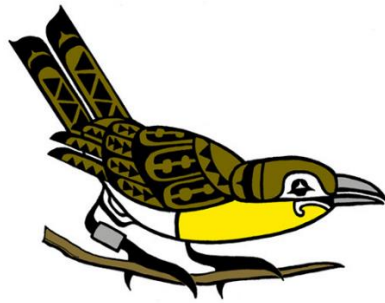


**Klamath Bird Observatory's
Landbird Monitoring
Area Search Protocol
developed in partnership with the
National Park Service
Klamath Network**



Procedures in this document are excerpted from the NPS Klamath Network Landbird Monitoring protocol (Stephens et al. 2010), and selected SOPs have been updated with minor changes that will be incorporated into a future revision of the Stephens et al. (2010) protocol.

Lit Cited:

Stephens, J. L., S. R. Mohren, J. D. Alexander, D. A. Sarr, and K. M. Irvine. 2010. Klamath Network Landbird Monitoring Protocol. Natural Resource Report NPS/KLMN/NRR—2010/187. National Park Service, Fort Collins, Colorado.

Landbird Monitoring Protocol for Klamath Network Parks

Standard Operating Procedure (SOP) #7: Conducting Area Search Surveys

Version 1.02

To create a new version of this SOP, use the Revision History Log below to describe the revisions:

- Populate the top table of the revision history log, providing the previous version date, author of the change, a specific but concise description of the changes made, the footnote number associated with change details, and a new version date.
- In the bottom table, add a footnote and as much text as needed to describe in detail the reasons for and implications of the change.

Revision History Log:

Previous Version Number	Author of Change	Changes Made	Footnote #	New Version Number/ Date
1.00	J. L. Stephens	A. Field form revised to include detection type and count for each observation event. B. For each species on the checklist, the appropriate code that is most definitive of breeding status is recorded. A new code was added: Y = local young incapable of sustained flight.	1	1.01 5/2/12
1.01	J. L. Stephens	A. Updated revision history log.	2	1.02 4/3/17

Footnote #	Detailed Reasons for and Implications of the Changes
1	<p>A. Provides additional precision in data collection by recording observation events rather than only individuals detected, e.g. a pair of juncos foraging together is recorded as '2V' rather than 'VV". Analysts should note that pairs and flocks may or may not have been recorded in this manner under the previous protocol version.</p> <p>B. The new code will improve data quality. We cannot be certain how encounters with young incapable of sustained flight were notated under the previous protocol.</p>
2	<p>A. Added additional notes regarding previous changes, reasons, and implications in new format.</p>

SOP #7: Conducting Area Search Surveys (continued).

This SOP includes the methods for conducting area search surveys. The Area Search Data Form is provided at the end of this SOP.

Timing of the Survey

Area search surveys are conducted at least twice during each banding effort. If capture rates are slow, or extra persons are available at the station, multiple area searches should be completed. Surveys for the day should be done between sunrise and 5 hours after dawn. The order of search areas covered should vary from effort to effort. The first survey is done as the nets are set up. If the temperature and/or bird activity is low, wait until it warms up a bit to begin the first area search. One person starts setting up the nets and the other person completes the area survey. After 20 minutes, the surveyor (back at the start of the net round) begins to help set up nets (SOP #6: Mist Netting). Then, if possible, a second survey is conducted when bird captures have slowed down, often about 0930. Surveys should not be conducted in rain, strong winds, or extreme weather conditions.

Location of the Survey

A map of the area search survey plots for the Oregon Caves station is included in SOP #4: Locating and Marking Field Sites.

SOP #7: Conducting Area Search Surveys (continued).

Conducting the Survey

One or more observers walk a 20-minute route, noting all birds seen or heard. The person who is the best birder should conduct the survey; the other surveyors should practice as time allows. The observer should be reasonably familiar with most (if not all) bird species likely to be encountered at the site. This method allows the observer to track down unfamiliar birds. Walking the site before a survey with a person familiar with the birds allows the less experienced observer to be more efficient.

Walk in an approximate circle or oval for exactly 20 minutes in each search area, stopping or moving to investigate sightings or calls when appropriate. Do not spend more than a minute looking for a difficult bird. If there is an unknown bird that can not be identified, record it on your form as unknown (UNKN). Record numbers of birds of each species detected within and outside the search area as appropriate on the Area Search Data Form. Record birds outside the search area, as defined by the route you take, separately on your data sheet, but concentrate on finding as many birds as possible within the site.

The form includes separate boxes within each row for recording distinct detection events with a detection type code and number of individual birds so detected. A detection event is any single detection (e.g., V, S, F, etc.) that may include any number of individuals. For example, a bird singing would be recorded as S1 in a single box; then, two birds (not including the first detected individual) of the same species seen would be recorded as V2 in a subsequent box of that species' row. If all boxes of a species' row are used then a second, and more as necessary, row for that species should be used. The detection type recorded is the first behavioral cue that alerted the observer to the presence of the species. If subsequent behavior observed has a greater hierarchical breeding status category than the initial observation, then it should be noted as such in the Breeding Status field. The location of the initial detection determines whether it was "On" or "Off" the area. The bird's location at the time of detection is determined as a flat plane from the observer (i.e., imagine a plumb bob suspended from the bird to the ground). For birds heard singing or calling, you may have to estimate whether they are inside your area or not. Note that this 20-minute time constraint is an extremely important component of the technique, as the data are to be used for monitoring.

Record data as follows:

Page: The page number of current page and the total pages for the area search surveys at the site on the given day.

State: OR.

Project: NPS_ORCA.

Site Code: ORCA.

Site Name: Oregon Caves.

Point (Area): The area search letter (A or B).

SOP #7: Conducting Area Search Surveys (continued).

Month-Day-Year: The date of the survey using two numbers for month and day and four numbers for year.

Obs. Initials: The first, middle, and last name initials of the observer.

Secondary Obs. Initials: The first, middle, and last name initials of secondary observers.

Temp. (C): The temperature at the beginning of the survey recorded in degrees Celsius.

Cloud Cover %: The estimated percent of cloud cover at the beginning of the survey.

Ppt: The type of precipitation at the beginning of the survey. N = None, F = Fog, M = Mist, D = Drizzle, R = Rain.

Wind: The wind at the beginning of the survey using the Beaufort Wind Scale class. 0 = calm, 0-1 mph, smoke rises vertically and the sea is mirror smooth. 1 = light air, smokes moves slightly with breeze and shows direction of wind. 2 = you can feel wind on your face and hear the leaves start to rustle. 3 = gentle breeze, small branches start to sway, wind extends a light flag. 4 = moderate breeze, loose dust or sand on the ground will move and larger branches will sway. >4 = Do not survey, too much wind.

Start Time: The time (using a 24-hour clock) that you started your 20-minute search.

Duration: Duration of survey in minutes, 20.

Species Code: The standard four letter species code.

Species Name Abr: The full common name or a clear abbreviation for the bird.

On Area Detection Type and Count: The detection type and count for a single detection event on or within the search area should be recorded in each box. The detection type [S = Song, C = Call, V = Visual, W = Wing (e.g., Mourning Dove or Hummingbird wing whir), D = Drumming, F = Fly over] followed by the total number of individuals involved in the detection event, (e.g., V2, S1, F57).

Off Area Detection Type and Count: The detection type and count for a single detection event off or outside of the search area should be recorded in each box. The detection type [S = Song, C = Call, V = Visual, W = Wing (e.g., Mourning Dove or Hummingbird wing whir), D = Drumming, F = Fly over] followed by the total number of individuals involved in the detection event, (e.g., V2, S1, F57). Birds flying over the site (excluding those aerial foraging within the search area) should be counted here.

Breeding Status: Any breeding evidence observed during the count. N = current year's Nest found in the study area with eggs or young, in the process of being built, or already depredated or abandoned. M = adult seen gathering or carrying nesting Material to a likely nest site in the study area. F = adult seen carrying Food or Fecal sac to or from a likely nest

SOP #7: Conducting Area Search Surveys (continued).

site in the study area. D = Distraction display or injury feigning by an adult bird. L = a young bird incapable of sustained flight (a “Local”) in the study area or very young (stub-tailed) fledglings being fed by parents in the study area. Y = local (incapable of sustained flight) Young detected. C = Copulation or Courtship observed of a species within its breeding range. T = other Territorial behavior observed. S = territorial Song or drumming heard.

Notes: Record any survey notes here (e.g., noise disturbance, location information, other sightings, etc.).

Observer’s Full Names: The full name (first, middle initial, and last) in the Obs. Initials and Secondary Obs. Initials fields.

Checked: The first, middle, and last name initials of the observer who has checked the current survey page for completeness and accuracy.

Copied: The first, middle, and last name initials of the observer who has made a photocopy of the current survey page.

Entered: The first, middle, and last name initials of the observer who has entered the current survey page into a digital source file.

