probable nesting categories as noisy fledglings are evident, adult birds are more often seen carrying food for young, and species that produce multiple broods are renesting. Concentrate the majority of your effort during the morning hours (5 to 10 AM), as this is when birds tend to be most active. Visits during the night for nocturnal species are encouraged but optional. Visit the Atlas webpage for additional guidance for conducting nocturnal surveys.
* **Weather.** Surveys should, when possible, be conducted in good weather and not on days with strong winds, rain, and cold temperatures that may make birds inactive.
* **Where to Survey.** There is no need to try to visit all areas of your Block. Most Atlas Blocks will contain multiple habitat types. You should attempt to survey representatives of each major habitat type present in the Block and keep separate species lists for each location.
* **Birds Near Block Boundaries.** The best way to treat birds near Block boundaries is to record exactly what you observe in each Block. A Canada Goose with goslings in a lake can easily cross from one Block into another and this observation should get recorded for both Blocks.

Determining Species, Breeding Codes, & Abundance

Species Identification. Do not guess on species identifications. Tentative identifications should not be recorded. Determining whether an observed bird is likely to be breeding in the vicinity can be very challenging. In the spring, some individuals of a species may be breeding in an area while others are continuing their northward migration. Your goal is to confirm breeding for as many species as you can. Appendix 4 lists the safe breeding dates when most migrants have left and individuals remaining in appropriate habitat are likely nesters. These safe dates offer only general guidance and your observations take precedence over any dates given in this Appendix. If you are seeing breeding behavior in a species during its typical migration period, record the breeding evidence in eBird. Remember that spring can be early or late in a given year and that breeding will begin weeks earlier in southern Maine than in northern Maine.

Please collect additional supporting information for rare or unusual species you encounter. Additional information includes:

- Exact location of the bird (latitude and longitude, UTM coordinates, or a detailed description and map)
- The habitat where the bird was observed
- Description of the bird or a photo.

This information should be sent directly to both the Super-region Coordinator (see Appendix 1 for contact info) and the Atlas Project Coordinator (mainebirdatlas@gmail.com).

Some species are difficult to detect, breed in habitats that are difficult to access, or are active only at night and require some special survey methods to increase the odds of detection. Some of these survey protocols will be posted on the Maine Bird Atlas webpage as we develop them, whereas others will be passed along to you by the Regional Coordinator if you happen to be surveying in a Block where special survey methods will be helpful.

Breeding Code Determination. Determining which birds are breeding in a region is what separates atlasing from general birding efforts. As mentioned before, your goal in atlasing is to observe and report specific behaviors that provide differing levels of evidence that the species is breeding in a Block. Similar to other atlas efforts, breeding behavior in this atlas will be classified into one of four categories, sorted by level of evidence that a species is breeding in the Block:

- Confirmed breeding
- Probable breeding
- Possible breeding
- Observed (with no evidence of breeding)

There are multiple behaviors or scenarios that fall under each of the above four categories and these are described in Appendix 3. During your atlasing, assign your species observations to one of the codes listed in Appendix 3 within one of these four broad categories. Your goal during field work will be to confirm breeding for as many species as possible without unnecessary disturbance to the birds and without approaching a bird's nest. You will find that, as the season progresses, upgrading a species as a confirmed breeder will be easier as adults may be carrying food, fledglings may be visible, etc. On any given survey day, record and enter the highest possible breeding code for each species you observed. Appendix 3 gives some guidelines on the breeding codes used for the Maine Bird Atlas and you should be familiar with these codes and their definitions before beginning field work.

Determining Abundance. Counting or estimating the number of individuals observed for each species can also be challenging, but is an important part of the atlas effort. It is fine to estimate the number instead of giving an actual count, provided it is reasonably accurate. An educated guess is preferable to no count at all. The number entered on the checklist should be the total number of birds seen or heard, not a projected estimate of the number that may be present in the area but were not detected.

Options for Submitting Bird Records & Volunteer Hours

Submitting Bird Records. While some volunteers may choose to use their smartphone to enter their observations in the field through eBird (works in areas both with and without cell phone coverage), others will prefer to use written records of their observations in the field and later transfer these records into eBird on their home computer. Either way, you will need to record data in the field, either on paper or via the eBird app. We provide several Field Forms for recording data in the field (see Appendix 2). You should use these or record your observations in your field journal. If you use paper forms, double-check that all of your information is legible! Remember that all bird observations for the Maine Bird Atlas should include, as a minimum: 1) the observer(s); 2) date; 3) observation type; 4) start time; 5) survey duration; 6) precisely determined location; 7) distanced surveyed; 8) species; 9) count of individuals observed; and 10) highest breeding code observed for each species.

Now is also a good time to stress the importance of keeping track of the location of your observations. We encourage you to pinpoint the precise location within your Block that best represents your list of species. Generating a single species list for the entire 9 square mile Block using the "Select a Central Block Point" option in eBird (see Appendix 5) provides much less useful information than subdividing your Block into surveyable sub-units and recording a precise location associated with each area surveyed. Traveling checklists should not exceed 1 or 2 miles in length as eBird only allows you to plot a single point to represent a traveling route, and the point will be the only location associated with all of the birds you observed along that route. Also note that for rare or unusual species, please record the precise coordinates for the location where you observed the birds.

There are several options for submitting data to the Maine Bird Atlas, although the preferred method for entering data is the Maine Bird Atlas eBird portal. See Appendix 5 for details on how to enter data through eBird. Don't know how to use "eBird"? Data entry through eBird is really quite simple and straightforward, so we encourage everyone to give it a try. We will also provide training opportunities for using eBird to those interested.

If records are not being reported through eBird, it is extremely important to include UTM coordinates, latitude/longitude, or a detailed description to the exact location within the Block where the breeding birds were documented. Including a map of your Block with handwritten notes showing your observation areas is also very helpful. Send us your paper field forms each month only if you did not enter them into eBird. Paper forms can be mailed directly to Maine Bird Atlas, Maine Natural History Observatory, 317 Guzzle Road, Gouldsboro, ME 04607. Please make copies or take photos of your Field Forms before mailing them, in case they get lost in the mail. You can also scan your completed forms and maps and email them to mainebirdatlas@gmail.com.

Submitting Non-Survey Volunteer Hours. The amount of time you spend surveying birds in Atlas Blocks will be recorded and tracked as you enter your results into eBird. Documenting this field time is important for deciding when an Atlas Bock is complete and is also important for comparing results between the first and second atlases.

The total number of non-survey hours and mileage you volunteer for the Maine Bird Atlas, including preparation at home, time travelling, scouting trips, attending meetings, planning survey work, data entry, etc. is particularly useful as we can leverage your volunteer hours against matching grants necessary for the completion of this project. You should keep track of your non-survey hours and miles driven on the field forms provided in Appendix 2. Submit your hours regularly through our website or submit them all at the end of the field season.

How to Know When your Atlas Block is Complete

Deciding when an Atlas Block is complete can be difficult to determine. We consider that a Block is complete and efforts should be directed to other unsurveyed Priority Blocks when the following is completed:

* **Total Survey Time.** At least 20 hours of active surveying has been spent in the Block. Note that this total survey time may be reduced to 10 hours for Blocks in remote, difficult to access areas. If you survey together with others in the field, count each survey hour as one hour. If two people survey at the same time but in separate locations in a survey Block, survey hours of each person count separately. Although we prefer surveys spread out during the breeding season, a team of 4 people working 5 hours in different portions of a remote Block can complete 20 survey hours for the Block in a single day.
* **Coverage of Habitats.** Each habitat type present in the Block has been checked. Note that some habitat types may not be able to be surveyed if on private land and permission to access is not given.
* **Timing of visits.** Surveys were conducted throughout the breeding season to account for early and late nesters.
* **% of Confirmed Breeders.** 50% or more of the bird species detected in the Block are categorized as "confirmed breeders".

If you are investing a substantial amount of survey effort in a Block, but are adding few new species to your list, your Block may also be considered complete. At this point, your additional effort will be more helpful if you invested it in another Block that is receiving little or no survey effort. You will not be prevented from re-visiting completed Blocks and adding additional records and new species. Returning to Blocks to seek out missed species is a good thing, but you should be careful not to spend a great deal of time doing so… your time is likely better spent working in a new Block.

Where to Get Answers to Your Questions

Your primary source for assistance will be the Regional Coordinator (see Appendix 1). You can also go to the Maine Bird Atlas webpage where you can read the Frequently Asked Questions page. You can also submit your questions directly to the Project Coordinator and Director.

SAFETY, BIRD DISTURBANCE, & PRIVATE PROPERTY

Your Personal Safety

Safety of all atlas volunteers is a high priority. Be safe! Always put your safety first. Don't take chances in the field and don't survey birds alone when off-road or at night. Do not enter an area that looks unsafe, for any reason. Working in pairs or teams is strongly encouraged, particularly in remote areas. As a volunteer participant in the Maine Bird Atlas, you are fully responsible for your own safety, and for your own personal insurance in case of injury. Make sure you let someone know where you are going before heading out in the field each day, the time you expect to return, and how to contact you. This is particularly important if you work alone or go off-road. Put a copy of the atlas volunteer placard in the window of your car while you are surveying (Appendix 6). If driving on an active logging road, drive cautiously, with your lights on, and yield to logging trucks. Be very cautious when stopping along roadsides and use your flashers. Stay on known roads and well-marked trails at night. Be cautious of severe weather. Do not survey areas if you think that your safety will be compromised for any reason.
Always carry a compass and multiple maps with you and know how to use them. Consider extra safety

precautions in areas not covered by cell phones. Always carry a charged cell phone, compass, a GPS, and multiple sets of spare batteries. Marking your car as a waypoint in your GPS is always a good idea prior to entering the woods, and knowing how to navigate back to this point is essential. When working in remote areas, bring water, survival gear including a first aid kit, bug jacket, bug spray, rain gear, safety matches, a pen knife, a space blanket, lighter, emergency snacks, water treatment, and warm clothes. Let someone know where you are going, when you are expected back, and make sure to check in as soon as you get home. Be aware of ticks that can transmit Lyme Disease. Always check yourself over for ticks and have someone remove them quickly and cleanly if any are found.

Respect for Birds & Habitat

The welfare of birds and the protection of their habitat are extremely important. Always minimize disturbance to nests, adults, young birds, and the surrounding vegetation. Bird nests and eggs are protected in Maine and cannot be collected or disturbed. The following guidelines should be followed by all involved with fieldwork for the Maine Bird Atlas:

- Sightings and photos should never take precedence over the well-being of a breeding bird, its nest, or young.
- Respect barriers, follow laws, obey signage. Private property should never be entered without permission.
- Never approach birds too closely, keep disturbance to a minimum, never linger around a nest or nestlings. Do not approach bird nests. There is no need to locate a bird's nest to check for eggs or nestlings. Instead, focus on assessing the behavior of a bird from a distance to confirm breeding. Take extra care when surveying in groups. If a bird shows signs of agitation, retreat immediately.
- Do not broadcast bird calls unless suggested as part of a special species survey.
- Avoid trampling of vegetation, stay on roads, trails, and paths when possible.

Respect for Private Property

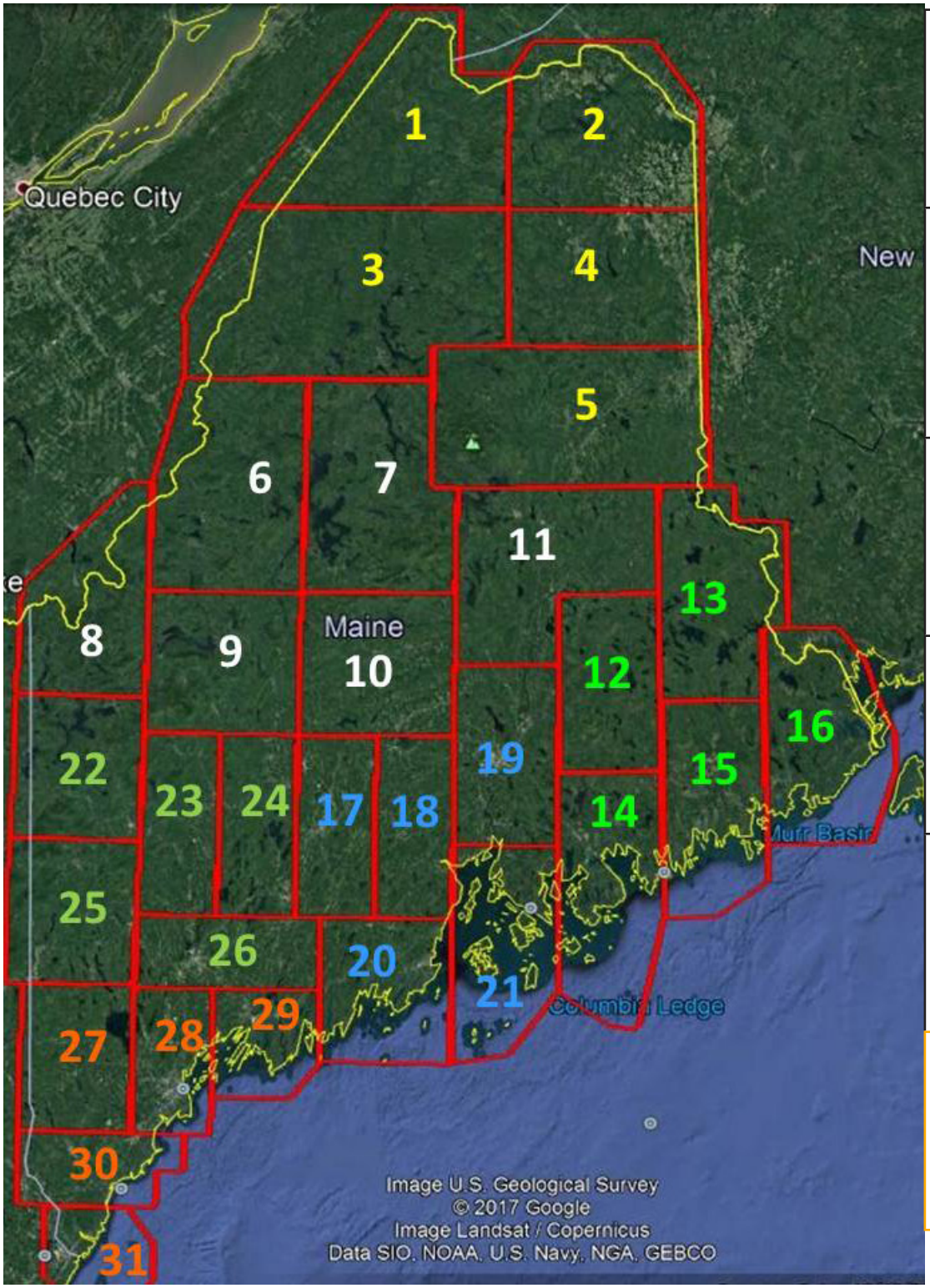
Access to private land and public land presents logistical challenges when surveying your Blocks. Respect barriers, follow laws, and obey signs. Private property should never be entered without permission. Remember that there is no reason to survey every private property in your Block. Only consider requesting access to private lands that may have important habitats or species not present elsewhere in your Block. Stay on roads, trails, and paths where they exist to keep habitat disturbance to a minimum. Permission should always be secured from landowners before entering private lands (Appendix 7). It is also important to inform land stewards of your interest in conducting atlas surveys on public lands. In many instances, landowners will have no objections to your looking for birds on their property. Be sure to be courteous when explaining what you are attempting to accomplish and remember that a friendly attitude will go a long way. Remember that access during the early morning should be arranged ahead of time. If someone denies permission to enter the property, do not press the issue or continue to contact them.

In some instances, it may be difficult to determine who owns certain parcels of land. Inquiring door-to-door can be an effective way to determine land ownership. If this approach fails to reveal a specific landowner, you may want to consult with officials at the appropriate town office.

If a landowner does grant you permission to enter their land, be sure to follow any additional instructions that landowners give you and give them a schedule of when you expect to be on their property. Be respectful of their property and take great care to not damage crops, fences, or other structures.

Appendix 1. Regional Coordinators & Map of Regions

We divided Maine into 6 Super-regions, the regions noted in the table to the right of the map below and color coded on the map, and 31 Regions and we assigned a Volunteer Coordinator to each Region. The duties of Regional Coordinators for the Maine Bird Atlas are to: 1) help recruit volunteers to survey Atlas Blocks; 2) manage Block assignments in the region; 3) help answer any questions volunteers may have; and 4) help review and validate bird records flagged as needing supporting details. The Super-region Coordinators for the 6 larger Super-regions work more closely with the Atlas Director and Coordinator while making sure things run smoothly in each Super-region.



Northern Region
1) Allagash
2) Caribou
3) Chamberlain Lake
4) Presque Isle
5) Houlton

Northwestern Region
6) Jackman
7) Greenville
8) Kennebago Lake
9) Carrabassett Valley
10) Dover-Foxcroft
11) Millinocket

Downeast Region
12) Aurora
13) Topsfield
14) Frenchman Bay
15) Columbia Falls
16) Dennysville

Mid-coast Region
17) Waterville
18) Brooks
19) Bangor
20) St. George
21) Vinalhaven

Western Region
22) Rangeley
23) Farmington
24) Belgrade
25) Woodstock
26) Lewiston

Southwestern Region
27) North York
28) Portland
29) Popham Beach
30) Mid York
31) South York

Appendix 1. Regional Coordinators (continued)

List of Regional Coordinators and their contact information.

NORTHERN REGION: Bill Sheehan (bill.j.sheehan@gmail.com)
- **1) Allagash:** Don Lima (winkumpaughwoodworks@gmail.com)
- **2) Caribou:** Kimberly Hitchcock (me_rabbit7@yahoo.com)
- **3) Chamberlain Lake:** Chris West (christineanitawest@gmail.com)
- **4) Presque Isle:** Judy Roe (jlroe7@gmail.com)
- **5) Houlton:** Tammy Kerekes (tammylkerekes@gmail.com), Dennis Kerekes (varminthunter57@yahoo.com)

NORTHWESTERN REGION: Kyle Lima (kylelemur21@gmail.com), Nick Leadley (nick@touchthewildphotos.com)
- **6) Jackman:** Sandi Duchesne (smduchesne@roadrunner.com)
- **7) Greenville:** Bob Duchesne (duchesne@midmaine.com)
- **8) Kennebago Lake:** Nick Leadley (nick@touchthewildphotos.com)
- **9) Carrabassett Valley:** Kate Weatherby (kweatherbymba@gmail.com)
- **10) Dover-Foxcroft:** Kate Weatherby (kweatherbymba@gmail.com)
- **11) Millinocket:** Kyle Lima (kylelemur21@gmail.com), John Wyatt (birdsnbeads@roadrunner.com)

DOWNEAST REGION: Chuck Whitney (whitneywhistles@gmail.com), Maurry Mills (maurrymills@gmail.com, Maurice_Mills@fws.gov)
- **12) Aurora:** Malcolm Hunter (mhunter@maine.edu)
- **13) Topsfield:** Maurry Mills (maurrymills@gmail.com, Maurice_Mills@fws.gov)
- **14) Frenchman Bay:** Rich MacDonald (rich@thenaturalhistorycenter.com)
- **15) Columbia Falls:** Chuck Whitney (whitneywhistles@gmail.com)
- **16) Dennysville:** Woody Gillies (cwgillies@gmail.com)

MID-COAST REGION: Steve Mierzykowski (steve_mierzykowski@msn.com)
- **17) Waterville:** Herb Wilson (whwilson@colby.edu), Bets Brown (bbrown6548@gmail.com)
- **18) Brooks:** Tom Aversa (tom.aversa@gmail.com)
- **19) Bangor:** Steve Mierzykowski (steve_mierzykowski@msn.com)
- **20) St. George:** Don Reimer (reimer6117@tds.net)
- **21) Vinalhaven:** Seth Benz (sbenz@schoodicinstitute.org)

WESTERN REGION: Logan Parker (lparker.mainelakes@gmail.com)
- **22) Rangeley:** Seth Davis (kd7gxf@gmail.com)
- **23) Farmington:** Pete McKinley (peter_mckinley@tws.org), Trevor Persons (Trevor.Persons@nau.edu)
- **24) Belgrade:** Logan Parker (lparker.mainelakes@gmail.com)
- **25) Woodstock:** Chris Lewey (chris@ravenprograms.com)
- **26) Lewiston:** Kevin Rogers (kevin.rogers82@gmail.com)

SOUTHWESTERN REGION: Doug Hitchcox (dhitchcox@maineaudubon.org)
- **27) North York:** Laura Minich Zitske (lzitske@maineaudubon.org), Brad Zitske (brad.zitske@maine.gov)
- **28) Portland:** Doug Hitchcox (dhitchcox@maineaudubon.org)
- **29) Popham Beach:** Becky Marvil (bmarvil@maine.rr.com)
- **30) Mid York:** Scott Richardson (atlas@aves-specta.com)
- **31) South York:** Glen Mittelhauser (mainebirdatlas@gmail.com)

Appendix 2. Field Forms

More compact, printable Field Forms are available on the Maine Bird Atlas webpage.

Maine Breeding Bird Atlas - 2018-2022: Block Survey Checklist (www.maine.gov/birdatlas for more info)

Optional paper form for recording results of block surveys - When form completed, enter into eBird or send hard copy or scanned copy to the Maine Bird Atlas (mainebirdatlas@gmail.com; or 317 Guzzle Rd, Gouldsboro, ME 04607)

Atlas Block Name:_____ Date:_____/_____/20_____

Observers:_____

Travel Effort between Home and Block - Miles:_____ Hours:_____

Start Time:_____ End Time:_____ Duration (hrs, min):_____ Miles:_____

Specific Location Within Block:_____

_____

Species	Count	Highest Breeding Code	Species	Count	Highest Breeding Code	Species	Count	Highest Breeding Code
Canada Goose			Northern Goshawk			Barred Owl		
Wood Duck			Bald Eagle			Long-eared Owl		
Blue-winged Teal			Red-shouldered Hawk			Short-eared Owl		
Northern Shoveler			Broad-winged Hawk			Northern Saw-whet Owl		
Gadwall			Red-tailed Hawk			Common Nighthawk		
American Wigeon			King Rail			Eastern Whip-poor-will		
Mallard			Virginia Rail			Chimney Swift		
American Black Duck			Sora			Ruby-throated Hummingbird		
Green-winged Teal			Common Gallinule			Belted Kingfisher		
Ring-necked Duck			American Coot			Red-bellied Woodpecker		
Common Eider			Sandhill Crane			Yellow-bellied Sapsucker		
Common Goldeneye			American Oystercatcher			Downy Woodpecker		
Hooded Merganser			Piping Plover			Hairy Woodpecker		
Common Merganser			Killdeer			Am. Three-toed Woodpecker		
Ring-necked Pheasant			Upland Sandpiper			Black-backed Woodpecker		
Ruffed Grouse			American Woodcock			Northern Flicker		
Spruce Grouse			Wilson's Snipe			Pileated Woodpecker		
Wild Turkey			Spotted Sandpiper			American Kestrel		
Common Loon			Willet			Merlin		
Pied-billed Grebe			Razorbill			Peregrine Falcon		
Leach's Storm-Petrel			Black Guillemot			Olive-sided Flycatcher		
Great Cormorant			Atlantic Puffin			Eastern Wood-Pewee		
Double-crested Cormorant			Laughing Gull			Yellow-bellied Flycatcher		
American Bittern			Ring-billed Gull			Alder Flycatcher		
Least Bittern			Herring Gull			Willow Flycatcher		
Great Blue Heron			Great Black-backed Gull			Least Flycatcher		
Great Egret			Least Tern			Eastern Phoebe		
Snowy Egret			Black Tern			Great Crested Flycatcher		
Little Blue Heron			Roseate Tern			Eastern Kingbird		
Green Heron			Common Tern			Yellow-throated Vireo		
Black-crowned Night-Heron			Arctic Tern			Blue-headed Vireo		
Glossy Ibis			Rock Pigeon			Philadelphia Vireo		
Turkey Vulture			Mourning Dove			Warbling Vireo		
Osprey			Yellow-billed Cuckoo			Red-eyed Vireo		
Northern Harrier			Black-billed Cuckoo			Gray Jay		
Sharp-shinned Hawk			Eastern Screech-Owl			Blue Jay		
Cooper's Hawk			Great Horned Owl			American Crow		

Appendix 2. Field Forms (continued)

Species	Count	Highest Breeding Code	Species	Count	Highest Breeding Code	Species	Count	Highest Breeding Code
Fish Crow			European Starling			Clay-colored Sparrow		
Common Raven			American Pipit			Field Sparrow		
Horned Lark			Cedar Waxwing			Fox Sparrow		
N. Rough-winged Swallow			Ovenbird			Dark-eyed Junco		
Purple Martin			Louisiana Waterthrush			White-throated Sparrow		
Tree Swallow			Northern Waterthrush			Vesper Sparrow		
Bank Swallow			Blue-winged Warbler			Savannah Sparrow		
Barn Swallow			Black-and-white Warbler			Song Sparrow		
Cliff Swallow			Tennessee Warbler			Lincoln's Sparrow		
Black-capped Chickadee			Nashville Warbler			Swamp Sparrow		
Boreal Chickadee			Mourning Warbler			Eastern Towhee		
Tufted Titmouse			Common Yellowthroat			Scarlet Tanager		
Red-breasted Nuthatch			American Redstart			Northern Cardinal		
White-breasted Nuthatch			Cape May Warbler			Rose-breasted Grosbeak		
Brown Creeper			Northern Parula			Indigo Bunting		
House Wren			Magnolia Warbler			Bobolink		
Winter Wren			Bay-breasted Warbler			Eastern Meadowlark		
Sedge Wren			Blackburnian Warbler			Orchard Oriole		
Marsh Wren			Yellow Warbler			Baltimore Oriole		
Carolina Wren			Chestnut-sided Warbler			Red-winged Blackbird		
Blue-gray Gnatcatcher			Blackpoll Warbler			Brown-headed Cowbird		
Golden-crowned Kinglet			Black-throated Blue Warbler			Rusty Blackbird		
Ruby-crowned Kinglet			Palm Warbler			Common Grackle		
Eastern Bluebird			Pine Warbler			Evening Grosbeak		
Veery			Yellow-rumped Warbler			House Finch		
Bicknell's Thrush			Prairie Warbler			Purple Finch		
Swainson's Thrush			Black-throated Green Warbler			Red Crossbill		
Hermit Thrush			Canada Warbler			White-winged Crossbill		
Wood Thrush			Wilson's Warbler			Pine Siskin		
American Robin			Grasshopper Sparrow			American Goldfinch		
Gray Catbird			Nelson's Sparrow			House Sparrow		
Brown Thrasher			Saltmarsh Sparrow					
Northern Mockingbird			Chipping Sparrow					

Notes:

Appendix 2. Field Forms (continued)

Maine Breeding Bird Atlas - 2018-2022: Block Survey Form (www.maine.gov/birdatlas for more info)

Optional paper form for recording results of block surveys - When form completed, enter into eBird or send hard copy or scanned copy to the Maine Bird Atlas (mainebirdatlas@gmail.com; or 317 Guzzle Rd, Gouldsboro, ME 04607)

Atlas Block Name:_____ Date:_____/_____/20_____

Observers:_____

Travel Effort between Home and Block - Miles:_____ Hours:_____

Start Time:_____ End Time:_____ Duration (hrs, min):_____ Miles:_____

Specific Location Within Block:_____

_____

Species	Count	Highest Breeding Code	Notes

Appendix 2. Field Forms (continued)

Maine Breeding Bird Atlas - 2018-2022: Incidental Observations Form (www.maine.gov/birdatlas for more info)

Optional paper form for recording roving records - When form completed, enter into eBird or send hard copy or scanned copy to the Maine Bird Atlas (mainebirdatlas@gmail.com; or 317 Guzzle Rd, Gouldsboro, ME 04607)

Date:_____/_____/20_____

Observers:_____

Travel Effort - Miles:_____ Hours:_____

Species	Time	Count	Highest Breeding Code	Atlas Block Name Specific Location GPS coordinates

Appendix 2. Field Forms (continued)

Maine Breeding Bird Atlas - 2018-2022: Non-Survey Volunteer Effort (www.maine.gov/birdatlas for more info)

Mandatory paper form for non-survey volunteer effort - When form completed, enter information at the Maine Bird Atlas website or send hard copy or scanned copy to the Maine Bird Atlas (mainebirdatlas@gmail.com; or 317 Guzzle Rd, Gouldsboro, ME 04607)

Year (circle one): 2018 2019 2020 2021 2022

Observer:_____ Email:_____

Date	Start Time	Stop Time	Total Time	Miles Driven
Column Totals				

Appendix 3. Breeding Bird Codes

More compact, printable breeding code forms are available on the Maine Bird Atlas webpage. The four underlined breeding categories listed below (Confirmed, Probable, Possible, No Evidence) are sorted in decreasing levels of evidence for breeding. The codes closer to the top of the page within each category have greater evidence of breeding than the codes lower down on the page. *Before using breeding codes in the Possible Breeding category (S, H), check the "Safe Dates" chart in Appendix 4 to determine the dates when these codes can be used.* Use codes in the Probable Breeding category with caution, particularly outside of "Safe Dates". Refer to the Acceptable Breeding Codes Chart on the Maine Bird Atlas webpage to determine which breeding codes can be used for each species.

Confirmed Breeding

NY—Nest with Young: nest with young seen or heard. Presence of cowbird young confirms both the cowbird and the host species.

NE—Nest with Eggs: nest with eggs or eggshells on ground. Must be accurately identified by presence of an adult bird. If no birds are seen, use the "UN" code below. Presence of cowbird eggs confirms both the cowbird and the host species.

FS—Carrying Fecal Sac: adult carrying white fecal sacs away from the nest; only songbirds and woodpeckers produce fecal sacs.

FY—Feeding Young: adult feeding recently fledged young, but young are not yet independent. Code should not be used for raptors, terns, and other species where young can be fed by parents many miles from the nest site. Young birds that feed themselves (e.g., waterfowl) should be coded as "FL".

CF—Carrying Food: adult repeatedly carrying food in the same direction for young (should not be used for corvids, raptors, terns, gulls, kingfishers, and other species where adults may forage many miles from the nest site). Use this code with caution as some adults carry food a long distance or may be engaged in courtship feeding.

FL—Recently Fledged Young: recently fledged or downy young observed while still dependent upon adults. The young are usually incapable of sustained flight, restricted to natal area by dependence on adults or limited mobility (e.g., baby grouse, baby geese, baby killdeer that cannot yet fly). Very short tail feathers are usually a good sign the young originated locally. Young cowbirds begging for food confirms both the cowbird and the host species.

ON—Occupied Nest: incubating adult directly observed or nest presumed through multiple observations such as adults entering or leaving an area in circumstances strongly indicating an occupied nest. Can be used for nests which are too high, enclosed, or the contents not visible for other reasons. Use for raptors aggressively diving at you because behavior strongly indicates nearby nest.

UN—Used Nest: previously used nest or eggshells present but no adult birds seen nearby. Use only if you are certain of the species and that nesting occurred during the atlas period. If you did not observe any individuals of the species that made the nest during your visit, then enter a "0" in the number field during data entry.

DD—Distraction Display: adult puts its life in danger and fakes injury to lead potential predator away. For example, Killdeer may give a "broken wing" display, and Common Yellowthroats, Ovenbirds, and sparrows may feign injury to distract from nest or young.

NB—Nest Building: nest building at the apparent nest-site (should not be used for wrens, woodpeckers, kingfishers, chickadees, titmice, and other species that build dummy nests or excavate roosting cavities)

CN—Carrying Nesting Material: adult carrying nesting material, such as sticks or other material but nest site not seen. For raptors, confirm the material is not incidental to prey transport. Do not use for species that build multiple dummy nests, such as wrens.

PE—Physiological Evidence: physiological evidence of breeding, usually a brood patch or egg in oviduct based on bird in hand. To be used by bird banders on local birds during the nesting season.

Appendix 3. Breeding Bird Codes (continued)

Probable Breeding

B—Woodpecker/Wren Nest Building: some species, including wrens, woodpeckers, kingfishers, chickadees, and titmice, may build dummy nests or excavate roosting cavities and nest building activity cannot be considered confirmation of breeding.

A—Agitated Behavior: agitated behavior or anxiety calls from adult(s) that indicate a nest or young are in the vicinity. This can occur between different species and both species can be coded as "A". This excludes responses elicited by "pishing" or the result of playback recordings.

N—Visiting Probable Nest Site: visiting of probable nest site but without strong evidence to upgrade to Confirmed codes. Primarily used for hole nesters or shrub nesting species.

C—Courtship, Display, or Copulation: courtship, displays, or copulation observed. Courtship behaviors include transfer of food, displays, and grooming between a pair of birds. Use for Woodcock, Snipe, Swift, and Nighthawk "booming" aerial displays, Turkey displays, and Ruffed Grouse drumming. Code can be unreliable for ducks, swans, and geese.

T—Territorial Defense: use for fighting or chasing individuals of same species, or attacking a predator during its breeding season. Do not use for squabbling over a food resource or territorial singing. Code can be unreliable for ducks, swans, and geese.

P—Pair in Suitable Habitat: pair observed in suitable habitat during its breeding season. Confirm through behavioral cues that it is a mated pair. Do not use for a male and a female observed in the same general area. Instead use only if the birds are interacting in a way that suggests they are paired. Code can be unreliable for ducks, swans, and geese.

M— Multiple (7+) Singing Birds: 7 or more singing birds of a species detected in suitable nesting habitat in the *same* Atlas Block during its breeding season on one day.

S7— Singing Bird Spanning 7+ Days: singing bird (breeding vocalizations only) present at the same "general location" 7 or more days apart during its breeding season.

Possible Breeding

S—Singing Bird: singing bird(s) (breeding vocalizations only) present in suitable nesting habitat during its breeding season (*within "Safe Dates"*) on only one occasion. Code also used for owls and rails giving their primary vocalization during the breeding season. Use for Woodcock "peent" call without an aerial display, and for woodpecker drumming.

H—In Appropriate Habitat: adult or independent juvenile birds hatched in the current breeding season observed in suitable nesting habitat during its breeding season (*within "Safe Dates"*). Only use for colonial species if nesting is suspected in the block.

No Evidence of Breeding

F—Flyover: a species observed flying overhead, and never observed to interact with the habitat in the block.

No Breeding Code Entered (Observed Species): use if species observation does not fit any of the breeding codes listed above, or if observations coded as Possible Breeding (S, H) fall outside the "Safe Dates" for that species. This code should also be used for species observed any time of the year not in suitable nesting habitat (e.g., herons or egrets foraging with no indication of a nearby rookery, migrants, etc.). Any species entered into eBird without any other breeding code noted above is automatically placed in this category.

Appendix 4. Maine Breeding Bird Safe Dates

The Safe Dates delineate the time period in Maine when most migrants are not present and individuals present in appropriate breeding habitat may be nesting. For many species, breeding occurs outside of these dates, but migrant individuals may also be present. Safe dates offer only general guidance and your observations take precedence over any dates given in this Appendix. Remember that spring can be early or late in a given year and that breeding may begin weeks earlier in southern Maine than in northern Maine.

Species	Safe Dates
Alder Flycatcher	6/1 - 7/25
Am Three-toed Woodpecker	5/1 - 7/25
American Bittern	5/1 - 7/25
American Black Duck	5/5 - 8/1
American Coot	5/15 - 8/5
American Crow	4/15 - 7/15
American Goldfinch	6/5 - 9/1
American Kestrel	5/25 - 7/25
American Oystercatcher	5/25 - 8/1
American Pipit	6/1 - 8/15
American Redstart	6/1 - 8/1
American Robin	5/10 - 8/1
American Wigeon	5/25 - 8/1
American Woodcock	4/15 - 7/25
Arctic Tern	6/1 - 7/25
Atlantic Puffin	5/1 - 8/1
Bald Eagle	3/16 - 7/31
Baltimore Oriole	6/1 - 7/20
Bank Swallow	5/25 - 7/15
Barn Owl	4/15 - 8/1
Barn Swallow	5/25 - 7/20
Barred Owl	3/15 - 7/25
Bay-breasted Warbler	6/5 - 7/25
Belted Kingfisher	5/1 - 8/1
Bicknell's Thrush	6/1 - 8/15
Black Guillemot	5/1 - 8/1
Black Tern	6/1 - 8/1
Black-and-white Warbler	6/1 - 8/1
Black-backed Woodpecker	5/10 - 7/25
Black-billed Cuckoo	6/10 - 8/1
Blackburnian Warbler	6/1 - 7/25
Black-capped Chickadee	4/15 - 8/1
Black-crowned Night-Heron	5/1 - 8/1
Blackpoll Warbler	6/5 - 8/1
Black-throated Blue Warbler	6/1 - 8/1
Black-throated Green Warbler	6/1 - 8/1

Species	Safe Dates
Blue Jay	5/25 - 8/15
Blue-gray Gnatcatcher	5/20 - 8/5
Blue-headed Vireo	5/25 - 8/1
Blue-winged Teal	5/25 - 8/1
Blue-winged Warbler	6/1 - 8/1
Bobolink	6/1 - 7/25
Bonaparte's Gull	6/1 - 7/20
Boreal Chickadee	5/15 - 8/1
Boreal Owl	4/15 - 8/1
Brewster's Warbler (hybrid)	6/1 - 8/1
Broad-winged Hawk	6/1 - 7/25
Brown Creeper	5/15 - 8/10
Brown Thrasher	5/20 - 8/10
Brown-headed Cowbird	5/15 - 7/25
Bufflehead	6/10 - 8/1
Canada Goose	4/25 - 8/1
Canada Warbler	6/5 - 8/1
Cape May Warbler	6/1 - 7/25
Carolina Wren	5/15 - 8/10
Cattle Egret	5/1 - 8/1
Cedar Waxwing	6/10 - 8/5
Chestnut-sided Warbler	6/1 - 8/1
Chimney Swift	5/20 - 8/1
Chipping Sparrow	5/20 - 8/1
Clay-colored Sparrow	6/1 - 8/1
Cliff Swallow	5/25 - 7/15
Common Eider	5/1 - 7/25
Common Gallinule	5/15 - 8/15
Common Goldeneye	5/25 - 8/1
Common Grackle	5/1 - 8/1
Common Loon	5/15 - 7/20
Common Merganser	5/25 - 8/1
Common Nighthawk	6/5 - 7/25
Common Raven	4/1 - 7/1
Common Tern	6/1 - 7/25
Common Yellowthroat	6/1 - 8/15

Appendix 4. Maine Breeding Bird Safe Dates (continued)

Species	Safe Dates
Cooper's Hawk	5/20 - 8/1
Dark-eyed Junco	5/25 - 8/15
Double-crested Cormorant	5/15 - 7/20
Downy Woodpecker	5/1 - 8/1
Eastern Bluebird	5/10 - 8/15
Eastern Kingbird	6/1 - 8/1
Eastern Meadowlark	5/15 - 8/1
Eastern Phoebe	5/1 - 8/1
Eastern Screech-Owl	3/1 - 7/1
Eastern Towhee	5/20 - 8/10
Eastern Whip-poor-will	5/25 - 7/25
Eastern Wood-Pewee	6/10 - 8/10
European Starling	4/1 - 8/15
Evening Grosbeak	6/1 - 8/15
Field Sparrow	5/20 - 8/1
Fish Crow	5/1 - 7/15
Fox Sparrow	5/15 - 8/1
Gadwall	5/25 - 8/1
Glossy Ibis	5/1 - 8/1
Golden Eagle	4/1 - 7/20
Golden-crowned Kinglet	5/20 - 8/1
Golden-winged Warbler	6/1 - 8/1
Grasshopper Sparrow	6/1 - 7/25
Gray Catbird	6/1 - 8/10
Gray Jay	3/25 - 7/1
Great Black-backed Gull	5/1 - 7/20
Great Blue Heron	5/1 - 8/10
Great Cormorant	5/1 - 8/1
Great Crested Flycatcher	5/25 - 8/1
Great Egret	5/25 - 7/15
Great Horned Owl	1/25 - 8/1
Green Heron	5/15 8/15
Green-winged Teal	5/25 - 8/1
Hairy Woodpecker	5/1 - 8/1
Hermit Thrush	5/20 - 8/1
Herring Gull	5/15 - 8/1
Hooded Merganser	5/5 - 8/1
Horned Lark	4/15 - 7/25
House Finch	4/15 - 8/10
House Sparrow	3/1 - 8/25
House Wren	5/25 - 8/20
Indigo Bunting	6/1 - 8/15

Species	Safe Dates
Killdeer	4/20 - 7/15
King Rail	5/15 - 8/1
Laughing Gull	5/15 - 8/1
Lawrence's Warbler (hybrid)	6/1 - 8/1
Leach's Storm-Petrel	6/1 - 8/15
Least Bittern	5/15 - 7/25
Least Flycatcher	6/1 - 8/1
Least Sandpiper	5/25 - 6/15
Least Tern	5/25 - 8/1
Lesser Black-backed Gull	5/1 - 7/20
Lincoln's Sparrow	6/1 - 8/10
Little Blue Heron	5/1 - 7/15
Loggerhead Shrike	5/15 - 8/1
Long-eared Owl	4/20 - 7/25
Louisiana Waterthrush	5/5 - 7/1
Magnolia Warbler	6/1 - 8/1
Mallard	5/5 - 8/1
Marsh Wren	5/25 - 8/5
Merlin	5/10 - 7/20
Mississippi Kite	6/5 - 8/1
Monk Parakeet	6/1 - 8/1
Mourning Dove	4/10 - 8/15
Mourning Warbler	6/10 - 8/5
Mute Swan	5/1 - 8/1
N Rough-winged Swallow	5/25 - 7/15
Nashville Warbler	6/1 - 8/1
Nelson's Sparrow	6/1 - 8/15
Northern Bobwhite	5/10 - 8/15
Northern Cardinal	4/15 - 8/15
Northern Flicker	5/15 - 7/25
Northern Goshawk	4/15 - 7/15
Northern Harrier	5/15 - 8/1
Northern Hawk Owl	4/20 - 8/1
Northern Mockingbird	5/15 - 8/15
Northern Parula	6/1 - 7/25
Northern Pintail	5/20 - 8/5
Northern Saw-whet Owl	4/1 - 8/1
Northern Shoveler	5/25 - 8/1
Northern Waterthrush	6/1 - 7/25
Olive-sided Flycatcher	6/10 - 7/25
Orchard Oriole	6/1 - 7/20
Osprey	5/8 - 7/24

Appendix 4. Maine Breeding Bird Safe Dates (continued)

Species	Safe Dates
Ovenbird	5/25 - 8/1
Palm Warbler	6/1 - 8/1
Peregrine Falcon	3/25 - 7/15
Philadelphia Vireo	6/1 - 8/1
Pied-billed Grebe	5/15 - 7/25
Pileated Woodpecker	5/1 - 8/5
Pine Grosbeak	5/25 - 8/15
Pine Siskin	5/20 - 7/25
Pine Warbler	5/20 - 8/1
Piping Plover	5/25 - 8/1
Prairie Warbler	6/1 - 8/1
Purple Finch	5/25 - 8/1
Purple Martin	5/25 - 7/15
Razorbill	5/1 - 8/1
Red Crossbill	4/25 - 8/1
Red-bellied Woodpecker	5/20 - 8/1
Red-breasted Merganser	6/10 - 8/1
Red-breasted Nuthatch	5/15 - 8/1
Red-eyed Vireo	6/1 - 8/5
Redhead	6/10 - 8/1
Red-headed Woodpecker	5/25 - 8/1
Red-shouldered Hawk	5/15 - 8/1
Red-tailed Hawk	5/15 - 8/1
Red-winged Blackbird	5/10 - 7/25
Ring-billed Gull	5/15 - 8/1
Ring-necked Duck	6/1 - 8/1
Ring-necked Pheasant	5/1 - 8/15
Rock Pigeon	3/1 - 11/1
Roseate Tern	6/1 - 7/25
Rose-breasted Grosbeak	6/1 - 8/5
Ruby-crowned Kinglet	6/1 - 8/15
Ruby-throated Hummingbird	6/1 - 8/1
Ruddy Duck	6/5 - 8/1
Ruffed Grouse	4/20 - 8/10
Rusty Blackbird	5/15 - 8/10
Saltmarsh Sparrow	6/1 - 8/15
Sandhill Crane	5/1 - 8/1
Savannah Sparrow	5/20 - 8/1
Scarlet Tanager	6/1 - 8/10
Seaside Sparrow	6/1 - 8/1
Sedge Wren	6/1 - 8/1
Sharp-shinned Hawk	5/25 - 8/1

Species	Safe Dates
Short-eared Owl	5/1 - 8/1
Snowy Egret	5/1 - 7/15
Solitary Sandpiper	6/5 - 6/25
Song Sparrow	5/10 - 8/15
Sora	5/15 - 8/1
Spotted Sandpiper	5/25 - 7/5
Spruce Grouse	4/1 - 8/5
Swainson's Thrush	6/5 - 7/25
Swamp Sparrow	5/20 - 8/15
Tennessee Warbler	6/5 - 7/25
Tree Swallow	5/1 - 7/15
Tricolored Heron	5/1 - 7/15
Tufted Titmouse	4/15 - 8/1
Turkey Vulture	6/1 - 8/1
Upland Sandpiper	5/25 - 7/15
Veery	6/1 - 8/1
Vesper Sparrow	5/20 - 7/25
Virginia Rail	5/15 - 8/1
Warbling Vireo	6/1 - 8/1
White-breasted Nuthatch	4/15 - 8/10
White-eyed Vireo	6/1 - 8/1
White-faced Ibis	5/5 - 7/15
White-throated Sparrow	5/25 - 8/15
White-winged Crossbill	4/25 - 8/1
Wild Turkey	4/15 - 9/1
Willet	5/20 - 7/15
Willow Flycatcher	6/1 - 7/25
Wilson's Warbler	6/5 - 8/1
Wilson's Phalarope	6/1 - 7/25
Wilson's Snipe	5/15 - 7/25
Winter Wren	5/20 - 8/5
Wood Duck	5/5 - 8/1
Wood Thrush	6/1 - 8/1
Yellow Rail	6/1 - 8/1
Yellow Warbler	6/1 - 8/1
Yellow-bellied Flycatcher	6/10 - 7/25
Yellow-bellied Sapsucker	5/15 - 8/1
Yellow-billed Cuckoo	6/10 - 8/1
Yellow-crowned Night-Heron	5/25 - 7/15
Yellow-rumped Warbler	6/1 - 8/10
Yellow-throated Vireo	5/25 - 8/1

Appendix 5. eBird Data Entry - Users Guide

You do not need a smartphone to enter your atlas data into eBird, although entering data that way can be very effective in areas both with and without cell phone coverage. You can record your data in the field on paper forms or in your notebook, then enter data into eBird at a later time on a computer at home or at the library. Don't rely on your memory alone to collect data. Write your observations down on Field Forms or in your notebook as you see them. We encourage all observers to submit their own breeding bird records through the Maine Bird Atlas eBird portal. The Maine Bird Atlas eBird portal is the only input that provides Atlas Block boundaries on the map and prompts you for entering all information required for the atlas. We recommend using the Maine Bird Atlas eBird portal for any checklist from Maine that has a breeding code. Submit your observations for all of your surveys, even if no birds were recorded.

There are several guides and tutorials explaining how to enter data into eBird, available through the eBird Help menu. The following instructions were built in the fall of 2017 based on using eBird on a home computer and will hopefully work for some time. Refer to the eBird help menu if these instructions do not appear to work.

Getting started for new users. Go to the eBird webpage (www.ebird.org/content/ebird/). Select the "Submit Observations" tab near the top of the page. New users should hit the "Create an Account" button where you will enter your name, email address, choose your username, and create password for your new account. We encourage you to write down your username and password for eBird and keep it in a safe place. If you already have an eBird account, you can sign in with your username and password. There is an eBird app that you can install on your phone, if you prefer entering data directly in the field. However, be aware that the eBird can have trouble accurately plotting your position when your phone reception is poor. It is important to verify your location against maps or a GPS when entering data in the field through eBird.

Entering data in eBird. After selecting the "Submit Observations" tab and signing in, you will be at the "Where did you bird?" screen. The first time you use the atlas portal to enter data from a specific Block or location, you should use the "Find it on a Map" option. Type "Maine" into the box, then click on "Maine, United States (US)" that appears underneath, and you will be shown a map of Maine. Use the zoom tools ("+" and "-" buttons in upper left) to zoom in on the map and you can drag the map to pan to the exact location that you surveyed or observed breeding birds. Zoom in as far as possible when plotting your observation point to prevent location errors. The buttons on the upper left of the map allow you to switch between satellite imagery, plain maps, and topo maps. On the map, you may see blue pins (your existing eBird locations, if you have any) and red pins (birding hotspots). You can use one of these existing pins (by clicking on it) if it accurately represents your birding location. We do not suggest using birding hotspots (the red pins) to report your atlas observations as often these hotspots refer to larger areas that cross Block lines or are near Block edges and may not be a good representation of where you birded. To set up a new location on the map, click on the map to plot the midpoint or center of the area that your species list represents. You should enter a name for this location where it says "Enter Location Name". It really doesn't matter what you call it, but we strongly suggest including the Atlas Block name in your location name. Note that after you enter a location once, the location name will be available from the "Choose From Your Locations" dropdown list. You can select an entire Atlas Block as your location (Blocks are approximately 9 square miles), but these less precise locations are not as useful for analysis, so we recommend using the Block-wide point for data entry only in rare instances when you were not exactly sure where you were in the Block, or for the odd incidental observation. Hit the "Continue" button to go to the "Date and Effort" page.

On the "Date and Effort" page, choose the observation date from the pulldown menu. For "Observation Type" most atlas volunteers working in their Block will select "Traveling", but you should select the type of observation that best describes your checklist. Enter the start time of your survey and make sure to choose AM or PM or use the 24-hour clock. Currently the eBird system flags a checklist as nocturnal if the survey starts more than 40

Appendix 5. eBird Data Entry (continued)

minutes before sunrise or more than 20 minutes after sunset, so please make separate checklists for nighttime and daytime observations. Do estimate and fill in the distance traveled and the party size, if applicable. Note that the distance traveled is the one-way distance. Do not count the distance you backtrack along the same track. Hit the "Continue" button to go to the "What did you See or Hear?" page.

On the "What did you see or hear?" page, enter the number of individuals you observed for each species at the location covered by that checklist. It is fine to give a rough estimate for the number of individuals seen or heard. For those species for which you observed breeding behavior of any type, you should click the "Show Breeding Code" button and then "Choose the highest possible code" that you observed. We recommend filling in breeding codes for all birds observed on each visit, although it is not essential for species that have already been documented as a confirmed breeder in the Block. Once you have all of your records entered, click the "Submit" button in the lower right hand corner of the screen.

Appendix 6. Volunteer Vehicle Placard. Printable Placards are available on the Maine Bird Atlas webpage.

BIRD SURVEY IN PROGRESS

Maine Bird Atlas Volunteer

The Maine Bird Atlas is a 5-year project to document the numbers and distribution of breeding and wintering birds in Maine. A volunteer of the Atlas Project has parked here to gather important information for the project in a nearby area.

Atlas volunteers have been trained to record data by observing birds only and will not cause disturbance to wildlife or property.

If you have concerns or would like to participate, visit www.maine.gov/birdatlas or contact the Maine Bird Atlas project coordinator (mainebirdatlas@gmail.com).

In an emergency, contact the Maine Game Warden dispatch center 24-hours a day (1-800-432-7381).

Thank you for your cooperation!

Appendix 7. Landowner Permission Request Letter. Printable Letters are available on the Maine Bird Atlas webpage.

Dear Landowner,

I am a volunteer working on the Maine Bird Atlas project, a 5-year citizen science project using hundreds of volunteers to document the numbers and distribution of breeding birds throughout Maine. I am writing to ask permission to access your land for the purposes of this project. I am hoping to make several visits this spring and summer to simply observe birds and watch for evidence of breeding behavior. The results of this project will be vital to understanding the status of birds in Maine and guiding future management decisions.

Your property is included in a systematically chosen 9-square-mile survey block that I was assigned. Your property may contain unique habitats, and birds, not found elsewhere in the block and I would like to take a closer look. The only activity on your land will be to watch birds and determine which bird species are breeding in this area. I assume full responsibility for my own welfare and will be careful not to disturb you or your property. I am willing to discuss any rules or stipulations you may have, and I am happy to provide you with a list of birds observed during my visits. In addition, I would be grateful to receive any information that you may already have about nesting birds on your property.

Would you grant me permission to survey birds on your land as per the following:

Specific areas to survey:

Time of survey (how often, time of day):

Thank you for considering my request. Please feel free to contact me with any questions you may have as well. I look forward to hearing back from you within the week.

Please visit the Maine Bird Atlas webpage at www.maine.gov/birdatlas to learn more about the project and even sign up to be a volunteer yourself.

Sincerely,

Surveyor:

Telephone:

Email:

Appendix 8. Project Staff, Committee Members, & Partners

The Maine Breeding Bird Atlas project staff extends a sincere thank you to the partner organizations and committee individuals who contribute a significant amount of time and effort to this project.

Project Staff

Project Director
Adrienne Leppold, Ph.D. (MDIFW)

Project Coordinator
Glen Mittelhauser (MNHO)

Outreach Coordinators
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Partners

MAINE DEPT. OF INLAND FISHERIES AND WILDLIFE

Maine Natural History Observatory

MAINE AUDUBON

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innovative wildlife science