LPC SURVEY PROTOCOL FOR PROJECT CLEARANCE

We present here methodologies for both ground-based and aerial surveys of lesser prairie-chickens for project clearance. Ground-based surveys methods have been modified from State Game and Fish Agency protocols. Aerial survey methods follow those of McDonald et al. (2013) and Timmer (2012). A complete ground or aerial survey should be conducted for proposed project sites where:

- previously unimpacted acreage will be developed (outside of existing impact buffers),
- where LPC surveys have not been conducted within the previous 5 years,
- where 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).

The developer has the option of contracting surveys with a consultant, allowing state personnel to conduct surveys of the site prior to project initiation if resources are available to conduct that survey, or considering the sites as occupied with active leks.

Ground-based Surveys

Surveys can be conducted utilizing existing highways, county, or two-track roads, or at selected points throughout the property that allows for complete coverage of the area (saturation survey). Listening points should be located at 1.6 km (1mi) intervals. The assumption is that LPC vocalizations can be heard up to 1.6 km (1 mi). A saturation survey may have as few as one listening point if the survey area is small, or several if the survey area is large. Each route or survey area must be surveyed a minimum of two times with a minimum one week interval between the two efforts. All surveys must be conducted between April 1 and April 30. Surveys must begin no earlier than one-half hour before and conclude no later than 2 hours after local sunrise. 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 miles per hour [mph]) on the Beaufort Scale or if rain or snow is falling. At each stop, the observer shuts off the vehicle's engine, moves at least 10 m from the vehicle, listens, and observes for 5 minutes. The observer then travels 1.6 km (1 mi) to the next stop and repeats the procedure.

Leks may be detected audibly and/or visually. In the case where a lek is located on property where access permission has been granted or where leks are visible from a public road the total number of birds on the lek should be counted. When possible, counts should be conducted from a vehicle or a ground blind from roughly 75-200 m away to avoid flushing birds. If the terrain and vegetation does not allow for observation from a distance, a flush count is acceptable. In the event that 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 bearings are 70-110 degrees apart to minimize triangulation error. Use a GPS 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.

Aerial Survey Methods

If an area to be surveyed has insufficient roads or land access to ensure complete coverage for ground surveys, helicopter surveys can be used. A minimum of two observers is required for these surveys and one of those 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 kilometers per hour (kph; 37 mpg), and the helicopter will be maintained at an altitude of 25 m (82 feet) above the 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. Surveys are conducted from sunrise until approximately 2.0 hours after sunrise between April 1 and April 30. Transects are oriented north-south with 400-m spacing between them. The observer's global positioning system (GPS) unit records a track log of each flight path to provide the actual transect lengths that are 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. Detections of five or more prairie-chickens in a cluster are classified as leks. This criterion was verified during helicopter aerial and ground surveys conducted in Texas 2010 and 2011 (Timmer 2012).

Reporting

Training or prior experience of observers and pilots must be documented in final reports associated with survey efforts. Observers should strive to: 1) to standardize survey methodology, 2) to improve and standardize observers' abilities to identify prairie-chickens, and 3) to provide each observer with safety training when aerial surveys are conducted. Final reports submitted to NMDGF must include maps and GIS files or track logs of aerial and ground survey transects or locations, maps and GIS files of detections, tabular data detailing the date, time and conditions for each survey, triangulation information, and the locations and LPC counts for each detection.