

Western Asio flammeus Landscape Survey (WAfLS) Protocol

Protocol Version: 2020a

Equipment Needed:

1) GPS unit or Smartphone. We will use “decimal degrees” for all coordinates (e.g., IBO Offices are located at 43.605187°, -116.211022°). There are many free smartphone apps to provide you with GPS coordinates. Here are some suggestions:

Android: Try “Polaris GPS Navigation: Hiking, Marine, Offroad” by DS Software. Open app and tap the center star for coordinates. Select the coordinate type in the upper right “...” and choose “Degrees”.

iPhone: Try “Current Altitude Free” from Hearn Apps, LLC.

or: “Easy GPS” from 2kit consulting

or: “Free GPS” from CodeBurners

2) datasheet and map

3) civil twilight times for your grid (Please download from program website for official times)

4) clipboard (or hard surface to write on) and writing utensil (pen preferred)

5) binoculars

6) stopwatch or clock to keep track of minute-by-minute intervals of the survey.

7) survey partner (optional... but its easier and more fun with two people; record # of observers)

8) this survey protocol (for reference)

9) flashlight for reading datasheet at last point

Dates of Surveys:

Surveys should be conducted during the period of short-eared owl (SEOW) pair formation. These dates vary by state and by elevation so check the information for the grid you signed up for (also in Table 1). Surveys must be done between these dates. Each survey route assigned to you should be surveyed twice during this period – once during the first 3-week visit window, and once during the second 3-week visit window. We prefer to have at least one week between the two visits, but this is not required.

Table 1. Suggested survey timing for each of the two visits derived from mean elevation of the survey grid cell and expected courtship period of Short-eared Owls within each participating state.

CA, ID, OR, WA	Elevation below 4000ft.	Elevation 4000 - 6000ft.	Elevation above 6000ft.	
Visit 1	March 1 - March 21st	March 16 - April 7th	April 1st - April 21st	
Visit 2	March 22nd - April 15th	April 8th - April 30th	April 22nd - May 15th	
MT	Elevation below 4000ft.	Elevation 4000 - 6000ft.	Elevation above 6000ft.	
Visit 1	March 16 - April 7th	April 1st - April 21st	April 15th - May 6th	
Visit 2	April 8th - April 30th	April 22nd - May 15th	May 7th - May 28th	
NV, UT	Elevation below 5000ft.	Elevation 5000 - 6000ft.	Elevation above 6000ft.	
Visit 1	March 1 - March 21st	March 16 - April 7th	April 1st - April 21st	
Visit 2	March 22nd - April 15th	April 8th - April 30th	April 22nd - May 15th	
WY	Elevation below 5000ft.	Elevation 5000 - 6000ft.	Elevation 6000 - 7000ft.	Elevation above 7000ft.
Visit 1	March 10 - March 31st	March 24 - April 14th	April 7th - April 28th	April 14th - May 5th
Visit 2	April 1st - April 22nd	April 15th - May 6th	April 29th - May 20th	May 6th - May 27th

Timing of Surveys:

Surveys should be conducted during the time of day when Short-eared Owl courtship is occurring and can be seen by a human observer. Therefore, surveys **must** be performed over 90 total minutes, between 100 minutes and 10 minutes before the end of civil twilight (later than sunset, defined to be when the sun is 6 degrees below the horizon) for the township you are in. We have created an online table for each survey route and date. Please look up survey start time and end time prior to leaving for your survey. These times are specific for your route and for your day of survey. Do NOT start early. If you survey outside of these times, we cannot use your data.

Weather:

Your survey should be completed during periods of good or fair weather. Clouds are fine, but you should avoid any steady rain or snow. Breezy conditions are also ok, but strong winds should be avoided. Previous survey results have found that detection rates of Short-eared Owls decrease with higher winds, probably due to observer effects and that wind may discourage owls from performing courtship flights.

Choosing Route:

If you are choosing your own route within a grid, please remember that you will need a five mile stretch of road, with as few turns as possible. The grids are 6.2 miles square, so your survey will need to span most of the grid. Choose a road with little traffic, where you can safely pull off of the road to survey. Choose a road with as much diversity as you can find (e.g., combinations of shrubland, grassland, and agriculture; the free Google Earth software is very useful for this). Zoomed in single grid maps are available on the portal. If uncomfortable with laying out the points, just ask your state volunteer coordinator for help. If your route includes a sharp turn, you will have to travel ¾ of a mile to the next point to ensure that the points are at least ½ mile apart. If you find that your route is inaccessible due to private land access, muddy roads, or other issues, just notify us. We expect to have a few failed routes. Unfortunately, we are not able to preview all routes across all states. Note: you will survey the **same points** on each of your two visits (but these need not be the same points as used in previous years). Please consider surveying routes in the opposite order on the second visit (not required; points 1 – 11 on visit 1, and points 11 – 1 on visit 2). If you reverse the route, please remember that the point numbers must be associated with a single location – point #1 is a physical location whether you survey it first or last.

Mileage, Hours and Affiliation:

The datasheet asks for your total round trip mileage to complete the survey (estimates are fine). These are vehicle miles and are not duplicated per person. There are three fields, one for volunteers, one for miles being paid by a non-federal agency, and the last for miles paid for by a federal agency. State and federal employees may still be volunteers if they are on their own time and in a personal vehicle. State and NGO employees should be considered federal if their involvement is paid for with federal funds. We also want to know your total time investment (please include initial sign-up, studying, and preparation in your first visit, surveying, and data entry). Please add this up for all people participating (e.g., 2 people for 4 hours = 8 hours total). Hours are also split by whether the hours are volunteer hours or being paid by an agency (non-federal and federal). This will be used to report on the overall volunteer contribution. Affiliation refers to which birding, volunteer, or professional group(s) you heard about this opportunity through or participate in. This may include online groups. We want to recognize those organizations as well (e.g., Golden Eagle Audubon, Southwestern Idaho Birders, McCall Master Naturalists, Professional (BLM), Professional (IDFG), Idaho Birding, IBLE, ...).

Survey Procedure:

Each survey consists of *at least* 8 observation points, spaced 800 meters (0.5 miles) apart, but may extend up to 11 survey points. Active surveying is performed at each point for 5 minutes. *Arrive at the first point at least 5 minutes in advance of the beginning of the survey to organize data sheets, record weather conditions, etc.* We also suggest visiting the points and collecting habitat data prior to the survey so to maximize the available time during the survey window.

1) Locate a start point of the survey (surveys can begin at either end of the established route) using a GPS unit or smartphone. There are many free smartphone applications that will provide you with coordinates. We will use “**decimal degrees**” for all coordinates (e.g., IBO Offices are located at 43.605187°, -116.211022°). Please record at least 5 digits to the right of the decimal point. This may require a settings change on your GPS or Smart Phone. Some units may report the longitude as 116.211022 **W** instead of -116.211022. That is fine, we will drop the “W” and add the “-“ later.

2) Identify the best vantage point within approximately 50 meters of the survey point. This vantage point may be a slight mound off the roadway, or it may be the bed of your truck, or if terrain is relatively flat, it may be the roadway in front of or behind your vehicle. Wherever you end up, make sure you have a good view of the surrounding landscape. **Please do not survey from within your car and do not trespass on private land to gain an optimal vantage point unless you have explicit permission from that landowner!**

3) At the beginning of each 5 minute survey period, begin scanning the surrounding area, including ground and sky, for any SEOW presence. Surveys should be done using a combination of scanning with binoculars and scanning with the naked eye (and, of course, listening). All SEOW observations should be recorded on the data sheet. Best efforts should be made to avoid double-counting SEOWs within each 5-minutes survey, however, please note any observations at the next point if the bird is still visible.

For each Short-eared Owl detected, note how the bird was initially detected (sight or sound), which of the five minutes within the survey it was detected (indicate all minutes observed; e.g., a bird may be observed in the second, fourth and fifth minutes, but not in first or third – three checks), the general direction of the bird from your location (to nearest N, NE, E, SE, S, SW, W, NW), the estimated distance to nearest 200m (roadside power pole are roughly 100m apart), the behaviors observed, the sounds heard, and the type of habitat over which the bird was located. Only mark birds that are **positively** identified. If you are unsure, there is a separate area on the datasheet top record that.

Start Time (24h, e.g., 1843): _____ (entered in "Points Surveyed" section of portal, not "Observations" section)

Short-eared Owl Observations:

How SEOW detected (seen/heard)	Initial Distance <input checked="" type="checkbox"/>				Initial Direction (N, NE, E,....)	Habitat where obs. (shrub, grass, ag, marsh, other)	Minutes Observed (Check all <input checked="" type="checkbox"/>)					Vocalizations/Sounds (list all - hoots, barks, screams, wing clip, bill snap)	Behavior (list all - perched, foraging, direct flight, agonistic, courtship)
	< 200m	200-400m	400 – 600m	> 600m			1	2	3	4	5		

Number of unconfirmed Short-eared Owl Observations: _____ (enter in "Points Surveyed" Section of data portal)

Other Focal Species Observations: Must fill in all categories (0 = none observed)

# Long-eared Owls	# Northern Harriers	# Ferruginous Hawks	# Burrowing Owls	# Long-billed Curlews	Swainson's Hawk

4) When 5 minutes of survey at a point are complete, quickly finish recording SEOW observations, recalling and recording any other positive raptor identifications you made, record the habitat (if not done prior, spend no more than 1 minute), and travel to your next survey point – 800 meters (0.5 miles) down the survey route. If you must turn a sharp corner, then travel 0.75 miles to the next point. These points should be determined by simply driving 0.5 miles in your car (or 0.75 miles if you turned a corner), stopping, and determining the best vantage point within 50 meters of your vehicle. At least 8 survey points should be completed within the 90 minute period allotted, but complete as many as you can up to 11.

Note: To complete at least 8 survey points in 90 minutes, you will have approximately 7 minutes between survey points. This is a suggestion but not necessarily a requirement. It does not matter if you only take 6 minutes between one, and then take 8 minutes between another set of points, as long as at least 8 points are completed in the 90 minute window. If road conditions do not permit the completion of all 8 points in the 90 minutes allotted, just complete as many as you can.

5) The survey is complete after 90 minutes have elapsed since the first survey began. Again, if for some reason you were unable to complete 8 points in 90 minutes, please make a note of this in the datasheet. The provided online time schedules indicate start time and the latest time to begin a point for each survey grid. After surveys are complete, **review the datasheet for completeness.**

Datasheet and Variables:

The provided datasheet has blanks for all the required survey information. Below are guidelines for each variable.

Air Temperature – measured in degrees Fahrenheit (F), to nearest 5 degrees is fine.

Wind Classification – measured using the Beaufort Wind Scale at the start point only. If wind conditions change dramatically during the survey, please make a note of this. See scale below:

- 0 = Calm: smoke rises vertically
- 1 = Light Air: Smoke drift indicates wind direction, still wind vanes
- 2 = Light Breeze: Wind felt on face, leaves rustle, vanes begin to move
- 3 = Gentle Breeze: Leaves and small twigs constantly moving, light flags extended
- 4 = Moderate Breeze: Dust, leaves, and loose paper lifted, small tree branches move
- 5 = Fresh Breeze: Small trees in leaf begin to sway
- 6 = Strong Breeze: Larger tree branches moving, whistling in wires (not recommended to survey)
- 7 = Near Gale: Whole trees moving, resistance felt walking against wind (not recommended to survey)
- 8-12 = Gale – Hurricane (DO NOT conduct survey in these conditions): Twigs breaking off trees, generally impedes progress.

Cloud Cover Classification – measured at start point only. Classified as **cloudy** (100% cloud cover), **mostly cloudy** (50-99% cloud cover), **partly cloudy** (1-49% cloud cover), and **clear** (0% cloud cover).

Owl Behavior Classification – recorded at initial detection of each individual owl (i.e. if same individual owl is re-sighted, do not change the behavioral classification) classified as **perched, foraging, direct flight, agonistic, or courtship** (Holt and Leasure 1993).

Owl Vocalizations/Sounds – any sound produced by a Short-eared Owl should be classified as **hoots, barks, screams, wing clapping, bill clapping** (Holt and Leasure 1993).

Initial Direction – Record the general direction (e.g., N, NE, E, ...) of where the bird was *first* detected.

Initial Distance – estimated distance to where the bird was first detected. This is rounded to nearest 200 meters. Roadside power poles are typically 100 meters apart. The categories are roughly less than 2 power poles, 2 – 4 power poles, 4 – 6 power poles, or greater than 6 power poles away. This is an estimate, so do your best but don't worry if it is not accurate. You can practice your distance estimation prior to the survey in case your route does not have power poles.

Habitat where owl observed – The general classification of habitat where the owl was initially observed. For example, the point habitat might be 90% shrubland and 10% riparian, but the owl was observed in the riparian vegetation. If the bird is flying, what habitat was it flying over when initially observed.

Vegetation Cover Classification – measured at each survey point. This should be recorded for each survey visit. For most points the values may not change, but agriculture could change from stubble to dirt if the field has been tilled since the last visit. This is a quick assessment. Do not spend more than about 1 minute determining habitat. If you prefer to be less rushed, you may travel the route prior to your survey to establish points and record vegetation (recommended!).

Record values to the nearest **10%**. Recorded as percentage of various land types within approximately 400 meters/yards (1/4 mile) of each survey point (half distance between points). **Values should total to 100%**. Please double check this. **Shrubland** may include grass, but is determined by at least a regular distribution of shrubs.

Shrubland is split into two categories – **low** = knee height or shorter, and **high** = greater than knee height. **Grassland** may include a few shrubs, but there should not be many and should not be regular on the landscape. Grassland has two possible categories – **cheatgrass monoculture** (dominated by short cheatgrass), and **complex grassland** (taller grasses, bunch grasses, diverse species [may also include cheatgrass]) **Agriculture** is broken down into four classes including **fallow** (land has not been used for at least a few years and is over-run by grass, weeds, and shrubs), **dirt** (ground has been tilled to bare dirt or very short stubble, not high enough to provide shelter for mice or voles), **stubble** (last year’s growth is still present and is at least a few inches tall – enough to provide some shelter and refuge for mice and voles), and **green** (new growth for this year). Pasture is considered agriculture and should be put into nearest agriculture category. **Marsh/riparian** indicates the presence of water, riparian vegetation, reeds, or cattails.

Examples:



Tall Shrub (Photo: Jimmie Yorgensen)



Low Shrub (Photo: Von Welch)



Cheatgrass Monoculture
(Photo: nature80020, Creative Commons License)



Complex Grassland (Photo: BLM)



Agriculture – Green (foreground, Photo: Elizabeth Burtner)



Agriculture – Dirt (Photo: Elizabeth Burtner)



Agriculture – Fallow (Photo: Rob Miller)



Agriculture – Stubble (Photo: Rob Miller)



Marshland (Photo: Don and Sheri Weber)

Grazing and livestock – Does the habitat around the point look grazed (very short grass, trimmed shrubs, cow-pies etc.) and how much of the landscape appears grazed? If you are unsure, put zero. If animals are present, how much of the landscape do they have access to? Also, count the number of livestock within $\frac{1}{4}$ mile (it is ok to estimate if there are large numbers).

Other Observations – At the conclusion of each 5-minute point count, record the number of Long-eared Owls, Northern Harriers, Ferruginous Hawks, Burrowing Owls, Swainson’s Hawks, or Long-billed Curlews seen or heard during the 5-minute point count. Please record the number observed, or zero if none were observed. Only these species should be entered into the data entry portal. If you wish to report other species, you are free to enter them into eBird.

Data Submission:

We ask that you submit all data into the online data portal. This can be done after each visit of the survey (preferred) or after you complete both visits (two data submissions). Also, please let your state coordinator know when you have completed a survey and when you have entered data.

Please submit your data via the online project portal no later than **May 31st**.

THANK YOU, THANK YOU, THANK YOU for contributing to this project!