



# MINNESOTA BREEDING BIRD ATLAS VOLUNTEER HANDBOOK

Minnesota Breeding Bird Atlas Project  
March 2011

## Table of Contents

Welcome to the Minnesota Breeding Bird Atlas! .....	2
What is a Breeding Bird Atlas? .....	2
Minnesota's First Breeding Bird Atlas .....	2
Who is Involved in Minnesota's BBA? .....	2
Important Atlas Terms .....	3
Priority Blocks.....	3
Safe Dates .....	4
Evidence Codes.....	5
Special Reporting Situations .....	6
Websites and Logins .....	6
Viewing and Printing Maps.....	7
Surveyors: How to Contribute Observations.....	7
1. Find and Request Priority Blocks.....	8
2. Scout and Explore Your Block.....	8
3. Get Out and Bird! .....	9
4. Report Your Observations .....	9
5. Completing Block Surveys .....	9
Guidelines and Tips for Conducting Block Surveys .....	10
Explore Your Block .....	10
Survey Preparation.....	11
Record Breeding Bird Data .....	14
Submit Your Data.....	15
Field Observers: How to Contribute Observations .....	15
1. Get Out and Bird! .....	15
2. Report Your Observations .....	16
Ethics and Safety.....	16
No Trespassing – ever! .....	16
Birding and Atlasing Ethics .....	17
Field Safety .....	18
Appendices.....	19
Appendix A. 2011 Breeding Evidence Codes .....	20
Appendix B. 2011 MNBBA Special Species .....	21
Appendix C. 2011 MNBBA Target Number of Species by Region .....	23

## Welcome to the Minnesota Breeding Bird Atlas!

What is a Breeding Bird Atlas?

A Breeding Bird Atlas (BBA) is a collection of observational data about all of the birds that breed in a particular state or region. It is designed as a repeatable, grid-based survey to document and map the distribution of breeding birds and provides a baseline to monitor changes over time. Data are collected by ornithologists, field researchers, and hundreds of enthusiastic, recreational birders.

Minnesota's First Breeding Bird Atlas

Minnesota will conduct its first BBA during the five year period from 2009 to 2013. The Minnesota BBA (MNBBA) is designed to accomplish the following goals:

- Produce maps of the distribution for all breeding birds in Minnesota
- Increase monitoring efforts for bird populations
- Generate new local discoveries
- Develop Geographic Information System (GIS) layers that enable detailed assessments of bird distributions
- Facilitate the creation and testing of models that predict bird distribution and abundance by habitat
- Engage the public in bird conservation issues
- Increase opportunities for citizen scientists to contribute to avian science

The goal of the Atlas is to document the location of every breeding species in Minnesota and the level of breeding evidence (observed only, possible, probable, or confirmed evidence) where it is found throughout the state.

Who is Involved in Minnesota's BBA?

Project Coordinator: The project coordinator is responsible for statewide implementation of the atlas including recruiting volunteers, preparing field materials, managing the MNBBA database, and ensuring the overall quality of the data collected.

Regional Coordinators: The state is divided into 32 atlas regions with one or more volunteers responsible for coordinating atlas activities within each region. The Regional Coordinators ensure that all priority atlas blocks within the region are surveyed during the 5 years of the project. They also recruit surveyors, provide local bird and habitat expertise, monitor survey progress, and review results for reliability. A map of all regions and a list of coordinators and their contact information can be found at [www.mnbba.org](http://www.mnbba.org) (Regions and Blocks).

Participants: Surveyors and Field Observers. You do not need to be an expert birder to contribute observations to the Atlas. If you can identify the species, you can submit your observation. The success of the atlas depends on the help of all individuals interested in Minnesota birds. A list of frequently asked questions about participating can be found at [www.mnbba.org](http://www.mnbba.org) (FAQ).

Surveyors: Surveyors are the backbone of the Atlas project. They sign up to cover one or more Priority Blocks of interest, identify the different habitat types in the block, and make multiple visits to the block to look for breeding evidence for as many different species as

they can find. The goal is to record the strongest breeding evidence for every species observed in the block.

Field Observers: Field Observers contribute breeding observations from any location in the state (e.g. their backyard, at the cabin, or a favorite park). Like surveyors, they report the date, species, and evidence code of their observation but also identify the block where the observation was made. Collectively, these individual observations, called incidental or casual observations, also provide important information that helps determine the statewide breeding distribution of our Minnesota's birds.

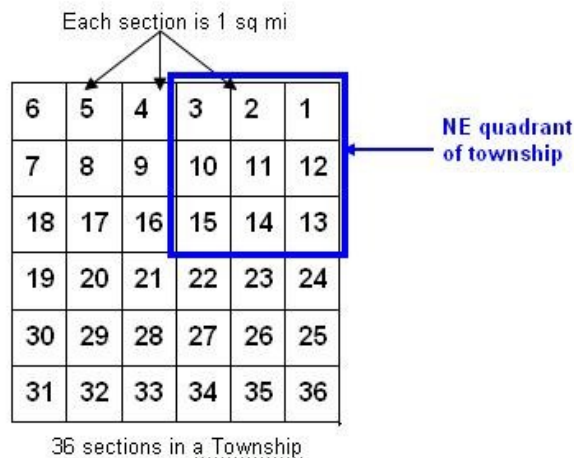
Many Surveyors, in addition to covering one or more blocks, also submit incidental observations.

## Important Atlas Terms

### Priority Blocks

Surveys are conducted in predetermined areas to ensure that the atlas covers the entire state. Most Atlases use a grid system to determine the survey area. Minnesota chose the U. S. Public Land Survey System to select these areas. The Public Land Survey System is based on a 36 square mile area called a township. Townships are subdivided into 36 sections (each 1 mile by 1 mile). To reduce survey bias, the Minnesota BBA randomly selected the NE quadrant (3 miles by 3 miles) of every township in the state to survey. These predetermined areas are called Priority Blocks.

#### U.S. Public Land Survey Township



Rivers, borders, or occasional variations in the grid system can create townships less than 36 square miles. In cases where the NE Priority Block was smaller than 8 square miles, we selected the SE quadrant or continued clockwise to select a complete quadrant. If the township had no quadrants that met the size criteria, the township was excluded from the MNBBA.

Blocks are identified by the township and range number plus a one-letter code that describes whether the block is the NE (a), SE (b), SW (c), or NW (d) quadrant in the township. For example, a block labeled T123R15a is in Township 123, Range 15, the NE quadrant of the township.

## Secondary Blocks

Secondary blocks (quadrants in the township outside the Priority Block) may also be surveyed where habitat present in the township is under-represented in the Priority Block or when special sites do not fall within the Priority Block. Special sites include National Wildlife Refuges, State Parks, State Scientific and Natural Areas or Important Bird Areas. Regional coordinators can help surveyors identify these special sites.

## Incidental Observations

Anyone can report breeding evidence observations anywhere in the state, including: blocks assigned to other surveyors, along the road on a trip, someplace new you want to explore, or a familiar area like a home or cabin neighborhood. When these observations are submitted, field observers will need to provide location information by either knowing the GPS coordinates or the block ID, available from the [mnbbba.org](http://mnbbba.org) website.

## Safe Dates

A large proportion of Minnesota's breeding birds are migratory species and the timing of their migrations through the state often overlaps with the breeding season; some individuals of a given species are migrating through the state while other individuals are breeding. For example, an individual bird seen in late May might be a local breeding bird or it could be a migrant on its way to more northerly breeding grounds.

To reduce the possibility of incorrect reporting, safe dates for all of Minnesota's breeding species are provided on the website under Materials: Supplemental Materials (the first master list is sorted taxonomically; the second is sorted chronologically using safe dates). These dates help exclude observations of non-breeding individuals during pre- or post-breeding movements through the state. If a bird exhibits behavior in the Observed or Possible breeding code categories, but the timing is outside the safe dates for that species, do not record that species. The individual may be migrating through. However, breeding evidence can always be recorded outside of safe dates for Probable or Confirmed observations.

Key points to remember about safe dates:

- Safe dates do not define a species' breeding season.
- Safe dates are, at best, professional estimates averaged for the entire state.
- Safe dates only apply to records in the "Observed" and "Possible" categories. Observations in the "Observed" and "Possible" categories that are outside of the safe dates will not be accepted.
- Safe dates do not apply to "Probable" or "Confirmed" observations.

The figure below shows safe dates for a hypothetical Minnesota breeding bird (Species A). Note that safe dates do not define the full breeding season, but rather a smaller portion of the season after pre-breeding movements (mostly spring migration) and post-breeding movements (fall migration and post-breeding dispersal) have been considered.

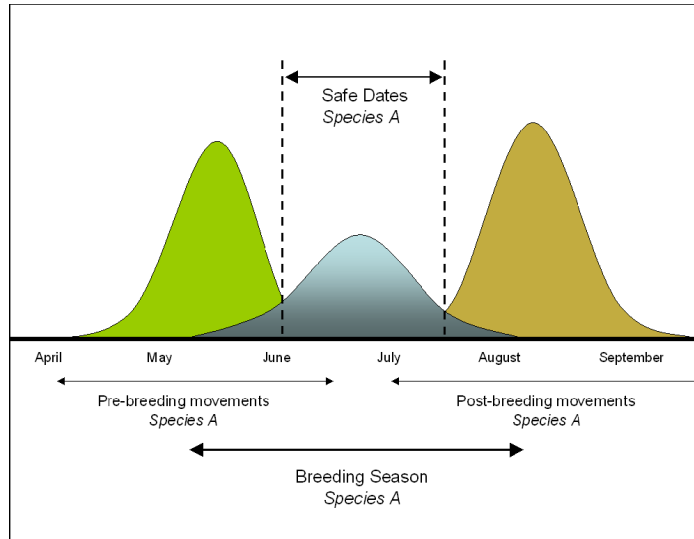


Figure courtesy of 2<sup>nd</sup> Pennsylvania BBA

### Evidence Codes

All Breeding Bird Atlases use codes to describe what observers are seeing to assign the sighting into one of four levels of evidence: Observed only, Possible, Probable, and Confirmed breeding evidence.

Examples of weak evidence for “Observed” only and “Possible” breeding:

Category	Code	Evidence
Observed	O	Species observed in a block within safe dates, but no evidence of breeding. Use this code for species not in suitable nesting habitat. For example, this code applies to raptors or gulls flying over, herons and other colonial nesters foraging with no observed rookery, ducks summering on a pond, or pelicans loafing. Check Evidence Reporting Tips for other examples if you have questions.
Possible	X	Species encountered in suitable nesting habitat within safe dates such as a Virginia Rail in a marsh. Use this code when you hear a male singing in a likely nesting area on only one occasion. For raptors with extensive home ranges, ‘X’ is not a reliable code; code as ‘O’. Check Evidence Reporting Tips. Also, use caution with northern irruptive owls (Northern Hawk Owl, Great Gray Owl, Boreal Owl).
18 more codes		

Codes are similar among most state Atlases and are ranked from weakest to strongest evidence of breeding. All evidence codes are described in Appendix A. Refer to the 2<sup>nd</sup> page for additional guidelines.

If you are uncertain about which code to use, make a note about what you saw and enter it in the Field Notes when you enter your sighting.

## Special Reporting Situations

### Species to Verify

The MNBBA identified 51 species that require additional verification because they are rarely seen in the state (e.g. casual, accidental and former breeding species), they are endangered or threatened in the state, or they are difficult to distinguish from other more common species (see Appendix B or find it on the website in Materials). If these species are observed they will require completion of a MNBBA Verification Form (found on the MNBBA website under Materials).

### Species of Conservation Interest

Birding organizations and government agencies maintain a variety of different lists as a way to highlight species where there are critical gaps in what we know about the species in Minnesota. The MNBBA has identified 44 Species of Conservation Interest in Minnesota (see Appendix B or the website) from a variety of these sources. Adding Field Notes for observations of these species or reporting habitat type for observations of confirmed breeding is strongly encouraged.

### Waterbird Colonies

Many waterbird species, such as grebes, herons, egrets, terns and gulls nest in colonies. When a colony location is found, surveyors are asked to estimate the number of nests and/or adults and to record the specific colony location using GPS coordinates or the Plot Location function at the time of data entry. Colonial waterbird species that are very rare, such as the Snowy Egret and Common Tern, will require completion of a verification form.

### Species with Survey Challenges: Owls, Nighthawks, Whip-poor-wills and Marsh Birds

Because some species are nocturnal and many marsh birds are secretive, these birds are difficult to detect. To improve the likelihood of finding these species please review two documents on the website under Materials: 1) Nocturnal Survey Guidelines, and 2) Marsh Bird Survey Guidelines.

## Websites and Logins

The MNBBA project has two separate but closely integrated websites. The MNBBA website ([www.mnbba.org](http://www.mnbba.org)) is an informational site and the portal to our database. This is the best place to find information about ways to participate in the project as well as materials and instructions for volunteer surveyors (including all the materials referenced in this document). In addition, this site includes a map and other options for finding blocks, a photo gallery with images of birds representing different evidence codes, and atlas results available by map and by query.

By selecting Request a Block or Enter Observations on the home page, the MNBBA site provides a direct link to the database website managed by the Cornell Lab of Ornithology.

The Cornell site is the place to register as a participant in the Atlas. This is also the place to locate and request a block to survey, enter and edit observations, and view personal and

project progress. The Cornell site can be accessed directly at: <http://bird.atlasing.org/Atlas/MN>. In addition, Regional Coordinators and Administrators use this website to review project progress and the species and evidence codes submitted.

Viewers can view results or browse the state for blocks and block status (priority block, owned, survey completed) without being registered. For quick and easy access, bookmark one or both websites to add them to a favorites list.

## Viewing and Printing Maps

Both websites provide ways to view and print maps using Google Maps. Navigation for both maps is very similar. By zooming in and out, panning around the state, you can view, then print, any area or block in the state either using a traditional map, satellite image, or terrain format. Choose the version that works best for you.

Version 1. [www.mnbba.org](http://www.mnbba.org) (project website)

To view blocks: Select Regions and Blocks then the Google Maps Alternative.

Comparison: Provides a larger viewing window and coordinates for the location of the 'push pin' displayed at top of page. Block boundaries appear when you single-click. Printed image is larger on the page and clearer.

Shortcuts: Use the GPS location or Block ID option to go directly to a specific block. To request a block or enter observations, click on a button located at the top right of the map window.

Version 2. <http://bird.atlasing.org/Atlas/MN> (project data and management website)

To view blocks: Both Enter Observations and View Regions and Blocks tabs display a state-wide map to begin browsing.

Comparison: All block outlines appear simultaneously (at 5 mi. on the scale bar) and a single-click provides links to multiple block functions. Printed image provides coordinates that represent the min – max latitude and longitude of the block boundary.

Shortcuts: for Surveyors there is a link to their blocks on their My Home page. On the Enter Observations tab, enter the block id directly or if you have already submitted data in a block, it will appear in the Blocks with data: drop down list.

For more information about using the Cornell website to request blocks, enter and edit data, and monitor block and personal progress, check out the Data Entry Instructions found on [mnbba.org](http://mnbba.org) under Materials.

## Surveyors: How to Contribute Observations

Signing up to complete a survey in a priority block is the most efficient way to successfully finish the atlas. It is also a great way to discover new birding sites and sightings and the best way to learn more about bird behavior.

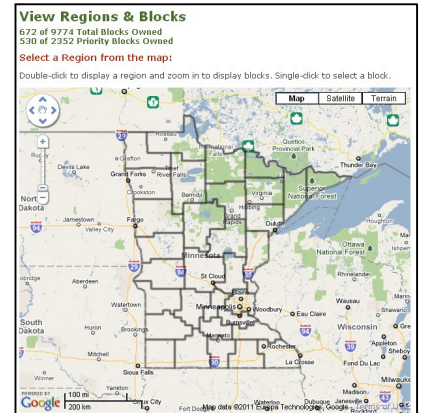
Supporting information for each survey step is described in the section “Guidelines and Tips for Conducting a Block Survey” on page 11.

### 1. Find and Request Priority Blocks

Go to the MNBBA website, [www.mnbba.org](http://www.mnbba.org), and click the Request a Block tab to open View Regions and Blocks. Navigate around the map; as you zoom in, block boundaries appear. Blocks outlined in red are priority blocks and blocks with a blue fill are registered to current surveyors. Secondary blocks are outlined in gray.

To request a block, single click in the block and then Request to own this block.

If you have not yet registered for the Atlas, the Welcome page appears. Registration creates your account and personal My Home page. Click the ‘click here’ link to register. Just register one time and after that, just Sign In with your username and password.



Click Submit in the request window; notes are optional.

If you do not use or own a computer you can still participate by contacting the Regional Coordinator in your area who can recommend a block to survey. The Regional Coordinator, or a friend, can set up an account for you and assign the block to your account.

### 2. Scout and Explore Your Block

The goal of every block survey is to report as many species as you observe with the strongest evidence of breeding for each species. The most effective way to do this is by covering all the habitat types in the block. However, you do not need to cover the entire block (whew!) There are three things to consider as you get familiar with the block: habitat, access, and property ownership.

#### Habitat

Identify the different habitat types which will help you find as many different species as possible (e.g. forest edges, shorelines and grassland).

#### Access

When you have a good idea of the areas you want to cover, look for access to those areas. Are there roads, walking or biking paths, or canoe-able waterways you can use? What's the best way to get to where you want to go to find as many species as you can?

### Land Ownership

As you explore your block it is essential to respect private property. Use only public access to public land unless you have permission from a private property owner to survey there. If you think you may be missing critical habitat by avoiding private property, request permission from the landowner. Your Regional Coordinator can help you identify who owns the property. In some cases, there will be property that is off-limits. This will not compromise the Atlas results.

### 3. Get Out and Bird!

This is what the Atlas is all about! The survey goal for every block is to record as many species as possible and the strongest breeding evidence you observe (e.g. adult carrying nesting material) for each species.

Use the MNBBA Field Form for your region, available from the Atlas website under Materials, or your own field notebook to record: the date of your visit, the species you find, the one evidence code that describes the strongest evidence you found on that visit for each species, and the amount of time spent actively surveying.

You do not need to report multiple observations of the same species, even if you see or hear different breeding evidence. Just report the strongest evidence for each species. And you never have to report a species again unless you observe stronger evidence than previously reported.

Getting Probable and Confirmed evidence is extremely important for completing a block survey but all observations are valuable.

Additional information is required for species that are unusual or difficult to distinguish from similar species. A list of these Species to Verify is in Appendix B with the list of Species of Conservation Interest.

### 4. Report Your Observations

Finally, all your survey time and observations only have value for the Atlas if you enter the data.

From your My Home page, click the link under My Blocks then click Enter Observations on the Block Profile page. Click the Single Day option to enter data for a single visit. Follow the instructions on the data entry page or review the 'Data Entry Instructions', available on [mnbba.org](http://mnbba.org) under Materials.

We encourage you to enter your data as soon after every visit as possible (Mike's rule). If you are not comfortable working online, you can have a friend enter the data or you can send a copy of your data sheets to your Regional Coordinator or someone they designate.

### 5. Completing Block Surveys

Blocks can be very different, even in the same area, because of habitat composition, accessibility, and terrain, so the same standard cannot be used for all blocks. However, there are 3 guidelines used to evaluate whether we consider the block survey to be completed.

- 20 hours of active surveying
- Report a target number of species (see Appendix C)
- Half of the reported species have Probable or Confirmed evidence

If there is habitat for owls in the block, an evening visit in the spring to listen for owls or other nocturnal visits to look and listen especially for owls is required. When you think you have met these criteria, contact your Regional Coordinator to review your block.

## Guidelines and Tips for Conducting Block Surveys

### Explore Your Block

Review block maps to familiarize yourself with your block. Both websites have a mapping function and each site is useful (see page 7). Choose the maps that work best for you.

- Identify Different Habitats to Explore

Review the maps and look for different habitats (e.g. coniferous forest, wetlands, open grasslands, open water) because you will need to look for breeding birds in a representative area of each habitat to increase the probability of finding all the breeding species. Highlight unusual features, such as parks, airports, bridges, cemeteries, or grain elevators, where some species like to breed or congregate, and be sure to survey those areas as well.

- Identify Access Points

Block maps also provide a way to identify access to the different habitats. In most regions of the state, county highway maps provide sufficient detail to get to most of the areas. In more remote areas of the state, logging roads and/or trails may provide critical access. Some of these trails may be displayed on recreational maps but an initial site visit, before you begin the survey, will help you locate additional entry points.

### Explore your block – on the ground

Fall or early spring is a great time to get out and explore your block by car, on foot, by bike, or in a canoe. Be sure to print a map to bring along in the field. Locate the access points you identified earlier and assess which will work best for road surveys, hiking and/or water access. You may be surprised at how different things look when the leaves are off the trees.

One good strategy is to stop every half mile within a similar habitat to listen and look for birds. For guidelines related to specific habitats, read Suggestions for Surveying an Atlas Block at the MNBBA web site under Materials. This is your chance to discover some new, great birding sites.

Remember to always be careful stopping on busy roads and, if you head off-road, to bring along maps and a compass. In some areas private lands may provide key access to important habitats that you want to sample but never enter private land without permission.

## Survey Preparation

Take a few minutes to visit the MNBBA website and review the atlasing materials. Investing time up front to become familiar with these documents will save you time and prevent frustration in the field and at the time of data entry.

### Review Expected Species

Review species that are expected in your survey area by using the following resources:

1. First, on the MNBBA web site you will find field forms that have been customized for each of Minnesota's 32 BBA regions (Materials: Regional Field Forms). Select the form for the region where you will be working (the map of regions is available on [mnbba.org](http://mnbba.org) under Regions and Blocks). The field form lists the species that are expected in the region based on our current knowledge of the distribution of Minnesota's breeding birds. The information was compiled from data collected by the Minnesota Ornithologists' Union (MOU). Reviewing the species on the list is a great way to learn what species you might expect in your block.
2. If you would like a finer level of resolution, MOU county maps allow you to identify birds that occur in the county where your block is located during the summer season (<http://moumn.org/cgi-bin/occurrence.pl?season=Summer>) as well as birds that are known to nest there (<http://moumn.org/cgi-bin/occurrence.pl?user=nesting>).

Additional background information on many individual species or groups of species can be found under Materials on the MNBBA website. Included are field survey tips for different groups of species (Species Reference Guide).

If you need to review the field marks, songs, and calls of the species in your area, there are many great resources online and field guides and song identification CDs and DVDs that are also listed under Materials.

### Become Familiar with Codes and Forms

Data organization and accuracy are important aspects of surveying and successfully completing an atlas block but different surveyors have different styles. Atlas volunteers may select a field form that best suits their needs from the following three options.

1. Multiple Visit Form with Regional List of Expected Species

The multiple visit form is customized for each of MNBBA's 32 regions and includes the list of expected species for the region with each of their safe dates. For convenience, it allows you to record the outcomes of multiple visits on a single form. This makes it easier to focus successive visits on species that you haven't seen or species that need their breeding evidence codes upgraded. Bring the Evidence Codes along as reference in the field.

2. Single Visit Form

This is the primary field card that was used during the 2009 field season. Breeding evidence codes are included on the form but the observer must write each species seen and/or heard during the visit; a list of expected species is not included.

### 3. Incidental Observation Form

This simple form is designed for Field Observers to record incidental observation data and their location. Keeping a supply of these in your car is very handy; you never know what you are going to see.

Surveyors also may choose to record their observations in their own field notebook. If so, it is extremely important to be familiar with the required data on the standardized field cards so that you record the essential data. Every observation you make needs to include these 5 elements:

1. Date
2. Location (just enough information so you can assign it to an atlas block)
3. Species
4. Breeding evidence code
5. For Surveyors, it is extremely important to record the number of hours spent surveying in the block. This will be essential for making valid comparisons with future atlas efforts.

Recording the time spent on non-survey activities (i.e. driving to the block and breaks) and the mileage (both within and to/from the block) are optional.

For incidental records made while traveling through several different Atlas blocks or by casually watching birds in your backyard, we ask that surveyors assign an "effort" of 15 minutes for each reported set of observations.

Note: Don't lose your data forms! To prevent loss of critical data, enter the data as soon as possible after it is collected. Surveyors may want to make a copy, especially if they are submitting records on paper.

### 4. Verification Form

For any observations of Species to Verify, you can fill out a paper copy or complete the form on line. A verification form must be filled out for any observation of a Species to Verify (Appendix B). Submit a paper copy to the Regional Coordinator or the Project Coordinator. Online reports are automatically available.

### Planning When to Survey

Surveyors: make multiple visits to the block at different times of the day throughout the breeding season to improve the chances of finding the most species. Scheduling the timing of field visits is up to the surveyor.

Evidence from other states suggest that spending about 20 hours in a block actively searching for breeding birds should enable you to document most of the breeding species in the block. This estimate will vary depending on your skill level, the diversity of habitats in the block and the ease of access to different habitat types. Plan to visit the block multiple times throughout the season, including one nocturnal visit. Be sure to survey all the different habitat types.

Additional background information that will help you anticipate when and how you might conduct the survey for different groups of species can be found under Materials (Species Reference Guide). For example, although dawn surveys are the best time to hear most breeding songbirds, evening is the best time to look for nighthawks in urban areas. Other considerations include:

- Time of Year

Some species begin nesting as early as January or as late as August, however, the majority of atlas survey work will take place from March through August. Survey work can be divided into three general time periods:

1. February, March and April: We suggest you spend some time in early spring to look and listen for breeding owls, raptors, and woodpeckers. While you are out in your block/s listen for other early breeding species (see 'Master Species List, sorted by Begin Safe Date', in Materials section).
2. May and June: Most Minnesota birds breed from late spring through summer. Late May through June is an excellent time to hear and locate singing males. Note that the safe dates for many species begin on June 1 so review the 'Master Species List sorted by Beginning Safe Date' (Materials) and consider which species you might find when you plan a May visit.
3. July and August: July and early August is an excellent time to observe fledglings and dependent young which will confirm breeding as well as find other confirming evidence for late nesters, such as Cedar Waxwings.

- Time of Day

Many birds are active during the morning so a majority of your survey effort should be concentrated in the morning hours. However, at least one visit should also be devoted to birding just after dusk and into the early evening to document nocturnal species that might otherwise be missed during the day. You could survey for an hour or two after dusk or begin an hour or so before sunrise (see Nocturnal Survey Guidelines under Materials on the web site).

- Weather Conditions

Surveys should be run under satisfactory weather conditions. Avoid rainy, very windy, or very cold (below freezing) conditions. Occasional light drizzle or mist may not affect bird movement or calling but steady drizzle or heavy fog should be avoided. If the weather is interfering with your ability to see or hear birds, call it a day and plan another visit.

## Record Breeding Bird Data

The list of evidence codes (Appendix A) is in order of weakest to strongest evidence. You do not need to record the number of individuals or the number of occurrences on a single visit, however, you do need to keep track, during the visit, of the number of occurrences of territorial singing/drumming to use the M code.

### On Each Field Visit:

- Record the breeding evidence code, for each species, that corresponds with what you actually observe; when in doubt, choose the more conservative of two breeding codes.
- Include Field Notes for any observation of interest or when you are uncertain about whether you have chosen the appropriate evidence code. Field Notes are extremely helpful during data review.
- If you make multiple observations of a species in the block on the same day, only record the observation with the highest breeding evidence code (for example if you hear more than 5 singing Red-eyed Vireos (Evidence Code: M) but later find a nest with eggs (Evidence Code: NE), only report the latter observation.

### On Subsequent Field Visits:

- Record new species seen that were not observed on your last field visit.
- Record species seen on your last field visit only if you are able to upgrade to a stronger breeding evidence code (e.g. the highest evidence code on your first visit was Possible [X] but now you see an adult of that species carrying sticks to a nesting site so you report that species with the Evidence Code, CN).
- When you enter the observation into the atlas database, do not delete the earlier observations of a species that were of a lower breeding evidence code.

### When Additional Information is Required:

- You Observe a Species to Verify

Document detailed notes and the location for each sighting of these species. Completion of a 'Verification Form' (on Materials tab) with location is required.

- You find a Waterbird Nesting Colony

Enter an estimate of the number of adults and/or nests in the colony in the Notes column and record the location. Location is required.

### When Additional Information is Encouraged:

- You Observe a Species of Conservation Interest

When you confirm breeding for these species you are encouraged to describe the habitat where the confirmation was made. Later, when you enter the observation into the atlas database you will need to select a code (Appendix B: Special Species

and Habitat Codes and under the Materials tab) that best describes the landscape where the bird was observed. Enter habitat information in the Notes column of your field form.

Habitat codes are important for improving our knowledge of the habitat requirements of these species of interest. The habitat codes are three character codes. Use the code that best describes the habitat where your observation was made. If you are not familiar with the detailed habitat descriptions, use the three character code that ends with "X", for a more general description.

### Recording Specific Location Information

Location can be documented either using GPS Coordinates or a block map.

If you have a GPS unit, either record the location as a waypoint in the GPS unit to retrieve when you enter your data or write the coordinates in the Notes field on the Field Form. When you enter the location information online, you will be asked to record the coordinates in decimal degrees. If you need to convert the coordinates to decimal degrees, there is a handy conversion function on [mnbba.org](http://mnbba.org) under the Regions and Blocks tab.

If you do not have a GPS unit, identify your location by putting a mark on your block map. When you enter the observation, you can document the location by clicking on the Plot Location function and the coordinates will be automatically generated and added to the observation.

### Submit Your Data

A short Easy Guide for Finding Blocks and Entering Data is available on the web site (under Materials). If you would like more detail, it can be found in the document, MNBBA Data Entry Instructions also on the MNBBA web site (Materials). Remember, in addition to entering your bird observations it is also important to enter your time spent actively surveying.

## Field Observers: How to Contribute Observations

We encourage everyone to enter data as a Field Observer when they see evidence of breeding although signing up to survey priority blocks is what will ensure project success. Remember, you will need to find the Atlas block where the bird was observed to enter the Field Observer data.

### 1. Get Out and Bird!

Since Field Observers can contribute observations to any block, you do not need to select a Priority Block or scout the block, although that is a wonderful way to explore new birding sites.

Use the Incidental Reporting Form, available from the Atlas website under Materials, or your own field notebook to record: the date of your visit, the species you find, the evidence code that describes what you observe for the species, and the location of the sighting. Location information must be specific enough that you can identify the Atlas block where the sighting was made. If you know the latitude and longitude coordinates of your location go to the

[www.mnbba.org](http://www.mnbba.org) web site and under Regions and Blocks there is a tool to convert the lat/long coordinates to the specific Atlas Block ID.

Getting Probable and Confirmed evidence is extremely important but all observations are valuable. Further details regarding what data to report can be found on page 13.

Remember, additional information is required for species that are unusual or difficult to distinguish from similar species. A list of these Species to Verify is in Appendix B with the list of Species of Conservation Interest.

## 2. Report Your Observations

For Field Observers, the first step for entering data is to identify the block where the observation/s was made. On the MNBBA website select Enter Observations. Navigate around the map to identify the block where the sighting was made. Single-click on the block and select the Enter Observation for the block link.

If you have not registered before, click the 'click here' link to register. Registration creates your account and personal My Home page. Just register one time and after that, Sign In with your username and password.



Click the Single Day option to enter observations for the block on a single day or select the Multiple Days option to enter observations for the block collected on multiple days. You can only enter one evidence code for each species. Follow the instructions on the data entry page and for more information or direction, review the 'Data Entry Instructions', available on [mnbba.org](http://mnbba.org) under Materials.

We encourage you to enter your data as soon as you can after you go birding. If you are not comfortable working online, you can have a friend enter the data or you can send your data sheets to your Regional Coordinator or someone they designate.

## Ethics and Safety

No Trespassing – ever!

It is critical that Atlas Surveyors do not survey on private property without permission. When you explore the block in spring and/or fall it is a good time to identify private landowners and secure permission to survey their property. Minnesota County Plat Books are particularly helpful in identifying property boundaries and landowners. Plat maps are available online for many counties and some counties have advanced interactive mapping tools that you may find helpful. Your Regional Coordinator also has a set of the county plat books that are available in his/her region.

Once you have identified the landowner of a property you wish to survey, and he/she is available, don't be shy about asking permission. Most folks are happy to let you on their property once they understand the project. Oftentimes the landowners know a great deal about the birds on their property and can be very helpful. If they allow you access, let them know when to expect you and follow-up by providing them a thank you and a list of birds you documented on their land. Provide them with contact information should they observe any birds that you were unable to document.

If the landowner is not available, you can send or leave a letter requesting permission. A copy of a standard request for permission is available from the MNBBA website (Materials: Essential Materials).

There will be some landowners who do not grant you permission to enter their land. Be respectful of their wishes and do not press the issue further. We know we will not be able to gain access to all private lands in Minnesota's Priority Blocks. This will not compromise the success of the atlas.

Finally, throughout the state, and particularly in the northern region, surveyors will encounter public lands in their blocks. They may be owned by the county, the state or the federal government. Although access to most of these lands is not restricted, obey all restrictions that are posted on boundary signs. In all cases, it is best to check with the local public lands office (e.g. a local Department of Natural Resources Offices, a county lands office or a national forest, national park or U.S. Fish and Wildlife office) and let them know what you are doing. Like the private land owners, the public land owners likely will be very interested in learning what you have documented on their property and can often provide you with helpful information.

### Birding and Atlasing Ethics

(credit to the Ohio Atlas Project for the following information)

Some atlas activities might impose certain stresses on breeding birds, and all such activities should be kept to a minimum. Since one of the main goals of a breeding bird atlas is to confirm breeding, active nests or parents with fledglings may be encountered. If a nest is found, be sure to minimize disturbance to the nest, adults, young birds, and the surrounding vegetation. There is a variety of breeding evidence codes that will confirm breeding, so searching for the location of nests is not necessary.

If you suspect that a bird is breeding in a particular habitat patch, take some additional time to watch that bird's behavior. It might reveal the presence of a nest or young without the need to disturb the nest or vegetation concealing the nest site. For example, repeated visits by an individual bird to a particular location, such as a dense hedgerow or nest cavity, represent probable breeding (code 'N'). Increasing the confirmation level for this species could be accomplished by simply observing the bird carrying nest material (code "CN") or carrying food (code 'FY'), both of which confirm breeding for that species without encroaching upon the nest location. Another possibility would be to note the location of the likely nest and revisit the site in a few days. Please note that you should be especially careful if the adults are very upset by your presence. Increased adult activity near a nest site may attract nest predators such as jays, crows, accipiters, and a variety of mammalian predators.

The MNBBA discourages the use of playback tapes and understands that a great deal of controversy accompanies the use of tape playback to attract birds. In some unusual cases, if used correctly and very sparingly, it can be a useful tool for detecting elusive species in some situations. Brief (~20 second) tape playbacks to naïve individuals (those which are unlikely to ever hear another tape recording) should not have detrimental effects on an individual bird. However, it is important to note that tape playbacks should never be used in areas that are birded heavily, such as metro parks, state parks, or state nature preserves, and never for threatened or endangered species.

Special care should be taken when surveying for rare species, and nests should never knowingly be approached. Observing these species at a distance can, in many cases, yield breeding confirmation without the direct observation of nests, eggs, or young birds.

### Field Safety

Whether you are birding in the agricultural landscape of southern Minnesota, the urban landscape of a city, or the dense forests of northern Minnesota, birding is a fun and healthy outdoor activity. Like all outdoor recreational activities, however, it is important that certain precautions are taken to ensure that the experience is both enjoyable and safe and that you are prepared for any hazards that may arise. Your personal safety should always be your top priority. The web site includes a list of important safety considerations to remember (Supplemental Materials: Field Reminder Checklist).

## Appendices

## Appendix A. 2011 Breeding Evidence Codes

Category	Code	Evidence
Observed	O	Species observed in a block within safe dates, but no evidence of breeding. Use this code for species not in suitable nesting habitat. For example, this code applies to raptors or gulls flying over, herons and other colonial nesters foraging with no observed rookery, ducks summering on a pond, or pelicans loafing. Check Evidence Reporting Tips for other examples if you have questions.
Possible	X	Species encountered in suitable nesting habitat within safe dates such as a Virginia Rail in a marsh. Use this code when you hear a male singing in a likely nesting area on only one occasion. For raptors with extensive home ranges, 'X' is not a reliable code; code as 'O'. Check Evidence Reporting Tips. Also, use caution with northern irruptive owls (Northern Hawk Owl, Great Gray Owl, Boreal Owl).
Probable	M	Multiple (5 or more) singing or territorial birds of a species detected in suitable habitat within the block on the same day. Most species listed as (M) can be upgraded during a later visit. Check Evidence Reporting Tips for species specific examples.
Probable	S	Singing or territorial male in suitable habitat at same location at least 5 or more days apart. Be aware that some species do not sing to demonstrate territoriality or to attract a mate. Check Evidence Reporting Tips for species specific examples.
Probable	P	Pair observed in suitable nesting habitat. Geese, swans, ducks: 'P' not reliable as breeding evidence in most cases. Code as 'X'. In rare situations, P may be appropriate based on multiple observations but requires Field Notes. See Evidence Reporting Tips for example.
Probable	T	Permanent territory presumed through defense of breeding territory by fighting or chasing individuals of same species. Geese, swans, ducks: 'T' not reliable as breeding evidence in most cases. Code as 'X'. In rare situations, T may be appropriate based on multiple observations but requires Field Notes. See Evidence Reporting Tips for example.
Probable	C	Courtship or copulation behavior, includes displays or transfer of food. Geese, swan, ducks: 'C' not reliable as breeding evidence in most cases. Code as 'X'. In rare situations, C may be appropriate based on multiple observations but requires Field Notes. See Evidence Reporting Tips for example.
Probable	N	Bird observed visiting the same likely nest site repeatedly, but insufficient behavior for upgrading to Confirmed. Especially useful for cavity nesters or for a shrub-nesting species that flies into the same thicket and disappears several times.
Probable	A	Agitated behavior or anxiety calls from adults usually indicate a nest site or young in the vicinity.
Confirmed	PE	Physiological evidence of breeding based on bird in the hand such as a highly vascularized swollen incubation (brood) patch or an egg in the oviduct. For bird-banders only using expert judgment.
Confirmed	CN	Bird seen carrying nesting material such as sticks, grass, mud, cobwebs, etc.
Confirmed	NB	Nest building seen at the actual nest site, including wrens and woodpeckers.
Confirmed	DD	Distraction displays, defense of unknown nest or young, or injury feigning. Killdeers may give a "broken wing" act, a Red-winged blackbird may dive at you near the nest site, or an Ovenbird may run about with wings fluttering.
Confirmed	UN	Used nest or eggshells found. Unless carefully identified, use this only for unmistakable eggshells and nests that were used during the Atlas period.
Confirmed	ON	Occupied nest indicated by adult entering or leaving nest site in circumstances indicating an occupied nest, including those in high trees, cliffs, cavities, and chimneys where the contents of the nest and incubating or brooding adult cannot be seen.
Confirmed	FY	Adult bird carrying food for young or feeding young. Be aware that some adults carry food a long distance or may be engaged in courtship feeding.
Confirmed	FL	Recently fledged, dependent short-tail or downy young, including duck broods. Be cautious of species that range widely soon after fledging.
Confirmed	FS	Adult bird seen carrying fecal sac. Many passerine adults keep their nests clean by carrying membranous, white fecal sacs away from the nest.
Confirmed	NE	Nest with eggs.
Confirmed	NY	Nest with young seen or heard.

Appendix B. 2011 MNBBA Special Species

Species to Verify

Required: Completion of a Species Verification Form (which includes details about the observation and conditions under which it was made) and the location.

Mute Swan	American Three-toed Woodpecker
Bufflehead	Western Wood-Pewee
Red-breasted Merganser	Loggerhead Shrike
Northern Bobwhite	White-eyed Vireo
Horned Grebe	Philadelphia vireo
Clark's Grebe	Rock Wren
Snowy Egret	Carolina Wren
Little Blue Heron	Mountain Bluebird
Cattle Egret	Northern Mockingbird
Yellow-crowned Night Heron	Sprague's Pipit
King Rail	Yellow-throated Warbler
Common Moorhen	Bay-breasted Warbler
Snowy Plover	Louisiana Waterthrush
Piping Plover	Kentucky Warbler
American Avocet	Hooded Warbler
Solitary Sandpiper	Yellow-breasted Chat
Willet	Lark Bunting
Wilson's Phalarope	Baird's Sparrow
Little Gull	Henslow's Sparrow
Caspian Tern	Nelson's Sparrow
Common Tern	Chestnut-collared Longspur
Barn Owl	Summer Tanager
Northern Hawk Owl	Rusty Blackbird
Burrowing Owl	Red Crossbill
Boreal Owl	White-winged Crossbill

Species of Conservation Interest

Encouraged:

- Add Field Notes to better describe the sighting.
- Include a habitat code for observations with a Confirmed breeding evidence code

Trumpeter Swan	Acadian Flycatcher
American Black Duck	Western Kingbird
Northern Pintail	Bell's Vireo
Canvasback	Purple Martin
Spruce Grouse	Boreal Chickadee
Sharp-tailed Grouse	Tufted Titmouse
Greater Prairie-Chicken	Golden-winged Warbler
Least Bittern	Tennessee Warbler
Bald Eagle	Black-throated Blue Warbler
Northern Goshawk	Cerulean Warbler
Red-shouldered Hawk	Prothonotary Warbler
Swainson's Hawk	Connecticut Warbler
Peregrine Falcon	Wilson's Warbler
Yellow Rail	Canada Warbler
Upland Sandpiper	Lark Sparrow
Marbled Godwit	Grasshopper Sparrow
American Woodcock	Le Conte's Sparrow
Great Gray Owl	Evening Grosbeak
Short-eared Owl	
Common Nighthawk	
Whip-poor-will	
Chimney Swift	
Red-headed Woodpecker	
Black-backed Woodpecker	
Olive-sided Flycatcher	

## MNBB Habitat Codes

FDX	Forest, Deciduous: deciduous species >90% of tree cover	OWX	Wetland/Water: open or shrubby (native) habitats that are wet or periodically/permanently flooded
	FDU Forest, Deciduous Upland: bur, pin, white & red oak; aspen; paper birch; sugar maple, basswood, hickory, etc.		OWB Open Bog: ericaceous (lowland evergreen) shrubs; sphagnum
	FDL Forest, Deciduous Lowland: silver maple, green & black ash, river birch, cottonwood, swamp white oak, etc.		OWG Sedge/Lowland Grass: includes sedges, wet prairie, red-canary
FCX	Forest, Coniferous: coniferous species >75% of tree cover		OWS Shrub Swamp: willow, dogwood, alder, etc. (shrub cover >25%)
	FCU Forest, Coniferous Upland: pines, spruce-fir and upland white cedar		OWM Emergent Marsh: cattails and/or bulrushes/phragmites dominant
	FCL Forest, Coniferous Lowland: tamarack, black spruce, and lowland white cedar, includes "stagnant" types with tree cover 50-70%		OWL Lake: includes water lilies, sparse bulrush/cattail border
FMX	Forest, Mixed Deciduous and Coniferous: Coniferous species 10-75% of tree cover		OWR River/Stream: minimum width about 5 meters (16 feet)
	FMU Forest, Mixed Upland: mix of upland deciduous and coniferous trees	OPX	Open/Non-Vegetated: native, non-vegetated habitats dominated by exposed rock, sand, mud, etc.
	FML Forest, Mixed Lowland: mix of lowland deciduous and coniferous trees		OPC Cliff/talus: cliffs and talus slopes
SDX	Semi-Open Deciduous: deciduous species comprise >90% of woody cover		OPR Rock Outcrop: bedrock outcrops
	SDN Semi-Open w/ Deciduous Upland Natives: oak savanna, aspen parkland; native species dominant		OPS Shoreline/Beach/Mudflat: lake/river beach (sand, gravel, mud, rock)
	SDD Semi-Open w/Deciduous Upland Disturbed: upland cutover, burned, regenerating, upland shrub, plantation	HUX	Urban/Small Town: urban, suburban and small towns
	SDL Semi-Open w/Deciduous Lowland: lowland cutover, burned, regenerating (native shrub swamps are OWS)		HUC Commercial/Industrial: offices, shopping centers, warehouses, factories, mostly impervious surfaces
SCX	Semi-Open Coniferous: coniferous species comprise >75% of woody cover		HUR Residential: city, suburban, or small town residential areas with mix of lawns, trees, driveways, etc.
	SCN Semi-Open w/Coniferous Upland Natives: jack pine savanna, red cedar; native species dominant		HUO Open Space: includes city/town parks, ball fields, golf courses; dominated by turf grasses, gravel parking areas, etc.
	SCD Semi-Open w/Coniferous Upland Disturbed: cutover, burned, regenerating, upland shrub, plantation	HRX	Rural Upland: rural uplands including farms, rural homes, and surrounding areas
	SCL Semi-Open w/Coniferous Lowland Disturbed: lowland cutover, burned, regenerating (native shrub swamps are OWS)		HRC Cultivated/Row Crop: cultivated fields, including all row crops, small grains, etc. or recently cultivated fallow fields
SMX	Semi-Open Mixed Deciduous and Coniferous: coniferous species comprise 10-75% of woody cover		HRH Hay: non-native grasses or alfalfa/legume/clover; has or will probably be harvested
	SMN Semi-Open w/Mixed Deciduous and Coniferous Upland Natives: native species dominant		HRP Heavily-grazed Pasture: pastures uniformly grazed to maximum height of 1-2 inches (light to moderately grazed pastures are OGN or OGC)
	SMD Semi-Open w/Mixed Deciduous and Coniferous Upland Disturbed: cutover, burned, regenerating, upland shrub, plantation		HRF Rural Farm/Residential: farmsteads and non-farm homes, including outbuildings, yards and small feedlots
	SML Semi-Open w/Mixed Deciduous and Coniferous Lowland Disturbed: lowland cutover, burned, regenerating		HRT Trees/Woodlot: orchards, multi-row shelterbelts, farm woodlots (<20 acres); hybrid poplar (planted in multiple, uniform rows)
OGX	Grassland Upland: uplands dominated by herbaceous species, primarily grasses		HRG Gravel Pit/Quarry/Mine: includes threes and other highly disturbed areas devoid of vegetation
	OGN Grassland Upland Native: includes light-moderately grazed native prairie		HRD Roadside Ditch/Fenceline: include RR rights-of-way, transportation corridors, and adjoining fencelines & utility lines
	OGC Grassland Upland Non-native: includes light-moderately grazed non-native grass (cool season grasses)		HRM Mosaic/Fragmented: mosaic or interspersed of multiple (3+) habitats or habitat components; no single habitat > 20 acres
	OGP Grassland Upland Planted Native: homogeneous tall, thick native grasses (usually 1-2 species)	HWX	Rural Wetland: rural, human-created or disturbed wetlands
			HWP Stock Pond: small ponds within pastures or adjoining farmsteads
			HWS Sewage (wastewater treatment) Lagoon: includes open water, shoreline and adjoining dikes of lagoons
			HWF Flooded Field: flooded cultivated or fallow fields

Appendix C. 2011 MNBBA Target Number of Species by Region

<b>Region</b>	<b># Target Species</b>	<b>Ecoregion</b>	<b>County</b>
1	54	Parkland	Kittson, Marshall
2	54	Parkland	Roseau, Lake of the Woods
3	54	Parkland	Polk, Pennington, Red Lake
4	67	Coniferous	Beltrami, Clearwater
5	67	Coniferous	Koochiching
6	67	Coniferous	Itasca
7	67	Coniferous	St. Louis, south
8	67	Coniferous	St. Louis, central
9	67	Coniferous	Lake
10	67	Coniferous	Cook
11	51	Prairie	Norman, Mahnommen, Clay, Becker
12	67	Coniferous	Hubbard, Cass, Wadena
13	67	Coniferous	Crow Wing, Aitkin
14	67	Coniferous	Carlton, Pine, Chisago
15	58	Deciduous	Wilkin, Ottertail
16	51	Prairie	Traverse, Grant, Douglas, Stevens, Pope
17	58	Deciduous	Todd, Morrison, Stearns, Benton
18	58	Deciduous	Mille Lacs, Kanabec, Sherburne, Isanti
19	51	Prairie	Big Stone, Swift, Lac qui Parle, Chippewa
20	51	Prairie	Kandiyohi, Meeker, Renville
21	58	Deciduous	Wright, McLeod
22	58	Deciduous	Anoka, Hennepin, Washington, Ramsey
23	51	Prairie	Yellow Medicine, Lincoln, Lyon, Redwood
24	58	Deciduous	Sibley, Nicollet, Le Sueur
25	58	Deciduous	Carver, Scott, Dakota
26	58	Deciduous	Rice, Goodhue, Wabasha
27	51	Prairie	Pipestone, Murray, Rock, Nobles
28	51	Prairie	Brown, Cottonwood, Watonwan, Jackson, Martin
29	51	Prairie	Blue Earth, Waseca, Faribault
30	58	Deciduous	Steele, Dodge, Freeborn, Mower
31	58	Deciduous	Olmstead, Winona, Fillmore, Houston
32	67	Coniferous	St. Louis, north