

# Streaked Horned Lark Working Group

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Annual Meeting | October 15, 2018 | Portland, Oregon

**In Attendance:** Bob Altman, *American Bird Conservancy (ABC)*; Joe Liebezeit, Bob Sallinger, *Audubon Society of Portland*; Gary Slater, Jermaine Treadwell, Adrian Wolf, *Center for Natural Lands Management (CNLM)*; David Helzer, *City of Portland's Bureau of Environmental Services (BES)*; Casey Storey, Valerie Thompson, *David Evans and Associates Inc.*; Michele McGraw, *Ecological Land Services*; Sean Callahan, *Federal Aviation Administration (FAA)* Elaine Stewart, Katy Weil, *Oregon Metro*; Susan Barnes, Ann Kreager, Anne Mary Myers, *Oregon Department of Fish and Wildlife (ODFW)*; Randy Moore, *Oregon State University (OSU)*; Niles Brinton, *Pacific Birds Habitat Joint Venture (PBHJV)*; Christie Galen, *Pacific Habitat Services*; Nick Atwell, Dana Green, *Port of Portland*; Kristine Lightner, *US Army Corps of Engineers (USACE)*; Les Bachelor, Chris Hamilton, *US Department of Agriculture (USDA)*; Cat Brown, Terry Frederick, Kim Flotlin, Martha Jensen, Amy Kocourek, Nate Richardson, Bill Ritchie, Richard Szlemp, *US Fish and Wildlife Service (USFWS)*; Scott Pearson, Derek Stinson, *Washington Department of Fish and Wildlife (WDFW)*; Brian Root, *WV National Wildlife Refuges*.

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*\* Indicates the topic was provided in the agenda but was not presented in person.*

## **Oregon Vesper Sparrow Update**

### **Vesper Sparrow Update - Bob Altman, ABC**

*Listing update-* Due to range contraction and population declines the Oregon vesper sparrow (OVSP) is currently listed as: endangered (likely extirpated) in British Columbia, candidate for state listing in WA, sensitive-critical in OR, and extirpated as a breeder in CA. In November, 2017 ABC petitioned to list OVSP under the federal Endangered Species Act. In June, 2018, USFWS determined that the petition may be warranted. Consequently, a 12-month status review was initiated to gather additional information for a final determination.

*Results-* Bob explained results in productivity and survival between 2017 and 2018 across 20 sites in the Willamette Valley. Annual return rates for adults and juveniles were 58% and 43%, respectively. Adults showed high site-fidelity (100%) as did juveniles returning for their first breeding season (80%). Post fledgling survival is more challenging to obtain, but one site in particular, Soap Creek Ranch, saw a survival rate of 70-80% between 2017 and 2018. Dispersal events occurred with all SY birds, 4 males, different directions, 2-12 miles. Within season 10 males and 1 female dispersed between 1 and 9 miles. ABC is also monitoring vegetation around vesper sparrow nests by using the point-intercept method and ocular estimates and both the nest and random locations for comparison. This work is expected to continue next year.

Regionally, traditional nest success varied. It was highest in the Rogue basin (80%), between 60% and 70% for Willamette Valley, and only 50% for the South Sound; however, these data do not correct for nests that fail before detection. Hatch rates were near, but slightly lower than 90% in

each region except the Rogue Valley (95%); a > 90% hatch rate is considered normal in a healthy population.

### **South Sound Vesper Sparrow Update - Gary Slater, CNLM**

CNLM initiated surveys of vesper sparrows at 11 off-base prairie sites, many with historic records of OVSP, with funding from State Wildlife Grant. A total of 11 off-base sites were surveyed this year and pairs were only found on two sites; Tenalquot (4-5 pairs) and Shelton (1 pair). Surveys continued for at JBLM Where , OVSP were only detected on the Artillery Impact Area (AIA) and the Weirs (RTAs). Due to limited access to the AIA, a complete assessment of pair numbers is not known but it is estimated that there could be 150-225 territories. In the RTAs (and adjacent Tenalquot), CNLM continued demographic monitoring, where there were 11 territories in 2017 and 12 territories this year. Twenty four nests have been found (5 in 2017 and 19 in 2018). Traditional nest success was 46% though this is a high estimate. Average young per nest was 1.5 (S.D. = 1.8). The annual return rate for adults was 65% (13 of 20) and 11% for juveniles (1 out of 11). There has not been any documented movement of OVSP between sites.

Cat Brown asked about low egg hatchability and if there has been work done to compare this with other grassland bird species. Randy answered that once the regional database is complete for larks, we can compare rates between OVSP and SHLA.

Scott Pearson asked if genetic work had been done on vesper sparrows. Bob answered that feathers have been collected. Discussions about genetic analysis are ongoing. A grad student from Southern Oregon University is investigating differences in morphology and song among regional OVSP populations and a population of the Great Basin subspecies. The question was posed that if the OVSP was deemed not be a separate subspecies, would they preclude them from being listed. Bob answered that there are other ways to be eligible for listing, such as having a distinct population segment.

Gary Slater requested that the group think about how we want to discuss OVSP in the future. So far we have managed to include updates in the SHLA working group but eventually the vesper sparrow may need its own workshop or working group, especially if it becomes listed.

## **Surveys and Population Management**

### **Survey Results (See tables on next page).**

There was some discussion about how the population summary table should be organized and what kind of survey results should be included. Currently, some sites are surveyed through unofficial surveys/ protocol or have pair estimates based on opportunistic sightings. Two tables have been provided on the following pages, the first shows results from surveys using Pearson et al survey protocols. The second table shows lark numbers obtained from surveys conducted through other protocols. In those instances, sites have a comment pertaining to how numbers were collected. More discussion is needed to determine how results from various collection methods should be recorded in the future.

### **WA State Update – Scott Pearson, WDFW**

WDFW conducts lark surveys on a three-year rotation, with the most recent surveys having been conducted in 2018. WDFW will analyze the data for population abundance and trends once all the data is submitted.

Gary Slater asked if power analysis will be used to understand if the three-year survey rotation is suitable. Scott answered that the hierarchical modeling approach shares data from sites and years to estimate numbers for those years where surveys were not conducted by evaluating years that surveys occurred. It was noted that sites with ongoing lark management (e.g. McChord) and annual surveys may affect estimates on sites that have no management (e.g. Shelton Airport) and are surveyed less frequently. This is a concern because lark numbers at sites on JBLM with ongoing lark management are increasing while off-base sites without management are decreasing substantially. He will experiment with running separate models for different regions.

Gary pointed out that at 13<sup>th</sup> Division the maximum male numbers from this year were much lower than the territory numbers indicating that detectability may differ among sites. Currently models only evaluate detectability at the regional level, not at the site level. Scott urged the group to give him feedback about how trends are analyzed and displayed once this year's report comes out.

### **JBLM Breeding Monitoring Update – CNLM\***

In 2018, CNLM continued to assist Joint Base Lewis-McChord with efforts to minimize human impacts to larks from airfield management and training and to collect demographic monitoring to investigate limiting factors. This year was the 6th year of intensive nest monitoring at two sites (24-25 pairs at Gray Army Airfield, 21-25 pairs at McChord Airfield), and the seventh year at one site (26-27 pairs at 13th Division Prairie). In general, protection measures were successful, although one nest failed due to a mowing event. This was the first known mortality due to human impacts in four years. Of the estimated 71-77 nest-monitored pairs, we located and documented the nest fate of 133 nests. Of the 133 nests, we determined that 63 nests successfully fledged at least one nestling. We also color-banded 160 young and five adult larks.

**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	2015	2016	2017	2018	+/-	Notes
Washington	<b>South Puget Sound</b>	(max males)					
	13 <sup>th</sup> Division	10	11	15	<b>15</b>	=	
	Gray Army	22	30	33	<b>28</b>	-	
	McChord	15	25	22	<b>21</b>	-	
	91 <sup>st</sup> Range 76	6	15	16	<b>18</b>	+	
	Range 50	3	9	5	<b>1</b>	-	In 2018, no surveys in East section, where most birds were concentrated in 2017
	Range 53	NS	2	2	<b>1</b>	-	
	Olympia	48	NS	NS	<b>21</b>	-	
	Shelton	13	NS	NS	<b>6</b>	-	
	Tacoma Narrows	2	NS	NS	<b>3</b>	+	
	<i>SPS Total</i>	<i>119</i>	<i>n/a</i>	<i>n/a</i>	<b>114</b>		
	<b>Washington Coast</b>	(max males)					
	Damon Point	0	NS	NS	<b>0</b>		
	Graveyard Spit	0	NS	NS	NS		Three nests discovered & some juveniles observed
	Johns River Island	0	NS	NS	NS		
	Leadbetter Point	11	7	11	<b>5</b>	-	Five nests w/in 12 territories were discovered. Additional unsurveyed areas were occupied.
	Midway Beach	0	NS	NS	<b>6</b>	+	
Oyhut Spit	0	NS	NS	<b>0</b>			
<i>WC Total</i>	<i>11</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>			
WA & OR	<b>Columbia River</b>	(max males)					Abundance protocol followed all four years unless otherwise noted.
	Brown Island	17	17	11	<b>15</b>	+	
	Rice Island	14	20	14	<b>17</b>	+	
	Crims Island	6	5	3	<b>4</b>	+	
	Miller Sands Island	12	11	7	<b>10</b>	+	
	Pillar Rock Island	2	6	3	<b>2</b>	-	
	Sandy Island	3	3	4	<b>5</b>	+	
	Martin Bar	0	0	1	<b>2</b>	+	Occupancy protocol conducted in 2015/16, abundance in 2017/18
	Tenasillahee	2	2	1	<b>1</b>	=	Only two abundance surveys conducted at this site in 2018
	Howard Island	0	4	8	<b>7</b>	-	Surveys conducted w/occ. protocol in 2015, abundance in 2016-18
	Lower Deer	0	1	1	<b>3</b>	+	Surveys conducted w/occ. protocol in 2016, abundance in 2015, 2017, 2018
	Gateway	0	1	0	<b>0</b>	=	Abundance protocol in 2015-2017, occupancy in 2018
	Sand Island	2	1	2	<b>1</b>	-	
	Welch Island	0	0	1	<b>1</b>	=	Occupancy protocol followed in 2015-17, abundance in 2018
<i>CR Total</i>	<i>58</i>	<i>71</i>	<i>56</i>	<b>68</b>			
<i>Other Sites: Larks also detected at Austin Point and Hump Island in 2018 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	2015	2016	2017	2018	+/-	Notes
<b>Oregon</b>	<b>Port of Portland, etc</b>	(pairs)					
	SW Quad PDX	3	1-2	1	<b>1</b>	=	
	PDX Airfield	0	1-2	3-4	<b>3</b>	=	
	Rivergate	5	2	3	<b>2</b>	-	Up to two pairs in 2018
	St. Johns (Metro)	0	0	0	<b>0</b>	=	2018: 1; one singing male detected May 25, 26 and 27; not seen after.
	Sauvie Island (4 sites)	0	0	0	<b>0</b>	=	
	<i>PoP Total</i>	8	4-6	7-8	<b>6</b>		
	<b>WV Airports</b>	(pairs)					
	Eugene	12	NS	NS	NS	n/a	
	McMinnville	12-15	NS	NS	<b>8</b>	n/a	2018 numbers estimated from territory mapping efforts
	Salem	0	NS	NS	<b>0</b>	n/a	
	Corvallis	29	61	34	<b>60+</b>	-	Additional habitat in surrounding ag fields not surveyed
	<i>WVA Total</i>	53-56	n/a	n/a	n/a		
	<b>Other</b>	(pairs)					
	Ankeny	6	12	3	<b>6</b>	+	April=4 June=6 July=3 August=5; Indep. Fledglings=13
	Baskett	28	17	26	<b>37</b>	+	April=23 June=37 July=36 August=28; Indep. Fledglings=77
	Finley	7	8	6	<b>10</b>	+	April=7 June=9 July=10 August=3 +6 unk; Indep. Fledglings=14
	Private Lands - WRPs	15	27	19	<b>8</b>	-	In 2017, 19 pairs detected in 5 WRPs, in 2018, 8 males detected in 3 WRPs.
	Herbert Farm	2	3	0	<b>0</b>	=	
	Coyote Creek South	n/a	n/a	5	<b>4-5</b>	=	
	<i>WVR/other Total</i>						

### Radio Telemetry Update – CNLM\*

In 2018, CNLM completed the 3rd and final year of a three-year radio-telemetry study to identify causes of mortality and understand habitat selection during the post-fledging period (< 28 days old). Fieldwork was conducted at three occupied sites on JBLM. In years 2016-2018, we attached radio-transmitters to 56 nestlings as shown in Table 2 (at right). Data analysis will be completed during the winter/spring 2019 and a final report summarizing all data is expected to be complete in late summer of 2019.

Radio Telemetry		
Site	Number Tagged	Number of Mortalities
<b>2018</b>		
<b>13thDIV</b>	5	0
<b>MAFB</b>	6	2
<b>GAAF</b>	8	6
<b>Total</b>	<b>19</b>	<b>8</b>
<b>All Years (2016-2018)</b>		
<b>13thDIV</b>	17	8
<b>MAFB</b>	21	2
<b>GAAF</b>	18	5
<b>Total</b>	<b>56</b>	<b>15</b>

### Columbia River Surveys and Monitoring - CNLM, USACE\*

*Abundance Surveys* - Surveys in 2018 were conducted between mid-May and mid-June on 12 dredge placement islands occupied by larks. The total maximum number of streaked horned lark males across all islands was 68, up from 55 in 2017, with the highest abundances at Rice Island with 17, Brown Island with 15, and Miller Sands Island with 10 males. If we assume that the total number of pairs can be found by doubling the maximum number of males, we estimate the total number of individuals in the Columbia River network to be 136, up from 110 in 2017. A breeding pair of larks was also detected on Hump Island and Austin Point this year during occupancy surveys; five islands did not have larks.

*Territory Mapping* - We conducted mapping activities on Brown and Crims Islands on 12 days during the period from 16 May to 11 July 2018. On Brown Island, we estimated there were 14 breeding pairs which is comparable to last year's estimate of 12-15 pairs. Thirteen pairs and eight pairs of larks were estimated in 2016 and 2015, respectively. Larks on Brown Island have increased in numbers and distribution following large-scale deposition four years ago. On Crims Island, we detected five pairs, two of which started using the western portion of the island where deposition occurred in 2016. Results from this effort have generally been consistent with the assumption that larks colonize a site 1-2 years following deposition and thereafter habitat suitability increases for up to at least four years.

**Leadbetter Point: 2018 Survey Summary, Predator Management, and Habitat Restoration – USFWS**

*Preliminary Streaked Horned Lark Breeding Survey Summary*

Streaked horned lark adult breeding surveys were conducted once monthly from May to August. The maximum total count of males equaled five and the mean birds/survey was 5.5, both less than last year. However, five nests were discovered within 12 suspected breeding territories. The fate of these nests is unknown, but all nests had indications that eggs hatched. Juvenile birds were observed during surveys and there were no confirmed incidences of nest predation. No changes were made to

<b>Predator Management at Leadbetter Point</b>				
<b>Year</b>	<b>Species</b>	<b>Removed</b>	<b>Dispersed</b>	<b>Total</b>
2015	crow spp.	11	33	44
	common raven	8	15	23
2016	crow spp.	9	35	44
	common raven	4	11	15
2017	crow spp.	11	38	49
	common raven	7	11	18
2018	crow spp.	1	2	3
	common raven	6	19	25

the previous survey transects. The total length of the survey transects remains at 13,430 meters. There are additional occupied areas at Leadbetter Point that are not being surveyed due to limited available resources. For a second consecutive year male larks exhibited reduced singing and aerial flight display behaviors, possibly resulting in a lower detection rate.

*Predator Management*

The current predator management strategy at Leadbetter Point began in 2013. Two species identified as potential predators were encountered in and adjacent to lark nesting areas in 2018. Fewer crows appeared to be present based on control data, with only two dispersed and one problem individual lethally removed. The number of common ravens encountered was slightly higher than in past years, but most were present during the early breeding season and associated with two whale strandings.

*Habitat Restoration*

Pre-breeding:

- Thirteen acres of beach on the Willapa National Wildlife Refuge was cleared of *Ammophila* beachgrass using bulldozers and a disk at the north end of Leadbetter Point. The remaining 27 acres of non-native beachgrass on the southern end of Leadbetter Point State Park was also removed. An additional 90 acres of previously cleared beach was disked to reduce resprouting beachgrass.

**Conspecific Attraction- Elaine Stewart and Katy Weil, Metro**

Habitat enhancement is ongoing at St. John’s Prairie to help mitigate for habitat loss at Rivergate. Point counts have been conducted since 2007. Vocal attraction and decoys were used to attract larks at St. John’s Prairie in 2010-2015 without success. This year, a new vocal attraction system

with varied songs and calls and decoys was deployed. One adult male lark was detected in late May this year on the playback box at the eastern plot, but did not stick around. Conspecific work is expected to continue next year.

Habitat restoration is going on at Penstemon Prairie Natural Area. Vesper sparrows have been detected here, and this site is also considered suitable for the streaked horned lark, as it contains low, sparse, and native dominated vegetation. Elaine and Katy requested suggestions for protocol to both survey for larks in unoccupied habitat and after larks are detected. Scott answered that they can implement WDFW's standardized protocol for assessing abundance and trends and their results can be incorporated in the next abundance and trends report.

### **Herbert Farm Natural Area Project Update – Institute for Applied Ecology\***

IAE worked with Bob Altman to implement a conspecific attraction study at Herbert Farm and two additional sites in spring of 2018. We placed decoys and playback devices at each location. At Herbert Farm the equipment was centered on the 23 acres of agricultural field that went into chemical fallow in fall 2017, as part of a Corvallis Airport project to mitigate for a runway improvement project. Habitat at our three study locations was largely unsuitable for breeding larks as the vegetation grew dense and tall early in the season. The exception was a portion of Herbert Farm where IAE conducted periodic herbicide application throughout the summer, in preparation for restoration seeding. We hope to continue the study in future years, taking lessons learned in 2018 to work with land managers to better manage the lark habitat.

Since 2014, a 25 acre field has been in chemical fallow, and is being seeded in fall 2018 to create a mosaic of bare ground and sparse, low-stature, vegetation. This field also has two berms which were created by the USFWS Partners for Fish and Wildlife Program to flood swales and create more lark-friendly habitat. A further 60 acres of farmland will be put into chemical fallow in fall 2018.

### **Corvallis Update- Randy Moore, OSU**

A construction project will be starting soon at the Corvallis Airport so survey effort was tailored to that this year. In general, there were fewer territories along the N-S runway this year. Historically there have been about 31 territories near the airfield, but there could be around another 30 territories in the surrounding agricultural lands, which make up about 600 acres. Randy expects that this habitat will disappear shortly as crops rotate.

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

#### *SW Quad*

The first 2018 survey in SW Quad was on February 8<sup>th</sup> to determine occupancy/abundance during the winter season. A total of four morning surveys completed during the breeding season.

The first confirmed SHLA observation in SW Quad was recorded on May 24<sup>th</sup>. Subsequent surveys identified an individual male SHLA twice in the same area. Over the course of all surveys no females were observed, but with the male activity it is probable there was at least one breeding pair.

#### *SW Quad Activity Comparison from 2011 - 2018*

The data collected during SW Quad surveys from 2011 thru 2018 shows a decline in confirmed breeding pairs, males, females, and YOY.

**SW Quad Observations**

	2011	2012	2013	2014	2015	2016	2017	2018
Breeding Pairs	1	2	3	2-3	1	1	1	1
Males Observed	N/A	17	26	25	17	14	6	1
Females Observed	N/A	4	10	2	2	0	0	0
YOY Observed	3	2	0	8	1	2	0	0

*PDX Airfield Activity*

During the 2018 breeding season, there were a total of 67 SHLA observations (presumably repeat detections) on the airfield. A pair was observed near the southwest ramp at Taxiway G on May 4<sup>th</sup>. The female had been banded at Rivergate on July 7<sup>th</sup>, 2017. This pair was last observed on May 12<sup>th</sup> in the same location on the airfield, but a nest location was not confirmed.

There were 3 pairs observed between taxiway B2 and runway 3/21 on June 1<sup>st</sup>, 2018 but only one confirmed nesting pair at this location. This nest was observed with 3 eggs on June 28<sup>th</sup>, 2018 and inspected again on June 30<sup>th</sup> with only one nestling. The hatchling was banded with Green/Green on the left leg, Silver/Orange on the right leg by N. Atwell on July 5<sup>th</sup>.

On August 20<sup>th</sup>, there were two juveniles and an adult female observed foraging in the same area. None of the juveniles were banded, indicating there was another active nest early in the season.

**PDX Airfield Observations**

	2016	2017	2018
Breeding Pairs	2	3-4	3
Males Observed	15	7	4
Females Observed	6	4	3
YOY Observed	4	4	3

**Sauvie Island Community Science Grassland Bird Monitoring - Audubon Society of Portland/ODFW\***

Audubon Society of Portland's team of about 20 community scientists conducted weekly grassland bird surveys at ODFW's farmland crop area (part of a ~1000 acre tract). Habitat at this site was deemed potential streaked horned lark habitat by Bob Altman and others. Observers also conducted roadside surveys of private farmland habitat off Gillian Road, which is directly across the Willamette River (less than 1 mile) from Rivergate (one of the last breeding areas for larks in Portland). These 2 sites had not been previously surveyed for larks. Finally, surveys were continued at the 128 acre Grandma's Kitchen site for the fourth consecutive year. Grandma's Kitchen is specifically managed for larks and ODFW employs a playback device that broadcasts lark song/calls during the breeding season. Surveys were initiated in late March and continued until late July and were conducted using this protocol: <https://audubonportland.org/files/species/streaked-horned-lark-protocol> Survey data were entered directly into an existing eBird hotspot (for Gillihan Road) and a new eBird hotspot established for the ODFW farmland/Grandma's Kitchen sites. No Streaked Horned Larks were detected during surveys covering 80 hours of survey effort.

## **Habitat Management**

### **JBLM Airfield Grass Conversion – CNLM\***

In 2017, CNLM initiated a grass conversion demonstration project on Joint Base Lewis-McChord airfields, with funding from USFWS. The goal is to replace the tall, exotic pasture grasses with native bunchgrass at Gray Army and McChord Airfield on 5-acre plots. The project will evaluate the feasibility of converting vegetation and investigate whether grass conversion might lead to reduced BASH risk and less frequent mowing. The project was initiated in November 2017 with herbicide applications and seeding, and pre- and post-implementation bird and vegetation surveys. In 2018, two color-banded first year larks were detected on the Gray Army plot in early March.

*CTAF Habitat Conversion-* JBLM and CNLM are continuing to work on an 85-acre habitat creation project located immediately south of Gray Army Airfield. The goal of this mitigation project is to create lark habitat adjacent to the existing airfield, which currently supports 25 streaked horned lark breeding pairs. Implementation of the 4-year project is ongoing and has included several weed control efforts, debris removal, slope recontouring, tree removal, seeding with native grasses, bird and vegetation surveys. To date, larks have not been detected on the mitigation site.

### **Columbia River Habitat Suitability Findings- Kris Lightner, USACE & Gary Slater, CNLM**

*Dredging Operations-* This year placement activities occurred during the breeding season at Rice and Tenasillahee Islands. Thanks to coordination between USFWS, USACE, and CNLM, dredge crews were able to place at these locations without negatively impacting the larks.

*Consultation Update-*USACE is in the final year of a 5 year Biological Opinion with USFWS. USACE is also working on a 20 year management plan, although completion is still a couple of years out. In the interim, they plan to extend the current consultation with USFWS for about 2 years.

*Habitat Suitability Model-* USGS, CNLM, CoreGIS, and USACE have collaborated on a predictive model which quantifies and tracks SHLA habitat across the USACE deposition network in the lower Columbia River. This analysis tested four different models using a suite of surrogate variables at various scales, including NDVI (a measure of greenness), standard deviation of NDVI, Deposition age, and a Terrain Ruggedness Index. This model incorporates sentinel-2 satellite imagery, launched in 2015 which collects 10-m resolution imagery every 4-8 days. The model is run in Google Earth Engine and can produce nearly real-time results. This new tool also has future applications in predicting lark habitat in other ecoregions, such as the Willamette Valley.

More information about the modeling process, validation, and results will be placed in the CPOP technical library soon and a manuscript will be submitted to a scientific journal in the coming months.

### **WV Refuges' 2018 Habitat Management and Monitoring Report – USFWS\***

The Willamette Valley NWR Complex provided several hundred acres of potentially suitable habitat for breeding streaked horned larks (SHLA) during 2018. Habitat was provided at all three of the

Complex refuges: Ankeny NWR, Baskett Slough NWR, and W.L. Finley NWR. Management included both active (specifically for SHLAs) and passive (as part of goose forage production) actions. Monitoring results suggested that a seasonal maximum of 52 SHLA breeding pairs used the Complex's agricultural fields during the 2018 breeding season. We observed up to 104 independent SHLA fledglings (substantially more than during previous years); a small number were observed in mid-June, but most were seen in July and August. Substantial habitat acreages seemed available during the early SHLA breeding season, but fields quickly became too vegetated to support SHLAs. Planned reproductive monitoring efforts were precluded by postponed hiring authority/budgets. Disking, chemical fallowing, and a prescribed fire prolonged habitat availability into summer. Wet swale (vernal pool) habitats seemed to provide the best SHLA breeding habitats, which generally remained available to breeding SHLAs throughout the breeding season. The Complex will continue managing for SHLA breeding habitats during 2019, and will pursue modifications to actively managed fields that could prolong habitat availability into late summer, when reproductive success seems to be greater. We also plan to continue our monthly breeding pair surveys, and to institute intensive reproductive monitoring (nest and fledgling success). The entire report can be found on the CPOP technical library:

<https://cascadiaprairieoak.org/documents/streaked-horned-lark-habitat-management-and-monitoring-at-the-willamette-valley-national-wildlife-refuge-complex-2018-annual-report>

### **Partner Biologist Update – Pacific Birds Habitat Joint Venture**

Outreach efforts have continued with numerous farm visits and one-on-one meetings with landowners and farm managers. Outreach efforts have also included:

- Addressing trade groups of grass seed farmers
- Attending relevant industry and community events
- Publishing an op-ed in *The Capital Press*, a Salem-based weekly agricultural newspaper which can be found [here](#).

Funding for on-farm pilot projects is needed. An application for approximately \$13,000 of NRCS Conservation Innovation Grant funds was submitted, and denied. Feedback from farmers has generally suggested that lark habitat projects are non-starters without significant additional protections and assurances for landowners. A programmatic Safe Harbor Agreement (pSHA) was one proposed tool for providing the appropriate protections, but no permit holder (such as a nonprofit or USFWS) has stepped forward, halting further progress on providing landowners with protections under a pSHA. One pilot project near the Corvallis airport did not provide suitable habitat in 2018; the conservation plan was not followed due to personnel changes within the farming company.

Current work is focused on conservation planning for a restoration-minded landowner with a large parcel of potentially suitable habitat in the southern Valley near MDAC. The landowner is interested in creating vernal pools on his land, which would create duck hunting habitat during fall and winter and lark habitat during the breeding season.

### **Lark Habitat Management Workshop - Vernal Pools\***

*Why are Vernal Pools Valuable?* Historically the floodplain would have dewatered slowly, leaving pockets of ponded water across the landscape. Today, ditches and roads accelerate dewatering. By creating vernal pools, we can extend the hydroperiod on the floodplain in appropriate locations. This has benefits to larks, as they will use drawdown sites with reduced vegetation during the breeding season.

*Workshop Takeaways* - The suite of sites provided a great look at the different approaches of using vernal pools to establish bare ground for larks, the various stages of vegetation succession that pools tracks, and the array of practitioners with variable management objectives. Vernal pools offer a great way to create lark habitat, though best practices for establishing vernal pools as well as developing longer-term management strategies are needed. Common concerns include: use of herbicide (how much, timing, etc.), limited ability to use tools such as fire (politically tough and limited capacity) and mowing (if site is too wet), as well as resource concerns over managing for a single species.

*Outcome* - A comprehensive BMP for vernal pools should be developed that provides guidance to practitioners and outlines benefits to larks. Suggest allocating short amount of time at working group meeting on best approach for moving forward on BMP (e.g., workshop) and for discussing other lark habitat management topics that deserve attention A follow up meeting to the workshop to lay the groundwork for this BMP would be beneficial.

### **Coyote Creek South – ODFW/LTWC\***

ODFW and the Long Tom Watershed Council continued efforts through the spring and early summer to maintain recent native prairie plantings within the 116 acre Coyote Creek South project site. Early grass-specific and a spot-spray herbicide treatments assisted in a productive first season establishment of native plants seeded in 2017.

In 2018, Streaked Horned Larks were first detected during the second week of March and remained active on the site through early/mid-August.

Breeding season surveys were conducted by Bob Altman using area searches, which included eight visits (approximately 1.5 hours/visit) over the months of April (2 visits), May (3 visits), and June (3 visits). Observations included 4-5 pairs nesting on the site based on 3-5 independent detections of males, and 1-3 detections of females on each visit. No nests were found, but three flight-capable fledglings were detected on June 29. Habitat conditions remain highly suitable for lark nesting, and a female was observed carrying nesting material on June 29. Additional surveys were conducted in July (3 visits) and August (2 visits).

### **Fern Ridge Wildlife Area (East Coyote Unit) – ODFW\***

For the second year a nesting pair occupied a cultivated unit (corn production) at Fern Ridge Wildlife Area. The location is approximately 0.5 miles north of the Coyote Creek South. With farming operations typically taking place in June, the birds responded to field preparation practices (e.g. disking, harrowing & packing) and remained active in the area through early August.

Kris Lightner added that at Fern Ridge there is an opportunity to manage this site differently in the future to benefit larks. Conversations are just starting between USACE and partners in the Willamette Valley to see what this would look like.

### **Topic Area: Regulatory Actions**

#### **Recovery Planning & Discussion - Cat Brown, USFWS**

The Draft Recovery Plan for the Streaked Horned Lark was completed this year and is currently going through internal review. After internal review, a summary of the recovery plan will be sent to the D.C. office. It is unclear how long this process will take, but the hope is within the next couple months. Once the draft is published in the federal register, public review can begin. With the draft being sent in and currently in review, this has changed the way the Action Plan is written and organized. Text highlighted in gray or green indicates language from the Draft Recovery Plan for the Streaked Horned Lark. Tasks beneath the highlighted rows are specific conservation actions that the working group has identified to support those recovery actions. Cat explains that recovery actions need to be broad enough to give federal agencies the flexibility to accomplish a wide range of conservation goals for the lark while also being specific enough to direct tasks. Cat urges the group to think of tasks that are missing that could be added to give more direction to conservation actions in the next 15 years.

#### **WA Field Office Update- Terry Frederick, USFWS**

Since April of this year, Terry Frederick has been the species lead for SHLA, replacing Lindsay Wright, who is consulting on FERC relicensing. Kim Flotlin is the lead for listing and recovery for the lark and Martha Jensen is the consultation and conservation planning manager for federal activities. Martha takes lead for SHLA issues on JBLM.

The draft credit/debit compensatory mitigation program currently only includes TCB and MPG. The streaked horned lark section is less developed at this time. The next step is for JBLM to submit a final Biological Assessment that will start formalizing the debit/credit strategy. The signed MOU between DOD and USFWS dedicates the two agencies to work together towards military readiness and species conservation.

More and more, USFWS is asking for standardized lark surveys as part of their consultation. Currently there is not a standardized training protocol to ensure surveyors are qualified to conduct surveys. Terry urges the group to brainstorm what a standardized training protocol would look like.

#### **FAA update- Sean Callahan, FAA**

The FAA is currently finalizing a lark consultation with PMP and UFWS. PMP is a statewide pavement maintenance program at all of airports in Oregon. The BA will contain conservation measures that ensure pavement construction equipment will not negatively impact the lark. The goal is to have a finalized Biological Assessment by January of 2019.

The FAA is funding mitigation related to the Corvallis Airport Rehab Project. Currently, there is a conspecific attraction program to enhance the potential for settlement and nesting at the Herbert Farm Natural Area (HFNA). FAA's role in this mitigation is to collaborate with BPA, ODFW, and IAE and other partners to monitor lark use within HFNA

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## **Action/Follow Up Items (In review)**

### Oregon Vesper Sparrow

- ❖ Consider how OVSP will be discussed in the future; possibly a separate working group.

### Streaked Horned Lark

- ❖ Think about how the summary results table could be streamlined to accommodate a variety of survey methods, especially if the number of occupied sites increases.
- ❖ Provide suggestions or comments about how population data is reported and analyzed to Scott Pearson at WDFW.
- ❖ Develop a comprehensive BMP for vernal pools should be developed that provides guidance to practitioners and outlines benefits to larks.
- ❖ Consider what a standardized training protocol would look like to sufficiently qualify surveyors to monitor for larks. Send suggestions to Terry Frederick at the Lacey USFWS office.

**Action Planning-** This year the action plan was reorganized to align with the new draft recovery plan provided by USFWS. All tasks from the prior year were maintained, yet rearranged within the new headings. During action planning, the group discussed items that may be missing from the action plan or how ranked items should be re-ordered.

The group started out by looking at the current ranked items to see if any major topics were not captured. It was agreed that the most important items were already in an appropriate high ranking.

Main items that were discussed as missing from our current conservation actions were:

- Evaluate feasibility of the habitat suitability model in other ecoregions, such as the Willamette Valley.
- Track ranked items to ensure measureable objectives are achieved.
- Integrate lark surveys with local habitat management actions, especially in the Willamette Valley.
- Consider developing site-specific habitat management plans within each ecoregion.

Once the recovery plan is out for public comment, Cat urges the group to comment in a more detailed way on their own and contact her with additions/edits. Things to think about when reviewing the recovery plan action items are:

- What new ideas should be identified as a threat that is not acknowledged in the action plan?
- Can some items be removed that have been accomplished?
- Ensure there are clear links for lark recovery between conservation actions (in white rows) and Recovery Action or sub-Action items (in shaded rows).
- In terms of the ranking, think about how potential partners and funders can use the ranking to accomplish conservation goals?