

SPECIES DETECTION SURVEY PROTOCOLS

GRASSLAND BIRDS SURVEYS



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9.0 GRASSLAND BIRDS SURVEY PROTOCOL

9.1 INTRODUCTION

This survey protocol provides instruction on collecting data for the occupancy (presence/not-detected) of grassland bird species in a given survey area during the breeding season. Detection of birds demonstrating breeding behaviour such as singing, territorial defence, carrying nesting material, food or fecal sacs is considered sufficient evidence to confirm breeding. Avoidance is strongly recommended for the duration of the breeding season where breeding is suspected or confirmed.

9.1.1 Inventory Group

Grassland breeding birds are a large and diverse group that includes any bird that lives or breeds in the grasslands of Saskatchewan. Certain species require specific survey methods not covered by this survey protocol. Species that may be observed while following the Grassland Birds Survey method include, but are not limited to: prairie raptors; Burrowing owl; Short-eared owl; Common Nighthawk; Yellow Rail, Sharp-tailed Grouse, and; Greater Sage-grouse. Separate survey protocols are available for these and other species.

9.1.2 Status and Distribution

Grassland birds vary widely in distribution. For information on the status of grassland birds breeding in Saskatchewan, please visit the [Saskatchewan Conservation Data Centre \(SKCDC\)](#). Additional information may be provided in [Committee on the Status of Endangered Wildlife in Canada \(COSEWIC\) Status Reports](#), in the [Species at Risk Act \(SARA\) Registry](#) documents and in the [Migratory Birds Convention Act](#).

9.1.3 Biology

Saskatchewan grasslands see an influx of avian migrants each spring that come to take advantage of the seed and insect resources that these habitats provide during the growing season. Most birds begin laying eggs and raising young soon after arriving. Pairing is typically initiated on the breeding ground in early May to June. Surveys are timed to coincide with peak territorial activity (Ralph et al. 1995).

During the breeding season, males sing to attract mates and to defend territories. Bird activity and calling varies throughout the day but territorial defense peaks in most birds in the early morning hours. Female songbirds tend to be more cryptic in appearance than males. Males are more readily identifiable by sight if an unobstructed view is possible. Auditory outputs greatly assist in the detection and identification of species where visual detection through foliage can be difficult.

Identification characteristics and habitat affiliations for grassland bird species are available from a number of references including *The Atlas of Saskatchewan Birds*. A variety of CD's and apps are available to assist in learning calls and songs. The Canadian portion of the [Breeding Bird Survey \(BBS\)](#) program is administered by Environment Canada and may provide data on a number of provincial species.

9.2 SURVEY STANDARDS

The standards provide instructions on the areal extent of surveys to be conducted. They provide information on experience, capabilities, minimum equipment needs, survey conditions and permit requirements.

9.2.1 Survey Area Extent

Surveys must be conducted in areas with SKCDC observations as well as in any areas that provide suitable habitat for the species in question. The proposed project area, plus the appropriate setback distances, must be assessed. All suitable habitat within this area must be surveyed. Setback distances identified in the [Saskatchewan Activity Restriction Guidelines for Sensitive Species](#) (Saskatchewan Ministry of Environment 2014a) are based on the species and the level of disturbance associated with the project.

9.2.2 Personnel

Personnel must be able to identify grassland birds by sound and by sight, identify suitable habitat and be familiar with the survey methodology. Personnel must have a well-developed search image for grassland birds. Different species may be confusingly similar in voice and appearance, and considerable study is required to correctly identify them. Due to the large variety of birds and the variation in dialects between regions, identification of grassland bird species requires rigorous training (Diefenbach et al. 2003.) and experience surveying grassland birds locally (USGS 2010). The need for experienced personnel cannot be overemphasized.

9.2.3 Survey Effort

Three survey visits must be completed to provide adequate detection of breeding birds (Huff et al. 2000, Matt Alldredge pers. comm.). Singing and resulting detection probabilities are heterogeneous during the breeding season (Alldredge et al. 2007a); therefore, multiple surveys must be carried out over the breeding season to increase detection levels (Huff et al. 2000; Gregory et al. 2004). Three visit surveys are very important for rare species detection (Matt Alldredge pers. comm.).

Surveys are to be spaced seven to 10 days apart (Huff et al. 2000, RIC 1999; Matt Alldredge pers. comm.). Rotate crews among sites to reduce observer bias in data (RIC 1999). Another option is to carry out surveys until the asymptote of the species visit curve calculation is reached (RIC 1999).

Once target species are detected, subsequent survey visits are not necessary. However, if additional surveys are not conducted to detect additional individuals, presence is assumed in suitable habitat throughout the project area and the appropriate setback distances in the Saskatchewan Activity Restriction Guidelines for Sensitive Species (2014) must be applied.

9.2.4 Time of Year

In most years in southern Saskatchewan, surveys may -reliably be carried out from the last week of May to the last week of June inclusive (Ralph et al. 1995; E.E. Cumming pers. comm.). Begin surveys after the arrival of the majority of migrants and when birds are singing on territory (Huff et al. 2000). For most passerines, clutch initiation peaks during the first two weeks of June (Davis 2003). Surveys are to be completed before most nestlings have fledged (Huff et al. 2000).

9.2.5 Time of Day

Surveys are to be carried out beginning at sunrise and ending no more than four hours later (Ralph et al. 1995, Brandes 2008, Hobson and Van Wilgenburg 2002, RIC 1999; S.K. Davis pers. comm. May 3, 2013) to capture the highest, most stable singing rate (Ralph et al. 1995, RISC 1999).

9.2.6 Environmental Conditions

A compendium of environmental condition standards (Saskatchewan Ministry of Environment 2014b) has been prepared to complement the survey protocols for Saskatchewan. The full range of values for the respective environmental condition (e.g., temperature, precipitation, cloud cover, noise, etc.) has been provided in the standards document with the expectation that appropriate value range(s) will be applied as per the survey protocol parameters.

Surveys must not be performed under cold conditions which inhibit calling (less than 7°C) (Huff et al. 2000) or when there is more than very light rainfall. Surveys must not be conducted when winds are greater than 12 km/h (i.e., Level 2 on the Beaufort Scale) (RIC 1999, Simons 2007). Surveys must not be conducted during rain or snow (Huff et al. 2000).

9.2.7 Equipment List

- Binoculars
- Spotting scope
- GPS receiver
- Thermometer
- Bird identification sources (e.g., books, APPs, tapes, CDs)
- Stopwatch
- Blank mapping data sheet
- Bird Survey Loadform
- Omnidirectional recorder

9.2.8 Permit Requirements

Notification is requested for grassland bird surveys. Notification implies the appropriate survey protocol(s) will be used and data loadforms submitted. Survey protocols and loadforms are available on the ministry Research Permit downloads webpage. Please refresh your internet browser regularly to clear any cached websites or bookmarks for the website to ensure you have the most up-to-date information and document versions. Properly conducted surveys and reliable data submissions are vital tools required to understand and manage wildlife populations and their habitat. Data submissions also facilitate and expedite environmental assessment reviews by Fish and Wildlife Branch.

9.3 SURVEY METHODS

The Survey Methods section describes the procedures for conducting grassland bird surveys.

9.3.1 Procedures

The point count surveys are designed to detect the presence of grassland birds using widely used procedures. Detection through recording equipment and/or skilled personnel carrying out surveys is acceptable, provided they follow the procedures described below.

9.3.1.1 Point Counts

Point count surveys may be carried out from a vehicle or on foot. Motorized vehicles may only be used where access is available and where potential for environmental damage is negligible. Keep to trails and do not drive near or through sensitive areas. The engine must be shut down at each point count station location. Personnel must move away from the vehicle at each point count station and be as quiet as possible.

Survey points are to be spaced 800 metres apart and provide coverage of the area. At each station, a five-minute survey must be conducted (Ralph et al. 1993, Huff et al 2000, S.K. Davis pers. comm., N. Koper pers. comm.). The count is to be broken down into a zero-to-three minute category and a three-to-five minute category (S.L. Van Wilgenburg pers. comm.).

Note any birds that flush from the area. These birds must be included in the count if they are not encountered later during the survey period. Wait at least one minute before beginning the survey to allow birds to settle (Gregory et al. 2004) and to document required data (RIC 1999) in the loadform and set up the recorder. It will also allow engine noise to cease if using a vehicle. Point counts and recording must begin and end simultaneously. Personnel are to remain still and quiet throughout the count.

Distance estimates are difficult and prone to error, so an unlimited distance from observer to the bird is to be used instead (E.E. Cumming and M.W. Alldredge pers. Comm.). The observer must listen for bird vocalizations and scan the area for visual sightings. Individual birds heard at one stop must not be recorded again at subsequent stops. Observations must be mapped on blank mapping data sheets using standard breeding bird mapping symbols to reduce the likelihood of double counting a bird at another survey point.

9.3.1.2 Bio-acoustic Recorders/Songmeters

Provided survey standards are met, digital recording devices are an acceptable alternative. If less experienced observers are used, recordings must be made at each survey location (see Section 9.3.1.1). Recordings must be reviewed by senior observers with expertise in identifying recorded birds. Auditory recordings provide a back-up to confirm field observations (Downes et al. 2000) and are recommended for all observers.

9.3.1.2.1 Recording Equipment

Use an omnidirectional microphone and recording device to record bird vocalizations. Position the recording equipment in a north/south direction. With the right microphone on the east side, arrange the recording device and microphone as far apart as possible to ensure noise made by the observer is equally delivered to both microphones. Consult the manual to determine the appropriate recording level of the microphone being used.

9.3.1.2.2 Standardized Recording Procedure

Ensure recording levels are standardized to allow for comparisons and to reduce the chance of poor quality recordings. Recordings must be made at ≥ 320 kbps. At the start of each point count recording, state the date, observer name, point count location and time. Follow this with a tone standard delivered for at least five seconds. This will allow for standardization in the lab.

Birds that are seen, but are not vocalizing, are to be verbally identified (e.g., “Western Meadowlark flying over”) to document the presence of the bird in the recording. Ensure the recordings are properly saved to the recorder and backed up at regular intervals (i.e., daily as a minimum) to a computer.

9.4 SUBMISSIONS

Please refer to the [Submissions](#) section under the Standard Permit Conditions on the Ministry of Environment website. Observations should be submitted using the appropriate loadform from the [Biodiversity webpage](#). Any incidental wild species (plant or animal) observations should also be submitted to the ministry (ENV.researchpermit@gov.sk.ca) using the Plant or Wild Species Loadform respectively.

[iMapInvasives](#) is the provincial system for submitting the occurrence of invasive plant or animal species. Any observations of prohibited, noxious or nuisance weeds, along with observations of any other invasive species, should be submitted using this website. An account is not required to submit observations. If you have any questions, please contact the [SKCDC](#) for more information.

9.5 ADDITIONAL RESOURCES

[Alberta Species at Risk Reports](#)

[Alberta Status Reports](#)

[All about Birds. Bird Guide. The Cornell Lab of Ornithology](#)

[Dendroica, a bird identification aid](#)

[Hinterland Who’s Who - Birds](#)

[Long-billed Curlew Alberta Management Plan](#)

[Manitoba Breeding Bird Atlas - *Atlas des oiseaux nicheurs du Manitoba*](#)

[Poole, A. \(Editor\). 2005. The Birds of North America Online.
Saskatchewan Activity Restriction Guidelines for Sensitive Species](#)

[Saskatchewan Activity Restriction Guidelines for Sensitive Species Background Information](#)

[Saskatchewan Conservation Data Centre \(SKCDC\)](#)

[Sprague’s Pipit Alberta Management Plan](#)

[Sprague’s Pipit Canada Recovery Plan](#)

[The Atlas of Saskatchewan Birds](#)

[The Encyclopedia of Saskatchewan](#)

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9.7 PERSONAL COMMUNICATION

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