



## Breeding Rail Monitoring Standard Operating Procedures

### NOAA Firebird Project

Version 4.0 (last updated June 2 2022)

## Description

We are surveying for breeding Black Rails in high marsh across the five U.S. Gulf of Mexico states to better understand how these birds respond to prescribed fire in Gulf Coast tidal wetlands. These surveys will be done using call-broadcast point count surveys.

## Safety

### NOAA Firebird Project Priorities

1 - Human Safety, 2 - Bird Safety, 3 - Equipment Safety, 4 - Data Collection.

**Human Safety** - Those traveling by boat to sites will wear life jackets as appropriate whenever on a moving boat. A first aid kit will be kept in the vehicle/boat. When traveling by boat, a float plan should be completed and filed with at least one person, located on the mainland, who will serve as the primary contact should an emergency occur. Float plans should include, at a minimum, contact phone numbers and emergency contacts for all persons on the boat, launch location, description, including license plate number, of the vehicle used to pull the boat/trailer and expected return time, etc. If at any time any person doing field work feels unsafe continuing, they get to say so, and field work stops, be that person a volunteer, a field tech, or a PI. No one will be punished for making the safe choice.

**Bird Safety** - Care should be taken while doing call-broadcast and when leaving a point to ensure that birds which may have approached the surveyor are not stepped upon.

## Equipment

- [FOXPRO NX4](#) - Use a sound meter to determine the volume setting for each call playback file is between 80 and 90 db measured at one meter from the speaker. Make a mark on the unit so that it can be easily reset there for future use. Because there are several calls on each call playback make sure that at least one of them is ~90 db.
  - *This make/model is no longer available, we are working on an alternative*
- Cell phone/tablet with Avenza maps & points OR GPS Unit with points and batteries
- Clipboard/sheet holder
- Field Datasheets, on *Rite-in-the-Rain* paper
- Kestrel Wind Meter
- Writing Utensil - #2 lead pencil (including pencil sharpener or extra leads if using mechanical pencil) or *Rite-in-the-Rain* waterproof pen
- Sighting (Mirrored) Compass
- Rangefinder
- Binoculars
- Snake chaps where appropriate (Turtleskins brand works well)

## Survey Conditions

Surveys will not be conducted when the wind is above 20 km/hr or when sustained precipitation can be clearly felt on the surveyor's face (i.e., drizzle). If you arrive at a survey point and it is unsafe to conduct the survey at that location (e.g., poison ivy, disturbing nesting birds, alligator nest) determine if you can move the point to a nearby location that doesn't violate the distance requirement and removes the threat and conduct survey there. Be sure to document this in the comments of the datasheet and record the lat/long of the new site. If it is impossible to relocate the site, drop it and let your supervisor/crew lead know so they can replace it.

## Procedures

### Pre-Survey Tasks

One time

Test Call-broadcast system to be sure it is adequately charged for the survey period (or that there are sufficient replacement batteries) and determine the volume level that results in 80-90db 1 meter from the speaker each day.

Everytime

Charge batteries and/or bring spare batteries

Songs loaded

Points in GPS (in decimal degrees) or Avenza Maps

Compass

Enter the lunar phase on datasheets prior to heading into the field

[\(timeanddate.com/moon/phases/\)](http://timeanddate.com/moon/phases/)

### Survey Tasks

From 15 March – 31 July black rail call-broadcast point count surveys will be done in the morning (i.e., 1 hour before sunrise to 3 hours after sunrise) or in the evening (i.e., 90 minutes before sunset to 1 hour after sunset; [sunrise-sunset.org/](http://sunrise-sunset.org/)). Depending on whether the survey is being conducted in the morning or evening, every effort should be made to initiate call playback surveys at the beginning of the survey window to take advantage of the full window.

BLRA call-broadcast surveys may be conducted concurrent with MODU surveys for field crew of 2 (see below 2-person survey). For one person surveys where BLRA and MODU surveys are being completed and where logistically feasible, whether BLRA or MODU survey is done first should be alternated.

Each BLRA survey will be conducted for 10 minutes at each point count point. Point count points will be a minimum of 500 meters apart. Each survey point will be surveyed 6 times during the season.

Call-broadcast sequence is: 2 min passive - 30 sec of calls - 2 min passive - 30 sec of calls - 2 min passive - 30 sec of calls - 2.5 min passive (TOTAL = 10 minutes). After the 1 minute place

marker is heard, start recording data. Whether or not a BLRA is detected should be recorded in 30 second blocks.

If the observer is unsure if they heard a BLRA that should also be recorded with a line on the datasheet with a note made about what the observer thinks they have heard.

When a BLRA is detected, the surveyor should use the rangefinder to estimate the straight-line distance from their location to the bird's estimated position to the nearest meter and record the bearing of the bird using a sighting compass (which is not declinated).

### **1-person survey**

On arriving at the point count point, place the speaker 3m to the NE of the point so that it is oriented to broadcast to the widest extent of habitat (recording the bearing) at a standard height of 120 cm and horizontal to the ground. The surveyor should stand at the point. During the call-broadcast period, the surveyor should stand in place for the duration of the count but may turn in place to listen/look for birds in all directions. When a BLRA is detected the surveyors should estimate the straight-line distance to a detected bird from their standing location.

Prior to initiating the BLRA point count, the surveyors should record the wind speed and sky condition (percent cloud cover to the nearest ten percent). If the observer is standing in the wetland, water depth should be recorded at the point where the observer is standing. If the observer is standing on a road or levee, then water depth should be measured twice, 10 meters into the wetland vegetation perpendicular from either side of the road/levee. If there is no standing water it should be recorded whether the ground is dry, or moist. Lunar phase data should be collected prior to entering the field. The surveyor should face due N to start the survey but rotate in place throughout the call-broadcast point count survey period to ensure adequate coverage of the entire survey area.

### **2-person survey**

Same as above, allowing the MODU surveyor to set up their equipment prior to initiating survey. Be sure to time initiation to coincide with the MODU survey. If the second person is NOT surveying for MODUs they should conduct a separate BLRA survey (i.e., 2 independent BLRA surveys being conducted at the same time). A critical assumption of a double survey like this is that the 2 surveys are completely independent. Under no circumstances should either observer cue off of the other observer or alter their observations due to the other observer or ensuing discussions. It is completely okay to have different observations! Do NOT coordinate your data or discuss if you detected responses or not with the other surveyor and do your best not to be influenced by them recording data. In an effort to reduce the potential influence of one observer influencing the other, be sure to enter any observation data in real time OR a "0" in each observation bin (if nothing is detected) after it is completed.

The second surveyor should stand 3 m 45° SE of the call-broadcast speaker.

## Post-Survey Tasks

When the survey is completed record the background noise using the following codes 0 = no noise; 1 = faint noise; 2 = moderate noise (probably cannot hear a BLRA beyond 100m during >30 seconds of the survey); 3 = loud noise (probably cannot hear a BLRA beyond 50m during >30 seconds of the survey); 4 = intense noise (probably cannot hear a BLRA beyond 25m during >30 seconds of the survey).

After completing all surveys for the day, use the site ([localconditions.com](http://localconditions.com)) to record the barometric pressure in the region when you performed the survey. You can click on the “View More Charts” option to view a chart with the pressure trends. Record the barometric pressure at the start of the surveys and the trend in pressure during the time you conducted the surveys. Please convert from inHg to mmHg.

## Data Collection and Measurement Descriptions

Prior to beginning each survey for the day, record the day, month, and year at the top of the data sheet. Write down the name of the surveyor, the lunar phase coded on a scale of 0 (= day of new moon with no moon light) to day 15 (full moon). Days 14 to 1 reflect the progressive decrease in moonlight during waning and, inversely, days 1 to 14 reflect the progressive increase in moonlight during waxing (Spear et al. 1999) ([timeanddate.com/moon/phases/](http://timeanddate.com/moon/phases/)). In instances where the waning numbers would mean a new moon is a non-zero number on the day of a new moon, the 0 for the new moon should be used instead, and the waxing numbers started on the following day.

Water depth can be classified as dry, saturated, or measured in centimeters if there is standing water. Water depth = saturated if when a person’s finger is pushed into the ground one inch, and pulled out there any amount of water fills the depression within 15 seconds.

Sky condition should be measured to the nearest 10%.

Use the Kestrel to record the starting temperature (°C) and wind speed (km/h; set the unit to the average wind speed function, point into the wind and record for 30 seconds). Enter the start time of the survey OR time of detection if not during a call-broadcast survey (military time).

When individual BLRAs are detected, write “1” in the appropriate time column if the BLRA was heard, “S” if seen, and “1S” if both heard and seen. Enter data for each new BLRA you hear during the call broadcast on a new line (i.e., the number of rows will correspond to the number of individual BLRAs detected). The first time you hear a “new” individual BLRA use the rangefinder to estimate the distance the bird was from the surveyor and the compass to determine the bearing of where the rail was detected. If you believe the bird in that row of the dataset was detected at the previous point, indicate that in the previous point column. At the end of the survey, write in the notes for each individual detected which calls you heard from that individual: *kic-kic-kerr* (KKR); *growl* (GRR), *churt* (CHR), or *ink-ink-ink-ink* (INK).

## Call File Description

Call-broadcast sequence is: 2 min passive - 30 sec of calls - 2 min passive - 30 sec of calls - 2 min passive - 30 sec of calls - 2.5 min passive (TOTAL = 10 minutes). After the 1 minute place marker is heard, start recording data. Whether or not a BLRA is detected should be recorded in 30 second blocks.

At 0 seconds has "Start"

Has 30, 1, 130, 3, 330, 4, 530, 6, 630, 8, 830, 9, 930 (all seconds) at those time intervals to help with data collection in the field

Has 10 seconds of kickydoo, 10 seconds of growl, and 10 seconds of churt (in that order; total of 30 seconds) at 2, 5, and 7 minutes

At 10 minutes has "End"

## Incidental Detections

Each observation of BLRA is valuable, even when they are encountered outside of surveys. When observing a BLRA outside of the formal surveys, those detections should also be recorded. If you are unsure about a detection, please still record it, along with notes about what you did observe. Do not use call broadcast, phishing or any other method to try and get further response from an individual to confirm identification.

When an individual is detected outside of surveys, take a GPS point of where the observer was when the bird was detected. Also record the bearing and estimated distance to the individual. In the notes report whether the detection is for sure, or only possible, whether it is visual and/or auditory, and if auditory if the bird was heard once or multiple times, and what call type(s) you heard.

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If this protocol needs to be changed/updated, contact Auriel ([auriel@illinois.edu](mailto:auriel@illinois.edu))