

GENERAL PROTOCOL

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BEFORE DOING FIELD WORK

- Read the BFL manual so all instructions are clear
- Determine which species to survey at each study site
- Determine the best time to make Visits 1 and 2 in your region (check with local sources and refer to the *Reference: Species Accounts* and *Survey Instructions: Species Guidelines* sections in this manual)
- If working in a group, organize your team of observers
- Photocopy your Field Forms
- Get maps for your survey area (see *References: Map Resources*)
- Refer to the *Appendices* section in this manual to make sure you have everything you need for field work
- Familiarize yourself with the CD to learn study species' vocalizations before going in the field

GENERAL PROTOCOL

Summary of protocols

Surveying for BFL involves visiting each point twice, and following a simple, standardized protocol. Each visit includes one **10-minute Observation Period**, during which you will look and listen for your pre-selected study species to be spontaneously calling, singing, and/or displaying. This is followed by a **5-minute Playback Period for each species**, during which you will play recorded sounds of your study species to elicit a response from birds at your study site. Finally, you will conduct one **10-minute Behavior Watch Period**, which involves playing chickadee and owl mobbing calls in a final attempt to observe your study species and determine their breeding status. For the Playback and Behavior Watch Period, you will use sounds from the BFL CD included with this research kit.

In some regions, many of the BFL study species will be present within your immediate area. Determine which species you are likely to encounter by referring to “Which Species Can I Study?” in the *Survey Instructions: Species Guidelines* section of this manual and the descriptions of breeding habitats for each species in the *References: Species Accounts* section. **It is very important to select your study species for each specific site before going into the field and then survey for all chosen species at each site.** You do not have to survey for the same species at each site. Recording the observation of a species that you were not surveying for will bias BFL results. You don't need to survey for every species that breeds in your region; choose only as many species as you feel comfortable studying. Even one species will help us answer the important questions discussed in the *General Instructions*. If you are still uncertain about which species to study after consulting the sections listed above, contact a site coordinator or the BFL staff.

Timing of the breeding cycle varies among species, and even within a species depending on latitude and longitude. The *Reference* section of this manual contains general information, but we suggest checking with local sources to determine the specific timing for your region. **Visit 1 should take place on the earliest date that all of your study species are present and expected to be breeding.** This is generally a few days after a bird arrives on territory. Courtship should be at its peak, but not so early that migrating birds may still be passing through.

Visit 2 should occur approximately two to four weeks after Visit 1, when you have the maximum chance of confirming breeding activity for all of your study species. If you would like to study species that start to breed at very different times

during the season, for example the Cooper's Hawk (expected egg dates in early April) and the Blackburnian Warbler (expected egg dates in late May), then survey for different study species at different sites. Make sure you choose sites that are in suitable breeding habitat for the particular bird(s).

To be more efficient in the field, please read through the entire manual before selecting sites and actually conducting the protocol. Then, gather copies of topographic maps of the areas that you plan to survey (see *References: Map Resources*) and familiarize yourself with the Field Form as well as the CD before going in the field. Make as many photocopies of the Field Form as you need. Remember, one objective of BFL is to confirm breeding for as many species as possible at randomly selected study sites. Negative data, or confirming the absence of your study species, is just as important as finding your target bird. We must know where these species are as well as where they are not breeding.

Survey recommendations and tips

Based on our experiences and comments from past BFL participants, we have compiled a few suggestions to help you conduct the protocol more smoothly.

- **Safety**—Carry a map and compass to remote study sites, and let others know where you are working. Refer to Appendix C for a list of items you will need to take with you in the field.
- **Time of day to survey**—Early morning is the best time for surveying, but forest birds are also active during the evening. They may even sing throughout the day early in the breeding season.
- **Observation technique**—To detect birds during your surveys, we suggest that you continually scan for movement, concentrating on the area from the ground up to the canopy while listening for vocalizations. If surveying for woodpeckers, listen for drumming noises.
- **Work in teams**—One person can conduct the protocol; however, the study is easier and more efficient with at least two surveyors. We recommend working in teams of two to four observers—one person records data while the others look and listen for the study species. More than four observers in a group can cause confusion and may deter birds from approaching. It works well to divide the duties of recording data and broadcasting the playbacks. Conversation is minimized if the person in charge of playbacks is also the time keeper. Two observers facing opposite directions

SELECTING STUDY SPECIES AND DETERMINING VISIT DATES

1. Determine what species breed in your area by referring to “Which Species Can I Study?” in the *Survey Instructions: Species Guidelines* section of this manual
2. Determine what habitats these species use by looking at the descriptions of breeding habitats for each species in the *Reference: Species Accounts* section
3. Determine your first visit date by consulting the summary table of breeding chronology in the *Survey Instructions: Species Guidelines* section
4. Select as few or as many of these study species as you feel comfortable surveying. You don't have to survey for all selected species at each site since they will not all start to breed at the same time

can visually scan 360 degrees around the survey point and thereby detect birds that one observer might miss.

- **Allow a settle-down period**—Upon arriving at your pre-designated survey point, we suggest that you stand quietly for at least one to two minutes to allow the birds to settle down from the disturbance of your entry and resume their normal activity.
- **Use a CD player**—Cassette tapes are no longer available to project participants. CDs are much easier for learning vocalizations and conducting field playbacks since you don't have to fast forward and rewind, but merely select a track number. We suggest investing in a portable CD player with a detachable amplified speaker.
- **Make a customized tape**—If you do not have a CD player, you can make copies of the CD onto a tape *for field use only*, but we ask that you report to us how many you make so that we have a file of authorized copies. You can simply notify us that you've copied the recordings when you return your data forms. Here are two suggestions for creating tapes for surveying multiple species:
 - Record the pertinent tracks on a tape in the order in which you will survey for the species. This works best if you are surveying for the same species at all your BFL sites.
 - Copy each species' recordings onto a separate tape. This works best if you are not surveying for the same species at all your BFL sites; the recordings of each species will be readily accessible at any time.
- **Set tape prior to survey**—It is helpful to set your tape(s) to the appropriate species prior to beginning your survey. Rewind the tape as you travel to your next study site or during the settle-down period.
- **Turn speaker in four directions**—To project the recorded vocalizations throughout your study-site area, we recommend that you broadcast the playback in all four compass directions, using the intervals between songs/calls to turn the speaker.
- **Surveying hawks and other species at the same study site**—when surveying for hawks and other species during the same visit, be sure to broadcast the non-hawk playbacks before playing the hawk calls. These other species can become alarmed by the hawk calls and may not respond if they believe a hawk is in the area.

Forest bird recordings

Learning bird vocalizations

Before you conduct your first visit, you should be confident of your ability to identify the songs, calls, and other sounds of the species you have chosen to study. Your kit includes a CD, enabling you to learn the vocalizations of the birds you are likely to encounter. The species on the CD are categorized by region and habitat type. The number by the species represents the track number on the CD. This will enable you to easily find your chosen species when playing the CD in the field. The 2001 BFL CD has only a single one-minute track for each species. It contains songs, calls, and/or sounds of each individual species all combined into this 1-minute track. The tracks are not separated out by song and call as on the past BFL CD.

Playback use and responses

- During the Playback Period, **do not play the CD for more than the prescribed time** (two one-minute segments for playback or five minutes for the mobbing call). The protocol must be standardized, and it is important not to stress territorial birds.
- Please make sure you are **playing the vocalizations of the correct species at the appropriate time**.
- Record on your Field Form whether you see and/or hear a study species and if you used recorded playback (see form for exact questions).

Forest birds can have varying responses to recordings of their vocalizations. In addition, be aware that another bird that is not a study species may respond to playbacks of the one you are surveying—look closely at any birds that appear. Note that responses can be immediate or somewhat delayed, so try to be alert during the entire period.

Some forest dwellers will fly in silently and behave cautiously when their vocalization is played, so be sure to watch and listen carefully. The birds may respond vocally from a hidden perch. They may be quite vocal, either singing or calling, and appear rather irritated. Realize that the recordings may be perceived as a threat to a territorial male. Some birds, such as thrushes, have an interesting behavior of sometimes “whispering” their song, apparently to make it seem as though they are farther away. They may investigate the source of the vocalization by making a quick, close pass, progressively moving closer, or perhaps flying in directly. Following playbacks, many birds will move around a study point, investigate the speaker from numerous angles, and stay in the area for a while. Many of the study species’ behaviors in reaction to conspecific playback have not been well documented.

In particular, we need your help to discover if our study species' behaviors in response to the mobbing sequences on the CD are a better indicator of breeding success than simply searching for nests and fledglings. We hope to standardize the effort time while getting the best idea of the breeding status of each individual species by observing and recording behavior. By eliciting a response to the mobbing, we hope you will observe behaviors that you might not regularly see if you only played the species' own vocalizations or sounds. The birds might appear agitated in response to the mobbing calls, but we feel that this five-minute mobbing sequence will be less invasive than searching the forest for nests.

Cowbirds and nest predators

We are interested in the effects of cowbird parasitism and nest predation on forest-bird breeding success. Listen for displaying male cowbirds (males advertising to attract a female) and be alert for the drab females; they can be inconspicuous. For more information on the Brown-headed and Bronzed cowbirds, see the *References: Species Accounts* section of the manual.

Only record information on cowbirds and predators if you detect these species during the 10-minute Observation Period. Participants across the country will spend varying amounts of time in the field depending on the number of species they study. Consequently, the amount of observation time must be controlled because it affects the probability of detecting birds. Recording only the observations made during the 10-minute Observation Period standardizes the amount of effort (time) spent by each BFL participant. If you encounter cowbirds or predators (see list of potential predators on the front side of the Field Form), please record this information on your Field Form and later when entering your data on the BFL website. If you wish, you can report cowbirds or predators that were observed outside the 10-minute Observation Period in the "Comments" section of the data form. Also, if you keep track of other avian species that are *not* listed in the "Nest Predator" column, please list these species in the comments section of the Field Form.

Nests

If you discover a nest inside or outside of your defined study site, please record the data on a **Nest Record Card**, included in the pocket of this research kit. Make sure to return this card to the Lab when you've completed your field work.

VISIT PROTOCOLS

Visit 1

The purpose of Visit 1 is to determine if your target species are present at each of your BFL survey points while also recording any signs of breeding activity.

You should determine which species you will survey for and try to select your BFL points before the birds return from their wintering grounds. As mentioned in the beginning of the survey instructions, Visit 1 must be after the arrival of your study species that breeds latest in the season, a few days after this bird is present on territory. You can survey as many or as few study species as you like depending on your comfort level. Since some of your study species will begin to breed at different times during the spring and the habitat they choose to use for breeding will vary, you do not have to survey for the same species at each site.

Observation Period (mandatory 10 minutes)

Each survey begins with a 10-minute Observation Period conducted at every point. **Conduct only one 10-minute Observation Period per visit regardless of the number of species you study.** During this period, listen and look for all the possible study species that you have chosen for this site, as well as cowbirds and predators. Record your findings on a Field Form. Even if you quickly detect your study species, please complete a *full* 10-minute observation period, continuing to observe for cowbirds and predators while noting your species' behaviors. Please record any observed breeding activity at this time. **No playback** is involved during this portion of the protocol, simply look and listen.

Playback Period (mandatory 5 minutes per species)

Immediately after the 10-minute Observation Period, **you will conduct sequential, 5-minute Playback Periods for each of your study species, even if they were detected during your 10-minute Observation Period.** Complete the entire 5-minute playback sequence for each study species, even if you detect your bird during the middle of its Playback Period or during the Playback Period for another study species. By conducting the entire Playback Period for each species, even if the bird is detected immediately, you are increasing your chances of discovering the breeding status of your study species and detecting additional individuals. For example, a male might come into the first sequence of songs and begin responding to the CD. During the second sequence of songs a female might

PROCEDURE FOR VISIT 1

Goal: To determine presence/absence and breeding status of your study species

1. Before going into the field, determine which study species you will survey at each particular site and learn their sounds by listening to the BFL CD
2. Conduct Visit 1 on the earliest date that all your study species are predicted to be present and attempting to breed

Observation Period:

3. Watch/listen for 10 minutes, noting all study species for that site, plus cowbirds and predators

Playback Period:

4. Play 1 minute of **songs, calls, or drums, even if you've already detected that particular study species**
5. Watch/listen for 1 minute
6. Play 1 minute of **songs, calls, or drums again, even if you've already detected that particular study species**
7. Watch/listen for 2 minutes
8. Repeat steps 4 to 7 for each study species on the same day

Behavior Watch Period:

9. After the Playback Period is completed for all study species, play 5 minutes of either the eastern or western mobbing calls depending on your region of the country
10. Watch/listen for 5 minutes
11. Record data on your Field Form
12. Move on to the next site

join him, and then you have confirmed a breeding pair. One goal of these visits is to standardize your effort (playing the full five minutes) to get the highest breeding level possible (see *Recording Breeding Status*, page 3.2.10).

After completing the playback period for your first species and recording data on your Field Form, you may begin the Playback Period for the second species. You should complete the Playback Period for each study species in sequence at an individual site on the same day.

Play one minute of recorded songs, calls, or drums, then stop the CD while you watch and listen for one minute. Next, play another minute of recorded songs, calls, or drums for the same species followed by a final two-minute watch-and-listen period. Record any breeding status information by checking the appropriate box on the Field Form next to the atlas term listed on page 3.2.10 and 3.2.11 in this section of the manual. Predators that you observe during this playback portion or while traveling between census points may be recorded in the “Comments” section of the data form.

Behavior Watch Period (mandatory 10 minutes)

After completing a 5-minute Playback Period for each of your study species, **you will conduct one 10-minute Behavior Watch Period per site even if you have already detected all your study species at that site.** The primary purpose of the Behavior Watch Period is to provide a low impact method of determining your study species’ breeding status. We hope this protocol is less invasive than nest searching but still able to provide us with critical information on breeding activity. In response to the owl and chickadee calls, many birds are likely to approach the speakers, appearing agitated and giving alarm calls or additional mobbing vocalizations. You’ll need to look carefully at all individuals, as not only the study species will respond. It is good to look for females, pairs, family groups, fledged young, and interactions among individuals that give additional clues about breeding status. Observe and record any behaviors that might help us determine possible, probable, or confirmed breeding (see *Recording Breeding Status*, page 3.2.10).

On the BFL CD there are two five-minute sequences of mobbing calls, one recorded for eastern North America (track 49) and one for western North America (track 50). Select the appropriate track and play the entire five-minute sequence while looking and listening for all species that you have chosen to study at this site, then stop the CD while you watch and listen for five more minutes. Record any breeding status information by checking the appropriate box on the Field Form next to the atlas term listed on page 3.2.10 or 3.2.11 in this section of the manual.

Example of protocol for BFL study species

OBSERVATION PERIOD (MANDATORY 10 MINUTES)

Look and listen for predators, cowbirds, and study species

PLAYBACK PERIOD (MANDATORY 5 MINUTES PER SPECIES)

Species 1: play songs, calls, or drums for 1 minute

Species 1: watch/listen for 1 minute

Species 1: repeat songs, calls, or drums for 1 minute

Species 1: watch/listen for 2 minutes

Species 2: play songs, calls, or drums for 1 minute

Species 2: watch/listen for 1 minute

Species 2: repeat songs, calls, or drums for 1 minute

Species 2: watch/listen for 2 minutes

BEHAVIOR WATCH PERIOD (MANDATORY 10 MINUTES)

- Play eastern or western mobbing calls for 5 minutes while looking and listening for study species
- Watch/listen for 5 minutes

Visit 2

When conducting Visit 2, **you will repeat the Visit 1 protocol exactly.** Please survey all selected study species again, even if the species was undetected during your first visit. Make Visit 2 when you have the maximum chance of confirming breeding for all your study species. This is usually two to four weeks after Visit 1, corresponding with breeding activities of the first nesting attempt. Remember, some birds raise more than one brood each year, so their breeding season may span several months in some regions (see *References: Species Accounts*). Later in the breeding season, your study species may be less likely to be singing and calling spontaneously, so you might have to rely more on tape playback to detect the birds.

If you completed the protocol and did not observe your study species, you must still report which species you surveyed for by filling out a Field Form. Also, please make sure to report this information on your Web data forms; as stated earlier, negative data (not finding your study species) are just as important as discovering birds.

PROCEDURE FOR VISIT 2

Goal: To determine presence/absence and breeding status of your study species

1. Return to each study site 2 to 4 weeks after Visit 1
2. Repeat **Observation, Playback,** and **Behavior Watch** periods as

RECORDING BREEDING STATUS

Record information on breeding status and behaviors on the front side of the Field Form. See the *Data Forms: Field Form* section of the manual for more detailed instructions.

Breeding status

The breeding status terms on these two pages represent criteria for assessing breeding activity. They are listed in order of increasing certainty. Check the box for the appropriate protocol period by the behavior listed on the Field Form. These categories and terms were adapted from state breeding bird atlas programs. The terms are classified under Possible, Probable, and Confirmed breeding categories for BFL purposes.

POSSIBLE BREEDING

Adult Seen (if uncertain about which sex it is)

Male Seen

Female Seen

Call Heard

Song Heard

Drumming Heard

PROBABLE BREEDING

Pair observed in suitable habitat during breeding season

Territoriality—adult or pair engaged in territory defense
(chasing individuals of same species)

Courtship/Display or copulation observed

Probable Nest Site—adults visiting probable nest site (presume there is a nest present but not seen)

CONFIRMED BREEDING

Carrying Nest Material such as grass or sticks

Nest Building at the nest site or excavation of a nest hole

Distraction Display or feigned injury

Recently Fledged Young are incapable of sustained flight, restricted to area around nest, and dependent upon adults for food

Occupied Nest—adult seen entering or leaving nest site (usually cavity nesters or canopy nests)

Adult Carrying Fecal Sac

Begging Call Heard—young continually calling, generally with a gaping bill

Adult Carrying Food for young (make sure adults don't eat it themselves-early in the breeding season adults sometimes carry food to feed their mate. This is called courtship feeding and should be marked as Courtship in the Probable section)

Adult Feeding Young that is recently fledged

Nest With Egg(s)

Adult On Nest (if uncertain about eggs or young)

Nest With Young seen or heard

Tips for determining breeding status

Following birds to observe their behaviors requires patience and perseverance. Working in teams can improve your ability to observe and record many breeding related behaviors.

The following suggestions may help you determine the breeding status of your study species:

- Familiarize yourself with the breeding terms in this section and descriptions of behaviors in the *Reference* section before you go into the field.
- Work in small groups to improve your ability to observe and record behaviors.
- If a bird is attracted by your playback, continue to focus in the direction from which the bird came, as a mate or fledglings might be nearby.
- Pay special attention to non-singing birds, which are more likely to be females engaged in nesting activities.
- Watch birds that are carrying food, they may fly toward the nest to feed young.
- Birds may not be responsive to playbacks during all stages of the breeding cycle. Parents busy feeding nestlings and fledglings may not be concerned by your activities. Listening for high-pitched begging calls of fledglings is an effective strategy for locating breeding birds.
- To detect cowbird parasitism, be alert for sneaky female cowbirds in the underbrush, spotted white eggs in the nest, and/or loud, begging cowbird fledglings (buzzing calls).

NOTES