

PERSONNEL REQUIREMENTS INSTRUCTIONS

SPECIES DETECTION SURVEY PROTOCOLS (SDSPs) #1-20

This document contains information regarding personnel requirements related to Species Detection (SD) surveys.

A. PERSONNEL FORMS OVERVIEW:

Personnel Forms for Companies conducting Species Detection (SD) Surveys are managed separately from forms such as Species Detection Application Forms (SDAFs) and SD Loadforms that pertain to individual projects. As such, **Personnel Forms must always be submitted separately from SDAFs and SD Loadforms.** Throughout the year, a Company may submit many SDAFs and corresponding SD Loadforms, but the Personnel Forms only need to be submitted according to the schedule below (see #4). This approach provides flexibility, as staff do not have to be pre-assigned to specific projects, and reduces redundancy as Personnel Forms do not need to be submitted with each SDAF.

Submitting the Personnel Forms, prior to submitting SDAFs, helps to ensure we have current information on file. Personnel Forms must be submitted according to the schedule below, even if no personnel changes have been made since the last submission (**CLARIFIED IN 2023!**). Updating the personnel documents at the end of the field season ensures we have an updated and comprehensive list of personnel on file that will correspond to SD Loadforms submitted for that period. Please note the following:

1. **Use document and email labels, including a standard 3-7 character ‘COMPANY CODE’ to submit Personnel Documents.** See [SDAF Tips - Appendix 1](#) (copied below) for labels.

APPENDIX 1: PERSONNEL FORMS: Each Consulting Company, will select and use a 3 to 7-character standard code (hereafter referred to as CODE), using letters and/or numbers, for use in various document and email labels going forward. Personnel Forms must be submitted separately, in advance of SDAFs and in conjunction with or following SD Loadform submissions.				
Action	Required Documentation	Document Label - “save as” prior to submission	E-mail Subject Label	Comments
Submit or Update SDSP-Staff Matrix	SDSP-Staff Matrix	CODE_Personnel_YYMMDD	CODE_Personnel_YYMMDD	The same generic label applies to both Personnel Forms. For the initial submission, tag the actual submission date onto the document and email label. Date the final SDSP-Staff Matrix for the breeding/migration season as October 31 (231031), regardless of the date it is submitted (NEW IN 2023!). See submission schedule in SD Personnel Instructions .
Submit or Update Bio-sketches	Bio-sketches Template	CODE_Personnel_YYMMDD	CODE_Personnel_YYMMDD	

2. **Primary Technical Contact(s) (PTCs) are responsible for providing oversight** to ensure personnel requirements and Research Permit (RP) conditions, including the [CSTC-SD](#) are met;
3. **Companies may select as many PTCs as required or desired.** All PTCs are expected to be familiar with the [CSTC-SD](#), [SDAF Tips](#), the [SDAF](#) and the [SD Loadform](#), in particular;

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4. **Submission Schedule:** Submit the [Bio-sketch\(es\) Template](#) and initial [SDSP-Staff Matrix](#) prior to submitting any SDAFs for the upcoming breeding/migration survey season. **Submit the final SDSP-Staff Matrix by November 10, when SD permits expire and SD Loadforms are due, and date it October 31 (231031) to reflect the end of the breeding/migration survey season (NEW in 2023!).** The final SDSP-Staff Matrix represents a cumulative overview of personnel for that field season, to reflect personnel listed in the SD Loadform(s) for that survey period. As such, do not delete staff if they are no longer with the Company, but conducted surveys earlier in the year - include additional information in the 'Comments' field, as required.
5. Personnel documents for winter surveys only need to be submitted if they need to be updated to reflect personnel changes for the winter survey period.
6. **Each Company submits Personnel Documents for their own staff**, including Secondary Companies sub-contracted by Primary companies (i.e. **a company cannot submit Personnel Documents on behalf of another company**);
7. **Companies with more than one office may submit combined personnel documents**, if they share staff on SD surveys – please contact the [SD Mailbox](#);
8. Some companies may not have expertise in all [Species Detection Survey Protocols \(SDSPs\)](#);
9. Some companies may require a two-person crew for logistical or safety reasons;
10. **Companies must submit [Personnel Forms](#) in accordance with instructions.** Instructions are contained in the "Personnel Requirements Roster" and in the 'Metadata & Instructions' worksheet of the [SDSP-Staff Matrix](#) spreadsheet.

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PERSONNEL REQUIREMENTS ROSTER

SPECIES DETECTION SURVEY PROTOCOLS (SDSPs) #1-20

This document outlines personnel requirements for *ENV's 20 Species Detection Survey Protocols (SDSPs)*. These Personnel Requirements are intended to provide clarity with respect to the General Competencies and Minimum Requirements deemed necessary to reliably and consistently conduct and report on SD surveys.

TERMS USED in the GENERAL COMPETENCIES and MINIMUM REQUIREMENTS:

- **Suitable Habitat:** For the purposes of the SDSPs, suitable habitat is defined as all habitat types described in the “Ecology and Life History” section of [NatureServe Explorer](#) (i.e., use “Species Quick Search” for relevant species), unless otherwise indicated;
- **Species of Conservation Concern (SOCC):** SOCC are those that meet any of the following criteria: listed in the (SKCDC) as extremely rare (S1), rare (S2) historic (SH) or extirpated (SX); listed in the provincial Wild Species at Risk Regulations as endangered or threatened; listed in Schedules 1, 2 and 3 of the Species at Risk Act (SARA); listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or all other sensitive species and guilds included in the [Activity Restriction Guidelines \(ARGs\) for Sensitive Species](#).
- **SKCDC Tracked Species:** Refer to the [SKCDC Species Lists](#) and select the ‘Tracking List’ pull-down option.

A. GENERAL COMPETENCIES for all 20 Saskatchewan Ministry of Environment SDSPs:

1. Be familiar with the **SDSP, Conservation Standards Terms & Conditions: Species Detection (CSTC-SD)**, the **SD Loadform**, and the **ARGs** in advance of conducting the survey;
2. Have knowledge of biology, behaviour and preferred habitat for the target species or all species within the target guild with the potential to occur within the survey area;
3. Be able to identify suitable habitat, relevant to the SDSP;
4. Have no auditory, visual or other impairments that could affect the ability to reliably conduct the surveys;
5. Be able to operate a GPS receiver and identify ones' location;
6. Personnel conducting bird and mammal surveys must be able to identify, record and report any marked (i.e. colour bands) animals; and
7. Be aware of how surveyor presence may cause disturbance and attract predators so risks to target species can be minimized.

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B. MINIMUM REQUIREMENTS for all 20 Saskatchewan Ministry of Environment SDSPs:

1.0 [Amphibian Auditory](#) – see page 10 for information on ARU surveys.

Minimum of one (1) observer is required, but two (2) are preferred to confirm the identification of calling amphibians and for safety reasons. The need for experienced personnel cannot be overemphasized.

- a. Be able to identify and distinguish, by sound, 100% of all amphibian species that have the potential to occur within the survey area; and
- b. Have the ability to estimate the approximate number of amphibians calling at one time and from what direction.

2.0 [Amphibian Visual](#)

Minimum of two (2) observers are required, for egg mass surveys (Grant et al 2005). For surveys aimed at visually detecting adult amphibians only, one (1) observer is required. The need for experienced personnel cannot be overemphasized.

- a. Have a well-developed search image for all species and be able to identify and distinguish, by sight and sound, 100% of all amphibian species that have the potential to occur within the survey area;
- b. Have a well-developed search image for all life-stages of amphibians through observational field surveys; and
- c. Be able to identify eggs, tadpoles and young of the year for all species. Return visits may be needed to confirm identification to species as life-stages mature.

2.5 [Amphibian Salvage](#) (See also [SDAF Tips](#) – Sec. 6.a.).

Minimum of one (1) personnel is required to oversee planning and salvage operations at the project site.

- a. Meet Minimum Requirements for 1.0 Amphibian Visual and 2.0 Amphibian Auditory surveys;
- b. Be familiar with [Guidelines for Mitigation Translocations of Amphibians: Applications for Canada's Prairie Provinces](#), developed by the Calgary Zoological Society;
- c. Be familiar with [Canadian Wildlife Health Cooperative \(CWHC\) Fact Sheets](#) on Chytridiomycosis, Salamander Chytridiomycosis, Ranavirus and Whirling Disease;
- d. Be familiar with [Saskatchewan's Aquatic Invasive Species Prevention and Monitoring Program](#);
- e. Have led at least two previous amphibian salvage operations in Saskatchewan.

3.0 [Greater Short-Horned Lizard](#)

Minimum of two (2) observers are required (James 2002).

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. assisting on an academic research project); and
- b. Have a well-developed search image and be able to identify and distinguish, by sight, the target species from other species that may be similar in appearance or behaviour.

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4.0 Snake Hibernacula

Minimum of one (1) observer is required.

- a. Be able to identify, by sight, 100% of all SKCDC tracked snake species that have the potential to occur within the survey area; and
- b. Have a well-developed search image for all snake species, through observational field surveys, and be able to visually identify and distinguish all snake species that have the potential to occur within the survey area.

5.0 Burrowing Owl

Minimum of one (1) observer is required.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. assisting on an academic research project, banding etc.); and
- b. Have a well-developed search image and be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour; and
- c. Be able to identify sign(s) of currently occupied burrows (e.g., satellite roosts) and/or evidence of breeding (e.g., burrows used for breeding); and
- d. Be familiar with and able to identify predators of the target species.

6.0 Short-Eared Owl

Minimum of one (1) observer is required.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. assisting on an academic research project, banding etc.); and
- b. Have a well-developed search image and be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour.

7.0 Prairie Raptors

Minimum of one (1) observer is required.

- a. Have a well-developed search image for prairie raptor species and morphs and be able to identify and distinguish, by sight, 100% of all SKCDC tracked prairie raptor species that have the potential to occur within the survey area; and
- b. Be competent in identifying signs of recent nesting activity so repeat visits can be made, as required, to confirm species. Active nests must ultimately be identified to species.

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8.0 [Boreal Raptors](#)

Minimum of one (1) observer is required.

- a. Have a well-developed search image for boreal raptor species and be able to identify and distinguish, by sight, 100% of all SKCDC tracked boreal raptor species that have the potential to occur within the survey area; and
- b. Be competent in identifying signs of recent nesting activity so repeat visits can be made, as required, to confirm species. Active nests must ultimately be identified to species.

9.0 [Grassland Birds](#) – see page 9 for information on ARU surveys.

Minimum of one (1) observer is required.

- a. Have a well-developed search image for all species of grassland birds and be able to identify and distinguish, by sight and sound (calls, song and other vocalizations), 80% of all grassland bird species, including 100% of grassland bird SOCC, that have the potential to occur within the survey area.

10.0 [Forest and Aspen Parkland Birds](#) – see page 9 for information on ARU surveys.

Minimum of one (1) observer is required.

- a. Have a well-developed search image for all species of forest and aspen parkland birds and be able to identify and distinguish, by sight and sound (calls, song and other vocalizations), 70% of all forest and aspen parkland bird species, including 100% of forest and aspen parkland bird SOCC that have the potential to occur within the survey area.

11.0 [Sharp-Tailed Grouse](#)

Minimum of one (1) observer is required.

- a. Have at least 3 days of field experience conducting lek surveys with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Have a well-developed search image of dancing males at lek sights, and be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour; and
- c. Have visited a sharp-tailed grouse lek at least once in the past (with an experienced observer) so personnel are confident in confirmation of active leks.

12.0 [Western Grebe](#) – see page 9 for information on ARU surveys.

Minimum of one (1) observer is required. However, a two-person crew in one boat or two one-person kyacks are recommended for logistical and safety reasons.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and

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- b. Have a well-developed search image and be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour; and
- c. Be able to correctly detect the target species from imagery collected from Unmanned Aerial Vehicles (UAVs), if this technology is used.

13.0 [Piping Plover](#)

Minimum of one (1) observer is required.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Have a well-developed search image and be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour; and
- c. Be familiar with and able to identify predators of the target species.

14.0 [Yellow Rail](#) – see page 9 for information on ARU surveys.

Minimum of one (1) observer is required.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour.

15.0 [Common Nighthawk](#)

Minimum of one (1) observer is required. Common Nighthawks are difficult to detect by sight and personnel generally rely on call displays to identify the species.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Be able to identify and distinguish, by sight and sound, the target species from other species that may be similar in appearance or behaviour.

16.0 [Bats](#) - see page 9 for information on ARU surveys.

There is no ENV SDSP for acoustic bat (see a-d) or bat roost surveys (see a and b) - SDSP template is required.

Please contact the [SKCDC Zoologist](#) in advance (**NEW IN 2023!**). Minimum of one (1) observer is required.

- a. Be familiar with the status, distribution and life history of all confirmed and potential bat species within the province.
- b. Be familiar with suitable habitat, including how to identify roosting habitat;
- c. Be familiar with the use, inspection and maintenance of ARUs; and
- d. Recordings must be interpreted by personnel with specific training and experience in identifying bat species on recordings.

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17.0 [Swift Fox](#)

Minimum of one (1) observer is required. The need for experienced observers cannot be over-emphasized. It can be difficult to distinguish Swift Fox from coyote pups and it is recommended to document sightings and tracks and consult with other experts.

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Have a well-developed search image and be able to visually identify and distinguish the target species and their tracks from other species that may be similar in appearance or behaviour.

18.0 [Ord's Kangaroo Rat](#)

Minimum of two (2) observers is required (Government of Alberta 2013).

- a. Have at least 3 days of field experience conducting surveys for this species with an experienced mentor or at least 3 field days of equivalent experience (e.g. academic research project); and
- b. Have a well-developed search image and be able to visually identify and distinguish the target species and their tracks and burrows from other species that may be similar in appearance or behaviour.

19.0 [Snow Track](#)

Minimum of one (1) observer is required. The need for experienced observers cannot be over-emphasized. Identification of tracks and other sign requires a high degree of training and misidentification can be a significant issue in snow surveys.

- a. Have a well-developed search image for tracks and be able to visually identify and distinguish tracks and sign of at least 90% of all ungulate species and 100% of ungulate SOCC that have the potential to occur within the survey area from other tracks and sign that may be similar in appearance; and
- b. Be able to correctly identify tracks, scat and other sign.

20.0 [Vascular Plant](#)

Minimum of two (2) observers are required to achieve better visual coverage of the site and species detection (Henderson 2009, Zhang et al. 2014). Due to the large diversity of vascular plants and the variation between regions, identification requires rigorous training. The need for experienced personnel cannot be overemphasized.

Some rare plants and some taxonomically complex species groups require considerable experience to adequately locate and correctly identify (ANPC 2012). Thus qualifications of survey personnel must be appropriate for the target species.

The two person team may consist of:

- a. one surveyor and one trainee under the supervision and training of a team lead;
- b. two surveyors under the supervision and training of a team lead; or
- c. one surveyor and one team lead.

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Requirements for Team Lead

- a. Have at least 10 years of experience with **local flora** (Henderson 2009);
- b. Have direct involvement with survey design;
- c. Have direct involvement with training of staff who are conducting field surveys;
- d. Serve as a resource for determining species that are difficult to identify;
- e. May be an office position.

Requirements for Surveyor

- a. Have at least 120 days of taxonomic field experience (ANPC 2012).

Requirements for All Personnel (including trainees)

- a. Have experience surveying **local flora**;
- b. Be able to identify different habitats in the field;
- c. Have specific training with terminology in plant anatomy and taxonomy and be competent in the use of regional or provincial floras to distinguish plants;
- d. Have a well-developed search image for potential rare plants;
- e. Be able to identify rare plant species most likely to occur in the search area;
- f. Be able to distinguish between similar species; and
- g. Know the best time of year to survey for the potential rare plants (ANPC 2012).

C. AUTOMATED RECORDING UNITS (ARUs) IN SPECIES DETECTION SURVEYS:

The following SDSPs include ARU sampling methods: Amphibian Auditory, Grassland Birds, Forest Birds, Western Grebe, Yellow Rail and Bats. The value of using ARUs is the capacity for experienced interpreters to accurately identify all species captured in the recordings. ARUs are an extremely useful survey tool and provide the following benefits:

1. ARUs can be deployed for extended periods and retrieved at the convenience of survey personnel;
2. ARUs can be programmed according to the Survey Standards in the SDSPs;
3. ARUs are good for areas with poor access;
4. ARUs minimize disturbance associated with observers;
5. Recordings can be replayed and shared with other experts until all species captured on the recording have been positively identified;
6. Recordings can be used as a backup to confirm field observations; and
7. Recordings can be used to audit performance of personnel conducting point counts.

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For more information on ARUs, refer to the [Bioacoustic Unit website – Resources tab](#). [The Bioacoustic Unit](#) is a collaboration between the [Alberta Biodiversity Monitoring Institute](#) and the [Bayne Lab](#) at the [University of Alberta](#).

1. MINIMUM REQUIREMENTS for ARU DEPLOYMENT PERSONNEL:

- a. Be able to position ARUs to ensure adequate coverage of the survey area; and
- b. Be able to properly program (if ARUs are not pre-programmed) and ensure ARUs are in working order once deployed.

2. MINIMUM REQUIREMENTS for ARU INTERPRETERS:

- a. Be able to interpret recordings in accordance with the Survey Standards contained in the SDSP;
- b. Be able to identify species without benefit of visual cues including behaviour, physical appearance, habitat and other non-auditory cues; and
- c. Ultimately be able to identify, by sound, the target species for single species surveys (western grebe and yellow rail) surveys and 100% of all species for guild surveys (amphibian auditory, grassland bird and forest bird), with the exception of bats, on recordings through re-listening and in consultation with other experts. For bats it is not required to be able to identify 100% of bat calls as some species are nearly impossible to differentiate.

LITERATURE CITED

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