

# Streaked Horned Lark Recovery Plan: Recovery Implementation Strategy

## 2021 Action Plan

This action plan was developed by the Streaked Horned Lark Working Group and is updated each year at the group's annual meeting. The purpose of this action plan is to identify the most important conservation actions that can be conducted over the next 3-5 years to support streaked horned lark recovery. Since this list of actions focuses on the near-term, it is not a complete list of all the specific tasks that are necessary to achieve recovery of the lark. Additional tasks will be identified as new information becomes available, and completed tasks will be dropped from this list. 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 and are updated annually. Tasks ending with <sup>+</sup> are new in 2021.

*Note on task ranking: Some of the tasks on this action plan have been assigned a number in the "Rank" column. Only the 15 highest priority tasks are ranked, and in some cases, several tasks are assigned the same rank (e.g., habitat protection in each recovery zone has a rank of 3). Beyond the 15 top priority tasks, some other tasks have an \* in the rank column, which signifies increased emphasis, but not at the level of a numerical rank. These task rankings indicate the near-term priorities for implementation of a specific project, as opposed to the recovery action priority rankings (1a, 1b, 2, 3) in the recovery plan which indicate a general recovery action's longer-term level of importance for preventing extinction or significant negative impacts.*

Task	Rank	Implementing Party
<b>Recovery Action 1. Determine Population Status, Trend, and Current Distribution</b>		
<i>(Priority 1b) Accurate, current information is essential to track progress towards recovery goals.</i>		
<b>Recovery Action 1.1 Complete development of a rangewide population monitoring protocol.</b>		
1. Complete development of agricultural private lands component of survey protocol in order to finalize range wide standardized survey and monitoring protocols.	1	Recovery Team
a. Adapt Columbia River modeling tool to identify potential habitat for monitoring. <sup>+</sup>		
<b>Recovery Action 1.2 Monitor the rangewide population, tracking trends and distribution.</b>		
1. Once developed, all partners implement rangewide survey protocol to monitor occupied sites and sites with suitable habitat. [See Action 1.1.1]	2	WDFW, OSU, EI, JBLM, PoP, ODFW, USFWS, FAA, Portland Audubon, etc.
a. Ensure appropriate partners adopt site-based protocol (Pearson et. al.) with properly trained personnel. <sup>+</sup>		
b. Ensure maintenance of databases containing population and demographic data. <sup>+</sup>		
<b>Recovery Action 2. Conserve and Enhance Populations</b>		
<i>(Priority 1a) Increasing the number of sites managed for larks across the range will address the primary threat of habitat loss to the species. Improved management will increase survival and nesting success, resulting in population growth.</i>		
<b>Recovery Action 2.1 Conserve larks in the South Puget Lowlands region</b>		
<b>&gt; 2.1.1. Implement conservation actions on Core sites in the South Puget Lowlands region</b>		
<b>&gt;&gt; 2.1.1.1 Identify and conserve current and potentially suitable sites</b>		
1. Identify and acquire suitable sites.	3	EI, NRCS, USFWS, JBLM, Thur. Co., WDFW
a. Determine criteria for prioritization and apply to list of identified suitable sites. <sup>+</sup>		
b. Ensure long term management plan and associated funding (includes acquisition, endowment) is secured.		
<b>&gt;&gt; 2.1.1.2 Implement conservation programs that enhance survival on Core sites. [i.e. Improve population growth rate]</b>		
1. Conduct habitat restoration to increase and improve lark habitat.	10	
a. Implement habitat restoration activities on breeding ground using all available tools (e.g., herbicide, fire). Focus on invasives that change the structure of the habitat.	*	JBLM, EI, USFWS, WDFW
b. Monitor effectiveness of lark habitat created by prairie enhancement.	*	EI, JBLM
2. For each core site, create management plan that identifies and addresses or minimizes threats (e.g. incompatible land uses, predator impacts, etc).	4	All applicable partners and site managers.
<b>&gt; 2.1.2. Implement conservation actions on Matrix lands in the South Puget Lowlands region</b>		
<b>&gt;&gt; 2.1.2.1 Identify priority Matrix lands</b>		
1. Identify priority matrix lands and work with appropriate partners to ensure larks are a priority for funding programs (e.g., easements) and landowner assistance (e.g. Partner Biologists).		JBLM, USFWS, WDFW, EI, NRCS, Ports, FAA, Land Trusts
<b>&gt;&gt; 2.1.2.2. Develop and implement conservation programs that enhance survival on Matrix lands. [i.e. Improve population growth rate]</b>		
1. Enhance existing habitat and increase amount of available habitat where appropriate, and monitor effectiveness.	10	USFWS, WDFW, EI, Land Trusts, Private Landowners
2. For Matrix lands, create management plan that identifies and addresses or minimizes threats (e.g. incompatible land uses, predator impacts, etc).	4	All applicable partners and site managers.
a. Encourage partners to include management for larks in land protection plans when opportunities are available (e.g. America's Great Outdoors Initiative, SWAPs, legislative initiatives, HCP, Safe Harbors).		

## Recovery Action 2.2 Conserve larks in the Coast and River region

### > 2.2.1. Implement conservation actions on Core sites in the Coast and River region

#### >> 2.2.1.1 Identify and conserve current and potentially suitable sites

##### >>> 2.2.1.1.1 Where feasible, incorporate potential core sites into NWR system for management.

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|--|---|--|
| 1. Identify and acquire suitable sites (includes full dredge placement sites).   | 3 | EI, NRCS, USFWS, WDFW, WSP, USACE, Ports |
| a. Ensure long term management plan and associated funding (includes acquisition, endowment) is secured. Where feasible, incorporate into NWR system for management. |   |  |

#### >> 2.2.1.2 Implement conservation programs that enhance survival on Core sites. [i.e. Improve population growth rate]

- |   |   |   |
|---|---|---|
| 1. Conduct habitat restoration to increase and improve lark habitat.  | 6 | USFWS, WDFW, WSP, EI, WDNR Metro, City of Portland, Ports, OSU, USFWS, NRCS, ODFW |
| a. Implement habitat restoration activities on potential core sites (e.g. St. Johns, Sauvie, Gov't Island, Leadbetter) using all available tools (e.g., herbicide, mechanical). |   |   |
| 2. For each core site, create management plan that identifies and addresses or minimizes threats (e.g. Incompatible land uses, predator impacts, etc.)                          | 4 | WDFW, FWS, USACE, Ports, WSP, ODSL  |

### > 2.2.2. Implement conservation actions on Matrix lands in the Coast and River region

#### >> 2.2.2.1 Identify priority Matrix lands

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|--|--|---|
| 1. Identify priority matrix lands and work with appropriate partners to ensure larks are a priority for funding programs (e.g., easements) and landowner assistance. |  | FWS, ODFW, WDFW, EI, ports, USACE, ODSL |
|--|--|---|

#### >> 2.2.2.2. Develop and implement conservation programs that enhance survival on Matrix lands. [i.e. Improve population growth rate]

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|--|----|---|
| 1. Enhance existing habitat and increase amount of available habitat where appropriate and monitor effectiveness.  | 10 | USFWS, WDFW, ODFW, WDSL, ODSL, EI, PoP, Ports, USACE, Land Trusts |
| 2. For Matrix lands, create management plan that identifies and addresses or minimizes threats (e.g. incompatible land uses, predator impacts, dredged material placement, etc.)   | 4  | All applicable partners and site managers.                        |
| a. Encourage partners to include management for larks in land protection plans when opportunities are available (e.g. America's Great Outdoors Initiative, SWAPs, legislative initiatives, HCP, Safe Harbor Agreements). |    |   |

## Recovery Action 2.3 Conserve larks in the Willamette Valley region

### > 2.3.1. Implement conservation actions on Core sites in the Willamette Valley region

#### >> 2.3.1.1 Identify and conserve current and potentially suitable sites

##### >>> 2.3.1.1.1 Where feasible, incorporate potential core sites into NWR system for management.

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|--|---|--------------------------------|
| 1. Identify and acquire suitable sites.  | 3 | USFWS, ODFW, NRCS, Land Trusts |
| a. Ensure long term management plan and associated funding (includes acquisition, endowment) is secured. Where feasible, incorporate into NWR system for management. |   |                                |

#### >> 2.3.1.2 Implement conservation programs that enhance survival on Core sites. [i.e. Improve population growth rate]

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|--|----|------------------------------|
| 1. Conduct habitat restoration to increase and improve lark habitat.   | 10 | OSU, ODFW, WVNWR, NRCS       |
| a. Monitor effectiveness of lark habitat created by habitat enhancement (prairies or vernal pools) or modification of agricultural practices.          | *  | USFWS, WVNWR, NRCS, EI       |
| b. Align SHLA habitat enhancement with fire training needs.  |    | WVNWR, NRCS, EI, Land Trusts |
| 2. For each core site, create management plan that identifies and addresses or minimizes threats (e.g. Incompatible land uses, predator impacts, etc.) | 4  | OSU, USFWS, ODSL, ODFW       |

### > 2.3.2. Implement conservation actions on Matrix lands in the Willamette Valley region

#### >> 2.3.2.1 Identify priority Matrix lands

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|--|---|---------------------------------------|
| 1. Identify priority matrix lands and work with appropriate partners to ensure larks are a priority for funding programs (e.g., easements) and landowner assistance (e.g. Partner Biologists). | 7 | USFWS, ODFW, NRCS, CNLM, OFB, Private |
| a. Identify priority Matrix lands using best available tools (could adapt Columbia River modeling tool).   | * |                                       |

#### >> 2.3.2.2. Develop and implement conservation programs that enhance survival on Matrix lands. [i.e. Improve population growth rate]

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|--|----|--|
| 1. Enhance existing habitat and increase amount of available habitat where appropriate and monitor effectiveness.  | 10 | USFWS, ABC, WVNWR, Land Trusts             |
| a. Investigate potential of leasing and managing sites for lark habitat.   |    |  |
| 2. For Matrix lands, create management plan that identifies and addresses or minimizes threats (e.g. incompatible land uses, predator impacts, dredged material placement, etc.)   | 4  | All applicable partners and site managers. |
| a. Encourage partners to include management for larks in land protection plans when opportunities are available (e.g. America's Great Outdoors Initiative, Willamette Wildlife Mitigation Program, SWAPs, legislative initiatives, HCP, Safe Harbor Agreements). |    |  |
| 3. Facilitate lark-beneficial habitat management specifically on agricultural lands.   | 14 |  |
| a. Encourage federal & state agencies to promote incentive programs to benefit larks on working lands.   | *  | ODFW, USFWS, NRCS                          |
| b. Refine and implement management prescriptions to create breeding habitat and winter habitat in agricultural matrix.   |    | WVNWR, NRCS, OFB, Private                  |
| c. Work with appropriate partners to develop and implement airport management guidelines to minimize take. Adapt Washington Airport BMPs.  |    | Ports, FAA, ODFW, OSU, EI                  |

## Recovery Action 3. Identify Limiting Factors and Develop Solutions

(Priority 1b) Better information and new tools are essential to make progress towards recovery.

### Recovery Action 3.1 Conduct research on threats to population viability

1. Understand source/sink dynamics, especially at airfields and in agricultural matrix, and determine effect of management actions on those as well as potential solutions (e.g. creating recipient habitats, dissuasion at current sites). \* UW, EI, JBLM

2. Understand factors affecting reproductive success in private working lands of the Willamette Valley, especially agricultural operations.

a. Determine the effect of field operations (activities and timing), habitat parameters, and seasonality on nest success on working lands in OR (e.g., grass seed, clover, mint, Christmas trees, row crops, pasture). \* WVNWRC, OSU, EI

3. Identify important features that affect habitat suitability and quality.

a. Determine the effect of field operations (activities and timing), habitat parameters, and seasonality on habitat use on working lands in OR (e.g., grass seed, clover, mint, Christmas trees, row crops, pasture).

b. Understand habitat quality in relation to food availability, including wintering habitat quality.

c. Understand juvenile habitat use.

3. Evaluate the effect of habitat enhancement actions on lark vital rates. EI, OSU, JBLM, WDFW

#### > 3.1.1. Develop acceptable methods of predator control and implement where needed.

1. Determine factors limiting juvenile and adult survivorship in OR & WA (e.g., predation). Does adult and juvenile survivorship (esp. females) limit population growth? 5 OSU, WDFW, EI, JBLM, others

2. Evaluate need to control predators (e.g., at airports) and if implemented, evaluate the effect of predator management (e.g., at Coast, Columbia River, McChord) and its influence on population trend. 9 EI, USDA, USFWS, USACE, JBLM

#### > 3.1.2. Investigate the effects of various herbicides and pesticides used in the agricultural landscapes where larks are found.

1. Evaluate effect of chemical applications (e.g., herbicides, insecticides, zinc phosphide, Maki baits) to larks (i.e., are they affected?) and if so, are there different application techniques that can eliminate negative effect? 8 OSU, FWS, PoP, JBLM, EI

#### > 3.1.3. Determine additional critical research areas to advance recovery.

1. Understand migratory and wintering movements. 11

a. Evaluate new technologies to track larks during non breeding season (e.g. MOTUS, cell tracking)

b. Collect and integrate color band resight information rangewide, utilizing community science efforts where effective. OSU, WDFW, EI, Audubon

2. Track current climate change science to inform the role of climate change to streaked horned lark conservation decision making, e.g. northward expansion of prairie habitat. WDFW, OSU, USFWS, EI

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

#### > 3.2.1 Evaluate appropriateness and feasibility of population augmentation, relocation or reintroduction (e.g., investigate lark colonization, captive rearing, hacking, cross fostering, genetic rescue, translocation).

1. Implement strategies to move or dissuade larks from high-risk areas. 12 FAA, WDFW, OSU, EI

#### > 3.2.2 Evaluate the role of conspecific attraction in establishing conditions that are needed to attract a breeding population to a new site.

1. Further research the effect of song playback, decoys, or other social cues on lark colonization of new sites. ABC, IAE, Metro, EI

### Recovery Action 3.3 Develop tools to enhance habitat and lark survival and reproduction on Matrix lands.

#### > 3.3.1 Evaluate and map high priority Matrix lands (e.g. potentially suitable agricultural lands near currently occupied sites, within Priority Conservation Areas, etc.) to direct incentives and outreach to the areas most likely to provide successful lark habitat sites.

#### > 3.3.2 Develop a list of practices to protect larks during the breeding season on agricultural lands.

1. Develop a list of practices to protect larks during the breeding season on agricultural lands.

#### > 3.3.3. Evaluate novel habitat creation options such as leasing habitat for larks, selective field fallowing, or conservation burning.

1. Refine and implement management prescriptions to create breeding habitat and develop winter habitat prescription in agricultural matrix and understand effect on lark vital rates. \* WVNWRC

#### > 3.3.4 Develop incentive programs for agricultural producers to create and maintain appropriate lark habitat on working lands.

1. Investigate the value and feasibility of restoration techniques (e.g. grazing, conservation burning) for larks and its potential as an incentive for private landowners. OSU, USFWS, NWR, NRCS, TNC

### Recovery Action 3.4 Develop a Programmatic Safe Harbor Agreement to promote lark habitat creation on private agricultural lands.

1. Determine methods to increase interest by agricultural landowners to participate in a Safe Harbor Agreement on private farm lands. USFWS, OFB

### Recovery Action 3.5 Develop a mitigation strategy for offsetting the effects of non-federal development in occupied lark habitats.

1. Develop mitigation strategies and standardized criteria, starting with airfield activities. Incorporate new USFWS mitigation policies and lark recovery objectives. 13 USFWS, FAA, EI

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

1. Encourage lark compatible elements in prairie and grassland habitat restoration and mitigation projects. \*

### Recovery Action 3.7 Develop a Memorandum of Understanding with the Federal Aviation Administration (FAA) to guide FAA contributions toward conserving lark populations, including establishing new lark populations at non-airport sites.

1. Update MOU when mitigation strategy is complete (see Recovery Action 3.5).<sup>+</sup>
  - a. Create working group subcommittee to develop process for projects to be identified, prioritized, and implemented with FAA support.<sup>+</sup> USFWS, FAA, EI, Working Group

### Recovery Action 3.8 Develop other strategies necessary to address factors affecting larks and their habitat.

## Recovery Action 4. Promote Outreach and Cooperation with Stakeholders and Partner Agencies

*(Priority 2) Recovery will require working in partnership with Federal, state and private entities to recover the lark across the range.*

### Recovery Action 4.1 Facilitate coordination and information sharing.

1. Maintain rangewide working group and coordination. 15 USFWS, EI
2. Open and maintain working groups/informational sharing forums about larks revolving around industry-specific issues (e.g. airports, water ports, agriculture, developers/land use planning). EI, USFWS, Ports, WDFW
3. Continue coordination between habitat managers for larks and other grassland species (e.g. workshops). EI

#### > 4.1.1 Continue to fund a position to work with agricultural landowners in the Willamette Valley to enhance lark conservation on private farm lands.

### Recovery Action 4.2 Develop outreach and education materials.

1. Conduct outreach to permitting entities (e.g. counties/cities, ODSL, USACE regulatory branch) regarding potential for lark impacts from development and other permitted activities. USFWS, ODSL
2. Determine top information needs and develop materials on habitat management and restoration for land managers including habitat targets. USFWS, WVNWRC, EI
  - a. Develop and disseminate habitat prescriptions specifically for agricultural producers (e.g. abridge Tech Note for lay audience).
3. Continue outreach to additional partners by promoting regional recovery and habitat management (e.g. WA/OR State Lands, WA/OR State Parks, land trusts, mitigation banks, SWCDs, Pacific Birds Habitat Joint Venture, North Pacific LLC, LCREP) and partnering with larger entities to expand support for lark conservation.

## Recovery Action 5. Develop and implement a post-delisting monitoring plan.

*(Priority 3) As the lark approaches the targets established in this recovery plan, a plan to monitor after de-listing will be needed to ensure that the rangewide population remains secure.*