Wisconsin
Breeding Bird Atlas II

Atlasing Handbook
2015–2019

www.wsobirds.org/atlas

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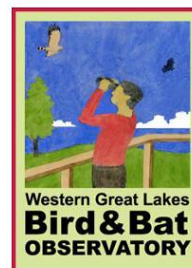
WISCONSIN DEPT. OF NATURAL RESOURCES

Western Great Lakes Bird & Bat OBSERVATORY

WBCI

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ACKNOWLEDGMENTS

The Wisconsin Breeding Bird Atlas II Logo was designed by Roxanne Schrank.

Wisconsin Breeding Bird Atlas II is a project of the Wisconsin Society for Ornithology, Wisconsin Department of Natural Resources, Western Great Lakes Bird and Bat Observatory, and Wisconsin Bird Conservation Initiative.

We gratefully acknowledge the tireless work of many partners and colleagues who helped with the first Wisconsin Breeding Bird Atlas (1995–2000). Without their tireless efforts, we would not be here today in a position to replicate and compare results. During that effort, 1,602 atlasers gathered a tremendous amount of data. Thanks especially to Noel Cutright, Bettie Harriman, and Robert Howe. Bettie coordinated the entire project, and together these three individuals edited the final project from the first Atlas: the high-quality hardcover reference book *Atlas of the Breeding Birds of Wisconsin*.

The following individuals were also instrumental to completion of the first Wisconsin Breeding Bird Atlas: Jeff Baughman, Brian Boldt, Susanne Brown, Jennifer Davis, Barbara Duerksen, David Flaspohler, Jim Frank, Karen Etter Hale, Drew Hanson, Becky (Isenring) Schroeder, Alex Kailing, David Kuecherer, Sumner Matteson, Martha Mealy, Mike Mossman, Christine Reel, Sam Robbins, Robert Rolley, Amber Roth, David Sample, Tom Schultz, Daryl Tessen, and William Volkert.

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INTRODUCTION

The Wisconsin Society for Ornithology (WSO) initiated the first Wisconsin Breeding Bird Atlas in spring 1995. This statewide project filled gaps in our understanding of the natural history and distribution of the 235+ species of birds breeding in the state. Over 1,600 surveyors explored all of Wisconsin's habitats and generated over 170,000 records of breeding birds, making this the largest citizen-based monitoring project in the state! This multi-year effort provided a permanent record of all the birds breeding in the state at the end of the twentieth century and culminated in a 624-page hardcover book published in 2006, *Atlas of the Breeding Birds of Wisconsin*, edited by Noel Cutright, Bettie Harriman, and Robert Howe.

A second Atlas project (Wisconsin Breeding Bird Atlas II; hereafter WBBA II) is now underway. The planning team includes partners from the Wisconsin Society for Ornithology, Wisconsin Department of Natural Resources (WDNR), Western Great Lakes Bird and Bat Observatory (WGLBBO), Wisconsin Bird Conservation Initiative (WBCI), other agencies, non-governmental organizations, and many volunteers. The committees started their work in late 2012, and 2014 has seen the growing involvement of many partners, a collaboration between WSO and the Cornell Laboratory of Ornithology to create a new online Atlas data entry application through eBird, and the hiring of a coordinator within WDNR.

As described in the first Atlas handbook, "it is difficult to overstate the importance of this project for the natural heritage of Wisconsin." Changes in land use, the emerging effects of climate change, expansion of invasive species, and human development of urban and "exurban" habitats in this state and elsewhere in the Western Hemisphere continue to have sweeping and often unforeseen effects on our birdlife, other wildlife, and natural resources. The comprehensive data on distribution and abundance of breeding birds generated by this effort will provide critical information to inform a variety of conservation strategies and management actions and help ensure that the richness and diversity of our state's birds are maintained into the future. The OBJECTIVES highlight the many important contributions this project will make to our understanding of Wisconsin birds.

We hope this project will provide an opportunity for the many avid bird enthusiasts in Wisconsin to get out in the field, have some fun, make new friends, learn more about the natural history of birds, and all the while contribute to ornithological research and conservation in the state. To paraphrase Fran Hamerstrom, this is "birding with a purpose." The partnership of WSO, WDNR, WGLBBO, and WBCI look forward to working with all of you who are gathering field information and to forming relationships with many other organizations and agencies that can provide valuable assistance.

One of the advantages of an Atlas is that you'll get to know the birds in your block(s) intimately. Your skills as a birder will be greatly enhanced, and you will go far beyond just making a list of birds observed, to aspects of exploring and studying the birds' behavior. Many people across the country have become enthusiastic atlasers. Now it is our chance once again, and there is surely not a more beautiful and interesting state to work in than Wisconsin.

HISTORY OF ATLASES

The concept of mapping plant and animal distributions began in 1860 when the German botanist Herman Hoffman mapped the distribution of plants using his own grid system. Phillip's *A Natural History of the Ducks,* published in 1922, showed the distribution of each duck species in the world and

this effort was soon followed by state bird books for New Mexico (1928) and Florida (1932) showing range maps.

Inspired by *Atlas of the British Flora* published in 1962, a British breeding bird Atlas was initiated in 1968 and resulted in the publication of the results in 1976. The first atlas attempt in North America began in 1971 in Montgomery County, Maryland. A few other counties embarked on efforts shortly thereafter, followed by a statewide atlas in Massachusetts. Other northeastern states followed suit, and a few western states initiated "latilong" projects involving large blocks enclosed by 1° of latitude and 1° longitude.

The formation of a North American Ornithological Atlas Committee and regional/national atlas meetings helped spread the atlas concept. Many states and Canadian provinces started 4–6-year field efforts during the 1980s, and in the 1980s and 1990s, many counties in California even undertook their own bird atlases. In the Midwest, Michigan, Illinois, and Iowa published their first atlases between 1991 and 2004; and Minnesota has just recently completed their first atlas project.

The first serious interest in a Wisconsin Breeding Bird Atlas was shown by a few Wisconsin birders in 1993. Momentum was maintained into 1994, and a small steering committee began regular meetings in summer 1994. Field work ran from 1995 to 2000, and culminated with the publication of *Atlas of the Breeding Birds of Wisconsin* in 2006.

Second atlases have been completed in Alberta, Colorado, Delaware, Iowa, Indiana, Maritime Provinces (New Brunswick, Nova Scotia, Prince Edward Island), Maryland and Washington DC, Massachusetts, Michigan, Nebraska, New York, Ohio, Ontario, Pennsylvania, South Dakota, and Vermont. Second atlases typically include more rigorous and sometimes highly focused data-collection protocols and analyses, while maintaining enough similarity to allow results to be compared between each.

SCOPE OF THE ATLAS PROJECT

Wisconsin Breeding Bird Atlas II will involve thousands of volunteers conducting fieldwork throughout Wisconsin beginning in 2015 and continuing for an expected 5 years.

While the individual Atlas participant is the key to the success of the entire project, County Coordinators will play an important role by organizing the efforts of volunteers to achieve adequate coverage of targeted survey blocks. During the first Atlas, Wisconsin was divided into 27 regions with 2–4 counties in each region, overseen by Regional Coordinators. For WBBA II, the coordinators will be working on a county instead of a regional basis.

As in other U.S. atlas projects, Wisconsin has been divided into a grid based on 7.5-minute (1:24,000) topographic quadrangles. Each quad has been divided into six blocks, with the center-east block designated as the Priority Block. Within each block, observers attempt to ascertain the presence and breeding status, and relative abundance of as many species as possible.

Observers record field observations of birds at precise geographical locations, and submit the results of their fieldwork into eBird at the end of each day. Summaries of incoming data such as effort totals, species lists, and maps will be available online as the project proceeds, and final results will be presented online and likely in a printed book.

PURPOSE AND OBJECTIVES

PURPOSE

The purpose of Wisconsin Breeding Bird Atlas II is to determine the distribution and abundance of the breeding birds in Wisconsin in order to provide a record of current birdlife and a comparison to the first Atlas, and to make these data readily available to support the conservation of birds and their habitats.

OBJECTIVES

WBBA II has multiple objectives, all of which will contribute to a better understanding of the Wisconsin avifauna. The Atlas will:

- Survey the state of Wisconsin systematically for evidence of breeding during the appropriate seasons for all bird species using replicable survey techniques.

- Classify the breeding evidence for each species using a set of codes based upon observable behaviors and map the breeding records for each species using a system of blocks covering the state.

- Provide measureable data that will allow comparisons with other Wisconsin studies to document breeding bird population changes and trends, especially comparisons to the first Wisconsin Breeding Bird Atlas.

- Obtain finely resolved data for property inventories and identification of areas important to birds.

- Provide accurate information on the nesting occurrences, phenology, habitats, and status of rare, special concern, and poorly monitored bird species.

- Conduct point counts to generate population abundance estimates, density maps, and gather data important for conservation planning.

- Provide a major scientific database and reference for public policy, conservation planning, education, recreation, and research.

- Introduce Wisconsin birders to a new and exciting way of birding, which at the same time contributes valuable scientific information.

- Provide a coordinated and cooperative project that will bring bird enthusiasts together along with partnering organizations and agencies so they will become more involved in conservation issues and educated about birds as a natural resource.
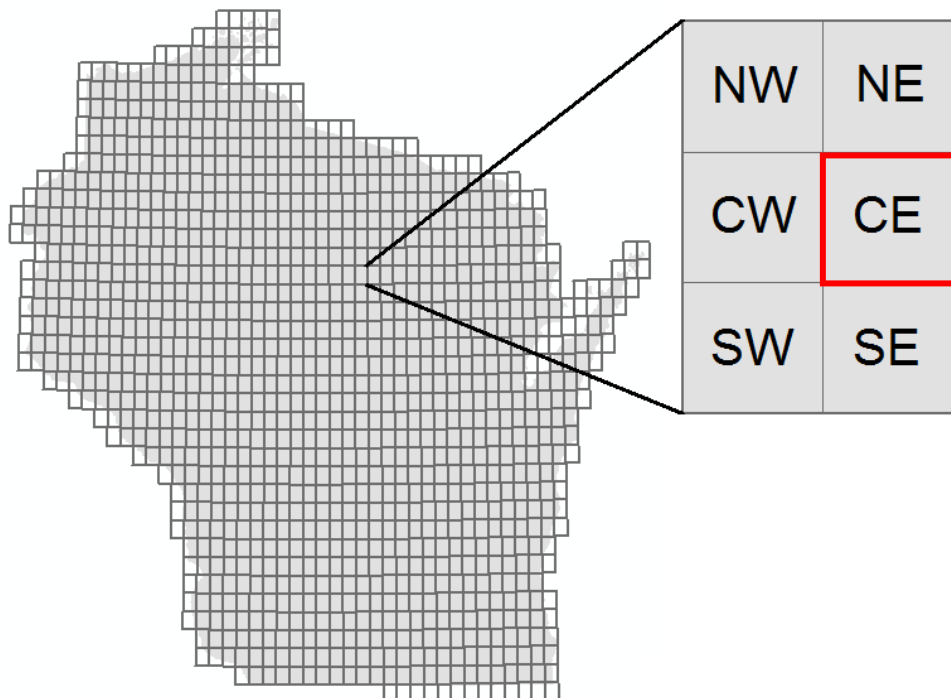
MATERIALS

THE ATLAS BLOCK SYSTEM

Surveying the entire state of Wisconsin for nesting birds would be difficult; therefore, sampling units called blocks have been established using a grid system based on 7.5-minute topographic quadrangle maps (quads) prepared by the U.S. Geological Survey. Each quad has a 7-digit number and a name that is used as a unique identifier. For atlasing purposes, each quad is divided into 6 blocks, each roughly 3 x 3 miles and encompassing about 23 sq km (9 sq mi).

The map of Wisconsin is comprised of about 1,175 quads, thus approximately 7,050 blocks are in the grid system. Each block has been coded with a 2-letter code: either northwest (NW), northeast (NE), center-west (CW), center-east (CE), southwest (SW), or southeast (SE) (Fig. 1). In most cases the CE block is the "Priority Block" for atlasing (see below for explanation of Priority Blocks). Some CE blocks encompassing large amounts of open water or located largely in a neighboring state will not be priorities; in these cases (mostly on the edge of of the state) an alternate block is designated as the Priority Block.

Fig. 1. 7.5-minute grid system showing how the six Atlas blocks fall within a quad. For most quads, CE has been designated the Priority Block that requires complete coverage.

A potential area of confusion is that some official USGS quad names already contain a two-letter directional suffix. To avoid confusion in these rare cases, remember that the final letters always indicate the block position (e.g., Jacksonport SW NW is the NW block in a quad named Jacksonport SW; see Fig. 2).

Fig. 2. Naming convention for a quad that already has a directional suffix (Jacksonport SW).

Institute - SW	Institute - SE	Jacksonport - SW	Jacksonport - SE
Sturgeon Bay East - NW	Sturgeon Bay East - NE	Jacksonport SW - NW	Jacksonport SW - NE
Sturgeon Bay East - CW	Sturgeon Bay East - CE	Jacksonport SW - CW	Jacksonport SW - CE
Sturgeon Bay East - SW	Sturgeon Bay East - SE	Jacksonport SW - SW	Jacksonport SW - SE
Algoma NE - NW	Algoma NE - NE		

Priority Blocks

The ideal for an Atlas would be to survey all 6 blocks in each quad. But with Wisconsin's large size, the time limit for surveying, and the distribution and number of observers, this is not possible. Since uniform coverage throughout the state is critical, the center-east Block (CE) of each quad is the designated Priority Block, as with the first Atlas. At a minimum, this block in all quads must be completely surveyed in order for the Atlas to be successful (with occasional exceptions when the CE is not the priority block, for reasons described above). To illustrate, it is preferable for only 1 block to be surveyed in every quad in the state than for all 6 blocks to be surveyed in 80% of the state while 20% of the quads are left unsurveyed. County Coordinators are responsible for ensuring that the Priority Blocks in their areas are surveyed.

Specialty Blocks

In addition to the Priority Blocks, 153 Specialty Blocks containing unique habitat, properties of high conservation value, or particular ornithological interest have been selected for surveying. For WBBA II, we primarily selected Specialty Blocks containing high-quality examples of the following high-priority habitat types that might not otherwise receive good coverage: bottomland hardwoods, coastal and island areas, conifer swamps, emergent marshes, grasslands, pine barrens, southern forest interiors, upland shrubs, and wet meadows. We also considered whether a block was a Specialty Block during the first Atlas (we retained many, but not all of these). County Coordinators are responsible for ensuring that the Specialty Blocks in their areas are surveyed.

Regular Blocks

While the importance of getting Priority and Specialty Blocks completed cannot be overemphasized, there is no restriction from atlasing in other blocks. In fact, surveys in Regular Blocks are welcomed, but not at the expense of Priority and Specialty Blocks. For example, if your residence or cabin is not in a Priority Block, you could survey in the nearest Priority Block as well as in the block that contains your property. Incidental reports from Regular Blocks can provide important information on areas that might not otherwise receive coverage. Regular blocks can also be targeted if the Priority and Specialty Blocks in your area are completed and your atlasing effort is limited geographically. Overall, we are striving to completely survey all Priority Blocks, all Specialty Blocks, and then as many as Regular Blocks as effort allows (Note: these were termed "Supplemental Blocks" during the first Atlas).

Sign up for a Block

Skilled birders are encouraged to sign up to be the principal atlaser for a block by going to the Block Request Tool. This map allows atlasers to commit to completing a Specialty or Priority Block. Signing up for a block does not prevent anyone else from atlasing in that block, but it serves as a general system to help us distribute effort. Feel free to submit a checklist if you find yourself in "someone else's" block, but if you are looking around trying to find somewhere to really focus on, it's best to select an area that is not already being covered. County Coordinators are responsible for managing block signup, and it's a good idea to send your local coordinator an email if you're trying to figure out how you can best help. You do not need to sign up for a block to participate in the Atlas, but we encourage active and skilled birders to sign up for at least one block, preferably multiple blocks over the span of the Atlas. If you are a beginning birder and not yet comfortable with your ability to identify the majority of birds you see and hear, you should probably not sign up for a block, or you should find a more experienced partner to work the block with you (check the Mentor section of the online Forum).

By signing up for a Priority/Specialty Block, you are committing to complete a survey of the block during the survey period for Wisconsin Breeding Bird Atlas II (2015–2019). We recommend that you only sign up for a block if you plan to atlas it in the coming year (e.g., if you have a block you were thinking of covering in 2018, don't sign up for that in 2015). This will help County Coordinators as they attempt to ensure people are completing blocks they signed up for in a timely fashion.

Responsibilities include:

1. Adequately surveying your block for all breeding bird species. See Block Completion Criteria for more information on what this entails, but plan to spend at least 20 hours in a block before you consider it complete.

2. Regularly submitting your data to the Wisconsin Breeding Bird Atlas II eBird portal. Because we are working together to complete blocks, it is important that you enter your checklists in a timely fashion so that your effort is not duplicated by others. You will find that your memory of a visit fades fairly quickly, so there is value to getting your list submitted before you forget any details that you may have inadvertently left off your field datasheet.

3. Providing additional details for observations of rare or priority species (see DOCUMENTING RARE OR PRIORITY SPECIES). This furnishes important information for WDNR's Natural Heritage Inventory Program, WSO bird records, and other conservation efforts.

To use the Block Request Tool to sign up for a block, navigate to the county where you plan on doing your surveys. Use the plus icon on the left-hand zoom bar to zoom in, and click and hold to pan. Blue boundaries are the Priority Blocks, black boundaries are the Specialty Blocks, and solid red blocks are ones that have already been assigned. To sign up for a block, click inside the block. A popup window gives the name of the block and if it is available. Click "Sign up here" which opens up a new window where you will fill out the information and then submit the form. The County Coordinator will review your request and contact you with questions, concerns or approval. It is also possible to sign up as a backup surveyor for a block, in the event the original person who selected the block does not follow through.

Skilled volunteers are strongly encouraged to survey more than one block during the course of the Atlas. It is acceptable to sign up for multiple blocks at the same time, as long as you intend to begin surveying each of them in the upcoming field season. Please contact your local County Coordinator(s) for suggestions about how best to allocate your field effort.

MAPS

As an atlaser, maps will be one of your best friends, guiding you on the access, habitats, ownerships, topography, and boundaries of your block. There are several ways to view and print maps of blocks, and to determine where block boundaries fall.

The simplest are static block maps, which are available with either topographic or aerial photo backgrounds for every block in the state. These show roads, waterbodies, and property boundaries, and are easy to download and print from the Atlas website.

For a more detailed and dynamic look at the habitat and ownerships within your block, visit the WDNR WBBA II Interactive Map (available for desktop and mobile/Mac). This comprehensive tool allows you to zoom in and out and turn on and off layers like public land boundaries, open-access Managed Forest Law (MFL) properties, aerial photos, topographic map, landcover, Important Bird Areas, township/range/section, and much more. Maps are printable at any scale you choose.

A note on the open-access MFL properties: these are private lands in the Managed Forest Law program, which allows property owners to get a tax break for sustainably managing their forests and a further tax break for allowing public access to their land for activities such as hiking, sightseeing, and hunting. As these are private lands, please be respectful (see ATLAS ETHICS section). Landowners may withdraw their properties from the MFL program or change the access, which would take effect on January 1 of any year, so if you printed a paper map with the MFL triangles on it, please be aware the status of these properties can change. We recommend consulting your local forester if you have questions on boundaries or access to these properties.

Other ways to get a quick look at the block structure include going to the WBBA II eBird portal, and clicking on Submit Observations and Find it on a Map, or going to the Block Request Tool (this only shows Specialty and Priority Blocks).

The WBBA II block layer is also available for download onto your own computer. You can load it into Google Earth (a free program, requires download and installation) in kmz format, or load it into other

GIS software as a shapefile. Block layers are also available for download onto a GPS at either the quad or county level.

A county plat book that shows ownership and parcel size is very useful in identifying landowners and requesting permission to enter private land. Ownership information on parcels is now available online for many counties. Additional materials that will be useful when making contacts with landowners in your block are discussed in the SURVEYING A BLOCK section.

If you have difficulty obtaining a map for your block, contact your local County Coordinator.

ATLAS DATA FORMS

The process and forms for recording data for WBBA II are different from the first Atlas, so please read this section carefully!

First and foremost, observers must submit all data to the project via the WBBA II eBird portal. Unlike last time, you will not submit paper forms to the project. This is explained in-depth in the HOW TO ENTER DATA section below. Multiple opportunities will be available for data-entry training. Atlasers that need additional help should contact their County Coordinator.

Despite entirely electronic data submission, you will still need to record data in the field to be submitted later. Thus we have provided three different types of field datasheets to facilitate this process. Please retain used datasheeets and other field notes for later reference if needed.

1. *Field Checklist*: This is a traditional style of blank data form designed for two checklists. It allows for recording basic but required information (Observer name, location, date, time, distance traveled, etc.) and recording names of species observed, number of individuals of each species, and breeding codes. The strategy is to aim for complete checklists of birds covering relatively small distances (<5 miles, shorter is even better), and within a single ownership (e.g., entirely within a state wildlife area), see (). Because of this, you might fill out several field checklists in a single day within a single block. Unlike last time, you should NOT fill out a single datasheet for the whole block.

2. *Block Summary Card*: It will be useful to have a reference in the field showing which birds you have detected in the block and the highest levels of breeding observed for each. This will ensure you know which species to seek out or species for which you need to upgrade breeding status. The Block Summary Card lets you keep a running total for yourself similar to how a field card worked during the first Atlas. **Be aware that this block summary form is not to be used as a daily checklist, and not to be submitted!** This is simply for your own benefit when surveying a block that you survey often. You can update it between visits to the block, and check the eBird Explore a Region tool to update it with observations from other atlasers in the same block. You can also use it to keep track of your non-survey effort as a volunteer (time and hours spent driving to your block), which will be recorded via a separate form (see SUBMITTING VOLUNTEER HOURS).

3. *Quick Reference Guide*: This functions as a "cheat sheet" that provides: the essential data to be recorded with each checklist, breeding code definitions, the list of priority species requiring additional levels of information, and habitat classifications. While primarily designed for users

that would rather use a field notebook or blank sheets on a clipboard, all atlasers will find the Quick Reference Guide useful in the field.

BREEDING CRITERIA AND CODES

The main difference between atlasing and general bird surveying is that when atlasing, you strive to observe and report specific behaviors that provide varying levels of evidence that a species is breeding in a block. The codes below are listed in increasing levels of confidence that a species is breeding. Your goal is to CONFIRM breeding for as many species as you can (>50% is required for a block to be complete) and to "upgrade" the breeding evidence for each species to the highest level possible. Please familiarize yourself with these codes and their definitions before you go into your block.

Accuracy of species identification and code assignment is of utmost importance. Tentative identifications should NOT be recorded. It is fine to make a note to yourself about a tentative identification to be verified later, but please be positive about any data submitted to WBBA II. Visit the Bird Identification section of the online forum if you are seeking input on identification. A printable form with breeding codes and brief definitions of each is provided on the WBBA II website for you to print and take into the field to use as a reference while surveying (see Quick Reference Guide, above). We recommend reviewing and printing the Breeding Guideline Bar Chart (pdf, spreadsheet) which shows the typical range of breeding and migration dates for each species in the state.

Codes are divided into four categories of breeding evidence: Observed, Possible, Probable, and Confirmed. Codes are listed in order of increasing certainty of breeding. As the season progresses or in later field seasons, you will continually upgrade these codes for your block's species list from Possible to Probable and Probable to Confirmed. Upgrading can also occur within categories. **On any given day of surveying, you should enter only the highest breeding code observed for each species on each checklist.** Once a species is confirmed in your block, it is not necessary to spend time just to upgrade in the Confirmed category, though you should enter upgrades into the eBird Atlas page if you observe them. If you confirm a rare species, it would be useful to document its continued occurrence or breeding in succeeding years.

Observed

Observed: Species present but without evidence of breeding and outside of its breeding season or suitable nesting habitat. In the previous Atlas, O was the code used to designate that a species was Observed. In WBBA II, however, no code is required; any bird you enter into your eBird checklist without another code from the list below will automatically be considered Observed. This category could apply to migrant songbirds, herons or egrets foraging with no indication of a nearby rookery, or singing birds outside of the dates recommended by the Breeding Guideline Bar Chart (pdf, spreadsheet).

Note that we strongly recommend reporting complete checklists that include all birds found on an outing. Thus many checklists outside of prime summer breeding season are likely to contain a mix of Observed species (no code) and species with higher level breeding codes (below).

F   **Flyover:** This is similar to the Observed category above, but pertains strictly to birds that only fly over and never interact with the habitat. This code is useful to distinguish birds you see that

may not be breeders in your block. If you see a Turkey Vulture soaring high overhead or a Great Blue Heron flying above treeline, it is not clear if those birds nest in your block. It is also acceptable, though less informative, to enter these sightings with no code.

Possible

H   **In Appropriate Habitat:** Species seen in suitable nesting habitat during its breeding season, such as Virginia Rail in a marsh or Scarlet Tanager feeding in an oak woodlot in June. Use caution when close to migration; refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for typical range of breeding and migration dates for each species in the state. Avoid using this code if the bird in question may still be a migrant or wintering.

S   **Singing male:** Use this code for a male singing in a likely nesting area on only one occasion. If heard on a second trip during the breeding season in the same place, it may qualify as Probable – S7. This code is also used for non-songbirds giving their primary vocalization during the breeding season (e.g., owls, rails). Use caution when close to migration; refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for guidance and avoid using this code if the bird in question may still be a migrant or wintering.

Probable

S7   **Singing Male Present 7+ Days:** Singing male present at same location on at least two occasions 7 or more days apart. This behavior presumes a permanent territory. **This code should only be used if the initial observation was made after migration ceased!** Refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for guidance. Note that "7 or more days apart" is assumed to be within the same breeding season (not April 7 and October 10 or May 5, 2015 and May 5, 2016).

M   **Multiple (7+) Singing Males:** Multiple (seven or more) singing or territorial birds of a species detected within a block on one day. Use caution when close to migration; refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for guidance and avoid using this code if the birds in question may still be migrants or wintering.

P   **Pair in Suitable Habitat:** Pair observed in suitable nesting habitat during the breeding season. Use this code when you are fairly certain that a mated pair of birds has been observed. Look for behavioral cues to determine if you have a male-female pair.

T   **Territorial Defense:** Permanent territory presumed through defense of breeding territory by fighting or chasing individuals of same species. Because territoriality involves the defense of a fixed area, it is useful to map locations of individuals to determine if they are singing or defending the same general area when surveying the block a week or more later. Use caution when close to migration; refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for guidance and avoid using this code if the birds in question may still be migrants or wintering.

C   **Courtship, Display, or Copulation:** Courtship behavior or copulation between a male and a female. Courtship behavior includes transfer of food, displays, and grooming between a pair of birds.

N **Visiting Probable Nest Site:** This code applies when a bird is observed visiting the same likely nest site repeatedly, but which provides insufficient behavior for upgrading to Confirmed. This is especially useful for cavity nesters or for a shrub-nesting species that flies into the same thicket and disappears on several occasions.

A **Agitated Behavior:** Agitated behavior or anxiety calls from adults usually indicate a nest site or young in the vicinity. This does not include agitation induced by "pishing," predators, or using playback recordings.

B **Nest-Building by Wrens or Woodpeckers:** Nest-building by wrens or excavation of cavities by woodpeckers. Wrens may build "dummy" nests before the female selects a nest. Woodpeckers often drill holes for roosting.

Confirmed

PE **Physiological Evidence:** Physiological evidence of breeding based on bird in the hand. This code is used primarily by bird banders and includes evidence such as a highly vascularized swollen incubation (brood) patch or an egg in the oviduct.

CN **Carrying Nesting Material:** Bird seen carrying nesting material such as sticks, grass, mud, cobwebs, etc. For raptors, be sure the material is not simply incidental to prey capture/transport.

NB **Nest-Building (not wrens or woodpeckers):** Nest-building seen at the actual nest site, excluding wrens and woodpeckers.

DD **Distraction Display:** Distraction displays, defense of unseen nest or young, or injury feigning. Killdeers may give a "broken wing" act, a Cooper's Hawk may dive at you near the nest site, or an Ovenbird may run about with wings fluttering. A good way to differentiate between Probable – A and Confirmed – DD is to remember that when an adult performs a distraction display, it puts its own life in danger.

UN **Used Nest:** Used nest or eggshells found, but no adult birds were seen nearby. Use this very cautiously and only for unmistakable eggshells and nests that were used during the Atlas period. Add comments detailing how you identified the nest. If identification is unsure, forget it. Do not collect a nest, but take a photograph if possible. If you did not observe any individuals of the species of bird that made the nest during your visit, then enter a "0" in the number field during data entry.

ON **Occupied Nest:** Occupied nest indicated by adult in nest (incubating position) or entering or leaving nest site in circumstances indicating an occupied nest, including those in high trees, cliffs, and chimneys where the contents of the nest and incubating or brooding adult cannot be seen.

FL **Recently FLedged Young:** Recently fledged young or downy young. This includes dependent young only. Be cautious of species that range widely soon after fledgling. One of the best features to look for is the length of the tail feathers – if shorter than the adults, the young

probably originated locally. Young cowbirds begging for food confirm both the cowbird and the host species.

CF   **Carrying Food:** Adult carrying food for young. Use this code with caution. Some adults carry food a long distance or may be engaged in courtship feeding. Others such as the Common Grackle or Blue Jay may carry food away to consume it themselves. One of the best signs to look for is the repeated carrying of food in the same direction. This code should not be used for species that regularly carry food for courtship or other purposes, such as corvids, raptors, and terns.

FY   **Feeding Young:** Adult bird feeding recently fledged young that are not yet independent. This code should not be used for species that may move many miles from the nest site, such as raptors and terns.

FS   **Carrying Fecal Sac:** Adult bird seen carrying fecal sac. Many passerine adults keep their nests clean by carrying membranous, white fecal sacs away from the nest.

NE   **Nest with Eggs:** Nest with eggs (or eggshells on ground). Nest and eggs must be accurately identified via presence of an adult bird in order to use this code. If no birds are seen, use the UN code above. Be careful not to disturb the vicinity of the nest, but waiting from a distance until an adult is seen is encouraged, to confirm the identification. If a cowbird egg is found in nest, use code NE for both the cowbird and the host species; if no individual cowbirds were seen that day, then enter a "0" in the Brown-headed Cowbird number field during data entry.

NY   **Nest with Young:** Nest with young seen or heard. Take care not to cause premature flushing of nestlings from nest. Presence of cowbird young confirms both the cowbird and the host species. Please record a comment indicating the host of the cowbird young, if known.

Examples of Breeding Code Use

The following are examples of situations that may be encountered during atlasing to serve as guidelines in assigning codes. If in doubt, consult with your County Coordinator or post a question to the Discussion Forum.

- Loons, cormorants, or ducks in adult plumage summering on a lake with suitable breeding habitat, but no display or broods (pairs of waterfowl are generally not reliable as breeding evidence): Possible – H.

- Herons or egrets (colonially nesting species) observed in marshes or along waterways away from nesting colony: Observed – (No code).

- Green Heron or bitterns (non-colonial nesting species) observed in appropriate nesting habitat: Possible, Probable, or Confirmed, depending on breeding evidence obtained.

- Black-crowned Night Heron in subadult plumage during early summer: Observed – (No code).

- American Woodcock or Wilson's Snipe display flights, Ruffed Grouse drumming, Spruce Grouse performing flutter-jumps, Greater Prairie-Chickens or Sharp-tailed Grouse lekking, Common Nighthawk booming. Display behavior warrants using Probable – C for all of these situations. If you are observing the displays during the apparent breeding season, then it is likely these birds are displaying on their breeding territory.

- Shorebirds that normally breed in tundra areas summering in marshes or on a mud flat: Observed – (No code).

- Rails heard in a marsh early in breeding season but not relocated on subsequent visits: Possible – S

- Gulls frequenting dumps, plowed fields, lawns, etc. throughout the summer in unsuitable breeding habitat: Observed – (No code).

- Woodpeckers drumming: We consider woodpecker drumming to be analogous to singing, so use Possible – S if heard once in the breeding season or Probable – S7 if encountered again 7 or more days later. Note: only Pileated Woodpeckers and Yellow-bellied Sapsuckers can be reliably identified by their drumming sound.

- Killdeer doing broken-wing distraction display along roadside but young not seen: Confirmed – DD.

- Male and female Scarlet Tanagers observed together several times in same area but no nest ever seen: Probable – P.

- Male House Wren sings all summer and stuffs nesting boxes with sticks but no evidence of a mate or fledglings: Probable – B.

- Song Sparrow seen carrying nesting material: Confirmed – CN.

- Wood Thrush seen on nest for an extended period of time but nest too high to see contents: Confirmed – ON.

- Lark Sparrow observed once in late May in abandoned field: Possible – H.

- Normal winter or typical spring migrants lingering beyond normal departure dates but no breeding evidence observed: Observed – (No code).

- Second-year male American Redstart singing abnormal song in hedgerow in early June: Possible – S.

BREEDING GUIDELINE BAR CHART

One of the most challenging aspects of atlasing is separating possibly breeding birds from birds unlikely to be breeding. Is that May 9 American Redstart singing on territory or just in migration? Is that July 10 Solitary Sandpiper a local breeder? What about the Northern Cardinal signing in my neighborhood in February?

We have compiled a general guidance document to help you - the Breeding Guideline Bar Chart (available as a pdf and as a larger, sortable spreadsheet). This document is intended as a general guide to when species are expected to be migrants or nonbreeders in your area, or when it's reasonable to assume a bird you encounter is on a breeding territory. The abbreviations are as follows:

B = Breeding. It is generally reasonable to assume birds present during this time window are breeders (*See exceptions below where things get tricky).

M = Migrant. This is the expected prime migration window for this species. You cannot safely assume a bird in suitable habitat is a breeder. In practice, for some species, this code also denotes a post-breeding period where birds may not actually be migrating, but observations of breeding activity are no longer likely.

E = Either. This is a window of overlap between breeding and migration or between breeding and nonbreeding — it is entirely possible that birds are on a breeding territory, however migrants are also moving through, or birds observed may not be on their breeding territory. Take note of singing birds in suitable habitat but do not consider them as Possible resident breeders until later visits.

N = Nonbreeding. This indicates birds present in what is likely not their breeding season.

These guidelines are designed to provide a general impression of the typical phenology for each species. **However, your field observations take precedence over this chart** — if you see a breeding behavior in a period marked M, mark it down! The lower breeding codes that are generally the most uncertain (birds in suitable habitat and singing males) are the situations where we hope this spreadsheet will provide the most guidance. Remember that an early or late spring can affect when migrants move through and when birds settle on territory. Remember also that in spring, birds may show up in the southern end of the state several weeks before they arrive in the northern end of the state, depending on the weather.

*Exceptions to B during the summering period being safely assumed to be breeding
- Extremely rare birds (normal breeding phenology is listed here, extremely rare birds are bolded)
- Rare singing songbirds not always likely to pair (White-eyed Vireo, Kirtland's Warbler)
- Colonial waterbirds prone to roaming (Am. White Pelican, Double-crested Cormorant)
- Oversummering terns and gulls (Great Black-backed Gull, Caspian Tern, Little Gull)
- Shorebirds (many arctic shorebirds that do not breed here, but pass through in June and July)
- Species that wander in summer, early migrants (Tennessee Warbler, Philadelphia Vireo)

In addition to the temporal factor, obviously the breeding ranges of birds vary across the state. When using the lower breeding codes, it helps to be aware of generally known patterns of bird distribution. A Black-throated Blue Warbler singing near Madison at the end of May is likely not setting up a territory, but one near Rhinelander might be. Good references for expected breeding ranges include Species

Maps by month at eBird.org or the maps from the first Atlas. But of course if these ranges were still all the same we wouldn't be doing another Atlas — so please use these maps as general guidance of what to expect when, but let your field observations take priority over what you "should" be seeing. If you've got a Black-throated Blue singing for 3 weeks in June in Madison, mark it down as S7. Tricky records can and will be reviewed by County Coordinators and Atlas staff at the end of each field season.

ABUNDANCE

The primary objective of the Atlas is to collect breeding evidence for each species within a block. However, an estimate of the number of individuals seen will greatly increase the value of the Atlas for conservation planning and future comparisons of population change. Imagine if Audubon had noted only "the Passenger Pigeon is present" rather than estimating that in one flock, over 300 million birds flew by him each hour!

Record the total number of birds you saw or heard for each species on all eBird checklists. If you did not record the actual number in the field, it is acceptable to make an educated guess provided it is reasonably close to accurate. Although it's allowable to include an X on your checklist to indicate a species was present, it is highly preferred that you estimate the number of birds seen for each species. The difference between X Great Blue Herons nesting and 30 Great Blue Herons nesting or X Prothonotary Warblers and 5 singing Prothonotary Warblers provides important information about bird distribution, relative abundance, and quality of habitat near your checklist location. The number of birds entered on the checklist should represent the total number of birds seen or heard, NOT a projected estimate of how many may have actually been present and gone undetected.

HABITAT

Habitat — the environment in which an animal lives — is essential to breeding birds, and each species has a unique set of habitat requirements. Effective bird conservation relies on knowledge of these habitat requirements, so that suitable habitat can be provided for all species. During this Atlas, we will focus the collection of habitat data on priority species (see DOCUMENTING RARE OR PRIORITY SPECIES for the 3 lists of these species and more details). When you encounter these species, habitat codes and descriptions of the habitat should be entered either into the species-level comments field in eBird, or into the Priority Species Information Form, depending on the species and level of breeding that you found (again, see DOCUMENTING RARE OR PRIORITY SPECIES).

The habitat classification scheme developed for the Atlas has a "nested" arrangement, which allows participants to categorize habitats fairly precisely or at a more general level. If possible, distinguish habitat types to at least the third level of precision as shown below. For example, distinguish an upland coniferous forest from an upland mixed forest or distinguish between residential and commercial habitats in an urban setting. A fourth level of precision is highly recommended for those participants who feel capable; for example, to distinguish a hemlock-dominated upland coniferous forest from one dominated by pines. The entire habitat classification scheme is available on the website here, and an abbreviation version appears on the Quick Reference Guide. Though perhaps intimidating at first, this scheme is largely intuitive and relatively simple to follow.

Following is a synopsis of the major habitats and sub-categories comprising the first 3 levels of precision. The different levels of precision are labeled to the right of the Forest category. This scheme applies to

all of the habitat categories. First you decide which of the four major habitat categories (the bolded options: Forest, Shrub/Savanna, Open, Urban/Rural) your main habitat falls into, then work down to additional levels.

- **FOREST** (>50% tree cover).   (This is the 1st level, choose only one bold option)
  Upland or lowland.   (This is the 2nd level, upland or lowland forest)
  Hardwood or coniferous or mixed.   (This is the 3rd level, within upland or lowland)
  (Then there is a 4th level, see full habitat codes)

- **SHRUB/SAVANNA** (<50% tree cover, but with >25% total cover of woody vegetation
            [shrubs, saplings, trees]).
  Upland or lowland.
  Hardwood or coniferous or mixed.

- **OPEN** {<25% cover of woody vegetation).
  Upland or lowland.
  Agriculture or native or uncropped or water/wetland.

- **URBAN/RURAL** (Cities, villages, farmsteads, rural homes).
  Urban or small town or rural.
  Commercial or residential or open space or miscellaneous.

METHODS

SURVEYING A BLOCK

Your objective as an Atlas participant is to locate every bird species breeding in a block and confirm breeding for as many of those species as possible. Each species needs to be confirmed only *once* in a block. For example, one Red-winged Blackbird nest found in a block means Red-winged Blackbird is confirmed for that block for the entire 5-year period of the Atlas. (However, we encourage you to submit complete checklists of all birds seen every time you are afield; you just won't have to specifically seek out any additional Red-winged Blackbirds).

To get started, we suggest the following:

- **Determine what Priority and Specialty Blocks need surveying in the geographical area you wish to work** by visiting the Block Request Tool and consulting with your local County Coordinator. You may wish to team up with others to survey a block (see the mentor section of the forum to facilitate this). Local organizations may want to organize field trips into a particular block or several blocks. Every interested person, regardless of experience, can participate in the Atlas; however, if novices are involved in a group effort, more experienced atlasers should assist as needed to ensure accurate data.

- **Obtain all necessary materials** from the Atlas website, including this handbook and data forms. Familiarize yourself with the handbook, protocol, and data forms.

- **Familiarize yourself with the birds,** including reviewing the expected phenology on the Breeding Guideline Bar Chart, using the eBird Explore a Region tool to review what was present in your block during the first Atlas, and preparing yourself for bird identification by reviewing bird identification materials including audio of bird songs.

- **Obtain a map of the block** using either the static block maps (topo background or aerial photo background) or the WDNR Interactive Bird Atlas Map (desktop or mobile/Mac version), and study it carefully to familiarize yourself with block boundaries, roads, access points, and major landmarks. These will help you navigate around the block and determine the different types of habitats that need visiting. **It is important to survey representatives of each major habitat type present in the block.**

- **Visit your block** before the breeding season starts for most species if possible. This allows you to assess the landscape and condition of the roads, begin seeking landowner permission, and determine the number and extent of habitat types in the block. It is better to obtain permission to enter private property sometime before the day you actually plan to survey for birds. Talking with the landowner can take some time, and it is probably better done later in the day rather than when most surveying will occur. We have supplied a template letter to landowners to request permission (.pdf or editable word document), as well as the important thank you letter to landowners (.pdf or editable word document), which not only allows you to thank them but also gives you an opportunity to get them excited about the birds that were found on their property. We have created a Vehicle Sign to place in your vehicle driving slowly and suspiciously or parking in a location where it seems appropriate to identify your vehicle. We also have created an Atlas Flyer for Public Interactions, a one-page summary of the project
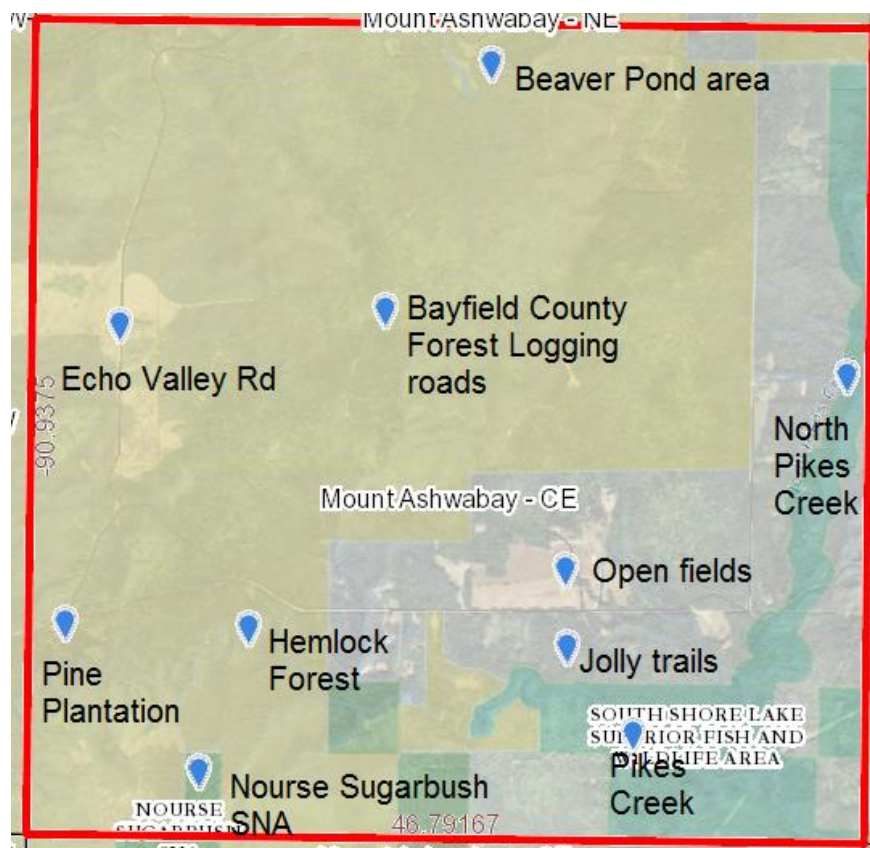
that may be helpful if you run into someone in the field or if you approach someone's residence and want to have an official document that provides a brief summary of the project.

- Finally, with binoculars ready, ears attuned, and field guide nearby, it's time to start observing the birds and recording field data!

Location Precision Guidelines – **IMPORTANT!**

It is most useful to split the block into a number of separate areas either by property type or ownership (e.g., State Natural Areas, County Forests, or National Wildlife Refuges; see Fig. 3). Depending on the configuration of your block, you might also want to create separate lists for significant natural features (e.g., a beaver pond, conifer swamp, marsh, or open field; see Fig. 3), but this is a lower priority than separating by property ownership. Please also keep separate lists by county if your block is divided by a county line, as eBird and the *Passenger Pigeon* Seasonal Field Notes summarize observations at the county level. All these data will be summarized at the block level but keeping separate lists facilitates producing a list of all the birds observed on a specific property and provides more precise information for rare species, which is critical information for land managers.

Fig. 3. An example of sub-block checklists you might use if this were one of the main blocks you were covering.

We recommend traveling checklists not exceed 5 miles in length, because the farther the birds were from the point you plotted on the map, the less useful it is (eBird requires your entire checklist get entered at a single point, and does not allow you to map out routes or areas covered). We realize there is a balance between the amount of work it requires to keep separate checklists and the value of these checklists, but we suggest you give this a try and before long you will likely find it is second nature to start a new checklist for a new sublocation.

There is an option during data entry called "Select an entire block as your location". **We strongly discourage use of this option on a regular basis. Observations plotted at block level are MUCH LESS USEFUL than observations that can be assigned to a specific location and property.** There are a few instances where you might use this option — perhaps you were driving by on the highway and saw an osprey nest and you are confident about the block it was in but not exactly sure where it was. Or perhaps we have a secondhand report of a rare species that we want to put into the system, but with limited location information.

Timing

Surveys for breeding birds can begin as soon as the Great Horned Owls begin courtship in January and continue until September or October when the last young fledge from the last nest of late nesting species like American Goldfinch. Fortunately, only a very few species nest very early or late in the year. The peak of the breeding season for most species includes late May, June, July, and early August.

Migrants represent a threat to accuracy. For many species, there is a period of overlap when residents have initiated breeding activities while other individuals of that species are still migrating farther north. Remember that some migrants will sing during migration. The Breeding Guideline Bar Chart (pdf, spreadsheet) provides information on Wisconsin's breeding species that can be used as a general guide for when migration is occurring. Repeat visits to your block from migration into breeding season often provide the local knowledge necessary to distinguish migrant from terrestrial resident birds.

June is the primary month for building a species list for a block because most birds are on territory and very vocal. July and August are the optimal months for recording birds in the Probable and Confirmed categories. Although most singing activity has decreased, it is a time when noisy fledglings accompany parents or beg for food in a nest, and parent birds are more likely to be seen carrying food for young. Also, species that produce multiple broods are renesting.

Remember that young birds begin to disperse once the parents stop feeding them. This can be 2–3 weeks after fledging. **Caution is urged in recording the "FL" code since young birds flying well may have been raised outside the block you are covering**.

The best time of the day to plan your visits during summer is from about dawn (5–5:30 am) to mid-morning (9–10 pm). The majority of birds are most active and relatively easier to confirm during this period. Crepuscular (active at twilight or just before dawn) and nocturnal (active at night) species will require visits in the early evening, after dark, or at dawn. Wilson's Snipe, American Woodcock, Common Nighthawk, Eastern Whip-poor-will, and owls are most easily recorded at these times.

Block Completion Criteria

How much effort should be expended to ensure adequate coverage and consider a block to be complete? This is a difficult question and one that other atlases have struggled with. Although the variability of Atlas blocks makes it difficult to come up with rules that work in every situation, we have compiled the following guidelines and suggest a block is complete when:

A. **At least 20 hours are spent in a block, actively surveying, spread over multiple visits**. Atlas work in other areas has shown that over 85% of the breeding species present in a block can be found in 16–20 hours by checking all the major habitat types in the block. Additional time spent beyond this period usually results in rapidly diminishing returns, and 100% of the species present may not be found even if hundreds of hours are spent in a block. If you haven't added new species or confirmed new species in several trips your time will probably better spent by turning your attention to another block. Hours counting towards the 20 can occur in a single year or spread over multiple years. As a general rule, it is not helpful to spend more than 50 hours in a single block — that effort can be better spent in other Priority and Specialty Blocks.

B. **At least 80% of the species found in the block during the first Atlas are detected.** The number of species found in a block will vary depending on the diversity of habitats present and its location in the state. As few as 50 species may occur in an urban block in Milwaukee while other more diverse blocks may contain more than 100 species. Using the eBird Explore a Region tool, you can see how many species were recorded in a block during the first Atlas and how many were in the Confirmed, Probable, or Possible categories. If your block appeared to get poor coverage during the first Atlas, look to neighboring CE blocks for a general estimate. Your County Coordinator can help you determine the species to be expected in your region. This number is a *best guess,* but can be used as a target number for which you should strive.

C. **At least 50% of the species detected are confirmed as breeding**. For example, if you have 60 species on your block list for WBBA II (excludes species with the highest code as Observed), then strive to achieve Confirmed status for at least 30 of them. This can be more difficult in some blocks (e.g., deep woods throughout block) than others (e.g., shrubland, agriculture settings), depending on location, habitat, and species composition.

D. **All habitat types within the block have been visited** (if access was available). Every acre of the block does not need to be examined, but thorough coverage of all available habitats is vitally important. Obviously, a block with uniform habitat will take considerably less time to cover adequately than one with a diversity of habitats. While roads are convenient access points, in nearly all cases attempts should be made to also survey birds off-road in interior habitats.

E. **Surveys were completed at different times of year.** Although most of the breeding species can be found in June and July, earlier visits are necessary to detect some species. Refer to the Breeding Guideline Bar Chart (pdf, spreadsheet) for general guidance about when to visit. A suggested schedule is: March to check for early nesters and get familiar with the terrain and ownerships; late April or early May for early nesters; late May or early June to build a species list and note where males are singing (beware of migrants); mid-June to re-check on the singing males and add more species; early July and early August to get more species into the Confirmed category; and include some night-time hours in either early morning or late evening in both spring and summer.

F. **At least 2 night visits have occurred**. Species like owls and nightjars are rarely detected on daytime visits, so night visits are required to have a better chance of finding these species. Please make sure you enter separate checklists for daytime and nighttime observations, as the eBird system that tracks effort within a block keeps track of nocturnal and diurnal checklists separately. Currently the eBird system marks a checklist as nocturnal if it occurs 40 minutes before sunrise or 20 minutes after sunset.

Note that these metrics apply to the cumulative effort of yourself and others in a block. A running total of species and effort within your block can be found in the Explore a Region tool on the eBird portal.

Fieldwork for a block can be done in one year or spread out over two or more years. Once you attain an acceptable level of coverage in your block, please sign up for another block or ask your County Coordinator to find out which Priority or Specialty Blocks are without coverage or in need of help. Remember that your goal is to confirm nesting for as many species as possible. Your total species count should reflect real absences, not species missed. On the other hand, we need to cover many, many blocks in Wisconsin, so make the most of your time. Use your time as you see fit, after all, you're the one donating it. If you wish, discuss any concerns about ceasing or continuing to Atlas a block with your County Coordinator.

Upgrading

When atlasing, look not only for new species in your block, but also try to upgrade the breeding evidence for species you have already recorded. Upgrading occurs when a code for a species is entered at a higher level than previously recorded. Upgrading may occur either within a category, such as from P (pair observed) to A (agitated behavior) in the Probable category, or from one category to a higher one, such as C (courtship) in the Probable category to NB (nest building) in the Confirmed category.

Strengthening the evidence for breeding is one of your primary objectives as an Atlas fieldworker, so continually search for ways to upgrade breeding evidence for each species. It is best just to record the highest breeding code for each species for each visit. The eBird Explore a Region tool shows the highest breeding code for each species so you won't be expected to keep track of this. However, for blocks you visit regularly, we suggest manually filling out a Block Summary Card between survey visits to help you keep track in the field.

Overall, try to build a good species list rather than trying to confirm everything. Meaningful distribution maps can still be drawn with high species counts in the Probable and even the Possible categories. Don't waste time confirming abundant species when you could be examining additional habitats; you will probably confirm most of the common species without even trying. However, one exception is for uncommon to rare species — upgrading to Probable or Confirmed is important and efforts to do so are not only warranted but encouraged. If you don't think you'll have time to follow up promptly on a potentially rare breeding record, please contact your County Coordinator or Atlas staff immediately so they can potentially do so.

Detecting Rare, Secretive or Priority Species

The Atlas provides a good opportunity to learn more about some of the rare, secretive, or high conservation priority bird species in the state. We are preparing Species Survey Strategies to assist you in looking for some of these species. Many of these are habitat- and location-specific, so if your block has a wet meadow in northwestern Wisconsin, or a marsh in southeastern Wisconsin, these documents will provide instructions on what special species you should be searching for, and the optimal time of year and methods to seek them. Also consult with your County Coordinator or post a question to the Discussion Forum for guidance on what you should be looking for in your area.

DOCUMENTING RARE OR PRIORITY SPECIES

To maintain high data quality and also to provide useful information for management, there are some species for which we need additional information. This information helps us confirm records of uncommon to rare species, and also provides a way to provide important information on habitat and specific location. **Entering this information is vital to helping the WDNR Natural Heritage Inventory map and track these priority species, and provides critical information for conservation planning and management.**

For some of the species below, we need information on exact locations. When reporting location, use the decimal degree format (e.g. 44.50121, −88.06212). Preferably, location coordinates can be obtained in the field using a GPS unit. However, assuming you are able to reliably estimate your location, you can also estimate location remotely using the desktop version of the interactive map (go to "Distance and Coordinates", then "Plot" and click the map), or by using the mapping tool on the Priority Species Information Form.

These species fall into three levels or categories, each requiring a different reporting mechanism and slightly different degrees of detail.

Level 1 species: For all breeding season sightings, include (a) exact location, (b) habitat code and (c) habitat description in eBird species-level comments (Fig. 4). Birds flagged as rare for your area by eBird may require (d) additional supporting details on the bird to confirm the identification. These species are uncommon, sometimes declining nesters that are of high conservation interest.

Norrthern Bobwhite
Sharp-tailed Grouse
American Bittern (Comments only necessary if Probable/Confirmed)
Least Bittern
Black-crowned Night-Heron
Northern Goshawk (Always hide in eBird during breeding season; see HIDING SENSITIVE SPECIES)
Red-shouldered Hawk (Comments only necessary if Probable/Confirmed)
Common Nighthawk
Olive-sided Flycatcher
Purple Martin (Comments only necessary at a nest site)
Boreal Chickadee
Ruby-crowned Kinglet
Swainson's Thrush

Golden-winged Warbler
Connecticut Warbler
Hooded Warbler
Lark Sparrow
Henslow's Sparrow
Le Conte's Sparrow
Western Meadowlark
Yellow-headed Blackbird

Level 2 species: If Probable or Confirmed, fill out a [Priority Species Information Form](#). When only Observed or Possible during breeding season, simply provide (a) exact location, (b) habitat code and (c) habitat description in eBird species-level comments. Many of these will also be flagged by eBird and require (d) a description of the bird to confirm identification (Fig. 4). Some of these species are rare nesters in Wisconsin, others are tracked by WDNR Natural Heritage Inventory.

American Wigeon
Northern Pintail
Bufflehead
Common Goldeneye
Spruce Grouse
Greater Prairie-Chicken
Horned Grebe
Red-necked Grebe
Eared Grebe
Western Grebe
Great Egret
Snowy Egret
Cattle Egret
Whooping Crane (Always hide in eBird during breeding season; see [HIDING SENSITIVE SPECIES](#))
Black-necked Stilt (No documentation necessary at Horicon Marsh)
Piping Plover (Always hide in eBird during breeding season; see [HIDING SENSITIVE SPECIES](#))
Upland Sandpiper
Wilson's Phalarope
Great Black-backed Gull
Caspian Tern
Black Tern
Common Tern
Forster's Tern
Long-eared Owl
Short-eared Owl
Peregrine Falcon (Documentation only necessary at a natural nest site [i.e. not on a building])
Acadian Flycatcher
Loggerhead Shrike
Bell's Vireo
Philadelphia Vireo
Great Tit
Carolina Wren
Worm-eating Warbler

Tennessee Warbler
Kentucky Warbler
Kirtland's Warbler (Always hide in eBird during breeding season; see HIDING SENSITIVE SPECIES)
Cerulean Warbler
Bay-breasted Warbler
Yellow-throated Warbler
Wilson's Warbler
Yellow-breasted Chat
Nelson's Sparrow
European Goldfinch

Fig. 4. Example of documentation for a rare species. For Level 1 and some Level 2 species, include (a) exact location, (b) habitat code and (c) habitat description in eBird species-level comments. Birds flagged as rare for your area by eBird may require (d) additional supporting details on the bird to confirm the identification.

Level 3 species: Fill out a WSO Rare Bird Documentation Form. If Probable or Confirmed, also fill out a Priority Species Information Form. These species are rare nesters in Wisconsin, tracked by WDNR Natural Heritage Inventory, and also are WSO review species.

Yellow-crowned Night-Heron
Yellow Rail
King Rail

If you've found a truly rare breeder not listed on the Block Summary Card and also not listed above: Fill out a Priority Species Information Form, and check the WSO Review List to see if you should also fill out a WSO Rare Bird Documentation Form.

There are some fairly rare birds for which you do not need to fill out the Priority Species Information Form, but you may have to submit documentation elsewhere. For example, there are a few rare but regular breeders in the state that did not make the cut here (e.g., Northern Mockingbird). This is also true for birds that occur out of range (e.g. a Gray Jay in Portage County). These will be evaluated through eBird. **In addition to making sure you are filling out information for the species listed above, it is very important to fill out documentation within eBird for species that eBird flags.** Bird sightings lacking sufficient documentation may end up being hidden from the public eBird output (and subsequent Atlas products) and we do not want to unfairly reject a record. The primary mechanism for vetting a whole suite of species (the former WSO "Short Form" species) is now through eBird comments.

If a record is flagged in eBird, please add enough detail in the comments box to support your identification — this should include field marks you observed, and why you believed it was this species and not a similar one. If you have doubts about whether or not to enter detailed comments, please enter them anyway. Many of the best eBirders are already in the habit of regularly entering field notes in the comments box. If a species was unfairly flagged as rare and you believe the eBird checklist needs to be adjusted for your area, please contact the Wisconsin eBird team at wiebird@gmail.com.

Atlasers and County Coordinators should familiarize themselves with the species that require additional information (a handy list is available on the Quick Reference Guide), and we should all work together to try to make sure the appropriate information gets reported for these priority species.

All checklists and Priority Species Report Forms should be submitted in a timely fashion to avoid duplication of effort and so we can schedule follow-up visits to rare breeders if warranted.

HIDING SENSITIVE SPECIES

As noted in the Level 1, 2, & 3 lists above, **for Northern Goshawk, Whooping Crane, Piping Plover, and Kirtland's Warblers**, you should enter the appropriate information, plot it precisely, and then **you should immediately hide the checklist in eBird**. It's probably easiest to submit an observation for any of these species as a separate checklist and just hide that checklist containing the single observation. **To hide it in eBird:** as soon as you submit your checklist, click the box called "Hide from eBird Output" on the right side of the page. These species will not appear on public output but will appear in your personal lists, and will appear (with reduced location accuracy) in the final Atlas output. These rare species are particularly sensitive to disturbance at the nest site, and are especially attractive for birders, so if you discover a likely nesting area, do the birds a favor and help us reduce potential pressure on that site by hiding the checklist from public view. You may also hide any other species if you feel revealing the nest location could result in disturbance (e.g. a Loggerhead Shrike nest in a roadside shrub).

If you have located possibly breeding birds of the 4 species listed above, please also report them to the following authorities:

        Whooping Cranes to USFWS
        Kirtland's Warblers to Kim Grveles
        Piping Plovers to Jill Utrup
        Northern Goshawk to Rich Staffen

HOW TO ENTER DATA

Please submit your data as soon as possible. Entering your data promptly prevents people from wasting time duplicating your effort in an area, ensures any rare birds that require follow-up get into the system promptly, and helps increase the likelihood of accurate data entry.

All the data from your field checklist should be entered using the Wisconsin Breeding Bird Atlas II portal, not the regular eBird portal or the Wisconsin eBird portal. We recommend using the Atlas eBird portal for any checklist that has a breeding code (probable and above), whereas you can continue using the regular eBird or Wisconsin eBird portal for reporting observations when you were not atlasing. The Atlas portal is the only input that provides Atlas block lines on the map. (You can enter data for any

eBird portal using your main eBird username and password, and whichever portal you enter into, your observations will always be added to your main eBird account and visible on the My eBird page.)

After you login and go to "Submit Observations", you will see the "Where did you bird?" screen. The first time you use the Atlas portal to input your data from a specific location you should click on "Find it on a Map". Type a county or Atlas block name into the box, and click the name, and it will zoom to that region. Use the zoom tools to zoom and pan to the exact location that you surveyed. Scroll and zoom into your block and click in the area where you did your survey. **ZOOM IN AS FAR AS POSSIBLE** when plotting your point to prevent location errors. Make sure you're following our for checklists. On the map you may see blue pins for your existing eBird locations, and larger red pins that are eBird hotspots, which are generally public locations that people bird often. It is allowable to use one of these hotspot points to submit your data if it accurately represents your location but please **BE VERY CAREFUL** if you use hotspots when reporting your atlas observations, especially when selecting from the text list of locations, because in many cases existing hotspots cross block lines or are near block edges and not a good representation of where you birded. Click the map to plot your point at the midpoint or center of the area you covered. You can enter a name for this location on the right. It doesn't really matter what you call it, but to keep track of Atlas locations, we strongly suggest including the block name in the location name (e.g., "Washburn SE—Gravel Pit"). After you enter a location once, the name you chose will be available in the "Choose From Your Locations" dropdown list during subsequent visits (but when using this text menu, be sure you know which block this location is in, hence the recommendation to append locations with the block name). There is currently the option to select an entire Atlas block as your location, but these data are **MUCH LESS USEFUL** for analysis, so we recommend using this only in rare instances when you were not exactly sure where you were, or for the odd incidental observation (see). Click "Continue" to go to the "Date and Effort" page.

Choose the Observation Date, Observation Type, and Start Time. The recommended Observation Type is Travelling—Property Specific. Provided you have followed the above, this allows for the highest spatial precision and will allow managers to access data from checklists covering their specific properties. However you birded, make sure the Observation Type correctly describes your checklist. Make sure you choose AM or PM for the time or use the 24-hour clock. **Because the eBird system that tracks effort within a block keeps track of nocturnal and diurnal checklists separately, please make sure you enter separate checklists for nighttime and daytime observations.** Currently the eBird system marks a checklist as nocturnal if it occurs 40 minutes before sunrise or 20 minutes after sunset, so the key is to not combine into one checklist an hour of pre-dawn owling with hours of post-dawn daytime effort. The rest of the data entry on this page will vary depending upon the observation type you chose. Fill out the rest of the data entry and click "Continue" to go to the "What did you see or hear?" page.

For each species, put in the number of individual birds you observed for the point/route/area covered by that checklist. For those species for which you observed breeding behavior, you should click the "Show Breeding Code" button and then "Choose the highest possible code" that you observed. Although it isn't necessary to put in a breeding code if you have already recorded a higher breeding code on a preview date, doing so will be useful in better defining the phenology of different breeding behaviors. For example, it might be useful in determining if there is renesting or multiple broods, or expand the known occurrence of nests with eggs for a given species. Plus, it's probably more work to check if you already submitted a breeding code for a given species, so in general just get in the habit of always reporting the highest breeding code for each species on every checklist.

For Level 1, 2 & 3 species requiring additional information, you may need to add location coordinates of where the bird was located (see DOCUMENTING RARE OR PRIORITY SPECIES). You may also be required to add comments to eBird if your sighting is flagged as rare. Please take care to enter useful field marks and other supporting information as these may be necessary to confirm your sighting.

Protect locations of rare or sensitive species; if you saw a Northern Goshawk, Whooping Crane, Piping Plover, Kirtland's Warbler or other sensitive species, refer to HIDING SENSITIVE SPECIES above.

We currently have a number of tutorials explaining how to enter data into eBird, and hope to have these available in a video format soon.

Data entry through BirdLog (This only applies to atlasers with smartphones or tablets)

Currently, we do not have a mobile device app developed to allow data entry while in the field. This is scheduled to be developed in the coming years. However, if you want to use the eBird compatible app BirdLog for atlasing, you can do this, though there are a few caveats:

- BirdLog can have trouble accurately plotting your location when reception is poor. Checklist locations should always be checked later to ensure location and Atlas block accuracy. You can check where the location falls by going to Submit Observations on the eBird Atlas portal, and going to the Find it on a Map option where all your locations are displayed (with the Atlas block grid). Even if you are having trouble plotting a location, checklists can be created using the "offline" mode. Once a set of eBird locations are established, BirdLog can quickly access those locations during subsequent visits without needing to access map data.

- BirdLog does not offer drop-down menus for breeding codes, but does offer a comment field next to every species. When you are out atlasing, we suggest using the species-level comments field to record breeding codes or other notes. When you get home, visit the eBird Atlas site on a desktop computer, which will allow you to open up the checklist (Go to My eBird, Manage My Checklists) and use the drop-down menu to officially enter the breeding codes into the system.

- BirdLog checklists go into the system associated with the general eBird portal. In order for these checklists to be incorporated into the Atlas, the observer will need to open each atlasing checklist, and then use the "Change Portal" option at the bottom right to change it to "Wisconsin Breeding Bird Atlas"

So, to summarize, you can Atlas with BirdLog as long as you remember that when you get back to a computer you should a) check location accuracy, b) enter the breeding codes using the drop-down and, c) change the portal.

Be aware, depending what kind of phone you are using and whether you entered comments, when you go back into the checklist to enter the breeding codes, the location of the box to pull up the list of codes may shift slightly in position.

SUBMITTING VOLUNTEER HOURS

Your atlasing effort (hours) will be recorded through your eBird checklists (and this information is necessary for making comparisons of results between the first and second Atlases). However, we are also interested in the **additional volunteer hours and miles** you contribute to this project, including attending meetings, planning survey work, and driving to and from survey locations. We will have an online Non-birding Effort Reporting Form for you to record this information. The volunteer hours that you record are particularly useful to demonstrate volunteer/in-kind match support for grants we are seeking. Please record this information for every survey. You can keep track of hours and miles any way you wish, and submit them often or submit them at the end of each field season. Tracking volunteer hours isn't as exciting as reporting bird sightings, but it is valuable to the Atlas effort, so please ensure that you keep track as you are out atlasing.

SUBMITTING PHOTOS

While bird photos are not hard to come by in today's digital world, images that display breeding behaviors, nests, and young are surprisingly scarce. The atlas is seeking such photos, regardless of quality, that we can use for ongoing project outreach and communications. High-quality, high-resolution images will also be considered for publication in a book summarizing results of WBBA II. If interested in helping, please submit your photos here. Important : Please follow project guidance on Atlas Ethics when acquiring images of birds and their breeding behaviors. In no case, should the well-being of a bird, its nest, or its young be compromised in pursuit of a photograph.

OTHER INFORMATION

COUNTY COORDINATORS

Each of Wisconsin's 72 counties has a County Coordinator. These are the people that should be contacted first if you have any questions or problems.

County Coordinators are the first point of contact if you are interested in atlasing in an area for an extended period (incidental observations can be made in any area, but if you are intent on atlasing several days in an area or are traveling to an area without much coverage, contacting the County Coordinator is recommended).

Every County Coordinator is responsible for ensuring that their county is adequately covered during the 5-year Atlas period. Additionally, County Coordinators should take an active role (particularly during June and July) in encouraging people to get out into the field, and monitoring incoming data (by viewing output on the eBird Atlas website).

Responsibilities of the County Coordinators:

- Oversee the completion of all Priority and Specialty Blocks in a county.

- Help recruit field observers as needed.

- Assign users to blocks using a web interface (instructions will be provided).

- Mark blocks as complete within eBird.

- Instruct field observers on Atlas protocols via email as needed.

- Assist field observers in finding needed information (helping navigate handbook, web mapping, data entry).

- Facilitate pairing volunteers who might benefit from help (novices birding with more experienced birders, tech-savvy birders helping others with data entry).

- Monitor their county's coverage to check for completeness and identify reports of rare species that need follow-up.

- Report any incidental and important records that do not otherwise make it into the database (this should not occur too often).

- Ensure that observers fill out additional information and documentation for rare and priority species.

- Get out and atlas yourself if you're able!

TRAINING OPPORTUNITIES AND RESOURCES

A number of presentations have been scheduled at locations around the state (listed here) where you can get an overview of the Atlas project and find out how you can participate. In addition to this handbook, additional training materials will soon be available on the WBBA II website to help you

understand atlasing. The online Atlas Discussion Forum provides a resource to ask questions of other atlasers and Atlas planners, or search through questions already asked by others. In addition, you can always contact your County Coordinator if you have questions about any topics related to atlasing.

ATLAS ETHICS

In addition to our guidance, WSO's Code of Ethics and the American Birding Association's Principles of Birding Ethics also provide guidance for birders.

Respect for Birds

Birds are living creatures that deserve our respect. Be considerate of the needs of nesting birds. The survival of nestlings is paramount.

- Be quiet and unobtrusive. Try to observe the birds so they are unaware of your presence and behave normally. Avoid quick movements, unnecessary noise, running, continuous chasing of the same individual, throwing things, tree-whacking for cavity nesters, excessive "pishing," etc. Ideally, the birds should behave normally and not be aware of your presence during the observation periods. The quiet observer sees more!

- Approaching a nest too closely or repeatedly flushing adults during certain stages of the nesting cycle may cause nest abandonment. Visiting a nest site may attract predators (avoid leaving a single, dead-end scent trail to a nest). Do not handle the young or eggs. Remember — a single criterion from the Confirmed category is sufficient evidence to note a Confirmed record. In most cases, breeding can be confirmed without approaching a nest by observing from a distance. If the adult birds are agitated or do not return within 10 minutes, you may be too close and should move farther away from the nest.

- Audio playback can be useful for detecting birds, but may also have negative effects on birds by causing them to expend energy defending their territory against a phantom intruder. Because we are seeking breeding birds during the time of year when they are defending their territory and tending to their mate or young, playback has the potential to be more disruptive than for migrant or wintering birds. Audio playback can be detrimental to the health and breeding productivity of birds.

  We do not condone playback for most general atlasing purposes and playback is strongly discouraged for any non-scientific use, i.e., bringing the bird closer for you to see or photograph. If playback is used, do so sparingly by limiting the length and frequency of use (e.g. ≤30 second intervals no more than twice in a given location), and with caution by avoiding heavily birded areas where cumulative effects of multiple playback users can be severe. Never use playback for threatened or endangered species unless specifically directed by WBBA II protocols or staff (more guidance on this coming soon). Never use playback on properties specifically restricting its use (e.g., National Wildlife Refuges).

  Playback should NOT be used once a species has been detected. Doing so is not only unnecessary but detrimental to atlasing because it disrupts the normal activities of a bird and will not lead you to a nest, young, or other higher levels of breeding evidence. Agitation or

territoriality in response to playback does NOT constitute Probable breeding. Thus, if a bird approaches or responds to playback, turn it off immediately to avoid further agitating the bird. In summary, playback is permissible in some instances but do not use it indiscriminately throughout your block. If using playback, have a plan to survey a particular habitat for a particular species, limit the duration of playback, and cease its use when the target species is detected, unless directed otherwise by WBBA II guidelines. If you have questions about appropriate use of playback, consult your County Coordinator.

- Use discretion in divulging information on threatened and endangered species. Use the Hide function in eBird (found on the bottom right of the checklist as soon as you submit it) for possibly breeding Piping Plovers, Whooping Cranes, Kirtland's Warblers, Northern Goshawks, and any other species that may be highly sought-after (e.g., by birders, photographers, etc.) and sensitive to disturbance. The Atlas will not publish exact locations for these species.

Respect for Habitat

Damage to a habitat affects all species in the ecosystem. Keep disturbance to a minimum.

- Do not disturb vegetation near a nest, and avoid trampling sensitive habitats.

- Carry out your litter. If possible, also carry out litter left by others.

- Keep motor vehicles on established roads and parking areas. One set of tracks invites others.

Respect for People

Remember that much Atlas fieldwork will be conducted on private property, so it is necessary to exhibit certain courtesies.

- Always obtain permission to enter private lands. Unless land is clearly public property, ALL land in Wisconsin is presumed to be PRIVATE, whether posted or not, and you *must* have permission to be on it. A good time to identify private landowners and secure permission to enter private lands is when you are scouting your Atlas block in the spring and/or fall. Use the WBBA II's interactive mapping website (desktop and mobile/mac versions), static block maps (topo background and aerial background versions), county web mapping sites, or hard-copy plat books to understand property boundaries and landowners. Don't be shy about asking permission to use a landowner's property — we have provided a sample letter to request access from landowners (.pdf or editable word document), and a sample thank you letter to landowners (.pdf or editable word document) to facilitate landowner contacts. Many folks will be welcoming once they understand the project, and many will be able to offer insight on the features and birds that occur on their property. It is a good opportunity to share your expertise and enthusiasm about birds with a landowner!

- Do not block rights-of-way and always leave gates as you found them.

- When birding near a private residence, be considerate of your host's time, property, and privacy.

- Behave in a manner that reflects favorably on the organizations that you represent.

- Respond to questions about your activities with courtesy and respect.

FIELD SAFETY

Please be safe when in the field; your safety is more important than a bird survey. Atlasing is not a particularly dangerous activity, but any time you are out in the field it pays to be alert, be prepared, and use common sense.

- Let someone know where you'll be and when you expect to be back.

- Check the weather forecast and the radar before heading into the field. This can prevent you wasting your effort by heading out on a windy or rainy day, as well as ensure you are not caught out in a lightning storm.

- Dress appropriately. When on the water, wear a life jacket. Weather can change without warning and very cold temperatures are possible into late spring in Wisconsin. Dress in layers for flexibility. Having an extra change of clothes in the car can help if you step into water on a cold day.

- Carry food and water with you. Having extra food and water in the car can be handy if you find yourself out longer than you anticipated.

- Store a first-aid kit in your vehicle.

- Carry a cell phone, but don't assume it will work in all locations. Make sure you have important phone numbers with you.

- Protect yourself from ticks, mosquitoes, and other biting pests. Check your body for ticks every day after you return from the field to reduce the chance of contracting Lyme or other tick-borne diseases. Wear long sleeves and pants. A mosquito head-net or jacket and gloves, or deerfly patches to wear on your hat can be a lifesaver when the bugs get bad. Use insect repellents containing 20 to 30 percent DEET. Wash and dry all clothing (ticks cannot survive an hour in a hot dryer). If you have been bitten or think you may have been, check with your doctor and watch for early symptoms of Lyme disease.

- Carry a compass. It can be easy to wander off a trail or get turned around. Make sure you always know the way back to the main road or trail.

- Carry a GPS unit, if you have one. GPS units can be great for recording bird locations, as well as keeping track of where you are (and how to get home). We recommend setting yours to decimal degree format (e.g. 44.50121, −88.06212), to match the way block lines are labeled on interactive and static maps. Carry extra batteries. Never depend on your GPS unit alone; always carry a compass in case your GPS unit stops working.

- Be safe while driving and parking. Park well off the road, put an Atlas Vehicle Sign in your window, and be sensible about trying to bird while driving or near traffic. Do not stop in areas where you do not feel safe.

- Beware of meth labs or dump sites and marijuana grows. Unfortunately, it's increasingly possible to stumble upon sites like this in Wisconsin. If you notice anything suspicious (plastic jugs, tubing, cold tablets, batteries, a liquid propane cylinder, etc.), do not touch anything. Leave immediately. Once you are well away from the site, call 911. Read more here.

INCOME TAX DEDUCTION

Because the Wisconsin Society for Ornithology (the financial arm of WBBA II) is a qualified nonprofit 501(c)(3) organization, contributions to WBBA II are tax deductible to the full extent allowed by law. That deductibility includes the costs of surveying and attending meetings for WBBA II. Although you cannot deduct the value of your services, you may be able to deduct amounts you pay in providing those services, such as the cost of meals, lodging, and driving to and from your destination (the actual cost of gas and oil or the standard mileage rate, which is 14 cents per mile for 2015 – check the IRS website for rates in future years).

Deductible amounts must be:

- unreimbursed,

- directly connected with the services,

- expenses you incurred only because of the services you gave, and

- not personal, living, or family expenses.

Keep detailed records for use in case of an IRS audit. Consult with your tax advisor regarding how this information affects your taxes.

ATLAS DATA TERMS OF USE

Building and managing the systems that enable the collection and careful management of Atlas data requires ongoing time, effort, and expense for partners working on Wisconsin Breeding Bird Atlas II, including the Cornell Lab of Ornithology, WSO, and WDNR. Hundreds of participants freely provide Atlas data, and in this same spirit we make these data freely available for non-commercial use.

THESE TERMS AND CONDITIONS OF USE (the "Terms") ARE A LEGAL AND BINDING AGREEMENT BETWEEN YOU AND WISCONSIN BREEDING BIRD ATLAS II (hereinafter, WBBA II) governing your use of Atlas data. WBBA II refers to members of the Atlas planning team and major affiliated organizations: Wisconsin Society of Ornithology, Wisconsin Department of Natural Resources, Western Great Lakes Bird and Bat Observatory, and Wisconsin Bird Conservation Initiative.

- Atlas data will be available through the download tools on the eBird website.

- Atlas data are supplied only for applied and basic research and education.

- WBBA II and the Cornell Lab of Ornithology may update the data available at any time.

- The users of Atlas data will provide a full and appropriate acknowledgement and citation in any materials or publications derived in part or in whole from the data; relevant citation details are provided with each dataset. For any publication making substantial use of the Atlas data, WBBA II welcomes opportunities for commenting on the work prior to publication, for collaboration, and for co-authorship if we contribute substantial intellectual input to a publication. Expressions of interest can be sent to Atlas@wsobirds.org.

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- The recipient will not publish or publicly distribute Atlas data in their original format, either whole or in part, in any media, including but not limited to on a website, FTP site, CD, or memory stick.

- The recipient should provide a link to the original data source location on the Cornell Lab of Ornithology website where appropriate.

- The recipient may only pass on datasets derived from the Cornell Lab of Ornithology's original eBird data (in forms not limited to tabular and graphical representations) if these derived data are supplied with the same Terms of Use.

- Your use of any eBird data does not constitute endorsement by WBBA II or the Cornell Lab of Ornithology of any derived products, reports, or analyses. The WBBA II, Cornell Lab of Ornithology, and eBird logos must not be used on any derived products, reports, or analyses, or supporting materials, without express written permission.

- All eBird data are provided with additional supporting metadata sufficient to make sensible and informed decisions about data use. The recipient must read all supporting metadata prior to any analysis and agree to abide by any stipulations contained therein. Where appropriate, Cornell Lab of Ornithology staff can provide additional guidance on request to aid in the correct use and interpretation of the data.

- The WBBA II and Cornell Lab of Ornithology endeavor to maintain accurate and up-to-date data at all times, but can accept no responsibility for the consequences of errors or omissions in the data, for misuse of the data by any organization or individual, or for any damage done to computing systems into which the data are entered (see Disclaimer below).

- User agrees to send, free of change, an electronic copy of all products published using WBBA II data via email to Atlas@wsobirds.org and bls42@cornell.edu.

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Errors and Omissions

We endeavor to maintain accurate and up-to-date data at all times. However, if errors or omissions are identified, the user should notify WBBA II so that they can be corrected in future releases of the data. Users can contact Atlas@wsobirds.org if they believe they have found errors.

Recommended Citation

Use the following format to cite WBBA II data retrieved from the eBird website:

Wisconsin Breeding Bird Atlas II unpublished data. Available via eBird: an online database of bird distribution and abundance [web application]. Ithaca, New York. Available at: http://www.ebird.org. [Date accessed]

Bar charts, maps, graphs, tables, and other visualizations from the 'View and Explore Data' tab and 'My eBird' tab may be reproduced in publications without further permission provided that the figure is attributed as follows:

Wisconsin Breeding Bird Atlas II Image provided by eBird (www.ebird.org) and created [date].

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Corrections or Suggestions? Contact Nicholas.Anich@wisconsin.gov