

2024 Streaked Horned Lark Working Group

UPDATES & MEETING MINUTES – DAY 1

Date:	8 October 2024
Location:	USFWS Columbia Fish and Wildlife Conservation Office
Notetaker:	Anita Michalak, Ecostudies Institute

Text in boxes was provided as a written update.

ATTENDEES

Avifauna Northwest: Bob Altman
City of Portland: Jade Ashcroft
David Evans and Associates: Valerie Thompson
Ecological Land Services (ELS): Michele McGraw
Ecostudies Institute (ESI): Anita Michalak, Elspeth Kim, Stephanie Augustine, Gary Slater
Federal Aviation Administration (FAA): Ilon Logan
JBLM Fish and Wildlife: Tim Leque
Oregon Department of Fish and Wildlife (ODFW): Martin Nugent
Portland Air National Guard: Aimee Sides
Port of Portland: Sarah Wilson
Washington Department of Fish and Wildlife (WDFW): Christa LeGrande
US Army Corp of Engineers (USACE): Curt Mykut, Audrey Murray
US Fish and Wildlife Service (USFWS): Kris Sclafani, Kim Flotlin, Anne Heron, Zach Radmer

REGULATORY & RANGEWIDE UPDATES

Personnel Updates – Kim Flotlin (USFWS)

USFWS Lacey, WA (USFWS - WA-ES)

New office address: 1009 College St. SE, Suite 215, Lacey, WA 98503

Personnel changes: The WA-ES office streaked horned lark co-leads include Kim Flotlin, Zach Radmer, and Anne Heron. Kim is retiring next May, so this will be her last SHLA Working Group Meeting!

Message from Kim: It's been a real pleasure working with you all through the years. Throughout my decades-long career with USFWS, this has been my favorite recurring group meeting, and it's because of the people in this group. Thank you for being such excellent colleagues throughout the years – I will sincerely miss meeting with you all!

Listing, Litigation & Recovery Status Update – Kris Sclafani (USFWS)

- Date is set for litigation
- New biological opinion coming out soon but shouldn't affect SHLA
- Currently finalizing draft of recovery plan with formalized definitions (e.g. core vs matrix habitats)

WA Field Office Updates – Kim Flotlin and Zach Radmer (USFWS)

JBLM/USFWS Conservation Policy Initiative Pilot Project – has created a product we now call the “Mission Sustainment Program” programmatic biological opinion

In 2020, JBLM was chosen to be a Pilot Project for implementing the Conservation Policy Initiative (CPI) (a sub-project of the DOD – DOI Recovery and Sustainment Partnership). The CPI is intended to explore new regulatory approaches that simultaneously incentivize species recovery and increase training flexibility through the establishment of ‘defined conservation commitment.’ This Pilot Project would be solidified through a new programmatic biological opinion (and revised INRMP) that would replace the 2017 programmatic biological opinion. The Pilot Project and the Conservation Crediting Program are designed to be complementary. Long story short, JBLM will receive regulatory certainty and flexibility in exchange for an improved status of larks both on and off the installation. The revised INRMP and programmatic biological opinion are complete but not yet signed; pending approval from Army Installation Management Command (INRMP and PBO) and then WDFW (for the INRMP). The SHLA defined conservation commitment for JBLM is 500 larks. For more information, contact Zach Radmer at Zachary.Radmer@fws.gov.

- The ACUB program (aka REPI) was asleep for some time but is now back with cooperative agreement partners (including ESI)
- The goal is to have 500 larks on- and off-base through the current program (could be a mix and match to maximize training flexibility)
 - The current # of larks is around 200-250 individuals
- Reaching goals results in certain levels of training relief (incremental relief), meaning that if you reach a certain # of larks, you are “rewarded” with reduced restrictions.

Bush Prairie (Port of Olympia and City of Tumwater) Habitat Conservation Plan Development

Bush Prairie Habitat Conservation Plan (HCP) – The Port of Olympia (including the Olympia Airport) and the City of Tumwater are developing an HCP with the USFWS WA-ES office that will include expansion of infrastructure (hangers, buildings, businesses) at the Olympia Airport. The Olympia Airport has the largest population of larks outside of Joint Base Lewis-McChord in Washington. The USFWS and the HCP applicants are developing a multi-phase lark conservation strategy (coordinated with the Federal Aviation Administration) that will be incorporated in the HCP. In the first phase of the lark strategy, the applicants would commit to maintaining the current number of lark pairs on Olympia Airport through on-site habitat improvements ahead of a limited amount of airport development. For a longer-term phase allowing for additional airport development, a permanent off-site mitigation site would be established; the location of that site is to be determined. Final HCP completion schedule and National Environmental Policy Act (NEPA) process are still to be determined. For more information, contact Rebecca Currin at Rebecca.Currin@fws.gov.

WDFW Updates – Christa LeGrande (WDFW)

- [Lark Abundance and Trend report 2024](#) – WDFW completed analysis of lark abundance data collected from 2010-2023 for the Puget Sound region and Coast/River regions. The Puget Sound region female lark population is continuing to decline while the male lark population is slightly increasing. On the Washington coast/Columbia River, the female population appears stable while the male population is slightly declining.

Puget Region Estimated Abundance
 Females: 126 (99-172 95% CRI)
 Males: 241 (217-271 95% CRI)

River/Coast Region Estimated Abundance
 Females: 97 (78-124 95% CRI)
 Males: 152 (138-169 95% CRI)

The next abundance and trend report will be following the 2026 rangewide survey effort.

- SHLA surveys 2024 – WDFW conducted lark abundance surveys at known occupied commercial airports in the Puget Sound, including Olympia Airport, Sanderson Field, and Tacoma Narrows.
- SHLA surveys 2025 – WDFW will be moving toward surveying the known occupied commercial airports in the South Sound annually given the declining trend at each site. Three new WDFW region biologists help make this effort possible. In addition, WDFW will be surveying at Damon Point due to enhanced suitability for larks and Bremerton Airport in anticipation of proposed development.

- The *BMPs for mitigating impacts to streaked horned lark on occupied airfields: Management recommendations for airfield managers*, drafted by the Larks and Airports Working Group, is close to being finalized. Anticipated finalization by end of year 2024.
- Students at UW conducted a literature review of dissuasion techniques that could pertain to airports and larks.
- The Streaked Horned Lark Periodic Status Review is being reviewed internally and will be sent to partners for review in late 2024. WDFW anticipates the document being finalized and presented to the Fish and Wildlife Commission in spring 2025.
- Department of Natural Resources Damon Point – Overwash onto the isthmus and “airport” portions of Damon Point in winter 2023/2024 created multiple areas of suitable lark breeding habitat. DNR will be removing broom and shore pine in the “airport” area to further enhance suitability. Adjacent Oyhut Wildlife Area remains unsuitable for larks.
- WDFW has typically surveyed airports every three years, but trends have been concerning and there have been asks to conduct surveys annually for all three airports; the plan in 2025 is to go back to those airports and a few added sites.
- Working on finalizing the BMPs document formalized at the larks and airports WG meeting; currently under edits but will be finalized and shared soon.
- Also working on lark periodic status review – hoping to have it out for public review at the end of 2024 and sent to the Fish and Wildlife Commission by end of 2025.
- UW students have reached out to help in some capacity; helped evaluate dissuasion techniques at airports and put together a summary.

FAA/Airport Updates – Ilon Logan (FAA)

FAA-funded SHLA surveys at Oregon Airports

In 2023, there NO airports in Oregon that had streaked horned lark surveys. In contrast, in 2024 there were four airports surveyed (Eugene, Scappoose, Cottage Grove, and Lebanon).

FAA is planning for whole airport surveys at McMinnville Airport and Corvallis Airport. Year TBD.

FAA/USFWS Programmatic Biological Opinion Implementation

FAA/USFWS are in the fifth year of implementation of the SHLA Programmatic Biological Opinion for Routine Oregon Airport Projects (PBO) (USFWS Ref. 01EOW00-2021-F-0129) dated December 18, 2020. Airports that have used the programmatic consultation include Eugene, Corvallis and Lebanon airports. In 2024, just one project was authorized under the programmatic, which was the construction of a perimeter fence at McMinnville Airport. For more information, contact Ilon Logan at Ilon.Logan@faa.gov or Kris Sclafani at kristine_sclafani@fws.gov.

- Larks and airports WG meeting is typically held annually (next one in January 2025)
 - The plan to go over BMPs, dissuasion study, usual presentations on FAA staffing, surveys, etc.
 - Will also talk about implementation of Programmatic Biological Opinion
 - Not a lot of action this past year
- Hoping to fund some more airport surveys at McMinnville and Corvallis
- Something to think about for future years doing full airport surveys: make an effort to get the whole airport surveyed in one day (need to recruit large crew)
- How do you decide which airports to survey and when?
 - Programmatic covers surveys with specific recommendations for each of the airports
- Is it possible for other groups (e.g., ODFW) to help out with those surveys?
- Need surveys in OR and on the coast (underrepresented areas)

Thurston County Updates – Marisa Whisman (Thurston County CPED)

Thurston County has not specifically done any SHLA work. The SHLA is no longer covered under our HCP but the Oregon vesper sparrow is, and we hope that due to the habitat need overlap of these two species, mitigation efforts on county conservation lands may benefit the lark if this species recovers to the extent it may use county HCP lands.

Additionally, if a conservation easement is established on the county-owned Glacial Heritage Preserve, county management is open to the discussion of SHLA reintroduction. Please see our action items below:

- We're nearing the finish line for the completion of contracts for four entities which will manage our HCP prairie and OSF conservation sites. We meet with the Board requesting contract approval on 10/1. Additionally, there is active site management planned on two of our conservation sites in the Yelm pocket gopher south service area and in an Oregon spotted conservation site in lieu of the completion of these longer-term contracts.
- We are actively looking for conservation lands, particularly in the Olympia pocket gopher, Yelm pocket gopher north, and Yelm pocket gopher east service areas on an ongoing basis, to develop new reserves and working lands easements; these service areas pose the greatest challenge in terms of size, availability, covered species occupancy, and cost.
- We are also trying to come up with creative ways to develop Working Lands Easements (see attached comments in the Project Tracking spreadsheet), and also to utilize properties already under county ownership (i.e., establishment of conservation easements on Glacial Heritage Preserve, and in some county-owned YPG E lands bordering county parks/trails). Thurston County Public Works has wanted to establish a more formal, long-term management plan for the work CNLM and others do on Glacial Heritage, and a process for establishing a conservation easement on this site is in the works.

Additional Discussion/Updates

- ODFW has been going through restructuring with a new director
 - SHLA is not a listed species in OR but still sensitive/priority
 - Have been involved with some property acquisition (Willamette Mitigation Fund) around the Firm Ridge Wildlife Area
 - There is a need for dedicated lands for larks in the valley (ideally adding to lands around refuges)
 - State is doing a big study on Mud Creek Solar Plant
 - Proposal for private company to put a massive solar farm on south end of the valley

POPULATION STATUS/RESEARCH UPDATES

Survey Table Overview

- Bob will include numbers for Christmas tree farms; will be surveying next year for Willamette.
- Next round of surveys for most Columbia River sites will be 2026.
 - Dredging program was not having significant effects on lark abundance
 - With new biological opinion, this was the first year of scaling back the intensity of the monitoring that has been there for the last 10 years
 - Same level and schedule as WDFW surveys hopefully in the future
 - Idea is to survey places where placement is being done that year (alternating surveys)
 - Scaled back version of the monitoring
 - Part of the biological opinion is hinging on the use of the pop model
- Consider having a line in the table for max birds per survey site visited this year
 - Could be at a place where we remove the total?
- WDFW did not survey any locations on the coast
 - Oyhut is definitely not suitable habitat anytime soon
 - All counts represent the day with the max # of males identified during a survey

Table 1. Maximum counts of male streaked horned larks from annual surveys following standardized protocols as described in Pearson et al. 2016. Please note that these numbers are uncorrected for detectability and transect length; (NS = no survey). Population estimates (and error values) are generated using N-mixture models (Keren and Pearson 2016*).

	Site	2018	2019	2020	2021	2022	2023	2024	+/-	Notes
Washington	South Puget Sound									
	13 th Division	15	16	20	26	25	16	9		
	Gray Army	28	12	15	22	22	29	13		
	McChord	21	21	30	31	24	17	24		
	91 st Range 76	18	17	27	NS	19	33	22		
	Range 50	1	2	2	NS	1	1	NS		
	Range 53	1	2	NS	NS	NS	NS	NS		
	Olympia Airport	21	27	31	NS	NS	18	18		
	Shelton Airport	6	6	3	NS	NS	6	3		
	Tacoma Narrows	3	NS	2	NS	NS	2	1		
	Washington Coast									
	Damon Point	0	NS	0	NS	NS	0	NS		
	Graveyard Spit	NS	NS	NS	NS	NS	NS	NS		
	Johns River Island	NS	NS	NS	NS	NS	NS	NS		
	Leadbetter Point	5	7	6	2/6	17	23	20		
	Midway Beach	6	NS	2	NS	NS	9	NS		
	Oyhut Spit	0	NS	NS	NS	NS	0	NS		
Washington & Oregon	Columbia River									
	Austin Point	0	1	0	0	0	0	NS		
	Brown Island	15	13	19	35	19	11	NS		
	Crims Island	4	3	6	9	4	4	NS		
	Howard Island	7	5	8	7	3	8	NS		
	Hump Island	0	1	1	0	0	0	NS		
	Lower Deer	3	4	5	6	2	1	NS		
	Martin Bar	2	1	3	7	3	3	NS		
	Miller Sands Island	10	9	10	11	3	3	NS		
	Pillar Rock Island	2	3	3	5	3	2	NS		
	Rice Island	17	31	31	62	44	34	NS		
	Sand Island	1	2	5	6	4	3	NS		
	Sandy Island	5	4	6	5	0	1	2		
	Tenasillahe	1	3	2	3	1	1	NS		
	Welch Island	1	3	0	0	0	0	NS		
	<i>Other Sites: Larks were also detected at James River in 2020 (pair) and 2021 (single male) on the lower Columbia River following occupancy protocol.</i>									

*Keren, I.N. and Pearson, S. F. 2016. Research Progress Report: Streaked Horned Lark Abundance and Trends for the Puget Lowlands and the Lower Columbia River/Washington Coast, 2010-2015: Washington Department of Fish and Wildlife, Wildlife Science Division, Olympia, Washington. 25 pp

Table 2. Estimated pairs of streaked horned larks based on annual surveys following various protocols in Oregon.*(NS = no survey). Please note that these numbers are uncorrected for detectability and effort.*

Site	2018	2019	2020	2021	2022	2023	2024	+/-	Notes
NW Oregon									
SW Quad PDX	1	0	0	0	0	0	0		
PDX Airfield	3	2-3	3	0	0	0	0		
Rivergate	1	0	0	0	0	NS	0		
St. Johns (Metro)	1+/-	0	NS	0	0	0	NS		
Fort Stevens	0	1	NS	NS	NS	NS	NS		
Sauvie Island	0	0	0	NS	NS	NS	NS		
WV Airports									
Corvallis	60+	83+	26+	NS	NS	NS	NS		
Cottage Grove	0	NS	NS	NS	NS	0	NS		
Eugene	NS	NS	NS	NS	2	39	NS		
Independence State	0	16	NS	NS	NS	NS	NS		
Lebanon State	0	NS	2	NS	NS	0	NS		
McMinnville	8	NS	NS	0	NS	NS	NS		
Salem	0	NS	NS	0	NS	NS	NS		
Scappoose	NS	NS	NS	NS	NS	0	NS		
Other									
Ankeny	6	6	4	3	NS	1	0		
Baskett	37	35	41	33	NS	24	32		
Finley	10	11	3	7	NS	0	1		
Private Lands - WRPs	8	7	10	10	NS	9	12		
Herbert Farm	0	3-3	5-4	5-4	3-2	2-2	NS		
Coyote Creek South*	4-5	5-5	4-4	1	1	0	0		
Coyote Creek Northeast*	NS	NS	NS	0	3-4	5-7	NS		
Erion Wetlands	NS	2-3	6-5	7-14	17-15	15-9	NS		

*Note: The two numbers represent the high counts of males during the first nesting season (May – mid-June) and the second nesting season (late June – July). These are presented separately to highlight the changes that often occur due to within-season changes in habitat and populations from plant succession and/or nesting disruption due to field operations

WDFW WA State Analysis & Olympia Airport Status – Christa LeGrande (WDFW)

- Slides and links to reports can be found on CPOP
- Two separate models for two separate regions
 - Larks are less likely to move between regions but will move between sites within regions
 - Wind is a big factor especially on the coast
- For every location in every year, you get an estimate along with credible intervals

Willamette Valley Survey Protocol Update – Stephanie Augustine (ESI)

The goal of this multi-phased project is to develop a road-based survey protocol for determining distribution, population size and trends of streaked horned larks using private lands in the Willamette Valley. In this region, land ownership and ephemeral habitat suitability precludes the use of existing standardized line transect survey methods successfully used elsewhere in the lark's geographic range. This pilot study will help address uncertainty surrounding the execution of critical elements of a monitoring effort at a smaller-scale prior to full implementation throughout the Willamette Valley. To develop a protocol for monitoring the breeding population of streaked horned larks in the Willamette Valley, we implemented several steps in the design and collection of pilot data. We modified an existing lark habitat suitability model (Hatten et al. 2019) using a multi-year compilation of normalized difference vegetation index values across the landscape to generate spatially balanced survey points distributed within three USFWS-designated streaked horned lark recovery zones. In 2022, we conducted 8-min point count surveys at 214 points between 1 and 30 June, detecting 55 streaked horned larks at 28 points (13% of sites). In 2023, we surveyed 360

points between 3 May and 15 June, and detected 42 larks at 31 points (8.6% of sites). In 2024, we surveyed 31 roadside points and 29 off-road sites at known lark breeding locations (Coyote Creek, Erion Wetlands, Baskett Slough, and Corvallis Airport). Surveys were 30min long, detections recorded in each minute, with a playback component at minute 24 and 27; all offroad points and most roadside points were surveyed twice. Results and implications for future survey work will be discussed at the meeting. This project is assisted by a technical advisory group including: Bob Altman, Sarah Converse (USGS/Univ. of WA), Beth Gardner (Univ. of WA), Scott Pearson (WDFW), and Randy Moore (OSU). For a copy of the first year's annual report contact Stephanie Augustine at (saugustine@ecoinst.org).

From Q&A:

- Roadside survey protocol based largely on NDVI
 - Could not get precise updates on abundance since the detection rate was so low
- What proportion of the WV population is on dynamic agriculture lands—TBD question
- Would be nice to see a map of suitable habitat with overlay of federal lands or places with easier access
- How well were the audiomoths working at detection?
 - Data to be reviewed
 - Wasn't detecting them as well as we wanted to, but didn't expect a whole lot
 - ESI AmeriCorps spent a lot of time evaluating how well AI tools perform at IDing lark song
- Equally as important as agricultural landscape is that wherever there are roads there is potential for larks (e.g., Christmas tree farms)

JBLM Breeding Monitoring Update – Stephanie Augustine (ESI)

In 2024, Ecostudies assisted Joint Base Lewis-McChord with efforts to minimize human impacts to larks from airfield management and training and to collect demographic monitoring data to investigate limiting factors. This year was the 12th year of intensive nest monitoring at two sites (24 pairs at Gray Army Airfield, 26 pairs at McChord Airfield), and the 14th year at one site (30 pairs at 13th Division Prairie). Nests were also monitored at Range 76, largely by JBLM personnel (20 pairs). Of the estimated 100 nest-monitored pairs, we located and documented the fate of 148 nests. Of the 119 nests, we determined that 102 nests successfully fledged at least one nestling. We banded 169 young, and we collected feather samples for genetic determination of sex, which will allow us to understand sex-specific first-year survival.

In the early breeding season, we recaptured 6 adult larks with their GPS tags that had been deployed in 2023, out of 7 that were resighted (of 19 deployed). Multiple attempts were made to catch the 7th bird, a female, during the pre-breeding season at Range 76, but were unsuccessful and she was not resighted after April. All retrieved tags were functional and recorded departure from and return to the South Puget Sound. At the end of the breeding season, we deployed 26 more GPS tags; 19 tags on adult larks and 7 on independent juveniles. All birds flew off normally upon release. The tags are archival and programmed to record locations every 2-6 days throughout the nonbreeding season. Tags retrieved in spring 2025 will continue to elucidate lark use patterns of off-base South Puget Sound prairie sites during migration.

From Q&A:

- The time interval for readings during the winter is every 6 days from Nov to the end of Jan
 - All of tags made it back, no batteries died
- Is it possible to share specific data for stopovers with folks?
- Takeaway: fewer birds stopped in/around the South Sound than was expected
- The mine is a great site that DFW is looking into acquiring the entirety of as a wildlife area
 - Resubmitted the permit this past year; the plan right now is DFW acquires it in phases
 - JBLM would also have interest in acquiring that site; lots of room for crediting and restoration

Demographic Monitoring and Nonbreeding Season Movement of Larks on WA Coast – Stephanie Augustine (ESI)

Ecostudies Institute, with funding from WDFW's Wildlife Diversity Grant program, initiated a project to fill existing information gaps on lark distribution, demographics, and habitat use on the Washington coast. Specific objectives

include 1) deploying archival GPS tags to understand nonbreeding season movement and habitat use and assess potential threats during the nonbreeding season and 2) initiate demographic monitoring of streaked horned larks to evaluate factors influencing vital rates. In August and September, we deployed eight archival GPS tags on larks captured at Midway Wildlife Management area. Demographic monitoring will begin in spring 2025, during which time we will retrieve GPS tags from returning individuals.

- WA coast new project
 - Attempting to deploy tags at Midway, Leadbetter, and Griffith's Priddy (no detected birds here)
 - Unsuccessful captures at Leadbetter
 - Midway had several sites and both will be re-surveyed next spring

Developing a Reintroduction Program for Streaked Horned Larks – Gary Slater (ESI)

Establishing new local populations of streaked horned larks (SHLAs) is a critical strategy to meet recovery goals listed in the Draft SHLA recovery plan. Funded by US Fish and Wildlife State of the Birds in 2021, this 2-year project is working to develop a framework to guide reintroductions of Streaked Horned Larks. Our specific goals are to: 1) identify and evaluate core sites and matrix lands that could support reintroductions, 2) trial and compare the effectiveness of soft-release techniques on a surrogate horned lark subspecies, and 3) create an implementation strategy for a comprehensive reintroduction program. The project is a collaboration among Ecostudies Institute, USGS, the WA Cooperative Fish and Wildlife Research Unit at the Univ. of WA, and WDFW.

We completed our second year of field trials in 2023. Fieldwork was conducted at the Wild Horse Wind and Solar Facility and the L.T. Murray Whiskey Dick Wildlife Area. Overall, a total of 18 larks were translocated over six trial periods from April–August in 2022 and 2023, including one pre-breeding adult, one breeding pair with two nestlings, and 13 independent juveniles. Each trial ran for 7-14 days (mean=10.8). No translocated individuals exhibited signs of excessive stress regarding appearance or activity levels during the trial and all individuals were released in good physical condition.

As part of the decision-analytic process, we held working group meetings with decision makers, stakeholders, and relevant scientific experts to frame the decision problem, articulate management objectives, and generate alternative management strategies. These initial discussions led us to focus on the South Puget Sound Region. Following the initial working group meetings, we identified subject matter experts and conducted visits to potential release sites in South Puget Sound, then elicited expert judgements on expected survival and fecundity at each potential release site. A second elicitation process elicited expert judgements about demographic effects of various release strategies and the expected impact on demographic parameters. Using the elicited information in combination with the South Sound IPM results (Bratt et al.), we built a predictive model to assess alternative release strategies at potential reintroduction sites. Releasing adult SHLA breeding pairs with dependent young at Glacial Heritage for 11 years, where 7 pairs and young are released in a year, resulted in the highest population abundance and lowest probability of persistence. Existing breeding sites were minimally impacted by serving as a source for reintroductions. A draft implementation plan has been developed and will be further fleshed out in the coming months.

Ecotudies Institute has received funding from Department of Defense's Readiness and Environmental Protection Initiative (REPI) to begin permitting and compliance requirements to establish off-base populations of ESA-listed Streaked horned lark. This project, which will be in conjunction with federal and state partners and a local consulting firm (Alta Science and Engineering) will work through federal and state permitting requirements as part of the ESA, NEPA, and SEPA, with a goal of developing a programmatic conservation benefit agreement. Landowner outreach and communication will also be an important part of this process and is anticipated to include meeting with landowners, facilitating discussions, developing assurances, and "translating" between regulatory/ scientific/non-technical communication to ensure all parties are engaged and understood. The actions in this activity will provide regulatory certainty and community support for SHL translocation. Completion of the project could provide a pathway for establishing a nascent off-base SHL population and contributing to long-term recovery. Establishment of new populations would also serve as a critical step in reducing regulatory restrictions and increasing training flexibility at JBLM.

From Q&A:

- Multi-year project supported by USFWS State of the Birds, etc.
- Is Abby willing to make the model open source?
- Have completed draft implementation plan; waiting on USGS steps
 - Abby is working on the manuscript and once it's finalized it will be freely available/accessible

Leadbetter Point: 2024 Streaked Horned Lark Breeding Survey and Habitat Stewardship – USFWS

Abundance Surveys

Streaked horned lark adult breeding surveys were conducted once monthly in May, June, and July in the traditional survey area on Willapa National Wildlife Refuge (Willapa NWR) at Leadbetter Point. The maximum total count of males detected during standardized streaked horned lark abundance surveys equaled 20. A mean of 16.3 streaked horned larks were detected per survey with an average of 12 male larks observed per survey. This year's survey transect length extended 13,430 meters (8.3 miles) encompassing most of the suitable federally designated critical habitat at Willapa NWR. Additional unsurveyed, potentially suitable habitat at Leadbetter Point is located outside the streaked horned lark survey area.

Data collection for spatial analysis of lark occurrence continued in 2024. This effort combines lark detection data, nest locations, and observed lark tracks to spatially identify occupied breeding territories. This year two lark nests were discovered, and over 70 lark track locations were added to the hundreds of track locations recorded over the past several years. At least one nest was known to have hatched and none showed apparent signs of predation. Juvenile YOY birds were observed at several locations during subsequent surveys.

Nonbreeding Season

Streaked horned larks and their tracks are consistently observed at Leadbetter Point during the non-breeding season. Larks can be seen foraging year-round along the high tide wrack line on the ocean beaches and in the habitat restoration area. Ecostudies Institute began a project this year to investigate streaked horned larks on the Washington coast using archival GPS tags to track nonbreeding season movements and habitat use. Three days in September were spent unsuccessfully attempting to trap larks at Leadbetter Point. However, eight larks were captured and affixed with GPS tags at Midway/Grayland Beach.

Predator Management

Predator management was implemented at Leadbetter Point from 2013-2021. Two species of corvids have been identified as potential predators in and adjacent to lark nesting areas. There were fewer corvids, especially crows, encountered during most surveys in 2024. No active predator management, hazing, or lethal removal was conducted this year.

Habitat Restoration

Twenty-one acres of beach on Willapa NWR at Leadbetter Point were cleared of *Ammophila* beachgrass using a bulldozer and disk prior to the start of the breeding season. An additional 266-acres on refuge and state park lands that had previously been cleared and treated with herbicide was disked to reduce the density of resprouting beachgrass.

Data Collection and Management

An ESRI Field Maps application is being used on mobile devices to collect survey data, including lark detections, lark tracks, and nest attributes. Field Maps is also used to track habitat management actions. A presentation on lark data collection and spatial analysis at Leadbetter Point appeared on the USFWS Pacific Region 1 Science of the Service webinar series.

Additional Updates

USFWS biologists, plover species leads, and the Coastal Program Coordinator are working with the Coastal Interpretive Center in Ocean Shores to conduct outreach activities for western snowy plover and streaked horned lark. Recovery Implementation Funds were awarded to an existing habitat enhancement project at Leadbetter Point (Willapa National Wildlife Refuge) that was previously funded by the Coastal Program to

continue habitat restoration of dunes by removing invasive beach grass and non-native vegetation to enhance dune restoration for larks and plovers. These funds will lead to work that will occur in 2025.

RESTORATION & ACQUISITION UPDATES

WILLAMETTE VALLEY

Southern Willamette Valley Updates – Bob Altman

Lark surveys were conducted at seven sites in the southern Willamette Valley in 2024, three prairie and wetland restoration sites and four Christmas tree farms. The former were sites with ongoing lark monitoring and the latter were the initial surveys at these sites.

Surveys were conducted according to protocols described in Pearson et al. (2016), the first time to our knowledge that this protocol has been used in the Willamette Valley. The effort included 3-4 visits relatively evenly spaced during the height of the early lark breeding season (May-June). Various length and number of transects were surveyed at each site depending on site size and configuration.

There were 50 transects surveyed in 2024 totaling 38,138 meters (23.70 miles). There were four surveys at four sites totaling 21,449 meters (13.33 miles), and three surveys at three sites totaling 16,689 meters (10.37 miles).

Larks were detected on four of the seven properties. High counts of males at the three prairie and wetland restoration sites were 9 at Erion's Wetlands, 4 at Coyote Creek Northeast, and 1 at Diamond Hill Wetlands. There were no larks at three of the four Christmas tree farms, but the high count of males at the other one was 48 males. All four of the Christmas tree farms had recent populations of larks prior to this year.

- The biggest update is USFWS expansion to securing conservation status for large amount of acres
- Important to focus on acquiring new properties that can be dedicated to larks
- IAE received a new grant to conduct lark-specific targeting of habitat improvements at Herbert Farm starting this or next year
 - Prairie restoration maturing unfortunately creates habitat that isn't suitable for larks
 - This grant is for creating patches that keep habitat for larks
 - Will have to be redone in the spring to maintain

Additional Updates

The Willamette Valley Partners sites including WRP's had very little survey effort in 2024. We found 12 pairs total on 4 different sites in Linn and Lane County.

COLUMBIA RIVER & COAST

PDX Streaked Horned Lark Survey Results & Observation Summary – Port of Portland

Southwest Quadrant (SW Quad)

During the winter of January 2024 there were 6 confirmed SHLA's foraging on the property adjacent to SW Quad. There were 2 females and 4 males confirmed in a flock of Horned larks. This was a one-time observation, and likely a wintering flock moving through locally. There were no documented encounters during the annual occupancy and abundance surveys during the winter or the breeding season this year. The surveys were conducted on Feb 27th, May 14th, May 30th and June 24th.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<i>Breeding Pairs</i>	1	2	3	2-3	1	1	1	1	0	0	0	0	0	0
<i>Identified males</i>	N/A	17	26	25	17	14	6	1	1	0	0	1	0	0
<i>Identified females</i>	N/A	4	10	2	2	0	0	0	0	0	0	0	0	0
<i># of YOY observed</i>	3	2	0	8	1	2	0	0	0	0	0	0	0	0

SW Quad Activity Comparison from 2011 – 2024

For the past 10 years there has been a steady decline in confirmed overall detections of SHLAs. This decline has been emphasized these past five years with no confirmed detections within SW Quad during the breeding season.

PDX Airfield Activity

In January 2024 there were multiple observations of SHLA's on the airfield. All the observations were on the north side of the airfield and consisted of both Horned larks and SHLA's. The primary location of most encounters was near the 10L glideslope, which is half a mile from Broughton Beach along the Columbia River. The confirmed SHLA's were mostly adult males, with one confirmed adult female. Horned lark observations peaked in late January, with a main flock consisting of 200 individuals. No SHLA were observed during the breeding season. The confirmed SHLA's within this flock is represented in Table 2.

	2016	2017	2018	2019	2020	2021	2022	2023	2024
<i>Breeding Pairs</i>	2	3-4	3	2-3	3-4	0	0	0	0
<i># of males observed</i>	15	7	4	11-12	6-7	2	0	0	13
<i># females observed</i>	6	4	3	8	4	1	0	0	1
<i># of YOY observed</i>	4	4	3	1	2	0	0	0	0

PDX SHLA Nests & Band Observations

The last confirmed nest on the airfield was during the breeding season of 2020, near Taxiway B2. One of those young-of-year (YOY) fledglings was observed again later in the Fall of 2020, with an adult female and 2 adult males. The last observed SHLA with bands occurred in 2021 near Taxiway W. It was foraging with a small flock of unbanded SHLA's that consisted of 3 adult females and 1 adult male.

Rivergate

The Port anticipated a gradual decline in SHLA nesting pairs as suitable habitat is lost to development, with an estimated 3 nesting pairs in 2018 and zero nesting pairs thereafter. During the 2024 Surveys breeding season, surveys at Rivergate were conducted on May 22nd, June 5th, and July 10th. No SHLA were observed. A winter survey will be conducted in December. Surveys are not required again until 2027 (per USFWS).

Sandy Island

During the 2024 breeding season, a total of 3 surveys were conducted by the Port on May 15th, June 12th, and July 3rd. Three SHLA were encountered during the first survey in May, one female and two males. During the two subsequent surveys, a single male was observed each time performing flight displays. Wildlife activity observed during these surveys included European starling, American crow, American goldfinch, American robin, common raven, Savannah sparrow, white-crowned sparrow, bald eagle, osprey, and tree swallow.

A thick layer of moss was scraped from the southern part of the site in November 2022. The scraped area was sparsely seeded with a low-growing mix of native grasses and forbs in February 2024. Vegetation monitoring results from June 2024 still show 70% moss cover. Because of the low success in removing moss, we may seek an alternate method in the future to manage moss cover. The northern half of the site may require disturbance in 2026 to maintain a mosaic of vegetation in various stages of early succession.

Sandy Island Comparison from 2017 – 2024

It was projected in the HCP that the site can support up to five nesting pairs from Year 2 (2018) through Year 30 of the HCP implementation period. SHLA numbers dropped to zero in the 2022 breeding season. Stochastic events such as the heat wave of summer 2021 and the very wet spring of 2022 may have resulted in undue stress on nesting SHLAs. During the 2024 breeding season surveys, two males and one female were heard and observed on site including multiple flight displays. A male SHLA was found dead on site in February during the winter survey. The numbers below represent the greatest number in that category observed during any single survey during the breeding season.

	2017	2018	2019	2020	2021	2022	2023	2024
<i>Breeding Pairs</i>	4	5	4	6	5	0	1	1
<i># of males observed</i>	4	5	4	6	5	0	1	2
<i># females observed</i>	4	2	2	3	1	0	1	1
<i># of YOY observed</i>	0	0	2	1	0	0	0	0
<i># unknown</i>	0	2	2	1	3	0	0	0

From Q&A:

- Sandy Island surveys: 2 larks (adult males) found on one of the surveys; fewer than what was found in the past
 - 0 in the Rivergate area
- Any follow-up to moss removal?
 - Anecdotally, the two larks were found in the moss removal area
 - Would be interesting to look at habitat suitability pre- and post-moss removal
- No larks at the airport for a few years

Columbia River Surveys and Monitoring – USACE

The 2023 USACE monitoring report is available here:

<https://usace.contentdm.oclc.org/digital/collection/p16021coll3/id/1267/rec/4>

2024

USACE focused pre-work survey efforts at sites where dredge material placement was planned for 2024; which included Pillar Rock Island, Rice Island and James River. Pre-work surveys were timed to occur prior to placement activities (including equipment mobilization), with one survey occurring within a week before the beginning of work at each site. During the 2024 surveys 2-adult male SHLA were observed on Pillar Rock Island on 7/10, but no SHLA were observed/detected on a second survey conducted on 8/21. At Rice Island, SHLA surveys were limited to the placement zone at the west end of the Island, with no SHLA observed/detected during the 8/23 Rice survey and 1-adult male SHLA was observed flying through the survey area on the second 9/1 visit. One survey was conducted at the James River site on 9/20 and no SHLA were observed/detected.

USACE and USFWS also recently completed formal consultation on the new LCR dredge material management plan for effects to SHLA (see <https://www.nwp.usace.army.mil/lcrchannelmaintenance/> for more information and a link to the draft environmental impact statement). Under the new monitoring plan, abundance surveys for USACE islands will occur in sync with the 3-year WDFW efforts (with the next instance in 2026), while pre-work surveys will continue every year at the active placement sites to help the dredge construction crews avoid and minimize impacts and monitor for take.

USACE also anticipates ongoing coordination of our colonial bird dissuasion activities at USACE estuary sites with USFWS to help ensure we can meet our ESA obligations for NMFS species while continuing to minimize and avoid adverse impacts to SHLA. Colonial bird dissuasion continued to be a challenge in 2024 with lots of tern and ring billed gull activity on Rice Island. However, USACE field crews were able to minimize nesting success in the SHLA nesting habitat area, while implementing SHLA BMPs in coordination with USFWS staff.

From Q&A:

- Any updates for Rice Island?
 - Terns are still an issue but it was a pretty successful but intensive year for dissuasion
 - Coordinated extensively with migratory bird office
 - CORE was taking birds that were lethally removed as carcasses and putting them out on Rice Island
 - Idea was to put up crucifixes with distress calls as dissuasion
 - Overall, going to take a few years of pretty aggressive management to move the terns out and larks in

Coast Updates – Anne Heron (USFWS)

Funded additional dune restoration that will first be aerially sprayed with herbicide and then disced to remove invasive dune grass to make habitat for both larks and plovers.

SOUTH PUGET SOUND

Additional Updates

- No acquisition updates for Adrian
- WDFW Violet Prairie – DFW has officially acquired the phase 3 parcel in the SE corner
- JBLM grass conversion – Tim
 - Expanding grass conversion on both airfields on JBLM
 - Fescue conversion occurring in areas where knapweed has been removed
 - Broadscale conversion to fescue is one of the conservation measures in the new bio opinion
- Make the case to FAA that lark habitat is the safest habitat to have out there?
 - Need a sweet spot for grass height so that geese (short grass) or rodents/rabbits (taller grass) aren't attracted

2024 Streaked Horned Lark Working Group

MEETING MINUTES – DAY 2

Date: 9 October 2024

Location: USFWS OFWO

ATTENDEES

Avifauna Northwest: Bob Altman

ESI: Stephanie Augustine, Anita Michalak, Gary Slater, Elspeth Kim

ODFW: Martin Nugent

Oregon State University (OSU): Randy Moore

USFWS: Kris Sclafani, Kim Flotlin, Anne Heron, Zach Radmer

WDFW: Christa LeGrande, Adrian Frediani

ADDITIONAL UPDATES & DISCUSSION

Conservation Benefit Agreements – Kris Sclafani (USFWS)

- Conservation Benefit Agreements (CBAs) are the previously known safe harbor agreements all lumped together.
 - Process that can happen pre- or post-listing but with all the same details (needs to provide a net conservation benefit)
- CCAA permits are all still in place but everything new going forward will be called a CBA.
- Need to establish baseline conditions—e.g., for a property with no larks, a net conservation benefit would be having larks for any period of time
 - This same model is used for other species like fisher and island marble
- There is a difference between programmatic vs umbrella (state or county has permit; program administered)
 - There is typically no individual/case-by-case negotiation
- Would there be some sort of “town hall”/way for landowners to gather for outreach regarding CBAs to see how willing landowners would be to enter into agreements
 - Original plan would be that Ecostudies would be coordinating the outreach and Jeff Barna would be shepherding the process and making sure we’re meeting deadline/guidelines/etc.
 - Could be beneficial to have a discussion with Sarah Hamman and the Grazing Association to incorporate folks into supporting larks
 - Grazing falls under the category of “routine agriculture”
- REPI funding award was received by Ecostudies ~2 weeks ago
 - Step 1 is receiving the money
 - Step 2 is receiving the notice to proceed from the army
 - Includes 80 properties around Mima (might include both Mima and Glacial)
 - Mostly private properties, fewer businesses
- Focused on colonizers, but not necessarily focuses on stopover sites
 - How do we respond to people asking about incidental occurrence? Crafting the messaging is a critical piece
- Any WV CBAs in the works? (Unknown)
 - Lot of WV groups are focused on converted agricultural land to prairie
 - Agricultural group decisions based on land economics; having your neighbors land be conservation land over ag land is not a bad thing
 - In almost every ag community, there is a general unease/pushback about removing any land from ag

- Different landscape in the South Sound vs WV
- Something to keep on the radar is the Southwest WA Prairie-Oak Working Group and the new partners biologist that Nick George/USFWS partners program are looking into hiring
- Worth touching base with checkerspot folks to see how much intersection there is

Pesticide Research Next Steps/Updates

- No next steps from Ecostudies/WDFW end
 - Not much capacity to figure out next steps without funding
 - As we accumulate more GPS data, it'll be helpful to understand where birds are using habitats; would be an opportunity to look at land cover, understand potential actions on sites, etc.
- Could we get USFWS funding? Is REPI funding appropriate?
 - Eligible cost for JBLM, but no direct credit
 - Research projects likely to rank low for REPI funding
 - C-SWG could also be an option
 - When is the next round? What are the priorities?
 - Appropriate for wildlife diversity grant?
 - Yes, because can be linked to RIS/action plan and larks are a SGCN
 - Concern is that it impacts the South Sound but the project would primarily be based in the WV
 - Should still be eligible if we consider the life cycle of birds coming up to WA
 - Could be a multi-state proposal
- Another position filled at OSU for small mammal biologist/vole biologist dealing with grassland vole population declines
 - Goal is to investigate population cycles and vole management
 - Strong suggestion that rodenticides are problems for lark populations
- Generally, pesticide research is still a top priority
 - Need to have a call with ESI/WDFW/Randy to talk about next steps and scale and create a proposal that can be submitted to REPI folks for consideration

Rangewide Survey Proposal Development

- The goal is to conduct surveys during 2026; have a strategy in place for WA and Columbia River
 - Can be used for much of WV too
 - Key will be getting a list of sites/partners who can implement surveys and what resources they would need
 - David Evans Associates have a close relationship with all the state-based airports; could be a good opportunity to get an understanding of what airports there would need to be surveyed
- The answer to getting access to private lands we don't have access to are roadside surveys
 - To what degree is detectability/small sample size an issue?
- What do you need to get a population estimate?
 - Would need a few years of data to observe trends
 - The challenge is that we don't have a way of getting population estimates right now so detectability is low
 - 30 min counts are an option
- Can we use a habitat suitability model to ID sites on the coast and river and develop something separate for prairie-type habitats?
 - Currently using a habitat suitability model in the WV
- Moving from smaller term point counts to longer term point counts, need to filter points to ensure you're surveying habitat that actually has larks
 - Matt (Core GIS) is looking at habitat suitability changes over the course of the breeding season
 - Are there sites that were thrown out that become suitable habitat? Or vice versa
 - Model is currently the best thing we have, not a lot of other options outside of expert opinion
 - Actual conditions of suitability may not 1) be seen from the road immediately and 2) always be the case

- In other words, at one point in time conditions might not be there, but can't say the same for the next visit or season
 - Need to find some way to further filter the info coming from the habitat suitability model
 - One idea is to do a pre-visit before committing to surveys, or we can keep the same protocol and points and survey with more people (assuming available funding)
- In 2026, do we need to do 3-4 transects per season? Or maybe 1 visit per point count station?
 - Need to do 3 for Pearson protocol, but not for roadside
 - Likely cannot do fewer transects and spread effort without compromising anything
- Fern Ridge would be a key survey spot—likely with core lands and USFWS has access
- Protocol is meant to survey occupied sites, not really others that have unknown occupancy
- Need to get a list of sites and have people check if they're occupied during 2025 to prep for 2026 surveys
 - Still, occupancy can be a very fleeting thing (at least in the WV)
 - Also need to figure out which sites would use the Pearson protocol vs roadside protocol
- The concern with Christmas tree farms (where vesper surveys are currently being done) is that if you mention lark surveys, use might be restricted (especially if endangered species are mentioned)
- WDFW will be surveying some sites in 2025, including Damon Point
 - Bremerton Airport will be working on development, currently going through NEPA process
 - Will likely also result in airport surveys in 2025
 - Navy is doing work out on Pacific Beach, which will include both plover and lark surveys
 - Would we want to include these sites in the 2026 surveys, depending on whether or not birds are there? Or is presence of suitable habitat more important?
- Step 1: are there larks on habitat (yes/no); Step 2: how many (abundance survey in the following year)
- 2 current needs:
 - Make a plan so we understand what actions need to happen in 2025 to set us up for 2026, and ideally also set up a proposal for 2026 funding
 - Have 3 meetings in Jan: 3 weeks in a row for folks to ID site list, talk through everything with Scott present, and figure out what questions we need to answer in the short-term (budget, etc.) to prep a proposal
 - One person from each agency will work on writing that proposal
 - Prep some documents beforehand (obtain site lists from Gary, Bob, etc.)
- Estimated budget/need: roughly \$45k just for roadside surveys, so can expect a total of \$150-200k
- Will need someone to be the coordinating entity/point person to get the data and ensure it gets to the right person for analysis

ACTION PLAN REVIEW | SECTIONS IN GRAY NOT ACTIVELY DISCUSSED DURING MEETING

Recovery Action 1: Determine Population Status, Trend, and Current Distribution

1.1 Complete development of a rangewide population monitoring protocol.

- Private lands component of survey protocol is in progress
- Understanding habitat suitability across the range is important
- Continues to be at the top of the list of things needed to move recovery forward (in conjunction with 1.2)
- 1.1.1a is no longer needed but could be in the plan elsewhere in terms of using monitoring tools to develop a protocol

1.2 Monitor the rangewide population, tracking trends and distribution.

- Figure out personnel and data management process
- Might want to add a couple pieces but not necessary to change all the language
- Consider removing "rangewide" in "monitor the rangewide population"?
 - Idea is that 2026 onwards, monitoring will be consistent/following the same protocol (so no change necessary)
- The hope is to make progress in protocol development and implementation which will allow us to determine what needs to be done for monitoring; once 1.1 is done, action will be complete.
- Consider moving monitoring and wintering movements under recovery action 1 instead of 3?

- Aka, monitor both the breeding and the nonbreeding distribution (or be clearer about global distribution)
- Consider moving 3.1.3.1 to Recovery Action 1.2 (with updated language) and ranking it higher
 - Or leave it where it is but update the language to make it more clear?
 - Add another line under 1.2 about monitoring nonbreeding movement
 - Add subtask taken from 3.1.3.1 (take a, b, c)

Recovery Action 2: Conserve and Enhance Populations

- The definition of core and matrix habitat is still loose/up in the air, but the definition doesn't change the approach of identifying sites, landowners, partners.
- Consider adding a subtask somewhere that talking about acquiring appropriate permits/securing agreements to introduce larks
 - Compliance and permitting section is missing/lacking
- Other considerations: is this the section that reintroduction should be under? Or is it more fitting in another section? Currently under 3.2.1
 - Need to develop a formalized introduction plan before it's implemented
 - This could be more formal under 3.2.1, but ideally belongs under 2.1 as a South Puget Sound targeted action
 - Could add under 2.1.1.2, or as 2.1.3 (green heading; USFWS would have to add this)
 - Would be under core, not matrix headings
- Any language in white that says SHA should be updated to CBA
- Need to have a better separation between ranks of core and matrix tasks
 - Conducting habitat restoration at a core site should be higher than anything happening on a matrix site
 - What is currently matrix will not always be matrix (will be developed)
 - In the Recovery Plan, we're still identifying a dependence of birds on matrix lands
 - Are matrix sites serving an interim support role, but we acknowledge that they will ultimately go away?
 - If core sites are adequate enough, the thinking is you don't need to be concerned about matrix sites
 - Agricultural sites are included in matrix lands
- We have 2 rankings around habitat restoration
 - Conducting habitat restoration on core sites is meant to be ranked 6 on core sites and 10 on matrix sites
- Consider adding a third category for sites like airports and JBLM that will never be managed for larks
 - Corvallis Airport, however, can still be a core site without needing to be managed differently
 - Any WV airport can fit under this as well, but probably doesn't apply to SPS
 - What would be considered a core site in SPS?
 - Right now none, but Glacial Heritage and a couple WDFW and JBLM sites have been proposed
 - The whole concept of core and matrix doesn't work well for JBLM

2.1 Conserve larks in the South Puget Lowlands region.

- Included Sentinel Landscapes as an implementing party

2.2 Conserve larks in the Coast and River regions.

- Remove the heading of 2.2.1.1.1 (and other sections where it repeats)
 - Instead, create a 2.2.1.1.1.b: Incorporate potential core sites into NWR system for management (do for all sections)
- More tribal engagement is needed; consider adding under the communication component in Recovery Action 4?
 - Consider moving the WG meeting to better meet tribal partners who aren't able to travel as much

2.3 Conserve larks in the Willamette Valley region.

- 2.3.1.2.1.b – pretty obscure (look at old notes for better language or consider removing)

Recovery Action 3: Identify Limiting Factors and Develop Solutions

3.1 Conduct research on threats to population viability.

- Lots of tasks in progress so there isn't much capacity to add more
- Add line about understanding factors affecting reproductive success of coastal populations
- Consider removing line about trying to understand info on agricultural lands?
 - Refuges are a big deal, but ag lands not as much

3.2 Develop tools to protect and enhance populations, create new populations, and expand the distribution of the lark.

3.3 Develop tools to enhance habitat and lark survival and reproduction on matrix lands.

3.4 Develop a Programmatic Safe Harbor Agreements to promote lark habitat creation on private agricultural lands.

- Edit wording to say Conservation Benefit Agreement instead of SHA

3.5 Develop a mitigation strategy for offsetting the effects on non-federal development in occupied lark habitats.

3.6 Develop strategies to integrate lark conservation into landscapes managed for recovery of other rare and grassland species in the range of the lark.

Recovery Action 4: Promote Outreach and Cooperation with Stakeholders and Partner Agencies

Remove the word "stakeholders"

4.1 Facilitate coordination and information sharing.

- Don't need to continue funding a position—consider removing 4.1.1

4.2 Develop outreach and education materials.

- Need more education and outreach to land trusts, as well as more discussions about the priorities on different lands with landowners

Recovery Action 5: Develop and Implement a Post-Delisting Monitoring Plan