



Lesser Prairie Chicken Range-wide Conservation Plan

CLEARANCE SURVEY PROTOCOL

updated March 2021

PURPOSE: To provide methodologies for conducting lesser prairie chicken (LPC) ground-based and aerial surveys for industry project clearance, as developed under the Western Association of Fish and Wildlife Agencies LPC Range-wide Conservation Plan (LPC RWP), Appendix G: LPC Survey Protocols for Project Clearance.

APPLICABILITY: For proposed project impact areas, including a 1.25 mile radius, where:

- Previously unimpacted acreage will be developed (outside of existing impact buffers),
- LPC surveys have not been conducted within the previous 5 years, and
- Project sites are within a focal area, connectivity zone, or within areas identified as high probability lek habitat based on the CHAT (categories 1-3).

OPTIONS: Under the LPC RWP, project developers have the option of 1] conducting a clearance survey of the site, prior to project initiation, using trained staff, consultants, State Agency personal or WAFWA personal following the protocol herein, or 2] considering the project sites occupied with active leks.

If conducting surveys, the following protocol will be used:

Timing & Limitations

- Each survey area must be surveyed a minimum of two times with a minimum one-week interval between the two efforts.
- Surveys must be conducted between **March 15 and May 7**, with at least one of the surveys taking place in April.
- Surveys must begin no earlier than 30 minutes before local sunrise and conclude no later than 90 minutes after local sunrise (one source for this data is at: <https://www.timeanddate.com/sun/>).
- Wind speed and temperature are recorded at the beginning and end of each survey.
- Surveys will not be conducted if wind speed continuously exceeds a 3 (12 mph – defined as leaves and small twigs in constant motion) on the Beaufort scale (figure 1) or if rain or snow is falling.

Wind Speed Class	
0	Less than 1 mph - Smoke rises vertically
1	1 to 3 mph - Direction shown by smoke drift but not by wind vanes
2	4 to 7 mph - Wind felt on face; leaves rustle; wind vanes moved by wind
3	8 to 12 mph - Leaves and small twigs in constant motion; light flags extended
4	13 to 18 mph - Raises dust and loose paper; small branches moved
5	19 to 24 mph - Small trees in leaf begin to sway
6	25 to 31 mph - Large branches in motion
7	32 to 38 mph - Whole trees in motion

Figure 1 - Beaufort Scale

Training

The training and/or prior experience of observers and pilots must be documented in the final survey report. Observers should strive to standardize survey methodology, improve and standardize observers’ abilities to identify prairie-chickens, and provide each observer with safety training when aerial surveys are conducted.

GROUND-BASED SURVEY PROTOCOL

Data Forms. Survey data forms have been provided as an excel spreadsheet (WAFWA LPC Lek Survey Form_2020.xls). The survey forms provide data entry instructions and are printable.

Survey Area & Observation Points. Surveys may be conducted utilizing existing highways, county roads, or two-track roads, or at selected points throughout the property that allow for complete coverage of the area (i.e. saturation survey). Listening points should be located at 1.6 km (1 mi) intervals. The assumption is that LPC vocalizations can be heard up to 1.6 km (1 mi) away. A saturation survey may have as few as one listening point if the survey area is small, or many if the survey area is large. Planning of the observation point spacing is important to ensure complete coverage of the area. Observation points are buffered by 1 mile (Figure 2).

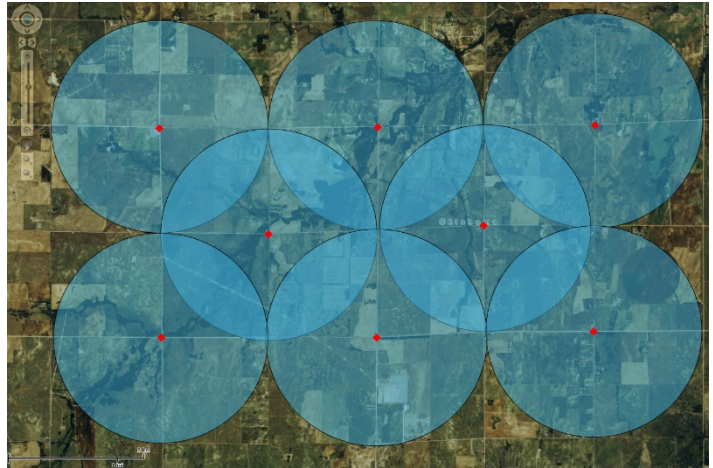


Figure 2 - Hypothetical sampling design for ground-based surveys which are staggered to ensure that the 1 mile detection buffer provides completed coverage while maximizing efficiency.

Survey Process. At each stop, the observer shuts off the vehicle's engine, moves at least 10 m (33 ft) from the vehicle, listens, and observes for 5 minutes. Birds may be detected audibly and/or visually. The data form is filled out. The observer then travels to the next stop and repeats this procedure.

In the case where LPC are located on property where access permission has been granted or where visible from a public road, the total number of birds should be counted (note: a 'lek' is a detections of five or more prairie-chickens in a cluster). When possible, counts should be conducted from a vehicle or a ground blind at roughly a 75-200 m distance to avoid flushing birds. If the terrain and vegetation do not allow for observation from a distance a flush count is acceptable. Where access is not permitted, leks may be confirmed based on a detection from public roads with visual observation or an auditory detection with a minimum of two compass bearings to identify the approximate location of the lek. When recording compass bearings, ensure that bearings are 70-110 degrees apart to minimize triangulation error. Use a GPS unit to record the geographic point of origin for each bearing. To provide an index of each observer's opportunity to hear vocalizations out to a 1.6 km (1 mi) distance, the observer will rate noise disturbance at each stop (e.g., traffic, pump-jacks, cattle, and dogs) on the survey form as none, low, moderate, or high. A survey form will be completed for each survey.

AERIAL SURVEY PROTOCOL

Data Forms. Survey data forms have been provided as an excel spreadsheet (WAFWA LPC Lek Survey Form_2020.xls). The survey forms provide data entry instructions and are printable.

Survey Process. If an area to be surveyed has insufficient roads or land access to ensure complete coverage for ground surveys, helicopter surveys may be used. A minimum of two observers is required for aerial surveys; one of these observers may be the pilot. Safety should be the primary concern during the survey. Surveys will be conducted at an approximate air speed of 60 km per hour (37 mph), and the helicopter will maintain an altitude of 25 m (82 feet) above ground level (AGL). Surveys will not be completed over housing, livestock, or large water

bodies. During the survey, all crew members and pilot should carefully monitor the air speed and the AGL to ensure the survey protocol is being followed consistently.

Within a survey, transects will be oriented north-south with maximum 400-m spacing between them (Figure. 2). To reduce the risk of gaps in the survey area due to accidental flight drift, surveyors may want to consider planning transects based on a 350 or 300 meter spacing.

The observer will use a GPS unit to record a track log of each flight path to provide the actual transects surveyed. Track logs will be set to record points at least every 2 seconds. Communication of all observations during the surveys ensures that observers do not confuse two different prairie-chicken clusters for the same observation. This criterion was verified during helicopter aerial and ground surveys conducted in Texas 2010 and 2011 (Timmer 2012). A copy of the provided lek survey form will be completed for each survey. The completed survey forms will be submitted electronically with the file name including the contracting developer's name and 'LPC Survey Results' as the subject.

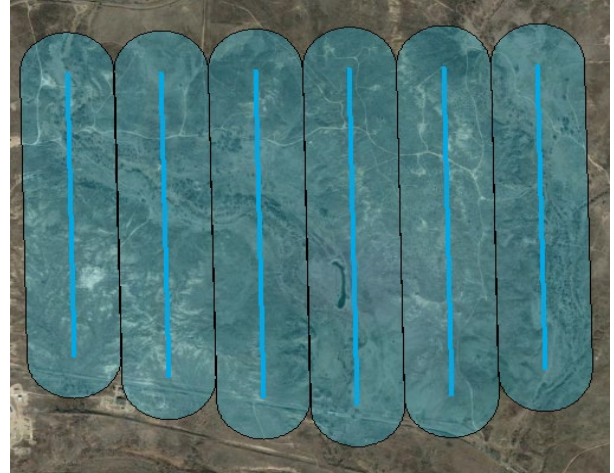


Figure 3. Example of flight lines spaced 400 meters and the 200-meter detection range covering the distance between flight lines.

REPORTING

Final reports will be submitted to WAFWA and the appropriate state fish and wildlife agency. Please email deliverables to wafwa.gis@wafwa.org with the contracting developer's name and 'LPC Survey Results' in the subject line. If surveys for multiple contracting developers are completed by a single consultant, please submit surveys for each company separately. Close adherence to these reporting standards facilitates prompt and accurate survey processing.

Survey results should be submitted no later than **July 15** of the survey year. WAFWA will process the received survey data and update the SGP CHAT and associated downloadable data sets by August 15th of the survey year. Submission by July 15th ensures that all data will be represented in the August update.

Deliverables must include:

- Final report including survey methods and results, and observer qualifications.
- Spatial data for the surveys. Submit at least one of the following:
 - Shapefile (preferred), KMZ, or Tabular data with coordinates in NAD83
 - Lek Listening Point Survey through WAFWA's ArcGIS Collector App
- Data form completed for each survey. Please do not submit handwritten survey forms.
- Any additional supporting data including flight logs, GPS logs, maps, images, or tabular data.

For questions regarding survey protocol, contact Sean Kyle at sean.kyle@wafwa.org. For questions regarding the submission or processing of survey data contact Chanda Pettie, WAFWA GIS Services at wafwa.gis@wafwa.org.