

## Instructions for Conducting Nightjar Surveys

Thank you for agreeing to participate in the Wisconsin Nightjar Survey, a project of the Wisconsin Bird Conservation Partnership (WBCP) in cooperation with the Northeast Coordinated Bird Monitoring Partnership and other state partners. All three species of nightjars in the Midwest and Northeast – Whip-poor-wills (*Caprimulgus vociferus*), Chuck-will's-widows (*C. carolinensis*), and Common Nighthawks (*Chordeiles minor*) – are believed to have declined severely in the past 50 years, so the purpose of the survey is to collect information on the abundance and distribution of these species in these regions (and potentially the whole range in the future). These data will be used to track population trends and to identify areas where these species may still be relatively abundant, in order to guide land protection efforts, habitat management, and future research.

The Survey relies on a network of volunteers to conduct standardized surveys along roadside census routes during specific lunar conditions. The only experience necessary is a familiarity with these species' characteristic songs. You can listen to the songs at <http://www.mbr-pwrc.usgs.gov/id/songwav.html> and <http://www.allaboutbirds.org/guide/search>. It will also be helpful to be familiar with the calls and booming display of the Common Nighthawk (<http://www.natureinstruct.org/dendroica/spec.php/Dendroica+USA>), which sometimes occurs in the same habitats as the other nightjars. Volunteers are asked to conduct one or two nighttime surveys along pre-established routes between early May and mid-July (depending on location). Please read carefully and follow closely the instructions that follow. Compliance with these instructions will ensure standardized data collection and a more successful survey.

In addition to nightjars, Wisconsin is also collecting information on owls during the nightjar survey in order to test our protocol and survey design for the Western Great Lakes Owl Survey (<http://wiatr.net/projects/birdroutes/owls.htm>). *Surveyors are required to record any owls heard in the same manner as the nightjars below.* If you're not familiar with owl calls please see the Hawk Ridge website <http://www.hawkridge.org/research/western-great-lakes-owl-monitoring/> or your favorite online resources for sample clips of many of the species found in Wisconsin.

### Conducting Surveys

#### Seasonal and Daily Timing:

Note that the moon rises later each evening during these survey periods, and that by the end of the period a pre-dawn survey would be required. In such cases be sure to leave roughly 1.5 hours to complete the survey so that it ends before sunrise. *It is **CRITICAL** that surveys are conducted during appropriate lunar conditions, irrespective of the date within the survey period.*

Surveying nightjars is particularly challenging because they are known to be more vocal during the period around a full moon, and relatively quiet when the moon is poorly illuminated (e.g., cloudy skies) or below the horizon. For this reason, surveys are restricted based on lunar and weather conditions. **SURVEYS MUST BE CONDUCTED DURING PERIODS WHEN THE FACE OF THE MOON IS AT LEAST 50% ILLUMINATED (the "quarter moon"), AND WHEN THE MOON IS ABOVE THE HORIZON.** Thus, assuming lack of cloud cover, **the primary survey period for Wisconsin in 2022 is June 7 – 21.**

Begin each survey at least 15 minutes after sunset and end no later than 15 minutes before sunrise. Check your local newspaper or the U.S. Naval Observatory website at <http://aa.usno.navy.mil/data/> for sunset and moonrise times. Surveys should NOT be conducted in overcast conditions (e.g., the moon is mostly obscured), when precipitation stronger than an intermittent light drizzle, or if wind speed averages above 8 miles an hour see below for estimating wind speed).

**In summary, the survey window for the 2022 Wisconsin Nightjar Survey is June 7 – 21.**

**June 7 – June 21**

**\*\*SURVEYS CANNOT BE CONDUCTED OUTSIDE THESE DATES\*\***

### Route Logistics:

The Wisconsin Breeding Bird Survey (BBS) routes will be used to conduct the owl and nightjar surveys. There are currently about 92 active BBS routes scattered throughout Wisconsin. You can see where the existing BBS routes are in Wisconsin by going to the <http://www.pwrc.usgs.gov/bbs/results/routemaps/wisconsin.htm> website. **Survey maps can also be viewed and printed at <http://wiatri.net/projects/birdroutes/nightjars.htm> on the Wisconsin Bird Monitoring website.**

Each survey route will consist of 10 survey points spaced 1 mile (~1.6 km) apart. If the one-mile mark places you in a location that is not conducive to the survey (no place to pull off, excessive highway noise, barking dogs, directly in front of home, otherwise unsafe location), you may continue on for UP TO 1.2 miles. Be sure to continue with one mile spacing to the following point. It is advisable to scout your route during daylight to familiarize yourself with point locations and any unforeseen problems with access. GPS coordinates are available for some routes upon request. Otherwise, if you can GPS the points on your route, please submit them with your data. If you have questions about the route please contact your state coordinator, Ryan Brady, at [ryan.brady@wisconsin.gov](mailto:ryan.brady@wisconsin.gov) or 715.685.2933. Please run the stops along a route in the same order during each survey.

### Completing the Survey Form:

These instructions are referenced to the headings on the Nightjar Survey Form. Please report data as accurately and completely as possible, and complete a separate form for each route on each survey date. **If two observers are actively surveying during a single outing, these observers should use separate data sheets and record data entirely independent of each other** (i.e., do not discuss what you are hearing during the point or alter your data form after the count in light of information received from your survey partner). You also may want to conduct a test run on a date prior to your scheduled survey so as to become familiar with the survey techniques and data form.

**Route # and Name:** This should be on the map you receive from your state coordinator

**Observer:** Record your name here. Remember, if two observers, use separate data sheets.

**Date:** Indicate the date of the survey.

**Start time:** Indicate the time at which you begin listening at stop 1.

**End time:** Indicate the time at which you stop listening at stop 10.

**Start temp:** Record the temperature in degrees Fahrenheit prior to stop 1.

**End temp:** Record the temperature in degrees Fahrenheit after stop 10.

For each point we are asking that you give a rough indication of the following environmental conditions which are known to affect bird calling or our ability to detect them. **ONLY USE THE 0-3 CODE SYSTEM OUTLINED BELOW.**

Wind: Record the rough wind speed at each stop using the codes below. Do not begin a survey if wind is considered MODERATE or STRONG. If wind intensifies during the survey, and winds of MODERATE or STRONG persist for more than three stops, we recommend that you end the survey and attempt it again under better conditions.

| Code | Wind Speed                 | Description  |
|------|----------------------------|--|
| 0    | Calm (<1 mph)              | smoke rises vertically   |
| 1    | Light (1-7 mph)            | smoke drifts, weather vane inactive, leaves rustle, can feel wind on face  |
| 2    | Moderate (8-18 mph)        | leaves, twigs, and thin branches move around, small flags extend, raises loose papers. <b>Do not conduct survey.</b> |
| 3    | Strong (19 mph or greater) | small trees begin to sway. <b>Do not conduct survey.</b>   |

Sky Condition: Record the sky condition at each stop using the codes below. Do not begin a survey if the sky is completely overcast, or there is heavy fog or persistent rain or drizzle. If cloud cover intensifies during the survey, and CLOUDY or MOSTLY CLOUDY conditions persist for more than three stops, we recommend that you end the survey and attempt it again under better conditions.

| Code | Sky   | Description                        |
|------|-------|------------------------------------|
| 0    | Clear | Almost no clouds, <20% cloud cover |

|   |                     |   |
|---|---------------------|---|
| 1 | Mostly Clear        | More open sky than clouds, perhaps 25-40% cloud cover     |
| 2 | Moderate (8-18 mph) | At least half cloudy, with some open sky visible (20-40%) |
| 3 | Cloudy              | At least 80% cloud cover. <b>Do not conduct survey.</b>   |

Noise: Assign a noise code to each stop. Noise codes are a measure of the effect of noise on your ability to hear Whip-poor-wills and other nightjars. Although we have provided examples of noises for each code, these are meant only as general guidelines. It is ultimately up to you to judge to what degree the noises you encounter are affecting your ability to hear birds.

| Code | Description  |
|------|--|
| 0    | There is no appreciable effect on your ability to hear nightjars   |
| 1    | Noise slightly affects your ability to hear nightjars (e.g. distant traffic, dog barking, 1-2 car passing during survey period).   |
| 2    | Noise moderately affects your ability to hear nightjars (e.g. nearby traffic, 3-6 cars passing during survey period, airplane flying overhead).  |
| 3    | Noise seriously affects your ability to hear nightjars (e.g. continuous traffic nearby, construction noise, loud spring peeper chorus, more than 6 cars passing during the time spent at one point). |

Cars: Record the number of cars that pass by during the entire count period as a rough index of traffic noise.

### Counting Nightjars and Owls:

At each point, each observer will spend SIX MINUTES listening for nightjars and owls, with each bird and one-minute period treated independently. What this means in practice is that you will have a single line on the survey form for each bird detected (see example below) and you will mark whether you detect it in each of the six one-minute periods. Birds will sometimes move during the count, and you will need to use your best judgment when deciding if a “new” detection is actually an additional bird or simply an already-counted bird that has moved its location. Listening and recording data should be done from a stationary point outside the car. **DO NOT** use whistling, playbacks, or any other method of coaxing birds. Record only birds detected during the six-minute sample period, although you may record birds detected outside of this period in the Comments section. Record birds as you hear them, rather than waiting for the sample period to be over, so as to avoid errors of omission.

Use the following abbreviations for each species on the data form:

- WPWI = Whip-poor-will
- CWWI = Chuck-will’s-widow
- CONI = Common Nighthawk
- GHOW = Great Horned Owl
- BDOW = Barred Owl
- NSOW = Northern Saw-whet Owl
- EASO = Eastern Screech Owl
- LEOW = Long-eared Owl
- UNKOWL = unknown owl species

If NO BIRDS are detected on a point, enter the point number as usual, followed by “NONE” instead of a species code, and leave the columns for each time period blank (or draw a line through them). Doing so will reduce the possibility of becoming confused during a survey and forgetting which point you are on.

### Sample Data Form:

| Pt. | Species | 1 | 2 | 3 | 4 | 5 | 6 | Rep? | Dir. |
|-----|---------|---|---|---|---|---|---|------|------|
| 1   | WPWI    | 1 | 1 | 1 | 1 | 1 | 1 |      | NE   |
| 1   | WPWI    | 0 | 0 | 1 | 1 | 1 | 0 |      | S    |
| 2   | NONE    |   |   |   |   |   |   |      |      |
| 3   | WPWI    | 1 | 1 | 1 | 0 | 0 | 0 |      | W    |
| 3   | WPWI    | 0 | 0 | 0 | 1 | 1 | 1 |      | W    |

|   |      |   |   |   |   |   |   |     |    |
|---|------|---|---|---|---|---|---|-----|----|
| 3 | CONI | 0 | 0 | 0 | 0 | 1 | 0 |     | SE |
| 3 | WPWI | 0 | 0 | 0 | 0 | 1 | 1 |     | N  |
| 4 | CWWI | 1 | 1 | 1 | 0 | 0 | 0 |     | E  |
| 4 | BDOW | 0 | 1 | 1 | 1 | 1 | 1 |     | SE |
| 5 | BDOW | 1 | 1 | 1 | 1 | 1 | 1 | Yes | NW |

In this form a “0” indicates that a given individual was NOT detected, while a “1” indicates it was. For example, at Point 1 a Whip-poor-will was heard in the first one-minute period and every period thereafter. A second Whip-poor-will was first detected in the third period and heard in the following two periods before becoming silent. No nightjars were heard at Point 2. At Point 3 a Whip-poor-will was heard during the first three periods but not the second three. A different Whip-poor-will was first detected in Period 4 and heard again in Periods 5 and 6. Because it did not overlap with the first bird, there is a possibility that they are the same bird and that it moved between Periods 3 and 4. Some cues that might suggest this are if calling ended early in Period 3 and started late in Period 4, but there is no hard and fast rule. Use your best judgment. Also at Point 3, both a Common Nighthawk and Whip-poor-will were detected in Period 5, with the latter continuing into Period 6. The fact that this bird overlapped with the second Whip-poor-will is clear evidence that there are at least two of Whip-poor-wills at this point. At Point 4, a Chuck-will’s-widow was heard in Periods 1-3 and a Barred Owl in Periods 2-6. At point 5, a Barred Owl was heard throughout the each minute of the survey but this was believed to be the same owl heard at Point 4. Hence it was recorded as usual but then the Repeat (“Rep?”) column was marked. This process would continue through Points 6-10.

In addition:

- 1) Please indicate in the “Rep?” (= repeat) column if you think a given bird is the same individual you heard at a previous point. Do not ignore this bird, but be sure to indicate that it was previously detected.
- 2) In the “Dir.” (=direction) column, please write down the general direction the bird was calling from. This can be as simple as a rough cardinal direction (N, S, W, E), more specific (e.g., SW, NW), or even a compass bearing. This will help you keep track of individual birds and reduce the chance of double counting. It may also help us in the future with determining habitat relationships on a larger scale.

**Comments:** Use this field to provide any additional information not included in the table. Example of such data could include:

- other nocturnal species detected (woodcock, marsh birds, frogs, etc. – please indicate Point Number)
- details on noise factors that might impede your ability to detect nightjars
- nightjars detected between points or before/after the official six-minute period
- any other information you wish to convey about the route or your experience

## LIABILITY WAIVER & DATA ENTRY:

### Release of Liability:

Volunteers must certify, prior to conducting their survey, they have read and agree to the liability waiver on their profile/account page of the new online data entry system accessible via the nightjar survey website. **No paper forms need to be mailed, signed, or returned.**

### Submitting your Data:

All data should be entered online via the “Enter Survey Data” link of the WBCP nightjar survey website (<http://wiatri.net/projects/birdroutes/nightjars.htm>). The survey coordinator will give each volunteer a required username and password when confirming route assignments. Volunteers may then access their assigned routes to enter data accordingly. This process should take approximately 10-20 minutes per route and be fairly self-explanatory as the online entry was designed to mimic the field data sheets. The coordinator will be automatically notified when a volunteer’s data is entered. Volunteers should complete data entry for each route by July 1 of the survey year. Hard copies of field data do NOT need to be mailed in but observers should hold onto them for at least a year in case any problems or questions arise. Volunteers who for some reason are unable to complete data entry online may email, fax, or mail their data to the survey coordinator at the address below, but this is preferred to be a last resort.

**Volunteer Effort:**

Each volunteer should keep track of the miles traveled and hours spent preparing for, conducting, and summarizing surveys. Your total miles and hours should be entered with the rest of your bird data on the new online data entry system. If you survey more than one route, do not “double dip,” i.e. be sure to record only unique miles and hours for each route.

**Questions?**

Contact **Ryan Brady**, WDNR, 2501 Golf Course Rd., Ashland, WI 54806; 715.685.2933; or [ryan.brady@wisconsin.gov](mailto:ryan.brady@wisconsin.gov).

THANK YOU FOR MAKING THIS SURVEY POSSIBLE!