

U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Eremophila alpestris strigata*

COMMON NAME: Streaked horned lark

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: June 2004

STATUS/ACTION

Initial 12-month Petition Finding: not warranted
 warranted
 warranted but precluded (also complete (c) and (d) in section on petitioned candidate species- why action is

precluded)

Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: January 7, 2003

90-day positive - FR date: _____

12-month warranted but precluded - FR date: _____

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: _____

New LP: _____

Latest date species became a candidate: October 30, 2001

Candidate removal: Former LP: _____

A - Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

I - Insufficient information exists on biological vulnerability and threats to support listing.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Bird; Alaudidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Washington, Oregon, and British Columbia, Canada

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Washington and Oregon

LEAD REGION CONTACT: Scott McCarthy (503/231-6131)

LEAD FIELD OFFICE CONTACT: Western Washington Fish and Wildlife Office, Dr. L. Karolee Owens (360/753-4369)

BIOLOGICAL INFORMATION:

Species Description

Horned larks (*Eremophila alpestris*) are small, ground-dwelling birds, approximately 16–20 centimeters (6–8 inches) in length (Beason 1995). Adults are pale brown, but shades of brown vary geographically among the subspecies. The face has a yellow wash. Adults have a black bib, black whisker marks, and black “horns” – feather tufts that can be raised or lowered, but are usually raised in males. Black tail feathers have white margins. Juveniles lack the black face pattern and are varying shades of gray, from almost white to almost black with a sliver-speckled back. The streaked horned lark (*Eremophila alpestris strigata*) has a dark brown dorsal surface, yellowish underparts, a walnut brown nape and yellow eyebrow stripe and throat (Beason 1995). This subspecies is conspicuously more yellow beneath and darker (reddish) on the back than any other subspecies of horned lark in the Pacific Northwest.

Taxonomy

Eremophila alpestris strigata was first described by Henshaw in 1884; the type locality was Fort Steilacoom, Washington (Rogers 2000). This is one of 21 subspecies of horned larks in North America; 15 subspecies occur in western North America (Beason 1995). Subspecies of horned larks are based primarily on differences in color, body size, and wing size. Western populations of horned larks are paler and smaller than eastern and northern populations (Beason 1995). There are three other breeding subspecies of horned larks in Washington: *Eremophila alpestris alpina*, *Eremophila alpestris merrilli*, and *Eremophila alpestris lamprochroma* (Rogers 2000).

Drovetski et al. (2004) evaluated the conservation status and level of genetic diversity of the streaked horned lark using complete mitochondrial ND2 gene. Twenty samples from the southern Puget Sound region of Washington, and 60 horned lark samples from Alaska, Washington, Oregon, and California were analyzed. Twenty-eight haplotypes identified among 80 horned larks formed 3 clades: Pacific Northwest (alpine and eastern Washington, Alaska), Pacific Coast (streaked horned lark (Puget Sound) and coastal California), and Great Basin (Oregon). Streaked horned larks were closely related to the California samples and only distantly related to the three closest localities (alpine and eastern Washington and Oregon). Only one of the eastern Washington individuals shared the streaked horned lark haplotype, indicating a gene flow from western Washington to eastern Washington. There was no evidence of immigration into the streaked horned lark population from any of the sampled localities. Statistically significant data analyses indicate the streaked horned lark population is well differentiated and

isolated from all other sampled localities, including western California. All 20 streaked horned lark individuals shared the same haplotype with no variation in the ND2 sequences. All other localities had multiple haplotypes. A bottleneck caused by range contraction and habitat loss due to human activity probably caused such severe reduction of mtDNA diversity. Streaked horned larks are unique, isolated, and have little genetic diversity, indicating the subspecies has been evolving independently for some time. Genetic analyses support the subspecies designation for the streaked horned lark (Drovetski, et al. 2004), which has been considered a relatively well-defined subspecies based on physical characteristics (phenotypically) (American Ornithologists Union 1957; Behle 1942; Beason 1995). Consequently, the streaked horned lark is considered a conservation priority (Drovetski, et al. 2004).

Habitat

The streaked horned lark nests on the ground in sparsely vegetated sites in short-grass dominated habitats (Pearson 2003; Pearson and Hopey 2004). Historically this type of habitat was found in prairies in western Oregon and Washington and along the coast of Washington. Today the streaked horned lark nests in native prairies, coastal dunes, fallow agricultural fields, lightly to moderately grazed pastures, seasonal mudflats, airports, and dredged material islands in the Columbia River (Gabrielson and Jewett 1940; Altman 1999; Rogers 1999a; Pearson 2003; Pearson and Hopey 2004).

Historical Range/Distribution

Historically, the streaked horned lark's breeding range extended from southern British Columbia (Campbell et al. 1997) south through the Puget lowlands and outer coast of Washington (Jewett et al. 1953). At the time of European settlement, the streaked horned lark was described as very abundant in all of the prairies of the Puget Sound region in Washington (Suckley and Cooper 1860; Dawson and Bowles 1909). The subspecies was considered common in the early 1950s on the prairies of western Washington and abundant throughout the valleys west of the Cascades in Washington (Jewett et al. 1953). There are historical breeding records for Whatcom, Skagit, Island, Pierce, Thurston, Mason, Grays Harbor, Pacific, and Clark Counties, Washington. Although there are no known breeding records, streaked horned larks may also have bred in King and Clallam Counties (Rogers 2000).

The breeding range extended farther south through the Willamette Valley of Oregon where the streaked horned lark was a year-round resident in the northern Willamette Valley (Johnson 1880). In the 1940s, the subspecies was a "very common permanent resident" in the southern Willamette Valley (Gullion 1950). Historically, the streaked horned lark was considered scarce along the Oregon coast (Gabrielson and Jewett 1940).

Current Range/Distribution

The streaked horned lark is currently considered rare and has been extirpated as a breeding species throughout much of its range, including British Columbia, Canada, the San Juan Islands and northern Puget Sound region of Washington, and the Rogue Valley in Oregon (Altman 1999; Rogers 2000; Pearson 2003). Anecdotal descriptions of abundance indicate this decline has occurred since the 1950s. The last breeding record in British Columbia was in 1972 and the last summer sighting was in 1987. A few may have persisted in the Fraser Valley until the mid-

1990s (Campbell et al. 1997).

Currently, the subspecies is found in the Puget lowlands, coastal areas, and on Columbia River islands in Washington. Breeding sites are found in Grays Harbor, Mason, Pierce, Thurston, Pacific, and Wahkiakum Counties, Washington (Rogers 2000).

Streaked horned larks breed in the Willamette Valley in Oregon, and are most common in the central Willamette Valley, particularly in and around Baskett Slough National Wildlife Refuge. Breeding is not known in the Rogue and Umpqua Valleys in southwestern Oregon, and there is little information available on streaked horned larks breeding along the Oregon coast. Streaked horned larks are believed to winter in the Willamette Valley (S. Pearson, Washington Department of Natural Resources (WDNR), pers. comm. 2004).

Population Estimates/Status

In 1999, 49 streaked horned larks were detected at 11 sites in the south Puget lowlands and the outer coast of Washington. In 2000, 58 streaked horned larks (51 males and 7 females) were also detected at the same 11 sites. Pearson and Hopey (2004) discovered an additional breeding population on Fort Lewis Military Reservation (Fort Lewis) in Pierce County, Washington, in 2003. Currently, there are only six known sites in the Puget Sound Region (Rogers 1999a, 2000; MacLaren and Cummins 2000; Pearson 2003; Pearson and Hopey 2004). Intensive study of the 6 Puget lowland sites detected at least 81 territories with an estimated 162 streaked horned larks, based on evidence that all males were paired (Pearson and Hopey 2004). The 2004 field season should produce better population estimates for the Washington coast and the Columbia River islands (S. Pearson, pers. comm. 2004).

The breeding population in Oregon is estimated to include less than 300 birds. This estimate was based on all males (fewer than 150 singing males) being paired (Altman 1999). However, the population size is likely smaller because breeding sex ratios tend to be male biased (Lack 1954; Promislow et al. 1992). Preliminary data indicates low nest success (Altman 1999). Both the Washington and Oregon estimates are based on a significant amount of survey effort (Smith et al. 1997; Altman 1999, 2000; Rogers 1999a, 2000; MacClaren 2000; MacLaren and Cummins 2000; Pearson 2003; Pearson and Hopey 2004).

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

The greatest threat to the streaked horned lark is loss of habitat. Primary factors contributing to the loss and degradation of habitat include the conversion of native grassland to other uses, such as agriculture and homes; encroachment of woody vegetation because of fire suppression; and invasion of prairie habitat by nonnative plant species, such as Scot's broom (*Cytisus scoparius*) and sod forming grasses (*Holcus* sp. and *Arrhenatherum elatius*) (Hall 1995; Rogers 1999a). Native prairies and grasslands have been virtually eliminated throughout the range of the species as a result of human activity. In the Willamette Valley in Oregon, native grassland has been reduced from the most common vegetation type to scattered parcels intermingled with rural residential development and farmland. It is estimated that less than 1 percent of the native

grassland and savanna remains (Altman 2000). In the south Puget Sound region, where most of Washington's prairies historically occurred, only 3 percent of the historic prairie is considered intact (Crawford and Hall 1997). In the remaining prairies, many of the native bunch grass communities have been lost to introduced pasture grasses (Rogers 2000). The grassland at Cattle Point on San Juan Island has been invaded by nonnative sod-forming grasses that are avoided by streaked horned larks (S. Pearson, pers. comm. 2004).

In coastal areas, the introduction of Eurasian beach grass (*Ammophila arenaria*), currently found in high densities on most of coastal Oregon and Washington, has drastically altered the structure of dunes on the outer coast. The tall, dense, leaf canopy of this plant creates unsuitable habitat for streaked horned larks (Rogers 1999b; MacLaren 2000). The vegetation density of this beach grass has increased in the fore and secondary dunes where streaked horned larks are likely to nest (Wiedemann 1987).

Streaked horned larks also use a variety of manmade habitats having sparse vegetation similar in structure to native prairies. However, these manmade habitats are subject to human disturbance (plowing, mowing, recreational and military activities), flooding (wetland mudflats), or are ephemeral in nature (plowed fields, bare ground in fields) (Altman 1999). Streaked horned lark populations are vulnerable to both direct threats (e.g., nest destruction) and indirect threats (e.g., nest abandonment due to disturbance). Consequently, populations using these areas may have low nesting success and may actually be population sinks (Rogers 1999a).

The extent of changes in streaked horned lark populations along the Columbia River is unknown. One result of flood control by the construction of dams is the establishment of willows (*Salix*), black cottonwood (*Populus trichocarpa*), and other vegetation on sandbars where this species may have nested (Rogers 2000).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

None known.

C. Disease or predation.

Disease is not known to be a factor.

Predation is the primary source of nest failure (Pearson 2003; Pearson and Hopey 2004). Seventy percent of nest failures were caused by predation at four study sites in 2002. A garter snake (*Thamnophis* sp.) and American crow (*Corvus brachyrhynchos*) were observed eating young and eggs (Altman 1999; Pearson 2003; Pearson and Hopey 2004). Predation on grassland bird species by domestic cats and crows at one south Puget Sound site has been documented (Rogers 2000).

Streaked horned larks apparently disappeared from the San Juan Islands in 1962 (Lewis and Sharpe 1987; Rogers 2000). Cattle Point, a former breeding site on San Juan Island, had not undergone a dramatic change in vegetation in 1962, although it has since been invaded by nonnative sod-forming grasses avoided by streaked horned larks (S. Pearson, pers. comm. 2004). Introduction of several exotic animal species to the island roughly coincides with the

disappearance of the streaked horned lark. Introduced predators, including feral ferrets (*Mustela outorius*) and red foxes (*Vulpes vulpes*), may have significantly affected ground nesting birds and played a role in the decline of streaked horned larks (Rogers 2000).

D. The inadequacy of existing regulatory mechanisms.

The streaked horned lark is protected by the Federal Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) and by State laws as a nongame species. Breeding habitat, however, receives little protection from these laws. For example, the Migratory Bird Treaty Act prohibits the taking of “nests” but does not protect habitat.

The streaked horned lark is considered a Red List species in British Columbia, Canada, but is apparently extirpated there (<http://www.natureserve.org/explorer/>).

The streaked horned lark is also listed as a State Candidate by the Washington Department of Fish and Wildlife (WDFW), but receives no protection under State law. Although there is no State Endangered Species Act in Washington, the Washington Fish and Wildlife Commission has the authority to list species (RCW 77.12.020). State listed species are protected from direct take, but do not provide protection for their habitat (RCW 77.15.120). The streaked horned lark is a Priority Species under the WDFW Priority Habitats and Species Program. As a Priority Species, the streaked horned lark may receive some protection of its habitat under environmental reviews of applications for county or municipal development permits (WDFW 2001b). Streaked horned larks are listed as critically imperiled (S1) by the Washington Natural Heritage Program.

Oregon has a State Endangered Species Act, but the streaked horned lark is not State listed. Although this species is on the Oregon sensitive species list and is considered critically sensitive, this designation provides little protection (ODFW 1996, OAR 635–100–0040). The “critical” designation indicates a species for which a listing as threatened or endangered is pending or listing as threatened or endangered may be appropriate if immediate conservation actions are not taken. Once an Oregon “native wildlife” species is federally listed as threatened or endangered, it is included as a State listed species and receives some protection and management, primarily on State owned or managed lands (OAR 635–100–0100 to OAR 635–100–0180; ORS 496.171 to ORS 496.192). The Oregon Natural Heritage Program lists the streaked horned lark as imperiled (S2).

E. Other natural or manmade factors affecting its continued existence.

Nesting habitat in Oregon is subject to a variety of activities that may destroy nests. Altman (1999) documented the destruction of nests by plowing and vehicles in farm fields. Nest abandonment may also occur as a result of these activities. Other human activities, including horseback riding, dog walking and training, flying model airplanes, and bird watching occur in the remaining prairie habitat. Miller et al. (1998) documented the presence of a well-used nature trail in the vicinity of nesting grassland birds had a negative effect on bird productivity. In a study of four sites in 2002 and 2003, abandonment caused 20 percent of nest failures, and human activities caused 10 percent of nest failures (Pearson and Hopey 2004).

Streaked horned lark nests on dredge spoil islands in the Columbia River are subject to

destruction by dredging activities. Dredged material is deposited on spoil islands during the nesting season in habitat with documented use by streaked horned larks (Eric Cummins, WDFW, pers. comm. 2000). New dredge spoil was deposited at a location where streaked horned larks occurred in 1999 near Puget Island in the Columbia River. Although streaked horned larks were observed in the vicinity in 2000, only sparse low vegetation remained on the island. In a similar situation on the Oregon side of the Columbia River, eight singing males were observed on Rice Island in June 2000. However, dredge spoil was deposited in July where the singing males had been observed. No streaked horned larks were observed all season on Sand Island, an island near the mouth of the Columbia River where dredge spoil is deposited (MacLaren 2000).

The disappearance of streaked horned larks from San Juan Island, Washington, may also be related to the introduction of other exotic species, including the Eurasian rabbit (*Oryctolagus cuniculus*) and the Eurasian skylark (*Alauda arvensis*) (Rogers 2000). The grazing patterns of the Eurasian rabbit may have altered the vegetation structure preferred by streaked horned larks. Eurasian skylarks may have outcompeted streaked horned larks for nest sites. Introduction of exotic species to the island roughly coincides with the disappearance of the streaked horned lark (Rogers 2000).

Four streaked horned lark nesting sites in the south Puget Sound region are associated with airports, including two military bases (Rogers 2000; Pearson and Hopey 2004). Although regular grass mowing to meet flight path regulations may help maintain the grassland habitat, nests are occasionally destroyed by maintenance activities (Pearson 2003; Pearson and Hopey 2004). Potential airport expansions could result in further losses of some of these populations.

SUMMARY OF REASONS FOR ADDITION, REMOVAL OR LISTING PRIORITY CHANGE

___ Is the removal based on a Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) finding. If “Yes”, summarize the specific PECE evaluation criteria that were met in determining that the conservation effort is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis.

FOR PETITIONED CANDIDATE SPECIES (also complete c and d for initial 12-month petition findings):

- a. Is listing warranted? Yes
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
- c. Is a proposal to list the species as threatened or endangered in preparation? No
- d. If the answer to c. above is no, provide an explanation of why the action is precluded.

We find that the immediate issuance of a proposed rule and timely publication of a final rule for this subspecies has been precluded for the preceding 12 months, and continues to

be precluded, by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, emergency listings, and essential litigation related, administrative, and program management functions. We will continue to monitor the status of this subspecies as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions over the past 12 months, see the discussion of “Progress on Revising the Lists,” in the current CNOR, which can be viewed on our Internet website (<http://endangered.fws.gov/>).

LAND OWNERSHIP:

In Washington, one site is owned by the U.S. Fish and Wildlife Service (Service), one site by the WDNR, five sites by the U.S. Department of Defense, two sites by municipal airports, and two are privately owned.

In Oregon, streaked horned larks are found on Baskett Slough, Ankeny, and Finley National Wildlife Refuges, U.S. Army Corps of Engineers lands at Fern Ridge and two dredged material islands on the Columbia River and Willamette Mission State Park. These lands contain perhaps 20–25 percent of the Willamette Valley population (Bob Altman, American Bird Conservancy, pers. comm. 2000). The remainder of the population is on private lands.

PRELISTING : The Service has funded surveys in Washington to better describe numbers and distribution of streaked horned larks.

A streaked horned lark project, “Identifying Habitat Features and Developing a Survey Protocol for Breeding Streaked Horned Larks in the Puget Lowlands of Washington,” was funded, in part, by the Service through a Cooperative Agreement with the WDNR in FY2002 and FY2003. Objectives of the study included developing a streaked horned lark survey protocol and identifying habitat features important to successful breeding at the nest site, territory, and landscape scales. In 2002, 59 nests were located and monitored for reproductive success. Monitoring included arrival dates, clutch initiation dates, and dates of nesting activity. Habitat variables associated with 42 territories and 59 nests were measured at 4 Puget lowland sites. A GIS layer will be created using location and behavior information for use by land managers in identifying streaked horned lark activity centers and adjusting management activities (e.g., mowing) in those areas. Three census methods were evaluated. Management recommendations included minimizing human activities in breeding areas, habitat restoration, Scot’s broom control, control of turf forming grasses, mowing timing and grass height, and eliminating potential sources of food (e.g., garbage and food scraps) for predators (Pearson 2003; Pearson and Hopey 2004)).

Pearson and Hopey (2004) initiated an experimental study at Gray Army Airfield to examine the effects of a grass-specific herbicide that apparently kills nonnative pasture grasses but not native

bunch grass (*Festuca roemerii*) or sedge (*Carex inops*). Application of the herbicide to areas with high coverage of nonnative grasses should result in a more sparsely vegetated habitat preferred by streaked horned larks. The results will be reported after the 2004 field season (Pearson and Hopey 2004).

As a consequence of this project, local land/airport managers became concerned about the importance of the four breeding sites and, in consultation with the researchers, adjusted mowing activities to avoid streaked horned lark nests, restricted public access, restricted model airplane flying over streaked horned lark activity centers, and were interested in the potential effects of usual activities, including troop training on Fort Lewis, on streaked horned lark breeding. Gray Army Airfield modified mowing regimes to avoid disturbing or destroying nests. Fort Lewis did not renew a permit allowing a model airplane club's use of a streaked horned lark breeding area. Fort Lewis posted signs prohibiting all recreational activities near nesting streaked horned larks. From 2001 through 2003, Fort Lewis used nonbreeding season mowing and controlled burns to control Scot's broom (Pearson and Hopey 2004).

DESCRIPTION OF MONITORING:

The Service has funded, in part, much of the recent survey, research, and monitoring efforts for the streaked horned lark. We maintain contact with the responsible agencies and species experts and annually request their reviews and updates to the candidate assessment forms during the revision process. Relevant literature and data for this species are obtained principally from contacts with responsible agencies and experts and their reports. Periodic literature searches for this species are also completed.

Management activities implemented in relation to the study of the four Puget area streaked horned lark populations will be monitored.

Monitoring and research to obtain information on populations, habitat variables, and features associated with streaked horned lark populations along the Washington coast and on islands in the Columbia River are scheduled for 2004.

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LISTING PRIORITY

THREAT				
Magnitude	Immediacy	Taxonomy	Priority	
High	Imminent	Monotypic genus	1	
		Species	2	
		Subspecies/population	3	
	Non-imminent		Monotypic genus	4
			Species	5
			Subspecies/population	6*
Moderate to Low	Imminent	Monotypic genus	7	
		Species	8	
		Subspecies/population	9	
	Non-imminent		Monotypic genus	10
			Species	11
			Subspecies/population	12

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Rationale for listing priority number:

Magnitude: The high magnitude of threat is due to small populations with patchy and isolated distributions in habitats highly desirable for development. The threat of invasive plant species to the quality of a highly specific habitat requirement is high and constant. The numbers of individuals are low and the number of populations are few. In Washington, known populations occur on airports and two military bases where routine management and training activities can impact streaked horned lark breeding.

Imminence: Specific threats are not known to be immediate in nature, and some conservation measures, including adjusting management activity schedules to accommodate streaked horned lark nesting activities, have been initiated by land managers.

Is Emergency Listing Warranted? No Although there are few populations, they are widely scattered such that there is no single threat likely to result in extinction simultaneously. Management actions have been initiated at several locations, and conservation measures for snowy plovers may also benefit coastal populations of streaked horned larks.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all 12-month petition findings, additions of species to the candidate list, removal of candidate species, and listing priority changes.

Approve:

David B. Allen
July 19, 2004
Regional Director,
Fish and Wildlife Service
Date

Concur: Matt Hogan, Acting

5/2/05 _____
Director, Fish and Wildlife
Service Date

Do not concur: _____
Director, Fish and Wildlife Service

Date

Director's Remarks: _____

Date of annual review: June 21, 2004

Conducted by: Dr. L. Karolee Owens

Comments: _____
