Fall Covey Count Protocol

Definition of calling covey:

- A single or grouped series of "koi-lee" vocalizations coming from a fixed location.

When should fall covey counts be conducted?

1. **45 minutes before sunrise until 15 minutes after sunrise**
2. **Only under optimum weather conditions** – Counts should only be conducted under optimum weather conditions (cloud cover < 75%, wind speed lower than a four on the Beaufort scale or <4 miles/hr., no rain or snow).
3. **Surveys should be conducted between the middle of October and December 1**. Surveys should be repeated once.

How to conduct the fall covey count survey?

Calling quail observations:

1. For each survey, you should bring the observer data sheet and covey location field map.
    a. Observer data sheet: For recording covey observations and environmental factors
    b. A gridded map of 1000-m by 1000-m split into 50-m by 50-m grid cells on which covey detection along with detection time should be recorded as accurately as possible.
2. The observer should arrive 60 minutes before sunrise to have at least 15 minutes to get ready for the survey.
3. Use covey location field map to mark the approximate location of each covey heard during the survey.
4. Observers should place an "X" at the location of the covey, assign a number (ID) to the covey, and record the time the covey was detected (see below image).
5. The covey ID and time of detection should also be recorded on the observer data sheet.
    a. Use caution in estimating the number of coveys.
    b. If calling coveys are perceived to be within 30 meters of each other, only count them as one covey, and retain the first estimated location.

All detections should be marked on the 1000-m x 1000-m gridded map within the most likely 50-m by 50-m grid square as accurately as possible (see below image):

Flushed quail observations:

1. Once auditory surveys are completed, observers should try to locate and flush detected coveys.
2. A minimum of 10 covey flushes in each state should be used to estimate average covey size and variance.

    a. This flush method will also help in learning the observer's accuracy in identifying locations of calling quail.
3. Begin searching for coveys immediately at sunrise (with a trained dog, if possible).
4. If coveys are located, record the number of birds observed and your confidence in the accuracy of your count.
5. Do not change the location of the covey on the covey location field map based on where the covey was flushed.

When should a fall covey count survey location be revisited for resampling?

- Plan to sample all covey count locations 1-2 times throughout the survey season (fall)
- Sampling should begin early in the season to maximize the opportunity to collect data under optimal weather conditions.
- Resampling time should be separated by at least a week.

What data should be collected at each point?

- Reach the listening point at least 15 minutes prior to starting the survey. Use a GPS unit and mark a PVC pole with reflective material to identify the point in the dark.
- Record observer name, date, sunrise time, point ID, latitude, and longitude prior to reaching the field.
- Cloud Cover: This should be recorded to the nearest whole 5%. Do not include decimals. To improve consistency, everyone should be providing an estimate from the entire visible sky, not just what is immediately above.
- Wind Speed: This should be recorded using methods similar to the Beaufort wind scale with code values of: **0** = 0 mph, smoke rises vertically; **1** = 1-3 mph; **2** = 4-7 mph; **3** = 8-12 mph; **4** = 13-18 mph. It is acceptable to use the weather App on your smartphone to access local, real-time, weather conditions for wind speed. If you have a Kestrel, feel free to use it. However, be sure to record the Beaufort value rather than the actual wind speed. **However, as mentioned before, if it is too windy/ stormy or is raining, do not conduct the point count on that day.**

- Temperature: Try to record the actual temperature at the time of the survey for example by using the car thermometer, phone, or local weather information.
- Noise Code: Noise levels at each point will need to be recorded. Record noise according to categories: 0 = silent, no noise interference; 1 = distant noise, but not interfering with count quality (i.e., a distant tractor or oil rig); 2 = difficult to hear clearly at times (i.e., intermittent traffic); 3 = constant noise, low quality count.
- Covey ID: Each detected covey should be recorded once and given a unique covey ID.
- Time Detected: The time at which covey was detected.
- Confidence in Estimated Covey Location: The confidence level of the observer in estimating covey location (High, Medium, or Low).
    - On Covey Location Field Map, record each identified covey's location with an X, along with Time Detected and Covey ID.
- Quail in Covey: Record the number of quails observed in a covey upon flushing.
- Confidence in Quail Counted: The confidence level of the observer in the accuracy of their count.

How to conduct ARU sampling at fall covey call points?

Use ARU on covey count locations as per ARU setting protocol.

Please see the attached example of the datasheet and covey location field map to collect and record fall cover call survey information.