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Endangered and Threatened Wildlife and Plants; Listing Taylor's Checkerspot Butterfly and Streaked Horned Lark and Designation of Critical Habitat; Proposed Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS–R1–ES–2012–0080; 4500030113]

RIN 1018–AY18

Endangered and Threatened Wildlife and Plants; Listing Taylor's Checkerspot Butterfly and Streaked Horned Lark and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, propose to list the Taylor's checkerspot butterfly as an endangered species, and to list the streaked horned lark as a threatened species under the Endangered Species Act of 1973, as amended (Act). We additionally propose to designate critical habitat for these species. These determinations fulfill our obligations under a settlement agreement. These are proposed regulations, and if finalized, the effect of these regulations will be to add these species to the List of Endangered and Threatened Wildlife and to designate critical habitat under the Endangered Species Act.

DATES: We will accept comments received or postmarked on or before December 10, 2012. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by November 26, 2012.

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: *http://www.regulations.gov.* In the Search box, enter Docket No. FWS–R1–ES–2012–0080, which is the docket number for this rulemaking. You may submit a comment by clicking on ''Comment Now!''.

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R1–ES–2012–0080; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We request that you send comments only by the methods described above. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

The coordinates or plot points or both from which the critical habitat maps are generated are included in the administrative record for this rulemaking and are available at *http://www.fws.gov/wafwo/, www.regulations.gov* at Docket No. [FWS–R1–ES–2012–0080], and at the Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for this rulemaking will also be available at the Fish and Wildlife Service Web site and Field Office set out above, and may also be included in the preamble and/or at *www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Ken S. Berg, Manager, Washington Fish and Wildlife Office, 510 Desmond Drive, Lacey, WA 98503, by telephone (360) 753–9440, or by facsimile (360) 534–9331. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Endangered Species Act (Act), a species may warrant protection through listing if it is an endangered or threatened species throughout all or a significant portion of its range. The species addressed in these proposed rules are candidates for listing and, by virtue of a settlement agreement, we must make a determination as to their present status under the Act. These status changes can only be done by issuing a rulemaking. The table below summarizes our determination for each of these candidate species:

Species	Present range	Status
Taylor's checkerspot butterfly, *Euphydryas editha taylori.*	British Columbia, Canada; Clallam, Pierce, and Thurston Counties, WA; and Benton County, OR.	Proposed Endangered.
Streaked horned lark, *Eremophila alpestris strigata.*	Grays Harbor, Mason, Pacific, Pierce, Thurston, Cowlitz, and Wahkiakum Counties, WA; Benton, Clackamas, Clatsop, Columbia, Lane, Linn, Marion, Multnomah, Polk, Washington, and Yamhill Counties, OR.	Proposed Threatened.

The basis for our action. Under the Endangered Species Act, we may determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

For those species for which we are proposing listing, we have determined that these species are impacted by one or more of the following factors to the extent that the species meets the definition of an endangered or threatened species under the Act:

- Habitat loss through conversion and degradation of habitat, particularly from agricultural and urban development, successional changes to grassland habitat, military training, and the spread of invasive plants;
- Predation;
- Inadequate existing regulatory mechanisms that allow significant threats such as habitat loss;
- Other natural or manmade factors, including low genetic diversity, small or isolated populations, low reproductive success, and declining population sizes;
- Aircraft strikes and training at airports; and
- Pesticide use or control as a pest species.

In this rule we propose to designate critical habitat for these species. We are proposing to designate critical habitat for the Taylor's checkerspot butterfly and streaked horned lark in Washington and Oregon as follows:

- Approximately 6,875 acres (ac) (2,782 hectares (ha)) are proposed for designation as critical habitat for the Taylor's checkerspot butterfly.
- Approximately 12,159 ac (4,920 ha) are proposed for designation as critical habitat for the streaked horned lark.

The basis for our action. Under the Endangered Species Act, we are required to designate critical habitat for any species that is determined to be endangered or threatened. We are required to base the designation on the best available scientific data after taking into consideration economic, national security, and other relevant impacts. An area may be excluded from the final designation of critical habitat if the

benefits of exclusion outweigh the benefits of designation, unless the exclusion will result in the extinction of the species.

We are proposing to promulgate special rules. We are considering whether to exempt from the Act's take prohibitions (at section 9), existing maintenance activities and agricultural practices located on private and Tribal lands where the streaked horned lark occurs. The intent of this special rule would be to increase support for the conservation of the streaked horned lark and provide an incentive for continued management activities that benefit this species and its habitat.

We are preparing an economic analysis. To ensure that we fully consider the economic impacts, we are preparing a draft economic analysis of the proposed designations of critical habitat. We will publish an announcement and seek public comments on the draft economic analysis when it is completed.

We will seek peer review. We are seeking comments from knowledgeable individuals with scientific expertise to review our technical assumptions, analysis of the best available science, and application of that science or to provide any additional scientific information to improve these proposed rules. Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

We are seeking public comment on this proposed rule. Anyone is welcome to comment on our proposal or provide additional information on the proposal that we can use in making a final determination on the status of this species. Please submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. Within 1 year following the publication of this proposal, we will publish in the **Federal Register** a final determination concerning the listing of the species and the designation of its critical habitat or withdraw the proposal if new information is provided that supports that decision.

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat or both.

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq.*), which are:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

(e) Other natural or manmade factors affecting its continued existence.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats;

(4) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species;

(5) Any information on the biological or ecological requirements of the species, and ongoing conservation measures for the species and its habitat;

(6) The reasons why we should or should not designate areas as ''critical habitat'' under section 4 of the Act (16 U.S.C. 1531 *et seq.*), including whether there are threats to any of these species from human activity, the degree of which can be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(7) Specific information on:

(a) The amount and distribution of habitat for the Taylor's checkerspot butterfly and streaked horned lark;

(b) What areas that were occupied at the time of listing (or are currently occupied) and that contain features essential to the conservation of the species should be included in the designation and why;

(c) Special management considerations or protection that may be needed in critical habitat areas we are proposing; and

(d) What areas not occupied at the time of listing are essential for the conservation of the species and why.

(8) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(9) Information on the projected and reasonably likely impacts of climate change on the Taylor's checkerspot butterfly and streaked horned lark, and on proposed critical habitat.

(10) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation; in particular, any impacts on small entities or families, and the benefits of including or excluding areas that exhibit these impacts.

(11) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act.

(12) Additional information pertaining to the promulgation of a special rule to exempt take of the streaked horned lark on civilian airports, agricultural fields, and tribal lands under section 4(d) of the Act.

(13) Whether any populations of the streaked horned lark should be considered separately for listing as a distinct population segment (DPS), and if so, the justification for how that population meets the criteria for a DPS under the Service's Policy Regarding the Recognition of Distinct Vertebrate Population Segments under the Endangered Species Act (61 FR 4722, February 7, 1996).

(14) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made ''solely on the basis of the best scientific and commercial data available.''

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We request that you

send comments only by the methods described in the **ADDRESSES** section.

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the Web site. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov.* Please include sufficient information with your comments to allow us to verify any scientific or commercial information you include.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov,* or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Previous Federal Actions

Candidate History

We first identified the Taylor's checkerspot butterfly and the streaked horned lark as candidates for listing in the 2001 Notice of Review of Native Species that are Candidates for Listing as Endangered or Threatened (CNOR) (USFWS 2001). All candidate species are assigned listing priority numbers (LPN) that are based on the immediacy and magnitude of threats and taxonomic status. In 2001, both of these species were assigned an LPN of 6, which reflects threats of a high magnitude that are not considered imminent.

In 2004, based on new information, we determined that the Taylor's checkerspot butterfly faced imminent threats of a high magnitude and reassigned it an LPN of 3 (69 FR 24876; May 4, 2004). In 2006, the streaked horned lark was also reassigned an LPN of 3. During our review we determined that the continued loss of suitable lark habitat, risks to the wintering populations; and plans for development, hazing, and military training activities (71 FR 53755; September 12, 2006) were imminent threats to the subspecies. The candidate status for Taylor's checkerspot butterfly and streaked horned lark was most recently reaffirmed in the October 26, 2011, CNOR (USFWS 2011). The U.S. Fish and Wildlife Service (Service) completed action plans for Taylor's checkerspot butterfly and streaked horned lark and set conservation targets and identified actions to achieve those targets over the next 5 years. These plans can be found on the Service's Web site at: *http://ecos.fws.gov/docs/action_plans/doc3089.pdf* (Taylor's checkerspot butterfly) and *http://www.fws.gov/wafwo/pdf/STHL_Action%20Plan_Sept2009.pdf* (streaked horned lark).

Petition History

In 2001, we developed internal, discretionary candidate assessment documents for the Taylor's checkerspot butterfly and streaked horned lark. These candidate assessments were published in the **Federal Register** on October 30, 2001 (USFWS 2001). On December 10, 2002, we received two separate petitions for these species. The first was from the Xerces Society, Center for Biological Diversity, Oregon Natural Resources Council, Friends of the San Juans, and Northwest Ecosystem Alliance to list the Taylor's checkerspot butterfly (also known as ''whulge checkerspot'') *(Euphydryas editha taylori)* as endangered. The petitioners requested that critical habitat be designated. We also received a petition from the Center for Biological Diversity, Friends of the San Juans, Oregon Natural Resources Council, and Northwest Ecosystem Alliance requesting that we list the streaked horned lark (*Eremophila alpestris strigata*) as endangered and designate critical habitat concurrent with the listing. Because the Service had already determined that these species warranted listing and placed them on the candidate list in 2001, we have been evaluating these species as resubmitted petition findings on an annual basis. On July 12, 2011, the Service filed a multiyear work plan as part of a proposed settlement agreement with the Center for Biological Diversity and others, in a consolidated case in the U.S. District Court for the District of Columbia. The settlement agreement was approved by the court on September 9, 2011, and will enable the Service to systematically review and address the conservation needs of more than 250 candidate species, over a period of 6 years, including the Taylor's checkerspot butterfly and streaked horned lark. These proposed rules fulfill, in part, the terms of that settlement agreement.

Background

We discuss below only those topics directly relevant to the proposed listing of the Taylor's checkerspot butterfly and the streaked horned lark in this section of the proposed rule.

Species Information—Taylor's Checkerspot Butterfly

Taylor's checkerspot butterflies are medium-sized, colorfully marked butterflies with a checkerboard pattern on the upper (dorsal) side of the wings (Pyle 2002, p. 310). They are orange with black and yellowish (or white) spot bands, giving a checkered appearance (Pyle 1981, p. 607; Pyle 2002, p. 310). Taylor's checkerspot butterflies were historically known to occur in British Columbia, Washington, and Oregon, and current distribution has been reduced from over 80 locations rangewide to 14. Taylor's checkerspot butterflies produce one brood per year. They overwinter (diapause) in the fourth or fifth larval instar (developmental) phase and have a flight period as adults of 10 to 14 days, usually in May, although depending on local site and climatic conditions, the flight period begins in late April and extends into early July, as in Oregon, where the flight season may last for up to 45 days (Ross 2008, p. 2).

Taxonomy

Taylor's checkerspot butterfly is a subspecies of Edith's checkerspot butterfly (*Euphydryas editha*). The Taylor's checkerspot butterfly was originally described by W.H. Edwards (1888) from specimens collected from Beacon Hill Park in Victoria, British Columbia (BC). *Euphydryas editha taylori* is recognized as a valid subspecies by the Integrated Taxonomic Information System (ITIS 2012a). It is one of several rare and threatened subspecies, including the Bay checkerspot (*E. e. bayensis*) from the San Francisco Bay area and the Quino checkerspot (*E. e. quino*) from the San Diego, California, region; both are federally listed as endangered species. Several other subspecies of *Euphydryas editha* are known to occur in Washington and Oregon, including Bean's checkerspot (*E. e. beani*) known from the north Cascades of Washington; Strand's checkerspot (*E. e. edithana*) in the foothills of the Columbia Basin, including the low hills of the Blue Mountains in Washington and the Wallowa Mountains in Oregon, primarily east of where other subspecies are known; and Colonia checkerspot (*E. e. colonia*) known from high-elevation sites of the Olympic Peninsula and the Cascades of Washington and Oregon from the Wenatchee Mountains in Washington to the Siskiyou Mountains in Oregon.

Habitat and Life History

Taylor's checkerspot butterflies occupy open habitat dominated by

grassland vegetation throughout their range. In Washington, Taylor's checkerspot butterflies inhabit glacial outwash prairies in the south Puget Sound region; shallow-soil balds (a bald is a small opening on slopes in a treeless area, dominated by herbaceous vegetation) (Chappell 2006 p. 1) and grasses, within a forested landscape, roadsides, and former clear-cut areas within a forested matrix on the northeast Olympic Peninsula, and a coastal stabilized dune site near the Straits of Juan de Fuca (Stinson 2005, pp. 93–96). The two Oregon sites are found in the vicinity of Corvallis, Benton County, on grassland hills in the Willamette Valley (Vaughan and Black 2002, p. 7; Ross 2008, p. 1; Benton County 2010, Appendix N, p. 5). The recently discovered population on Denman Island in Canada (for details, see Current Range and Distribution, below), discovered in May 2005, occupies an area that had been clear-cut harvested, and is now dominated by, and maintained as, grass and forb vegetation. This is the first record for the species in British Columbia since 1998 (Heron 2008, pers. comm.; Page *et al.* 2009, p. 1). In British Columbia, Canada, Taylor's checkerspot butterflies were historically known to occupy coastal grassland habitat, not forests that were converted to early successional conditions by clear-cutting, on Vancouver Island and nearby islands.

Female Taylor's checkerspot butterflies and their larvae utilize plants that contain defensive chemicals known as iridoid glycosides, which have been recognized to influence the selection of oviposition sites by adult nymphalid butterflies (butterflies in the family Nymphalidae) (Murphy *et al.* 2004, p. 22; Page *et al.* 2009, p. 2), and function as a feeding stimulant for some checkerspot larvae (Kuussaari *et al.* 2004, p. 147). As maturing larvae feed, they accumulate these defensive chemical compounds from their larval host plants into their bodies. According to the work of Bowers (1981, pp. 373–374), this accumulation appears to deter predation. These larval host plants include members of the Broomrape family (Orobanchaceae), such as *Castilleja* (paintbrushes) and *Orthocarpus* = *Tryphysaria* (owl's clover), and native and nonnative *Plantago* species, which are members of the Plantain family (Plantaginaceae) (Pyle 2002, p. 311; Vaughan and Black 2002, p. 8). The recent rediscovery in 2005 of Taylor's checkerspot butterflies in Canada indicated that additional food plants (*Veronica serpyllifolia* (thymeleaf speedwell) and *V. beccabunga* ssp. *Americana* (American speedwell)) were being utilized by Taylor's checkerspot butterfly larvae (Heron 2008, pers. comm.; Page *et al.* 2009, p. 2). Taylor's checkerspot butterfly larvae had previously been confirmed feeding on *Plantago lanceolata* (narrow-leaf plantain) and *P. maritime* (sea plantain) in British Columbia (Guppy and Shepard 2001, p. 311), narrow-leaf plantain and *Castilleja hispida* (harsh paintbrush) in Washington (Char and Boersma 1995, p. 29; Pyle 2002, p. 311; Severns and Grosboll 2011, p. 4), and feed exclusively on narrow-leaf plantain in Oregon (Dornfeld 1980, p. 73; Ross 2008, pers. comm.; Severns and Warren 2008, p. 476). Dr. Robert Michael Pyle has speculated that Taylor's checkerspot butterfly larvae likely fed upon the threatened *Castilleja levisecta* (golden paintbrush) in historical times when both species were more widespread and sympatric (overlapped) in their distribution (Pyle 2002, p. 311; Pyle 2007, pers. comm.).

Historical Range and Distribution

Historically, Taylor's checkerspot butterfly was likely distributed throughout grassland habitat found on prairies, shallow-soil balds, grassland bluffs, and grassland openings within a forested matrix in south Vancouver Island, northern Olympic Peninsula, the Puget Sound, and the Willamette Valley. The historical range and abundance of the species are not precisely known because extensive searches for Taylor's checkerspot butterfly did not occur until recently. Northwest prairies were formerly more common, larger, and interconnected, and would likely have supported a greater distribution and abundance of Taylor's checkerspot butterflies than prairie habitat does today. According to Pyle (2012, *in litt.*):

> ''*Euphydryas editha taylori* was previously more widely distributed and much denser in occurrence than is presently the case on the Puget Prairies. The checkerspot was abundant on the Mima Mounds National Area Preserve (NAP) and surrounding prairies in 1970. In the mid-eighties, the butterflies flew by the thousands on Rock Prairie, a private farm property west of Tenino. All of these sites have since been rendered unsuitable for *E. e. taylori* through management changes, and the butterfly has dropped out of them; meanwhile, many other colonies have disappeared in their vicinity through outright development or conversion of the habitat. The same is true for bluff-top colonies I knew in the early '70s at Dungeness. The ongoing loss and alteration of habitat in the western Washington grasslands has without question led to the shrinkage of Taylor's checkerspot occurrences from a regional constellation to a few small clusters.''

Before recent declines over roughly the last 10 or 15 years the Taylor's checkerspot butterfly was known from an estimated 80 locations: 24 in British Columbia, 43 in Washington, and 13 in Oregon (Hinchliff 1996, p. 115; Shepard 2000, pp. 25–26; Vaughan and Black 2002, p. 6; Stinson 2005, pp. 93–96, 123–124). These sites included coastal and inland prairies on southern Vancouver Island and surrounding islands in the Straits of Georgia, British Columbia and the San Juan Island archipelago (Hinchliff 1996, p. 115; Pyle 2002, p. 311), as well as open prairies on post-glacial gravelly outwash and shallow-soil balds in Washington's Puget Trough (Potter 2010, p. 1), the north Olympic Peninsula (Holtrop 2010, p. 1), and grassland habitat within a forested matrix in Oregon's Willamette Valley (Benton County 2010, Appendix N, p. 5).

The 1949 field season summary for North American lepidoptera (Hopfinger 1949, p. 89) states that an abundant distribution of Taylor's checkerspot butterfly was known from the south Puget Sound prairies: ''*Euphydryas editha* (*taylori*), as usual, appeared by the thousands on Tenino Prairie.'' By 1989, Pyle (p. 170) had reported that there were fewer than 15 populations remaining rangewide. Surveys in 2001 and 2002 of the three historical locations on Hornby Island, British Columbia, failed to detect any Taylor's checkerspot butterflies; the last observation of the Taylor's checkerspot butterfly from this location was 1995 (Committee on the Status of Endangered Wildlife in Canada (COSEWIC) 2011, p. 15). By fall 2002, only six populations were known to occur rangewide, four from the south Puget Sound region in Washington, one from San Juan County, Washington, and one from the Willamette Valley of Oregon (USFWS 2002a).

Current Range and Distribution

Based on historical and current data, the distribution and abundance of Taylor's checkerspot butterflies have declined significantly rangewide with the majority of local extirpations occurring from approximately the mid-1990s in Canada (COSEWIC 2011, p. 15), 1999–2004 in south Puget Sound, and around 2006 at the Bald Hills location. Several new locations harboring Taylor's checkerspot butterflies have been rediscovered on historical sites on Washington Department of Natural Resources (WDNR) lands (USFWS 2004, pp. 3–4; USFWS 2007, p. 5) and have also been found at new locations on natural and manipulated balds within the upper

Dungeness River watershed in Washington. Currently 13 individual populations of Taylor's checkerspot butterflies are known to occur; these populations are distributed in British Columbia, Canada (1), Washington (10), and Oregon (2).

Nearly all localities for Taylor's checkerspot butterflies in British Columbia have been lost; the only location currently known from British Columbia was discovered in 2005 (COSEWIC 2011, p. iv). In Oregon, although many surveys have been conducted at a variety of historical and potential locations within the Willamette Valley, many of those have failed to detect the species; the number of locations occupied by Taylor's checkerspot butterflies has declined from 13 to 2 (Ross 2011, *in litt.,* p. 1). In Washington State, more than 43 historical locales were documented for Taylor's. In 2012, we have 11 documented locations for Taylor's checkerspot butterflies with only 1 of the localities harboring more than 1,000 individuals, and the majority of known sites have daily counts of fewer than 100 individual butterflies.

Due to the limited distribution and few populations of Taylor's checkerspot butterfly, surveys for this species are quite thorough, generally consisting of a minimum of 3 days of visits during the flight period, and occasionally numbering up to 10 or 12 days of counts. Multiple days of counts during the annual flight period greatly increases the reliability of abundance data for butterflies, thus we believe the data on numbers of Taylor's checkerspot butterflies to be highly reliable.

Canada

After years of surveys (2001 through 2004) at historical population sites in British Columbia that failed to detect Taylor's checkerspot butterflies (COSEWIC 2011, pp. 15–16), a population was discovered on Denman Island in 2005. Denman Island is located approximately 106 miles (170 km) north of Victoria, British Columbia, along the eastern shores of Vancouver Island in the Straits of Georgia. Taylor's checkerspot butterfly records from British Columbia date from 1888 through 2011, when the last survey was conducted. Surveys are regularly conducted on Vancouver Island and other historical locations (Page *et al.* 2009, p. iv). In 2008, a single Taylor's checkerspot butterfly was detected on Vancouver Island in the Courtney-Comox area, where they had not been observed since 1931 (COSEWIC 2011, pp. 15–16). Additional surveys were conducted at this location and only the single butterfly was observed. It is likely that this single adult had dispersed from the Denman Island population located approximately 0.3 mi (0.5 km) away. As of 2012, the only existing known population for Taylor's checkerspot butterflies in Canada is on Denman Island (Page *et al.* 2009, p. 2; COSEWIC 2011, p. iv).

Washington

In Washington, surveys have been conducted annually for Taylor's checkerspot butterflies in currently and historically occupied sites. Surveys on south Puget Sound prairies have been conducted from 1997 through 2011 by the Washington Department of Fish and Wildlife (WDFW), WDNR, The Nature Conservancy of Washington (now the Center for Natural Lands Management), and personnel from the Wildlife Branch of Joint Base Lewis-McChord (JBLM; formerly known as Fort Lewis). In 1994, a report from Char and Boersma (1995) indicated the presence of Taylor's checkerspot butterflies on the 13th Division Prairie on JBLM; no additional locations have been reported since 1999, when a handful of Taylor's checkerspot butterflies were observed by WDFW (Hays *et al.* 2000, p. 13). Surveys have been conducted annually in this area since 2000; however, no Taylor's checkerspot butterflies have been detected during the spring flight period (Ressa 2003, pp. 7, 14; Gilbert 2004, p. 5; Linders 2012c, *in litt.*). Taylor's checkerspot butterflies are believed to be extirpated from the 13th Division Prairie at JBLM (Linders 2012c, *in litt.*).

Four other populations in Thurston County (Glacial Heritage, Scatter Creek north and south units, and Rocky Prairie NAP) had Taylor's checkerspot butterflies present in 1997. No adult Taylor's checkerspot butterflies were observed during surveys conducted in 1998 and 1999 at these locations (Hays *et al.* 2000, p. 13; Stinson 2005, p. 95). Subsequent annual surveys at these four sites have not detected Taylor's checkerspot butterflies (with the exception of two sites where the butterfly has recently been translocated (Linders and Olson 2011, p. 17; Bidwell 2012, pers. comm.)).

Four historical locales for Taylor's checkerspot butterflies were permanently lost in the south Puget Sound region to development (Dupont, JBLM Training Area 7S, Spanaway, and Lakewood in Pierce County) or conversion to agriculture (Rock Prairie in Thurston County) (Stinson 2005, pp. 93–96). In addition, several older Washington specimens are labeled with general or imprecise locality names on their collection labels (e.g., Olympia 1893; Tenino 1929; Shelton 1971, Dungeness 1999) (Stinson 2005, pp. 94–95). Some of these site names may refer to unknown or currently occupied locales but due to their imprecise nature, the true location of these potential populations has not been determined.

Surveys of 15 prairies within the south Puget Sound landscape in 2001 and 2002 located Taylor's checkerspot butterflies on only 4 sites in Thurston and Pierce Counties (Stinson 2005, pp. 93–96). Three of the four sites were found in the Bald Hill landscape in Southeast Thurston County. Taylor's checkerspot butterflies were documented at the Bald Hills through 2007, but there have been no detections since, despite regular and thorough surveying from 2001 through 2011 (Potter 2011, p. 3). This number has declined substantially in recent years as habitat has become increasingly shaded and modified by encroaching trees, nonnative grasses, and the invasive, nonnative shrub Scot's broom (*Cytisus scoparius*). Potter (2010, p. 1) reported multiple site visits to conduct redundant surveys in formerly occupied bald habitats during the 2008–2010 flight period with no Taylor's checkerspot butterflies observed. The species is presumed to be extirpated from this location.

The 91st Division Prairie is located on JBLM on the eastern edge of the approximately 6,000 acre (2,400 ha) prairie. The largest current populations of Taylor's checkerspot butterfly within the south Puget Sound have been observed here, and have served as the source populations for the collection of larvae for captive breeding to support translocation efforts. Several small, discrete patches of habitat are occupied by Taylor's checkerspot butterflies. The close proximity of these patches indicates that a relatively robust population (more than 1,000 butterflies surveyed in a single day in 2006) is likely present at JBLM.

In the course of conducting surveys for another rare grassland-associated butterfly found in Washington, the island marble (*Euchloe ausonides insulanus*), over 150 potential grassland locations were surveyed for Taylor's checkerspot butterfly in the north Puget Sound region during spring of 2005 through the spring of 2011 (Miskelly 2005; Potter *et al.* 2011) where historical locales for Taylor's checkerspot butterflies exist (Pyle 1989, p. 170). Although the flight periods and habitat of both butterflies overlap, no Taylor's checkerspot butterflies were found during these surveys.

Several historical sites with potentially suitable habitat were surveyed on the north Olympic Peninsula (Clallam County) during spring 2003. Taylor's checkerspot butterfly was found to occupy five locations in this geographic area in 2003. At one historical site near the mouth of the Dungeness River, only a few individuals were detected. However, no Taylor's checkerspot butterflies were detected at this location during surveys from 2005 through 2009 (McMillan 2007, pers. comm.; Potter 2012, pers. comm.). The other four populations were found on grassy openings on shallow-soiled bald habitat west of the Elwha River. Two of these sites were estimated to support at least 50 to 100 adult Taylor's checkerspot butterflies (Dan Kelly Ridge and Eden Valley), and just a few individuals were found at the two other bald sites (Striped Peak and Highway 112) (Hays 2011, p. 1). Subsequent surveys at the latter two sites, Striped Peak and Highway 112, from 2004–2011, have failed to relocate or detect any Taylor's checkerspot butterflies.

In 2006 a population was discovered near the town of Sequim. Taylor's checkerspot butterflies have since been detected annually at this location from 2006–2011 (Hays 2009, pers. comm.; Hays 2011, p. 29). At this site, Taylor's checkerspot butterflies inhabit approximately 5 ac (2 ha) of estuarine, deflation plain (or back beach), a road with restricted use, and farm-edge habitat. In 2010, a maximum count of 568 Taylor's checkerspot butterflies was recorded on a single day (April 3, 2010); normally peak daily counts from this location range from 50 to 240 individuals (Hays 2011, p. 29).

Since 2007, three new Taylor's checkerspot butterfly populations have been found in Clallam County on Olympic National Forest lands. All three sites are located in the Dungeness River watershed: Bear Mountain, Three O'Clock Ridge, and Upper Dungeness (Holtrop 2009, p. 2). The Forest Service and WDFW are currently monitoring butterfly numbers at these sites annually. As of 2012, a total of six occupied sites are known from Clallam County: Sequim, Eden Valley, Bear Mountain, Three O'Clock Ridge, and Upper Dungeness.

Oregon

All of the 13 historical locales within the Willamette Valley of western Oregon have been surveyed regularly by local lepidopterists (McCorkle 2008, pers. comm.; Ross 2005: Stinson 2005, p. 124; Benton County 2010, p. 13; Potter 2012, pers. comm.). Taylor's checkerspot butterflies were formerly reported to exist in large numbers (''swarms on the meadows beside Oak Creek'') on the upland prairies of the Willamette Valley in Lane, Benton, and Polk Counties (Dornfeld 1980, p. 73). Now only remnant populations exist in Oregon. In 1999, Taylor's checkerspot butterflies were discovered along the Bonneville Power Administration (BPA) right-of-way corridor in an area known as Fitton Green in Benton County. In 2004 surveys for Taylor's checkerspot butterfly were expanded in the Willamette Valley where a second population was discovered on grassland openings within the Beazell Memorial Forest in Benton County. These two locations for Taylor's checkerspot butterfly are currently the only occupied patches known from Oregon.

Population Estimates/Status

There is little historical information on population estimates for Taylor's checkerspot butterflies and the survey techniques used for monitoring have differed over time. Early surveys at most locations were done using Pollard transect sampling methodology. Prior to implementing distance sampling as the accepted survey method for Taylor's checkerspot butterflies, population sizes were determined by tallying the number of all butterflies observed in a day and this was expressed as the maximum day count for a population at a specific site. During the survey season from 2007 through 2011, WDFW implemented distance sampling methods to estimate abundance at the site in Washington on JBLM. Distance sampling involves establishing permanent transects over a proportion of the survey area to determine the probability of detecting the butterfly. This number is used to calculate abundance (Marques 2009). Because Taylor's checkerspot butterfly population numbers change daily due to emergence and mortality of individuals, density estimates were computed by survey date (Linders and Olson 2011, p. 11). Although the sampling methods have changed over the years, we believe they are useful in providing a general estimate of population trend information. Additionally, since 2007, a consistent survey method for distance sampling has been implemented throughout most of the range, providing reliable annual information.

Canada

The recently discovered population in British Columbia (BC) was confirmed by the invertebrate specialist for the BC Ministry of the Environment (Heron 2008, pers. comm.). A total of 12 adults were observed on Denman Island during 2005 (Table 1) (Page *et. al.* 2009, p. 1). We have no reports regarding counts for 2006 surveys. However, in 2007, more than 600 butterflies were detected and tallied from this location during the entire survey effort (Heron 2008, p. 5). Surveys at this location in 2008 detected 324 Taylor's checkerspot butterflies (Page *et al.* 2009, p. 17). In 2009, a mark-recapture study of Taylor's was conducted on Denman Island. Over 1,200 butterflies were marked and 45 were recaptured. Based on this study the population was estimated at 13,000 individual butterflies; however, this estimate is likely exaggerated and inaccurate since the survey efforts were not consistent over the course of the study (COSEWIC 2011, p. 38). During the same flight period in 2009, an additional 950 individuals were observed on Denman Island (COSEWIC 2011, p. 38). Only 12 butterflies were observed in 2011 by the same surveyors using identical methods at the same location.

Washington

In Washington State, more than 43 historical locales were documented as having Taylor's checkerspot butterfly populations. In 2012, there are only 11 documented populations, with only 1 of the sites harboring more than 1,000 individuals at any time and the majority of known sites yielding daily counts of fewer than 100 individual butterflies. These locations are as follows: Striped Peak, Highway 112, Sequim, Eden Valley, Dan Kelly Ridge, Bear Mountain, Three O'Clock Ridge, Upper Dungeness, 91st Division Prairie on JBLM, Scatter Creek Wildlife Area, and the Bald Hills.

Taylor's checkerspot butterflies have been surveyed annually on the northeastern Olympic peninsula since 2003. Striped Peak, located on WNDR lands, supported Taylor's checkerspot butterflies as early as 1985. Between 2003 and 2005, only a few adult butterflies were observed by WDFW personnel at Striped Peak and a second site known as Highway 112. No butterflies have been observed at the Striped Peak or Highway 112 locations since that time (McMillan 2009, pers. comm.; Hays 2011, p. 1). Both sites are being encroached by *Pseudotsuga menziesii* (Douglas-fir) native shrubs, and the invasive shrub Scot's broom (Thomas 2011, pers. obs.).

In 2006, at the Sequim population, as many as 100 butterflies were detected on a single day; however, on many days fewer butterflies were observed (McMillan 2007, pers. comm.). In spring 2007, researchers detected 100 to 200 butterflies on peak days. Both larvae and adults were present at this site in

2007 and 2008 (Potter 2012b, *in litt.*). At Eden Valley, up to 60 butterflies had been detected on a single day survey prior to surveys in 2006, but fewer than 30 were detected during the 2006 surveys. During surveys conducted between 2007 and 2011, maximum daily counts ranged between 50 and 538 individuals (Potter 2012b, *in litt.*).

On Dan Kelly Ridge, as many as 50 butterflies were detected during surveys on a single day in 2006. This is a large, linear site with a ridgeline road greater than 2 miles (3.2 km) long; grassland habitat with larval food plants are found along the road margins and in forest openings on steep south facing slopes where shallow-soil balds support Taylor's checkerspot butterflies. Between 2007 and 2010, maximum daily counts ranged from 60 to 100 butterflies. Surveys were not conducted at this site in 2011.

In 2007, on Three O'Clock Ridge in the upper Dungeness watershed of Olympic National Forest, a small number (two) of Taylor's checkerspot butterflies were first detected (Holtrop 2010, p. 1). This site was surveyed in 2008 by Forest Service and WDFW personnel who detected 12 adult butterflies (Holtrop 2010, p. 1). In 2009, approximately 300 ac (121 ha) of suitable habitat were surveyed (Holtrop 2010, p. 5) and two new populations were discovered, at Upper Dungeness and Bear Mountain. Maximum single day counts ranged from 40 to 69 butterflies at the Three O'Clock Ridge, Upper Dungeness, and Bear Mountain. These sites have supported Taylor's checkerspot butterflies consistently since their discovery (Holtrop 2010, p. 13).

The largest known population of Taylor's checkerspot butterfly is located on the 91st Division Prairie at JBLM where a high complement of larval and nectar host plants exist. During the 2005 and 2006 flight seasons (Combs 2005, p. 8; Wolford 2006, pp. 18–20), more than 1,000 individuals were detected on maximum single day counts and hundreds of individuals were observed throughout the flight season (Combs 2005, p. 8; Wolford 2006, pp. 18 and 20). Surveys in spring 2007 detected slightly lower numbers despite the high survey effort. In 2007, the single-day maximum count for Taylor's checkerspot butterflies was 637 (Wolford *et al.* 2007, p. 8). This decrease in butterfly numbers was observed elsewhere for Taylor's checkerspot butterfly in Thurston County during 2007, and is likely related to weather conditions that year. In 2008, detections at 91st Division Prairie indicated a further decline to 187 butterflies, a 37 percent decline from the 2007 surveys (Linders 2012, *in litt.*).

During 10 surveys conducted in the spring of 2009 at 91st Division Prairie, 77 individual butterflies were counted as a maximum daily count (Linders 2009a, entire; Thomas 2009b, pers. obs.). Spring counts in 2009, 2010, and in 2011 showed a general trend of increasing observations at this site, apparently because of a rebound in larval food plants along the roads margins used by military training vehicles, and from repeated and frequent fires caused by military training exercises. Oviposition on larval host plants (narrow-leaf plantain) near road margins was observed at all known Taylor's checkerspot butterfly locations in Washington State (Severns and Grosboll 2011, p. 66).

Experimental introductions of Taylor's checkerspot butterflies have been attempted in the south Puget Sound region. In 2006, Taylor's checkerspot butterfly larvae were placed out at four locations in Thurston and Pierce County: (1) In March 2006, larvae were released at Glacial Heritage Preserve, a Thurston County park; (2) in June 2006, larvae were placed at two locations on JBLM (Training Area 7 South (TA 7S) and 13th Division Prairie); and (3) at the Scatter Creek Wildlife area in Thurston County. None of these initial test releases resulted in observations of adult butterflies at these locations during the subsequent flight season (Linders 2007, p. vi). A subsequent release of 199 larvae in March 2007 at Scatter Creek Wildlife Area resulted in 11 Taylor's checkerspot butterfly observations there in May 2007 (Linders 2007, p. 18).

Based on this early success with captive rearing of larvae, an additional 340 larvae were placed at Scatter Creek Wildlife Area in March 2008. A peak daily count of 16 adult Taylor's checkerspot butterflies were documented at this location in 2008 (Linders 2011c). In 2009, Linders released approximately 2,250 post-diapause larvae onto suitable habitat at Scatter Creek Wildlife Areas and 13th Division Prairie on JBLM, which resulted in 48 observations of adult butterflies and a peak day count of 36 adults at Scatter Creek South, two adults at Scatter Creek North and 1 individual at 13th Division Prairie on JBLM (Linders 2010, *in litt.,* entire). In 2010, 155 adult butterflies were detected at Scatter Creek Wildlife Area, and 207 adults were detected (counted) at Range 50 on JBLM (Linders and Olson 2011, p. 23). During late winter of 2010, a total of 2,036 post-diapause larvae were released onto restored prairie habitat at Scatter Creek Wildlife Area and Range 50 on the 91st Division Prairie on JBLM in the south Puget Sound region (Linders and Olson 2011, p. 17. During distance survey counts in 2011, 84 adult butterflies were counted at Scatter Creek Wildlife Area, and 903 adults were counted at Range 50 on the 91st Division Prairie on JBLM (Linders and Olson 2011, p. 23).

Surveys of private property and WDNR-managed land in the Bald Hill area in 2006 detected only a few individual Taylor's checkerspot butterflies during any given survey day on each of the primary balds. Reports and personal observation indicate that the density and composition of larval host plants have declined at the Bald Hills area and portions of some of the balds have been invaded by Douglas-fir and other shrub species, including Scot's broom, thus reducing the area and suitability of habitat (Potter 2011, p. 1). Taylor's checkerspot butterflies have not been detected in the Bald Hills area since 2007, despite intensive survey efforts in 2008 and 2011 (Potter 2011, p. 1). This population of Taylor's checkerspot butterfly is presumed to be extirpated.

Oregon

In Oregon, Taylor's checkerspot butterflies are known from two locations in the Willamette Valley of Benton County, Beazell Memorial Park (BMP) and Fitton Green Natural Area. Annually, population estimates at these two sites have varied from greater than 1,200 butterflies at Fitton Green in 2005 to as few as 150 butterflies in 2006 at BMP (Ross, 2010, pp. 4, 6; Ross 2011, *in litt.*). During spring of 2010, the flight period began later than normally, due to cool, wet weather that persisted over much of the Pacific Northwest. In 2011, the flight season for Taylor's checkerspot butterfly in Oregon began later than any year since surveys commenced (Ross 2012, p. 3). In 2010 and 2011, total population counts were 991 and 516 for Fitton Green (Ross 2012, p. 4), and 849 and 223 for the BMP location (Ross 2012, p. 6), respectively.

Species Information—Streaked Horned Lark

The streaked horned lark is endemic to the Pacific Northwest (British Columbia, Washington, and Oregon; Altman 2011, p. 196) and is a subspecies of the wide-ranging horned lark (*Eremophila alpestris*). Horned larks are small, ground-dwelling birds, approximately 16–20 centimeters (6–8 inches) in length (Beason 1995, p. 2). Adults are pale brown, but shades of

brown vary geographically among the subspecies. The male's face has a yellow wash in most subspecies. Adults have a black bib, black whisker marks, black ''horns'' (feather tufts that can be raised or lowered), and black tail feathers with white margins (Beason 1995, p. 2). Juveniles lack the black face pattern and are varying shades of gray, from almost white to almost black with a silver-speckled back (Beason 1995, p. 2). The streaked horned lark has a dark brown back, yellowish underparts, a walnut brown nape and yellow eyebrow stripe and throat (Beason 1995, p. 4). This subspecies is conspicuously more yellow beneath and darker on the back than almost all other subspecies of horned lark. The combination of small size, dark brown back, and yellow underparts distinguishes this subspecies from all adjacent forms.

Taxonomy

The horned lark is found throughout the northern hemisphere (Beason 1995, p. 1); it is the only true lark (Family Alaudidae, Order Passeriformes) native to North America (Beason 1995, p. 1). There are 42 subspecies of horned lark worldwide (Clements *et al.* 2011, entire). Twenty-one subspecies of horned larks are found in North America; 15 subspecies occur in western North America (Beason 1995, p. 4). Subspecies of horned larks are based primarily on differences in color, body size, and wing length. Molecular analysis has further borne out these morphological distinctions (Drovetski *et al.* 2005, p. 875). Western populations of horned larks are generally paler and smaller than eastern and northern populations (Beason 1995, p. 3). The streaked horned lark was first described as *Otocorys alpestris strigata* by Henshaw (1884, pp. 261–264, 267–268); the type locality was Fort Steilacoom, Washington (Henshaw 1884, p. 267). There are four other breeding subspecies of horned larks in Washington and Oregon: Pallid horned lark (*E. a. alpina*), dusky horned lark (*E. a. merrilli*), Warner horned lark (*E. a. lamprochroma*), and arctic horned lark (*E. a. articola*) (Marshall *et al.* 2003, p. 426; Wahl *et al.* 2005, p. 268). None of these other subspecies breed within the range of the streaked horned lark, but all four subspecies frequently overwinter in mixed species flocks in the Willamette Valley (Marshall *et al.* 2003, pp. 425–427).

Drovetski *et al.* (2005, p. 877) evaluated the genetic distinctiveness, conservation status, and level of genetic diversity of the streaked horned lark using the complete mitochondrial ND2 gene. Samples from 32 streaked horned larks in western Washington and 66 horned larks from Alaska, alpine Washington, eastern Washington, eastern Oregon, and California were analyzed. The 30 haplotypes identified from the 98 horned larks formed three clades: Pacific Northwest (alpine and eastern Washington, Alaska), Pacific Coast (Puget Sound and Washington coast) and coastal California), and Great Basin (Oregon) (Drovetski *et al.* 2005, p. 880)).

Streaked horned larks were closely related to the California samples and only distantly related to the three closest localities (alpine Washington, eastern Washington, and Oregon); only one of the eastern Washington individuals shared the streaked horned lark haplotype, indicating a single example of gene flow from western Washington to eastern Washington (Drovetski *et al.* 2005, p. 880). There was no evidence of immigration into the streaked horned lark range from any of the sampled localities. Analyses indicate that the streaked horned lark population is well-differentiated and isolated from all other sampled localities, including coastal California, and has ''remarkably low genetic diversity'' (Drovetski *et al.* 2005, p. 875). All 32 streaked horned lark individuals shared the same haplotype with no variation between sequences compared. All other localities had multiple haplotypes despite smaller sample sizes (Drovetski *et al.* 2005, pp. 879–880).

The lack of mitochondrial DNA (mtDNA) diversity exhibited by streaked horned larks is consistent with a population bottleneck (Drovetski *et al.* 2005, p. 881). The streaked horned lark is differentiated and isolated from all other sampled localities, and although it was ''* * * historically a part of a larger Pacific Coast lineage of horned larks, it has been evolving independently for some time and can be considered a distinct evolutionary unit'' (Drovetski *et al.* 2005, p. 880). Thus, genetic analyses support the subspecies designation for the streaked horned lark (Drovetski *et al.* 2005, p. 880), which has been considered a relatively well-defined subspecies based on physical (phenotypic) characteristics (Beason 1995, p. 4). The streaked horned lark is recognized as a valid subspecies by the Integrated Taxonomic Information System (ITIS 2012c).

Life History and Habitat

Horned larks forage on the ground in low vegetation or on bare ground (Beason 1995, p. 6); adults feed mainly on grass and weed seeds, but feed insects to their young (Beason 1995, p. 6). A study of winter diet selection found that streaked horned larks in the Willamette Valley eat seeds of introduced weedy grasses and forbs, focusing on the seed source that is most abundant (Moore 2008b, p. 9). In this Willamette Valley study, a variety of grasses (*Digitaria sanguinalis* (large crabgrass), *Panicum capillare* (witchgrass), *Sporobulum* sp. (dropseed)), and unidentified grasses (Poaceae) and forbs (*Chenopodium album* (common lambsquarters), *Amaranthus retroflexus* (redroot pigweed), *Trifolium arvense* (rabbitfoot clover) and *Kickxia* sp. (cancerweed)) were common in the winter diet of the streaked horned lark (Moore 2008b, p. 16).

Horned larks form pairs in the spring (Beason 1995, p. 11). Altman (1999, p. 11) used a small sample (n=3) of streaked horned lark territories in the Willamette Valley to give a mean territory size of 1.9 acres (0.77 ha) with a range of 1.5 to 2.5 acres (0.61 to 1.0 ha). Horned larks create nests in shallow depressions in the ground and line them with soft vegetation (Beason 1995, p. 12). Female horned larks select the nest site and construct the nest without help from the male (Beason 1995, p. 12). Streaked horned larks establish their nests in areas of extensive bare ground, and nests are placed adjacent to clumps of bunchgrass (Pearson and Hopey 2004, pp. 1–2). In the Willamette Valley, nests are almost always placed on the north side of a clump of vegetation or another object such as root balls or soil clumps (Moore and Kotaich 2010, p. 18). Studies from Washington sites (the open coast, Puget lowlands and the Columbia River islands) have found strong natal fidelity to nesting sites—that is, streaked horned larks return each year to the place they were born (Pearson *et al.* 2008, p. 11).

The nesting season for streaked horned larks begins in mid-April and ends in the early part of August (Pearson and Hopey 2004, p. 11; Moore 2011, p. 32). Clutches range from 1 to 5 eggs, with a mean of 3 eggs (Pearson and Hopey 2004, p. 12). After the first nesting attempt in April, streaked horned larks will often re-nest in late June or early July (Pearson and Hopey 2004, p. 11). Young streaked horned larks leave the nest by the end of the first week after hatching, and are cared for by the parents until they are about 4 weeks old when they become independent (Beason 1995, p. 15).

Nest success studies (i.e., the proportion of nests that result in at least one fledged chick) in streaked horned larks report highly variable results. Nest success on the Puget lowlands of Washington is low, with only 28 percent

of nests successfully fledging young (Pearson and Hopey 2004, p. 14, Pearson and Hopey 2005, p. 16). According to reports from sites in the Willamette Valley, Oregon, nest success has varied from 23 to 60 percent depending on the site (Altman 1999, p. 1; Moore and Kotaich 2010, p. 23). At one site in Portland, Oregon, Moore (2011, p. 11) found 100 percent nest success.

Historically, nesting habitat was found on grasslands, estuaries, and sandy beaches in British Columbia, in dune habitats along the coast of Washington, in western Washington and western Oregon prairies, and on the sandy beaches and spits along the Columbia and Willamette Rivers. Today, the streaked horned lark nests in a broad range of habitats, including native prairies, coastal dunes, fallow and active agricultural fields, wetland mudflats, sparsely-vegetated edges of grass fields, recently planted Christmas tree farms with extensive bare ground, moderately- to heavily-grazed pastures, gravel roads or gravel shoulders of lightly-traveled roads, airports, and dredge deposition sites in the lower Columbia River (Altman 1999, p. 18; Pearson and Altman 2005, p. 5; Pearson and Hopey 2005, p. 15; Moore 2008, pp. 9–10, 12–14, 16). Wintering streaked horned larks use habitats that are very similar to breeding habitats (Pearson *et al.* 2005b, p. 8).

Habitat used by larks is generally flat with substantial areas of bare ground and sparse low-stature vegetation primarily comprised of grasses and forbs (Pearson and Hopey 2005, p. 27). Suitable habitat is generally 16–17 percent bare ground, and may be even more open at sites selected for nesting (Altman 1999, p.18; Pearson and Hopey 2005, p. 27). Vegetation height is generally less than 13 in (33 cm) (Altman 1999, p.18; Pearson and Hopey 2005, p. 27). Larks eat a wide variety of seeds and insects (Beason 1995, p. 6), and appear to select habitats based on the structure of the vegetation rather than the presence of any specific food plants (Moore 2008, p. 19). A key attribute of habitat used by larks is open landscape context. Our data indicate that sites used by larks are generally found in open (i.e., flat, treeless) landscapes of 300 acres (120 ha) or more (Converse *et al.* 2010, p. 21). Some patches with the appropriate characteristics (i.e., bare ground, low stature vegetation) may be smaller in size if the adjacent areas provide the required open landscape context; this situation is common in agricultural habitats and on sites next to water. For example, many of the sites used by larks on the islands in the Columbia River are small (less than 100 ac (40 ha)), but are adjacent to open water, which provides the open landscape context needed. Streaked horned lark populations are found at nearly every airport within the range of the subspecies, because airport maintenance requirements provide the desired open landscape context and short vegetation structure.

Although streaked horned larks use a wide variety of habitats, populations are vulnerable because the habitats used are often ephemeral or subject to frequent human disturbance. Ephemeral habitats include bare ground in agricultural fields and wetland mudflats; habitats subject to frequent human disturbance include mowed fields at airports, managed road margins, agricultural crop fields, and disposal sites for dredge material (Altman 1999, p. 19).

Historical Range and Distribution

The streaked horned lark's breeding range historically extended from southern British Columbia, Canada, south through the Puget lowlands and outer coast of Washington, along the lower Columbia River, through the Willamette Valley, the Oregon coast and into the Umpqua and Rogue River Valleys of southwestern Oregon.

British Columbia. The streaked horned lark was never considered common in British Columbia, but local breeding populations were known on Vancouver Island, in the Fraser River Valley, and near Vancouver International Airport (Campbell *et al.* 1997, p. 120; COSEWIC 2003, p. 5). The population declined throughout the 20th century (COSEWIC 2003, pp. 13–14); breeding has not been confirmed since 1978, and the subspecies is considered to be extirpated in British Columbia (COSEWIC 2003, p. 15). A single streaked horned lark was sighted on Vancouver Island in 2002 (COSEWIC 2003, p. 16).

Washington. The first report of streaked horned lark in the San Juan Islands, Washington, was in 1948 from Cattle Point (Goodge 1950, p. 28). There are breeding season records of streaked horned larks from San Juan and Lopez Islands in the 1950s and early 1960s (Retfalvi 1963, p. 13; Lewis and Sharpe 1987, p. 148, 204), but the last record dates from 1962, when seven individuals were seen in July on San Juan Island at Cattle Point (Retfalvi 1963, p. 13). The WDFW conducted surveys in 1999 in the San Juan Islands (Rogers 1999, pp. 3–4). Suitable nesting habitat was visually searched and a tape recording of streaked horned lark calls was used to elicit responses and increase the chance of detections (Rogers 1999, p. 4). In 2000, MacLaren and Cummins (in Stinson 2005, p.63) surveyed several sites recommended by Rogers (1999) including Cattle Point and Lime Kiln Point on San Juan Island. No larks were detected in the San Juan Islands during either survey effort (Rogers 1999, p. 4; Stinson 2005, p. 63).

There are a few historical records of streaked horned larks on the outer coast of Washington near Lake Quinault, the Quinault River and the Humptulips River in the 1890s (Jewett *et al.* 1953, p. 438; Rogers 2000, p. 26). More recent records reported larks at Leadbetter Point and Graveyard Spit in Pacific County in the 1960s and 1970s (Rogers 2000, p. 26). But no larks were detected on the Outer Coast during surveys conducted there in 1999 and 2000 (Stinson 2005, p. 63).

There are scattered records of streaked horned larks in the northern Puget Trough, including sightings in Skagit and Whatcom Counties in the mid-20th century (Altman 2011, p. 201). The last recorded sighting of a streaked horned lark in the northern Puget Trough was at the Bellingham Airport in 1962 (Stinson 2005, p. 52).

Over a century ago, the streaked horned lark was described as a common summer resident in the prairies of the Puget Sound region in Washington (Bowles 1898, p. 53; Altman 2011, p. 201). Larks were considered common in the early 1950s ''in the prairie country south of Tacoma'' and had been observed on the tide flats south of Seattle (Jewett *et al.* 1953, p. 438). By the mid-1990s, only a few scattered breeding populations existed on the south Puget Sound on remnant prairies and near airports (Altman 2011, p. 201).

There are sporadic records of streaked horned larks along the Columbia River. Sightings on islands near Portland, Oregon, date back to the early 1900s (Rogers 2000, p. 27). A number of old reports of streaked horned larks from the Columbia River east of the Cascade Mountains have been re-examined, and have been recognized as the subspecies *Eremophila alpestris merrilli* (Rogers 2000, p. 27; Stinson 2005, p. 51). On the lower Columbia River, it is probable that streaked horned larks breed only as far east as Clark County, Washington, and Multnomah County, Oregon (Roger 2000, p. 27; Stinson 2005, p. 51).

Oregon. The streaked horned lark's range extends south through the Willamette Valley of Oregon where it was considered abundant and a common summer resident over a hundred years ago (Johnson 1880, p. 636; Anthony 1886, p. 166). In the 1940s, the subspecies was described as a common permanent resident in the

southern Willamette Valley (Gullion 1951, p. 141). By the 1990s, the streaked horned lark was called uncommon in the Willamette Valley, nesting locally in small numbers in large open fields (Gilligan *et al.* 1994, p. 205; Altman 1999, p. 18). In the early 2000s, a population of more than 75 breeding pairs was found at the Corvallis Municipal Airport, making this the largest population of streaked horned larks known (Moore 2008, p. 15).

The streaked horned lark, while occasionally present, was never reported to be more than uncommon on the Oregon coast. The subspecies was described as an uncommon and local summer resident all along the coast on sand spits (Gilligan *et al.* 1994, p. 205); a few nonbreeding season records exist for the coastal counties of Clatsop, Tillamook, Coos, and Curry (Gabrielson and Jewett 1940, p. 403). Small numbers of larks were known to breed at the South Jetty of the Columbia River in Clatsop County, but the site was abandoned in the 1980s (Gilligan *et al.*1994, p. 205). There are no recent occurrence records from the Oregon coast.

In the early 1900s, the streaked horned lark was considered a common permanent resident of the Umpqua and Rogue River Valleys (Gabrielson and Jewett 1940, p. 402). The last confirmed breeding record in the Rogue Valley was in 1976 (Marshall *et al.* 2003, p. 425). There are no recent reports of streaked horned larks in the Umpqua Valley (Gilligan *et al.* 1994, p. 205; Marshall *et al.* 2003, p. 425).

Current Range and Distribution

Breeding Range. The streaked horned lark has been extirpated as a breeding species throughout much of its range, including all of its former range in British Columbia, the San Juan Islands, the northern Puget Trough, the Washington coast north of Grays Harbor, the Oregon coast, and the Rogue and Umpqua Valleys in southwestern Oregon (Pearson & Altman 2005, pp. 4–5).

The current range of the streaked horned lark can be divided into three regions: (1) The south Puget Sound in Washington; (2) the Washington coast and lower Columbia River islands (including dredge spoil deposition sites near the Columbia River in Portland, Oregon); and (3) the Willamette Valley in Oregon.

In the south Puget Sound, the streaked horned lark is found in Mason, Pierce, and Thurston Counties, Washington (Rogers 2000, p. 37; Pearson and Altman 2005, p. 23; Pearson *et al.* 2005a, p. 2; Anderson 2009, p. 4). Recent studies have found that streaked horned larks currently breed on six sites in the south Puget Sound. Four of these sites (13th Division Prairie, Gray Army Airfield, McChord Field, and 91st Division Prairie) are on JBLM. Small populations of larks also breed at the Olympia Regional Airport and the Port of Shelton's Sanderson Field (airport) (Pearson and Altman 2005, p. 23; Pearson *et al.* 2008, p. 3).

On the Washington coast, there are four known breeding sites: (1) Damon Point; (2) Midway Beach; (3) Graveyard Spit; and (4) Leadbetter Point in Grays Harbor and Pacific Counties. On the lower Columbia River, streaked horned larks breed on several of the sandy islands downstream of Portland, Oregon. Recent surveys have documented breeding streaked horned larks on Rice, Miller Sands Spit, Pillar Rock, Welch, Tenasillahe, Coffeepot, Whites/Browns, Wallace, Crims, and Sandy Islands in Wahkiakum and Cowlitz Counties in Washington, and Columbia and Clatsop Counties in Oregon (Pearson and Altman 2005, p. 23; Anderson 2009, p. 4; Lassen 2011, *in litt.*). The Columbia River forms the border between Washington and Oregon; some of the islands occur wholly in Oregon or Washington, and some are bisected by the State line. Larks also breed in Portland (Multnomah County, Oregon) at suitable sites near the Columbia River. These include an open field at the Rivergate Industrial Complex and the Southwest Quad at Portland International Airport; both sites are owned by the Port of Portland, and are former dredge spoil deposition fields (Moore 2011, pp. 9–12).

In the Willamette Valley, streaked horned larks breed in Benton, Clackamas, Lane, Linn, Marion, Polk, Washington, and Yamhill Counties. Larks are most abundant in the southern part of the Willamette Valley. The largest known population of larks is resident at Corvallis Municipal Airport in Benton County (Moore 2008. p. 15); other resident populations occur at the Baskett Slough, William L. Finley, and Ankeny units of the Service's Willamette Valley National Wildlife Refuge Complex (Moore 2008, pp. 8–9). Breeding populations also occur at municipal airports in the valley (including McMinnville, Salem, and Eugene) (Moore 2008, pp. 14–17). In 2008, a large population of streaked horned larks colonized a wetland and prairie restoration site on M–DAC Farms, a privately-owned parcel in Linn County; as the vegetation at the site matured in the following 2 years, the site became less suitable for larks, and the population declined (Moore and Kotaich 2010, pp. 11–13). This is likely a common pattern, as breeding streaked horned larks shift sites as habitat becomes available among private agricultural lands in the Willamette Valley (Moore 2008, pp. 9–11).

Wintering Range. Pearson *et al.* (2005b, p. 2) found that the majority of streaked horned larks winter in the Willamette Valley (72 percent) and on the islands in the lower Columbia River (20 percent); the rest winter on the Washington coast (8 percent) or in the south Puget Sound (1 percent). In the winter, most of the streaked horned larks that breed in the south Puget Sound migrate south to the Willamette Valley or west to the Washington coast; streaked horned larks that breed on the Washington coast either remain on the coast or migrate south to the Willamette Valley; birds that breed on the lower Columbia River islands remain on the islands or migrate to the Washington coast; and birds that breed in the Willamette Valley remain there over the winter (Pearson *et al.* 2005b, pp. 5–6). Streaked horned larks spend the winter in large groups of mixed subspecies of horned larks in the Willamette Valley, and in smaller flocks along the lower Columbia River and Washington Coast (Pearson *et al.* 2005b, p. 7; Pearson and Altman 2005, p. 7). During the winter of 2008, a mixed flock of over 300 horned larks was detected at the Corvallis Municipal Airport (Moore 2011a, pers. comm.).

Population Estimates and Current Status

Data from the North American Breeding Bird Survey (BBS) indicate that most grassland-associated birds, including the horned lark, have declined across their ranges in the past three decades (Sauer *et al.* 2011, pp. 3–5). The BBS can provide population trend data only for those species with sufficient sample sizes for analyses; there is insufficient data in the BBS for a rangewide analysis of the streaked horned lark's population trend (Altman 2011, p. 214). An analysis of recent data from a variety of sources concludes that the streaked horned lark has been extirpated from the Georgia Depression (British Columbia, Canada), the Oregon coast, and the Rogue and Umpqua Valleys (Altman 2011, p. 213); this analysis estimates the current rangewide population of streaked horned larks to be about 1,170–1,610 individuals (Altman 2011, p. 213).

In the south Puget Sound, approximately 150–170 streaked horned larks breed at six sites (Altman 2011, p. 213). Recent studies have found that larks have very low nest success in

Washington (Pearson *et al.* 2008, p. 8); comparisons with other ground-nesting birds in the same prairie habitats in the south Puget Sound showed that streaked horned larks had significantly lower values in all measures of reproductive success (Anderson 2010, p. 16). Estimates of population growth rate (λ, lambda) that include vital rates from nesting areas in the south Puget Sound, Washington coast, and Whites Island in the lower Columbia River indicate that the Washington population is declining precipitously; one study estimated that the population of streaked horned larks was declining by 40 percent per year ($\lambda = 0.61 \pm 0.10$ SD), apparently due to a combination of low survival and fecundity rates (Pearson *et al.,* 2008, p. 12). More recent analyses of territory mapping at 4 sites in the south Puget Sound found that the total number of breeding streaked horned lark territories decreased from 77 territories in 2004 to 42 territories in 2007—a decline of over 45 percent in 3 years (Camfield *et al.* 2011, p. 8). Pearson *et al.* (2008, p. 14) concluded that there is a high probability of south Puget Sound population loss in the future given the low estimates of fecundity and adult survival along with high emigration out of the Puget Sound.

On the Washington coast and Columbia River islands, there are about 120–140 breeding larks (Altman 2011, p. 213). Data from the Washington coast and Whites Islands were included in the population growth rate study discussed above; populations at these sites appear to be declining by 40 percent per year (Pearson *et al.* 2008, p. 12). Conversely, nest success is very high at the Portland industrial sites (Rivergate and the Southwest Quad). In 2010, nearly all nests successfully fledged young (Moore 2011, p. 13); only 1 of 10 monitored nests lost young to predation (Moore 2011, pp. 11–12).

There are about 900–1,300 breeding streaked horned larks in the Willamette Valley (Altman 2011, p. 213). The largest known population of streaked horned larks breeds at the Corvallis Municipal Airport; depending on the management conducted at the airport and the surrounding grass fields each year, the population has been as high as 100 breeding pairs (Moore and Kotaich 2010, pp. 13–15). In 2007, a large (580-acre (235-ha)) wetland and native prairie restoration project was initiated at M–DAC Farms on a former rye grass field in Linn County (Cascade Pacific RC&D 2012, p. 1). Large semipermanent wetlands were created at the site, and the prairie portions were burned and treated with herbicides (Moore and Kotaich 2010, pp. 11–13). These conditions created excellent quality ephemeral habitat for streaked horned larks and the site was used by about 75 breeding pairs in 2008 (Moore and Kotaich 2010, p. 12), making M–DAC the second-largest known breeding population of streaked horned larks that year. M–DAC had high use again in 2009, but as vegetation at the site matured, the number of breeding larks has declined, likely shifting to other agricultural habitats (Moore and Kotaich 2010, p. 13).

We do not have population trend data in Oregon that is comparable to the study in Washington by Pearson *et al.* (2008, entire); however, research on breeding streaked horned larks indicates that nest success in the southern Willamette Valley is higher than in Washington (Moore 2011b, pers. comm.). The best information on trends in the Willamette Valley comes from surveys by the Oregon Department of Fish and Wildlife (ODFW); the agency conducted surveys for grassland-associated birds, including the streaked horned lark, in 1996 and again in 2008 (Altman 1999, p. 2; Myers and Kreager 2010, p. 2). Point count surveys were conducted at 544 stations in the Willamette Valley (Myers and Kreager 2010, p. 2); over the 12-year period between the surveys, measures of relative abundance of streaked horned larks increased slightly from 1996 to 2008 (Myers and Kreager 2010, p. 11). Population numbers decreased slightly in the northern Willamette Valley and increased slightly in the middle and southern portions of the valley (Myers and Kreager 2010, p. 11).

We do not have conclusive data on population trends throughout the lark's range, but the rapidly declining population on the south Puget Sound suggests that the range of the streaked horned lark may still be contracting.

Range Contraction

The streaked horned lark has experienced a substantial contraction of its range; it has been extirpated from all formerly documented locations at the northern end of its range (British Columbia, and the San Juan Islands and northern Puget Trough of Washington), the Oregon coast, and the southern edge of its range (Rogue and Umpqua Valleys of Oregon). The lark's current range appears to have been reduced to less than half the size of its historical range in the last 100 years. The pattern of range contractions for other Pacific Northwest species (e.g., western meadowlark (*Sturnella neglecta)*) shows a loss of populations in the northern part of the range, with healthier populations persisting in the southern part of the range (Altman 2011, p. 214). The streaked horned lark is an exception to this pattern—its range has contracted from both the north and the south simultaneously (Altman 2011, p. 215).

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

In making this finding, information pertaining to each of the species in question in relation to the five factors provided in section 4(a)(1) of the Act is discussed below. In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species warrants listing as an endangered or threatened species as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of an endangered or threatened species under the Act.

We considered and evaluated the best available scientific and commercial information in evaluating the factors

affecting each of the species under consideration in this proposed rule.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Under this factor, the primary long term threats to Taylor's checkerspot butterfly and streaked horned lark are the loss, conversion, and degradation of habitat particularly to agricultural and urban development, successional changes to grassland habitat, and the spread of invasive plants.

The prairies of south Puget Sound and western Oregon are part of one of the rarest ecosystems in the United States (Noss *et al.* 1995, p. I–2; Dunn and Ewing 1997, p. v). Dramatic changes have occurred on the landscape over the last 150 years, including a 90 to 95 percent reduction in the prairie ecosystem. In the south Puget Sound region, where most of western Washington's prairies historically occurred, less than 10 percent of the original prairie persists, and only 3 percent remains dominated by native vegetation (Crawford and Hall 1997, pp. 13–14). In the remaining prairies, many of the native bunchgrass communities have been replaced by nonnative pasture grasses (Rogers 2000, p. 41), which larks avoid using for territories and nest sites (Pearson and Hopey 2005, p. 27). In the Willamette Valley, 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 one percent of the native grassland and savanna remains in Oregon (Altman *et al.* 2001, p. 261).

Development

Native prairies and grasslands have been severely reduced throughout the range of the Taylor's checkerspot butterfly and the streaked horned lark as a result of human activity due to conversion of habitat to residential and commercial development and agriculture. Prairie habitat continues to be lost, particularly to residential development (Stinson 2005, p. 70) by removal of native vegetation and the excavation and grading of surfaces and conversion to non-habitat (buildings, pavement, other infrastructure). Residential development is associated with increased infrastructure such as new road construction, which is one of the primary causes of landscape fragmentation (Watts *et al.* 2007, p. 736). Activities that accompany low-density development are correlated with decreased levels of biodiversity, mortality to wildlife, and facilitated introduction of nonnative invasive species (Trombulak and Frissell 2000, entire; Watts *et al.* 2007, p. 736). In the south Puget Sound lowlands, the glacial outwash soils and gravels underlying the prairies are deep and valuable for use in construction and road building, which leads to their degradation and destruction.

Since the 1850s, much of the Willamette Valley of Oregon has been altered by development (agricultural and urban). About 96 percent of the Willamette Valley is privately owned, and it is both the fastest growing area in Oregon and the most densely populated. The Willamette Valley provides about half of the state's agricultural sales, and 16 of top 17 private sector employers (manufacturing, high technology, forest products, agriculture, and services) are located there. The population projected for 2050 is approximately four million, or nearly double the current population (Oregon Department of Fish and Wildlife 2006, p. 237). The increase in population will result in increased building construction and road development, further impacting the remaining prairies and oak woodlands.

Taylor's Checkerspot Butterfly. The habitat of Taylor's checkerspot butterfly is highly fragmented across the region due to agricultural and low-density residential development. Fragmentation due to residential and associated road development has led to a reduction of native larval host plants and adult nectar plants as introduced invasive plant species, primarily Mediterranean grasses and shrubs such as Scot's broom, increasingly dominate the landscape and outcompete native plant species (see discussion below, under Invasives). Construction directly destroys habitat, as does conversion, and may kill any sessile or slow-moving organism in the construction footprint (Trombulak and Frissell 2000, p. 19). Unlike many other species of butterflies, Taylor's checkerspot butterflies spend approximately 50 weeks of their life cycle as eggs, larvae, or pupae with only a brief window of time (approximately 1–2 weeks) as winged adults (Stinson 2005, p. 78). Commercial and residential development, construction of related infrastructure including roads, and conversion of habitat to incompatible uses such as gravel mining directly affects Taylor's checkerspot butterfly larvae by killing individuals and destroying habitat.

When in flight, butterflies become subject to mortality from collision with vehicles on roads associated with residential development, which is commonly known to affect animals of all sizes, but especially insects (Trombulak and Frissell 2000, p. 20). Since the short flight season of Taylor's checkerspot butterflies directly corresponds with their reproductive period, death of gravid females could lead to population level consequences such as failure of entire populations. These sorts of traffic-collision related deaths may disproportionately affect Taylor's checkerspot butterflies in comparison with other butterflies, as many other kinds of butterflies are in flight for periods much longer than just their reproductive window.

Four historical locales for Taylor's checkerspot butterflies in the south Puget Sound region were lost to development or conversion. Dupont, Spanaway, and Lakewood were all converted to urban areas, and JBLM Training Area 7S became a gravel pit (Stinson 2005, pp. 93–96).

Streaked Horned Lark. Horned larks need expansive areas of flat, open ground to establish breeding territories. The large, flat, treeless areas that airports necessarily require have become attractive breeding sites for streaked horned larks as native prairies and scoured river banks in the Pacific Northwest have declined. Five of the six streaked horned lark nesting sites remaining in the Puget lowlands are located on or adjacent to airports and military airfields (Rogers 2000, p. 37; Pearson and Hopey 2005, p. 15). At least four breeding sites are found at airports in the Willamette Valley, including the largest known population at Corvallis Municipal Airport (Moore 2008, pp. 14–17). Stinson (2005, p. 70) concluded that if large areas of grass had not been maintained at airports, the streaked horned lark might have been extirpated from the south Puget Sound area. Although routine mowing to meet flight path regulations helps to maintain grassland habitat in suitable condition for nesting larks, the timing of mowing is critical.

Mowing during the active breeding season (mid-April to late July) can destroy nests or flush adults, which may result in nest failure (Pearson and Hopey 2005, p. 17; Stinson 2005, p. 72). Some of the airports in the range of the streaked horned lark have adjusted the frequency and timing of mowing in recent years to minimize impacts to larks (Pearson and Altman 2005, p. 10). In 2011, McChord Air Field at JBLM agreed to a mowing regime which would provide protections to the lark during their nesting period. Unfortunately, recent unseasonably wet weather hasn't allowed this strategy to be implemented. WDFW coordinates mowing schedules at the Olympia Airport to reduce impacts to larks.

In 2008, the Port of Olympia prepared an Interlocal Agreement with the WDFW that outlines management recommendations and mitigation for impacts to state-listed species from development at the airport. In December, 2010, a white paper and supplemental planning memorandum was developed as part of the Airport Master Plan Update (Port of Olympia 2010, entire). This document, which is outlined in Appendix 2 of the Master Plan Update, outlines management recommendations for the protection of critical areas and priority species, including the streaked horned lark. The recommendations include minimizing development, retaining open or bare ground, and avoiding mowing during the nesting season (March 15 through August 15) in known or potential lark nesting areas. Although the Port does not anticipate any development to occur in the streaked horned lark nesting areas within the next 20 years, the agreement is not a regulatory document that would preclude future development, which is a primary source of revenue for the Port.

Airport expansions could result in further losses of some populations. At the Olympia Airport, hangars were built in 2005 on habitat used by streaked horned larks for foraging, resulting in a loss of grass and forb-dominated habitat, which could result in a smaller local population due to reduced habitat availability for breeding and wintering larks (Pearson and Altman 2005, p. 12). Based on discussions with staff at Sanderson Field in Shelton, future development plans do not include impacts to streaked horned lark habitat at this time. The majority of the proposed development at Sanderson Field will occur in areas already impacted (between existing buildings). The West Ramp at Gray Army Air Field on JBLM was expanded in 2005 into areas previously used by breeding larks, resulting in a loss of available breeding habitat (Stinson 2005, p. 72).

At Portland International Airport, streaked horned larks nest in an area called the Southwest Quad; this is an old dredge material deposition site in a currently unused part of the airport. The Port of Portland, which owns the airport, may propose to develop the Southwest Quad to accommodate future expansion, though there is no current plan in place (Green 2012, *in litt.*). The future development of the Southwest Quad would result in the loss of at least 33 ac (13 ha) of habitat and three breeding territories (Moore 2011, p. 12).

The 13th Division Prairie at JBLM is used for helicopter operations (paratrooper practices, touch-and-go landings, and load drop and retrievals) and troop training activities. Foot traffic and training maneuvers that are conducted during the streaked horned lark breeding season likely are a contributing factor to nest failure and low nest success at 13th Division Prairie. Recently, a lark nest was destroyed at 13th Division Prairie by a porta-potty service vehicle (Linders 2012b, *in litt.*). Artillery training, off-road use of vehicles and troop maneuvers at the 91st Division Prairie are also conducted in areas used by larks during the nesting season. Because access into this training area is limited and streaked horned lark surveys are only conducted opportunistically, we do not know if or how many lark nests are lost due to military activities at 91st Division Prairie.

Industrial development has also reduced habitat available to breeding and wintering larks. The Rivergate Industrial Park, owned by the Port of Portland, is a large industrial site in north Portland near the Columbia River; the site is developed on a dredge spoil field, and still has some large areas of open space between the industrial buildings. Rivergate has been an important breeding site for streaked horned larks, and a wintering site for mixed flocks of up to five horned lark subspecies (including the streaked horned lark). In 1990, the field used by larks at Rivergate measured more than 260 ha (650 acres) of open sandy habitat (Dillon 2012, pers. comm.). In the years since, new industrial buildings have been constructed on the site; now only one patch of 32 ha (79 acres) of open dredge spoil field remains (Moore 2011, p. 9) and the breeding population has dropped from 20 pairs to 5 pairs in this time (Moore 2011, p. 10).

Loss of Ecological Disturbance Processes, Invasive Species, and Succession

The suppression and loss of ecological disturbance regimes, such as fire and flooding, across vast portions of the landscape has resulted in altered vegetation structure in the prairies and meadows and has facilitated invasion by nonnative grasses and woody vegetation, rendering habitat unusable for Taylor's checkerspot butterflies and streaked horned larks. The basic ecological processes that maintain prairies, meadows, and scoured river banks have disappeared from, or have been altered on, all but a few protected and managed sites.

Historically, the prairies and meadows of the south Puget Sound region of Washington and western Oregon are thought to have been actively maintained by the native peoples of the region, who lived here for at least 10,000 years before the arrival of Euro-American settlers (Boyd 1986, entire; Christy and Alverson 2011, p. 93). Frequent burning reduced the encroachment and spread of shrubs and trees (Boyd 1986, entire; Chappell and Kagan 2001, p. 42), favoring open grasslands with a rich variety of native plants and animals. Following Euro-American settlement of the region in the mid-19th century, fire was actively suppressed on grasslands, allowing encroachment by woody vegetation into the remaining prairie habitat and oak woodlands (Franklin and Dyrness 1973 p. 122; Boyd 1986, entire; Kruckeberg 1991, p. 287; Agee 1993, p. 360; Altman *et al.* 2001, p. 262).

Fires on the prairie create a mosaic of vegetation conditions, which serve to maintain native prairie forbs like *Camassia quamash* (common camas) *Achillea millefolium* (yarrow) and *Lomatium* spp. (desert parsley or biscuit root), which are adult nectar foods for Taylor's checkerspot butterfly. Stands of native perennial grasses (*Festuca idahoensis* ssp. *roemeri* (Roemer's fescue)) are also well adapted to regular fires and produce habitat favorable to the Taylor's checkerspot butterfly. In some prairie patches fires will reset succession back to bare ground, creating early successional vegetation conditions suitable for both Taylor's checkerspot butterflies and streaked horned larks (Pearson and Altman 2005, p. 13). The historical fire frequency on prairies has been estimated to be 3 to 5 years (Foster 2005, p. 8).

The result of fire suppression has been the invasion of the prairies and oak woodlands by native and nonnative plant species (Dunn and Ewing 1997, p. v; Tveten and Fonda 1999, p. 146), notably woody plants such as the native Douglas-fir and the nonnative Scot's broom, and nonnative grasses such as *Arrhenatherum elatus* (tall oatgrass) in Washington and *Brachypodium sylvaticum* (false brome) in the Willamette Valley of Oregon. This increase in woody vegetation and nonnative plant species has resulted in less available prairie habitat overall and habitat that is avoided by Taylor's checkerspot butterflies and streaked horned larks (Tveten and Fonda 1999, p. 155; Pearson and Hopey 2005, pp. 2, 27; Olson 2011a, pp. 12, 16).

Most butterflies avoid densely forested areas, as they are unable to generate enough heat from their own metabolism to provide them with the heat and energy they need to fly in shaded conditions. Streaked horned larks prefer areas that afford long sight lines and have low vegetation; both of

which are impeded by the presence of trees.

On tallgrass prairies in midwestern North America, fire suppression has led to degradation and the loss of native grasslands (Curtis 1959, pp. 296, 298; Panzer 2002, p. 1297). On northwestern prairies, fire suppression has allowed Douglas-fir to encroach on and outcompete native prairie vegetation for light, water, and nutrients (Stinson 2005, p. 7). On JBLM alone, over 16,000 acres (6,477 ha) of prairie has converted to Douglas-fir forest since the mid-19th century (Foster and Shaff 2003, p. 284). Where controlled burns or direct tree removal are not used as a management tool, this encroachment will continue to cause the loss of open grassland habitats for Taylor's checkerspot butterfly.

Restoration in some of the south Puget Sound grasslands in Washington has resulted in temporary control of Scot's broom and other invasive plants through the careful and judicious use of herbicides, mowing, grazing, and fire. Fire has been used as a management tool to maintain native prairie composition and structure and is generally acknowledged to improve the health and composition of grassland habitat by providing a short-term nitrogen addition, which results in a fertilizer effect to vegetation, thus aiding grasses and forbs as they resprout.

Unintentional fires ignited by military training burns patches of prairie grasses and forbs on JBLM on an annual basis. These light ground fires create a mosaic of conditions within the grassland, maintaining a low vegetative structure of native and nonnative plant composition, and patches of bare soil. Because of the topography of the landscape, fires create a patchy mosaic of areas that burn completely, some areas that do not burn, and areas where consumption of the vegetation is mixed in its effects to the habitat. One of the benefits to fire in grasslands is that it tends to kill regenerating conifers, and reduces the cover of nonnative shrubs such as Scot's broom, although Scot's broom seed stored in the soil can be stimulated by fire (Agee 1993, p. 367). Fire also improves conditions for many native bulb-forming plants, such as *Camassia* sp. (camas) (Agee and Dunwiddie 1984, p. 367). On sites where regular fires occur, such as on JBLM, there is a high complement of native plants and fewer invasive species. These types of fires promote the maintenance of the native short-statured vegetation communities (Severns and Warren 2008, p. 476) favored by Taylor's checkerspot butterflies for larval and nectar food resources. Fire management to maintain or restore native vegetation is essential to maintaining suitable habitat for Taylor's checkerspot butterfly, but the timing of the management activity is important, as improperly-timed actions can destroy larvae, eggs, or adult butterflies.

Management practices such as intentional burning and mowing require expertise in timing and technique to achieve desired results. If applied at the wrong season, frequency, or scale, fire and mowing can be detrimental to the restoration of native prairie species. For example, during a prescribed fire event that was implemented in an adjacent training area on JBLM in late summer 2011, fire occurred in an area containing Taylor's checkerspot butterfly habitat that was under a protection agreement. This burn was inconsistent with the prescribed burn plan and eliminated a large area of the Taylor's checkerspot butterfly larval host and nectaring plants on the 91st Division Prairie. Excessive and high intensity burning can result in a lack of vegetation or encourage regrowth to nonnative grasses. Where such burning has occurred over a period of more than 50 years on the artillery ranges of the JBLM, prairies are covered by nonnative forbs and grasses instead of native perennial bunchgrasses (Tveten and Fonda 1999, pp. 154–155).

Taylor's Checkerspot Butterfly. On JBLM, the 91st Division Prairie is frequently ignited through routine training exercises involving ordnance, which prevents invasive shrubs and nonnative grasses and native Douglas-fir from encroaching onto the prairie, and preserves the high quality of habitat (larval and nectar food plants) for Taylor's checkerspot butterflies and the generally good condition of the prairie. Vegetation at this site remains in an early successional stage that is dominated by native grasses and forbs, such as *Balsamorhiza deltoidea* (deltoid balsamroot), which is an important Taylor's checkerspot butterfly nectar plant. Fires on grassland (prairie) habitat generally have low fuel content and produce regular, short duration fires (Agee 1993, p. 354; Chappell and Kagan 2001, p. 43), which restricts the establishment of invasive plants and encroaching trees and helps to maintain native grasses and forbs. Swales and overall topographic heterogeneity prevent the entire grassland landscape from being consumed by fire, as grasslands fires tend to be patchy in their distribution creating a mosaic of conditions. Nonnative grasses have invaded many sites occupied by Taylor's checkerspot butterflies (Severns and Warren 2008, p. 476). Several hundred acres (more than 40 ha) of tall oatgrass is currently encroaching upon the largest Taylor's checkerspot butterfly population in Washington (JBLM's 91st Division Prairie).

Bald habitats at the Forest Service and WDNR sites where Taylor's checkerspot butterflies are found were formerly forested. These areas appear to have been colonized by Taylor's checkerspot butterfly shortly after they were cleared. At the time the trees were harvested from each of these balds they were reforested with conifers to comply with the Washington State Forest Practices rules. The establishment and growth of the conifers, and the establishment and expansion of *Acer macrophyllum* (bigleaf maple), *Holodiscus discolor* (oceanspray), and other shrubs has resulted in shaded habitat which have replaced areas that the Taylor's checkerspot butterfly is currently using. Sites that currently have Taylor's checkerspot butterflies present will quickly become unsuitable if trees and shrubs are not removed and if the site is not managed specifically for the long-term conservation of the Taylor's checkerspot butterfly or the maintenance of bald habitat. This is the case for several balds recently occupied by Taylor's but no longer supporting the species, including Bald Hills NAP in south Puget Sound, and Highway 112 and Striped Peak on the Olympic Peninsula.

A large portion of the existing Taylor's checkerspot butterfly habitat on Denman Island in Canada resulted from timber harvest. After the area was logged, Taylor's checkerspot butterflies colonized the disturbed area from nearby suitable habitat. Currently, *Alnus rubra* (red alder), bigleaf maple, and Douglas-fir trees are expanding onto the site, which will directly threaten the butterfly habitat there (COSEWIC 2011, p. 18). As the forest becomes reestablished on the property, it will shade and outcompete the host plants for Taylor's checkerspot butterfly for space, water, light, and nutrients. The population of Taylor's checkerspot butterfly is expected to decline significantly within the next 10 years at the Canada site if the habitat on Denman Island is not managed for the species (COSEWIC 2011, p. 31).

Streaked Horned Lark. Prior to the construction of dams on the Columbia River, annual flooding and scouring likely created nesting and wintering habitat for streaked horned larks on sandy islands and beaches along the river's edge (Stinson 2005, p. 67). Once the dams were in place, *Salix* spp. (willows), *Populus trichocarpa* (black cottonwood), and other vegetation established broadly on the sandbars and

banks (Rogers 2000, pp. 41–42), resulting in unsuitable habitat for larks. Loss of these habitats may have been partially ameliorated by the formation of dredge spoil islands that have been established as part of the U.S. Army Corps of Engineers' (Corps) shipping channel maintenance (Stinson 2005, p. 67).

Streaked horned larks currently use sand islands in the lower Columbia River for both breeding and wintering habitat; these islands are a mosaic of Federal, State, and private lands, but there are no management or conservation plans in place to protect larks or these important habitats. The Corps has a dredging program to maintain the navigation channel in the Columbia River. In 2002, the Corps established a deeper navigation channel in the river, a regular maintenance dredging program, and a plan for disposition of dredge material on the islands in the lower Columbia River (U.S. Fish and Wildlife Service (USFWS) (USFWS 2002b, pp. 1–14). In this plan, the Corps addressed the disposition of dredge material in the lower Columbia River, which has the potential to both benefit and harm streaked horned larks, depending on the location and timing of deposition. Recent studies by Anderson (2010a, p. 29) on the islands in the lower Columbia River have shown that fresh dredge material stabilizes and develops sparse vegetation suitable for lark nesting approximately 3 years after deposition, and can be expected to remain suitable for approximately 2 years before vegetation becomes too dense. Thus, deposition of dredge material can be both a tool for habitat creation and a threat, as deposition of dredge material at the wrong time (e.g., during the nesting season) can destroy nests and young or degrade suitable habitat.

Destruction of occupied lark habitat through the deposition of dredge materials has been documented several times on the lower Columbia River islands (Stinson 2005, p. 67; Pearson and Altman 2005, p. 11; Pearson *et al.* 2008, p. 14). In 2006, dredge spoils were deposited on Whites Island while larks were actively nesting. All nests at this site were apparently destroyed (Pearson 2012a, pers. comm.). This site had at least 21 nests and 13 territories during the 2005 nesting season (Pearson *et al.* 2008, p. 21). In a similar situation on Rice Island, singing males were observed on Rice Island in June 2000, but dredge spoil was placed on the site in July 2000, which destroyed nesting habitat during the breeding season (MacLaren 2000, p. 3). In 2004 on Miller Sands Spit, the Army Corps of Engineers deposited dredge material on lark breeding habitat, which likely resulted in nest failure (Pearson and Altman 2005, p. 10). The Corps has recently began working with the Center for Natural Lands Management to coordinate dredge spoil depositions with timing of lark breeding season (Anderson 2011, *in litt.*).

Dredge spoil deposition also creates habitat for Caspian terns (*Sterna caspia*), a native bird species that nests in very large numbers in the lower Columbia River; these large terns have been shown to eat substantial numbers of salmon smolts, and the reduction of predation by terns on young salmon has been the focus of an interagency effort for the past decade (Lyons *et al.* 2011, p. 2). One aspect of the effort to reduce the numbers of terns in the lower Columbia River has been a program to discourage tern nesting on Rice Island by planting vegetation and placing barrier fencing on open sandy habitats; these measures have also reduced habitat available to larks on the island and are ongoing (Stinson 2005, p. 73; Roby *et al.* 2011, p. 14).

There is ample evidence that larks respond positively to habitat management that simulates natural processes. From 2001 through 2004, JBLM used nonbreeding season mowing and controlled burns to control Scot's broom (Pearson and Hopey 2005, p. 30). The September 2004 burns resulted in increased lark abundance and a dramatic vegetative response on 13th Division Prairie; relative to the control sites, late summer fire in 2006 resulted in increased use of the burned areas by larks immediately after the fires, and in the breeding season following the fires (Pearson and Hopey 2005, p. 30).

Throughout the year, streaked horned larks use areas of bare ground or sparse vegetative cover in grasslands. These grasslands may be native prairies in the Puget lowlands, perennial or annual grass seed fields in the Willamette Valley, or the margins of airport runways throughout the range of the species. All of these habitats receive management to maintain desired structure: prairies require frequent burning or mowing to prevent succession to woodlands; agricultural fields are mowed at harvest or burned to reduce weed infestations; airports mow to maintain low-stature grasses around airfields to minimize attracting hazardous wildlife. Burning and mowing are beneficial to larks in that they maintain the habitat structure required by the bird, but these activities can also harm larks if the activities occur during the breeding season when nests and young are present (Pearson and Hopey 2005, p. 29). In the nesting seasons from 2002 to 2004, monitoring at the Puget lowlands sites (Gray Army Airfield, McChord Field, and Olympia Airport) documented nest failure of 8 percent of nests caused by mowing over the nests, young, and adults (Pearson and Hopey 2005, p. 18). Habitat management to maintain low-stature vegetation is essential to maintaining suitable habitat for streaked horned larks, but the timing of the management is important, as improperly-timed actions can destroy nests and young.

Military Training

Populations of Taylor's checkerspot butterflies and streaked horned larks occurring on JBLM are exposed to differing levels of training activities on the base. The DOD's proposed actions under 'Grow the Army' (GTA) include stationing 5,700 new soldiers, new combat service support units, a combat aviation brigade, facility demolition and construction to support the increased troop levels, additional aviation, maneuver, and live fire training (75 FR 55313, September 10, 2010). The increased training activities will affect nearly all training areas at JBLM resulting in an increased risk of accidental fires, and habitat destruction and degradation through vehicle travel, dismounted training, bivouac activities, and digging. While training areas on the base have degraded habitat for these species, with implementation of conservation measures, these areas still provide habitat for Taylor's checkerspot butterfly and streaked horned lark.

Taylor's Checkerspot Butterfly. Military training on JBLM has resulted in direct mortality of Taylor's checkerspot butterflies and destruction of Taylor's checkerspot butterfly habitat. Vehicle use and soldier foot traffic can crush larvae and damage larval host plants. These actions disrupt intact prairie plant communities by disturbing vegetation and exposing soils, directly introducing invasive plant seeds carried in on tires or boots, and accelerating the rate of establishment of invasive grasses or other nonnative plants that are light-seeded and easily blown onto a site from adjacent areas, like *Cirsium* spp. (thistles), *Senecio* spp. (groundsel), *Chrysanthemum leucanthemum* (oxeye daisy). For example, in January 2009 an exercise occurred that did not follow the documented training plan, which would have restricted vehicles to established roads in order to protect sensitive habitat. Instead vehicles moved haphazardly across an area known to be occupied by Taylor's checkerspot butterflies and streaked horned larks.

Approximately 67 ac (27 ha) of prairie were repeatedly traversed by eight wheeled armored personnel carriers known as Strykers. DOD staff later estimated that up to 37.5 ac (15 ha) were highly disturbed (Gruhn 2009, pers. comm.), with much of this acreage scraped to bare soil (Linders 2009b, entire). This impact would have directly affected overwintering larvae by crushing larvae and destroying the larvae plants used by Taylor's checkerspot butterflies.

Taylor's checkerspot butterfly counts were the lowest ever recorded at this site during the following spring (Linders 2009a, entire; Randolph 2009, p. 4; Thomas 2009, pers. obs). Prior to the butterfly flight season in May 2009, the three brigades of Strykers were dispatched away from JBLM and the prairies were not used for Stryker training during the spring of 2009 or 2010, which corresponds to the butterfly flight period. This training break allowed Range 74–76 of the 91st Division Prairie to regenerate or recover the vegetative qualities associated with Taylor's checkerspot butterfly and streaked horned lark habitat. JBLM has subsequently coordinated with the Service to establish specific conservation measures regarding vehicle use within this training area. Military training also occurs on a specific portion of the 91st Division Prairie called Training Area 50 where Taylor's larvae have been translocated during spring 2009, 2010, and 2011, and at the proposed checkerspot translocation site at 13th Division Prairie.

Under the GTA initiative, more troops and vehicles will be stationed at JBLM; this is likely to result in increased pressure on Taylor's checkerspot butterfly habitat and larvae, particularly if the Army continues training on 91st Division Prairie. It is likely that a higher number of troops will equate to a higher number of individuals recreating on JBLM in places like Marion and Jackson prairies (this is further discussed under recreational impacts below).

Streaked Horned Lark. Military training, including bombardment with explosive ordnance and hot downdraft from aircraft has been documented to cause nest failure and abandonment for streaked horned larks at Gray Army Airfield and McChord Field at JBLM (Stinson 2005, pp. 71–72). These activities harass and may kill some streaked horned larks, but the frequent disturbance also helps to maintain sparse vegetation and open ground needed for streaked horned lark nesting.

In the odd-numbered years since 2005, McChord Field has hosted a military training event known as the Air Mobility Rodeo. This international military training exercise is held at the end of July. This event includes aircraft, vehicles, and tents staged on or near lark nesting areas, although the majority of these activities take place on concrete hardstand areas (Geil 2010, *in litt.*). In even-numbered years, McChord Field hosts a public air show known as Air Expo, which is scheduled in mid-July. At the Air Expo, aerial events incorporate simulated bombing and fire-bombing, including explosives and pyrotechnics launched from an area adjacent to the most densely populated streaked horned lark nesting site at this location; these disturbances likely have adverse effects to fledglings of late nests (Stinson 2005, p. 72). Surveys in 2004 detected 31 pairs of streaked horned larks at McChord Field (Anderson 2011, p. 14). In 2006, the number of lark pairs at McChord Field had dropped by more than half to 14 pairs, and the number of lark pairs has remained low, with just 11 pairs detected in 2011 (Anderson 2011, p. 14). The Rodeo and Air Expo events are scheduled to take advantage of the good weather that typically occurs in the summer on the south Puget Sound; this timeframe also coincides with the streaked horned lark nesting season, and the disturbance may continue to cause nest failure and abandonment (Pearson *et al.* 2005a, p. 18). During the airshows, tents, vehicles and concession stands are set up in the grassy areas along the runways used by streaked horned larks for nesting and thousands of visitors a day line the runways for viewing the shows.

Airports routinely implement a variety of approaches to minimize the presence of hazardous wildlife on or adjacent to airfields and to prevent wildlife strikes by aircraft. McChord Field uses falcons to scare geese and gulls off the airfield, and also uses two dogs for this purpose; the falcons and dogs are part of McChord Field's Integrated Bird/Wildlife Aircraft Strike Hazard program and are designed to minimize aircraft and crew exposure to potentially hazardous bird and wildlife strikes (Geil 2010, *in litt.*). The falcons and dogs cause streaked horned larks to become alert and fly (Pearson and Altman 2005, p. 12), which imposes an energetic cost to adults and could expose nests to predation. Portland International Airport uses a variety of hazing and habitat management tools to minimize wildlife hazards. Raptors and waterfowl pose the greatest danger to aircraft operations, but the airport's Wildlife Hazard Management Plan aims to reduce the potential for any bird strikes (Port of Portland 2009, pp. 5–6). Streaked horned larks are not known to nest near the runways at Portland International Airport, but foraging individuals from the nearby Southwest Quad could be harassed by the hazing program, which could impose resulting energetic costs.

JBLM has committed to restrictions both seasonally and operationally on military training areas, in order to avoid and minimize potential affects to the Taylor's checkerspot butterfly and streaked horned lark. These restrictions include identified non-training areas, seasonally restricted areas during breeding, and the adjustment of mowing schedules to protect these species. These conservation management practices are outlined in an operational plan that the Service has assisted the DOD in developing for JBLM (Thomas 2012, pers. comm.).

Restoration Activities

Management for invasive species and encroachment of conifers requires control through equipment, herbicides, and other activities. While restoration has conservation value for the species, management activities to implement restoration may also have direct impacts to the species that are the target of habitat restoration.

Taylor's Checkerspot Butterfly. On occupied sites, Taylor's checkerspot butterflies are present throughout the year in some life cycle form. Restoration activities (application of herbicides, use of restoration equipment, and fire) can result in trampling, crushing and destruction of Taylor's checkerspot butterfly larvae and larval host plants. Mowing to reduce the cover and competition from woody species, if done at the wrong time of year, can crush larval host plants and nectar plants used by adult butterflies on a site.

Streaked Horned Lark. The introduction of *Ammophila arenaria* (Eurasian beachgrass) and *A. breviligulata* (American beachgrass), currently found in high and increasing densities in most of coastal Washington and Oregon, has dramatically altered the structure of dunes on the outer coast (Wiedemann and Pickart 1996, p. 289). The tall leaf canopy of beachgrass creates areas of dense vegetation, which is unsuitable habitat for streaked horned lark nesting (MacLaren 2000, p. 5). Streaked horned larks require sparse, low-stature vegetation with at least 16–17 percent bare ground; areas invaded by beachgrass are too dense for streaked horned larks. The area suitable for streaked horned lark breeding on the Washington coast has decreased as a result of the spread of beachgrasses (Stinson 2005, p. 65; USFWS 2011a, p.

4–2). In a 10-year period (from 1977 to 1987) at Leadbetter Point on the Willapa National Wildlife Refuge, spreading beachgrass reduced the available nesting habitat for streaked horned larks by narrowing the distance from vegetation to water by 112 feet (34 meters) (WDFW 1995, p. 19). Since 1985, encroaching beachgrasses have spread to cover over two-thirds of Damon Point at Grays Harbor, another lark breeding site on the Washington coast (WDFW 1995, p. 19). At Damon Point, Scot's broom is also encroaching on lark habitat, reducing the area available for nesting (Pearson 2011, *in litt.*). On the Oregon coast, the disappearance of the streaked horned lark has been attributed to the invasion of exotic beachgrasses and the resultant dune stabilization (Gilligan *et al.* 1994, p. 205).

Some efforts have been successful in reducing the cover of encroaching beachgrasses. The Service's Willapa National Wildlife Refuge has restored habitat on Leadbetter Point. In 2007, the area of open habitat measured 84 ac (34 ha); after mechanical and chemical treatment to clear beachgrass (mostly American beachgrass) and spreading oyster shell across 45 ac (18 ha), 121 ac (50 ha) of sparsely vegetated open habitat suitable for lark nesting was created (Pearson *et al.* 2009, p. 23). The main target of the Leadbetter Point restoration project was the threatened western snowy plover (*Charadrius alexandrinus nivosus*), but the restoration actions also benefited the streaked horned lark. Before the restoration project, this area had just 2 streaked horned lark territories (Pearson *et al.* 2005a, p. 7); after the project, an estimated 8 to 10 territories were located in and adjacent to the restoration area (Pearson 2012b, pers. comm.).

Disease Impacts to Habitat

Disease is not known to be a threat to the habitats of the streaked horned lark.

Taylor's Checkerspot Butterfly. Until recently disease was not known to be a factor affecting the habitat of the Taylor's checkerspot butterfly. We now have evidence of a plant pathogen (*Pyrenopeziza plantaginis*) known to affect the leaf tissue of the narrow-leaf plantain, the primary larval food for Taylor's checkerspot butterfly at several locations, and the exclusive larval food plant at all sites known from Oregon. At some locations on the north Olympic Peninsula, the Taylor's checkerspot butterflies select harsh paintbrush as the primary larval food plant and select narrow-leaf plantain as the secondary larval host. *Pyrenopeziza plantaginis* is active in late winter through early spring, and contributes to the mortality of leaf tissue at a time when post-diapause larvae are feeding on narrow-leaf plantain. Narrow-leaf plantain is an exotic but widely distributed invasive European weed in North America (Wolff and Schaal 1992, pp. 326, 330). Although the pathogen is common in Europe it has only recently been reported in North America (Severns 2011, *in litt.;* Stone *et al.* 2011, p. 1). Severns and Warren (2008. p. 476) identified the pathogen on leaves of narrow-leaf plantain from remnant prairies in Benton County, Oregon, where Taylor's checkerspot butterflies are known to occur and where they feed exclusively on narrow-leaf plantain. Similar instances of leaf mortality were previously attributed to frost damage on prairies of south Puget Sound, Washington. Recently, *P. plantaginis* has been identified on narrow-leaf plantain at Scatter Creek Wildlife Area in Thurston County, and at the 91st Division Prairie on JBLM, in Pierce County; both sites are in Washington.

Uncertainty exists regarding how *Pyrenopeziza plantaginis* affects Taylor's checkerspot butterfly larvae. The pathogen has been identified locally in Washington at sites where Taylor's checkerspot larvae feed on narrow-leaf plantain. The pathogen kills leaf tissue in late winter and early spring, coinciding with the time post-diapause larvae are feeding (Severns 2011, *in litt.*), which would lead to declining food resource to support the butterfly's larvae. If the food resource is killed by this pathogen it may affect the ability of Taylor's checkerspot butterfly larvae to survive through the critical larval feeding period prior to emergence as an adult butterfly. Therefore, based on our review of the best available scientific and commercial information, we conclude that disease may be a threat to the larval foods utilized by Taylor's checkerspot butterfly, and, subsequently, may indirectly affect the butterfly. At this time, we have evidence of the presence of this pathogen at Scatter Creek Wildlife Area in Washington, where the pathogen appears common and its effect to *Plantago* is severe (Severns 2011, *in litt.*) This threat may affect populations if the pathogen were to become widespread on sites occupied by Taylor's checkerspots; however, because we are uncertain of its potential as a population-level threat, we conclude that disease is a relatively minor threat to Taylor's checkerspot at this time, and we have no evidence to suggest that it is likely to become a significant threat within the future.

Transient Agricultural Habitat

The Taylor's checkerspot butterfly is not affected by transient agricultural habitat.

Streaked Horned Lark. Roughly half of all the agricultural land in the Willamette Valley is devoted to grass seed production fields (Oregon Seed Council 2012, p. 1). Grasslands—both rare native prairies and grass seed fields—are important habitats for streaked horned larks in the Willamette Valley; open areas within the grasslands are used for both breeding and wintering habitat (Altman 1999, p. 18; Moore and Kotaich 2010, p. 11; Myers and Kreager 2010, p. 9). About 420,000 ac (170,000 ha) in the Willamette Valley are currently planted in grass seed production fields. Demand for grass seed is declining in the current economic climate (Oregon Department of Agriculture 2011, p. 1); this decreased demand for grass seed has resulted in farmers switching to other agricultural commodities, such as wheat or nurseries and greenhouses (U.S. Department of Agriculture—National Agricultural Statistical Service Oregon Field Office 2009, p. 3; Oregon Department of Agriculture 2011, p. 1). The continued decline of the grass seed industry in the Willamette Valley will likely result in conversion from grass seed fields to other agricultural types; this will result in fewer acres of suitable breeding and wintering habitat for streaked horned larks.

Another potential threat related to agricultural lands is the streaked horned lark's use of ephemeral habitats. In the breeding season, streaked horned larks will move into open habitats as they become available, and as the vegetation grows taller over the course of the season, will abandon the site to look for other open habitats later in the season (Beason 1995, p. 6). This ability to shift locations in response to habitat changes is a natural feature of the streaked horned lark's life history strategies, as breeding in recently disturbed habitats is part of their evolutionary history. In the Willamette Valley, patches of suitable habitat in the agricultural fields shift from place to place as fields are burned, mowed, or harvested. Other suitable sites appear when portions of grass fields perform poorly, inadvertently creating optimal habitat for larks. The shifting nature of suitable habitat is not in itself a threat; the potential threat is in the overall reduction of compatible agriculture, which would reduce the area within which lark habitat could occur.

Summary of Factor A

Taylor's Checkerspot Butterfly. Taylor's checkerspot butterflies face threats from loss of habitat due to conversion of native grasslands to agriculture, and permanent loss when prairies are developed for residential or commercial purposes. Taylor's checkerspot butterflies also face threats from changes in vegetation structure and composition of native grassland-dominated plant communities. Changes to vegetation structure and composition can occur through conversion to agriculture, through natural succession processes, and invasion by nonnative species (Agee 1993, p. 345; Chappell and Kagan 2001, p. 42). In addition to the loss of grasslands from development, conversion to agriculture, and other uses, as well as plant succession, these plant communities are faced with degradation due to invasion of the grassland habitat that remains by native conifers and nonnative pasture grasses, shrubs, and forbs. As grasslands have been converted, the availability of Taylor's checkerspot butterfly larval host plants and adult nectar plants has declined.

In addition, we conclude that disease, specifically *Pyrenopeziza plantaginis,* may pose a potential threat to the larval food plant of the Taylor's checkerspot, and therefore a potential indirect threat to the species. However, we have no information to suggest that it is currently a threat to Taylor's checkerspot butterfly. Any threat of disease to the larval food plant for this species has the potential to become a threat in the future due to the small number of remaining populations of Taylor's checkerspot butterfly. However, based on our review of the best available information, we have no data at this point to suggest that it is likely to become a widespread threat in the future.

The current threats to Taylor's checkerspot butterflies are similar to those identified at the time the species was determined to be a candidate for listing in 2001. Since then, the threat from invasive species and their impacts on native vegetation has increased. Other threats, particularly the pressure to develop Taylor's checkerspot butterfly habitat, have increased on Denman Island, Canada, in south Puget Sound, and in the Willamette Valley (IAE 2010, p. 1). Moreover, prior to entering two wars in 2003, military training (DOD, Army, JBLM) on occupied Taylor's checkerspot butterfly habitat was lower in intensity and duration. The only remaining high-quality native habitat occupied by the Taylor's checkerspot butterfly within the south Puget Sound region is found on the 91st Division Prairie of JBLM, a site of highly active training that can inadvertently result in the destruction of larval host plants and crushed larvae.

Based on current projected development and impacts to habitat, the loss of historically occupied locations, military training, recreation, the limited distribution of the species, existing and future habitat fragmentation, habitat disturbance, and land use changes associated with agriculture and long-term fire suppression, we conclude that there are current and ongoing threats to Taylor's checkerspot butterfly habitat which are expected to continue into the future.

Streaked Horned Lark. The streaked horned lark population decline in the south Puget Sound of Washington indicates that the observed range contraction for this subspecies may be continuing, and the subspecies may disappear from that region in the near future. There are many other ongoing threats to the streaked horned lark's habitat throughout its range, including: (1) Conversion to agriculture and industry; (2) loss of natural disturbance processes such as fire and flooding; (3) encroachment of woody vegetation; (4) invasion of coastal areas by nonnative beachgrasses; and (5) incompatible management practices. The continued loss and degradation of streaked horned lark habitat may result in smaller, more isolated habitats available to the subspecies, which could further depress the rangewide population or reduce the geographic distribution of the streaked horned lark. We conclude that the current and ongoing threats to streaked horned lark habitat are resulting in a significant impact to the species and its habitat and will continue into the future.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization of species results when the number of individuals removed from the system exceeds the ability of the population of the species to sustain its numbers or reduces populations of the species to a level such that it is vulnerable to other influences (threats) upon its survival. This overutilization can result from removal of individuals from the wild for commercial, recreational, scientific or educational purposes.

Taylor's Checkerspot Butterfly. Populations of Taylor's checkerspot butterflies have declined dramatically during the past decade. We know of no overutilization of the Taylor's checkerspot butterfly for commercial, recreational, or educational purposes. However, scientific studies may have negatively affected Taylor's checkerspot butterfly populations at the 13th Division Prairie on JBLM (Vaughan and Black 2002). Over 7,000 individuals were observed as recently as 1997, but only 10 adults were observed during surveys in 2000, and no Taylor's checkerspot butterflies have been observed since (Stinson 2005, p. 94; Linders 2012c, *in litt.*). Mark-recapture studies were conducted at this site for several years during this timeframe, and the study methods involved capturing all adults and moving them to a single release location. This action likely influenced the population demographics, but because no simultaneous population monitoring was conducted, it is impossible to know whether there was an effect. According to McGarrahan (1997), mark, release, and recapture studies of the Bay Edith's checkerspot (*Euphydryas editha bayensis*) were considered a contributing factor in the extirpation of this population from Stanford's Jasper Ridge Preserve. There are no current Taylor's checkerspot butterfly ''mark, release and recapture studies'' in progress. Collection of butterflies and the threat of trampling associated with scientific studies continue to be a threat to the species, although it is likely a minor one.

Streaked Horned Lark. Overutilization for commercial, recreational, scientific, or educational purposes is not known to be a threat to the streaked horned lark.

Summary of Factor B

In summary, although there is some evidence of historical mortality from overutilization for the Taylor's checkerspot butterfly and there may have been recent mortality from utilization of the Taylor's checkerspot butterfly, we have no reason to believe that current levels of utilization impact the species alone or to a degree such that it is vulnerable to other threats. We have no information to suggest that overutilization will become a threat in the future. In addition, there is no evidence that commercial, recreational, scientific, or educational use is occurring at a level that would pose a threat to the streaked horned lark.

Factor C. Disease or Predation

Disease

Most healthy ecosystems include organisms such as viruses, bacteria, fungi, and parasites that cause disease. Healthy wildlife and ecosystems have evolved defenses to fend off most

diseases before they have devastating impacts. An ecosystem with high levels of biodiversity (diversity of species and genetic diversity within species) is more resilient to the impacts of disease because there are greater possibilities that some species and individuals within a species have evolved resistance, or if an entire species is lost, that there will likely be another species to fill the empty niche.

Where ecosystems are not healthy, due to a loss of biodiversity and threats such as habitat loss, climate change, pollutants or invasive species, wildlife and ecosystems are more vulnerable to emerging diseases. Diseases caused by or carried by invasive species are particularly severe threats, as native wildlife may have no natural immunity to them (National Wildlife Federation 2012).

Our review of the best available scientific and commercial data found no evidence to indicate that disease is a threat to the Taylor's checkerspot butterfly or streaked horned lark. We conclude that disease is not a threat to the Taylor's checkerspot butterfly or streaked horned lark now, nor do we anticipate it to become a threat in the future.

Predation

Predation is a process of major importance in influencing the distribution, abundance, and diversity of species in ecological communities. Generally, predation leads to changes in both the population size of the predator and that of the prey. In unfavorable environments, prey species are stressed or living at low population densities such that predation is likely to have negative effects on all prey species, thus lowering species richness. In addition, when a nonnative predator is introduced to the ecosystem, negative effects on the prey population may be higher than those from co-evolved native predators. The effect of predation may be magnified when populations are small, and the disproportionate effect of predation on declining populations has been shown to drive rare species even further towards extinction (Woodworth 1999, pp. 74–75).

Predation has an impact on populations of the Taylor's checkerspot butterfly and streaked horned lark. The degree of threat to Taylor's checkerspot butterfly from predation is not as pronounced as with the streaked horned lark due to the concentration of defensive plant compounds within the larvae and adults that make them distasteful to predators.

Taylor's Checkerspot Butterfly. Generally, butterflies exhibit some protective mechanisms to avoid predation, and this is true for the Taylor's checkerspot butterfly. Larvae of the Taylor's checkerspot butterfly sequester iridoid glycosides (plant defensive chemicals) during consumption of their larval host plants, narrow-leaf plantain and paintbrush species. These compounds are distasteful to predators (COSEWIC 2011, p. 36) and generalist predators such as insects and spiders avoid checkerspot larvae (Kuussaari *et al.* 2004, p. 140). Taylor's checkerspot butterfly larvae also tend to be brightly colored, which makes them highly visible and signals the presence of noxious compounds to predators, including birds and some invertebrate predators that avoid Taylor's checkerspot butterfly larvae (Kuussaari *et al.* 2004, p. 139). However, birds are known to attack and consume adult butterflies. Bowers *et al.* (1985, p. 101), found avian predation to be a significant factor in mortality of adult variable checkerspot butterflies (*Euphydryas chalcedona*) They also found sex bias in selection of prey as the avian predator ate more female variable butterflies (less bright red) than male variable checkerspot butterflies, adding support to the idea that brightly colored insects are avoided (Bowers 1985 p. 100). This is likely a naturally occurring predation event and we conclude that at this time it is currently not a threat, nor do we expect it to become a threat to Taylor's checkerspot butterfly.

Streaked Horned Lark. Predation on adult streaked horned larks has not been identified as a threat, but it is the most frequently documented source of mortality for eggs and young larks. In most studies of streaked horned lark nesting ecology, predation has been the primary documented source of nest failure (Altman 1999, p. 18; Pearson and Hopey 2004, p. 15; Pearson and Hopey 2005, p. 16; Pearson and Hopey 2008, p. 1; Moore and Kotaich 2010, p. 32). Sixty-nine percent of nest failures were caused by predation at four south Puget Sound study sites (Gray Army Airfield, 13th Division Prairie, Olympia Airport, McChord Field) in 2002–2004 (Pearson and Hopey 2005, p. 18). Anderson (2006, p. 19) concluded that the primary predators of streaked horned lark eggs and young were avian, most likely American crows (*Corvus brachyrhynchos*), although garter snakes (*Thamnophis* spp.) and western meadowlarks have also been documented preying on eggs and young in the region (Pearson and Hopey 2005, p. 16; Pearson and Hopey 2008, p. 4). On the Washington coast and lower Columbia River islands, 46 percent of nest failures were caused by predation at three study sites (Midway Beach, Damon Point, and Puget Island) in 2004 (Pearson and Hopey 2005, p. 18). A study of five sites in the Willamette Valley (Corvallis Airport, M–DAC Farms, William L. Finley, Baskett Slough, and Ankeny National Wildlife Refuges) determined that 23 to 58 percent of all streaked horned lark nests were lost to predation (Moore and Kotaich 2010, p. 32).

Video cameras were used to identify predators in this Willamette Valley study; documented predators include: red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), great-horned owl (*Bubo virginianus*), and rats and mice (Family Cricetidae) (Moore and Kotaich 2010, p. 36). Streaked horned larks are ground-nesting birds and are vulnerable to many other potential predators, including domestic cats and dogs, coyotes (*Canis latrans*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), long-tailed weasels (*Mustela frenata*), opossums (*Didelphis virginiana*), meadow voles (*Microtus pennsylvanicus*), deer mice (*Peromyscus maniculatus*), and shrews (*Sorex* spp.) (Pearson and Hopey 2005, p. 17; Stinson 2005, p. 59).

Predation is a natural part of the streaked horned lark's life history, and in stable populations, the effect of predation would not be considered a threat to the species. However, in the case of the streaked horned lark, the effect of predation may be magnified when populations are small, and the disproportionate effect of predation on declining populations has been shown to drive rare species even further towards extinction (Woodworth 1999, pp. 74–75). We consider the effect of predation on streaked horned lark populations, particularly on the south Puget Sound, to be a threat to the subspecies.

The one area where predation does not appear to be a threat to nesting streaked horned larks is in Portland at Rivergate Industrial Complex and the Southwest Quad at Portland International Airport. In 2009 and 2010, nesting success was very high, and only a single predation event was documented at these sites (Moore 2011, p. 11). The reason for the unusually low predation pressure may be that the two industrial sites have few predators since both sites are isolated from other nearby natural habitats.

Predation may have contributed to the extirpation of streaked horned larks on the San Juan Islands. The subspecies

was last documented on the islands in 1962 (Lewis and Sharpe 1987, p. 204). The introduction of several exotic animal species to the island roughly coincides with the disappearance of the streaked horned lark, including feral ferrets (*Mustela outorius*) and red foxes. These introduced predators may have significantly affected ground nesting birds and played a role in the eventual extirpation of streaked horned larks (Rogers 2000, p. 42).

Summary of Factor C

Based on our review of the best available information, we conclude that disease is not a threat to the Taylor's checkerspot butterfly or streaked horned lark now, nor do we expect it to become a threat in the future.

We found only one study with evidence to indicate that predation from avian predators may be a threat to the Taylor's checkerspot butterfly. While predation does occur on the Taylor's checkerspot butterfly, it does not appear to be occurring beyond expected natural levels; therefore, we do not consider it to be a threat now, and we have no information to indicate that it will become a threat in the future.

Because the populations of streaked horned larks are declining and small, we find that effect of the threat of predation is resulting in a significant impact on the species. Therefore, based on our review of the best available scientific and commercial information, we conclude that predation is currently a threat to the streaked horned lark now and will continue to be in the future.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

Under this factor, we examine whether existing regulatory mechanisms are inadequate to address the threats to the species discussed under the other factors. Section 4(b)(1)(A) of the Act requires the Service to take into account ''those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species * * *.'' In relation to Factor D under the Act, we interpret this language to require the Service to consider relevant Federal, State, and tribal laws, regulations, and other such mechanisms that may minimize any of the threats we describe in threat analyses under the other four factors, or otherwise enhance conservation of the species. We give strongest weight to statutes and their implementing regulations and to management direction that stems from those laws and regulations. An example would be State governmental actions enforced under a State statute or constitution, or Federal action under statute.

The following section includes a discussion of Federal, State, or local laws, regulations, or treaties that apply to the Taylor's checkerspot butterfly or the streaked horned lark. It includes legislation for Federal land management agencies and State and Federal regulatory authorities affecting land use or other relevant management.

Canadian Laws and Regulations

In British Columbia, Taylor's checkerspot butterfly and the streaked horned lark are on the Conservation Data Centre's Red List. The Red List includes ecological communities, indigenous species and subspecies that are extirpated, endangered, or threatened in British Columbia; placing taxa on the Red List flags them as being at risk and requiring investigation, but does not confer any protection (British Columbia Ministry of Environment 2012, p. 1).

In 2003, the Taylor's checkerspot butterfly and in 2005, the streaked horned lark were determined to be endangered under the Canadian Species at Risk Act (SARA) (Environment Canada 2007, p. iii). SARA makes it an offense to kill, harm, harass, capture or take an individual of a listed species that is endangered or threatened; possess, collect, buy, sell or trade an individual of a listed species that is extirpated, endangered or threatened, or its part or derivative; damage or destroy the residence of one or more individuals of a listed endangered or threatened species or of a listed extirpated species if a recovery strategy has recommended its reintroduction.

For many of the species listed under SARA, the prohibitions on harm to individuals and destruction of residences are limited to Federal lands, but this limitation is inapplicable to migratory birds protected under the Migratory Birds Convention Act, including the streaked horned lark (Statutes of Canada (S.C). ch. 29, § 34). Hence, SARA protects streaked horned larks, where present, from harm and destruction of their residences, not only on Federal lands, but also on provincial and private lands, where most of the remaining habitat for the species occurs. Moreover, SARA mandates development and implementation of a recovery strategy and action plans (S.C. ch. 29, §§ 37, 47). Invertebrate species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as endangered will be protected by the British Columbia Wildlife Act and Wildlife Amendment Act, once these regulations are finalized (COSEWIC 2011, p. 44).

The horned lark (all subspecies) is also protected under Canada's Federal Migratory Birds Convention Act, 1994 (MBCA) (S.C. ch. 22), which is their domestic legislation similar to the United States' Migratory Bird Treaty Act of 1918 (MBTA). The MBCA and its implementing regulations prohibit the hunting of migratory nongame birds and the possession or sale of ''migratory birds, their nests, or eggs'' (S.C. ch. 22 §§ 5, 12).

Although British Columbia has no stand-alone endangered species act, the provincial Wildlife Act protects virtually all vertebrate animals from direct harm, except as allowed by regulation (e.g., hunting or trapping). Legal designation as endangered or threatened under this act increases the penalties for harming a species, and also enables the protection of habitat in a Critical Wildlife Management Area (British Columbia Wildlife Act 1996, accessed online). The streaked horned lark is not listed under Canada's provincial Wildlife Act as an endangered or threatened species.

To date there is no finalized recovery strategy for Taylor's checkerspot butterfly in Canada (COSEWIC 2011, p. 44). A majority (97 percent) of the known populations observed in Canada occur on private land on Denman Island, which is not protected from development by individual landowners; approximately 1,173 ac (475 ha) of this private land has been officially transferred to the government and will become a Provincial Park or Ecological Reserve (COSEWIC 2011, p. 45). A final recovery strategy for the streaked horned lark was released in 2007 (COSEWIC 2011, p. 40); the streaked horned lark is essentially extirpated in Canada, and the recovery goal for this species is to reestablish a breeding population of at least 10 breeding pairs at a minimum of 3 sites within its historical breeding range in Canada (Environment Canada 2007, p. iv). Based on our evaluation, we have determined that SARA provides protections for both the Taylor's checkerspot butterfly and streaked horned lark given their limited occurrences in British Columbia, and, additionally, the streaked horned lark is afforded protections under the MBCA.

United States Federal Laws and Regulations

There are no Federal laws in the United States that specifically protect the Taylor's checkerspot butterfly. The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et seq.*) is the only Federal

law in the United States currently providing specific protection for the streaked horned lark due to its status as a migratory bird. The MBTA prohibits the following actions, unless permitted by Federal regulation:

To ''pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird * * * or any part, nest, or egg of any such bird.''

There are no provisions in the MBTA that prevent habitat destruction unless direct mortality or destruction of active nests occurs (for example, as was described in Factor A, above, for dredge spoil disposal in the breeding season), nor does the MBTA require any planning to recover declining species or provide funding to protect individuals or their habitats. Therefore, we conclude that the MBTA does not address threats to the streaked horned lark from further population declines associated with habitat loss or inappropriate management.

The Sikes Act (16 U.S.C. 670) authorizes the Secretary of Defense to develop cooperative plans with the Secretaries of Agriculture and the Interior for natural resources on public lands. The Sikes Act Improvement Act of 1997 requires Department of Defense installations to prepare Integrated Natural Resource Management Plans (INRMPs) that provide for the conservation and rehabilitation of natural resources on military lands consistent with the use of military installations to ensure the readiness of the Armed Forces. INRMPs incorporate, to the maximum extent practicable, ecosystem management principles and provide the landscape necessary to sustain military land uses. While INRMPs are not technically regulatory mechanisms because their implementation is subject to funding availability, they can be an added conservation tool in promoting the recovery of endangered and threatened species on military lands.

On JBLM in Washington, several policies and an INRMP are in place to provide conservation measures to grassland-associated species that occupy training lands on the military base. JBLM in partnership with local agencies and nongovernmental organizations has provided funding to conserve these species through the acquisition of new conservation properties and management actions intended to improve the amount and distribution of habitat for these species. JBLM has also provided funding to reintroduce declining species (e.g., Taylor's checkerspot butterfly) into suitable habitat on and off military lands. In June 2011, representatives from DOD (Washington, DC office) met with all conservation partners to assess the success of this program and make decisions as to future funding needs. Support from the Garrison Commander of JBLM and all partners resulted in an increase in funding for habitat management and acquisition projects for these species on JBLM.

The Service has worked closely with the DOD to develop protection areas within the primary habitat for Taylor's checkerspot butterfly on JBLM. These include areas where no vehicles are permitted on occupied habitat, where vehicles will remain on roads only, and where foot traffic is allowed.

JBLM policies include Army Regulation 420–5, which covers the INRMP, and AR–200–1. This is an agreement between each troop and DOD management that actions taken by each soldier will comply with restrictions placed on specific Training Areas, or range lands. Within the INRMP, the wildlife branch of the DOD developed updated Endangered Species Management Plans (ESMPs) that provide site specific management and protection actions that are taken on military lands for the conservation of Taylor's checkerspot butterfly and streaked horned lark. The ESMPs provide assurances of available funding, and an implementation schedule that determines when certain activities will occur and who will accomplish these actions. ESMPs require regular updates to account for dispersal of animals, or for activities to enhance habitat for animals that may have been translocated to a new habitat patch. INRMPs also have a monitoring component that would require modifications, or adaptive management, to planning actions when the result of that specific action may differ from the intent of the planned action. Based on the military's efforts, we conclude that although military actions may continue to harm individuals of the species, through the Sikes Act, the JBLM INRMP protects the Taylor's checkerspot butterfly and streaked horned lark from further population declines associated with habitat loss or inappropriate management on JBLM properties.

The National Park Service Organic Act of 1916, as amended (39 Stat. 535, 16 U.S.C. 1), states that the National Park Service (NPS) ''shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations * * * to conserve the scenery and the national and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.'' The NPS Management Policies indicate that the Park Service will ''meet its obligations under the National Park Service Organic Act and the Endangered Species Act to both pro-actively conserve listed species and prevent detrimental effects on these species.'' This includes working with the Service and undertaking active management programs to inventory, monitor, restore, and maintain listed species habitats, among other actions.

The National Forest Management Act (16 U.S.C. 1604(g)(3)(B) has required the U.S. Department of Agriculture's (USDA) Forest Service to incorporate standards and guidelines into Land and Resource Management Plans, including provisions to support and manage plant and animal communities for diversity and for the long-term, rangewide viability of native species. The final planning rule (2012 rule, 36 CFR part 219) provides a framework to guide the collaborative and science-based development, amendment and revision of land management plans. This framework is designed to promote healthy, resilient, diverse, and productive national forests and grasslands with a range of social, economic, and ecological benefits now and for future generations. In the face of changing environmental conditions and stressors, such as a changing climate, the 2012 rule requires plans to include plan components to: (1) Maintain and restore ecosystem and watershed health and resilience (ecological integrity); (2) protect key resources on the unit, including water, air, and soil; and (3) address water quality and riparian area protection and restoration.

The 2012 rule contains a strong implementation approach to provide for the diversity of plant and animal communities and the persistence of native species in the plan area. This approach requires that plans use a complementary ecosystem and species-specific approach to maintaining the diversity of plant and animal communities and the persistence of native species in the plan area. The intent is to provide the ecological conditions (habitat) necessary to keep common native species common, contribute to the recovery of threatened and endangered species, conserve proposed and candidate species, and maintain viable populations of each

species of conservation concern within the plan area. The 2012 rule requires that plans provide the ecological conditions necessary to contribute to the recovery of threatened and endangered species, and to conserve candidate and proposed species. In addition, the requirements for restoration and ecological sustainability are intended to reduce the risk that species will become listed as an endangered or a threatened species in the future.

On USDA Forest Service (FS) lands, management for listed and candidate species, as well as species of concern, follow FS Sensitive Species policy (Kerwin and Huff 2007, p. 6). For the FS, these policies require the agency to maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. Management ''must not result in a loss of species viability or create significant trends toward Federal listing'' for any identified Sensitive Species (Kerwin and Huff 2007, p. 6).

The Olympic National Forest is in the process of developing site management plans for each location where Taylor's checkerspot butterfly is known to occur. This planning document will call for restoration actions to remove encroaching conifers and shrubs, nonnative plant removal and control, road management, and may possibly include planting or seeding of larval host plants (Holtrop 2010, p. 7). Because this planning process is not finished, however, we do not rely on it in our assessment of the adequacy of Forest Service regulatory mechanisms. As a Federal candidate species, the Taylor's checkerspot butterfly receives support from the Forest Service Interagency Special Status and Sensitive Species Program (Huff, 2011, pers. comm.). Based on our review, we conclude that the Taylor's checkerspot butterfly and streaked horned lark are protected from further population declines associated with habitat loss or inappropriate management on FS lands, and the inadequacy of existing regulations under the National Forest Management Act is not a threat to these species.

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd *et seq.*) establishes the protection of biodiversity as the primary purpose of the National Wildlife Refuge (NWR) system. This has led to various management actions to benefit the federally listed species including development of Comprehensive Conservation Plans (CCP) on NWRs. CCPs typically set goals and list needed actions to protect and enhance populations of key wildlife species on refuge lands. The Taylor's checkerspot butterfly is not known to occur on any NWR. However, streaked horned larks occur on the Willapa National Wildlife Refuge on the Washington coast and in the Willamette Valley Complex on the William L. Finley, Ankeny, and Baskett Slough Refuges. The CCPs for the Willapa Refuge and all the units in the Willamette Valley Complex contain habitat conservation measures to address threats such as habitat degradation and benefit streaked horned larks; measures include surveys, habitat enhancement, and removal of invasive plants (USFWS 2011a, p. 2–34; USFWS 2011b, pp. 2-47–2-48). The joint CCP for the Lewis and Clark and Julia Butler Hansen Refuges in the lower Columbia River states that streaked horned larks do not occur on the refuges, although they do occur on suitable habitats near the refuge parcels (USFWS 2010, p. 4–37). The joint CCP identifies actions to benefit streaked horned larks on off-refuge lands (but that are within the refuge acquisition boundary), including working with the U.S. Army Corps of Engineers to manage the dredge spoil deposition program to benefit larks (USFWS 2010, pp. 2-29–2-30).

CCPs detail program planning levels that are sometimes substantially above current budget allocations, and as such, are primarily used for strategic planning and priority setting; inclusion of a project in a CCP does not guarantee that the project will be implemented. The CCPs at the Willapa and Willamette Valley National Wildlife Refuges specifically provides for the conservation of the streaked horned lark, and implementation of the conservation measures in the refuge CCPs could benefit as many as 10 nesting pairs of larks at Willapa (USFWS 2011a, pp. 4-44–4-45) and likely more than 50 pairs at the three Willamette Valley refuges (Moore 2009, pp. 5–9). These actions may improve the status of streaked horned larks on the refuges. Therefore based on our review, we conclude that the streaked horned lark is protected from further population declines associated with habitat loss or inappropriate management on NWR lands, and the inadequacy of existing regulatory mechanisms is not a threat to the species on NWR lands.

State Laws and Regulations

Although there is no State Endangered Species Act in Washington, the Washington Fish and Wildlife Commission has authority to list species (Revised Code of Washington (RCW) 77.12.020). State-listed species are protected from direct take, but their habitat is not protected (RCW 77.15.120). The Taylor's checkerspot butterfly and streaked horned lark are listed by the WDFW and are listed as critically imperiled (S1) by the Washington Natural Heritage Program. State listings generally consider only the status of the species within the State's borders, and do not depend upon the same considerations as a potential Federal listing. Unoccupied or unsurveyed habitat is not protected unless by County prairie ordinances or other similar rules or laws.

Taylor's checkerspot butterfly and streaked horned lark are Priority Species under WDFW's Priority Habitats and Species Program (WDFW 2008, pp. 19, 80, 120). As Priority Species, the Taylor's checkerspot butterfly and streaked horned lark may benefit from some protection of their habitats under environmental reviews of applications for county or municipal development permits (Stinson 2005, pp. 46, 70). For Taylor's checkerspot butterfly, WDFW has developed a recommended approach to protect the species on private property. Their approach is non-regulatory and encourages landowners to engage in cooperative efforts to protect and conserve Taylor's checkerspot butterfly habitat. However, State regulatory mechanisms appear to be insufficient to protect these species in areas where permits are not required or requested. We therefore conclude that Washington State regulatory mechanisms are inadequate to protect the Taylor's checkerspot butterfly and the streaked horned lark and do not protect these species from further population declines associated with habitat loss or inappropriate management.

Under the Washington State Forest Practices Act (RCW 76.09 accessed online 2012), WDNR must approve certain activities related to growing, harvesting or processing timber on all local government, State, and privately owned forest lands. WDNR's mission is to protect public resources while maintaining a viable timber industry. The primary goal of the forest practices rules is to achieve protection of water quality, fish and wildlife habitat, and capital improvements while ensuring that harvested areas are reforested. Presently, the Washington State Forest Practices Rules do not specifically protect Taylor's checkerspot butterflies or streaked horned larks; only the Taylor's checkerspot butterfly actually occurs within areas where Forest Practices Rules might apply. Landowners have the option to develop a management plan for the species if it resides on their property, or if

landowners choose to not develop a management plan for the species with WDFW, their forest practices application will be conditioned to protect this public resource. If this approach does not provide the required protections for the Taylor's checkerspot butterfly, then WDFW and WDNR may request the Forest Practice Board to initiate rule making, and possibly, an emergency rule would be developed (Whipple 2008, pers. comm.).

The WDNR also manages approximately 66,000 ac (26,710 ha) of lands as Natural Area Preserves (NAP). NAPs provide the highest level of protection for excellent examples of unique or typical land features in Washington State. These NAPs provide protection for the Taylor's checkerspot butterfly and therefore, based on their proactive management, we do not find Taylor's checkerspot butterfly to be threatened by the inadequacy of existing regulatory mechanisms on WDNR lands.

Oregon has a State Endangered Species Act (ESA), which was last updated in 1998. The streaked horned lark is not State-listed, and the State does not protect invertebrates like the Taylor's checkerspot butterfly under the State ESA (Oregon ESA 2004, p. 3). The list of threatened and endangered species tracked by the Oregon Department of Fish and Wildlife does not include insects, and does not classify the streaked horned lark with any conservation status. However, 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 Forest Practices Act (ORS 527.610 to 527.992 and OAR Chapter 629, Divisions 600 to 665) lists protection measures specific to private and State-owned forested lands in Oregon. These measures include specific rules for resource protection, including threatened and endangered species, riparian areas along lakes, streams, springs and seeps; and wetlands. Compliance of the forest practice rules does not substitute for or ensure compliance with the Federal Endangered Species Act. Landowners and operators are advised that Federal law prohibits a person from taking certain threatened or endangered species which are protected under the Endangered Species Act (OAR 629–605–0105). Although neither the streaked horned lark nor the Taylor's checkerspot butterfly are forest-dependent species, protective measures taken on forest lands in Oregon may provide benefits for these species.

Based on our review of State regulatory mechanisms for the States of Washington and Oregon, we conclude that they do not protect the Taylor's checkerspot butterfly and the streaked horned lark from further population declines associated with habitat loss or inappropriate management.

Local Laws and Regulations

The Washington State Growth Management Act of 1990 requires all jurisdictions in the state to designate and protect critical areas. The state defines five broad categories of critical areas, including: (1) Wetlands; (2) areas with a critical recharging effect on aquifers used for potable water; (3) fish and wildlife habitat conservation areas; (4) frequently flooded areas; and (5) geologically hazardous areas. *Quercus garryana* (Oregon white oak) habitat and prairie both predominantly fall into the category of fish and wildlife habitat conservation areas, though due to the coarse nature of prairie soils and the presence of wet prairie habitat across the landscape, critical area protections for crucial aquifer recharge areas and wetlands may also address prairie habitat protection.

Within counties, the CAO applies to all unincorporated areas, but incorporated cities are required to independently address critical areas within their Urban Growth Area. The incorporated cities within the range of the streaked horned lark and the Taylor's checkerspot butterfly are: (1) Shelton (Mason County); and (2) Olympia, Lacey, Tumwater, Tenino and Yelm (Thurston County), all in the State of Washington.

In 2009, the Thurston County Board of Commissioners adopted Interim Ordinance No. 14260, which strengthened protections for prairie and Oregon white oak habitat in consideration of the best available science. The County worked with the Service and WDFW to include an up-to-date definition of prairie habitat and to delineate soils where prairie habitat is likely to occur. In July 2010, the ordinance was renewed and amended, including revisions to the prairie soils list and changes to administrative language. Since July 2010, the interim prairie ordinance has been renewed on a 6-month basis and is currently in place. Several prairie species were also included as important species subject to critical areas regulation, including the Taylor's checkerspot butterfly and streaked horned lark (Thurston County 2012, p. 1).

County staff use the known presence or historical locations of the Taylor's checkerspot or streaked horned lark to determine whether these species may be present at a site and impacted by the land use activity. After a field review, if one of these species is found on the site, the County requires a habitat management plan (HMP) to be developed, typically by a consultant for the landowner, in accordance with WDFW's management recommendations. This HMP specifies how site development should occur, and assists developers in achieving compliance with CAO requirements to minimize impact to the prairie habitat and species. The HMPs typically include onsite restoration and enhancement activities. Mitigation for prairie impacts may also be required, on-site or off (Thurston County 2012, p. 2).

In Clallam, Pierce, and Mason Counties, specific critical area ordinances have not been identified for the Taylor's checkerspot butterfly or the streaked horned lark. However, prairie habitats and species garner some protection under Fish (or Aquatic) and Wildlife Habitat Conservation Areas (Mason County 2009, p. 64; Clallam County 2012, Part Three, entire; Pierce County 2012, pp. 18E.40–1–3). All developments within these areas are required to: preserve and protect habitat adequate to support viable populations of native wildlife (Clallam County 2012, Part Three, entire); to achieve ''no net loss'' of species and habitat where, if altered, the action may reduce the likelihood that these species survive and reproduce over the long term (Pierce County 2012, p. 18E.40–1); and support viable populations and protect habitat for Federal or State listed * * * fish or wildlife (Mason County 2009, p. 63). While these regulations are likely adequate for the management of species with stable populations and large ranges, the loss of individual animals can have a cumulative impact deleterious to species facing a wide range of other threats and that already have decreased numbers of individuals or populations.

County-level CAOs do not apply to incorporated cities within county boundaries, thus the incorporated cities of Olympia, Lacey, Tumwater, Yelm, and Tenino that overlap the range of the Taylor's checkerspot butterfly and the streaked horned lark do not provide the same specificity of protection for these taxa as the Thurston County CAO. Below we address the relevant city ordinances that overlap these species' ranges. We conclude below with a summary of whether we deem these city

ordinances adequate for the conservation of the Taylor's checkerspot and the streaked horned lark.

The City of Olympia. The City of Olympia's municipal code states that ''The Department [City] may restrict the uses and activities of a development proposal which lie within one thousand feet of important habitat or species location,'' defined by Washington State's Priority Habitat and Species (PHS) Management Recommendations of 1991, as amended.'' (Olympia Municipal Code (OMC) 18.32.315 B). When development is proposed within 1,000 feet of habitat of a species designated as important by Washington State, the Olympia CAO requires the preparation of a formal ''Important Habitats and Species Management Plan'' unless waived by the WDFW (OMC 18.32.320).

The City of Lacey. The City of Lacey CAO includes in its definition of critical area any area identified as habitat for a Federal or State endangered, threatened, or sensitive species or State listed priority habitat and calls these Habitat Conservation Areas (HCAs) (Lacey Municipal Code (LMC) 14.33.060). These areas are defined through individual contract with qualified professional biologists on a site by site basis as development is proposed. The code further states that ''No development shall be allowed within a habitat conservation area or buffer [for a habitat conservation area] with which state or federally endangered, threatened, or sensitive species have a primary association'' (LMC 14.33.117).

The City of Tumwater. The City of Tumwater CAO outlines protections for Habitat Critical Areas and for ''habitats and species of local importance.'' Tumwater's Habitat Critical Areas are established on a case-by-case basis by a ''qualified professional'' as development is proposed and the Habitat Critical Areas are required to be consistent with the ''recommendations issued by the Washington State Department of Fish and Wildlife'' (Tumwater Municipal Code (TMC) 16.32.60). Species of local importance are defined as locally significant species that are not State-listed as threatened, endangered, or sensitive, but live in Tumwater and are of special importance to the citizens of Tumwater for cultural or historical reasons, or if the city is a critically significant portion of its range (TMC 16.32.055 A). Tumwater is considered a ''critically significant portion of a species' range'' if the species' population would be divided into nonviable populations if it is eliminated from Tumwater'' (TMC 16.32.055 A2). Species of local importance are further defined as State monitor or candidate species where Tumwater is a significant portion of its range such that a significant reduction or elimination of the species from Tumwater would result in changing the status of the species to that of State endangered, threatened, or sensitive (TMC 16.32.055 A3).

The City of Yelm. The municipal code of Yelm states that it will ''regulate all uses, activities, and developments within, adjacent to, or likely to affect one or more critical areas, consistent with the best available science'' (Yelm Municipal Code/(YMC) 14.08.010E4f) and mandates that ''all actions and developments shall be designed and constructed to avoid, minimize, and restore all adverse impacts.'' Further, it states that, ''no activity or use shall be allowed that results in a net loss of the functions or values of critical areas'' (YMC 14.08.010 G) and ''no development shall be allowed within a habitat conservation area or buffer which state or federally endangered, threatened, or sensitive species have a primary association, except that which is provided for by a management plan established by WDFW or applicable state or federal agency'' (YMC 14.080.140 D1a). The City of Yelm municipal code states that by ''limiting development and alteration of critical areas'' it will ''maintain healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment, and * * * conserve the biodiversity of plant and animal species'' (17.08.010 A4b) .

The City of Tenino. The City of Tenino municipal code gives Development Regulations for Critical Areas and Natural Resource Lands that include fish and wildlife habitat areas (Tenino Municipal Code (TMC) 18D.10.030 A) and further ''protects unique, fragile, and valuable elements of the environment, including critical fish and wildlife habitat'' (TMC 18D.10.030 D). The City of Tenino references the DNR Critical Areas Fish and Wildlife Habitat Areas-Stream Typing Map and the WDFW PHS Program and PHS Maps as sources to identify fish and wildlife habitat (TMC 18D.10.140 E1, 2). The City also defines critical fish and wildlife species habitat areas as those areas known to support or have ''a primary association with State or Federally listed endangered, threatened, or sensitive species of fish or wildlife (specified in 50 CFR 17.11, 50 CFR 17.12, WAC 232–12–011) and which, if altered, may reduce the likelihood that the species will survive and reproduce over the long term.'' (TMC 18D.40.020A, B).

The City of Shelton. The CAO for the city of Shelton (Mason County) specifies compliance with the PHS through designation of habitat conservation areas (HCAs) (Shelton Municipal Code (SMC) 21.64.300 B1), indicating that where HCAs are designated, development will be curtailed (SMC 21.64.010 B) except at the discretion of the director (city), who may allow single-family development at such sites without a critical areas assessment report if development is not believed to directly disturb the components of the HCA (SMC 21.64.360 B).

Summary. Each city's CAO has been crafted to preserve the maximum amount of biodiversity while at the same time encouraging high density development within their respective Urban Growth Areas. Each city requires that potential fish and wildlife habitat be surveyed by qualified professional habitat biologists as development is proposed. A Habitat Conservation Area (HCA) is determined according to the WDFW Priority Habitat and Species list. If an HCA is identified at a site, the development of the parcel is then subject to the CAO regulations. Mitigation required by each city's CAO prioritizes reconsideration of the proposed development action in order to avoid the impact to the HCA.

For the Taylor's checkerspot butterfly and streaked horned lark, only known or historical locations are considered prior to applying the CAOs. There are currently no WDFW Priority Habitat and Species Recommendations for these species and no surveys are completed for these species in suitable habitats that may be affected by development or site disturbance.

Connectivity of populations, abundance of resources (prey species or food plants), and undisturbed habitat are three primary factors affecting plant and animal populations. The piecemeal pattern that development unavoidably exhibits is difficult to reconcile with the needs of the Taylor's checkerspot butterfly and streaked horned lark within a given Urban Growth Area. Further, previously common species may become uncommon due to disruption by development, and preservation of small pockets of habitat is unlikely to prevent extirpation of some species without intensive species management, which is beyond the scope of these individual CAOs. The Taylor's checkerspot butterfly and the streaked horned lark have been affected by habitat loss through development and conversion. Protective measures undertaken while development of lands is taking place may provide benefits for these species; however, based on our

review of the Washington County and State regulatory mechanisms, we conclude that these measures are currently inadequate to protect the Taylor's checkerspot butterfly, and the streaked horned lark from further population declines associated with habitat loss, inappropriate management and loss of connectivity.

In Oregon, the Land Conservation and Development Commission in 1974 adopted ''Goal 5'' a broad Statewide planning goal that covers more than a dozen resources, including wildlife habitats and natural areas. Goal 5 and related Oregon Administrative Rules (Chapter 660, Divisions 16 and 23) describe how cities and counties are to plan and zone land to conserve resources listed in the goal.

Goal 5 and its rules establish a five-step planning process for Oregon's cities and counties: (1) Inventory local occurrences of resources listed in Goal 5 and decide which ones are important; (2) Identify potential land uses on or near each resource site and any conflicts that might result; (3) Analyze economic, social, environmental, and energy consequences of such conflicts; (4) Decide whether the resource should be fully or partially protected, and justify the decision; and, (5) Adopt measures such as zoning to put that policy into effect. This five-step Goal 5 process was established by rules adopted in 1982, and revised in 1996. The revisions tailored the process to the individual resources covered by the Goal.

Local governments shall identify conflicting uses that exist, or could occur, with regard to significant Goal 5 resource sites. A local government may determine that one or more significant Goal 5 resource sites are conflicting uses with another significant resource site. Local governments shall analyze the consequences that could result from decisions to allow, limit, or prohibit a conflicting use. The local government shall determine the level of protection for each significant site. Local governments shall determine whether to allow, limit, or prohibit identified conflicting uses for significant resource sites. A local government may decide that the conflicting use should be allowed fully, notwithstanding the possible impacts on the resource site.

In summary, Goal 5 is a required planning process that allows local governments to make decisions about land use regulations and whether to protect the individual resources based upon potential conflicts involving economic, social, environmental, and energy consequences. It does not require minimum levels of protections for natural resources, but does require weighing the various impacts to resources from land use. Based on our review of Oregon State regulatory mechanisms, we conclude that they are inadequate to protect the Taylor's checkerspot butterfly or streaked horned lark from further population declines associated with habitat loss or inappropriate management.

Summary of Factor D

In summary, the existing regulatory mechanisms described above are not sufficient to significantly reduce or remove the existing threats to the Taylor's checkerspot butterfly and the streaked horned lark. The Canadian recovery strategy is a positive forward step for the streaked horned lark, although, as the species is thought to be extirpated from Canada, it is unlikely to result in a change in the streaked horned lark's downward trend across its range. Lack of essential habitat protection under State laws leaves these species at continued risk of habitat loss and degradation in Washington and Oregon. National Wildlife Refuges provide important protections for streaked horned lark habitat in Washington and Oregon.

On JBLM, regulations applying to the Taylor's checkerspot butterfly and the streaked horned lark are covered by the current INRMP and ESMP. We find that the military training, as it currently occurs, causes direct mortality of individuals and impacts habitat for the Taylor's checkerspot butterfly and streaked horned larks in all areas where training and the species overlap; however, these management plans sufficiently provide for the long-term conservation of these species on the military base. Therefore, we do not find existing regulatory mechanisms to be inadequate on JBLM lands.

The Washington CAOs generally provide conservation measures to minimize habitat removal and direct effects to the Taylors' checkerspot butterfly and streaked horned lark. However, habitat removal and degradation, direct loss of individuals, increased fragmentation, decreased connectivity, and the lack of consistent regulatory mechanisms to address the threats associated with these effects continues to occur.

Based upon our review of the best commercial and scientific data available, we conclude that the existing regulatory mechanisms are not adequate to reduce the threats to the Taylor's checkerspot butterfly and streaked horned lark now or in the future.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Low Genetic Diversity, Small or Isolated Populations, and Low Reproductive Success

Most species' populations fluctuate naturally, responding to various factors such as weather events, disease, and predation. Johnson (1977, p.3), however, suggested that these factors have less impact on a species with a wide and continuous distribution. Populations that are small, fragmented, or isolated by habitat loss or modification of naturally patchy habitat, and other human-related factors, are more vulnerable to extirpation by natural randomly occurring events, cumulative effects, and to genetic effects that plague small populations, collectively known as small population effects. These effects can include genetic drift (loss of recessive alleles), founder effects (over time, an increasing percentage of the population inheriting a narrow range of traits), and genetic bottlenecks leading to increasingly lower genetic diversity, with consequent negative effects on evolutionary potential.

Taylor's Checkerspot Butterfly. Although the genetic diversity and population structure of the Taylor's checkerspot butterfly is unknown, a loss of genetic diversity may have occurred as a result of geographic isolation and fragmentation of habitat patches across the distribution of the existing populations. Dispersal of individuals directly affects the genetic composition of populations and possibly the abundance of individuals in a population (Hellmann *et al.* 2004, p. 59). For other subspecies of Edith's checkerspot and their closely related European relative *Melitaea,* small populations led to a high rate of inbreeding (Boggs and Nieminen 2004, p. 98). The Service is currently partnering with WDFW to explore questions of genetic relatedness in the subpopulations of Taylor's checkerspot butterflies. Due to its small population size and fragmented distribution, we conclude that these negative factors associated with small population size, as well as the potential historical loss of genetic diversity, may contribute to further population declines for the Taylor's checkerspot butterfly.

Streaked Horned Lark. Genetic analysis has shown that streaked horned larks have suffered a loss of genetic diversity due to a population bottleneck (Drovetski *et al.* 2005, p. 881), the effect of which may be exacerbated by continued small total population size. In general, decreased genetic diversity has

been linked to increased chances of inbreeding depression, reduced disease resistance, and reduced adaptability to environmental change, leading to reduced reproductive success (Keller and Waller 2002, p. 235).

Recent studies in Washington have found that streaked horned larks have lower fecundity and nest success than other Northwestern horned lark subspecies (Camfield *et al.* 2010, p. 277). In a study on the south Puget Sound, all measures of reproductive success were lower for streaked horned larks than for other ground-nesting birds at the same prairie sites (Anderson 2010, p. 15). The streaked horned lark's egg hatching rate at these sites is extremely low (i.e., 44 percent at 13th Division Prairie) (Anderson 2010, p. 18). Comparisons with savannah sparrows (*Passerculus sandwichensis*), a bird with similar habitat requirements that nests on the same prairies, found that streaked horned lark fecundity was 70 percent lower (Anderson 2010, p. 18). If the streaked horned lark's very low reproductive success was caused by poor habitat quality, other ground-nesting birds at the study sites would be expected to show similarly low nest success rates; that other bird species have much higher nest success in the same habitat suggests that inbreeding depression may be playing a role in the decline of streaked horned larks in the south Puget Sound (Anderson 2010, p. 27). Other factors consistent with hypothesized inbreeding depression in the south Puget Sound population include two cases of observed mother-son pairings (Pearson and Stinson 2011, p. 1), and no observations of immigration from other sites into the Puget lowland breeding sites (Pearson *et al.* 2008, p. 15).

Estimates of population growth rate (λ) that include vital rates from all of the nesting areas in Washington (south Puget Sound, Washington Coast, and one lower Columbia River island) indicate that streaked horned larks in Washington are declining by 40 percent per year, apparently due to a combination of low survival and fecundity rates (Pearson *et al.* 2008, pp. 10, 13; Camfield *et al.* 2011, p. 7). Territory mapping at 4 sites on the south Puget Sound found that the total number of breeding streaked horned lark territories decreased from 77 territories in 2004 to 42 territories in 2007—a decline of over 45 percent in 3 years (Camfield *et al.* 2011, p. 8). The combination of low genetic variability, small and rapidly declining nesting populations, high breeding site fidelity, and no observed migration into the Puget lowlands populations suggests that the south Puget Sound population could become extirpated in the near future (Pearson *et al.* 2008, pp. 1, 14, 15).

In 2011, a project was initiated to increase genetic diversity in the south Puget Sound streaked horned lark population. Twelve eggs (four three-egg clutches) were collected from streaked horned lark nests in the southern Willamette Valley and were placed in nests at the 13th Division Prairie site at JBLM (Wolf 2011, p. 9). At least five young successfully fledged at the receiving site; if even one of these birds return to breed in future years, it will likely increase genetic diversity in the receiving population, resulting in improved fitness and reduced extinction risk for the south Puget Sound larks (Wolf 2011, p. 9). Based on our consideration of these factors, we conclude that the loss of genetic diversity, the current number of small and isolated populations (particularly in Washington State), and the species' low reproductive success are likely to combine to result in continued population declines for the streaked horned lark.

Climate Change

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms ''climate'' and ''climate change'' are defined by the Intergovernmental Panel on Climate Change (IPCC). The term ''climate'' refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term ''climate change'' thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Examples include warming of the global climate system, and substantial increases in precipitation in some regions of the world and decreases in other regions. (For these and other examples, see IPCC 2007a, p. 30; and IPCC 2007d, pp. 35–54, 82–85). Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate, and is ''very likely'' (defined by the IPCC as 90 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from use of fossil fuels (IPCC 2007a, pp. 5–6 and figures SPM.3 and SPM.4; IPCC 2007d, pp. 21–35). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2011, p. 4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (e.g., IPCC 2007c, entire; Ganguly *et al.* 2009, pp. 11555, 15558; Prinn *et al.* 2011, pp. 527, 529). All combinations of models and emissions scenarios yield very similar projections of increases in the most common measure of climate change, average global surface temperature (commonly known as global warming), until about 2030. Although projections of the extent and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for the projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the scope and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, pp. 44–45; IPCC 2007c, pp. 760–764 and 797–811; Ganguly *et al.* 2009, pp. 15555–15558; Prinn *et al.* 2011, pp. 527, 529). (See IPCC 2007b, p. 8, for a summary of other global projections of climate-related changes, such as frequency of heat waves and changes in precipitation. Also see IPCC 2011 (entire) for a summary of observations and projections of extreme climate events.)

Various changes in climate may have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007e, pp. 214–246). Identifying likely effects often involves aspects of climate change vulnerability analysis. Vulnerability refers to the degree to which a species (or system) is

susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, scope, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a, p. 89; see also Glick *et al.* 2011, pp. 19–22). There is no single method for conducting such analyses that applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

As is the case with all stressors that we assess, even if we conclude that a species is currently affected or is likely to be affected in a negative way by one or more climate-related impacts, it does not necessarily follow that the species meets the definition of an ''endangered species'' or a ''threatened species'' under the Act. If a species is listed as endangered or threatened, knowledge regarding the vulnerability of the species to, and known or anticipated impacts from, climate-associated changes in environmental conditions can be used to help devise appropriate strategies for its recovery.

Global climate projections are informative, and, in some cases, the only or the best scientific information available for us to use. However, projected changes in climate and related impacts can vary substantially across and within different regions of the world (e.g., IPCC 2007a, pp. 8–12). Therefore, we use ''downscaled'' projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species (see Glick *et al.* 2011, pp. 58–61, for a discussion of downscaling). With regard to our analysis for the Taylor's checkerspot butterfly and the streaked horned lark, downscaled projections are available.

The ranges of the Taylor's checkerspot butterfly and the streaked horned lark extend from the southern edge of the Georgia Basin, down through the Puget Sound trough, and south to the Willamette Valley. Downscaled climate change projections for this ecoregion predict consistently increasing annual mean temperatures from 2012 to 2095 using the IPCC's medium (A1B) emissions scenario (IPCC 2000, p. 245). Using the General Circulation Model (GCM) that most accurately predicts precipitation for the Pacific Northwest, the Third Generation Coupled Global Climate Model (CGCM3.1) under the medium emissions scenario (A1B), annual mean temperature is predicted to increase approximately 1.8 °Fahrenheit (F) (1 °Celsius (C)) by the year 2020, 3.6 °F (2 °C) by 2050, and 5.4 °F (3 °C) by 2090 (Climatewizardcustom 2012). This analysis was restricted to the ecoregion encompassing the overlapping range of the species of interest and is well supported by analyses focused only on the Pacific Northwest by Mote and Salathé in their 2010 publication, Future Climate in the Pacific Northwest (Mote and Salathé 2010, entire). Employing the same GCM and medium emissions scenario, downscaled model runs for precipitation in the ecoregion project a small (less than 5 percent) increase in mean annual precipitation over approximately the next 80 years. Most months are projected to show an increase in mean annual precipitation. May–August are projected to show a decrease in mean annual precipitation, which corresponds with the reproductive season for all species of interest in this proposed rule (Climatewizardcustom 2012).

The potential impacts of a changing global climate to Taylor's checkerspot butterfly and streaked horned lark are presently unclear. Projections localized to the Georgia Basin—Puget Sound Trough—Willamette Valley Ecoregion suggest that temperatures are likely to increase approximately 5 °F (2.8 °C) at the north end of the region by the year 2080 based on an average of greenhouse gas emission scenarios B1, A1B, and A2 and all Global Circulation Models employed by Climatewizard (range = 2.6 °F to 7.6 °F; 1.4 °C to 4.2 °C). Similarly, the mid region projection predicts an increase an average of 4.5 °F (range = 2.1 °F to 7.1 °F) (average of 2.5 °C with a range of 1.2 °C to 3.9 °C) and the southern end to increase by 4.5 °F (range = 2.2 °F to 7.1 °F) (average of 2.5 °C with a range of 1.2 °C to 3.9 °C). Worldwide, the IPCC states it is very likely that extreme high temperatures, heat waves, and heavy precipitation events will increase in frequency (IPCC 2007c, p. 783).

Taylor's Checkerspot Butterfly. Because the Taylor's checkerspot butterfly occupies a relatively small area of specialized habitat, it may be vulnerable to climatic changes that could decrease suitable habitat or alter food plant seasonal growth patterns (phenology). However, while it appears reasonable to assume that the butterfly may be affected, as detailed below, we lack sufficient certainty to know specifically how climate change will affect the subspecies.

The relationship between climate change and survival for the *Euphydryas editha* complex is driven more by the indirect effects of the interaction between seasonal growth patterns of host plants and the life cycle of the checkerspot butterfly than by the direct effects of temperature and precipitation (Guppy and Fischer 2001, p. 11; Parmesan 2007, p. 1868; Singer and Parmesan 2010, p. 3170).

Predicting seasonal growth patterns of butterfly host plants is complicated, because these patterns are likely more sensitive to moisture than temperature (Cushman *et al.* 1992, pp. 197–198; Bale *et al.* 2002, p. 11), which is predicted to be highly variable and uncertain in the Pacific Northwest (Mote and Salathé 2010, p. 31). Climate models for the Georgia Basin—Puget Sound Trough—Willamette Valley Ecoregion consistently predict a deviation from the historical monthly average precipitation, with the months of January–April projected to show an increase in precipitation across the region while June–September are predicted to be much drier than the historical average (Climatewizard 2012).

During the active season of pre-diapause larvae (early spring), the Taylor's checkerspot butterfly feeds primarily on plants of the family Scrophulariaceae (snapdragon family, including species of *Castilleja* and *Triphysaria*) and Plantaginaceae (plaintain family) (Stinson 2005, p. 88). Available information suggests that if climate change disrupts seasonal growth patterns of food plants, it is conceivable that as an adult the butterfly may be able to use alternative food plants that occur within its range (Singer and Wee 2005, pp. 353–355; Singer *et al.* 1992, pp. 17–18). The larval stage of Taylor's checkerspot is more limited in terms of potential host plant species. Nevertheless, we have no information indicating that any of these changes (e.g., in availability of food plants) is likely to occur in the near future.

It is likely that the overlap of seasonal growth patterns between these primary larval host plants and the Taylor's checkerspot butterfly will display some level of stochasticity due to climatic shifts in precipitation and increased frequency of extreme weather events. For the Edith's checkerspot (*Euphydryas editha*), Parmesan (2007, p. 1869) reported that a lifecycle mismatch can cause a shortening of the time window available for larval feeding, causing the death of those individuals unable to complete their larval development within the shortened period, citing a study by Singer (1972, p. 75). In that study, Singer documented routine

mortality of greater than 98 percent in the field due to phenological mismatches between larval development and senescence of their annual host plant *Plantago erecta* (California plantain). When mismatches such as these form the 'starting point,' insects may be highly vulnerable to small changes in synchrony with their hosts (Parmesan 2007, p. 1869).

Predicting future population dynamics and distributions is complex for animals such as butterflies that have two very different physiological stages (larva and adult) (for example, see Bale *et al.* 2002, p. 5). Moreover, forecasting the responses of butterflies and other insects to elevated temperatures or variable precipitation is largely based on field and laboratory studies (Hellmann 2002, pp. 927–929). However, the relationship between these changing environmental conditions and the Taylor's checkerspot butterfly has not been explicitly studied, though the extirpation of populations in British Columbia is attributed to drought conditions and the encroachment of woody vegetation into formerly suitable habitat (Guppy 2012, *in litt.*). One of the two primary host plants for the butterfly is ubiquitous across the entire range of the species and extends well beyond areas where the butterfly populations persist. This suggests that there is potential for range shifting, if the butterfly had the capacity to disperse across the landscape.

Uncertainty about climate change impacts does not mean that impacts may or may not occur; it means that the risks of a given impact are difficult to quantify (Schneider and Kuntz-Duriseti 2002, p. 54; Congressional Budget Office 2005, entire; Halsnaes *et al.* 2007, p. 129). The interplay between host plant distribution, larval and adult butterfly dispersal, and female choice of where to lay eggs will ultimately determine the population response to climate change (Singer and Parmesan 2010, p. 3164). However, determining the long-term responses to climate change from even well-studied butterflies in the genus *Euphydryas* is difficult, given their ability to switch to alternative larval food plants in some instances (Singer and Thomas 1996, pp. S33–34; Hellmann 2002, p. 933; Singer *et al.* 1992, pp. 17–18). Attempts to analyze the interplay between climate and host plant growth patterns using predictive models or general State-wide assessments and to relate these to the butterfly are equally complicated (Murphy and Weiss 1992, p. 8). Despite the potential for future climate change in Western Washington, as discussed above, we have not identified, nor are we aware of any data on, an appropriate scale to evaluate habitat or populations trends for the Taylor's checkerspot butterfly or to make predictions about future trends and whether the species will be significantly impacted.

Streaked horned lark. Sea level on the Pacific Coast of Washington and Oregon is predicted to rise according to expected values generated by an ensemble mean of models of relative sea level rise (Tebaldi 2012, p. 4). At Toke Point, Willapa Bay, Washington, near occupied nesting habitat for the streaked horned lark, sea level is predicted to rise 3.9 in (9.9 cm) by 2030 and 9.8 in (0.25 cm) by 2050 (Tebaldi 2012, p. 4). Streaked horned larks are attracted to breeding sites where there are long sight lines and sparse vegetation, making sandy islands and shorelines ideal habitats for nesting. Sea level rise is not currently projected to reach the height of streaked horned lark nesting habitat on the beaches. If these projections underestimate sea level rise and nesting habitat is infringed upon by rising waters, streaked horned larks will likely respond by moving to up shore or to other breeding habitats.

The indirect effects of climate change are primarily associated with changes in habitat, such as succession from a sparsely vegetated condition to a shrubby or forested state, which would make habitat unsuitable for nesting. These negative impacts may be offset by other, potentially positive effects and continued management of occupied habitats. On the ocean beaches an increase in the frequency of winter storm surges may improve upshore nesting habitat for larks by disturbing or killing encroaching vegetation. Many islands used for nesting in the Columbia River are likely to continue receiving dredge spoil deposits, perpetuating the conditions of early primary succession that streaked horned larks seek for nesting. Primary management on most of the currently occupied breeding sites on the mainland of Washington and Oregon is for agricultural, industrial, or military uses. Such management attracts streaked horned larks through the reduction of standing vegetation, thus conversion to unsuitable habitat due to shifts in climate is less likely in these areas. As a result, we have not identified nor are we aware of any data on an appropriate scale to evaluate habitat or populations trends for the streaked horned lark or to make predictions about future trends and whether the species will be significantly impacted. Habitat changes to streaked horned lark habitat from climate change may provide some benefit to the species and as such is not currently considered a threat.

Stochastic Weather Events

Stochasticity of extreme weather events may impact the ability of threatened and endangered species to survive. Vulnerability to weather events can be described as being composed of three elements; exposure, sensitivity, and adaptive capacity.

The small, isolated nature of the remaining populations of Taylor's checkerspot butterfly and streaked horned lark increases the species' vulnerability to stochastic (random) natural events. When species are limited to small, isolated habitats, they are more likely to become extinct due to a local event that negatively affects the population. While a population's small, isolated nature does not represent an independent threat to the species, it does substantially increase the risk of extirpation from the effects of all other threats, including those addressed in this analysis, and those that could occur in the future from unknown sources.

Taylor's Checkerspot Butterfly. Environmental threats exacerbated by small population size and weather can be a factor in Taylor's checkerspot butterfly breeding success. Poor weather conditions, such as cool temperatures and rainy weather, reduce the number of days in the flight period for several early spring flying butterflies, including Taylor's checkerspot butterfly. A shorter flight season reduces the number of opportunities for oviposition (egg laying) for female butterflies, thus affecting the emergence of adult butterflies in the future. Peterson (2010, *in litt*) provided climate and butterfly abundance data that indicated cold winter temperature may affect the timing of butterfly emergence and the size of populations in years when winters are severe. Late emergence of adults may directly impact the mortality of larval stages if larvae are unable to complete their life cycle before their host plants senesce, or the larvae may return to diapause.

Butterflies, including Taylor's checkerspot butterfly, may experience increased mortality or reduced fecundity if the timing of plant development does not match the timing of larval or adult butterfly development (Peterson 1997, p. 167), and large fluctuations in population sizes have been observed based on local weather patterns (Hellmann *et al.* 2004, p. 45). During 2010 and 2011, the emergence of Taylor's adults was approximately three weeks later than ''normal'' due to wet and cool spring weather. In addition, it has been reported that both drought and

deluge may interrupt the insect-plant interaction, resulting in decreased populations (Hellmann *et al.* 2004, p. 45). The effects of drought have been shown to deleteriously affect populations of Edith checkerspots in California (Hellmann *et al.* 2004, p. 45). Based on our review, we conclude that stochastic weather events are a threat to the Taylor's checkerspot butterfly due to the vulnerability of isolated, small populations.

Streaked Horned Lark. There are estimated to be fewer than 1,600 streaked horned larks rangewide (Altman 2011, p. 213). During the breeding season, small populations of larks are distributed across the range; in the winter, however, streaked horned larks concentrate mainly on the lower Columbia River sites and in the Willamette Valley. Such concentration exposes the wintering populations to potentially disastrous stochastic events such as ice storms or flooding that could kill individuals or destroy limited habitat; a severe weather event could wipe out a substantial percentage of the entire subspecies (Pearson and Altman 2005, p. 13). We have not documented the occurrence of these threats to date, but the small and declining population of streaked horned larks is certainly at risk of random environmental events that could have catastrophic consequences. Based on our review, we conclude that the effects of stochastic weather events are a potential threat to the streaked horned lark.

Aircraft Strikes and Activities at Civilian Airports

Streaked horned larks are attracted to the flat open habitats around airports throughout their range. Horned lark strikes are frequently reported at military and civilian airports throughout the country, but because of the bird's small size, few strikes result in significant damage to aircraft (Dolbeer *et al.* 2011, p. 48; Air Force Safety Center 2012, p. 2). Most of the specific information available for threats to streaked horned larks at airports comes from the monitoring program at the Department of Defense's JBLM on the south Puget Sound; similar threats to streaked horned larks likely exist at other airports, but without focused monitoring, the threats to the birds have not been documented. Information provided from monitoring at McChord Field is used here as a surrogate for civilian airport information which is not readily accessible. McChord Field has had seven confirmed streaked horned lark strikes from 2002 through 2010; the larks were killed in the strikes, but the strikes resulted in only minimal cost or damage to the aircraft (Elliott 2011, pers. comm.). Aircraft strikes are potentially a large source of adult mortality for streaked horned larks at McChord Field. Surveys in 2010 at McChord Field detected up to 26 individuals at the site (Linders 2011a, p. 3); loss of even 1 adult (and possibly more, since some strikes may not be noticeable given the small mass of a horned lark) per year could remove up to 4 percent of the population each year. Recent modeling has shown that adult survival has the greatest influence on population growth rates for streaked horned larks (Pearson *et al.* 2008, p. 13; Camfield *et al.* 2011, p. 10), so consistent loss of adult streaked horned larks to aircraft strikes could be pushing this population closer to extirpation.

The annual Olympic Air Show takes place in June at the Olympia Regional Airport; the events at the air show include low-level aerobatic flying (Olympic Flight Museum 2012, p. 1). The events do not occur on lark habitat, but parking and staging for the event may occur on the streaked horned lark's breeding grounds (Tirhi 2012b, *in litt.*). As the air show occurs during the streaked horned lark's breeding season, the level of human activity at the site could cause nest abandonment, exposure of young to predators or actual nest destruction (see discussion for similar military activities under Factor A).

The Corvallis Municipal Airport is the site of the largest known streaked horned lark population. The airport hosts training exercises for police departments on the airport grounds (Moore and Kotaich 2010, p. 25); intensive training sessions have destroyed nests, and the disturbance may also cause streaked horned larks to delay breeding activity (Moore and Kotaich 2010, p. 25) (see discussion for similar use at military sites under Factor A, military activities).

The Taylor's checkerspot butterfly is not known to be impacted by aircraft strikes and aircraft activities at airports. Habitat management activities at these sites are covered under Factor A.

Pesticides and Herbicides

In the south Puget Sound region, currently occupied Taylor's checkerspot butterfly sites are found in a matrix of rural agricultural lands and low-density development. In this context herbicide and insecticide use may have direct effects on nontarget plants (butterfly larval and nectar hosts) and arthropods like butterflies (Stark *et al.* 2012, p. 23).

The application of the pesticide *Bacillus thuringiensis* var. *kurstaki* (*Btk*) for control of the Asian gypsy moth (*Lymantria dispar*) likely contributed to the extirpation of three historical locales for Taylor's checkerspot butterflies in Pierce County, Washington (Vaughan and Black 2002, p. 13). Spraying of *Btk* is known to have adverse effects to nontarget lepidopteran species (butterflies and moths) (Severns 2002, p. 169). Severns (2002) sampled butterfly diversity, richness, and abundance (density) for 2 years following a *Btk* application at Schwarz Park in Lane County, Oregon. Diversity, richness and density were found to be significantly reduced for 2 years following spraying of *Btk* (Severns 2002, p. 168). Species like Taylor's checkerspot butterflies, which have a single brood per year, are active in the spring and their larvae are active during the spray application period. Most lepidopterans are more susceptible to *Btk* than the target species (Asian gypsy moth) (Haas and Scriber 1998). For nontarget lepidoptera, the early instar stages of larvae are the most susceptible stage (Wagner and Miller 1995, p. 21).

The application of pesticides is usually restricted to a short period of the year. However, if the target species is active at the same time as larvae and adult Taylor's checkerspot butterflies, the effect could be significant. Spraying of *Btk* still occurs in Pierce County for gypsy moths during the time of year when Taylor's checkerspot larvae are active and the threat of pesticide drift onto the prairies of Pierce County cannot be discounted. At this time, however, we have no evidence that *Btk* has been sprayed in any locations where Taylor's checkerspot butterflies are known to occur.

Organophosphate-based insecticides are used in a number of agricultural applications including black fly and mosquito control, spraying of vegetable, nut, and fruit crops, and treatment of seed, though they are now banned from residential use. One of these insecticides, Naled (Dibrom), has been determined to have broad impacts on a wide array of butterfly families (Bargar 2011, p. 888) and direct effects to the larvae and adults of a closely related species of a federally listed threatened butterfly, the Bay checkerspot (*Euphydyras editha bayensis*) (EPA 2010, p. 23), if exposed. The extent to which these insecticides are used in the Taylor's checkerspot butterfly's range is currently unknown and current data was not available from the USDA.

The streaked horned lark is not known to be impacted by pesticides or herbicides directly, but may be impacted by the equipment used to dispense them. These impacts are covered under Factor A.

Recreation

Taylor's Checkerspot Butterfly. Recreational foot traffic may be a threat to Taylor's checkerspot butterfly, as trampling will crush larvae if they are present underfoot. The incidence of trampling is limited to the few locations where Taylor's checkerspot butterflies and recreation overlap. For example, foot traffic is relatively common at Scatter Creek Wildlife Area in Washington, where plants and butterfly habitat have been trampled by horses during specialized dog competitions in which dogs are followed by observers on horseback (Stinson 2005, p. 6), and by foot traffic using the trail system to access the meadows of Beazell Memorial Forest (Park) in Oregon. Recreation by JBLM personnel and local individuals occurs on and near the 13th Division Prairie. Trampling by humans and horses, as well as people walking dogs on the 13th Division Prairie, is likely to crush some larvae, and the larval and nectar prairie plant communities that are restored and managed for in this area.

Larvae have been crushed on Dan Kelly Ridge, on the north Olympic Peninsula by vehicles that access the site to maintain a cell tower on the ridge. Also, recreational off-road vehicle (ORV) traffic on Dan Kelly Ridge, and on Eden Valley, has damaged larval host plants. The ORV damage on Dan Kelly Ridge occurs despite efforts by WDNR to block access into the upper portions of the road system through gating of the main road. Based on our review, we conclude that recreation is a threat to the Taylor's checkerspot butterfly and where the population is depressed may constitute a serious threat to the long-term conservation of the species.

Streaked Horned Lark. There are documented occurrences of adverse effects to larks from recreation. Recreation at coastal sites is a common threat to rare species; activities such as dog walking, beachcombing, ORV use, and horseback riding in coastal habitats may indirectly increase predation, nest abandonment and nest success for streaked horned larks (Pearson and Hopey 2005, pp. 19, 26, 29). One nest (of 16 monitored) at Midway Beach on the Washington coast was crushed by a horse in 2004 (Pearson and Hopey 2005, pp. 18–19). Open sandy beaches (e.g. dredge spoil sites on the lower Columbia islands) make good camping areas for kayakers and boaters, and nests could be lost due to accidental crushing. During western snowy plover surveys conducted between 2006 and 2010 at coastal sites in Washington, human-caused nest failures were reported in 4 of the 5 years (Pearson *et al.* annual reports, 2007, p. 16; 2008, p. 17; 2009, p. 18; 2010, p. 16). Because streaked horned larks nest in the same areas as snowy plovers along the Washington Coast, it is highly likely that human-caused nest failures also occur due to recreational activities at these sites. Good communication between researchers and landowners has resulted in some positive actions to reduce the adverse effects of recreation. In 2002, JBLM restricted recreational activity at the 13th Division Prairie to protect lark nesting; prohibiting model airplane flying, dog walking, and vehicle traffic in the area used by streaked horned larks (Pearson and Hopey 2005, p. 29).

Although restrictions to recreational use were placed on the 13th Division Prairie by JBLM, it is a difficult area to patrol and enforce restrictions of this type. This area, adjacent to where streaked horned larks nest, is scheduled for a release of captive bred and translocated Taylor's checkerspot butterfly larvae during March 2012. Based on our review, we conclude that activities associated with recreation are threats to the streaked horned lark.

Nest Parasitism

Nest parasitism by brown-headed cowbirds (*Molothrus ater*) is a potential, though little documented, threat to streaked horned larks. Cowbirds are common in grasslands and urban areas throughout North America; female cowbirds lay their eggs in the nests of other songbirds (Lowther 1993, p. 1). Upon hatching, young cowbirds compete for food with the young of the host species, and may result in lower reproductive success for the host pair (Lowther 1993, p. 11). In a study in Kansas, brown-headed cowbird parasitism of horned lark nests reduced the larks' nest success by half in those nests that were parasitized (from 1.4 young larks fledged per nest in non-parasitized nests to 0.7 young larks produced per nest with cowbird parasitism (Hill 1976, pp. 560–561)). Cowbirds are native to the open grasslands of central North America, but apparently only expanded into Oregon and Washington in the 1950's, as a result of human clearing of forested habitats (Lowther 1993, p. 2). Brown-headed cowbirds have been noted at all streaked horned lark study areas, and fledgling cowbirds have been observed begging for food from adult streaked horned larks in the south Puget Sound (Stinson 2005, p. 56). Extensive nest monitoring of streaked horned nests in the Willamette Valley has not identified cowbird brood parasitism as a threat in this area (Moore 2009, entire; Moore and Kotaich 2010, entire). Streaked horned larks have had just 50 years of exposure to brown-headed cowbirds, and as such, have not coevolved with this nest parasite. We, therefore, conclude that the effect of cowbird brood parasitism may be considered a threat if it further depresses nest success of the declining streaked horned lark population on the south Puget Sound.

The Taylor's checkerspot butterfly is not known to be impacted by nest parasitism.

Summary of Factor E

Based upon our review of the best commercial and scientific data available, the loss, degradation, and fragmentation of prairies has resulted in smaller population sizes, loss of genetic diversity, reduced gene flow among populations, destruction of population structure, and increased susceptibility to local population extirpation for the Taylor's checkerspot butterfly and the streaked horned lark from a series of threats including pesticide use, crushing and trampling from recreational activities, aircraft strikes and collisions, and nest parasitism, as summarized for each species below.

Taylor's Checkerspot Butterfly. Based upon our review of the best commercial and scientific data available, the degradation of habitat from recreational trampling and crushing produced by humans, dogs, and horses has killed larvae at several sites occupied by Taylor's checkerspot butterflies. In addition, the use of the insecticide *BtK* is suspected to be responsible for the extirpation of two sites in Pierce County, WA in 1992. We have also determined that the loss of genetic diversity through inbreeding depression due to habitat fragmentation and the isolation of the species is likely an ongoing active threat. We consider the impacts from recreation and pesticide use to pose potential threats to Taylor's checkerspot butterfly, particularly given its inherent vulnerability due to small population sizes and isolation of small populations.

Streaked horned lark. Genetic analysis has shown that streaked horned larks have suffered a loss of genetic diversity due to a bottleneck in population size (Drovetski *et al.* 2005, p. 881), the effect of which may be exacerbated by continued small total population size.

Habitat changes to streaked horned lark habitat from climate change may provide some benefit to the species and as such is not currently considered a threat. However, recreation activities can cause the degradation of streaked

horned lark habitat and direct mortality to nest and young.

We consider the impacts from recreation, the loss of genetic diversity, and the species' low reproductive numbers to pose potentially substantial threats to Taylor's checkerspot butterfly, particularly given its inherent vulnerability due to small population sizes and isolation of small populations.

Proposed Determination

Taylor's checkerspot butterfly

The Taylor's checkerspot butterfly has been lost from most locations in the Canadian portion of its range with just one known population remaining. In Washington the species was once known from seven Puget Sound counties, and is now known to occur naturally in just two counties, Clallam and Pierce. In Oregon, the range of Taylor's checkerspot butterfly has been reduced to two small relict grasslands in the foothills of the coast range near Corvallis, in Benton County, Oregon. The distribution of Taylor's checkerspot butterflies has been reduced from greater than 70 populations to 10 populations rangewide today; some of these populations have been extirpated in the past decade, and many declined from robust population sizes with greater than 5,000 individual butterflies to zero within a 3-year interval and have not returned. Most remaining populations of Taylor's checkerspot butterflies are very small; 5 of the 10 known populations have fewer than 100 individuals. Only 1 population consistently has more than 1,000 individual butterflies, and this population has been severely impacted due to habitat impacts from military training.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Taylor's checkerspot butterfly. We find that the threat of development and adverse impacts to habitat from conversion to other uses (agriculture), the loss of historically occupied locations resulting in the present isolation and limited distribution of the species, the impacts of military training and recreation, existing and likely future habitat fragmentation, habitat disturbance, and land use changes associated with agriculture, long-term fire suppression, the and the threats associated with the present and threatened destruction, modification, and curtailment of Taylor's checkerspot butterfly habitat are significant. These threats are currently ongoing and will continue into the foreseeable future for Taylor's checkerspot butterflies.

We find that disease may be a threat, but is not currently at a significant level to affect Taylor's checkerspot butterfly. The threat of disease to the larval host plant of the species may become substantial in the foreseeable future due to the prevalence of small population sizes for the Taylor's checkerspot butterfly. Predation is not a threat to Taylor's checkerspot butterflies at this time. We conclude that the existing regulatory mechanisms do not address and reduce the threats to the Taylor's checkerspot butterfly. The voluntary protections from WDNR have not provided protection to the species on DNR lands in north Olympic peninsula, and WDNR grassland properties in south Puget Sound no longer support the subspecies.

The observed habitat fragmentation and the isolation of small populations of Taylor's checkerspot butterfly suggests that the loss of genetic diversity through inbreeding depression may be a threat. All known locations where Taylor's checkerspots are found in Oregon and Washington are sufficiently distant from each other such that exchange of genetic material from a dispersing individual moving from population to populations would be unlikely. The threat of extreme weather events (drought and deluge, and overcast, cold springs) affect host plant phenology and adult butterfly emergence, which influences whether the larvae completes their annual life cycle, thus affecting the size of annual populations. The effects of weather events are particularly a threat when it affects one of the few small populations that remain. There is a potential threat of continuing pesticide application, which is suspected to be responsible for the extirpation of some populations of Taylor's checkerspot butterfly in Pierce County. Recreational activities (off-road vehicles, trampling and crushing from hikers and horses) have been shown to be a threat at several of the sites occupied by Taylor's checkerspot butterflies.

In summary, the combination of several significant threats and the ongoing nature of these threats to the few remaining small populations of Taylor's checkerspot butterfly leads us to conclude that the species is currently in danger of extinction throughout the species' range. The threats to the survival of the Taylor's checkerspot butterfly occur throughout the species' range and are not restricted to any particular significant portion of that range. Accordingly, our assessment and proposed determination will apply to the species throughout its entire range. The Act defines an endangered species as any species that is ''in danger of extinction throughout all or a significant portion of its range'' and a threatened species as any species ''that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.'' Because we find that the Taylor's checkerspot butterfly is presently in danger of extinction throughout its entire range, based on the immediacy, severity, and scope of the threats described above, and the fact that the range and population size of the species has already been drastically reduced, a proposed determination of threatened species status for Taylor's checkerspot butterfly is not appropriate. Therefore, on the basis of the best available scientific and commercial information, we determine that the Taylors' checkerspot butterfly meets the definition of an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

This proposal is based on current information about the location, status and threats for these subspecies. If new information is found which results in an expanded range of habitats used by the subspecies, or a decreased level of threats, we will consider that information in the final rule.

Significant Portion of the Range

Having determined that the Taylor's checkerspot butterfly meets the definition of an endangered species throughout its entire range, we need not further evaluate any significant portion of the range for this species.

Proposed Determination for the Streaked Horned Lark

The streaked horned lark has disappeared from all formerly documented locations in the northern portions of its range (British Columbia, the San Juan Islands, and the northern Puget trough), the Oregon coast, and the southern edge of its range (Rogue and Umpqua Valleys). There are currently estimated to be fewer than 1,600 streaked horned larks rangewide.

The streaked horned lark's range may be continuing to contract. The south Puget Sound breeding population is estimated to be 150–170 individuals; the Washington coast and Columbia River islands breeding population is 120–140 individuals. Recent research estimates that the number of streaked horned larks in Washington and on the Columbia River islands is declining. This decline taken together with evidence of inbreeding depression on the south Puget Sound indicates that the streaked horned lark's range may contract further in the future.

Throughout the entirety of the streaked horned lark's range, its habitat is threatened by loss of natural disturbance regimes, succession of woody plants and the invasion of nonnative plants that alter habitat structure, and incompatible management practices. In winter, most of the subspecies congregates in the Willamette Valley, putting it at risk of stochastic events in bad weather years. Most of the sites used by streaked horned larks require management to maintain the low vegetative structure and open landscape needed by streaked horned larks, although few of the streaked horned lark's breeding or wintering habitats are managed for the conservation of the subspecies.

The range of the streaked horned lark is small and shrinking; the magnitude of threats is not uniform throughout the range since they appear to be concentrated in Washington based on the more severe population level effects observed there, but weighing the small overall population size there against the relatively larger and stable populations in Oregon, we conclude the subspecies as a whole is not in danger of extinction now, but is likely to become endangered within the foreseeable future.

We have carefully assessed the best scientific and commercial information available regarding past, present, and future threats to the streaked horned lark. Threats exist throughout the range of the subspecies, population numbers are declining, and there are few regulatory protections in place that could reduce the threats to the subspecies. Based on the threats to the subspecies throughout its range, we have determined the streaked horned lark meets the definition of a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Distinct Vertebrate Population Segment

After finding that the streaked horned lark is a threatened species throughout its range, we next consider whether a distinct vertebrate population segment (DPS) meets the definition of endangered, in accordance with the Service's Policy Regarding the Recognition of Distinct Vertebrate Population Segments under the Endangered Species Act (61 FR 4722, February 7, 1996). The policy identifies three elements that are to be considered regarding the status of a possible DPS. These elements include:

(1) The discreteness of the population segment in relation to the remainder of the species to which it belongs;

(2) The significance of the population segment to the species to which it belongs; and

(3) The population segment's conservation status in relation to the Act's standards for listing (i.e., does the population segment, when treated as if it were a species, meet the Act's definition of endangered or threatened?) (61 FR 4722; February 7, 1996).

The first two elements are used to determine if a population segment constitutes a valid DPS. If it does, then the third element is used to consider whether such DPS warrants listing. In this section, we will consider the first two criteria (discreteness and significance) to determine if any unit of the streaked horned lark's overall population is a valid DPS (i.e., a valid listable entity). Our policy further recognizes it may be appropriate to assign different classifications (i.e., threatened or endangered) to different DPSs of the same vertebrate taxon (61FR 4722; February 7, 1996).

Discreteness. Under the DPS policy, a population segment of a vertebrate species may be considered discrete if it satisfies either one of the following two conditions:

(1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity (separation based on genetic or morphological characters) may provide evidence of this separation;

(2) It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

Marked Separation. In our evaluation of discreteness under the DPS policy, we primarily considered the information indicating the separation of streaked horned larks during the breeding season into three regions (the south Puget Sound, Washington Coast and Columbia River, and the Willamette Valley). Observation of banded streaked horned larks has shown that the birds show strong site philopatry in the breeding season (i.e., individuals tend to return to the same location to breed each year), but birds from all regions mix in the winter (Pearson *et al.* 2005, pp. 2–6). In the winter most of the streaked horned larks that breed in the south Puget Sound migrate south to the Willamette Valley or west to the Washington coast; larks that breed on the Washington coast either remain on the coast or migrate south to the Willamette Valley; birds that breed on the lower Columbia River islands remain on the islands or migrate to the Washington coast; and birds that breed in the Willamette Valley remain there over the winter (Pearson *et al.* 2005b; pp. 5–6). Streaked horned larks spend the winter in large mixed subspecies flocks of horned larks in the Willamette Valley, and in smaller flocks along the lower Columbia River and Washington Coast (Pearson *et al.* 2005b, p. 7; Pearson and Altman 2005, p. 7).

Possible evidence of inbreeding depression (Anderson 2010, p. 27, Pearson and Stinson 2011, p. 1) may suggest that there is a discrete population of streaked horned larks that breed in Washington. Estimates of population growth rate with data from nesting areas in Washington (south Puget Sound, Washington Coast, and one lower Columbia River island) indicate that the number of streaked horned larks in Washington is declining each year, apparently due to a combination of low survival and fecundity rates (Pearson *et al.* 2008, pp. 10, 13; Camfield *et al.* 2011, p. 7); this trend is not apparent in Oregon (Myers and Kreager 2010, p. 11). The combination of low genetic variability, small and rapidly declining nesting populations, high breeding site fidelity, and no observed migration into the south Puget Sound suggests that the streaked horned lark in the south Puget Sound could become extirpated in the near future (Pearson *et al.* 2008, pp. 1, 14, 15). Efforts to reduce this apparent isolation and concomitant genetic consequences have been implemented within the last year.

A project was initiated in 2011 to counteract the apparent decline in the south Puget Sound breeding birds. This genetic rescue effort is aimed at increasing genetic diversity in the streaked horned larks breeding in Washington, which could result in increased nest success and an increase in the population. Twelve eggs (four three-egg clutches) were collected from streaked horned lark nests in the southern Willamette Valley and were placed in nests at the 13th Division Prairie site at Joint Base Lewis-McChord (Wolf 2011, p. 9). At least five young successfully fledged at the receiving site; if even one of these birds returns to breed in future years, it will likely increase genetic diversity in the receiving population, resulting in improved fitness and reduced extinction risk for the south Puget Sound larks (Wolf 2011, p. 9). This genetic rescue project will likely be continued for the next several years.

With the evidence of extensive mixing that occurs in the winter, and the genetic rescue project to bolster genetic diversity in Washington, which has

resulted in genetic mixing between Oregon and Washington populations, there does not appear to be marked separation among streaked horned larks from the three regions. In addition, the evidence of deleterious genetic consequences to the birds breeding in Washington suggests that any possible isolation of this population is not the result of adaptation or natural differentiation of this population, but rather is symptomatic of drastic population declines and loss of connectivity between potentially interbreeding subpopulations. Because we find the potential ''regional populations'' are not markedly separate, we do not consider them to be discrete under the DPS policy.

Evaluation of Discreteness. Our analysis of the apparent level of isolation and evidence of inbreeding depression does not lead to a finding that any subunit of streaked horned larks that nest in Washington, in the south Puget Sound, the Washington coast or the Columbia River islands, are discrete, therefore these populations cannot be considered as a potential DPS. This does not mean that the three breeding regions of the subspecies are unimportant and do not have significant conservation value. It simply means that, per our policy, the best available data at this time do not support a marked separation between the breeding larks in the three regions, based on information available to us, such that this population would meet the discreteness criterion of our DPS policy.

Significance. Under our DPS Policy, a population must be discrete *and* significant to qualify as a DPS. Since we have determined that no populations of streaked horned larks are discrete, we will not consider whether that population segment is significant.

Conclusion of DPS Analysis for the Streaked Horned Lark

On the basis of the best available information, we have determined that there are no discrete populations of the streaked horned lark. Since no population segments met the discreetness element, and therefore, no populations qualify as a DPS under the Service's DPS policy, we will not proceed with an evaluation of the status of the population segment under the Act.

Significant Portion of the Range

As described above, we have determined that the streaked horned lark is likely to become endangered within the foreseeable future throughout all of its range, therefore the subspecies meets the definition of a threatened species under the Act. In the course of this rangewide determination, we considered whether some portion of the full range of the subspecies may face threats or potential threats acting individually or collectively on the streaked horned lark to such degree that the subspecies as a whole should be considered endangered. We detail our consideration of that question here.

Although the threats to streaked horned larks in Washington and Oregon are apparently similar in nature (including loss of habitat to development, poor habitat quality due to lack of adequate management to maintain low-stature vegetation, predation, and human disturbance during the breeding season), for reasons unknown, the population trend for streaked horned larks in Washington appears to be markedly different than the trend for the subspecies in Oregon.

Streaked horned larks in Washington occur on the south Puget Sound, the Washington coast, and on islands and dredge disposal sites in the lower Columbia River (including two sites in Portland, Oregon). The total estimated population of streaked horned larks in these areas is 270–310 birds (Altman 2011, p. 213). Demographic modeling using data from these sites uniformly show precipitous population declines. Pearson *et al.* (2008, pp. 3, 12) examined population vital rates (reproductive rates, juvenile survival and adult survival) at seven sites (four in the south Puget Sound, two on the Washington Coast, and one Columbia River island) over 4 years (2002–2005) and concluded that the Washington population is declining by 40 percent per year. Schapaugh (2009, pp. 9, 15, 18) used both deterministic and stochastic models to analyze the data collected by Pearson *et al.* (2008, p. 3), and projected that, in all cases, the streaked horned larks in Washington would likely become extinct within 25 years.

Camfield *et al.* (2011, p. 4) analyzed the data from the same three local populations considered by Pearson *et al.* (2008) and Schapaugh (2009), described above (the data were collected from about 137 nests over 4 years (2002–2005)). Camfield *et al.* (2011, p. 8) concluded that these populations have reached a point where they are declining towards extinction, and are not sustainable without immigration. The declining trend is probably most pronounced in the south Puget Sound population, where studies have identified apparent inbreeding depression, which is likely a result of the small population size, high site fidelity, and complete absence of breeding season immigration (i.e., no observed immigration of breeding birds from any other sites) (Pearson *et al.* 2008, pp. 14–15).

The population of streaked horned larks in the Willamette Valley of Oregon appears to be more stable. The population in the Willamette Valley is estimated at 900–1,300 birds (Altman 2011, p. 213); no population modeling has been done using data from Oregon, but the apparent trend of the species in the Willamette Valley is stable or slightly increasing, based on the Oregon Department of Fish and Wildlife's 1996 and 2008 surveys for streaked horned larks at sites throughout the Willamette Valley (Myers and Kreager 2010, p. 11). Population monitoring at various sites in the Willamette show that several large populations are fairly stable or increasing. Surveys conducted at Baskett Slough National Wildlife Refuge from 2006 to 2009 showed a population increase from 18 pairs in 2006 to 35 pairs in 2009 (Moore 2008, p. 8; Moore 2012, *in litt.*). Surveys at William L. Finley National Wildlife Refuge found the population increasing from 15 pairs in 2006 to 40 pairs in 2010 (Moore 2008, p. 9; Moore 2012, *in litt.*). The streaked horned lark population at Corvallis Municipal Airport, the site of the largest known population of the subspecies, measured 75 pairs in 2006, 102 pairs in 2007, 80 pairs in 2008, and 85 pairs in 2011 (Moore 2008, p. 16; Moore 2012, *in litt.*).

Although streaked horned larks in the Willamette Valley face many of the same threats as populations in Washington, we have no information to indicate that populations in the Willamette Valley are experiencing declines, or to suggest that they are likely to experience significant declines in the foreseeable future, to the degree that this population would be considered in danger of extinction at the present time. The threats in the Willamette Valley are relatively small population size, and likely loss of habitat to future development and incompatible management practices, which leads us to conclude that the subspecies is threatened in the Willamette Valley.

The best available data therefore suggests that under current conditions, streaked horned larks in Washington (south Puget Sound, Washington coast, Columbia River islands) will likely continue to decline towards extinction within this century. Having already determined that the streaked horned lark is threatened throughout its range, we considered whether threats may be so concentrated in some portion of its range that, if that portion were lost, the entire subspecies would be in danger of

extinction. In applying this test, we determined that even with the potential loss of the Washington populations, the relatively larger, more stable population in the Willamette Valley of Oregon would likely persist, therefore the subspecies as a whole is not presently in danger of extinction, and therefore does not meet the definition of an endangered species under the Act.

Continued decline of the Washington populations is considered in conjunction with the relatively more stable populations in the Willamette Valley leads us to the conclusion that, on balance, the subspecies is appropriately defined as a threatened species throughout its range under the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Listing results in recognition and public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprised of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our Web site (*http://www.fws.gov/endangered*), or from our Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribal, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If these species are listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Washington and Oregon would be eligible for Federal funds to implement management actions that promote the protection and recovery of the Taylor's checkerspot butterfly and streaked horned lark. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants.*

Although the Taylor's checkerspot butterfly and streaked horned lark are only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for these species. Additionally, we invite you to submit any new information on these species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the species habitat that may require conference or consultation or both as described in the preceding paragraph include actions to manage or restore critical habitat, actions that require collecting or handling the species for the purpose of captive propagation and translocation to new habitat, actions that may negatively affect the species through removal, conversion or degradation of habitat. Examples of activities conducted, regulated or funded by Federal agencies that may affect listed species or their habitat include, but are not limited to:

(1) Military training activities and air operations conducted in or adjacent to occupied or suitable habitat on DOD lands;

(2) Activities with a Federal nexus that include vegetation management such as burning, mechanical treatment, and/or application of herbicides/pesticides on Federal, State, private, or Tribal lands;

(3) Ground-disturbing activities regulated, funded or conducted by Federal agencies in or adjacent to occupied and/or suitable habitat; and

(4) import, export or trade of the species, to name a few.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions of section 9(a)(2) of the Act, codified at 50 CFR 17.21 for endangered wildlife, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill,

trap, capture, or collect; or to attempt any of these), import, export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. Under the Lacey Act (18 U.S.C. 42–43; 16 U.S.C. 3371–3378), it is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 for endangered species, and at 17.32 for threatened species. With regard to endangered wildlife, a permit must be issued for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of species proposed for listing. The following activities could potentially result in a violation of section 9 of the Act; this list is not comprehensive:

(1) Unauthorized collecting, handling, possessing, selling, delivering, carrying, or transporting of the species, including import or export across State lines and international boundaries, except for properly documented antique specimens of these taxa at least 100 years old, as defined by section 10(h)(1) of the Act;

(2) Introduction of nonnative species that compete with or prey upon the Taylor's checkerspot butterfly or streaked horned lark, such as the introduction of competing, nonnative plants or animals to the States of Washington and Oregon;

(3) The unauthorized release of biological control agents that attack any life stage of these species, for example, *Btk* release in the range of Taylor's checkerspot butterflies;

(4) Unauthorized modification of the soil profiles or the vegetation components on sites known to be occupied by Taylor's checkerspot butterflies and streaked horned larks; and

(5) Deposition of dredge materials on occupied streaked horned lark breeding habitats, intentional harassment of species at airports as part of a wildlife hazard reduction program, mowing or burning of occupied species habitats during the breeding season.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Requests for copies of the regulations concerning listed animals and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Eastside Federal Complex, 911 NE. 11th Avenue, Portland, OR 97232–4181 (telephone 503–231–6158; facsimile 503–231–6243).

If the Taylor's checkerspot butterfly or streaked horned lark are listed under the Act, the States of Washington and Oregon Endangered Species Acts (WAC 232–12–297 and OAR 629–605–0105) are automatically invoked, which would also prohibit take of these species and encourage conservation by State government agencies. Further, the States may enter into agreements with Federal agencies to administer and manage any area required for the conservation, management, enhancement, or protection of endangered species. Funds for these activities could be made available under section 6 of the Act (Cooperation with the States) or through competitive application to receive funding through our Recovery Program under section 4 of the Act. Thus, the Federal protection afforded to these species by listing them as endangered or threatened species will be reinforced and supplemented by protection under State law.

Special Rule

Under section 4(d) of the Act, the Secretary may publish a special rule that modifies the standard protections for threatened species in the Service's regulations at 50 CFR 17.31, which implement section 9 of the Act, with special measures that are determined to be necessary and advisable to provide for the conservation of the species. As a means to promote conservation efforts on behalf of the streaked horned lark, we are proposing a special rule for this species under section 4(d) of the Act. In the case of a special rule, the general regulations (50 CFR 17.31 and 17.71) applying most prohibitions under section 9 of the Act to threatened species do not apply to that species, and the special rule contains the prohibitions necessary and appropriate to conserve that species.

Under the proposed special rule, take of the streaked horned lark caused by restoration and maintenance activities either through agricultural operations or by airports on State, county, private, or tribal lands would be exempt from section 9 of the Act. These activities include mechanical weed and grass removal on airports. In addition, we also propose to exempt certain normal farming or ranching activities, including: grazing, routine fence and structure maintenance, mowing, herbicide use, burning, and other routine activities described under proposed § 17.41 (Special Rules—Birds) at the end of this document. The rule targets these activities to encourage landowners to continue to maintain those areas that are not only important for airport safety and agricultural use, but also provide habitat for the streaked horned lark. Airport restoration and maintenance activities on Federal lands will be addressed through the section 7 process.

Justification

Airport Management. Some management actions taken at airports are generally beneficial to streaked horned larks. Streaked horned larks have been documented to breed successfully and to maintain stable populations at airports in the south Puget Sound and Willamette Valley. Although horned larks are one of the most commonly struck birds according to the Federal Aviation Administration's bird strike database, they rarely cause damage to airplanes due to their small size. However, larger birds can cause significant damage and are a danger to planes. The Service believes current management of these areas provide for safe aircraft operations while simultaneously providing for the conservation of streaked horned larks. Under the proposed rule, covered actions would include vegetation management to maintain desired grass height on or adjacent to airports through mowing or herbicide use; hazing of hazardous wildlife (geese, and other large birds and mammals), routine management, repair and maintenance of roads and runways; and management of forage, water, and shelter to be less attractive to these hazardous wildlife.

If finalized, the listing of the streaked horned lark would impose a requirement of airport managers where the species occur to consider the effects of their management activities on these species. Additionally, airport managers would likely take actions to deter the species from areas where they currently

occur in order to avoid the burden of the resulting take restrictions that would accrue from the presence of a listed species. However, special rule under section 4(d) of the Act for airports which exempts activities, such as mowing or other management to deter hazardous wildlife, that would result in take under section 9 of the Act, would eliminate the incentive for airports to reduce or eliminate populations of streaked horned larks from the airfields.

Agricultural Lands. Streaked horned larks use agricultural habitats in the Willamette Valley each year, even though appropriate habitat characteristics on these lands may shift from year to year. In the agricultural fields of the Willamette Valley, the open habitats with the desired combination of bare ground and low vegetation structure may occur anywhere within the agricultural matrix of the valley floor. Habitat characteristics of agricultural lands used by streaked horned larks include: (1) Bare or sparsely vegetated areas within or adjacent to grass seed fields, pastures, or fallow fields; (2) recently planted (0–3 years) Christmas tree farms with extensive bare ground; and (3) wetland mudflats or ''drown outs'' (i.e., washed-out and poorly performing areas within grass seed or row crop fields). Currently, there are approximately 420,000 ac (169,968 ha) of grass seed fields in the Willamette Valley, and an additional approximately 500,000 ac (202,343 ha) of other agriculture. In any year, some portion of these roughly 1 million ac (404,685 ha) will have suitable streaked horned lark habitat, but the geographic location of those areas will not be consistent from year to year, nor can we predict their occurrence.

While some agricultural activities may harm or kill streaked horned larks, maintenance of extensive agricultural lands in the Willamette Valley is crucial to maintaining a large, stable population of streaked horned larks in the valley. Section 9 of the Act provides general prohibitions on activities that would result in take of a threatened species; however, the Service recognizes that routine agricultural activities, even those with the potential to inadvertently take individual streaked horned larks, may be necessary components of agricultural operations and may provide for the long-term conservation needs of the streaked horned lark. The Service recognizes that in the long term, it is a benefit to the streaked horned lark to maintain those aspects of the Willamette Valley's agricultural landscape that can aid in the recovery of the species. We believe this special rule will further conservation of the species by discouraging conversions of the agricultural landscape into habitats unsuitable for the streaked horned lark and encouraging landowners to continue managing the remaining landscape in ways that meet the needs of their operation as well as providing suitable habitat for the streaked horned lark. Under the proposed rule, we propose to exempt normal farming activities such as planting, harvest and rotation of crops, mowing and tilling, herbicide use, and burning, which may result in take of the streaked horned lark under section 9 of the Act.

In addition, we believe that, in certain instances, easing the general take prohibitions on non-Federal agricultural lands may encourage continued responsible land uses that provide an overall benefit to the species. We also believe that such a special rule will promote the conservation efforts and private lands partnerships critical for species recovery (Bean and Wilcove 1997, pp. 1–2). However, in easing the take prohibitions under section 9, the measures developed in the special rule must also contain prohibitions necessary and appropriate to conserve the species. As discussed elsewhere in this proposed rule, the streaked horned lark faces many threats. Foremost among these is the scarcity of large, open spaces with very early seral stage vegetation. In the Willamette Valley, large expanses of burned prairie or the scour plains of the Willamette and Columbia Rivers may have provided suitable habitat for streaked horned larks in the past. With the loss of these natural habitats during the last century, alternative breeding and wintering sites, including active agricultural lands, have become critical for the continued survival and recovery of the streaked horned lark.

Provisions of the Proposed Special Rule

We believe these actions and activities, while they may have some minimal level of harm to or disturbance of the streaked horned lark, are not expected to adversely affect the species' conservation and recovery efforts.

This proposal will not be finalized until we have reviewed comments from the public and peer reviewers. Exempted activities include existing routine airport practices as outlined above by non-Federal entities on existing airports, and agricultural and ranching activities.

Critical Habitat Designation for Taylor's Checkerspot Butterfly and Streaked Horned Lark

It is our intent to discuss below only those topics directly relevant to the designation of critical habitat for the Taylor's checkerspot butterfly and the streaked horned lark in this section of the proposed rule.

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) would apply, but even in the event of a destruction or adverse modification

finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographic area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are the elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographic area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species, but that was not occupied at the time of listing, may be determined to be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographic area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Methods

As required by Section 4 of the Act, we used the best scientific data available in determining those areas that contain the physical or biological features essential to the conservation of these species. Further, our Policy on Information Standards under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species (if available), articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge. In this case we used existing occurrence data for each species and identified the habitat and ecosystems upon which they depend. These sources of information included, but were not limited to:

1. Data used to prepare the proposed rule to list the species;
2. Information from biological surveys;
3. Peer-reviewed articles, various agency reports, and databases;
4. Information from the U.S. Department of Defense—Joint Base Lewis McChord and other cooperators;
5. Information from species experts;
6. Data and information presented in academic research theses; and
7. Regional Geographic Information System (GIS) data (such as species occurrence data, land use, topography, aerial imagery, soil data, and land ownership maps) for area calculations and mapping.

Habitat is dynamic, and species may move from one area to another over time. Climate change will be a particular challenge for biodiversity because the interaction of additional stressors associated with climate change and current stressors may push species beyond their ability to survive (Lovejoy 2005, pp. 325–326). The synergistic implications of climate change and habitat fragmentation are the most threatening facet of climate change for biodiversity (Hannah *et al.* 2005, p. 4). Current climate change predictions for terrestrial areas in the Northern Hemisphere indicate warmer air temperatures, more intense precipitation events, and increased summer continental drying (Field *et al.* 1999, pp. 1–3; Hayhoe *et al.* 2004, p. 12422; Cayan *et al.* 2005, p. 6; Intergovernmental Panel on Climate Change (IPCC) 2007, p. 1181). Climate change may lead to increased frequency and duration of severe storms and droughts (Golladay *et al.* 2004, p. 504; McLaughlin *et al.* 2002, p. 6074; Cook *et al.* 2004, p. 1015).

The information currently available on the effects of global climate change and increasing temperatures does not make sufficiently precise estimates of the location and magnitude of the effects. Nor are we currently aware of any climate change information specific to the habitat of the species that would indicate what areas may become important to the species in the future. Therefore, we are unable to determine what additional areas, if any, may be appropriate to include in the final critical habitat for this species to address the effects of climate change.

We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations at 50 CFR 424.12(a)(1) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species; or (2) such designation of critical habitat would not be beneficial to the species.

Species Proposed for Listing

As we have discussed under the threats analysis for Factor B, there is no documentation that the Taylor's checkerspot butterfly or streaked horned lark are currently significantly threatened by collection for private or commercial purposes. We do have some evidence that the historical collection of butterflies for scientific studies may have contributed to the decline and extirpation of the 13th Division Prairie population of Taylor's checkerspot butterfly in the late 1990s. This is consistent with the decline and extirpation of the Jasper Ridge population of Edith's checkerspot in California reported by McGarrahan (1977, p. 479), which was determined to have been caused, in part, by scientific studies.

We reviewed the information available for the Taylor's checkerspot butterfly and streaked horned lark pertaining to their biological needs and habitat characteristics. In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a prudent finding is warranted. The potential benefits of critical habitat to the Taylor's checkerspot butterfly and streaked horned lark include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur because, for example, it is or has become unoccupied or the occupancy is in question; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species.

The primary regulatory effect of critical habitat is the section 7(a)(2) requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. We find that the designation of critical habitat for Taylor's checkerspot butterfly and streaked horned lark will benefit these subspecies by serving to focus conservation efforts on the restoration and maintenance of ecosystem functions that are essential for attaining their recovery and long-term viability. In addition, the designation of critical habitat serves to inform management and conservation decisions by identifying any additional physical or biological features of the ecosystem that may be essential for the conservation of these subspecies. Therefore, because we have determined that the designation of critical habitat will not likely increase the degree of threat to the species and may provide some measure of benefit, we find that designation of critical habitat is prudent for the Taylor's checkerspot butterfly and streaked horned lark, as critical habitat would be beneficial and there is no evidence that the designation of critical habitat would result in an increased threat from taking or other human activity for these species.

Critical Habitat Determinability

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the species is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or

(ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

We reviewed the available information pertaining to the biological needs of the Taylor's checkerspot butterfly and streaked horned lark and habitat characteristics where these subspecies are located. This and other information represent the best scientific data available and led us to conclude that the designation of critical habitat is determinable for the Taylor's checkerspot butterfly and streaked horned lark.

Physical or Biological Features

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we identify the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the specific physical or biological features required for each subspecies from studies of their habitat, ecology, and life history as described above in this document. We have determined that the physical and biological features described below are essential for the conservation of Taylor's checkerspot butterfly and the streaked horned lark, and have further determined that these features may require special management considerations or protection.

The designation of critical habitat is an authority restricted to the boundaries of the United States; critical habitat cannot be designated in a foreign country (50 CFR 424.12(h)). Thus for the Taylor's checkerspot butterfly and streaked horned lark, both subspecies that range into Canada (or historically occurred there), we discuss the population in Canada (in the listing portion of the document) for the purpose of evaluating the viability of the species, and to inform our determination of those areas within the United States that are essential for the conservation of the species. We do not propose to designate critical habitat in Canada.

Taylor's Checkerspot Butterfly

We have determined that the following physical or biological features are essential for the Taylor's checkerspot butterfly.

Space for Individual and Population Growth and for Normal Behavior

Habitat for the Taylor's checkerspot butterfly is characterized by open

grassland habitat with short-statured vegetation structure (Stinson 2005, p. 86; Severns and Warren 2008, p. 476) throughout their range in British Columbia, Washington, and Oregon. A diverse topography is a feature that is essential to the conservation of other checkerspot butterflies (Ehrlich and Murphy 1987, p. 122; Hellmann *et al.* 2004, p. 41) and strongly influences the distribution and abundance of larvae and butterflies within a habitat patch (Hellmann *et al.* 2004, p. 46). Topographic diversity creates conditions where larval food plant phenology (timing of bud development, bud break, and flowering) is variable across different slopes angles. For example, plants on south facing slopes may develop earlier in the season as compared to those on north facing aspects. This difference in plant phenology, as influenced by topography, allows larvae to move to areas with plentiful, mature host plants, or to move away from hot exposed slopes when the larval host plants begin to dry and wither, and no longer provides sufficient amounts or quality nutrition for the larvae. Topography has been shown to directly influence post-diapause larval growth (Hellmann 2004 p. 46), and topographically influenced microclimates affect the distribution and abundance of larvae and butterflies within its habitat (Hellmann *et al.* 2004, p. 46). Open grassland habitat dominated by short statured native grasses and diverse native forbs, without the presence of conifers, and shrubs such as the nonnative Scot's broom, and native snowberry (*Symphoricarpus albus*), and rose (*Rosa* spp.) facilitate the movement of butterflies for mating, egg-laying (ovipositing), and adult nectaring (see below—Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring).

Areas of habitat with open bare soil may also be advantageous to the butterfly as these areas warm more quickly than the surrounding vegetation, and butterflies thermo-regulate by basking (Scott 1986, p. 296; Kuussaari *et al.* 2004, p. 140; Stinson 2005, p. 81). The presence of tall, nonnative grasses creates a habitat structure that is unsuitable to checkerspot butterflies, making it difficult for adults to locate larval host plants for egg-laying (ovipositing). Given a choice, Taylor's checkerspot butterflies oviposited on larval host plants surrounded by short-statured native bunchgrasses and adult nectar plants, indicating that females select egg-laying sites based on habitat conditions (structure) rather than just the presence of the host plant (Severn and Warren 2008, p. 476). Post-diapause larvae forage singularly and are capable of moving much greater distances than pre-diapause larvae (Kuussaari *et al.* 2004, p. 140). Edith's checkerspot larvae have been documented to move up to 10 m (33 ft) from a release site, often moving within a habitat patch to different exposures to raise their body temperature (Stinson 2005, p. 81), and presumably to find suitable foraging conditions (Kuussaari *et al.* 2004, p. 140). Dispersal within a habitat patch benefits the larvae because they are able to elevate their body temperature to an optimal range for foraging and development.

Large expanses of open grassland habitat are in limited abundance throughout the range of the Taylor's checkerspot butterfly; however, using current occupation by the butterfly as an example, it appears the Taylor's checkerspot butterfly can use relatively small patches of suitable habitat. At this time, only one area of open grassland habitat that supports Taylor's checkerspot butterflies is larger than 50 ac (20 ha). This location is known as the Artillery Impact Area (91st Division Prairie) on JBLM and it is approximately 6,000 ac (2,430 ha). Even on this large expansive prairie the butterfly uses two distinct patches that are less than 100 ac (40 ha) each in size, and they are separated by several kilometers. The areas between the patches are not trained upon, and are composed of grasslands, however, the abundance and diversity of larval host and adult nectar plants in this intervening area does not appear to be sufficient to attract and be used by Taylor's checkerspot butterflies. In Oregon, the two locations where Taylor's are found are composed of several distinct grassland patches with no individual patch larger than 5 ac (2 ha) (Kaye *et al.* 2011, p. 10) and many of the numerous bald patches on the north Olympic Peninsula in Washington are small as well. The WDNR balds on Dan Kelly Ridge and Eden Valley are a series of small openings that are all less than 1 ac (0.4 ha) (Hays 2011, pp. 8–9, 18); whereas the Taylor's locations found on Forest Service lands on the Olympic Peninsula range in size from 25 to 60 ac (10 to 24 ha) (Holtrop 2009, pp. 7–10). The Oregon sites and the north Olympic Peninsula balds are both found in a matrix of conifer forests (Kaye *et al.* 2011, pp. 19–20).

Based on information provided by an expert panel and predictions from a Prairie Reserve Design model, Taylor's checkerspot butterfly have the highest probability of survival on patches from approximately 20–50 ac (8–20 ha) in size (probability of survival range 0.8–0.98) (Converse *et al.,* 2010, p. 8). In the case of this model, survival is defined as *patch of habitat that is occupied* in year *y*+1 if Taylor checkerspot butterfly eggs were oviposited in the patch in year *y.* The model was run annually for 50 years to predict the occupancy probability in relation to patch size for the species. Beyond a patch size of 50 ac (20 ha) there was no added probability of survival (Converse *et al.* 2009, p. 8).

Little work has been carried out on the ability of this species to disperse. However, a mark-recapture study conducted in Oregon (Kaye *et al.* 2011, p. 15) showed that dispersal distance was short (less than 984 ft (300 m) (Kaye *et al.* 2011, p. 16) and that Taylor's checkerspot butterflies tended to move to the nearest open patch, or from poor resource patches to rich resource patches, although rates of recapture were low (2 out of 100) (Kaye *et al.* 2011, p. 12). Mark-recapture studies with checkerspot butterflies in Finland documented that they generally flew less than 1,640 ft (500 m), and that long distance migrations were clearly restricted (Nieminen *et al.* 2004, p. 73). Research conducted in California on Edith's checkerspot butterfly described the butterfly as sedentary (Murphy *et al.* 2004, p. 23) and rarely undertaking long-distance movements (Singer and Hanski 2004, p. 184). Hellmann *et al.* (2004, p. 37) found evidence of limited dispersal between closely situated populations even though the habitat provided similar food resources and was well within dispersal distance (Hellmann *et al.* 2004, p. 39). Based upon the current distribution of the known Taylor's checkerspot butterfly populations, there is a lack of opportunity for genetic interchange and a reduced likelihood that populations that decline due to stochastic events are likely to be repopulated by emigrating individuals.

While Taylor's checkerspot butterflies may not need large areas to survive, they do require habitat patches composed of short-statured, abundant, and diverse larval host and nectar species (described below). These patches (separated by 984 ft (300 m) or less (Kaye *et al,* 2011. p.16)) should be scattered throughout their range to allow for movement within patches, dispersal to new habitat patches, and recolonization of lost or nonviable sites both within and between patches due to habitat or population changes. Although dispersal by Taylor's checkerspot butterflies appears to be limited, in order to recover the species there will need to be an ability to recolonize new

habitat and provide for genetic exchange, which is essential to the long-term viability (survival) of the species. At this time, the distance between habitat patches in Washington and Oregon is too great for Taylor's checkerspot butterflies to disperse between patches. The connections between patches are lacking throughout the species' range, and only through protection and restoration using special management of the intervening patches will genetic exchange be accomplished. High quality reproductive habitat is currently relegated to relatively small areas within a larger context of degraded prairie landscape (Severns and Warren 2008, p. 476; Severns and Grossball 2011, p. 2).

Landscape and habitat diversity, or heterogeneity, are essential elements for the conservation of Edith's checkerspot butterflies (Ehrlich and Murphy 1987, p. 122; Hellman *et al.* 2004, p. 41), and based on their similar habitat needs, we presume that habitat diversity is also essential to the conservation of the Taylor's checkerspot butterfly, even though the species may only require and use small areas of suitable habitat. Patches of habitat where Taylor's checkerspot butterfly populations are robust also tend to have high topographic diversity including areas with mima mounds (low, domelike, mounds of earth found in certain prairies) and areas composed of swales (depressions) that produce ecotone habitat (Johnson and O'Neil 2001, p. 715) between dry upland habitat typical of south Puget Sound prairies, and wet prairie habitat more typical of the Willamette Valley (Easterly *et al.* 2005, p. 1). Swales may enhance the wildlife resources available on the landscape (Easterly *et al.* 2005, p. 1) or improve the richness of wildlife resources (biodiversity) of an area and as such are important for wildlife conservation (Thomas *et al.* 1979, p. 48). Mima mounds and swales are important because they may support plants not found in the either the dry or wet portions of a grassland. Swales formed on the prairies of south Puget Sound support a rich assemblage of native plants because of the variation in aspect exposure found there, with the south aspect being dry compared with more shaded northern aspects. The north-facing portion of a swale is likely to maintain moist conditions later into the growing season than the surrounding level ground.

Moist, cool conditions of a swale or a mima mound may be similar to the moist, cool, and overcast conditions experienced throughout most of the species' range in 2011, which made for one of the longest flight seasons on record for Taylor's checkerspot butterfly in Washington (45 days; Linders 2011b, p. 17) and in Oregon (42 days; Ross 2011, in litt. p. 3). In a study by Peterson (1997, p. 167), he demonstrated that flowering phenology varied by aspect and elevation of plant patches, which affects a butterfly's ability to complete its life cycle. The timing of plant flowering directly affects whether a butterfly larva finds the required plant patches during the period they have to complete their larval development. If the food resource becomes exhausted before the larvae complete their life cycle they will either return to diapause, or die.

Based on the information above, we identified areas of open grassland habitat with suitable habitat patches of short-statured grasses from less than 1 acre to greater than 50 ac (roughly 0.4 ha to more than 20 ha) in size within a large landscape context are essential to the conservation of the Taylor's checkerspot butterfly. In the Pacific Northwest, suitable occupied habitat patches may be found in a large forested landscape with small grassland opening of suitable habitat (such as in Oregon or at sites on the north Olympic Peninsula), or the entire landscape may be a large relatively degraded grassland with smaller suitable habitat patches occupied by the Taylor's checkerspot. To allow for dispersal between suitable habitat patches the occupied patches would ideally be located within approximately 1,640 ft (500 m) of other suitable habitat patches within the larger landscape context.

In summary, a wide range of suitable habitat patch sizes, including large to very small connected patches, appear to accommodate the requisite needs of the Taylor's checkerspot butterfly, as the butterfly is known to occupy areas in disjunct locations scattered across the Pacific northwest grassland landscape from sea-level to as high as 4,000 ft (1,220 m) elevation.

Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

Because checkerspots are cold-blooded (exothermic), they are required to complete their life cycle in a short period of time in open conditions where solar exposure is maximized. Larvae often seek and disperse to warm, open slopes (James and Nunnallee 2011, p. 286). Adult checkerspot butterflies often bask and remain in open grassland conditions using the sunshine and warm air temperature to increase their body temperature to the level required for normal activity (73 FR 3328, p. 3335; January 17, 2008).

The availability of abundant food resources for larval development and adult nectaring is an essential factor to protecting populations of Taylor's checkerspot butterfly. Taylor's checkerspot butterflies require open grassland habitat with specific host plants for larval development, and nectar plants for adult feeding. Habitat quality may range from relatively pristine to severely degraded (disturbed) as long as the requisite larval host plants (*Plantago lanceolata,* (nonnative narrow-leaf plantain) and *Castilleja hispida* (native harsh paintbrush), and in Canada, nonnative and native species of *Veronica* (speedwell) such as *V. scutella* (marsh speedwell), *V. beccabunga* var. *americana* (American speedwell), and *V. serpyllifolia* (thymeleaf speedwell) are present in sufficient abundance to support larval development, chrysalis formation, and emergence as an adult.

Regardless of the quality of grassland habitat for Taylor's checkerspot butterflies, conditions suitable to support Taylor's checkerspot butterfly must have representatives of at least one, or both, of the two food plant families utilized by the larvae (Pyle 2002, p. 311; Erhlich and Hanski 2004, p. 17; Severns 2008, p. 2; Severns and Warren 2008; p. 476). Specifically, larval food plants utilized by the Taylor's checkerspot butterfly are species from the Orobanchacae (formerly Scrophulariacae; the snapdragon or figwort family) and Plantanginacae (Plantain) family (Erlich and Hanski 2004, p. 22). These plant families represent two of four plant families found within the region that contain secondary chemicals called iridoid glycosides (Erhlich and Hanski 2004, p. 22), which may make adult butterflies distasteful to predators (van Nouhuys and Hanski 2004, p. 161; Murphy *et. al.* 2004 p. 22). Although numerous plant families (up to 16) may be utilized by checkerspot larvae (Murphy *et. al.* 2004, p. 22), the larvae are known to preferentially select plant members of the plantain and snapdragon (now broomrape) families in the Pacific Northwest. Checkering on wings of adult butterflies and the sequestering of chemical compounds that make adult butterflies distasteful are two of many mechanisms used by butterflies as a signal and defense against natural enemies (Van Nouhys and Hanski 2004, p. 161).

Adult Taylor's checkerspot butterflies are known to use a wide diversity of nectar plants for feeding, including, but not limited to several native plant

species including: *Balsamorhiza deltoidea* (balsamroot); *Eriophyllum lanatum* (woolly sunshine); *Lomatium triternatum* (nine-leaved desert parsley); *Lomatium utriculatum* (fine-leaved desert parsley, spring gold); *Camassia quamash* (common camas); *Erigeron speciosus* (showy fleabane); *Cirsium arvense* (Canada thistle); *Achillea millefolium* (common yarrow); *Lupinus lepidus* (prairie lupine); and *Lupinus albicaulis* (sickle-keeled lupine).

Adult butterflies obtain some moisture from nectar sources and the need for actual water sources may only occur during years of extreme drought (Stinson 2005, p. 81). There is evidence that points to butterflies using puddles to obtain salts leached from soil (Stinson 2005, p. 81), or they may use mud, carrion, animal urine, or feces to obtain salts, minerals, amino acids and proteins (Guppy and Shepard 2001, p. 69). The intake of amino acids by females results in larger eggs, and consequently larger and healthier larvae (Murphy *et al.* 1983, p. 259).

Therefore, based on the information above, we identify open, short-statured grassland structure with rich and diverse plant communities containing one or both primary larval food plants, the narrow-leaved plantain and harsh paintbrush, as a physical and biological feature essential to the conservation of the Taylor's checkerspot butterfly. Habitat should include open bare soil with a background structure composed of a bunchgrass community (Roemer's fescue or California oat-grass). A source of water, or puddles, is used to avoid dehydration and to acquire nutrients, particularly in drought years (Stinson 2005, p. 81; Guppy and Shepard 2001, p. 41). Other important larval food plants include, but are not limited to, other members of the Orobanchaceae (broomrape; formerly Scrophulariaceae (snapdragon or figwort)) family, which are documented larval host plants (James and Nunnallee 2011, p. 286; Pyle 2001, p. 311; Hellmann *et al.,* 2004, p. 35) and are essential to the conservation of the Taylor's checkerspot butterfly. Other species of the Plantaginaceae family have not been documented as a favored larval host plant, except in Canada (COSEWIC 2011 p. 25), where Taylor's have been observed utilizing the nonnative *Plantago major* (common plantain). Plant community patches utilized by Taylor's checkerspot butterfly, especially those within a highly degraded prairie landscape context, must also include a diverse mix of native forbs to provide nectar for adult butterflies.

Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring

Taylors's checkerspot butterflies require open grassland habitat with specific host plants for larval and adult feeding as discussed above. As plant communities become invaded by taller structure grass, sites for breeding are reduced and the availability of larval and adult butterfly resources is limited.

The encroachment of nonnative, invasive species reduces the quality and size of habitat patches used for reproduction that are found in an otherwise larger grassland landscape (Severns and Warren 2008, p. 478; Severns and Grosboll 2011, p. 2). The quality of Taylor's checkerspot butterfly habitat resources is quite variable across its distribution, with Oregon sites being relatively depauperate (sparse vegetation and low plant diversity) when compared with floristically abundant occupied habitat in Washington (Severns and Grosboll 2011, p. 2).

Oviposition (egg deposition) by Taylor's checkerspot butterfly has most often been documented on narrow-leaf plantain and harsh paintbrush. Taylor's checkerspot butterfly larvae are known to also utilize several species of speedwell in Canada (marsh speedwell, American speedwell, and thyme-leaved speedwell) (COSEWIC 2011, p. 25). In Washington, *Collinsia parviflora* (blue-eyed Mary), and potentially *Plectritis congesta* (sea blush) may be used for egg-laying (James and Nunnullee 2011, p. 286; Severns and Grossball 2011, p. 60).

Taylor's checkerspot butterfly larvae require sheltered sites out of the wind and weather for diapause (Linders 2012, pers. comm.). Adult butterflies tend to roost on nearby nectar plants (deltoid balsamroot, sickle-keeled lupine, and nine-leaved desert parsley) in close proximity to larval host plants (plantain and paintbrush) where eggs are oviposited or larvae are developing by feeding on host plants. The preferred or most suitable habitat for larval feeding is on sites with topographic variation or exposure (Kuussaari *et al.* 2004, p. 140). This allows larvae to move from one host plant to another of the same species, as host plants are ephemeral in nature and phenology of an individual plant can differ within a habitat patch, depending on local weather and host plant quality (Kuussaari *et al.* 2004, p. 140). Because of their limited ability to move, prediapause larvae must hatch from eggs oviposited in a favorable site for locating the appropriate host plant under the appropriate environmental condition (Kuussaari *et al.* 2004, p. 138). In the climate and local weather conditions of the Pacific Northwest, larval development requires a site that is warm and dry (Kuussaari *et al.* 2004, p. 138).

Therefore, based on the information above, we have determined that areas within open grasslands with short-statured structure, that contain larval host plants for egg laying and feeding, which are in close proximity to host plants that provide protection from wind and wet weather for larval rearing is a physical and biological feature essential to the conservation of the Taylor's checkerspot butterfly.

Habitats Protected From Disturbance or Representative of the Historical, Geographical, and Ecological Distributions of the Species

Disturbance serves an important function in restoring and sustaining habitat composition and function for improving prairie quality. As vegetation responds positively to disturbances, habitat succession occurs, restoring the early seral species, including the larval host plants narrow-leaved plantain and harsh paintbrush.

Typically, management is needed to improve prairie quality. Management treatments disturb the land and soil, and may involve prescribed fire, weed control using herbicides, the harvesting of encroaching trees, or the simple process of planting grasses, forbs and rare or uncommon plant species by hand or using mechanical means. Short term and small scale disturbances range from a few square feet to several acres (1 square meter to a few hectares). Larger scale disturbances can range from ten to hundreds of acres (~2.5 to 40 hectares).

Occupied sites on the north Olympic Peninsula on Forest Service and Washington Department of Natural Resources land receive regular disturbance from off road vehicles (ORV), and service trucks using the road weekly to access cell-phone towers at one site (Dan Kelly Ridge). At the single private land location on the north Olympic Peninsula no public access is permitted on the property. Disturbances generated from the frontage road was reduced at this site by closing the road during the spring and summer leading to the single most important management action carried out at the site (Hays 2011 p. 32). The road closure was implemented for the conservation of the species in 2009 and has improved the habitat in the short-term, leading to increased numbers of larval host plants (*P. lanceolata*) and pre-diapause larval masses observed at the site (Severns and Grosboll 2011, p. 32).

Therefore, based on the information above, we identify areas with early seral habitat that experience regular disturbance as essential to the conservation of the species. Regular disturbance is necessary to maintain early seral habitat conditions required to aid establishment of the larval host and adult nectar plants. Because natural disturbance regimes have largely been eliminated in areas occupied by Taylor's checkerspot, active, planned management is generally required to maintain habitats in the early seral condition required by the butterfly. Between times of planned disturbance, sites should receive protection from disturbance in a temporal context, as too much disturbance too often will reduce numbers of Taylor's checkerspot butterflies and the spatial extent of their habitat. Disturbance will be beneficial and essential to resetting the habitat back to early seral conditions approximately every 2–5 years, based on recovery from disturbance history, and the resiliency of larval food plants as documented from experience at JBLM and other south Puget Sound locations that have received proactive management. The larval host plants and adult nectar plants are resilient and can recover if the habitat is provided sufficient time to rest (at least two growing seasons) between episodes of use and disturbance.

Primary Constituent Elements for Taylor's Checkerspot Butterfly

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the Taylor's checkerspot butterfly in areas occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the Taylor's checkerspot butterfly are:

(i) Patches of early seral, short-statured, perennial bunchgrass plant communities composed of native grass and forb species in a diverse topographic landscape ranging in size from less than 1 ac up to 100 ac (0.4 to 40 ha) with little or no overstory forest vegetation that have areas of bare soil for basking that contain:

(a) In Washington and Oregon, common bunchgrass species found on northwest grasslands include *Festuca roemeri* (Roemer's fescue), *Danthonia californica* (California oat grass), *Koeleria cristata* (prairie Junegrass), *Elymus glaucus* (blue wild rye), *Agrostis scabra* (rough bentgrass), and on cooler, high-elevation sites typical of coastal bluffs and balds, *Festuca rubra* (red fescue).

(b) On moist grasslands found near the coast and in the Willamette Valley, there may be *Bromus sitchensis* (Sitka brome) and *Deschampsia cespitosa* (tufted hairgrass) in the mix of prairie grasses. Less abundant forbs found on the grasslands include, but are not limited to, *Trifolium* spp. (true clovers), narrow-leaved plantain, harsh paintbrush, Puget balsam root, woolly sunshine, nine-leaved desert parsley, fine-leaved desert parsley, common camas, showy fleabane, Canada thistle, common yarrow, prairie lupine, and sickle-keeled lupine.

(ii) Primary larval host plants (narrow-leaved plantain and harsh paintbrush) and at least one of the secondary annual larval host plants (blue-eyed Mary, sea blush, or dwarf owl-clover) or one of several species of speedwell (marsh speedwell, American speedwell, or thymeleaf speedwell).

(iii) Adult nectar sources for feeding that include several species found as part of the native (and one nonnative) species mix on northwest grasslands, including: Narrow-leaved plantain; harsh paintbrush; Puget balsam root; wooly sunshine; nine-leaved desert parsley; fine-leaved desert parsley or spring gold; common camas; showy fleabane; Canada thistle; common yarrow; prairie lupine; and sickle-keeled lupine.

(iv) Aquatic features such as wetlands, springs, seeps, streams, ponds, lakes, and puddles that provide moisture during periods of drought, particularly late in the spring and early summer. These features can be permanent, seasonal, or ephemeral.

With this proposed designation of critical habitat, we intend to identify the physical or biological features essential to the conservation of the species, through the identification of the primary constituent elements essential to support the life-history processes of the species. We are proposing to designate critical habitat within the geographical area occupied by the species at the time of listing. In addition, we are proposing to designate some specific areas outside the geographical area occupied by the species at the time of listing that were historically occupied, but are presently unoccupied, because we have determined that these areas are essential for the conservation of the species.

Streaked Horned Lark

We have determined that the following physical or biological features are essential for the streaked horned lark:

Space for Individual and Population Growth and for Normal Behavior

An open landscape context is an essential attribute of habitat used by streaked horned larks. Open areas allow streaked horned larks to detect predators while nesting and foraging on the ground and provide the space needed during aerial courtship displays in the springtime. Our data indicate that sites used by streaked horned larks are generally found in open (i.e., flat, treeless) landscapes of 300 ac (120 ha) or more. Sites used by streaked horned larks are usually flat, with slopes between 0 and 5 percent, and generally not more than 10 percent, over the entire area. Some patches with the appropriate characteristics (i.e., sand, bare ground, low stature vegetation) may be smaller in size if the adjacent patches provide the required open landscape context. This situation may occur in agricultural habitats and on sites next to water. For example, some of the sites used by streaked horned larks on the islands in the Columbia River are small, but are adjacent to open water, which provides the open landscape context needed. Streaked horned larks use the same habitats for all life history processes, in both the breeding and wintering seasons.

Therefore, based on the information above, we identify flat (typically 0 to 5 percent slope), open sites (treeless, low vegetation or bare ground), or smaller suitable habitat patches located in an open landscape context (roughly 300 ac (120 ha) in size), as a physical or biological feature essential to the conservation of the streaked horned lark.

Sites for Breeding, Reproduction, Rearing of Offspring, Foraging and Wintering

Streaked horned larks use habitats that have very early seral stage vegetation for all life stages. Suitable streaked horned lark habitats have substantial areas of bare ground, few or no shrubs, and sparse, low stature vegetation, primarily short annual grasses, bunch grasses, and forbs (Pearson and Hopey 2005, p. 27). Suitable habitat is generally 16–17 percent bare ground (consisting of dirt, gravel, or sand), and may be more open at sites selected for nesting (Altman

1999, p. 18; Pearson and Hopey 2005, p. 27). Vegetation height is generally less than 13 inches (33 centimeters) (Altman 1999, p. 18; Pearson and Hopey 2005, p. 27), with less than 15 percent shrub cover (Pearson and Hopey, 2005 p. 2). Streaked horned larks apparently select nesting sites based on the vegetation structure, and not on the presence of any particular type of vegetation (Altman 1999, p. 18; Pearson and Hopey 2005, pp. 19–20). Nests are generally placed on the north side of a clump of grass or a forb (Moore and Kotaich, 2010, p. 18). These sites may be frequently disturbed in a way that resets succession, eliminating dense grasses and forbs, and halting the invasion of shrubs and trees.

These habitats may be native prairies, coastal dunes, fallow and active agricultural fields, wetland mudflats, sparsely vegetated edges of grass fields, recently planted Christmas tree farms with extensive bare ground, moderately to heavily grazed pastures, gravel roads or gravel shoulders of lightly traveled roads, graveled or grassy areas adjacent to airport runways, idle industrial properties, and dredge material deposition sites. These sites provide both breeding and wintering habitat for streaked horned larks.

Therefore, based on the information above, we identify sparse, low-stature vegetation with areas of bare ground as a physical or biological feature essential to the conservation of the streaked horned lark.

Primary Constituent Elements for Streaked Horned Lark

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the streaked horned lark in areas occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the streaked horned lark are:

(i) Areas having a minimum of 16 percent bare ground that have sparse, low stature vegetation composed primarily of grasses and forbs less than 13 in (33 cm) in height found in:

a. Large (300-ac (120-ha)), flat (0–5 percent slope) areas within a landscape context that provides visual access to open areas such as open water or fields, or

b. Areas smaller than described in i(a), but that provide visual access to open areas such as open water or fields.

With this proposed designation of critical habitat, we intend to identify the physical or biological features essential to the conservation of the species, through the identification of the primary constituent elements sufficient to support the life-history processes of the species. All but one of the units proposed to be designated as critical habitat are currently occupied by the streaked horned lark and contain the primary constituent elements to support the life-history needs of the species. One subunit, Coffeepot Island in the Columbia River, is not currently occupied by the streaked horned lark, but has been determined to be essential to the conservation of the species, as described below.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. Here we describe the type of special management considerations or protections that may be required for the physical or biological features identified as essential for Taylor's checkerspot butterfly and streaked horned lark. The specific critical habitat units and subunits where these management considerations or protections apply for each species are identified in Table 1.

All areas designated as critical habitat will require some level of management to address the current and future threats to the Taylor's checkerspot butterfly and streaked horned lark and to maintain or restore the PCEs. A detailed discussion of activities influencing the Taylor's checkerspot butterfly and streaked horned lark and their habitats can be found in the preceding proposed listing rule. Threats to the physical or biological features that are essential to the conservation of these species and that may warrant special management considerations or protection include, but are not limited to: (1) Loss of habitat from conversion to other uses; (2) control of nonnative, invasive species; (3) development; (4) construction and maintenance of roads and utility corridors; and (5) habitat modifications brought on by succession of vegetation from the lack of disturbance, both small and large scale. These threats also have the potential to affect the PCEs if they are conducted within or adjacent to designated units.

The physical or biological features essential to the conservation of Taylor's checkerspot butterfly may require special management considerations or protection to improve the viability and distribution of habitat suitable for the butterfly. These include preventing the establishment of invasive, nonnative and native woody species, and hastening restoration by actively managing sites to establish native plant species and the structure of the plant community that is suitable for the Taylor's checkerspot butterfly. Restoration and maintenance of occupied Taylor's sites will require active management to plan, restore, enhance and manage habitat using an approach that resets the vegetation composition and structure to an early seral stage. Management actions that produce suitable conditions for Taylor's checkerspot butterflies and reset the ecological clock to early seral conditions favored by the butterfly include prescribed fires, mechanical harvesting of trees, activities such as hand planting or mechanical planting of grasses and forbs, and the judicious use of herbicides for nonnative invasive species control.

These early-seral conditions favor the production and maintenance of plantain, paintbrush, and other larval host plants in a short-structure vegetation community that allows utilization of the plants by the butterfly. Areas where the butterfly occupies a site should have limited soil and vegetation disturbance at times when the larvae are active, which extends from late February when post-diapause larvae are active to late June when pre-diapause larvae are on site. Other activities that could cause trampling or impacts to the larvae and that should be minimized, reduced or restricted during larval feeding include use of the site by off-road vehicles, military training using vehicles or impacts caused by large infantry (foot soldiers), or activities that transport or spread nonnative plants, and the risk of wildfire or prescribed fire.

The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to ensure the provision of early seral conditions and landscape context of sufficient quantity and quality for long-term conservation and recovery of the species. Activities such as mowing, burning, grazing, tilling, herbicide treatment, grading, beach

nourishment, or placement of dredge material can used to maintain or restore nesting and wintering habitats. Regular disturbance is necessary to create and maintain suitable habitat, but the timing of management is important. The management actions should be conducted outside of the breeding season to avoid the destruction of nests and young, or if habitat management must be done during the breeding season, it should be done in a way that minimizes destruction of nests or harassment of individuals. Nesting success is highest in locations with restricted public use or entry such as military facilities, airports, islands, wildlife refuges, or sites that are remote or difficult to access.

TABLE 1—THREATS TO THE TAYLOR'S CHECKERSPOT BUTTERFLY AND STREAKED HORNED LARK IDENTIFIED IN SPECIFIC PROPOSED CRITICAL HABITAT UNITS; THREATS SPECIFIC TO THE PHYSICAL OR BIOLOGICAL FEATURES, WHICH MAY REQUIRE SPECIAL MANAGEMENT CONSIDERATIONS OR PROTECTION AS DESCRIBED IN THE TEXT, ARE IDENTIFIED WITH AN ASTERISK

	Taylor's checkerspot butterfly	Streaked horned lark
Factor A:		
Development *	Unit 1: 1–D, 1–E, 1–F, 1–G, 1–H (Pvt), 1–I, 1–J; Unit 2: 2–C.	Unit 1: 1–A, 1–B, 1–C, 1–D, 1–E, 1–F; 1–G; Unit 3: 3–Q; Unit 4: 4–A, 4–C, 4–E, 4–H.
Columbia River Dredge Spoil Deposition *	NA	Unit 3: 3–E, 3–F, 3–G, 3–H, 3–I, 3–K, 3–M, 3–N.
Loss of Natural Disturbance Processes, Invasive Species and Succession.*	Unit 1: all subunits; Unit 2: all subunits; Unit 4: all subunits.	All units and subunits.
Military Training *	Unit 1: 1–A, 1–B, 1–C, 1–E	Unit 1: 1–B, 1–C, 1–D, 1–E.
Restoration Activities **	All units and subunits	All units and subunits.
Factor B:		
Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.	NA	NA.
Factor C:		
Disease *	Unit 1: 1–A, 1–B, 1–C, 1–E, 1–H; Unit 4: All subunits.	NA.
Predation	NA	All units and subunits.
Factor D:		
The Inadequacy of Existing Regulatory Mechanisms.*	Unit 1: 1–E, 1–F, 1–G, 1–H, 1–I, 1–J; Unit 2: 2–D.	NA.
Factor E:		
Low Genetic Diversity, Small or Isolated Populations, and Low Reproductive Success.	All units and subunits	Unit 1: All subunits.
Stochastic Weather Events	All units and subunits	NA.
Climate Change *	All units and subunits	NA.
Aircraft Strikes and Activities at Civilian Airports.	NA	Unit 1: 1–A, 1–B, 1–C, 1–D, 1–E, 1–F. Unit 3: 3–Q. Unit 4: 4–A, 4–C, 4–E, 4–H.
Pesticides and Herbicides	All units and subunits	NA.
Recreation	Unit 1: 1–C, 1–D, 1–E, 1–F, 1–H; Unit 2: 2–A, 2–B, 2–C, 2–E; Unit 4: 4–A.	Unit 3: 3–A, 3–B, 3–C, 3–D.
Nest Parasitism	NA	NA.

** Although restoration is necessary for the maintenance of suitable habitat, the methods and timing of those restoration practices may directly impact individual Taylor's checkerspot butterfly and streaked horned lark if the life-histories of the species are not taken into consideration during application of restoration techniques. Please see the sections entitled Loss of Natural Disturbance Processes, Invasive Species and Succession and Restoration Activities in the listing portion of the document.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(1)(A) of the Act, we use the best scientific and commercial data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species, and begin by assessing the specific geographic areas occupied by the species at the time of listing. If such areas are not sufficient to provide for the conservation of the species, in accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we then consider whether designating additional areas outside the geographic areas occupied at the time of listing may be essential to ensure the conservation of the species. We consider unoccupied areas for critical habitat when a designation limited to the present range of the species may be inadequate to ensure the conservation of the species. In this case, since we are proposing listing simultaneously with the proposed critical habitat, all areas presently occupied by the subspecies are presumed to constitute those areas occupied at the time of listing; those areas currently occupied by the subspecies are identified as such in each of the unit or subunit descriptions below. These descriptions similarly identify which of the units or subunits are believed to be unoccupied at the time of listing. Our determination of the areas occupied at the time of listing, and our rationale for how we determined specific unoccupied areas to be essential the conservation of the subspecies, are provided below.

We plotted the known locations of the Taylor's checkerspot butterfly and streaked horned lark where they occur in Washington and Oregon using 2011 NAIP digital imagery in ArcGIS, version 10 (Environmental Systems Research Institute, Inc.), a computer geographic information system program.

To determine if the currently occupied areas contain the primary constituent elements, we assessed the

life history components and the distribution of the subspecies through element occurrence records in State natural heritage databases and natural history information on each of the subspecies as they relate to habitat. We first considered whether the presently occupied areas were sufficient to conserve the species. If not, to determine if any unoccupied sites met the criteria for critical habitat, we then considered: (1) The importance of the site to the overall status of the subspecies to prevent extinction and contribute to future recovery of the subspecies; (2) whether the area presently provides the essential physical or biological features, or could be managed and restored to contain the necessary physical and biological features to support the subspecies; and (3) whether individuals were likely to colonize the site. We also considered the potential for reintroduction of the subspecies, where anticipated to be necessary (for Taylor's checkerspot butterfly only).

Occupied Areas

Taylor's Checkerspot Butterfly

For Taylor's checkerspot butterfly, we are proposing to designate critical habitat within the geographical area occupied by the species at the time of listing, as well as in unoccupied areas that we have determined to be essential to the conservation of the species (described below). These presently occupied areas provide the physical or biological features essential to the conservation of the species, which may require special management considerations or protection. We determined occupancy in these areas based on recent survey information. All sites occupied by the Taylor's checkerspot butterfly have survey data as recently as 2011, except for the Forest Service sites on the north Olympic Peninsula where data is as recent as 2010 (Potter, 2011; Linders 2011; Ross 2011; Holtrop 2010, Severns and Grossboll 2011). In addition, there have been some recent experimental translocations of Taylor's checkerspot butterfly to sites where it had been extirpated within its historical range. If translocated populations have been documented as successfully reproducing, we considered those sites to be presently occupied by the subspecies. Areas proposed as critical habitat for the Taylor's checkerspot butterfly are representative of the known historical geographic distribution for the species, outside of Canada.

In all cases, when determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement (such as airport runways and roads), and other structures because such lands lack the essential physical or biological features for Taylor's checkerspot butterfly or streaked horned lark, with the exception of graveled margins of the airport runways and taxiways. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We are proposing four units of critical habitat for designation based on sufficient elements of physical and biological features being present to support life-history processes for the Taylor's checkerspot butterfly and streaked horned lark. These 4 units are further divided into 47, some of which contain proposed critical habitat for both subspecies. Some subunits within the units contain all of the identified elements of physical and biological features and support multiple life-history processes. Some subunits contain only some elements of the physical and biological features necessary to support the subspecies' particular use of that habitat. Because we determined that the areas presently occupied by the Taylor's checkerspot butterfly and the streaked horned lark are not sufficient to provide for the conservation of these subspecies, we have additionally identified some subunits that are presently unoccupied, but that we have determined to be essential to the conservation of the species. Therefore, we are also proposing these unoccupied areas as critical habitat for the Taylor's checkerspot butterfly and streaked horned lark.

We invite public comment on our identification of those areas presently occupied by Taylor's checkerspot butterfly or streaked horned lark and provide the physical or biological features that may require special management considerations or protection, as well as areas that are currently unoccupied but that we have determined to be essential to the conservation of the subspecies.

Proposed Critical Habitat Designation

We are proposing critical habitat for the Taylor's checkerspot butterfly and streaked horned lark in four units in the States of Washington and Oregon, as follows:

(1) The South Sound Unit (Unit 1) has proposed critical habitat subunits for both the Taylor's checkerspot butterfly and streaked horned lark.

(2) The Strait of Juan De Fuca Unit (Unit 2) has proposed critical habitat subunits only for the Taylor's checkerspot butterfly.

(3) The Washington Coast and Columbia River Unit (Unit 3) has proposed critical habitat subunits only for the streaked horned lark.

(4) The Willamette Vally Unit (Unit 4) has proposed critical habitat subunits for both the Taylor's checkerspot butterfly and the streaked horned lark.

Taylor's Checkerspot Butterfly—Units 1, 2, and 4

We are proposing three units as critical habitat for Taylor's checkerspot butterfly. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the species. The three units we propose as critical habitat are: Unit 1, South Sound—5,801 ac (2,348 ha) in Washington State (2,324 ac of Federal ownership; 1,444 ac of State ownership; 1,325 ac of private ownership; 545 ac of County ownership; and 163 ac of lands owned by a Port, local municipality, or nonprofit conservation organization); Unit 2, Strait of Juan De Fuca—923 ac (374 ha) in Washington State (160 ac of Federal ownership; 320 ac of State ownership; 253 ac of private ownership; and 190 ac of land owned by a Port, local municipality, or nonprofit organization); and Unit 4, Willamette Valley—the 151 ac (62 ha) in Oregon (151 ac of lands owned by a Port, local municipality, or nonprofit conservation organization). The approximate area of each proposed critical habitat unit and its relevant subunits, as well as land ownership within each unit is shown in table 2.

TABLE 2—PROPOSED CRITICAL HABITAT UNITS FOR THE TAYLOR'S CHECKERSPOT BUTTERFLY

[Note: Area sizes may not sum due to rounding. Area estimates reflect all land within proposed critical habitat unit boundaries.]

	Subunit name	Federal	State	County	Private	Other*
		Ac (ha)	Ac (ha)	Ac (ha)	Ac (ha)	Ac (ha)
Unit 1 South Sound						
1–A	TA7S	78 (31)	0	0	0	0
1–B	91st Division Prairie	1,377 (557)	0	0	0	0
1–C	13th Division Prairie	647 (262)	0		0	0
1–D	Rocky Prairie	0	54 (22)		385 (156)	28 (12)
1–E	Tenalquot Prairie	222 (90)	0	0	0	135 (55)
1–F	Mima Mounds/Glacial Heritage.	0	406 (164)	545 (220)	0	0
1–G	West Rocky Prairie	0	134 (54)		0	0
1–H	Scatter Creek	0	603 (255)		98 (40)	0
1–I	Rock Prairie	0	0		621 (251)	0
1–J	Bald Hills	0	246 (100)		221 (90)	0
	Unit 1 Totals	2,324 (941)	1,444 (595)	545 (220)	1,325 (537)	163 (66)
Unit 2 Strait of Juan De Fuca						
2–A	Deception Pass State Park.	0	149 (60)	0	0	0
2–B	Central Whidbey	0	39 (16)	0	0	190 (77)
2–C	Elwha	0	132 (53)		102 (45)	0
2–D	Sequim	0	0		151 (61)	0
2–E	Upper Dungeness	160 (65)	0	0	0	0
	Unit 2 Totals	160 (65)	320 (129)	0	253 (106)	190 (77)
Unit 4 Willamette Valley						
4–1	Fort Hoskins Historic Park.	0	0	0	0	6 (3)
4–2	Baezell Memorial Forest.	0	0	0	0	61 (25)
4–3	Fitton Green	0	0	0	0	84 (34)
	Unit 4 Totals	0	0	0	0	151 (62)
	Grand Total—all Units	2,484 (1,006)	1,764 (694)	545 (220)	1,578 (643)	504 (205)

*Other = Ports, local municipalities and non-profit conservation organizations.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for Taylor's checkerspot butterfly, below.

Unit 1: South Sound (or Puget Lowland)—Taylor's Checkerspot Butterfly

The South Sound Unit consists of 5,830 ac (2,359 ha) of land proposed for Taylor's checkerspot butterflies in 10 subunits. This critical habitat unit is located in the south Puget Sound region of Washington State, within Pierce and Thurston County. This unit is owned and managed by several State and Federal agencies, and includes the Department of Defense (DOD), Washington Departments of Natural Resources and Fish and Wildlife, Thurston County Parks and Recreation, and a single private site at Tenalquot (Morgan) prairie. The subunits proposed within the South Sound Unit for the Taylor's checkerspot butterfly are a mix of occupied and unoccupied areas; 3 subunits are presently occupied, and 7 subunits are unoccupied but essential to the conservation of the species, for the reasons described in the section Criteria Used to Identify Critical Habitat. Only one subunit (91st Division Prairie; subunit 1–B) is occupied by a native population of Taylor's checkerspot butterfly, and two other subunits (I–B Range 50 and 1–H, Scatter Creek SW) are occupied by recently translocated butterflies that now successfully breed, survive, and have populations that are increasing in numbers. Subunit 1–B is owned and managed by the DOD (Army) on JBLM. Subunit 1–H is located on the local Scatter Creek Wildlife Area (south unit) owned and managed by the Washington Department of Fish and Wildlife. Four of these subunits are being managed primarily for military training.

The DOD (Army) has written Endangered Species Management Plans for these subunits for Taylor's checkerspot butterfly (under the DOD Integrated Natural Resources Management Plan, or INRMP), and we are proposing to exempt of these lands under section 4(a)(3)(B)(i) of the Act (see Exemptions, below). For those threats to the essential physical or biological features that are common to all subunits, special management considerations or protection may be required to address direct or indirect habitat loss due to development, conifer and shrub encroachment, invasive plant species, use of herbicides, and restoration activities. For those threats that are unique to DOD lands, special management considerations or protection may be required to address uncontrolled fires due to deployment of explosive or incendiary devices, military training involving heavy equipment (resulting in trampling or crushing of burrows), digging or trenching, bombardment, or use of live ammunition.

Subunit 1–A: Training Area (TA) 7s. This subunit contains 78 ac (32 ha) in Pierce County, Washington, on DOD lands. This unit is currently unoccupied, but was previously occupied. We have determined it is essential to the conservation of the species because it has the potential for restoration of the physical or biological features sufficient to enable the reintroduction and reestablishment of Taylor's checkerspot butterfly. This subunit is an intensely managed prairie located directly north of the Central Impact Area on JBLM. It is bordered by a gravel pit to the west and Madigan Hospital Grounds to north and west, and the Burlington Northern Railroad Right of Way to the East. The gravel pit is no longer used and could be restored, and is currently a site with extensive distribution of the Taylor's primary host plant, narrow- leaved plantain. The southern border of this subunit is formed by the conifer forest along its southern edge. Landscape heterogeneity from the presence of swales and the gravel pit are present at this subunit. This critical habitat subunit (1–A) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–B: The Artillery Impact Area (AIA), also known as the 91st Division Prairie. This subunit (east and west) totals 1,377 ac (557 ha) and is located entirely within Pierce County, Washington, on DOD lands. The eastern portion of this subunit is occupied by the only remaining native population of Taylor's checkerspot butterflies in the south Sound Unit. The west subunit is occupied by translocated Taylor's checkerspot butterflies first released here in 2008 and now represents an occupied ''small population'' center. This subunit provides the essential physical or biological features for Taylor's checkerspot butterfly, which may require special management considerations or protection. This subunit receives periodic, heavy military training, which results in regular ground fires being ignited that serve a surrogate function as the form of special management that would be implemented during prescribed fires. Other forms of special management will be required to control nonnative, invasive species that are found within the eastern portion of the subunit. Some minimal management takes place on the periphery of the AIA, creating conditions suitable for maintaining the PCEs. The eastern portion of the subunit is bordered by a military access road; the southeast corner of this unit is King Hill and extends west for ~1 mile (1.6 km). This area includes the north and south ''castles'' (structures used as target objectives for live fire training) in TA 76 and is bordered to the north by the main paved road (Story Road) north of the AIA. The second area is located at Range 51 and is bordered by the oak/conifer forests to the south. This area extends into the AIA approximately 1 mi (1.6 km) north from the SE corner and extends due west to intersect with the south boundary access road of the AIA. This critical habitat subunit (1–B) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–C: Training Area 15, is located in an area often referred to as the 13th Division Prairie. This subunit is located entirely in Pierce County, Washington, on DOD lands and totals 647 ac (262 ha). We have determined it is essential to the conservation of the species because it has the potential for restoration of the physical or biological features sufficient to enable the reintroduction and reestablishment of Taylor's checkerspot butterfly. This site is currently being enhanced to improve butterfly habitat and will be used for release of captive bred and translocated Taylor's checkerspot butterfly larvae, where larval releases are planned for the spring of 2013. This subunit includes grassland habitat and forest margins, and already provides some of the PCEs in the form of large patches of suitable habitat providing abundant, diverse larval host food resources and adult nectar food plants for Taylor's checkerspot butterfly. Water sources are available in Muck and South Creek. This subunit is topographically diverse, with swales and riparian habitat formed by Muck and South Creek. The western and southern boundaries are formed by military access roads. Formerly (prior to the year 2000), this unit was known to harbor thousands of Taylor's checkerspot butterflies. This critical habitat subunit (1–C) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–D: Rocky Prairie. This subunit includes the Rocky Prairie Natural Area Preserve (NAP;

Washington Department of Natural Resources), which includes 35 ac (14 ha) of high-quality habitat. The subunit also includes three privately owned properties; the rail line that borders the NAP on the east side (15 ac (6 ha)), and the adjoining grassland east of the railroad property (388 ac (157 ha)), and Wolf Haven International (29 ac; 12 ha), which is south of the grassland. The entire subunit is located within Thurston County, Washington. This subunit is currently unoccupied by Taylor's checkerspot butterflies, although a small population was detected as recently as 1989 (Pyle 1989, p. 170) at the Rocky Prairie NAP. This population is no longer present and this subunit is considered an historical site.

We have determined it is essential to the conservation of the species because it has the potential for restoration of the physical or biological features sufficient to enable the reintroduction and reestablishment of Taylor's checkerspot butterfly. Some of the essential features are already present on the landscape in this area. The proposed subunit is composed entirely of grasslands and includes oak woodland margins, some transitional colonization (first growth) Douglas-fir forest within the greater prairie landscape. Several other PCEs, including landscape heterogeneity, and diverse, abundant larval and adult plant resources are present. The north boundary is formed by Waldrick Road and Highway 99 the west. Wolf Haven International is at the southeastern extent. The Rocky Prairie Natural Area Preserve portion makes up 35 ac (14 ha) of this critical habitat subunit (1–D) and is being proposed for exclusion from designation of critical habitat under section 4(b)(2) of the Act, due to the approved WDNR State Trust Lands HCP (see Exclusions).

Subunit 1–E: Tenalquot Prairie. This subunit includes grassland and oak woodland portions of JBLM Training Area 22 and the privately owned Morgan property. The subunit is located in Thurston County, Washington, and managed by the DOD (Johnson Prairie) and the nonprofit Center for Natural Lands Management, respectively. The subunit designation for Taylor's checkerspot butterfly on Tenalquot Prairie is made up of Johnson Prairie (also known as ''El Guettar dropzone''), (222 ac (90 ha)) on JBLM lands, and the Morgan property (135 ac (55 ha)). Both locations are presently unoccupied by Taylor's, although Johnson Prairie is an historical site. We have determined it is essential to the conservation of the subspecies because it would provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly. Some of the essential features are already present on the landscape in this area and as it would provide a metapopulation center within a large landscape (more than 2,000 ac (810 ha) of managed prairie in the south end of the County. In addition, this proposed subunit provides several of the essential features to support Taylor's checkerspot butterfly, including landscape heterogeneity, diverse and abundant larval and adult plant resources, and bare ground. Each area within the subunit is periodically managed using fire and mechanical methods to remove Scot's broom and sustain early seral conditions. The portion of this proposed critical habitat designation on JBLM (222 ac (90 ha) located at Training Area 22 is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–F: Mima Mounds/Glacial Heritage. This subunit is located in Thurston County, Washington. The Glacial Heritage Preserve is 545 ac (220 ha) and is owned and managed by Thurston County. The Mima Mounds NAP is roughly 406 ac (164 ha), and is owned and managed as a NAP by the WDNR. Both sites were historically occupied by Taylor's checkerspot butterflies but are currently unoccupied. We have determined it is essential to the conservation of the subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. Many of the essential features required to support a reintroduced population are already present on the landscape in this area. This subunit provides diverse topography, a water course, abundant and diverse larval and adult food resources, and areas of bare soil due to active management. Glacial Heritage Preserve had a robust population of Taylor's checkerspot butterfly in the mid-1990s and is scheduled to receive translocated Taylor's checkerspot larvae this year (2012). Both sites contain landscape heterogeneity, abundant and diverse larval and adult food resources, and areas of bare soil, and Glacial Heritage is bounded on the east side by a water course. The Mima Mounds NAP portion (406 ac (164 ha)) of this critical habitat subunit (1–F) is proposed for exclusion from designation of critical habitat under section 4(b)(2) of the Act, due to the approved WDNR State Trust Lands HCP (see Exclusions).

Subunit 1–G: West Rocky Prairie. This subunit contains 134 ac (54 ha) and was historically occupied by Taylor's checkerspot butterfly but is currently unoccupied. It is located in Thurston County, Washington, and owned and managed by WDFW. The subunit lies between 140th Avenue SE to the south, an east-west running Burlington Northern Santa Fe (BNSF) railroad line to the north and a north-south BNSF railroad line to the east and Tilley Road to the west. This subunit contains landscape heterogeneity with topographic relief from mima mounds, small wetland depressions, and an active creek and pond that contains a Federally listed threatened plant (*Howellia aquatilis;* water howellia) and the Federal candidate species Oregon spotted frog (*Rana pretiosa*). Distinct areas of West Rocky Prairie have rich larval host and adult food resources. We have determined this subunit is essential to the conservation of the subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. In addition, this area has many of the physical or biological features essential to support the long-term conservation and recovery of Taylor's checkerspot butterfly, providing topographic diversity (including mima mounds), wetlands, ponds, and a perennial creek. This area receives active management to sustain suitable prairie habitat, and is specifically being enhanced for butterflies and the Federally listed threatened plant *Castilleja levisecta* (golden paintbrush), which has been reintroduced to the site.

Subunit 1–H: Scatter Creek. This subunit includes Scatter Creek Wildlife Area (SCWA), a small private land parcel, and a power line right-of-way managed by the Federal Bonneville Power Administration (BPA) in Thurston County, Washington. The north and south units of Scatter Creek SCWA contain 730 ac (295 ha). The private land parcel totals 98 ac (40 ha) and is managed by WDFW in the same way as the Wildlife Area. This property was historically occupied by Taylor's checkerspot butterfly, and is currently occupied by a population established from larvae released between 2007–2011. This subunit contains the physical or biological features essential to the conservation of the species, including landscape heterogeneity with swales and mima mounds; rich, diverse larval and adult food resources; bare ground (due to management practices); and a stream running through the center of the property.

The physical or biological features essential to the conservation of the species may require special management considerations or protection to maintain bare ground in

this subunit. The north subunit is bounded on the east by Case Road, and on the south subunit is bordered by 183rd Avenue SW. Scatter Creek runs through the property and forms the north boundary of the portions subunit and the south boundary of the north subunit; this property is bounded on the west by residential areas. The northern portion of the Wildlife Area is bounded to the west by second growth conifer forests. We are considering the exclusion of approximately 98 ac (40 ha) of private property in this subunit under section 4(b)(2) of the Act, due to the level of public benefits derived from encouraging collaborative efforts and encouraging private and local conservation efforts; and the effect designation would have on partnerships, as well as the existing WDFW lease on this property, and the fact that this property is managed in a manner consistent with the conservation of this species (see Exclusions).

Subunit 1–I: Rock Prairie. This subunit is made up of two private properties in south Thurston County, Washington. The acreage for the subunit is 621 ac (251 ha). The southernmost private property is an historical location for the Taylor's checkerspot butterfly, but it is currently unoccupied. We have determined this subunit is essential to the conservation of the subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. In addition, this area has many of the features essential to support the long-term conservation and recovery of Taylor's checkerspot butterfly, including diverse topography with terraces and swales, abundant and diverse larval and adult food resources, and a water course formed by Scatter Creek along the southern boundary of the property. It is managed under a Grassland Reserve Program agreement and has a permanent conservation easement on 530 ac (215 ha) of the property.

The northern border for the southern property and the southern border for the northern property is 183rd Avenue SW.; in other words, 183rd Avenue SW. bisects the two properties. The eastern border of the southern portion of the subunit is an active gravel and sand mining operation, and to the north of the northern portion of the subunit is forest, and to the southwest of the southern property is forest. These forested areas clearly delineate property and land use boundaries. The entire acreage of the proposed critical habitat (379 ac (153 ha)) on one private landowner's property is considered for exclusion under section 4(b)(2) of the Act, due to the conservation easement on approximately 530 acres of their property and the Grassland Reserve Program plan developed in partnership with the USDA's Natural Resources Conservation Service (NRCS) for the long-term management of their property, which is consistent with restoration and management needs for sustaining prairies (see Exclusions).

Subunit 1–J: Bald Hills. This subunit is located in southeast Thurston County, Washington, and is managed by WDNR and several timber companies. The total area of this subunit is 468 ac (189 ha). This is an historical location for Taylor's checkerspot butterflies but was recently extirpated (2007); therefore, it is not believed to be currently occupied. We have determined this subunit is essential to the conservation of the subspecies because it has the potential for active management to restore the physical or biological features essential to Taylor's checkerspot butterfly and to provide for the reintroduction and reestablishment of the subspecies to support recovery. In addition, this area already provides some of the features essential to support the long-term conservation and recovery of Taylor's checkerspot butterfly, including diverse topography of balds, steep slopes, canyons, oak glades, a rich diversity of larval and adult food resources, and areas of bare soil, which are used for basking and resting by the butterfly. This area is the southeastern most distribution of Taylor's checkerspot in Thurston County, and is the only Thurston County site that is formed on bald habitat. The Bald Hills NAP portion (247 ac (100 ha)) of this critical habitat subunit (1–J) is proposed for exclusion from designation of critical habitat under section 4(b)(2) of the Act, due to the approved WDNR State Trust Lands HCP, which covers Natural Area Preserves (see Exclusions).

Unit 2: Strait of Juan de Fuca—Taylor's Checkerspot Butterfly

The Strait of Juan de Fuca Unit for Taylor's Checkerspot butterfly consists of 924 ac (374 ha) of land in 5 subunits. The Strait of Juan de Fuca Unit includes coastal bluff, dune, and bald habitat in Clallam and Island Counties, Washington. Except for two coastal dune sites at Sequim and Deception Pass State Park, the subunits in this location contain bald habitat, surrounded by and found within a large forested landscape. These balds are all found on south, or southwest facing, steep, rocky, and thin-soil areas. The balds themselves and the road margins (verges) are rich in larval and adult food resources, and in this location Taylor's checkerspot butterflies lay eggs and larvae subsist on harsh paintbrush, although plentiful plantain is also available and the plantain is also utilized at this location. This unit is within the historical range of the Taylor's checkerspot butterfly, and several designated subunits are presently occupied by the subspecies.

In addition, some subunits are proposed for designation that are currently unoccupied, but that we have determined to be essential to the conservation and recovery of the subspecies, as described in the section Criteria Used to Identify Critical Habitat. All subunits, both occupied and unoccupied, contain several of the PCEs, and the coastal sites have lagoons, fresh water lakes, wetlands. The bald locations have the PCEs of topographic relief, abundant and diverse larval and adult food plants, and bare soil areas associated with adjacent roads. Management to expand the size of several balds as Douglas fir, *Acer macrphyllum,* (bigleaf maple) *A. circinatum* (vine maple), *Holodiscus discolor* (oceanspray), *Arctostapholus columbiana* (hairy manzanita, and nonnative shrubs (such as Scot's broom) are quickly encroaching. Landowners in this unit include WDNR, the U.S. Forest Service, Washington State Parks, and a private landowner at Sequim. The physical or biological features essential to the conservation of the species may require special management considerations or protection to address threats to the essential physical or biological features including the general succession of vegetation at all sites, which reduces the distribution and availability of native food resources. The subunits on WDNR and Forest Service lands are threatened by ORV use and service trucks accessing cell-phone towers (Dan Kelly Ridge). The owner of the private subunit at Sequim is currently managing the dune and abandoned road corridor for the conservation of the Taylor's checkerspot butterfly.

Subunit 2–A: Deception Pass. This subunit is located on Island County in Washington and managed by Washington State Parks. The subunit contains sites found along low-lying beach areas (coastal dunes), and include several balds on high points within the park. These open areas are disjunct from each other and total 149 ac (60 ha). The State Park is an historically occupied location for Taylor's checkerspot butterfly, but is currently unoccupied. We have determined this subunit is essential to the conservation of the

subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. This was an historically occupied location in a coastal area that is currently represented at just one occupied site. In addition, this area has many of the features essential to support the long-term conservation and recovery of Taylor's checkerspot butterfly, including diverse topography on balds and protected beaches, diverse and abundant larval and adult food plants, and areas of bare soil for basking and resting.

Subunit 2–B: Central Whidbey. This subunit is located on Island County in Washington and includes Ebey's Landing, the Naas Conservation Area, and the former Smith Prairie. This subunit contains both State and private lands. In total these areas comprise 230 ac (93 ha), although the Smith Prairie is disjunct from the remaining contiguous coastal grasslands bluffs. The subunit was historically occupied by Taylor's checkerspot butterfly but is not currently occupied. The subunit would require captive breeding and translocation of the species to bring it back to this location. We have determined this subunit is essential to the conservation of the subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. In addition, it provides many of the features essential to supporting reintroduced population of the subspecies, including diverse topography, abundant larval and adult nectar food resources, areas of bare soil, some freshwater wetlands, and saltwater along the coast. Some management is ongoing at the site, and will be required to restore and maintain the essential features to support a reintroduced population, including management to restrict encroaching trees and to sustain larval food resources.

Subunit 2–C: Elwha. This subunit includes sites on the northern Olympic Peninsula in Clallam County, Washington, totaling 235 ac (95 ha) and is occupied by the Taylor's checkerspot butterfly at the time of listing. These lands are primarily owned and managed by WDNR (172 ac (69 ha)), although small inholdings of private timber companies (Aloha Lumber) have been included as the habitat continuity was found to follow the topography. At Eden Valley, 23 ac (9 ha) of WDNR property were included in the proposed subunit, as were 2 ac (approximately 1 ha) of private property. At the Dan Kelly Ridge location, 109 ac (44 ha) of WDNR land and 99 ac (40 ha) of private timber lands were included in this subunit. The balds are presently occupied by Taylor's checkerspot butterflies on WDNR lands, and the butterflies have been observed flying up and down the steep slopes of the habitat onto private lands. The location known as Eden Valley is composed of several small connected and some isolated balds. This area contains several PCEs including topographic heterogeneity, abundant and diverse larval and adult food resources, and bare soil for basking. The physical or biological features essential to the conservation of the species may require special management considerations or protection to sustain the open conditions that are needed to manage for and sustain the larval and adult food resources. The subunit runs along the top of the ridge including the north margin (road verge) of the road and extends down the south slope to the 1,250 ft (381 m) contour interval. At Dan Kelly Ridge, the entire ridgeline including the road and road verge on the north margin of the road are part of the subunit. The subunit extends down the south facing slope to include bald habitat recently exposed by forest harvesting.

Subunit 2–D: Sequim. This subunit is located in Clallam County, Washington, on private property that contains approximately 151 ac (61 ha) of low-lying stabilized dune habitat. This unit is presently occupied by Taylor's checkerspot butterfly and contains the physical or biological features essential to the conservation of the subspecies. The subunit includes stabilized dune and beach habitat adjacent to the Strait of Juan de Fuca at approximately 20 ft (6 m) elevation. This subunit contains several PCEs, including landscape heterogeneity with fore dune, and back dune areas and terraces; rich and abundant larval and adult food resources; a marsh; and bare soil for basking. The physical or biological features essential to the conservation of the species may require special management considerations or protection to address threats to the essential features. We are considering the exclusion of private land subunit (2–D) located at Sequim under the section 4(b)(2) of the Act. This consideration of exclusion is due to the ongoing conservation management for Taylor's checkerspot butterflies of this subunit, and the long-term management plan that is currently being developed in coordination with the WDFW. The landowner has been working with WDFW for several years to manage for Taylor's checkerspot butterflies and is in the process of formalizing their management of the site in a Management Plan, developed in coordination with WDFW (see Exclusions).

Subunit 2–E: Upper Dungeness. This subunit occurs in the Upper Dungeness Watershed on U.S. Forest Service lands in Clallam County, Washington. This subunit contains 160 ac (65 ha), is composed of bald habitat, is currently occupied by Taylor's checkerspot butterfly, and contains the physical or biological features essential to the conservation of the subspecies. Sites within the subunit are referred to as Bear Mountain, 3 O'Clock Ridge, and Upper Dungeness. Bear Mountain is disjunct from the 3 O'Clock Ridge and Upper Dungeness units. All sites within this subunit are found within the Dungeness watershed at three separate locations, with Bear Mountain at the lowest elevation, 3 O'Clock Ridge found at mid-elevation and the Upper Dungeness site at the highest elevation where we have detected the Taylor's checkerspot butterfly. The features essential to the conservation of the species may require special management considerations or protection to address threats by encroachment of several conifer species, maple, oceanspray, and sparse amounts of Scot's broom, which all compete with native grasses and forbs for space, water and nutrients. Early restoration work conducted by the Forest Service has included tree harvesting and removal, and has resulted in the larval and adult resources expanding on this habitat. The subunit contains several PCEs, including landscape heterogeneity, abundant larval and adult food resources, nearby streams, and plentiful areas of bare ground for basking. We are considering the exclusion of 160 ac (65 ha) of subunit (2–E) under 4(b)(2) of the Act due to ongoing management for Taylor's checkerspot butterfly habitat, which is consistent with the NW Forest Plan's allowance for small openings in Late Successional Reserve allocations of federal forests (see Exclusions).

Unit 4: Willamette Valley Unit—Taylor's Checkerspot Butterfly

The Willamette Valley Unit for Taylor's Checkerspot Butterfly is made up of three subunits, all of which are located in Benton County, Oregon, totaling 152 ac (61 ha). Two subunits are presently occupied by Taylor's checkerspot butterflies (Beazell Memorial Forest and Fitton Green Natural Area) and contain the physical or biological features essential to the conservation of the species. The third subunit at Fort Hoskins Historic Park is unoccupied, but we have determined it

is essential to the conservation of the subspecies for the reasons detailed in the section Criteria Used to Identify Critical Habitat.

All areas within this subunit provide some physical or biological features essential to the conservation of Taylor's checkerspot butterfly, whether presently occupied or unoccupied by the subspecies, including abundant larval and adult food resources, and areas of bare soil for basking and resting. The habitat for Taylor's checkerspot butterfly is confined to dispersed small meadow (grassland) openings within a larger forested matrix. Areas proposed for critical habitat for the Taylor's checkerspot butterfly in this unit constitute the only known, currently or recently occupied habitat for the species in Oregon with the capability to support the breeding and reproduction of the subpsecies. The features essential to the conservation of the species may require special management considerations or protection to address direct or indirect habitat loss due to development, conifer and shrub encroachment, invasive plant species, use of herbicides, and restoration activities. In all subunits, disturbance will be needed to sustain the early-seral conditions required by the butterfly larval and adult lifestages. Two of the subunits (Beazell and Fort Hoskins Historic Park) are owned and managed by Benton County. Approximately 45 percent of the third subunit (Fitton Green) is held in trust as a permanent conservation easement.

All subunits are proposed for exclusion under section 4(b)(2) of the Act due to the Benton County HCP, and will be managed under the HCP's Prairie Conservation Strategy (see Exclusions). The Benton County HCP Prairie Management Plan meets the species need by conserving occupied prairie habitat by implementing measures to restore, and manage for the long-term conservation of the Taylor's checkerspot butterfly. The plan's goals have been implemented by Benton County Parks and Recreation department and they plan to continue these actions in support of the butterfly. The plan meets the needs of the Taylor's checkerspot butterfly by controlling invasive, nonnative shrubs (Scot's broom), reduces the cover of tall, invasive pasture grasses, reduces the cover of encroaching trees, and to augment through planting and seeding the larval and adult food resources and native grass species that form the low-statured structure of the habitat required by the butterfly.

Subunit 4–A: Fort Hoskins Historic Park. The Fort Hoskins Historic Park subunit is composed of a southern and northern portion. Subunit 4–A north consists of 1.4 ac (0.57 ha) and subunit 4–A south consists of 5 ac (2 ha). This subunit is located within Fort Hoskins Historic Park, which is owned and managed by Benton County, Oregon. The Park is located west of where Hoskins Road joins Oregon Route 223 and is about 12 mi (19 km) northwest of the City of Corvallis. The subunit consists of open meadows on a southwest-facing hillside of Dunn Ridge, mostly surrounded by Douglas-fir/Oregon white oak forest. The park is open to the public for day use and contains hiking trails. The park is also used for natural resource research that has included mowing and burning of meadows. A single individual Taylor's checkerspot butterfly, presumably a dispersing individual, was discovered there in 2005; however, no butterflies have been observed there in subsequent surveys and we consider Fort Hoskins Historic Park to be currently unoccupied. We have determined this subunit is essential to the conservation of the subspecies because it has the potential to provide for the reintroduction and reestablishment of Taylor's checkerspot butterfly to support recovery. In particular, since there are only two small extant populations of Taylor's checkerspot butterfly in the Willamette Valley, an additional population at Fort Hoskins Historic Park would provide essential redundancy in populations for the subspecies. In addition, the subunit provides many of the features essential to supporting a reintroduced population, including abundant and diverse larval and adult food resources in the grassland parts of the park, diverse topography, bare soil patches, and areas dominated by early successional plant species. The site is located far enough away from the other two occupied Oregon sites (greater than 2 mi (3.2 km)) to be considered a separate population if it the Taylor's checkerspot butterfly is reestablished there.

We propose to exclude the 6.4 acres (2.57 ha) of this subunit (4–A) from proposed critical habitat under section 4(b)(2) of the Act, as the Taylor's checkerspot and management for the species at Fort Hoskins Historic Park is covered by the Benton County HCP (see Exclusions).

Subunit 4–B: Beazell Memorial Forest. The Beazell Memorial Forest subunit is composed of five areas that total 61 ac (25 ha), all within the Beazell Memorial Forest owned by Benton County. The Beazell Memorial Forest is located approximately 9 mi (14.5 km) southwest of the City of Corvallis, Oregon. The subunit is mostly open meadow, with some forested components, surrounded by Douglas-fir/Oregon white oak forest at about 1,000–1,300 ft (305–396 m) elevation. This subunit is known to be currently occupied by Taylor's checkerspot butterflies at varying densities, and contains several PCEs including the presence of perennial bunchgrass plant communities with the requisite larval and adult food resources, landscape heterogeneity, and bare soil areas for basking. The subunit is open to the public with hiking trails and picnicking facilities, and is managed as a demonstration forest and open space area, with management intended to protect, conserve, and restore natural, scenic values.

Benton County was issued a section 10(a)1(B) permit on January 14, 2011, in conjunction with their Prairie Species Habitat Conservation Plan (HCP). Some of the meadow areas in the Beazell Memorial Forest will be used for mitigation purposes under the HCP and will be otherwise managed to maintain the meadow complexes under the HCP's Prairie Conservation Strategy. Special management may be required within this subunit to restore or maintain the essential features for Taylor's checkerspot butterfly. While some management is ongoing in the form of mowing and encroaching tree removal, additional management is needed to address invasion of nonnative grasses and woody vegetation, and possibly to improve the diversity of food resources. We propose to exclude the 61 ac (25 ha) in this subunit (4–B) from proposed critical habitat under section 4(b)(2) of the Act, as the Taylor's checkerspot and management for the species at Beazell Memorial Forest is covered by the Benton County HCP (see Exclusions).

Subunit 4–C: Fitton Green Natural Area. This subunit is composed of four areas totaling 83 ac (34 ha). This subunit is located 5 mi (8 km) west of the City of Corvallis, Oregon. Portions of this subunit (approximately 41 ac (17 ha)) are within property acquired by Benton County for the purposes of demonstrating land stewardship practices on mixed public and private ownership. The Benton County owned or managed portions of this subunit are a recognized component of the County's Prairie Species HCP and will be managed under their Prairie Conservation Strategy as well as used as a mitigation site. The Fitton Green Natural Area subunit is mostly composed of open meadows with scattered trees, and bordered by Douglas-fir/Oregon white oak forest. The subunit is currently occupied by Taylor's checkerspot butterflies,

contains the features essential to the conservation of the species and includes areas that function as a dispersal corridor. The subunit contains several PCEs including the presence of perennial bunchgrass plant communities with larval and adult food resources, little or no overstory forest vegetation, landscape heterogeneity, and bare soil areas for basking.

While some management to restore or maintain the features essential to Taylor's checkerspot butterfly has already occurred in the form of mowing and encroaching tree removal, the physical or biological features essential to the conservation of the species may require special management considerations or protection to address invasion of nonnative grasses and woody vegetation, and to improve the diversity of food resources. A portion of the Fitton Green Natural Area subunit is being conserved through a specialized Right of Way Management Plan for Taylor's checkerspot butterfly developed and approved by the BPA and Xerces Society in coordination with the Service's Oregon Fish and Wildlife office in Portland in 2005.

We propose to exclude the 41 acres (17 ha) of County lands (noted as South and BPA) in this subunit (4–C) from proposed critical habitat under section 4(b)(2) of the Act, as the Taylor's checkerspot and management for the species on County-owned lands is covered by the Benton County HCP (see Exclusions).

Streaked horned lark—Units 1, 3, and 4

We are proposing for designation of critical habitat lands that we have determined are occupied at the time of listing and contain sufficient elements of physical or biological features to support life-history processes essential for the conservation of the streaked horned lark. In addition, we are proposing one subunit unoccupied at the time of listing, but that we have determined is essential the conservation of the subspecies, as detailed in the section Criteria Used to Identify Critical Habitat.

We are proposing to designate three units as critical habitat for the streaked horned lark. The three units are: Unit 1—South Sound (with 6 subunits), Unit 3—Washington Coast and Columbia River (with 18 subunits), and Unit 4—Willamette Valley (with 8 subunits). The South Sound Unit (Unit 1) totals 3,763 ac (1,523 ha) and comprises 2,813 ac of Federal ownership and 950 ac of private land. The Washington Coast and Columbia River Unit (Unit 3) totals 3,516 ac (1,423 ha) and comprises 564 ac of Federal ownership, 2,597 ac of State-owned lands, 151 ac of private lands, 182 ac of Tribal lands, and 22 ac of lands owned by a Port, local municipality, or nonprofit conservation organization. The Willamette Valley Unit (4) totals 4,880 ac (1,975 ha) and comprises 1,729 ac of Federal ownership and 3,151 ac of privately owned land.

Streaked horned larks have been documented nesting on all but one of the subunits within the last few years and all subunits are therefore considered occupied at the time of listing, with the exception of Subunit 3–J, Coffeepot Island in the Columbia River, which has not been surveyed recently; streaked horned larks were last detected there in 2004. We, therefore, evaluated Coffeepot Island as if it were unoccupied, and have determined that it is essential for the conservation of the subspecies to provide connectivity between the streaked horned lark populations nesting on Columbia River islands. All of the subunits, both occupied and unoccupied, currently have one or more of the physical or biological features essential to the conservation of the streaked horned lark, and which may require special management considerations or protection.

The critical habitat areas described below constitute our best assessment of areas that meet the definition of critical habitat for the streaked horned lark. The approximate area and landownership of each proposed critical habitat unit and associated subunit is shown in Table 4.

TABLE 4—PROPOSED CRITICAL HABITAT UNITS FOR THE STREAKED HORNED LARK

[Note: Area sizes may not sum due to rounding. Area estimates reflect all land within proposed critical habitat unit boundaries]

	Subunit name	Federal	State	Private	Tribal	Other*
		Ac (Ha)	Ac (Ha)	Ac (Ha)	Ac (Ha)	Ac (Ha)
Unit 1 South Sound						
1–A	Sanderson Field	0	0	0	0	376 (152)
1–B	McChord Airforce Base	759 (307)	0	0	0	0
1–C	Gray Army Airfield	347 (140)	0	0	0	0
1–D	91st Division Prairie	888 (359)	0	0	0	0
1–E	13th Division Prairie	819 (331)	0	0	0	0
1–F	Olympia Airport	0	0	0	0	575 (233)
	Unit 1 Totals	2,813 (1,138)	0	0	0	950 (385)
Unit 3 Washington Coast Columbia River Islands						
3–A	Damon Point	0	456 (185)	24 (10)	0	0
3–B	Midway Beach	0	611 (247)	0	0	0
3–C	Shoalwater Spit	0	377 (152)	102 (41)	182 (74)	0
3–D	Leadbetter Point	564 (228)	101 (41)	0	0	0
3–E	Rice Island	0	224 (91)	0	0	0
3–F	Miller Sands	0	123 (50)	0	0	0
3–G	Pillar Rock/Jim Crow	0	44 (18)	0	0	0
3–H	Welch Island	0	43 (18)	0	0	0
3–I	Tenasillahe Island	0	23 (9)	0	0	0
3–J	Coffeepot Island	0	0	25 (10)	0	0
3–K	Whites/Brown	0	98 (39)	0	0	0
3–L	Wallace Island	0	13 (5)	0	0	0
3–M	Crims Island	0	60 (24)	0	0	0
3–N	Sandy Island	0	37 (15)	0	0	0
3–O	Portland International Airport	0	388 (157)	0	0	22 (9)
	Unit 3 Totals	564 (228)	2,597 (1,050)	151 (61)	182 (74)	22 (9)
Unit 4 Willamette Valley						
4–A	McMinnville Airport	0	0	0	0	600 (243)
4–B	Basket Slough NWR	1,006 (407)	0	0	0	0
4–C	Salem Airport	0	0	0	0	534 (216)
4–D	Ankeny NWR	264 (107)	0	0	0	0
4–E	Corvallis Airport	0	0	0	0	1,103 (447)
4–F	William L Finley NWR	459 (186)	0	0	0	0
4–G	M–DAC Farms	0	0	0	0	601 (243)
4–H	Eugene Airport	0	0	0	0	313 (127)
	Unit 4 Totals	1,729 (700)	0	0	0	3,151 (1,275)
	Grand Total—all Units Streaked Horned Lark.	5,106 (2,066)	2,597 (1,050)	151 (61)	182 (74)	4,123 (1,669)

*Other = Ports, local municipalities, and nonprofit conservation organization.

Unit 1: South Sound—Streaked Horned Lark

In the South Sound Unit, streaked horned larks are found on flat, open sites that are remnants of the original Puget lowland prairies. All of the known currently occupied sites in the South Sound area are associated with airfields or military training grounds. The areas used by streaked horned larks for nesting at all of the airports consist of grass and gravel margins of the runways and taxiways. We are proposing six subunits for a total of 3,764 ac (1,523 ha) in the South Sound Unit. All subunits are occupied and contain the physical or biological features essential to the conservation of the streaked horned lark. Ownership in this unit is by the Department of Defense and local municipalities. The current threats to the essential features in the South Sound Unit include mowing and disturbance from special training events during the nesting season, and loss of habitat from commercial and industrial development. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation on all of these subunits and to minimize nest destruction and disturbance during the breeding season.

Subunit 1–A: Sanderson Field Airport (Mason County, Washington). Sanderson Field Airport is in the town of Shelton and is owned by the Port of Shelton; the subunit contains about 375 ac (152 ha). This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. The site is bounded on the north and western edges by forest, on the eastern edge by airport buildings (hangars, offices) and US 101 and includes the grass perimeter along the runway on the southern side. Streaked horned larks nest along the southern edge of the airport adjacent to an abandoned or seldom-used runway. The Washington Department of Fish and Wildlife works with Sanderson Field to coordinate mowing schedules to minimize threats to streaked horned larks however, a management plan does not currently exist that specifically addresses conservation or habitat protection for the streaked horned lark. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 1–B: McChord Field (Pierce County, Washington). McChord Field is part of DOD's JBLM; the subunit is about 759 ac (307 ha) in size. This airport is used by large military cargo planes; the subunit includes areas adjacent to the main runway and taxiways. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies, with most of the documented nesting by streaked horned larks occurring in the northeast portion of the airport. Soils on this site are gravelly and poor, with sparse low grass and bare ground. The site has the both the landscape context and the low vegetative structure that make up the physical or biological features essential to the conservation of the species. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season. This critical habitat subunit (1–B) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–C: Gray Army Airfield (Pierce County, Washington). Gray Army Airfield is part of DOD's JBLM; the subunit is about 347 ac (140 ha) in size. This airport is predominantly used by military helicopters, but also supports fixed-wing aircraft. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. Streaked horned larks nest in the grassy medians and gravel shoulders along the edge of the runway and taxiways throughout this airport, including gravel areas in paved helicopter parking areas. The site has both the open landscape context and sparse grassy vegetation that make up the physical or biological features essential to the conservation of the species. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season. This critical habitat subunit (1–C) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–D: 91st Division Prairie/ Artillery Impact Area (Pierce County, Washington). This site is also part of DOD's JBLM; the subunit contains about 888 ac (359 ha). The boundaries of this subunit are delineated by military access roads and forested areas. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. Streaked horned lark nesting has been documented in the eastern half of this large prairie in areas referred to by the army as Range 74–76 and Training Area 6. No surveys are conducted in the center of the Artillery Impact Area. The site has both the open landscape context and early seral vegetation that make up the physical or biological features essential to the conservation of the species; both of the PCEs are maintained by regular ground-disturbing activities such as fires, troop maneuvers and off-road military training exercises. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early-seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season. In addition, special management considerations or protection may be required to address threats specific to the Artillery Impact Area (Range 74–76 and Training Area 6), including explosives and live fire operations, off-road vehicle operations, troop maneuvers, and military training activities. This critical habitat subunit (1–D) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–E: 13th Division Prairie (Pierce County, Washington). This site is part of DOD's JBLM; the subunit is about 819 ac (331 ha) in size. This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. This subunit is largely prairie habitat and includes an infrequently used runway. It is bordered on the northern and eastern edges by Muck Creek and the western and southern edges by military access roads. Streaked horned lark nests have been documented throughout the site, and the site has the both the open landscape context and early seral vegetation that make up the physical or biological features essential to the conservation of the species. The physical or biological features essential to the conservation of the streaked horned lark may require

special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season. Threats at 13th Division Prairie are somewhat less intense than in the Artillery Impact training areas because motorized vehicles are restricted to roads. However, threats to the essential features specific to this site and that may require additional special management considerations or protection include foot traffic and helicopter operations (parachute drops, touch-and-go landings) that are conducted during the summer months. This critical habitat subunit (1–E) is being proposed for exemption from designation of critical habitat under section 4(a)(3)(B)(i) of the Act, contingent on our approval of the DOD INRMP for JBLM (see Exemptions).

Subunit 1–F: Olympia Regional Airport (Thurston County, Washington). This site is owned by the Port of Olympia. The airport is enclosed by a perimeter fence, which restricts access and reduces human disturbance. The subunit contains about 575 ac (233 ha), and is delineated by airport taxiways, trees, buildings, and county roads. This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. Streaked horned lark nests have been documented throughout the airport grounds, but most recently nests have been found in the central area. The site has both the open landscape context and low vegetation that make up the physical or biological features essential to the conservation of the species. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Unit 3: Washington Coast and Columbia River—Streaked Horned Lark Only

On the Washington coastal sites, streaked horned larks occur on sandy beaches and breed in the sparsely vegetated low dune habitats of the upper beach. We are proposing to designate four subunits and a total of 1,753 ac (708 ha) as critical habitat on the Washington coast. The coastal sites are owned and managed by Federal, State and tribal entities. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to reduce human disturbance during the nesting season and continued encroachment of invasive nonnative plants that requires special management to restore or retain the open habitat preferred by streaked horned larks. Proposed subunits 3–A, 3–B, 3–C, and 3–D overlap areas that are designated as critical habitat for the western snowy plover (*Charadrius alexandrinus nivosus*). The snowy plover nesting areas are posted and monitored during the spring and summer to keep recreational beach users away from the nesting areas; these management actions also benefit streaked horned larks.

In the lower Columbia River, we are proposing ten island subunits and one mainland subunit adjacent to the river at Portland International Airport for a total of 1,785 ac (724 ha). The island subunits are owned by the States of Oregon and Washington and private landowners. On the Columbia River island sites, only a small portion of each island is proposed as critical habitat for the streaked horned lark; most of the areas mapped are used by the U.S. Army Corps of Engineers for dredge material deposition in its channel maintenance program. Within any deposition site, only a portion is likely to be used by streaked horned larks in any year, as the area of habitat shifts within the deposition site over time as new materials are deposited and as older deposition sites become too heavily vegetated for use by streaked horned larks. All of the island subunits are small, but are adjacent to open water, which provides the open landscape context needed by the streaked horned lark. The subunit at Portland International Airport is adjacent to the runways, and on a small public beach; the site is owned by Port of Portland and Metro, the Portland-area regional government.

The main threats to the essential features in the critical habitat subunits proposed on the Columbia River islands are invasive vegetation and direct impacts associated with deposition of dredge material onto streaked horned lark nests during the nesting season. In all subunits, the physical or biological features essential to the conservation of each subspecies may require special management considerations or protection to restore, protect, and maintain the PCEs supported by the subunits. For those threats that are common to all subunits, special management considerations or protections may be required to address direct or indirect habitat loss due to the location and timing of dredge material placement to areas that have become unsuitable for streaked horned lark nesting and wintering habitat. Special management will be needed at Portland International Airport to address mowing during the nesting season, human disturbance, and future development of the site.

Subunit 3–A: Damon Point (Grays Harbor County, Washington). This critical habitat subunit is about 481 ac (194 ha) in size. It extends from the Ocean Shores wastewater treatment plant on the western edge through the Oyhut wildlife management unit and Damon Point spit (also called Protection Island). The area is managed by the State of Washington (Washington State Department of Fish and Wildlife and Parks and Department of Natural Resources). This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The site has the both the open landscape context and sparse, low-growing vegetation that make up the physical or biological features essential to the conservation of the species. Streaked horned larks currently nest and winter on Damon Point and have also been documented to nest along the beach just west of the treatment plant. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to reduce human disturbance during the nesting season and encroachment by invasive nonnative plants that render the habitat too dense for use by streaked horned larks.

Subunit 3–B: Midway Beach (Pacific County, Washington). This subunit is about 611 ac (247 ha) in size. The northern edge of the subunit starts at Grayland Beach State Park and extends south to the Warrenton Cannery road. The landward extent is defined by the vegetation line in the mid-dune area. This site is owned by the State of Washington (Washington State Parks and Recreation Department). This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. Both open landscape context and the sparse, low-growing vegetation that make up the physical or biological features essential to the conservation of the species are present at the site, and Midway Beach is used by streaked horned larks for nesting and wintering. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to reduce human disturbance during the nesting season and encroachment by invasive nonnative plants that render the habitat too dense for use by streaked horned larks.

Subunit 3–C: Shoalwater/Graveyard Spit (Pacific County, Washington). This subunit is about 661 ac (267 ha). The central portion of the proposed subunit (182 ac; 74 ha) is within the Shoalwater Bay Indian Reservation. We are considering the exclusion of these tribal lands from the designation due to the existing high level of protection already provided on the Shoalwater Bay Indian reservation lands that provides conservation, regulations, and management for the streaked horned lark (see Exclusions).

Streaked horned larks have been documented off and on at this site during the breeding season since 2000. Although the site has been unoccupied for the past couple of years, singing male streaked horned larks were documented at this site during early June surveys of 2012, therefore we consider this site to be currently occupied. As with Midway Beach, streaked horned larks use the area for nesting and wintering. The subunit is a dynamic area and has a constantly changing sand spit that supports the essential features for nesting and wintering habitat. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to reduce human disturbance during the nesting season and encroachment by invasive nonnative plants that render the habitat too dense for use by streaked horned larks.

Subunit 3–D: Leadbetter Point (Pacific County, Washington). This subunit contains about 665 ac (269 ha) at the northern tip of the Long Beach Peninsula. This subunit is on the Willapa National Wildlife Refuge and the Seashore Conservation Area (managed by Washington State). This site is occupied and provides the physical or biological features essential to the conservation of the subspecies. Most of the streaked horned larks at this site nest within the habitat restoration area and in ponded swales landward of the restoration area that go dry in the summer (Ritchie 2012, pers. comm.). The site has the open landscape context and sparse, low-growing vegetation that make up the physical or biological features essential to the conservation of the species. The Willapa National Wildlife Refuge completed its Comprehensive Conservation Plan in August 2011 and manages habitat at the tip of Leadbetter Spit for western snowy plovers, streaked horned larks, and other native coastal species. These management activities are compatible with streaked horned lark conservation. As with the other coastal sites, Leadbetter is used by streaked horned larks year-round. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–E: Rice Island (Clatsop County, Oregon, and Wahkiakum County, Washington). This subunit is about 224 ac (91 ha) in size. The island is located at river mile (RM) 21, approximately 7 mi (11 km) upstream of the Astoria-Megler Bridge near the mouth of the Columbia River. Although the island is within the planning boundary of the Julia Butler Hansen National Wildlife Refuge, Rice Island is owned by the Oregon Department of State Lands. A very small portion of the subunit is in Wahkiakum County and on Washington State lands. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. This subunit is occupied and provides the features essential to the conservation of the subspecies. Streaked horned larks currently nest and winter on Rice Island. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–F: Miller Sands Spit (Clatsop County, Oregon). Miller Sands Spit is across the shipping channel from Rice Island at River Mile (RM) 24. The subunit is a 2-mi-long (1.2-km-long) sand spit about 123 ac (50 ha) in size on the northern shore of the island. The subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies for nesting and wintering habitat. The island is owned by the Oregon Department of State Lands, but is also within the planning unit boundary for the Julia Butler Hansen National Wildlife Refuge. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–G: Pillar Rock/Jim Crow Sands (Clatsop County, Oregon). This island is located at about RM 27 on the Columbia River. The subunit is about 44 ac (18 ha) in size. Pillar Rock is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. Streaked horned larks nest and winter at the site. The island is owned by the Oregon Department of State Lands and is within the planning unit boundary for the Julia Butler Hansen National Wildlife Refuge. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–H: Welch Island (Clatsop County, Oregon). This island is at RM 34 and is owned by the Oregon Department of State Lands. The critical habitat subunit is about 43 ac (17 ha) on the northeastern shore of the island. This site is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–I: Tenasillahee Island (Columbia County, Oregon). This island is at RM 38; the subunit is on a small unnamed spit at the southern tip of Tenasillahee Island. The subunit is about 23 ac (9 ha) in size. This site is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The site is owned by the Oregon Department of State Lands. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest

destruction and disturbance during the breeding season.

Subunit 3–J: Coffeepot Island (Wahkiakum County, Washington). This small island is at RM 42 in the Columbia River and sits between Puget Island and the Oregon shore; the subunit is 25 ac (10 ha) in size and is privately-owned. There have been no recent detections of streaked horned larks on the site; the most recent records of streaked horned lark occupancy are from 2004. We presume that Coffeepot Island is still occupied by nesting streaked horned larks, as we have no reason to believe they have been extirpated since the last survey attempt. However, as we acknowledge it is uncertain whether the site is currently occupied by the species due to the lack of recent survey effort, we have evaluated Coffeepot Island as if it is unoccupied, and have determined that it is nonetheless essential to the conservation of the species to provide connectivity between nesting populations of streaked horned larks in the Columbia River to insure genetic connectivity. This island is not currently used as a dredge disposal site, although the U.S. Army Corps of Engineers is interested in using it as such, and the island is presently too vegetated to provide the sparse vegetation needed for streaked horned lark nesting. The site will require future restoration management activities to restore and maintain the low vegetative structure required by the streaked horned lark.

Subunit 3–K: Whites/Browns Island (Wahkiakum County, Washington). Whites/Browns Island is connected to the southern end of Puget Island at RM 46 and is owned by the Washington Department of Fish and Wildlife. The subunit is a small spit at the southern end of Whites/Browns Island and is about 98 ac (39 ha) in size. The site is used by the U.S. Army Corps of Engineers for dredge material disposal as part of its maintenance of the Columbia River shipping channel. This site is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. Whites/Browns Island supports one of the largest populations of streaked horned larks in the lower Columbia River islands. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–L: Wallace Island (Columbia County, Oregon). Wallace Island is located across the channel from Whites/Browns Island at RM 47. Streaked horned larks were detected at the site in 2012 in the critical habitat subunit, which is about 13 ac (5 ha) in size. The area is owned by the Oregon Department of State Lands. This site is not a dredge material disposal site. This subunit currently contains the physical or biological features essential to the conservation of the species, but will require special management to maintain the low vegetative structure required by the streaked horned lark.

Subunit 3–M: Crims Island (Columbia County, Oregon). This island is located upstream of Wallace Island at RM 57. The subunit is about 60 ac (24 ha) in size. The subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The area is owned by the Oregon Department of State Lands, but is also within the planning unit boundary for the Julia Butler Hansen National Wildlife Refuge. Crims Island is an approved U.S. Army Corps of Engineers dredge material disposal site. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–N: Sandy Island (Columbia County, Oregon). This island, at RM 76, is the island farthest upstream that is known to be used by streaked horned larks for nesting. The subunit is about 37 ac (15 ha) in size on the southern end of Sandy Island and is owned by the Oregon Department of State Lands. This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The U.S. Army Corps of Engineers uses this site for dredge material disposal as part of its maintenance of the Columbia River shipping channel. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 3–O: Portland International Airport (Multnomah County, Oregon). This subunit is in the city of Portland and is bordered by the Columbia River to the north, NE 33rd Drive to the west and the Broadmoor Golf Course to the south and totals 410 ac (166 ha). This subunit includes the airport's Southwest Quad, the grassy areas at the western end of Runway 10R, and Broughton Beach. The Southwest Quad is an old dredge spoil disposal field located just outside of the perimeter fence at Portland International Airport, south of Runway 10R and west of Runway 3/21. This subunit is currently occupied and provides the physical or biological features essential to the conservation of the subspecies. The habitat is open with a sandy substrate and low-stature vegetation; breeding at the site has been documented. The area around the western end of Runway 10R is flat, low-stature grass fields; streaked horned larks have been seen foraging in this area. The Southwest Quad and Runway 10R are on the grounds of Portland International Airport, which is owned by the Port of Portland.

Broughton Beach is a narrow, sandy beach on the Columbia River and is not within the boundaries of Portland International Airport. Streaked horned lark sightings at Broughton Beach are frequent, and large mixed-subspecies flocks are seen there often during the fall and winter; Broughton Beach is owned by Metro, the regional governing body in the Portland area. Due to the proximity of these sites to active runways, the sites are managed for air traffic safety; preventing the development of dense vegetation and pooling water, which could attract hazardous wildlife. These management activities unintentionally maintain the appropriate habitat characteristics for streaked horned larks. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Unit 4: Willamette Valley—Streaked Horned Lark

In the Willamette Valley, we are proposing to designate eight subunits. Four subunits are on municipal airports, three subunits are on the Willamette Valley National Wildlife Refuge Complex, and one subunit is a private habitat restoration site. The total acreage is 4,880 ac (1,975 ha). All of the subunits were occupied at the time of listing and contain the physical or biological features essential to the conservation of the species that may require special management considerations or protection.

The areas used by streaked horned larks for nesting at all of the airports are grass and gravel margins of the runway

and taxiways. Special Management will be needed to address threats to the essential features at the Willamette Valley airports including development, mowing during the nesting season, and intermittent training activities. All of the airports inadvertently maintain habitat for streaked horned larks as a result of their management to minimize attracting hazardous wildlife. None of the Willamette Valley airports has developed a management plan to address conservation of the streaked horned lark; special management of these sites would require avoidance or minimization of mowing in the streaked horned lark nesting areas during the breeding season.

The three subunits on the Willamette Valley National Wildlife Refuge Complex are managed mainly to provide forage for wintering dusky Canada geese (*Branta canadensis occidentalis*), which is compatible with maintaining the essential features for streaked horned larks. The refuge complex has incorporated management for streaked horned larks into its recently completed Comprehensive Conservation Plan, and streaked horned lark habitat conservation is being implemented in the refuge units.

The one proposed subunit on private land is a large habitat restoration site. Management for native prairies and vernal wetlands at this site provide habitat for streaked horned larks.

Subunit 4–A: McMinnville Municipal Airport (Yamhill County, Oregon). McMinnville Municipal Airport is just south of State Route 18 and west of SE Airport Road in the town of McMinnville. This subunit includes the areas around the runways and an open field to the east. The site is about 600 ac (243 ha). This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. It has both the open landscape context and the sparse low-growing vegetation required by streaked horned larks, and there have been observations of streaked horned larks along the east runway and in the field to the east of the runways during the breeding season. This small airport is owned by the City of McMinnville. The primary threat to the essential features at this subunit is mowing during the breeding season, which could destroy nests and young; special management is needed to coordinate mowing to minimize impacts to streaked horned larks during the breeding season.

Subunit 4–B: Baskett Slough National Wildlife Refuge (Polk County, Oregon). There are two parts to this critical habitat subunit. Subunit 4–B North is 181 ac (73 ha) and is in the North Morgan Reservoir area of the refuge. Subunit 4–B South is 825 ac (334 ha) and is the South Baskett Slough Agricultural area of the refuge; State Route 22 forms the southeast boundary of the south subunit. Both of the subunits are agricultural fields that are heavily grazed by dusky Canada geese in the winter. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. Baskett Slough National Wildlife Refuge has large areas of agricultural lands and restored native prairies, which provides the landscape context and vegetation structure required by the streaked horned lark. The Refuge manages primarily for wintering dusky Canada geese, which also provides suitable management for streaked horned larks. This subunit is consistently used by streaked horned larks in the breeding season. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 4–C: Salem Municipal Airport (Marion County, Oregon). Salem Municipal Airport is south of State Route 99E and bordered on the east by 25th Street SE in Salem. This subunit encompasses the area surrounding the runways, and is approximately 534 ac (216 ha). The subunit is currently occupied (streaked horned larks have been observed at the south end of the runway during the breeding season), and contains the essential features for the conservation of the subspecies, including open landscape context and sparse, open vegetation present at the site. This regional airport is owned by the City of Salem. The primary threat to the essential features at this subunit is mowing during the breeding season, which could destroy nests and young; special management is needed to coordinate mowing to minimize impacts to streaked horned larks during the breeding season.

Subunit 4–D: Ankeny National Wildlife Refuge (Marion County, Oregon). This site is in the middle of the Ankeny Refuge, in the Field 6 Complex; the northeast boundary of the subunit is formed by the Sydney Ditch. The critical habitat subunit is 264 ac (107 ha). The site is composed of agricultural fields that are heavily grazed by dusky Canada geese in the winter. The subunit is currently occupied and has consistent use by streaked horned larks in the breeding season. This subunit contains all of the physical or biological features essential to the conservation of the subspecies. Ankeny National Wildlife Refuge has both agricultural lands and restored native prairies, which provide the landscape context and vegetation structure required by the streaked horned lark. The Refuge manages primarily for wintering dusky Canada geese, which also provides suitable management for streaked horned larks. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 4–E: Corvallis Municipal Airport (Benton County, Oregon). Corvallis Municipal Airport is west of State Route 99W and bordered on the north by SW Airport Avenue, directly south of the City of Corvallis. This subunit includes all the areas surrounding the runways and in adjacent fields owned and managed by the airport. The unit is about 1,103 ac (446 ha) and is owned by the City of Corvallis. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. The Corvallis Municipal Airport is home to the largest known breeding population of streaked horned larks; streaked horned larks breed adjacent to runways and in sparse grass fields throughout the airport. Large flocks of mixed subspecies of horned larks also winter at the site. The site provides the open landscape context and low-growing vegetation required by streaked horned larks. As at other airports, the City of Corvallis manages the site to minimize attraction of hazardous wildlife. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to address threats from mowing during the breeding season and police training activities that disrupt nesting behavior. Special management is needed to coordinate mowing and training activities to minimize impacts to streaked horned larks during the breeding season.

Subunit 4–F: William L. Finley National Wildlife Refuge (Benton County, Oregon). This critical habitat subunit is on Fields 11 and 12 in the South Finley Agricultural Lands area of the refuge; Bruce Road bisects the subunit, and McFarland Road forms the southern boundary of the site. The subunit is 459 ac (186 ha) in size. This subunit is currently occupied and

contains the physical or biological features essential to the conservation of the subspecies. The site is composed of agricultural fields that are heavily grazed by dusky Canada geese in the winter, and it has consistent use by streaked horned larks in the breeding season; streaked horned larks also winter at the refuge. Finley National Wildlife Refuge has large areas of agricultural lands and restored native prairies, which provide the landscape context and vegetation structure required by the streaked horned lark. The Refuge manages primarily for wintering dusky Canada geese, which also provides suitable management for streaked horned larks. The physical or biological features essential to the conservation of the streaked horned lark may require special management considerations or protection to maintain the early seral vegetation required by the subspecies and to minimize nest destruction and disturbance during the breeding season.

Subunit 4–G: M–DAC Farms (Linn County, Oregon). This site is a large prairie and wetland habitat restoration project; the subunit is about 601 ac (243 ha) on former agricultural land. The site is located east of the town of Harrisburg, and about a mile east of Interstate Highway 5, and bordered on the south by Diamond Hill Drive. This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. The second largest known population of streaked horned larks was observed at M–DAC in 2008, the year following initial site preparation. As vegetation at the site has matured, fewer streaked horned larks have used the site, but the large wetlands will likely continue to provide suitable breeding habitat as the mudflats dry in the early summer. Both PCEs are present at the site, although their availability will shift over time as the habitat is managed and the wetlands fill and recede each year. The site is privately owned; the habitat restoration project has been developed with assistance from the Cascade Pacific Resource Conservation and Development Area, USDA's NRCS, the U.S. Fish and Wildlife Service's Partners for Wildlife Program, Oregon Watershed Enhancement Board, and the Oregon Department of Fish and Wildlife. The site will be managed to maintain native prairie and wetland habitats, which will benefit the streaked horned lark; special management will be needed to ensure that management activities are not implemented in the breeding season when streaked horned lark nests and young are vulnerable to destruction.

Subunit 4–H: Eugene Airport (Lane County, Oregon). Eugene Airport is west of the City of Eugene, and about a mile west of State Route 99. This subunit encompasses the grassy areas surrounding the runway, and is approximately 313 ac (126 ha). This subunit is currently occupied and contains the physical or biological features essential to the conservation of the subspecies. It provides the open landscape context and low-growing vegetation required by streaked horned larks. Streaked horned larks have been observed on the east side of the runway during the breeding season. This regional airport is owned by the City of Eugene. The primary threat to the essential features at this subunit is mowing during the breeding season that disrupts nesting behavior. The features essential to the conservation of the species may require special management considerations or protection to coordinate mowing to minimize impacts to streaked horned larks during the breeding season.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of ''destruction or adverse modification'' (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al.,* 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service (under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy or destruction or adverse modification of critical habitat. We define ''reasonable and prudent alternatives'' (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a

reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the ''Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for Taylor's checkerspot butterfly or the streaked horned lark. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may affect the physical or biological features of critical habitat, or destroy or adversely modify critical habitat.

Under section 7(a)(2) of the Act, activities that may affect critical habitat for the Taylor's checkerspot butterfly or streaked horned lark, when carried out, funded, or authorized by a Federal agency, require consultation. These activities may include, but are not limited to:

(1) Actions that restore, alter, or degrade habitat features through development, agricultural activities, burning, mowing, herbicide use or other means in suitable habitat for Taylor's checkerspot butterflies and streaked horned larks.

(2) Actions that would alter the physical or biological features of critical habitat including modification of soil profiles or the composition and structure of vegetation in suitable habitat for Taylor's checkerspot butterflies and streaked horned larks. Such activities could include, but are not limited to, construction, grading or other development, mowing, conversion of habitat, or use of herbicides to remove vegetation (military training on DOD lands, recreational use, off road vehicles on Federal, State, private, or Tribal lands). These activities may affect the physical or biological features of critical habitat for the Taylor's checkerspot butterflies and streaked horned larks, by removing sources of food, shelter, nesting or oviposition sites, or otherwise impacting habitat essential for completion of life history.

(3) Actions that would reduce the open landscape context required by streaked horned larks, such as construction of buildings or planting tall trees adjacent to a suitable site.

(4) Deposition of dredge materials on occupied streaked horned lark habitats during the breeding season.

(5) Installation of shoreline stabilization structures or modification of beaches and open shorelines in critical habitat.

(6) Activities (pedestrians, motor vehicles, people with pets, etc.) within or adjacent to critical habitat that result in disturbance of Taylor's checkerspot butterflies and streaked horned larks, that affect or degrade the conservation value or function of the physical or biological features of critical habitat.

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resource management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the proposed critical habitat designation for Taylor's checkerspot butterfly and streaked horned lark to determine if they are exempt under section 4(a)(3) of the Act. The following areas are Department of Defense lands within the proposed critical habitat designation: (1) 91st Division Prairie, (2) Thirteenth Division Prairie. (3) TA7S, (4) Marion Prairie, (5) portions of Tenalquot Prairie, (6) McChord AFB, and (7) Gray Airfield. All of these areas are part of JBLM in Washington, except for the portion of Tenalquot Prairie known as the Morgan property.

Joint Base Lewis-McChord, Washington

Joint Base Lewis-McChord (formerly known as Fort Lewis and McChord Air Force Base) is an 86,000 ac (34,800 ha) military complex in western Washington. JBLM has an approved Integrated Natural Resource Management Plan (INRMP) in place, dated July 2006, that covers the years 2006 through 2010. This INRMP is being updated and a revision will be submitted to the Service in 2012 (Steucke 2008, pers. comm.). JBLM is composed of both native and degraded grasslands; shrub-dominated vegetation; conifer, conifer-oak, oak-savannah, oak woodland and pine woodland/savannah forests; riverine, lacustrine, and palustrine wetlands; ponds and lakes; as well as other unique habitat, such as mima mounds. Portions of JBLM are currently occupied by the streaked horned lark and Taylor's checkerspot butterfly. Actions on this property

include military training, recreation, transportation, utilities (including dedicated corridors), and land use.

The mission of JBLM is to maintain trained and ready forces for Army commanders worldwide, by providing them with training support and infrastructure. This includes a land base capable of supporting current and future training needs through good stewardship of the Installation's natural and cultural resources, as directed by Federal statutes, Department of Defense directives, directives and programs such as ACUB (Area Compatible Use Buffer Program), and Army and JBLM regulations.

Although only military actions occur on JBLM, several additional actions could pose substantial threats to the Taylor's checkerspot butterfly and streaked horned larks, and are restricted to a few grassland properties (e.g., dog trials, model airplanes, recreational activities). Many of the avoidance measures for military training action subgroups are implemented through environmental review and permitting programs related to a specific action. Timing of actions and education of users are important avoidance measures for the other activities.

Joint Base Lewis-McChord actively manages prairie habitat as part of Fort Lewis' Integrated Natural Resources Management Plan (INRMP 2006). The purpose of the plan is to ''provide guidance for effective and efficient management of the prairie landscape to meet military training and ecological conservation goals.'' There are three overall goals including: (1) No net loss of open landscapes for military training; (2) no net reduction in the quantity or quality of moderate- and high-quality grassland; and (3) viable populations of all prairie-dependent and prairie-associated species.

Joint Base Lewis-McChord has a stewardship responsibility that includes actions to help recover threatened and endangered species under the Act. It is Army policy to consider candidate species when making decisions that may affect them, to avoid taking actions that may cause them to be listed, and to take affirmative actions that can preclude the need to list (AR 200–3).

Under this mandate, JBLM is currently restoring and enhancing habitat conditions for the Taylor's checkerspot in potential habitat. JBLM has restored habitat on one Training Area and one Range (TA 14 and Range 50) that have received captive-bred and translocated butterflies. These actions are occurring primarily in areas in which the butterfly could coexist with the existing land-use designations. Currently, the only populations of this species on JBLM are within the Artillery Impact Area (Range 76 and Range 50 on the 91st Division Prairie), and at this time, we have JBLM's commitment (Garrison Commander Thomas Brittain, Colonel, 13 May 2010) specifying ''no off road vehicle zone and foot traffic zone'' only within TA 76.

The primary concern for streaked horned larks is to protect nesting populations from disturbance and direct mortality due to human activities. Currently, there are four areas on the installation that have nesting populations of this species. Timing of mowing at McChord and Gray Army Airfields are concerns, as are recreational activities and military training on the 13th Division Prairie and military training and wildfires in the Artillery Impact Area. Presently, there are restrictions on mowing activities on the airfield: Minimum mowing for airfield safety during the primary nesting period (April to July) and no mowing at any time around known nest locations. In the training areas, Land Rehabilitation and Maintenance does not mow during the breeding season in occupied streaked horned lark habitat. There also are restrictions on recreational activities in Thirteenth Division Prairie during the streaked horned lark nesting period (April to August).

Two regional programs managed under the INRMP and funded by the DOD are currently underway on many of the lands where the Taylor's checkerspot butterfly and streaked horned lark occur. The Fort Lewis Army Compatible Use Buffer (ACUB) program is a proactive effort to prevent ''encroachment'' at military installations. Encroachment includes current or potential future restrictions on military training associated with currently listed and candidate species under the Endangered Species Act. The Fort Lewis ACUB program focuses on management of non-Federal conservation lands in the vicinity of Fort Lewis that contain, or can be restored to, native prairie. Some of the ACUB efforts include improving the habitat on JBLM property, such as the prescribed fire program, and the streaked horned lark genetic rescue project. It is implemented by means of a cooperative agreement between the Army and The Nature Conservancy (now Center for Natural Lands Management), and includes WDFW and WDNR as partners. To date, a total of $8.23 million has been allocated to this program (Anderson 2012, pers. comm). This funds conservation actions such as invasive plant control, butterfly monitoring, butterfly habitat enhancement on occupied sites and the restoration of unoccupied lands for butterflies. Taylor's checkerspot and mardon skipper (*Polites mardon*) butterfly captive rearing and translocation, native seed (forb and grass) production and native plant establishment are several currently (2012) ongoing projects (Foster 2005, entire; The Nature Conservancy 2007; entire).

The JBLM Legacy program is dedicated to ''protecting, enhancing, and conserving natural and cultural resources on DOD lands through stewardship, leadership, and partnership.'' Legacy supports conservation actions that have regional or DOD-wide significance, and that support military training or fulfill legal obligations (DOD 2011, p. 2). In recent years, substantial effort and funding have gone toward projects, both on and off JBLM, related to the Taylor's checkerspot butterfly and streaked horned lark.

Although JBLM's INRMP has the potential to provide a conservation benefit to the Taylor's checkerspot butterfly and streaked horned lark, it does not currently. Since their INRMP is currently undergoing revision and is subject to change, we are reserving judgment on whether management under the new INRMP will meet our criteria for exemption from critical habitat at this time. In accordance with section 4(a)(3)(B)(i) of the Act, if we determine prior to our final rulemaking that conservation efforts identified in the newly revised INRMP will provide a conservation benefit to the species identified previously, we may at that time exempt the identified lands from the final designation of critical habitat.

Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the

legislative history are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When identifying the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in conservation; the continuation, strengthening, or encouragement of partnerships; or implementation of a management plan that provides equal to or more conservation than a critical habitat designation would provide.

The Secretary can consider the existence of conservation agreements and other land management plans with Federal, private, State, and Indian entities when making decisions under section 4(b)(2) of the Act. The Secretary may also consider relationships with landowners, voluntary partnerships, and conservation plans, and weigh the implementation and effectiveness of these against that of designation to determine which provides the greatest conservation value to the listed species. Consideration of relevant impacts of designation or exclusion under section 4(b)(2) may include, but is not limited to, any of the following factors:

(1) Whether the plan provides specific information on how it protects the species and the physical and biological features, and whether the plan is at a geographical scope commensurate with the species;

(2) Whether the plan is complete and will be effective at conserving and protecting the physical and biological features;

(3) Whether a reasonable expectation exists that conservation management strategies and actions will be implemented, that those responsible for implementing the plan are capable of achieving the objectives, that an implementation schedule exists, and that adequate funding exists;

(4) Whether the plan provides assurances that the conservation strategies and measures will be effective (i.e., identifies biological goals, has provisions for reporting progress, and is of a duration sufficient to implement the plan);

(5) Whether the plan has a monitoring program or adaptive management to ensure that the conservation measures are effective;

(6) The degree to which the record supports a conclusion that a critical habitat designation would impair the benefits of the plan;

(7) The extent of public participation;

(8) Demonstrated track record of implementation success;

(9) Level of public benefits derived from encouraging collaborative efforts and encouraging private and local conservation efforts; and

(10) The effect designation would have on partnerships.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments received, we will evaluate whether certain lands in proposed critical habitat are appropriate for exclusion from the final designation under section 4(b)(2) of the Act. If the analysis indicates that the benefits of excluding lands from the final designation outweigh the benefits of designating those lands as critical habitat, then the Secretary may exercise his discretion to exclude the lands from the final designation.

Under section 4(b)(2) of the Act, we must consider all relevant impacts of the designation of critical habitat, including economic impacts. In addition to economic impacts (discussed in the Economics Analysis section, below), we consider a number of factors in a 4(b)(2) analysis. For example, we consider whether there are lands owned by the Department of Defense (DoD) where a national security impact might exist. We also consider whether Federal or private landowners or other public agencies have developed management plans or habitat conservation plans (HCPs) for the area or whether there are conservation partnerships or other conservation benefits that would be encouraged or discouraged by designation of, or exclusion from, critical habitat in an area. In addition, we look at the presence of Indian lands or Indian trust resources that might be affected, and consider the government-to-government relationship of the United States with Indian entities. We also consider any other relevant impacts that might occur because of the designation. To ensure that our final determination is based on the best available information, we are inviting comments on any foreseeable economic, national security, or other potential impacts resulting from this proposed designation of critical habitat from governmental, business, or private interests and, in particular, any potential impacts on small businesses.

For the reasons discussed above, if the Secretary decides to exercise his discretion under section 4(b)(2) of the Act, we have identified certain areas that we are considering for exclusion from the final critical habitat designation for Taylor's checkerspot butterfly, and streaked horned lark. However, we solicit comments on the inclusion or exclusion of such particular areas, as well as any other areas identified in the proposed rule (see Public Comments section). During the development of the final designation, we will consider economic impacts, public comments, and other new information. However, the Secretary's decision as to which, if any, areas may be excluded from the final designation is not limited to these lands. Additional particular areas, in addition to those identified below for potential exclusion in this proposed rule, may be excluded from the final critical habitat designation under section 4(b)(2) of the Act. In other words, potential exclusions are not limited to those areas specifically identified in this proposed rule.

However, we specifically solicit comments on the inclusion or exclusion of such areas. In the paragraphs below, we provide a detailed analysis of our exclusion of these lands under section 4(b)(2) of the Act.

Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the economic impacts of the proposed critical habitat designation and related

factors. We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At that time, copies of the draft economic analysis will be available for downloading from the Internet at *http://www.regulations.gov,* or by contacting the Washington Fish and Wildlife Office directly (see **FOR FURTHER INFORMATION CONTACT** section). During the development of a final designation, we will consider economic impacts, public comments, and other new information, and areas may be excluded from the final critical habitat designation under section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19.

Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense (DOD) where a national security impact might exist. The U.S. Army's Joint Base Lewis-McChord Military Reservation (JBLM) is the only DOD land included within the proposed designation of critical habitat. As described above, in preparing this proposal, we are considering JBLM for exemption from the designation of critical habitat under section 4(a)(3) of the Act, pending our evaluation of their revised INRMP, scheduled for completion in 2012, to determine whether it provides a conservation benefit to the species under consideration in this proposed rule. We have determined that the remaining lands within the proposed designation of critical habitat for the species are not owned or managed by the Department of Defense, and, therefore, we anticipate no impact on national security. Consequently, the Secretary is not intending to exert his discretion to exclude any areas from the final designation based on impacts on national security.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts to national security, of specifying any particular area as critical habitat. We consider a number of factors, including whether landowners have developed any HCPs or other management plans for the area, or whether there are conservation partnerships or relationships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any other relevant impacts that might occur because of the designation. Our weighing of the benefits of inclusion versus exclusion considers all relevant factors in making a final determination as to what will result in the greatest conservation benefit to the listed species. Depending on the specifics of each situation, there may be cases where the designation of critical habitat will not necessarily provide enhanced protection, and may actually lead to a net loss of conservation benefit. Here we present a brief description of three general areas considered for exclusion from the final designations of critical habitat for the subspecies.

We are considering the exclusion of private lands associated with the Scatter Creek Wildlife Area and Rock Prairie (Unit 1, subunits 1–H and 1–I for Taylor's checkerspot butterfly), both within Thurston County, and the private land site at Sequim (Taylor's checkerspot butterfly subunit 2–D), in the Strait of Juan de Fuca, located in Clallam County, Washington.

The first proposed exclusion is located in the south Puget Sound region, in the Scatter Creek subunit of Unit 1, the South Sound Unit (this is subunit 1–H for Taylor's checkerspot butterfly). We are considering excluding the combined area of private lands in this unit totaling 98 ac (40 ha) based on the benefits of partnerships and other conservation agreements. The South Puget Sound Prairie Landscape Working Group is an informal, voluntary group that meets regularly, and discusses local conservation issues and planning. Members of the group are tasked to implement prairie conservation and best management practices (BMPs) with their landowner contacts. The Service and WDFW are members of this working group. WDFW worked with the private landowner in subunit 1–H to develop a management plan which includes a commitment from the landowner that the parcel will be managed in such a manner to support native prairie species (composition and structure), consistent with the adjacent WDFW State wildlife area. This management plan is currently active and in effect through 2014 with plans to renew the management plan prior to the end in 2014.

The second area is located in the south Puget Sound, in the Rock Prairie subunit also in Unit 1, the South Sound Unit. This is subunit 1–I for Taylor's checkerspot butterfly. In this subunit, 379 ac (153 ha) is considered for exclusion as it is managed under a permanent conservation easement and a Grassland Reserve Program Management Plan agreement with NRCS; which is also an active member of the South Puget Sound Prairie Landscape Working Group. The management plan is modified regularly as new information becomes available regarding BMPs for prairie ecosystems. The private landowner in subunit 1–I is committed through the management plan to maintaining more than 300 ac (122 ha) of native prairie.

The third location is a 150-ac (61-ha) active farm in Unit 2, Strait of Juan de Fuca Unit, in subunit 2–D, the Sequim subunit. The Service has worked with the landowner in this subunit, which has restored Taylor's checkerspot butterfly habitat, and a portion of this site is being managed for the long-term conservation of the species which they are incorporating under a management plan developed in coordination with the WDFW. The landowner has shown a track record of conservation of coastal grassland species, including Taylor's checkerspot butterfly. For instance, native plants have been planted on the property for Taylor's checkerspot butterfly and the landowner has stopped driving along one farm road to encourage the reestablishment of native larval host plants for the Taylor's checkerspot butterfly. As a result, larval host plants have become more abundant as a result of this voluntary management action.

Each area contains one landholding that is under a conservation easement for agriculture and open space protection, species conservation, and/or prairie conservation. We are considering the exclusion of these privately-owned lands (subunit 1–H, 1–I for the Taylor's checkerspot butterfly, and subunit 2–D for Taylor's checkerspot butterfly in the Strait of Juan de Fuca Unit) based on the partnerships that have been developed for the conservation of the Taylor's checkerspot butterfly as evidenced by the management plan and conservation easement on those private lands as well as the conservation benefit to the subspecies from the management plan.

We request public comments on the relative benefits of inclusion or exclusion of these areas from the designation of critical habitat. At present, we seek public comment on the general benefits of including or excluding private lands in this area (see Public Comments).

TABLE 5—LANDS PROPOSED OR THAT MAY BE CONSIDERED FOR EXCLUSION FROM THE FINAL RULE TO DESIGNATE CRITICAL HABITAT FOR SEVERAL PUGET SOUND SPECIES

Type of agreement	Critical habitat unit name	State	Name of agreement/entity	Acres	Hectares
Habitat Conservation Plans—proposed for exclusion.	Unit 1—South Sound; Subunits TCB: 1–F & 1–J: 1–D.	WA	Washington Department of Natural Resources State Lands Habitat Conservation Plan.	658	267
	Unit 4—Willamette Valley; Subunits TCB: 4A,B & C.	OR	Benton County Habitat Conservation Plan.	108	44
Conservation Agreements, Other agreements or Partnerships—proposed for exclusion.	Unit 1—South Sound; Subunit TCB: 1–H.	WA	Scatter Creek Wildlife Area Private Landowner Management Plan.	98	40
	Unit 1—South Sound; Subunit TCB: 1–I.	WA	Rock Prairie Grassland Easement and Private Landowner Partnership.	379	153
	Unit 2—Strait of Juan De Fuca; Subunit TCB: 2–D.	WA	Sequim Private Landowner Partnership.	151	61
Total Proposed				1,394	565
Tribal	Unit 3—WA Coast and Columbia River; Subunit SHL: 3–C.	WA	Shoalwater Tribal Management Plan.	182	73

Benefits of Excluding Lands With Habitat Conservation Plans

Habitat Conservation Plans (HCPs) are planning documents required as part of an application for an ''incidental take'' permit. They describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded. HCPs can apply to both listed and nonlisted species, including those that are candidates or have been proposed for listing. Anyone whose otherwise-lawful activities will result in the ''incidental take'' of a listed wildlife species needs a permit. The Act defines ''take'' as ''* * * to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.'' ''Harm'' includes significant habitat modification that actually kills or injures a listed species through impairing essential behavior such as breeding, feeding, or sheltering. Section 9 of the Act prohibits the take of endangered and threatened species. The purpose of the incidental take permit is to exempt non-Federal permit-holders—such as States and private landowners—from the prohibitions of section 9, not to authorize the activities that result in take.

In developing HCPs, people applying for incidental take permits describe measures designed to minimize and mitigate the effects of their actions— to ensure that species will be conserved and to contribute to their recovery. Habitat Conservation Plans are required to meet the permit issuance criteria of section 10(a)(2)(B) of the Act:

- Taking will be incidental;
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the taking;
- The applicant will ensure that adequate funding for the plan will be provided;
- Taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- Other measures, as required by the Secretary, will be met.

The benefits of excluding lands with approved HCPs from critical habitat designation may include relieving landowners, communities, and counties of any additional regulatory burden that might be imposed as a result of the critical habitat designation. Many HCPs take years to develop and, upon completion, are consistent with the recovery objectives for listed species covered within the plan area. Many conservation plans also provide conservation benefits to unlisted sensitive species.

A related benefit of excluding lands covered by approved HCPs from critical habitat designation is that it can make it easier for us to seek new partnerships with future plan participants, including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. HCPs often cover a wide range of species, including species that are not State and federally listed and would otherwise receive little protection from development. By excluding these lands, we preserve our current partnerships and encourage additional future conservation actions.

We also note that permit issuance in association with HCP applications requires consultation under section 7(a)(2) of the Act, which would include the review of the effects of all HCP-covered activities that might adversely impact the species under a jeopardy standard, including possibly significant habitat modification (see definition of ''harm'' at 50 CFR 17.3), even without the critical habitat designation. In addition, all other Federal actions that may affect the listed species would still require consultation under section 7(a)(2) of the Act, and we would review these actions for possible significant habitat modification in accordance with the definition of harm referenced above.

We consider a current HCP to be appropriate for consideration for exclusion from a final critical habitat designation under section 4(b)(2) of the Act if:

(1) It provides for the conservation of the essential physical and biological features or areas otherwise determined to be essential;

(2) There is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future;

(3) The conservation strategies in the HCP are likely to be effective; and

(4) The HCP contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

Below is a brief description of each HCP and the lands proposed as critical habitat covered by each plan that we are proposing to exclude under section 4(b)(2) of the Act from the final designation of critical habitat .

State of Oregon

Benton County HCP

The Service coordinated with Benton County, the Xerces Society, and the Institute for Applied Ecology in Oregon to include the Taylor's checkerspot

butterfly in the Benton County HCP (Benton County 2010, p. 24). In addition to the Benton County HCP, a Prairie Conservation Strategy (2010) was developed for all species covered by the HCP, including Taylor's checkerspot butterfly. The strategy is stratified by the level of protection afforded to the various covered species, including permanent protection, limited protection, and opportunity areas for unoccupied but suitable habitat for species that may be conserved in new areas through assisted migration, or translocation efforts. A draft Management Plan for Taylor's checkerspot Butterfly was completed by Ross (2008), and was finalized and incorporated into the HCP as Appendix N (Benton County 2010). The guidelines set forth in the management plan will assist Benton County in managing their lands in a way that is consistent with protection and conservation of the species. The Benton County HCP Prairie Management Plan meets the Taylor's checkerspot butterfly needs by conserving occupied prairie habitat by implementing measures to restore, and manage for its long-term conservation. The plan's goals have been implemented by Benton County Parks and Recreation department and they plan to continue these actions in support of the butterfly. The plan meets the needs of the Taylor's checkerspot butterfly by controlling invasive, nonnative shrubs (Scot's broom), reduces the cover of tall, invasive pasture grasses, reduces the cover of encroaching trees, and to augment through planting and seeding the larval and adult food resources and native grass species that form the low-statured structure of the habitat required by the butterfly. The streaked horned lark was considered but not included in the HCP (Benton County 2010, p. 142).

We propose to exclude lands managed under the Benton County Prairie Species Habitat Conservation Plan from the final critical habitat designation for Taylor's checkerspot butterfly. The permit issued under this HCP (notice October 1, 2010 (75 FR 60802), and issued January 14, 2011) has a term of 50 years and addresses 18,908 ac (7,652 ha) of prairie habitat. The HCP includes over 500 ac (200 ha) of prairie conservation areas to be managed for conservation purposes and where habitat restoration and enhancement activities are planned to occur. Specifically, they have identified 152 ac (61 ha) that will be managed for Taylor's checkerspot butterflies. These lands are located in Fort Hoskins Historic Park subunit 4–A, Beazell Memorial Forest (subunit 4–B, and Fitton Green Natural Area (subunit 4–C). The HCP has guidelines for management of sites currently with and currently without Taylor's checkerspot butterflies. These guidelines are intended to both avoid adverse impacts as well as to improve habitat conditions and increase the distribution of the Taylor's checkerspot butterfly in Oregon. As indicated above, among the management recommendations are restoration activities to improve habitat and the planting of larval host and adult nectar plant species. The guidelines also include adaptive management provisions to assess the success of the enacted management as well as population monitoring.

State of Washington

Washington State Department of Natural Resources State Lands Habitat Conservation Plan

We are proposing to exclude lands managed under the Washington State Department of Natural Resources (WDNR) State Lands HCP in multiple critical habitat units in Washington from the final critical habitat designation for Taylor's checkerspot butterfly. The WDNR State Trust Lands HCP covers approximately 1.6 million ac (730,000 ha) of State forest lands. The majority of the area covered by the HCP is west of the Cascade Crest including the Olympic Peninsula. The permit associated with this HCP, issued January 30, 1997, was published in the **Federal Register** on April 5, 1996 (61 FR 15297), has a term of 70 to 100 years, and covers activities primarily associated with commercial forest management, but also includes limited, non-timber activities such as some recreational activities. The HCP covers all federally listed species in Washington that use the types of habitats provided by covered lands at the time the HCP was approved, and those species that have similar habitat affinities and become listed after the HCP was approved and an incidental take permit (ITP) was issued. If listed, the Taylor's checkerspot butterfly would be added to the WDNR ITP per Section 7 and 12.6 of the Implementing Agreement (Appendix B of the HCP).

The HCP addressed multiple species through a combination of strategies. The main focus of these strategies is the riparian ecosystems (salmonids), northern spotted owl, and the marbled murrelet. The main objective of these strategies was to maintain and promote late successional forest habitats along riparian corridors and in uplands locations that would benefit spotted owls and marbled murrelets. It was envisioned that the conservation strategies for salmonids, spotted owls, and marbled murrelets would serve to reduce the risk of extinction for the other wildlife species covered by the HCP. In addition, a fourth emphasis of the HCP was to provide protection for species that relied on uncommon or unique habitats. For these species, additional measures were developed to meet the conservation objectives of the HCP. These measures specifically address the protection of talus, caves, cliffs, balds, oak woodlands, mineral springs, large snags, and large, structurally unique trees because these features are difficult to restore or recreate. In addition, as noted in the HCP, at the time a new species is proposed for listing, DNR provides a written request to add that species to its ITP and evaluates and considers additional protection measures such as seasonal restrictions and protection of nesting/denning sites.

The WDNR has developed a site specific management plan for Taylor's checkerspot butterfly for DNR managed lands located in the Olympic Region. This management plan, which is a voluntary plan for landowners, is based on ''*Guidelines for Protecting Taylor's Checkerspot and its Habitat*'' (WDFW 2008 entire), and would fulfill the motion approved by the Forestry Practices Board on September 11, 2007. This plan, and all plans developed to protect Taylor's checkerspot butterflies, will allow maximum flexibility to plan and implement activities that minimize and mitigate impacts to the Taylor's checkerspot butterfly.

The WDNR also manages approximately 66,000 ac (26,710 ha) of non-trust lands as Natural Area Preserves (NAP). While not specifically a part of the HCP, the Service recognizes the habitat contributions provided by these lands in terms of meeting the conservation goals and objectives of the HCP. NAPs provide the highest level of protection for excellent examples of unique or typical land features in Washington State. Some of these protected lands currently provide habitat in areas identified as ''critical'' for Taylor's checkerspot butterfly, the Bald Hills, Mima Mounds NAPs, and the Rocky Prairie NAP. Details of the WDNR HCP are available at *http://www.dnr.wa.gov/researchscience/topics/trustlandshcp/Pages/Home.aspx.*

Federal Lands

As noted above, Federal agencies have an independent responsibility under section 7(a)(1) of the Act to use their programs in furtherance of the Act and

to utilize their authorities to carry out programs for the conservation of endangered and threatened species. We consider the development and implementation of land management plans by Federal agencies to be consistent with this statutory obligation under section 7(a)(1) of the Act. Therefore, Federal land management plans, in and of themselves, are generally not an appropriate basis for exclusion from critical habitat. The Secretary is not intending to exercise his discretion to exclude any Federal lands from the designation of critical habitat.

Consideration of Indian Lands

In accordance with the Secretarial Order 3206, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175, ''Consultation and Coordination with Indian Tribal Governments'' (November 6, 2000, and as reaffirmed November 5, 2009); and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2), we believe that fish, wildlife, and other natural resources on Indian lands may be better managed under Indian authorities, policies, and programs than through Federal regulation where Indian management addresses the conservation needs of listed species. In addition, such designation may be viewed by tribes as unwarranted and an unwanted intrusion into Indian self-governance, thus compromising the government-to-government relationship essential to achieving our mutual goals of managing for healthy ecosystems upon which the viability of threatened and endangered species populations depend.

In developing proposed critical habitat for the Taylor's checkerspot butterfly and streaked horned lark, we considered inclusion of some Indian lands as essential. Indian lands are those defined in Secretarial Order 3206 ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997), as: (1) Lands held in trust by the United States for the benefit of any Indian tribe or individual; and (2) lands held by any Indian Tribe or individual subject to restrictions by the United States against alienation. In evaluating Indian lands under consideration as potential critical habitat for the Taylor's checkerspot butterfly and streaked horned lark, we further considered the directive of Secretarial Order 3206 that stipulates ''Critical habitat shall not be designated in such areas unless it is determined essential to conserve a listed species. In designating critical habitat, the Services shall evaluate and document the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.''

The Shoalwater Bay Tribe in Washington is the only Tribe with lands identified as critical habitat in this proposed rule. Approximately 182 ac (73 ha) of Tribal lands within subunit 3–C of the Washington Coast and Columbia River Islands Unit (Unit 3) is proposed as critical habitat for the streaked horned lark. We are considering the exclusion of these lands from the final designation of critical habitat for the streaked horned lark. The Service has entered into discussion with the Tribe regarding the proposed designation in preparation of this rule. The Shoalwater Bay Tribe is working with the Service on the development of a formal agreement for management and protection of habitat for the western snowy plover, streaked horned lark, and other native coastal species of cultural significance on lands under Tribal ownership and management.

The Tribe has stated that they are committed to continue with their efforts to manage their lands to benefit the western snowy plover and streaked horned lark, and are asking that their lands be excluded from the final designation. Existing tribal regulations, including the 2001 Tribal Environmental Codes that protect the saltmarsh and sand spit as natural areas, will ensure any land use actions, including those funded, authorized, or carried out by Federal agencies, are not likely to result in the destruction or adverse modification of all lands considered for exclusion. The Service is also coordinating with the Tribe and the USACE on the planting/vegetation management plan. We are currently working on a memorandum of understanding with the Tribe regarding protection or shorebirds on reservation lands. Any potential impacts to the streaked horned lark from future proposed activities on the tribal lands will be addressed through a section 7 consultation using the jeopardy standard, and such activities would also be subject to the take prohibitions in section 9 of the Act.

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our critical habitat designation is based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during this public comment period on our specific assumptions and conclusions regarding the proposal to list Taylor's checkerspot butterfly and the streaked horned lark, and our proposed critical habitat for these subspecies as well as our other determinations.

We will consider all comments and information received during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

Public Hearings

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in the **ADDRESSES** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Required Determinations

Regulatory Planning and Review—Executive Orders 12866 and 13563

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed

this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C 801 *et seq.*), whenever an agency must publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include such businesses as manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and forestry and logging operations with fewer than 500 employees and annual business less than $7 million. To determine whether small entities may be affected, we will consider the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

Importantly, the incremental impacts of a rule must be *both* significant and substantial to prevent certification of the rule under the RFA and to require the preparation of an initial regulatory flexibility analysis. If a substantial number of small entities are affected by the proposed critical habitat designation, but the per-entity economic impact is not significant, the Service may certify. Likewise, if the per-entity economic impact is likely to be significant, but the number of affected entities is not substantial, the Service may also certify.

Under the RFA, as amended, and following recent court decisions, Federal agencies are only required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself, and not the potential impacts to indirectly affected entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried by the Agency is not likely to adversely modify critical habitat. Therefore, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Under these circumstances, it is our position that only Federal action agencies will be directly regulated by this designation. Therefore, because Federal agencies are not small entities, the Service may certify that the proposed critical habitat rule will not have a significant economic impact on a substantial number of small entities.

We acknowledge, however, that in some cases, third-party proponents of the action subject to permitting or funding may participate in a section 7 consultation, and thus may be indirectly affected. We believe it is good policy to assess these impacts if we have sufficient data before us to complete the necessary analysis, whether or not this analysis is strictly required by the RFA. While this regulation does not directly regulate these entities, in our draft economic analysis we will conduct a brief evaluation of the potential number of third parties participating in consultations on an annual basis in order to ensure a more complete examination of the incremental effects of this proposed rule in the context of the RFA.

In conclusion, we believe that, based on our interpretation of directly regulated entities under the RFA and relevant case law, this designation of critical habitat will only directly regulate Federal agencies which are not by definition small business entities. And as such, certify that, if promulgated, this designation of critical habitat would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required. However, though not necessarily required by the RFA, in our draft economic analysis for this proposal we will consider and evaluate the potential effects to third parties that may be involved with consultations with Federal action agencies related to this action.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect the designation of this proposed critical habitat to significantly affect energy supplies, distribution, or use as these species and proposed critical habitat do not appear to overlap with these areas. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were:

Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments. Government lands being proposed for critical habitat designation are owned by Washington State Department of Fish and Wildlife, Washington Department of Natural Resources, Department of Defense (Army), the U.S. Forest Service, and Thurston County Parks and Recreation, in Washington, None of these government entities fit the definition of ''small governmental jurisdiction.'' Therefore, a Small Government Agency Plan is not required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted. Therefore, a Small Government Agency Plan is not required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment if appropriate.

Takings—Executive Order 12630

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the Taylor's checkerspot butterfly and streaked horned lark in a takings implications assessment. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this designation of critical habitat for Taylor's checkerspot butterfly and streaked horned lark does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this proposed critical habitat designation with appropriate State resource agencies in Washington and Oregon. The designation of critical habitat in areas currently occupied by the Taylor's checkerspot butterfly and streaked horned lark imposes no additional restrictions to those currently in place and, therefore, has little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. This proposed rule uses standard property descriptions and identifies the elements of physical or biological features essential to the conservation of the Taylor's checkerspot butterfly and streaked horned lark within the proposed designated areas to assist the public in understanding the habitat needs of the species.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as endangered or threatened under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to NEPA in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the

Federal Register on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).]

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes.

We have determined that there are no tribal lands occupied by the Taylor's checkerspot butterfly that contain the physical or biological features essential to conservation of the species, and no tribal lands unoccupied by the species that are essential for the conservation of the species. Therefore, we are not proposing to designate critical habitat for the Taylor's checkerspot butterfly on tribal lands. The Shoalwater Bay Tribe in Washington is the only Tribe with lands proposed for designation in this proposed critical habitat rule. Approximately 182 ac (74 ha) of Tribal lands within subunit 3–C, of the Washington Coast and Columbia River Islands Unit could be designated as critical habitat for the streaked horned lark. The Service has entered into discussion with the Tribe regarding the proposed designation in preparation of this rule. The Shoalwater Bay Tribe is providing information regarding the status of streaked horned lark on lands under tribal ownership and management. The Tribe has stated that they are committed to continue with their efforts to manage their lands to benefit the streaked horned lark, and is asking that their lands be excluded from designation.

References Cited

A complete list of references cited in this rulemaking is available on the Internet at *http://www.regulations.gov* and upon request from the Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this package are the staff members of the Washington Fish and Wildlife Office, Lacey, Washington, and the Oregon Fish and Wildlife Office, Portland, Oregon.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.11(h), the List of Endangered and Threatened Wildlife, as follows:

a. By adding an entry for ''Lark, streaked horned (*Eremophila alpestris strigata*)'' in alphabetical order under Birds, to read as set forth below; and

b. By adding an entry for ''Butterfly, Taylor's checkerspot (*Euphydryas editha taylori*)'' in alphabetical order under Insects, to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*
BIRDS							
*	*	*	*	*	*		*
Lark, streaked horned.	*Eremophila alpestris strigata.*	U.S.A. (BC, WA, OR).	U.S.A. (WA)	T		17.95(b)	17.41(a)
*	*	*	*	*	*		*
INSECTS							
*	*	*	*	*	*		*
Butterfly, Taylor's checkerspot.	*Euphydryas editha taylori.*	U.S.A. (WA, OR)	U.S.A. (WA)	E		17.95(i)	NA
*	*	*	*	*	*		*

3. Amend § 17.41 by adding paragraph (a) to read as follows:

§ 17.41 Special rules—birds.

(a) Streaked horned lark (*Eremophila alpestris strigata*).

(1) *Which populations of the streaked horned lark are covered by this special rule?* This rule covers the rangewide distribution of this bird.

(2) *What activities are prohibited?* Except as noted in paragraphs (a)(3) and (a)(4) of this section, all prohibitions of § 17.31 apply to the streaked horned lark.

(3) *What agricultural activities are allowed on non-Federal land?* Incidental take of the streaked horned lark will not be a violation of section 9 of the Act, if the incidental take results from routine agricultural or ranching activities located on non-Federal lands. Routine agricultural and ranching activities are limited to the following:

(i) Planting, harvesting, rotation, mowing, tilling, discing, and herbicide application of crops;

(ii) Repair and maintenance of unimproved farm roads (this exemption does not include improvement or construction of new roads) and graveled margins of rural roads;

(iii) Livestock grazing according to normally acceptable and established levels of intensity in terms of the number of head of livestock per acre of rangeland;

(iv) Routine management and maintenance of stock ponds and berms to maintain livestock water supplies;

(v) Routine maintenance or construction of fences for grazing management;

(vi) Placement of mineral supplements; and

(vii) Irrigation of agricultural crops, fields, and livestock pastures.

(4) *What activities are allowed on airports on non-Federal lands?* Incidental take of the streaked horned lark will not be a violation of section 9 of the Act, if the incidental take results from routine management activities associated with airport operations to minimize hazardous wildlife. Hazardous wildlife is defined by the Federal Aviation Administration as species of wildlife, including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard. Routine management activities include, but are not limited to, the following:

(i) Routine management, repair, and maintenance of roads and runways (does not include upgrades or construction of new roads or runways);

(ii) Control and management of vegetation (grass, weeds, shrubs, and trees) through mowing, discing, herbicide application, or burning consistent with State Agency recommendations;

(iii) Hazing of hazardous wildlife; and

(iv) Management of sources of forage, water, and shelter to reduce the attractiveness of the area around the airport for hazardous wildlife.

* * * * *

3. Amend § 17.95 by:

(a) In paragraph (b), adding an entry for ''Streaked horned lark (*Eremophila alpestris strigata)*'' in the same order that this species appears in the table in § 17.11(h) to read as follows; and

(b) In paragraph (i), by adding an entry for ''Taylor's checkerspot butterfly *(Euphydryas editha taylori)*'' in the same order that this species appears in the table in § 17.11(h) to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(b) *Birds.*

* * * * *

Streaked Horned Lark (*Eremophila alpestris strigata*)

(1) Critical habitat units are depicted for Mason, Pierce, Thurson, Grays Harbor, Pacific Wahkiakum, and Cowlitz Counties in Washington and Clatsop, Columbia, Multhomah, Yamhill, Polk, Marion, Linn, and Lane Counties in Oregon, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the streaked horned lark consist of areas having a minimum of 16 percent bare ground that have sparse, low-stature vegetation comprising primarily grasses and forbs less than 13 in (33 cm) in height found in:

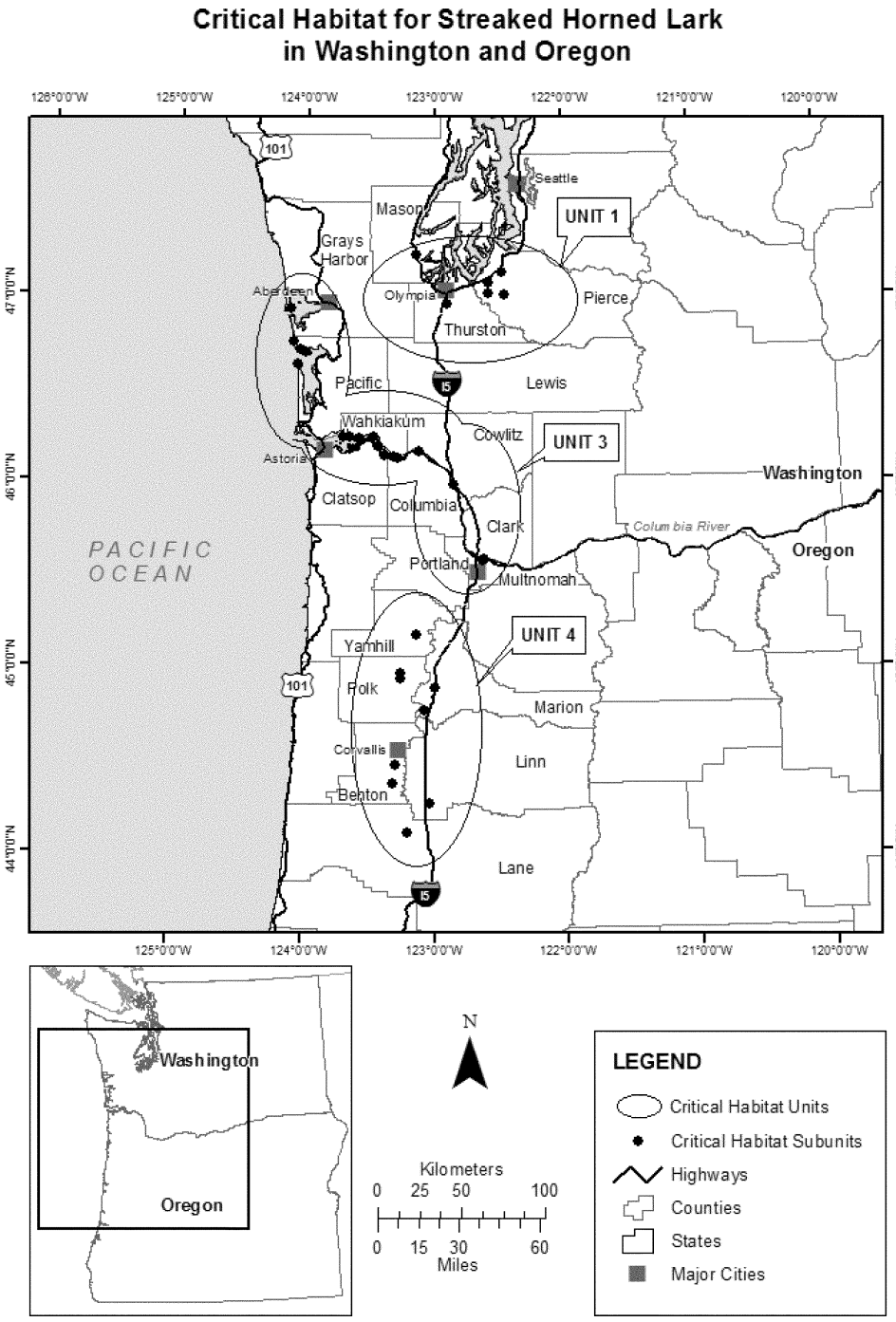
(i) Large (300-ac (120-ha)), flat (0–5 percent slope) areas within a landscape context that provides visual access to open areas such as open water or fields, or

(ii) Areas smaller than described in paragraph (2)(i) of this entry, but that provide visual access to open areas such as open water or fields.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [DATE 30 DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE].

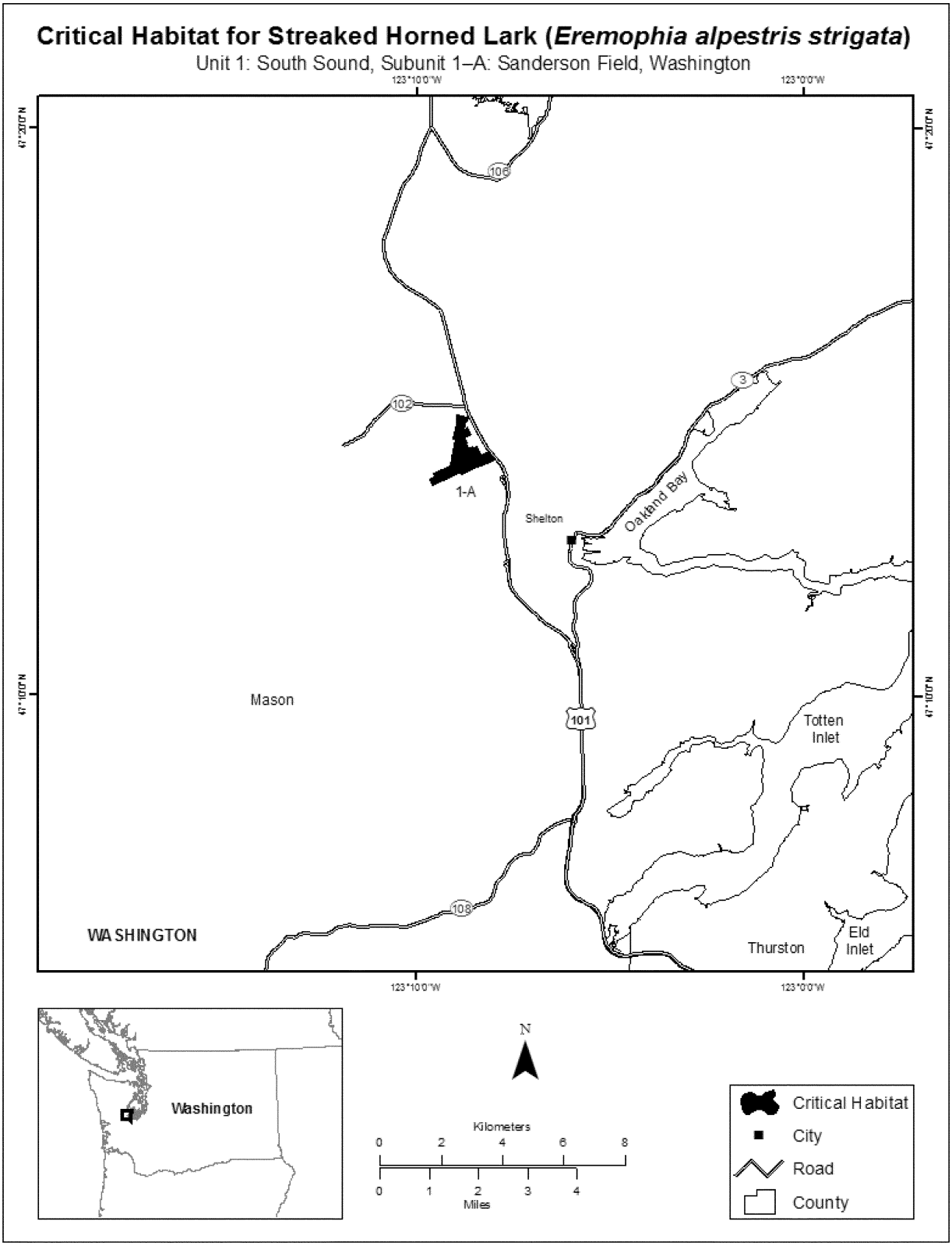
(4) *Critical habitat map units.* Data layers defining the map unit were created on 2010 aerial photography from U.S. Department of Agriculture, National Agriculture Imagery Program base maps using ArcMap (Environmental Systems Research Institute, Inc.), a computer geographic information system (GIS) program. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site, (*http://www.fws.gov/wafwo/*), Regulations.gov (*http://www.regulations.gov* at Docket No. FWS–R1–ES–2012–0080) and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) **Note:** Index map follows:

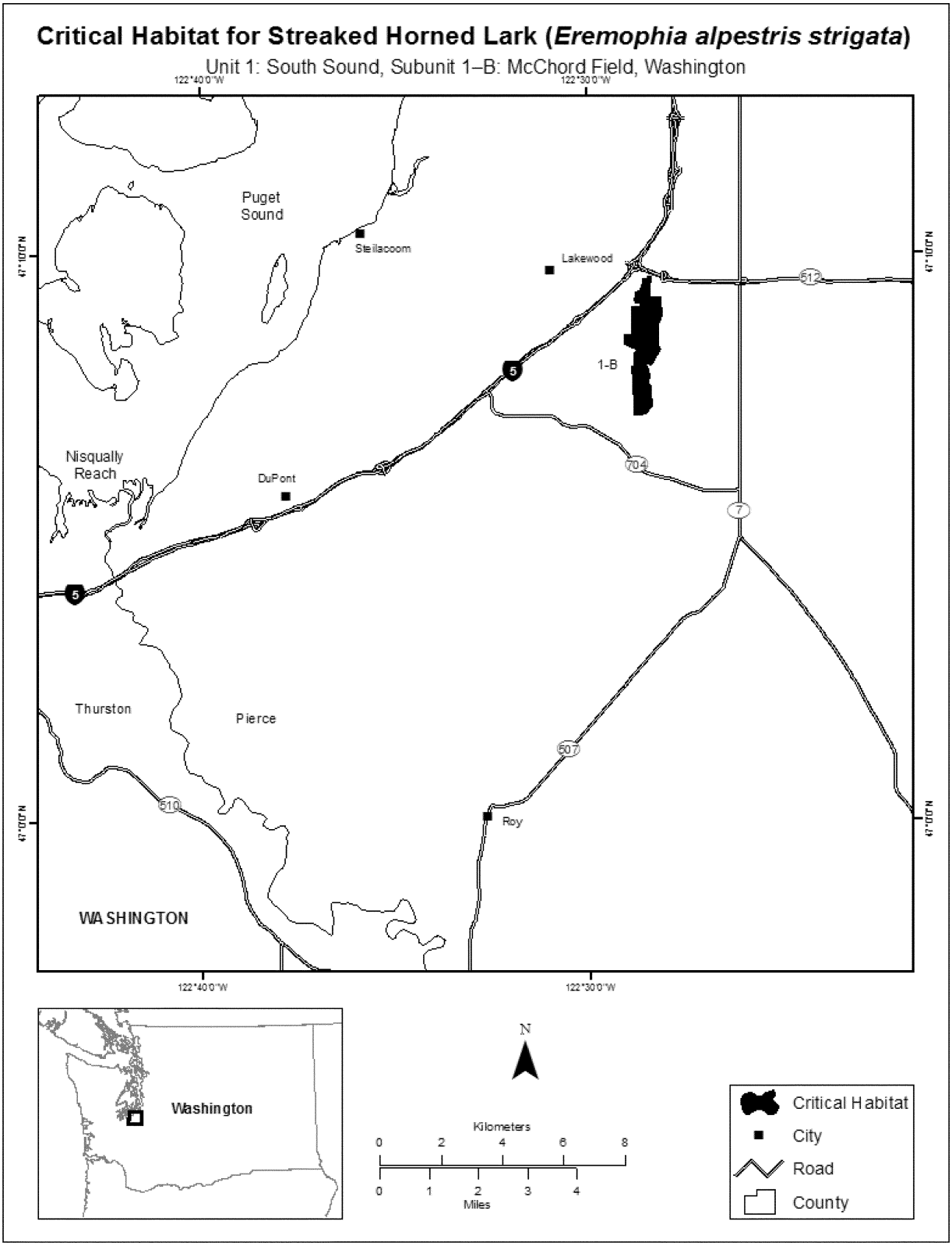


BILLING CODE 4310–55–P

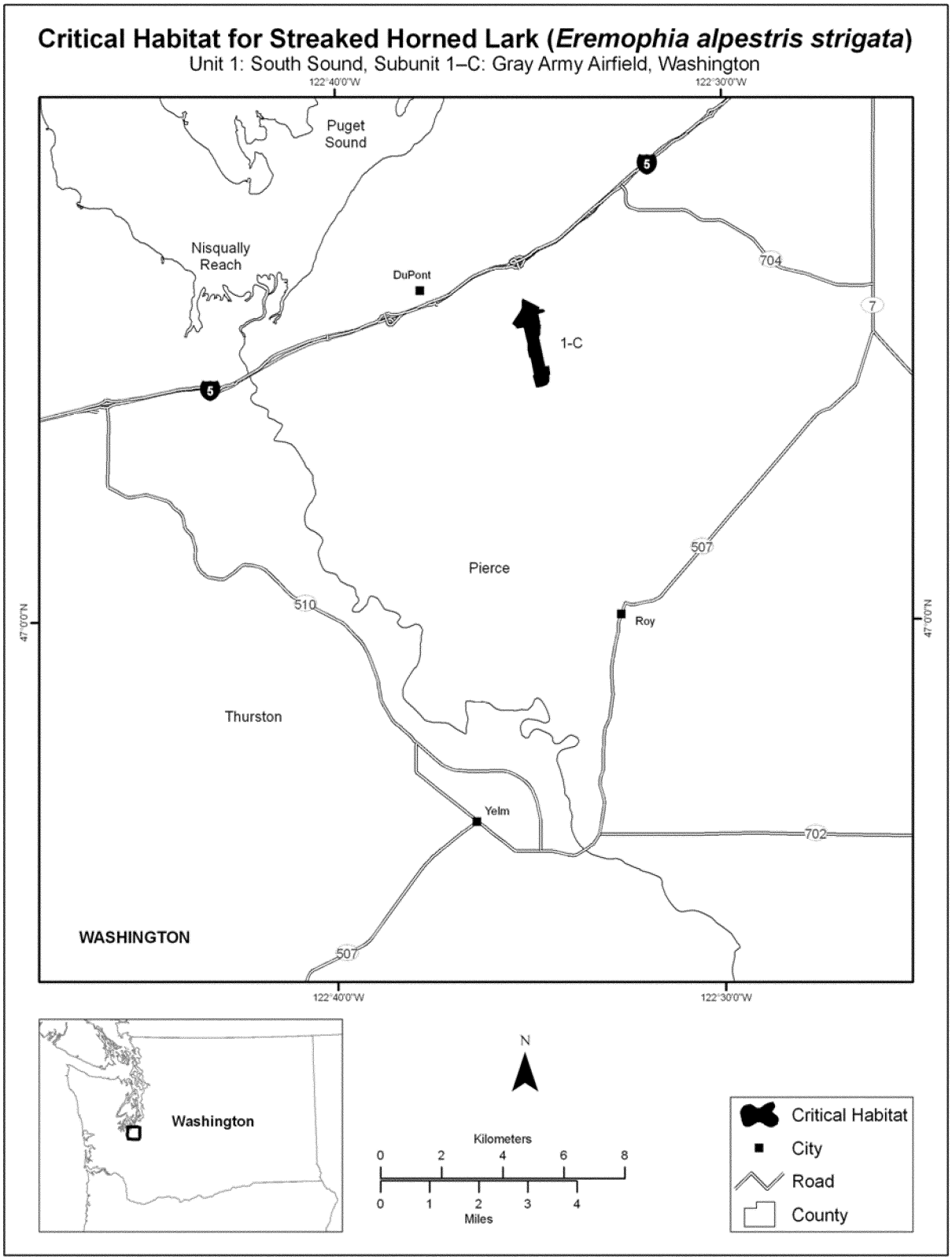
(6) Unit 1—South Sound, Subunit 1–A: Sanderson Field, Mason County, Washington. Map of Unit 1, Subunit 1–A, follows:



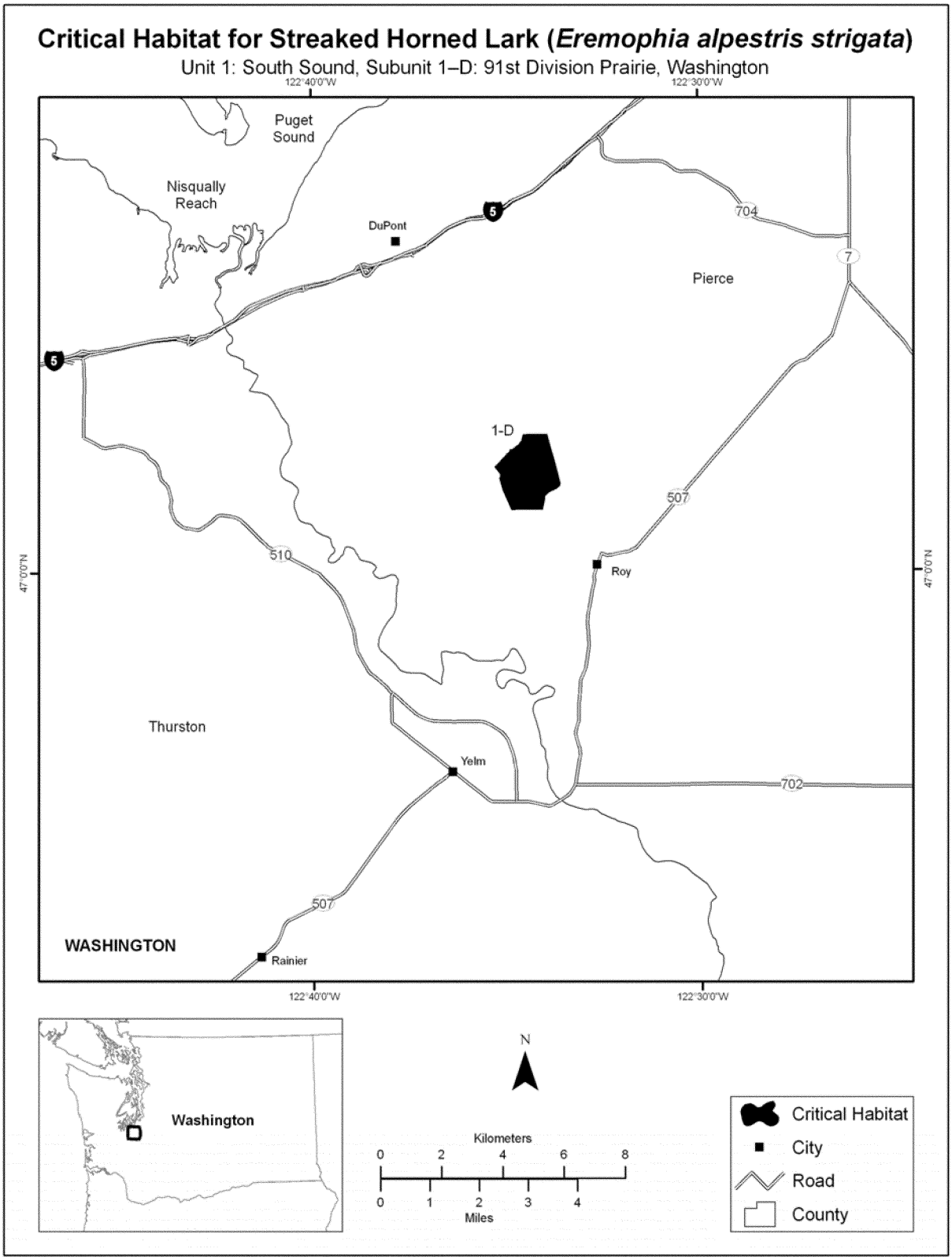
(7) Unit 1—South Sound, Subunit 1–B: McChord Field, Pierce County, Washington. Map of Unit 1, Subunit 1–B: follows:



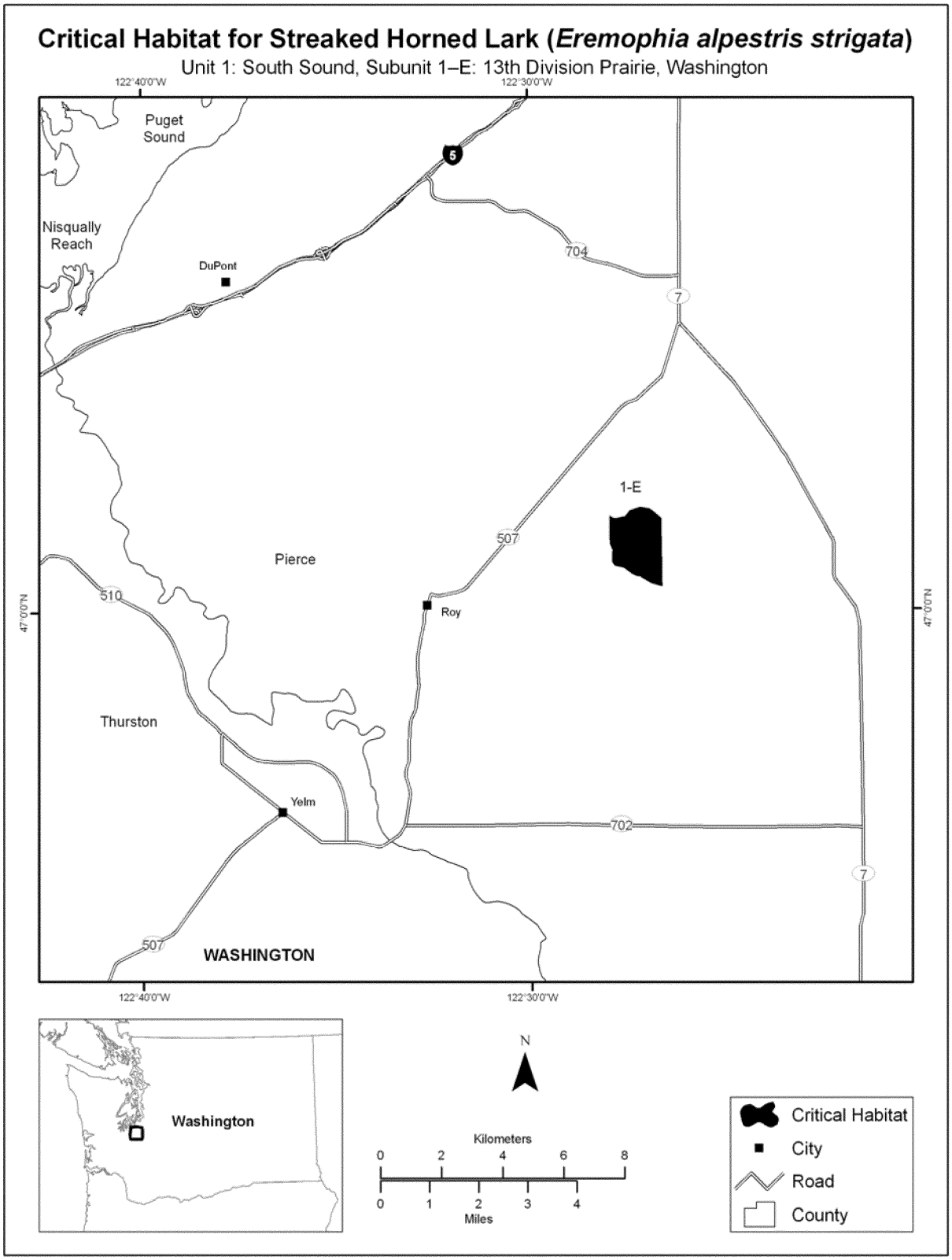
(8) Unit 1—South Sound, Subunit 1–C: Gray Army Airfield, Pierce County, Washington. Map of Unit 1, Subunit 1–C follows:



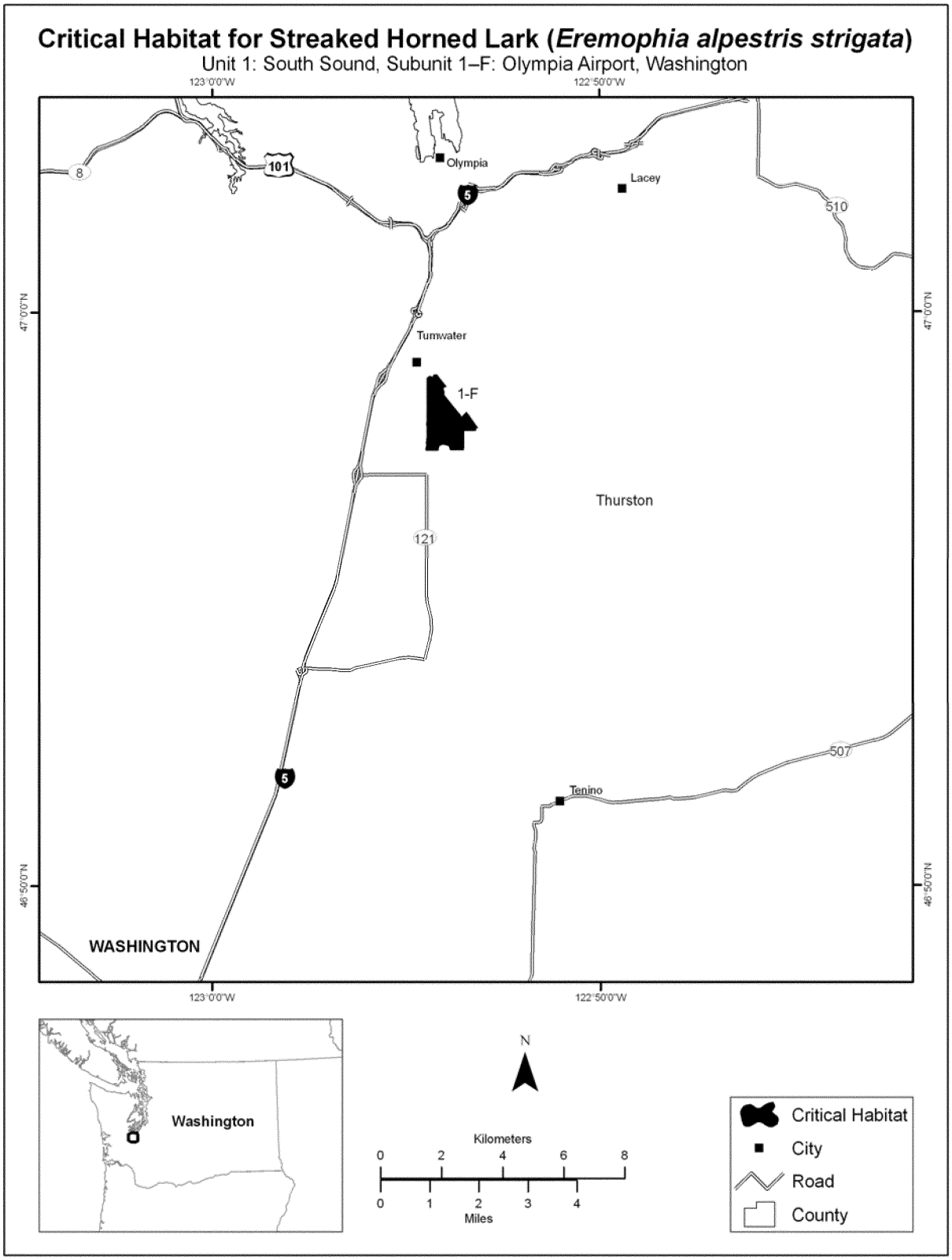
(9) Unit 1—South Sound, Subunit 1–D: 91st Division Prairie, Pierce County, Washington. Map of Unit 1, Subunit 1–D follows:



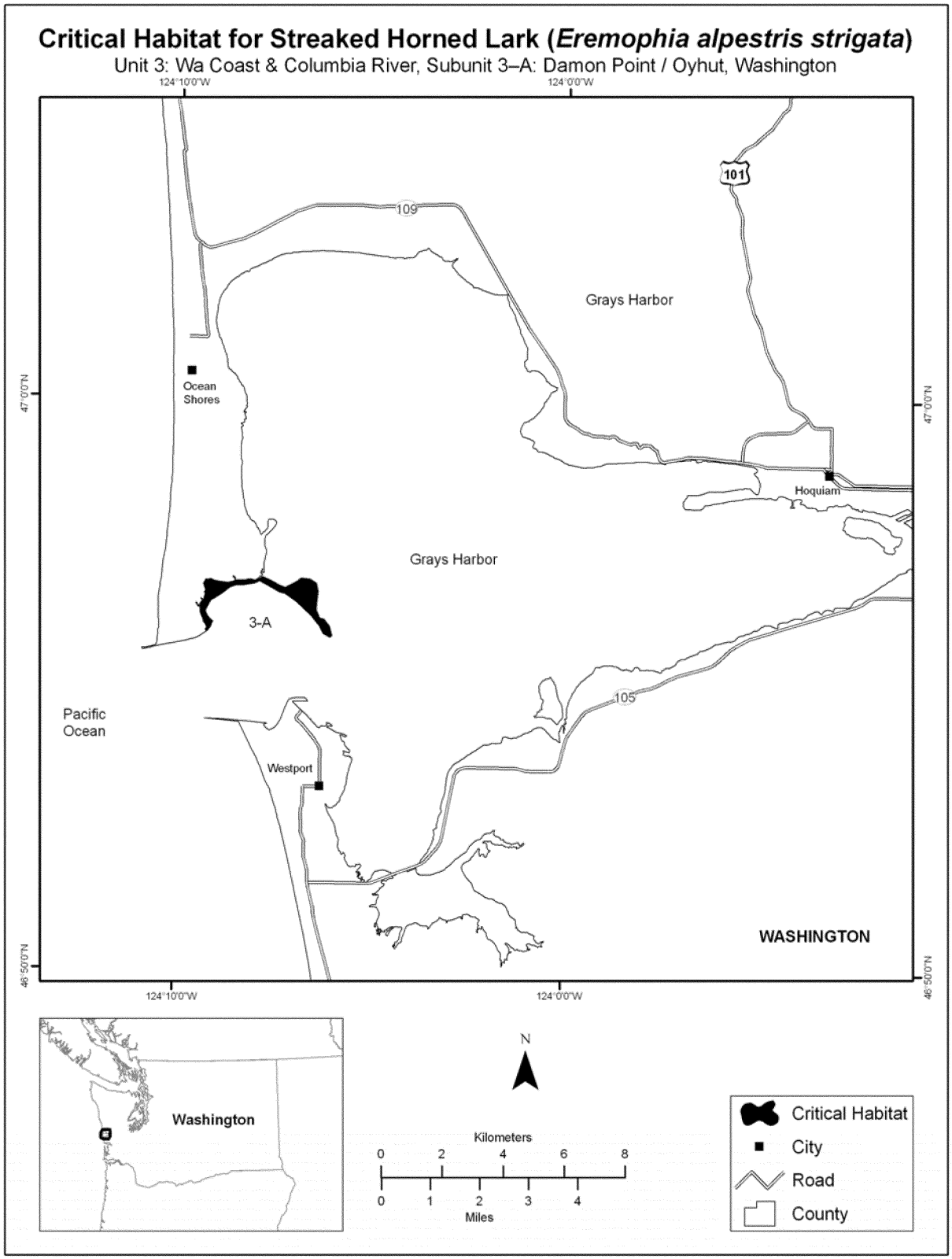
(10) Unit 1—South Sound, Subunit 1–E: 13th Division Prairie, Pierce County, Washington. Map of Unit 1, Subunit 1–E follows:



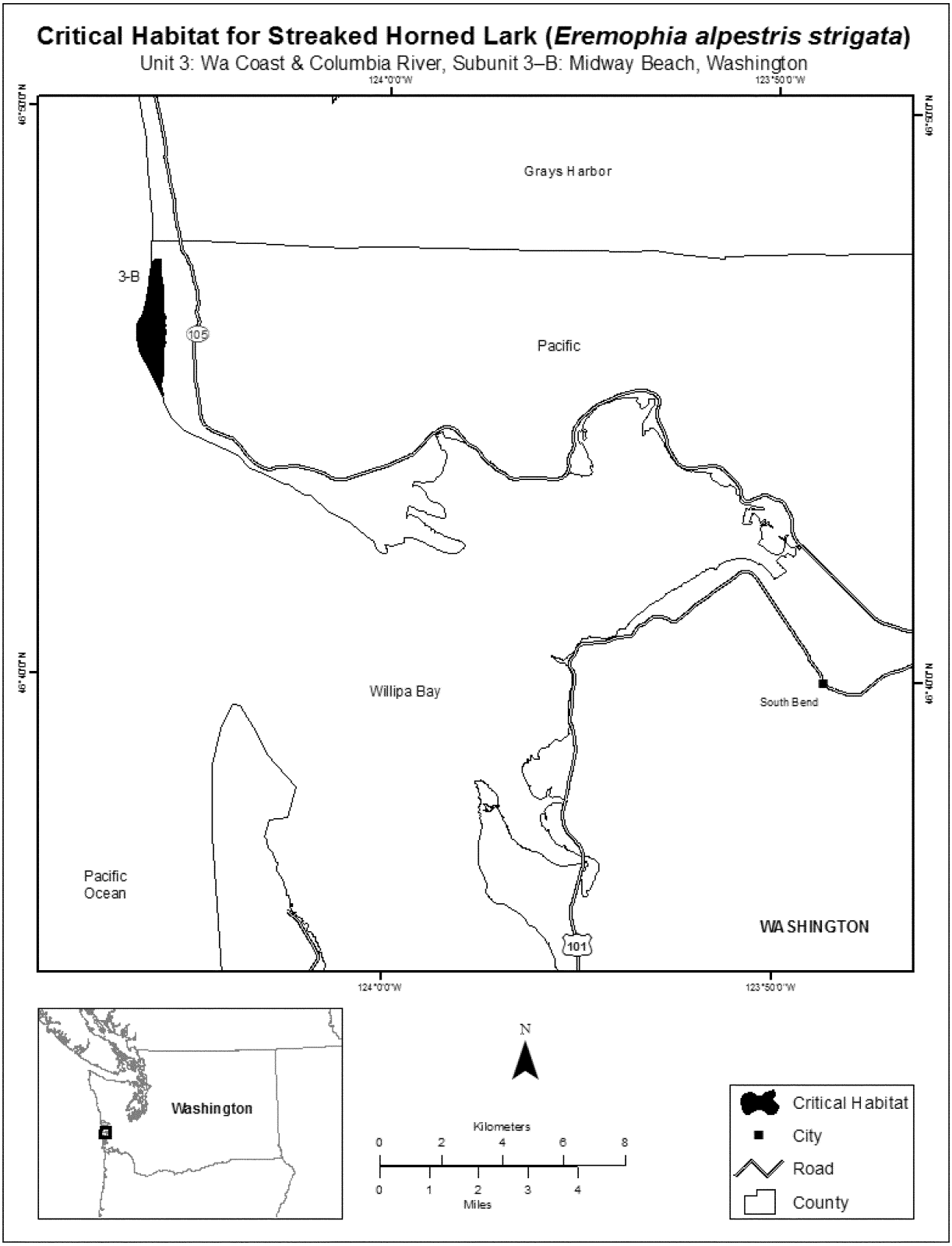
(11) Unit 1—South Sound, Subunit 1–F: Olympia Airport, Thurston County, Washington. Map of Unit 1, Subunit 1–F follows:



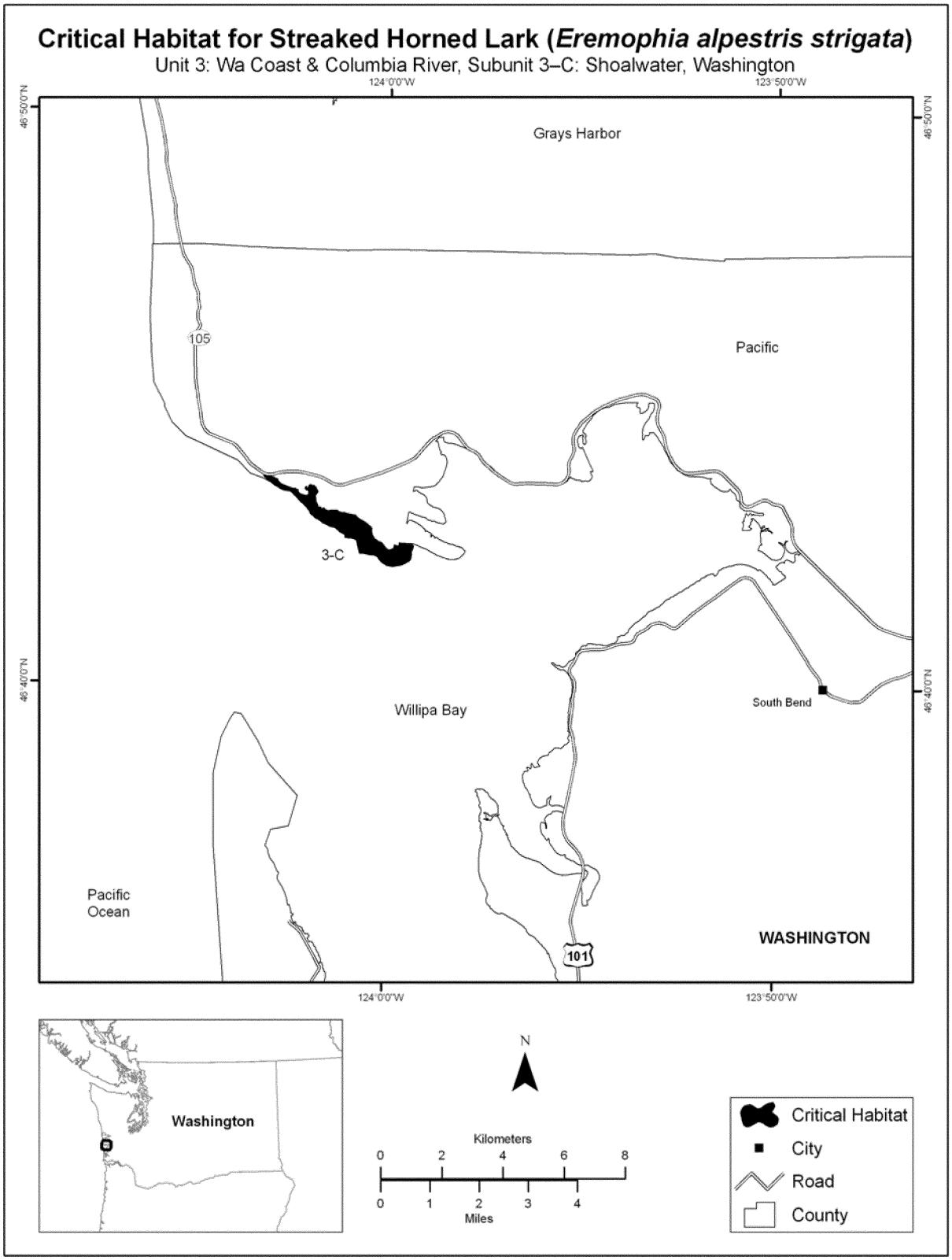
(12) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–A: Damon Point, Grays Harbor County, Washington. Map of Unit 3, Subunit 3–A follows:



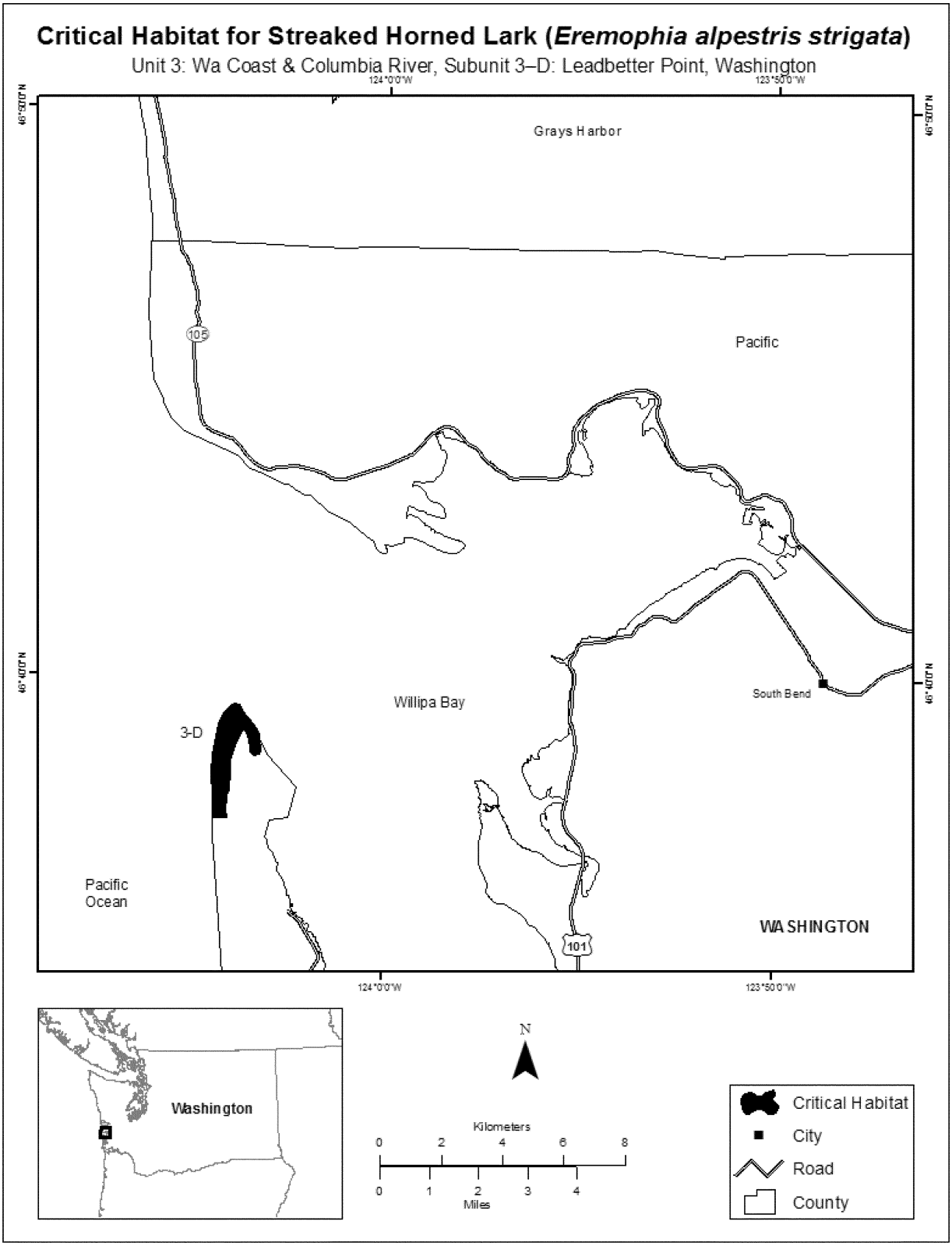
(13) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–B: Midway Beach, Pacific County, Washington. Map of Unit 3, Subunit 3–B follows:



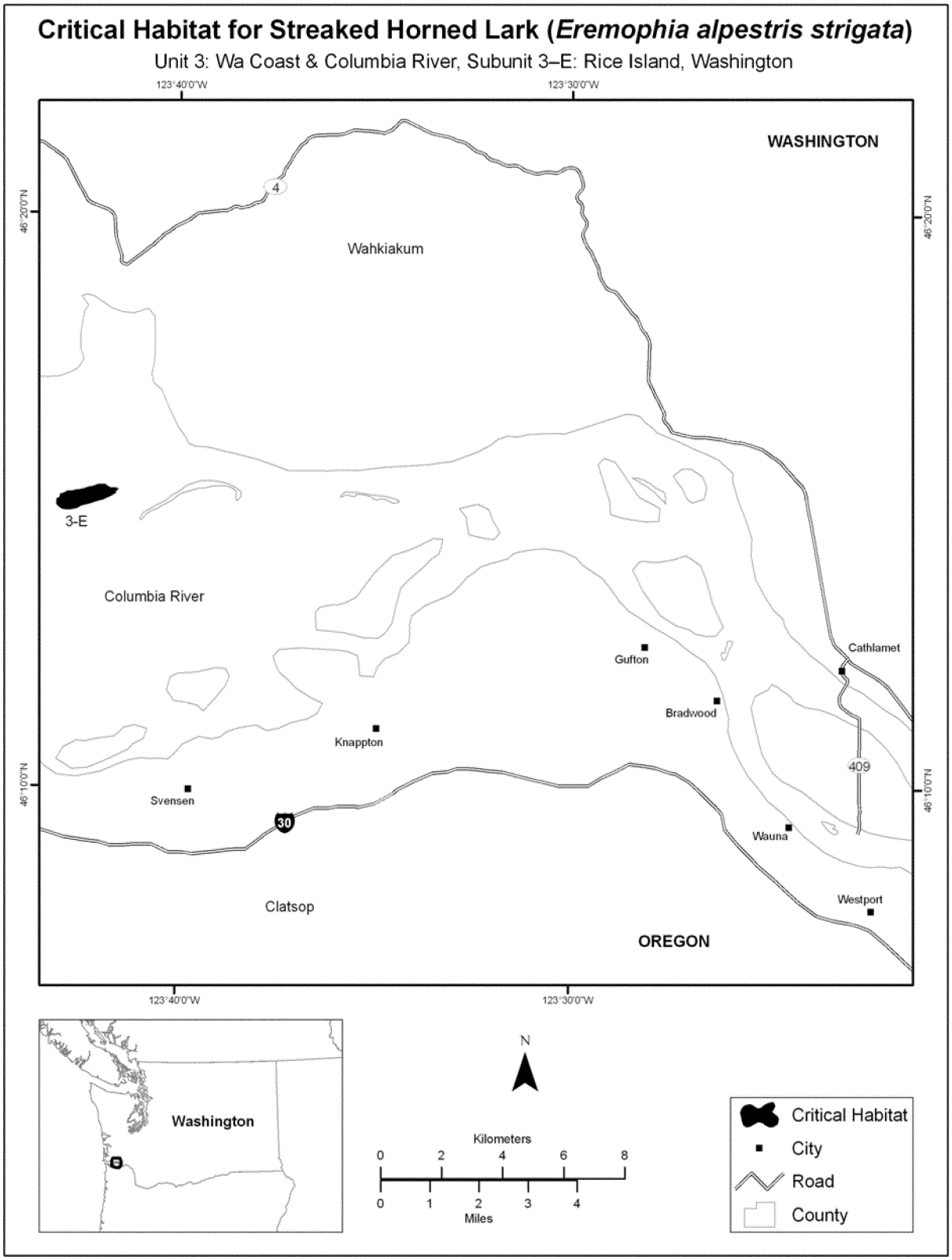
(14) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–C: Shoalwater, Pacific County, Washington. Map of Unit 3, Subunit 3–C follows:



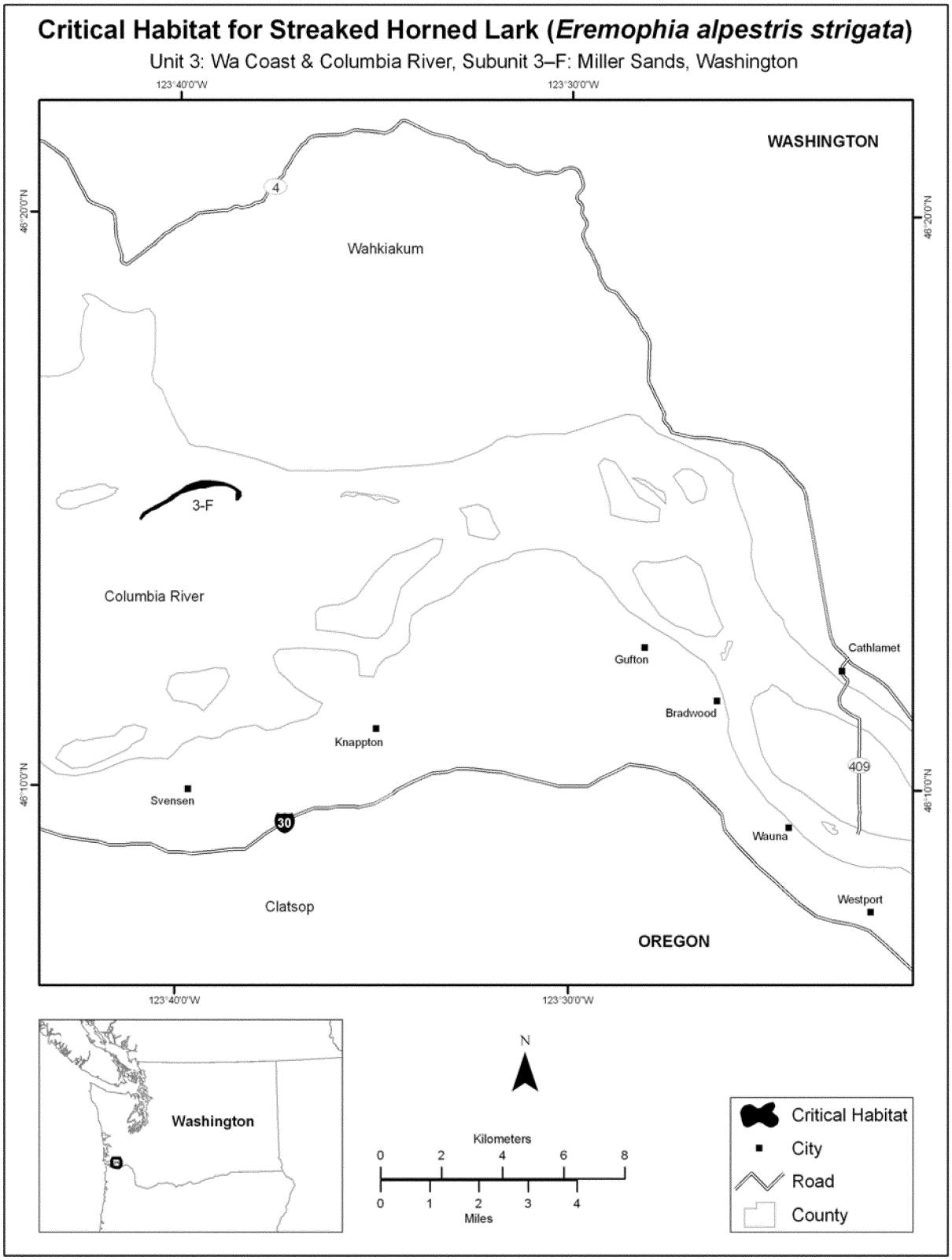
(15) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–D: Leadbetter Point, Pacific County, Washington. Map of Unit 3, Subunit 3–D follows:



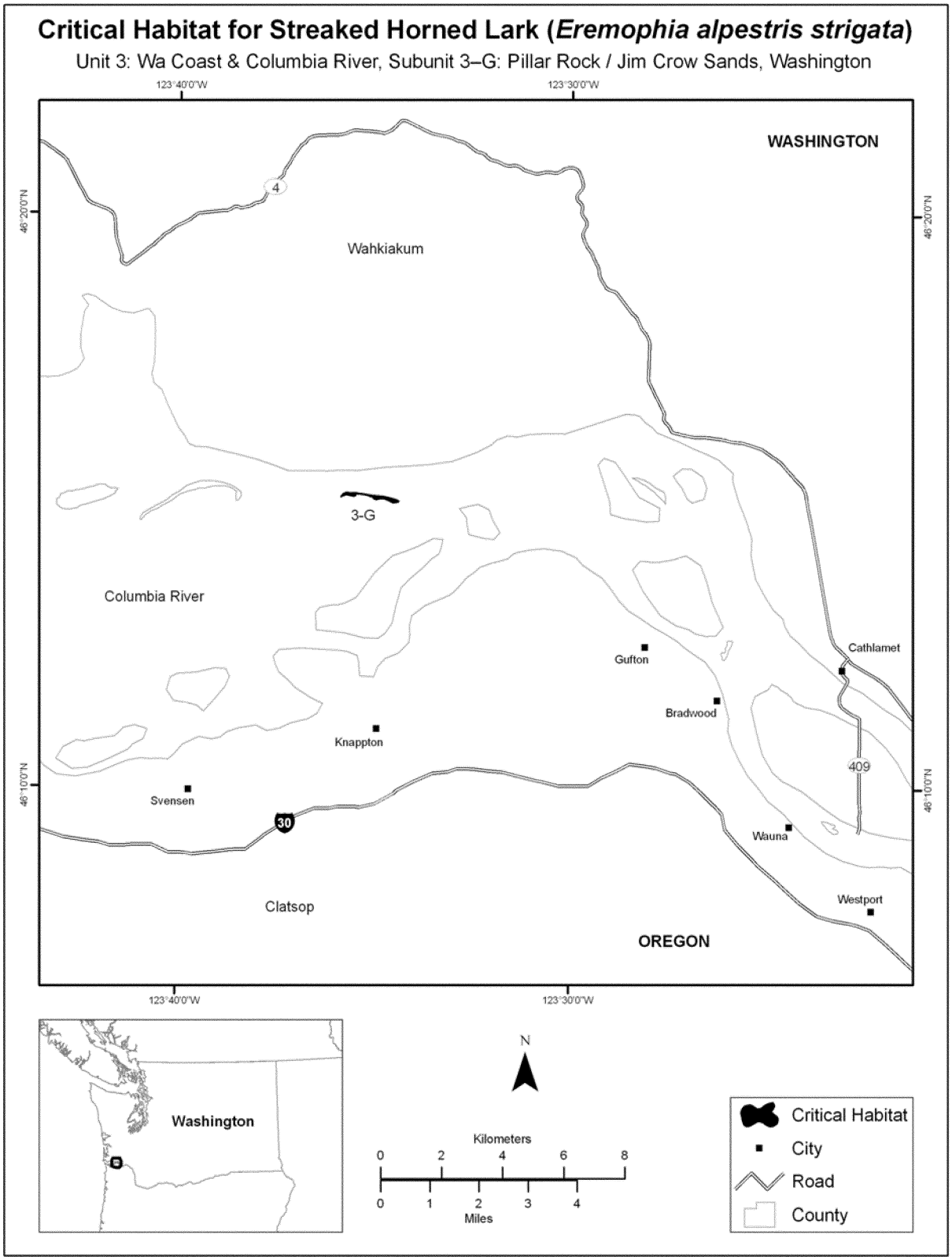
(16) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–E: Rice Island, Clatsop County, Oregon. Map of Unit 3, Subunit 3–E follows:



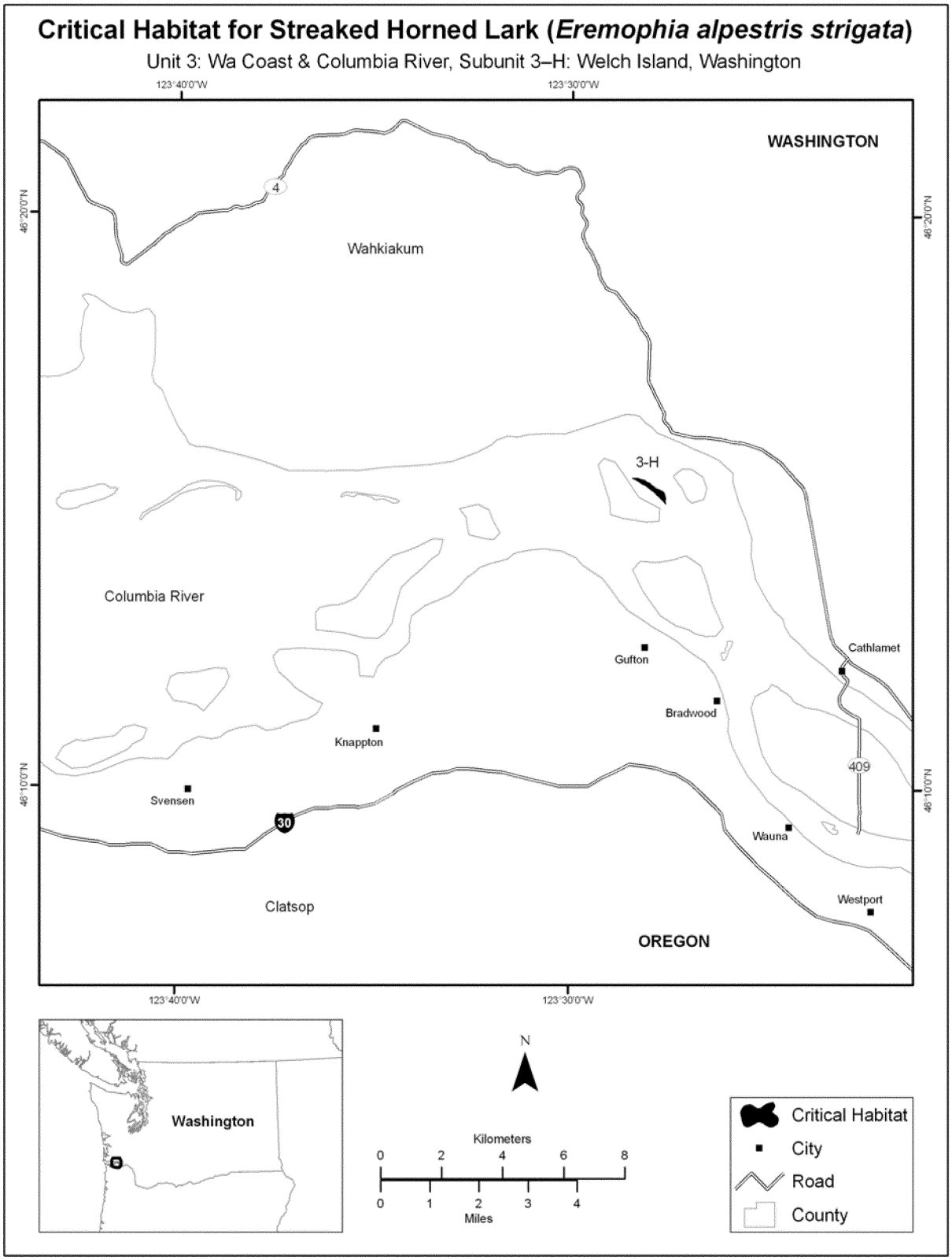
(17) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–F: Miller Sands Spit, Clatsop County, Oregon. Map of Unit 3, Subunit 3–F follows:



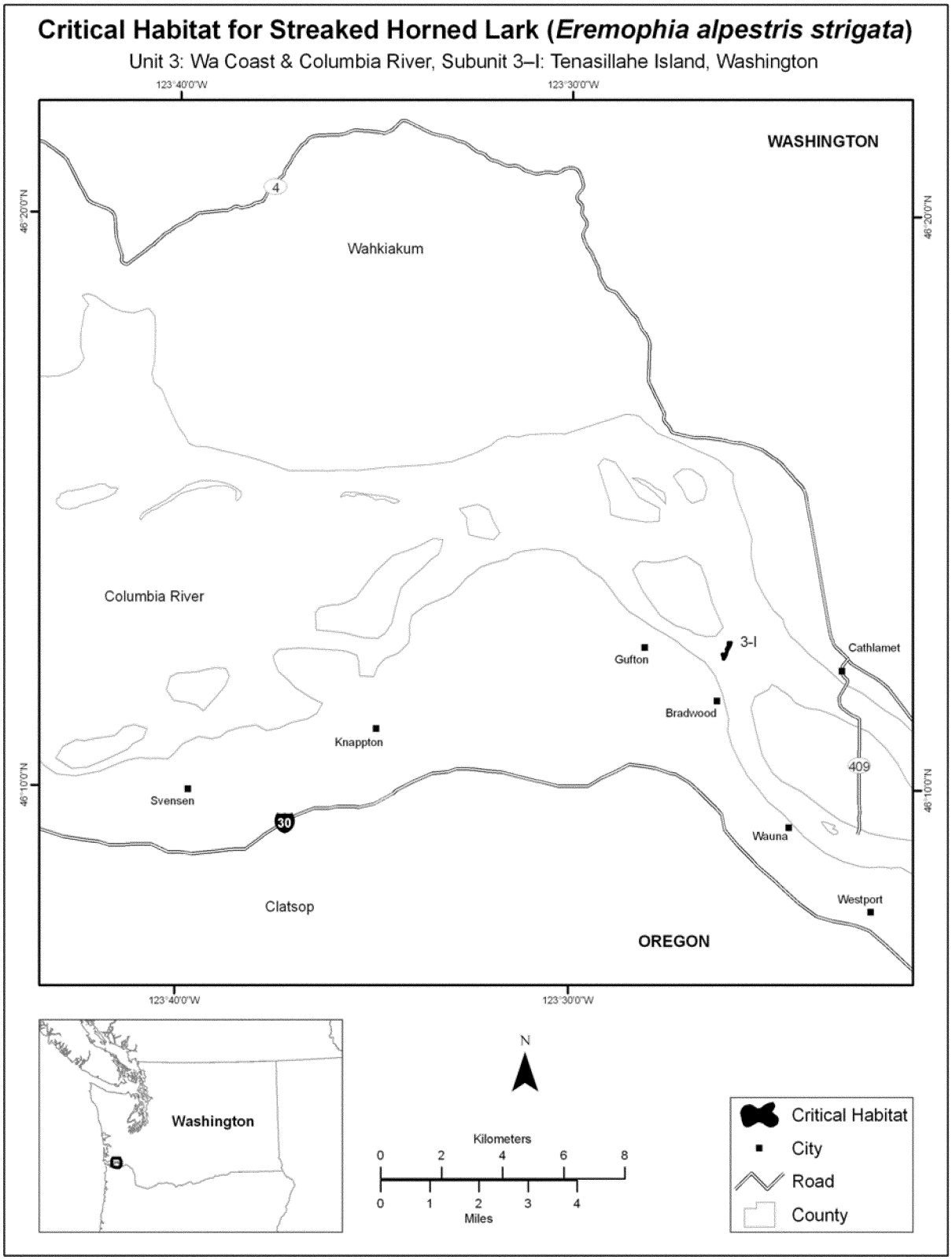
(18) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–G: Pillar Rock/Jim Crow Sands, Clatsop County, Oregon. Map of Unit 3, Subunit 3–G follows:



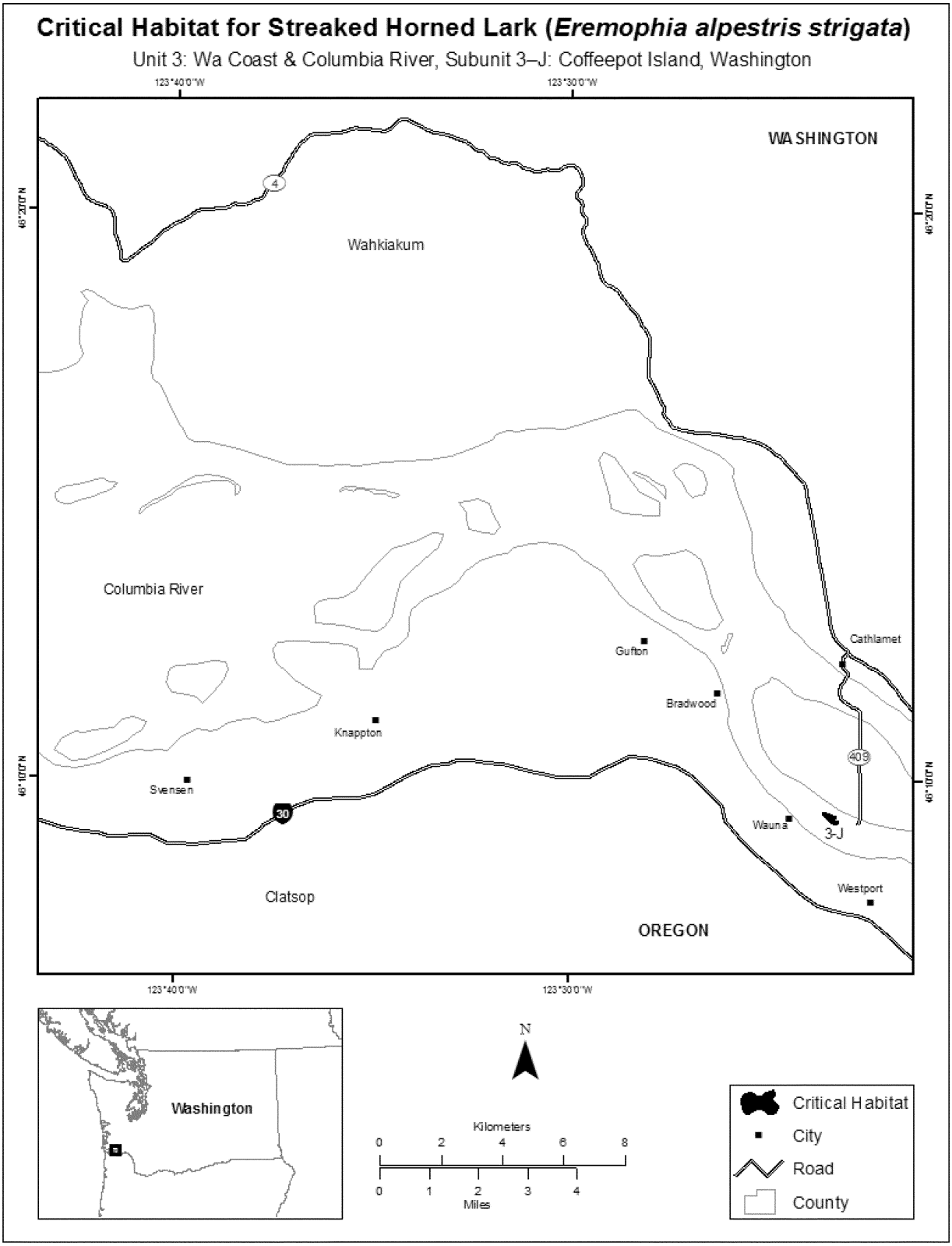
(19) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–H: Welch Island, Clatsop County, Oregon. Map of Unit 3, Subunit 3–H follows:



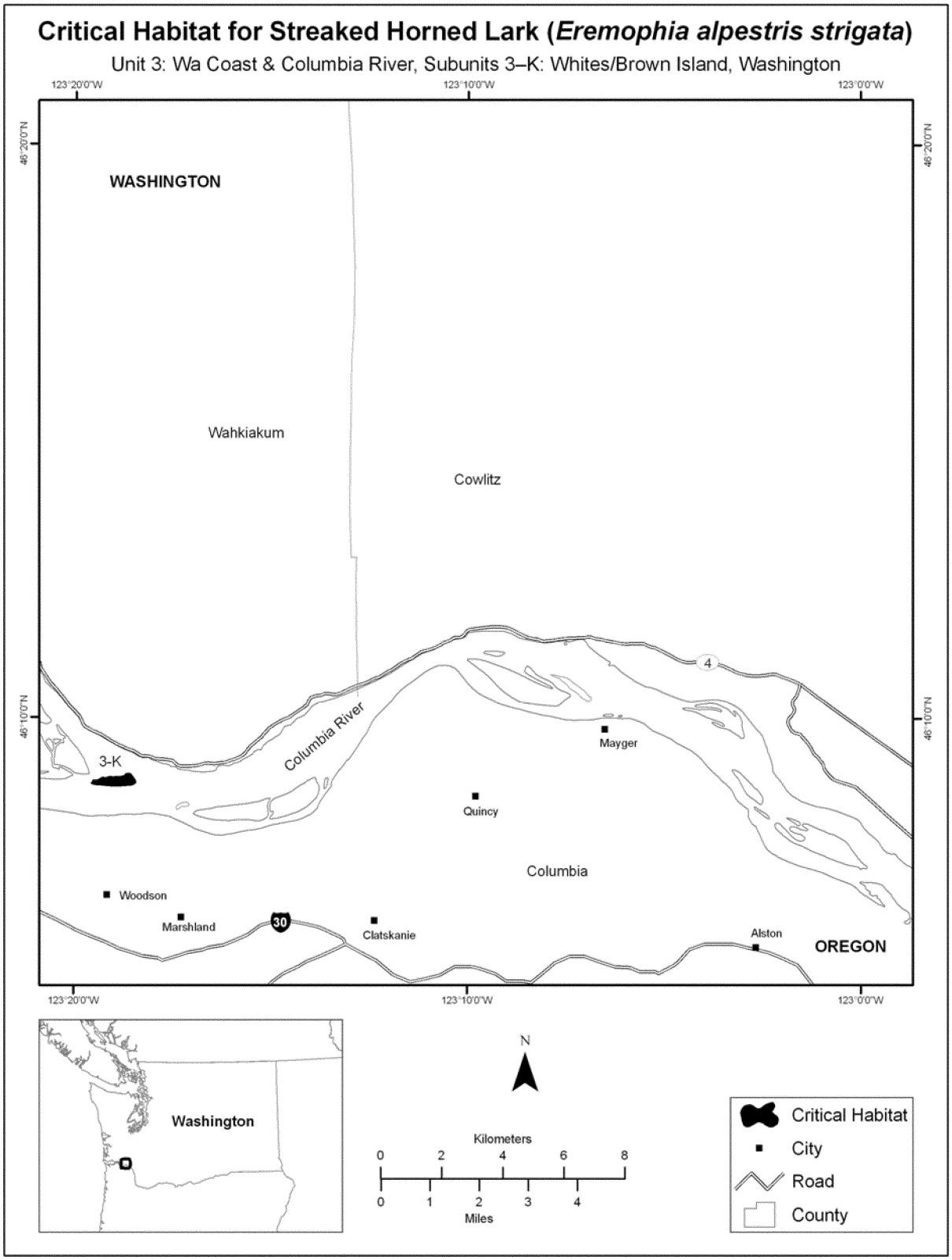
(20) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–I: Tenasillahe Island, Columbia County, Oregon. Map of Unit 3, Subunit 3–I follows:



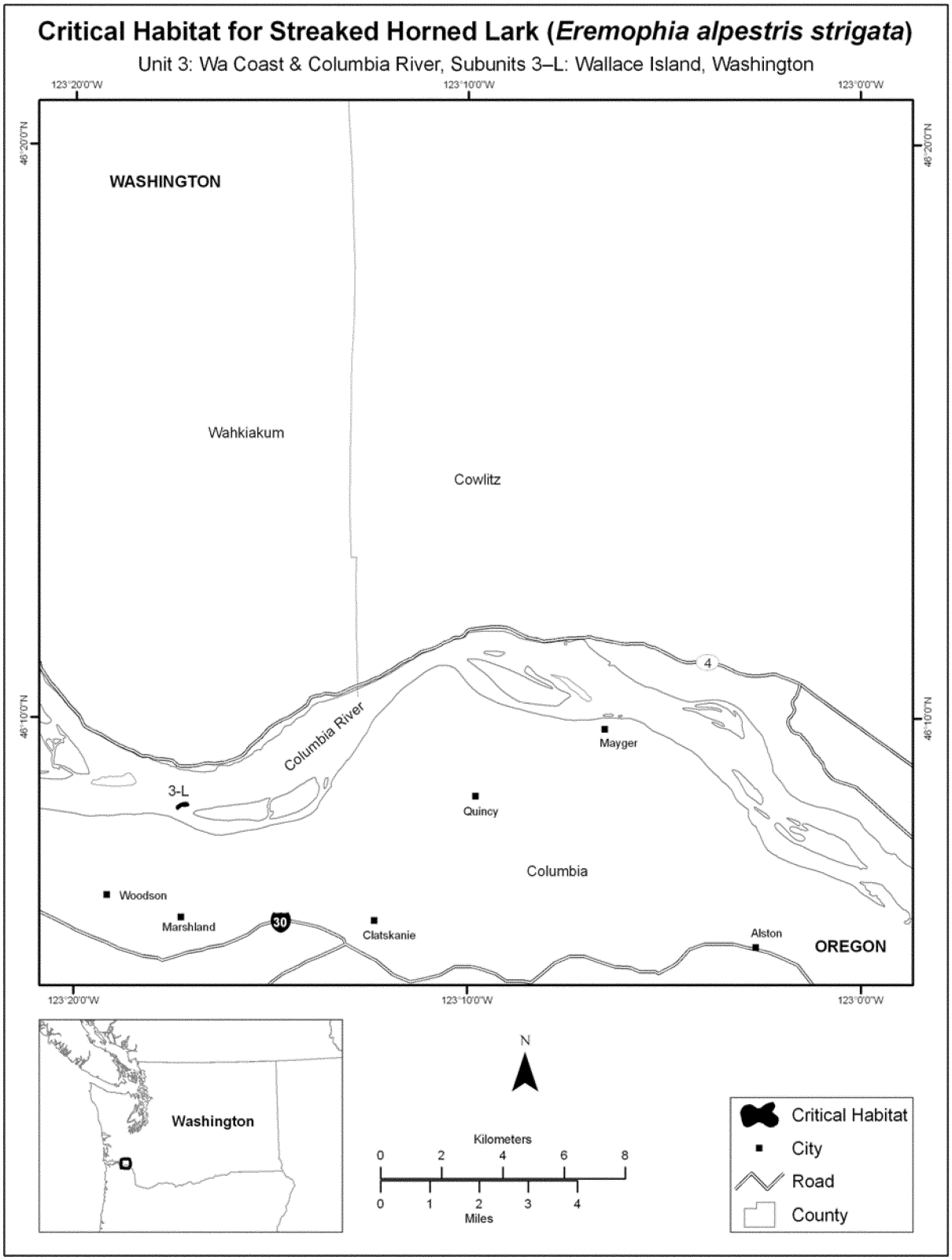
(21) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–J: Coffeepot Island, Wahkiakum County, Washington. Map of Unit 3, Subunit 3–J follows:



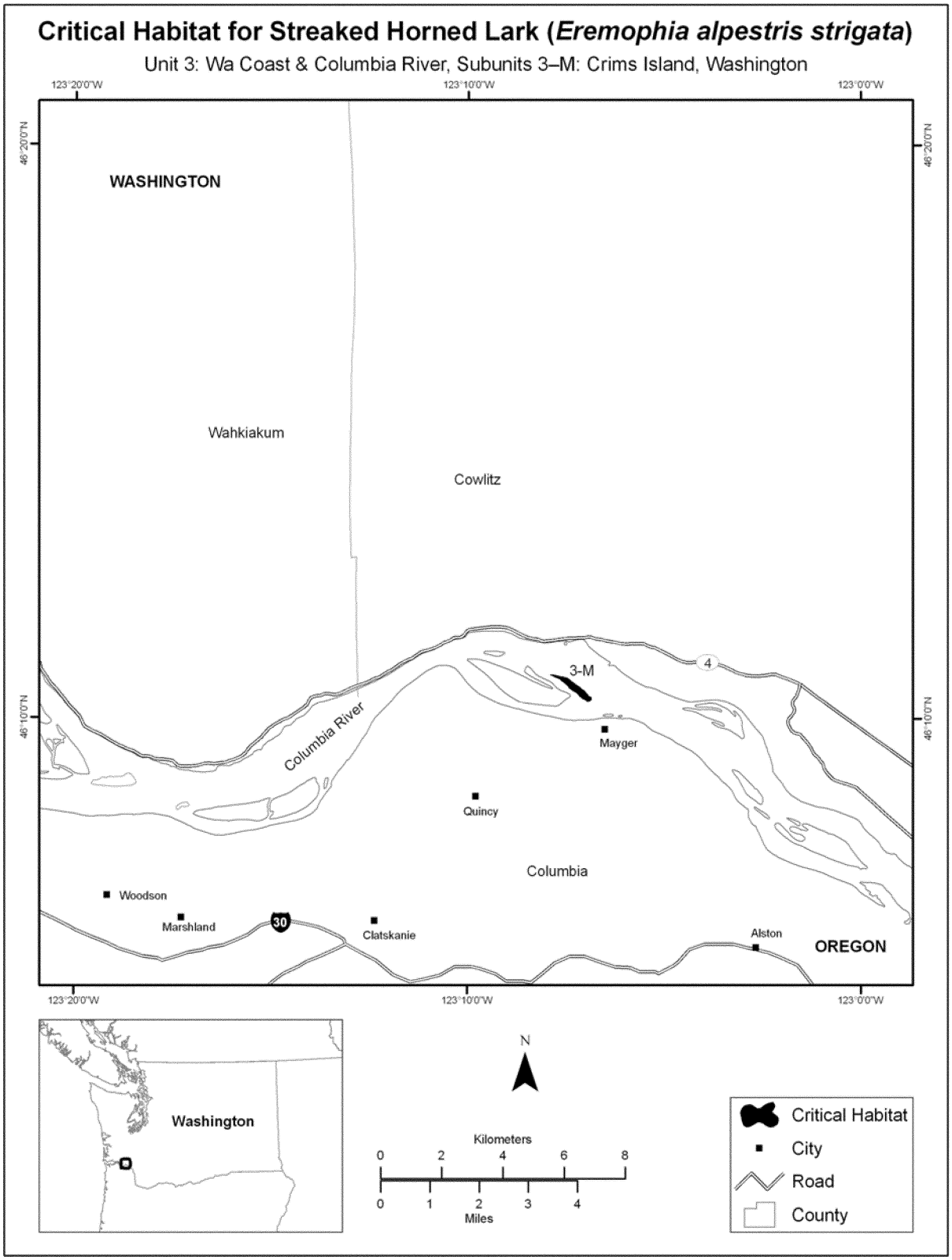
(22) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–K: Whites/Brown Island, Wahkiakum County, Washington. Map of Unit 3, Subunit 3–K follows:



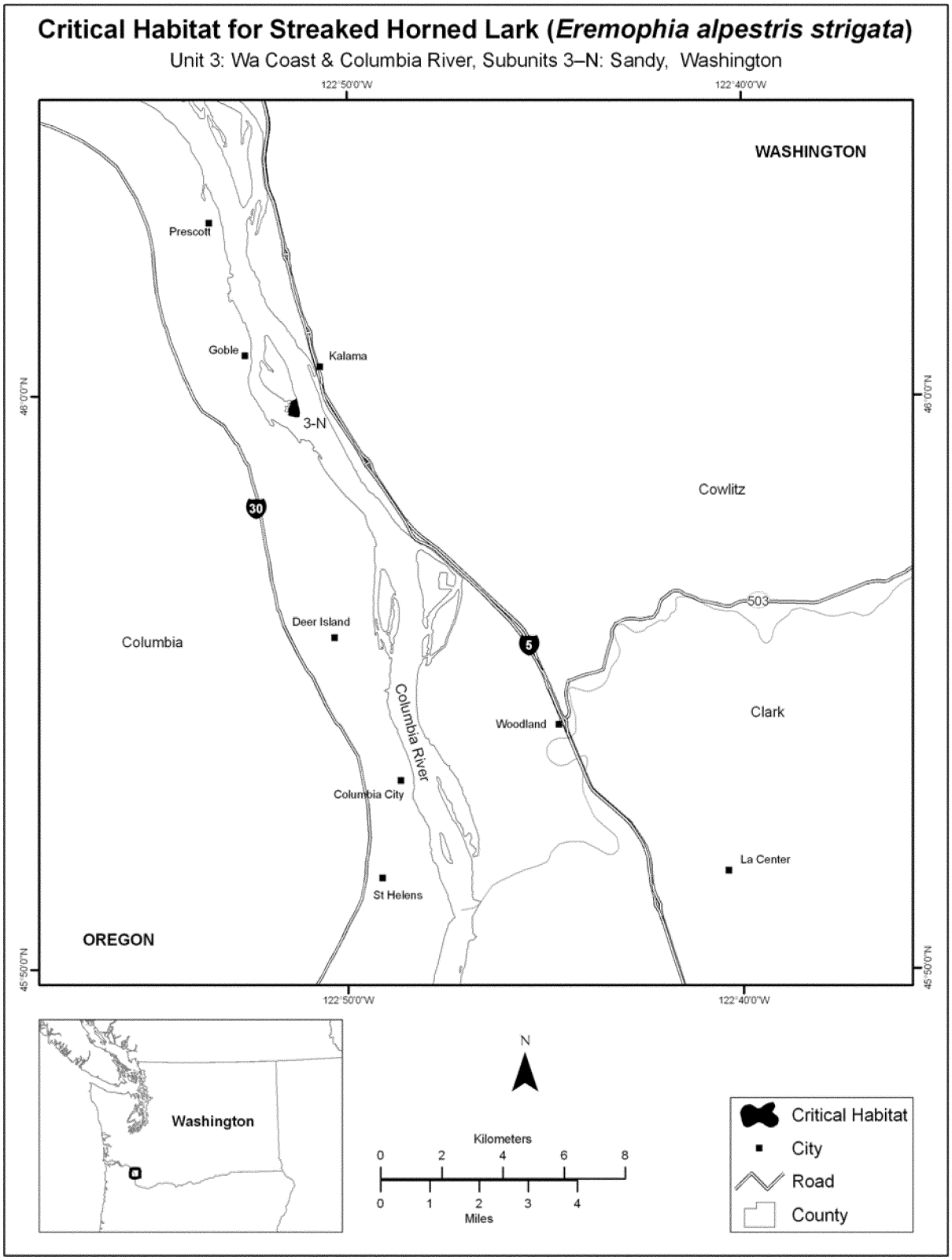
(23) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–L: Wallace Island, Columbia County, Oregon. Map of Unit 3, Subunit 3–L follows:



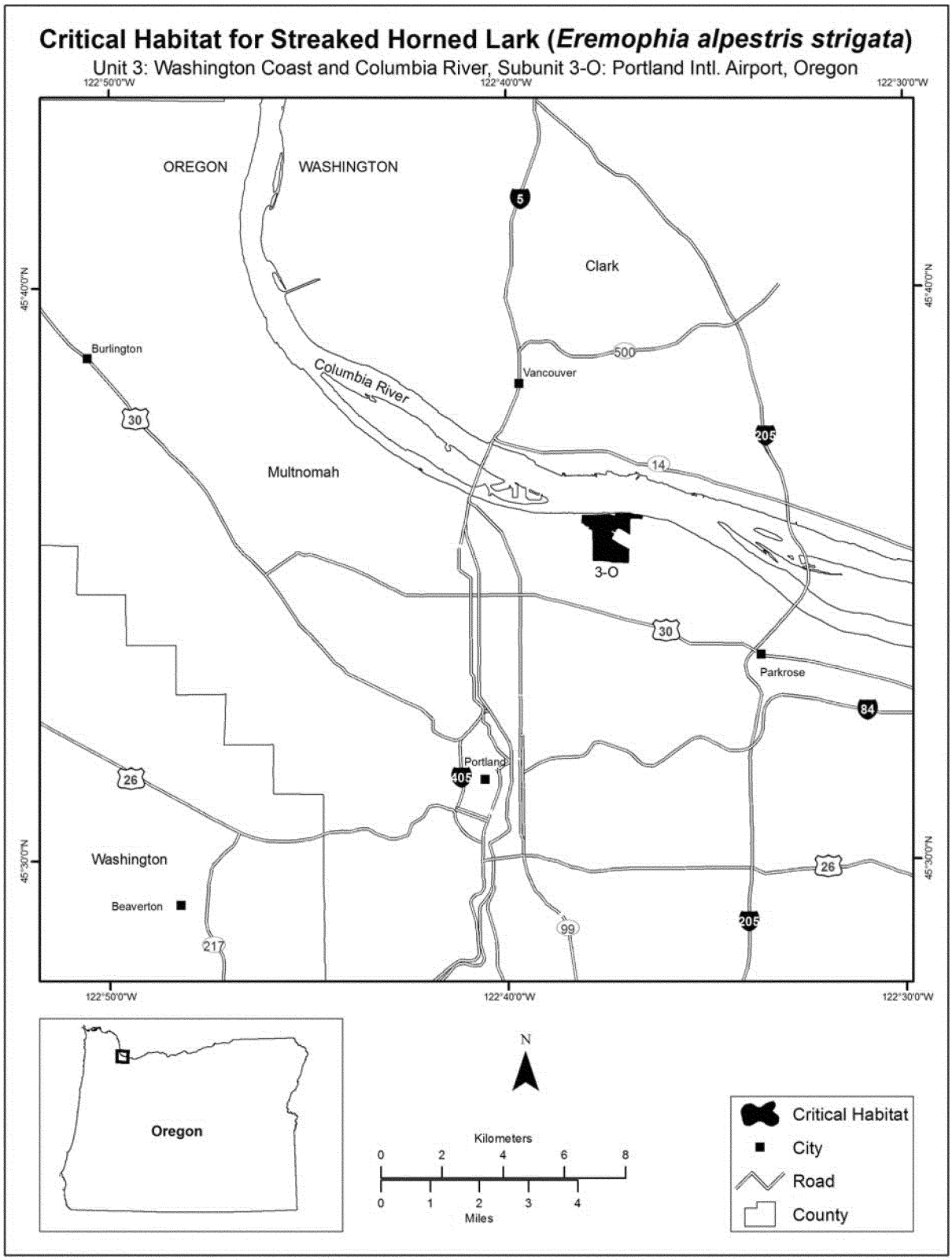
(24) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–M: Crims Island, Columbia County, Oregon. Map of Unit 3, Subunit 3–M follows:



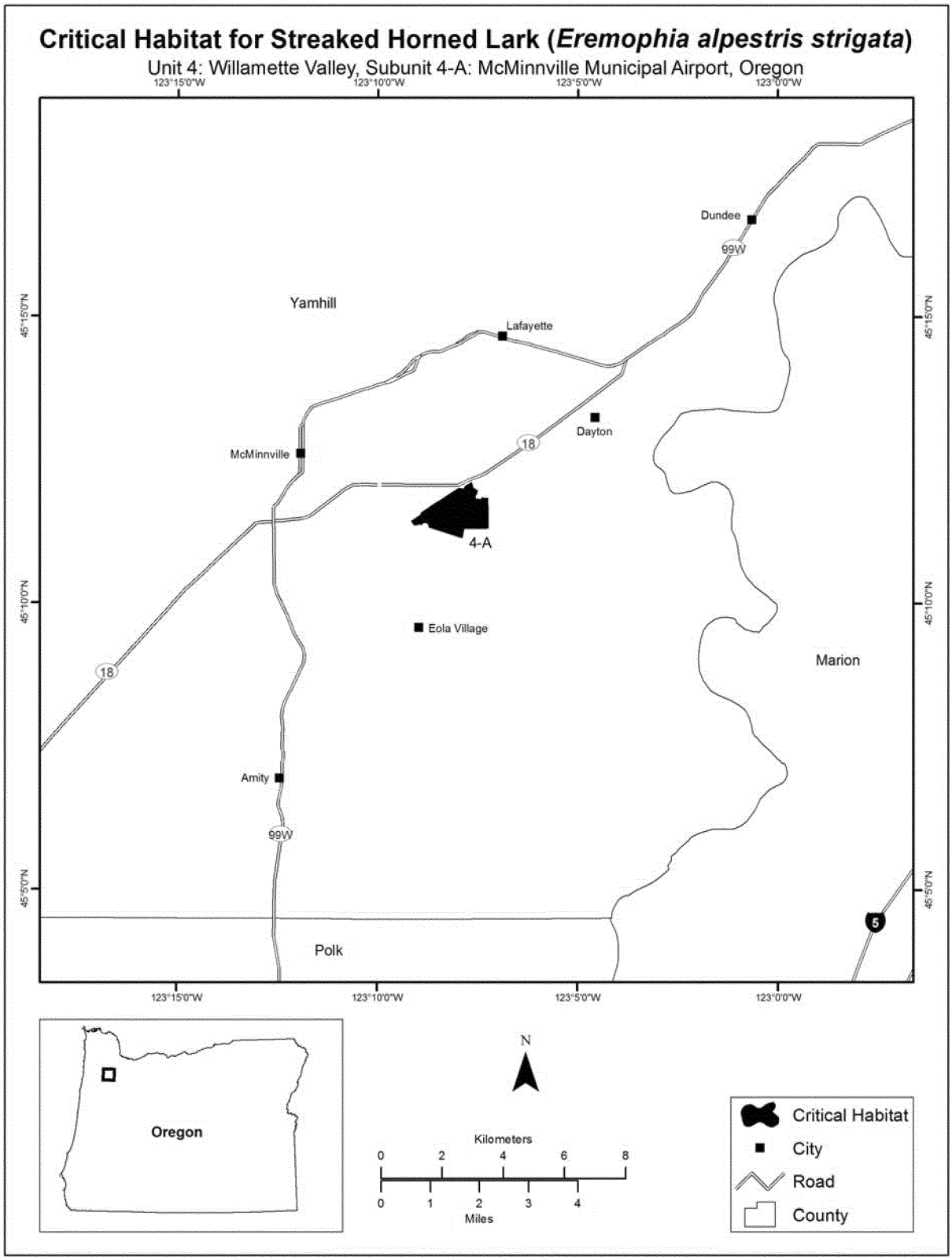
(25) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–N: Sandy Island, Columbia County, Oregon. Map of Unit 3, Subunit 3–N follows:



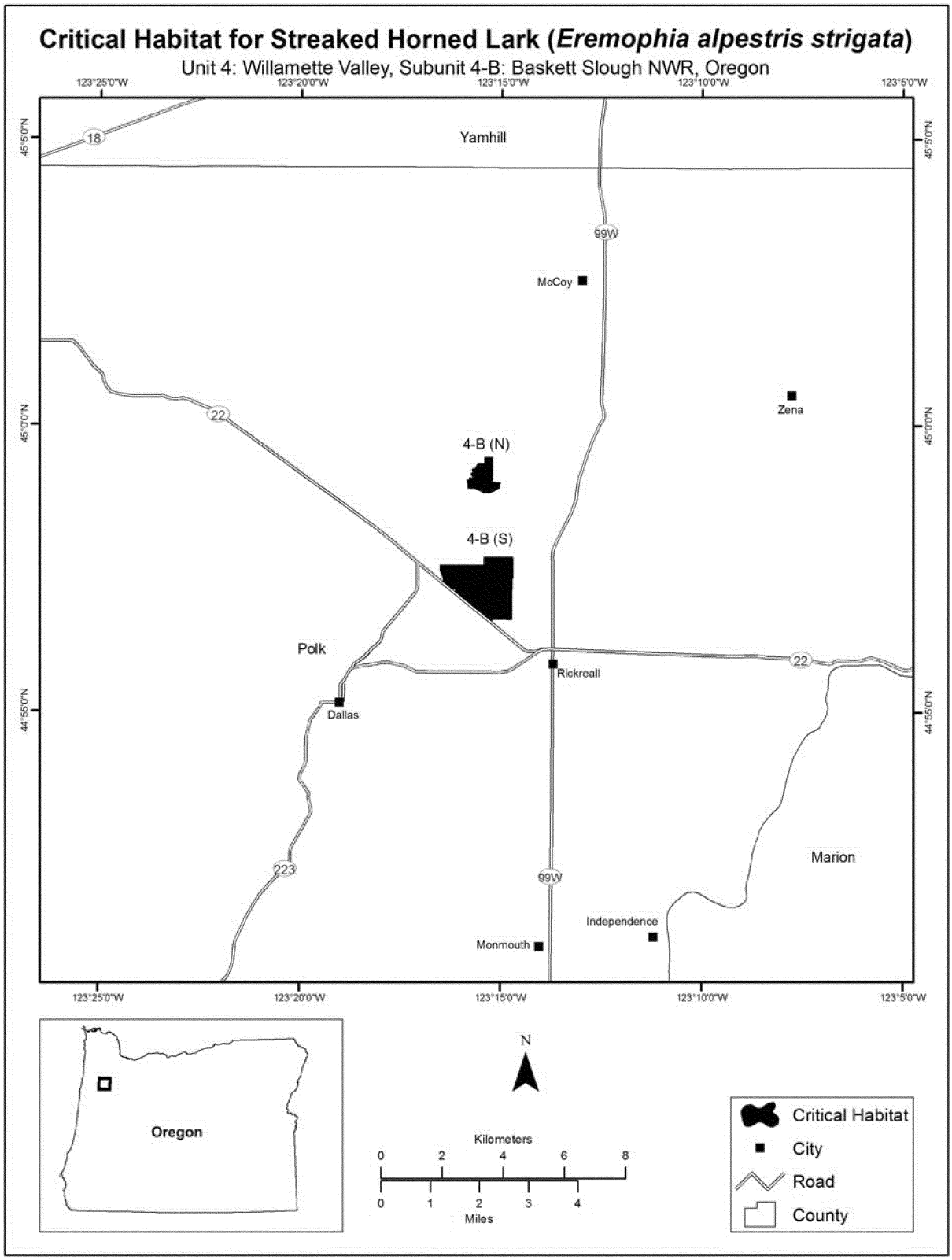
(26) Unit 3—Washington Coast and Columbia River Islands, Subunit 3–O: Portland International Airport, Multnomah County, Washington. Map of Unit 3, Subunit 3–O follows:



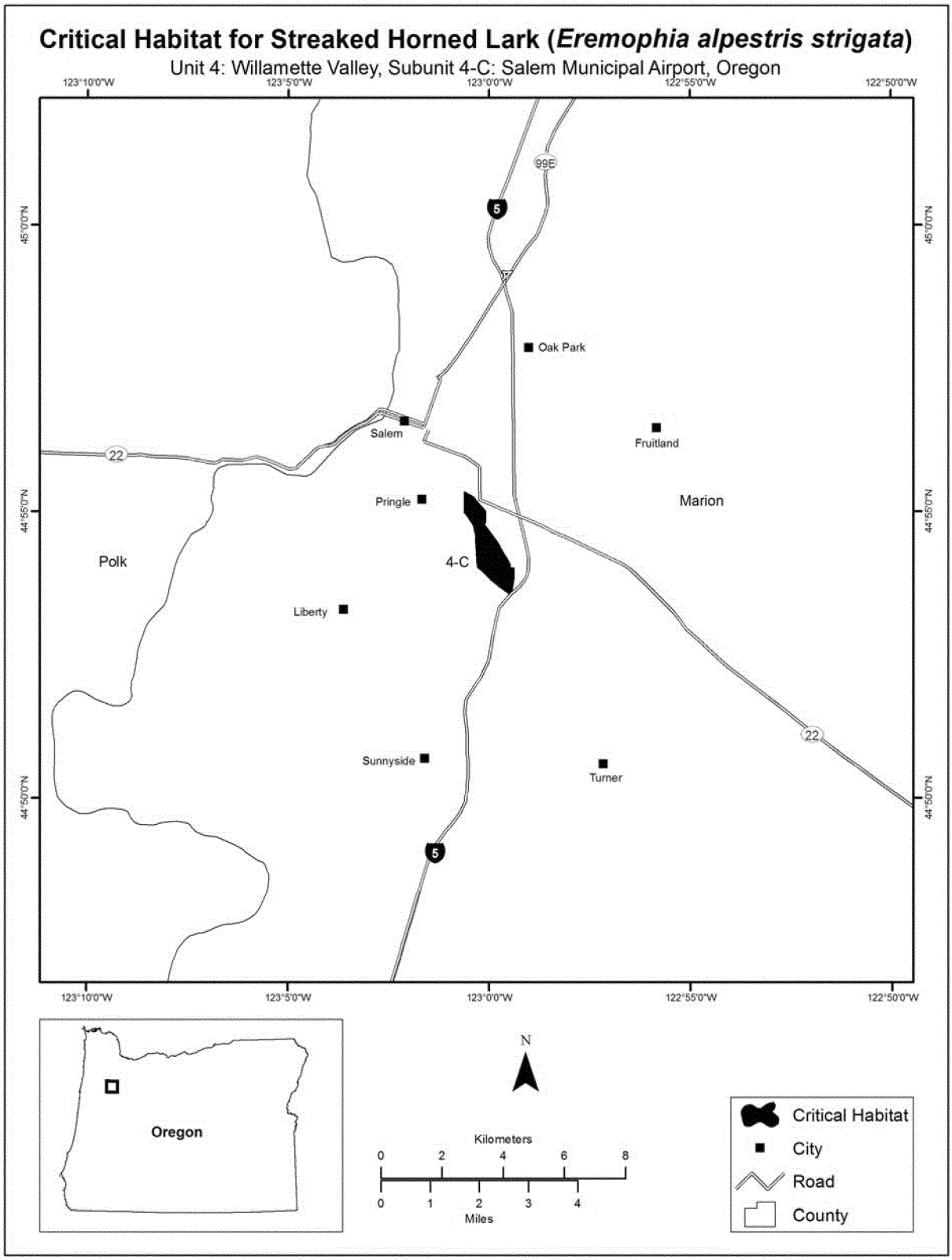
(27) Unit 4—Willamette Valley, Subunit 4–A: McMinnville Municipal Airport, Yamhill County, Oregon. Map of Unit 4, Subunit 4–A follows:



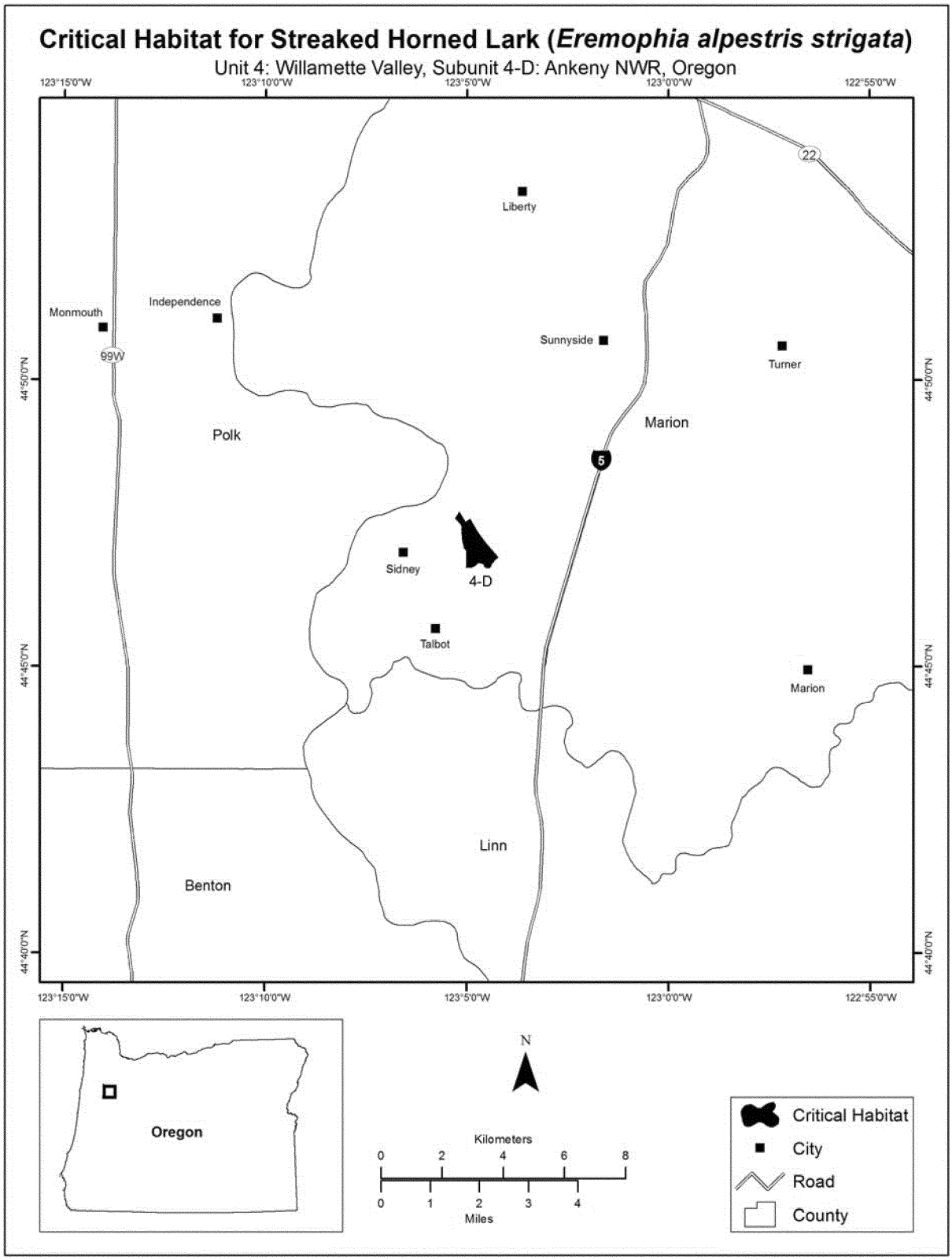
(28) Unit 4—Willamette Valley, Subunit 4–B: Basket Slough National Wildlife Refuge, Polk County, Oregon. Map of Unit 4, Subunit 4–B follows:



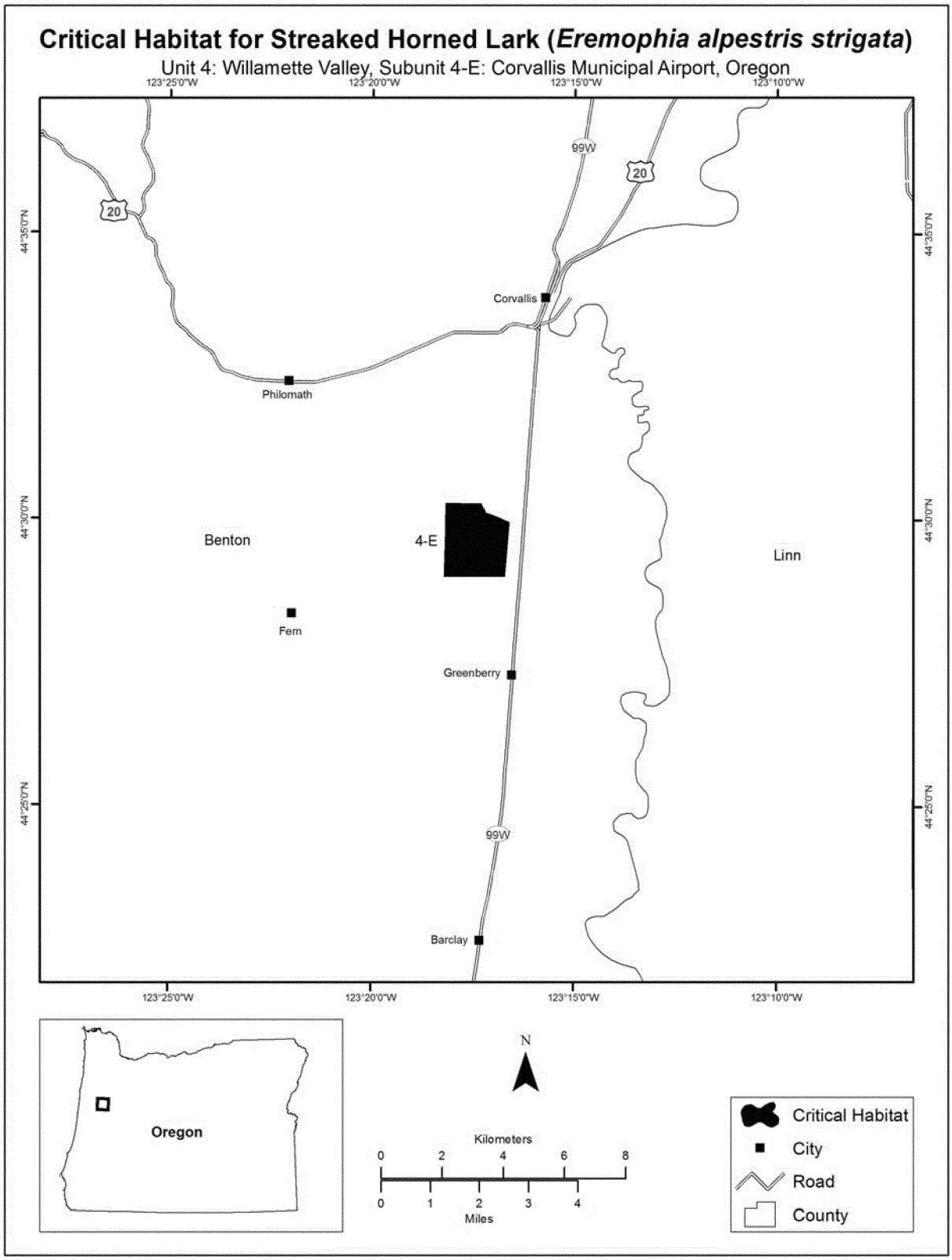
(29) Unit 4—Willamette Valley, Subunit 4–C: Salem Municipal Airport, Marion County, Oregon. Map of Unit 4, Subunit 4–C follows:



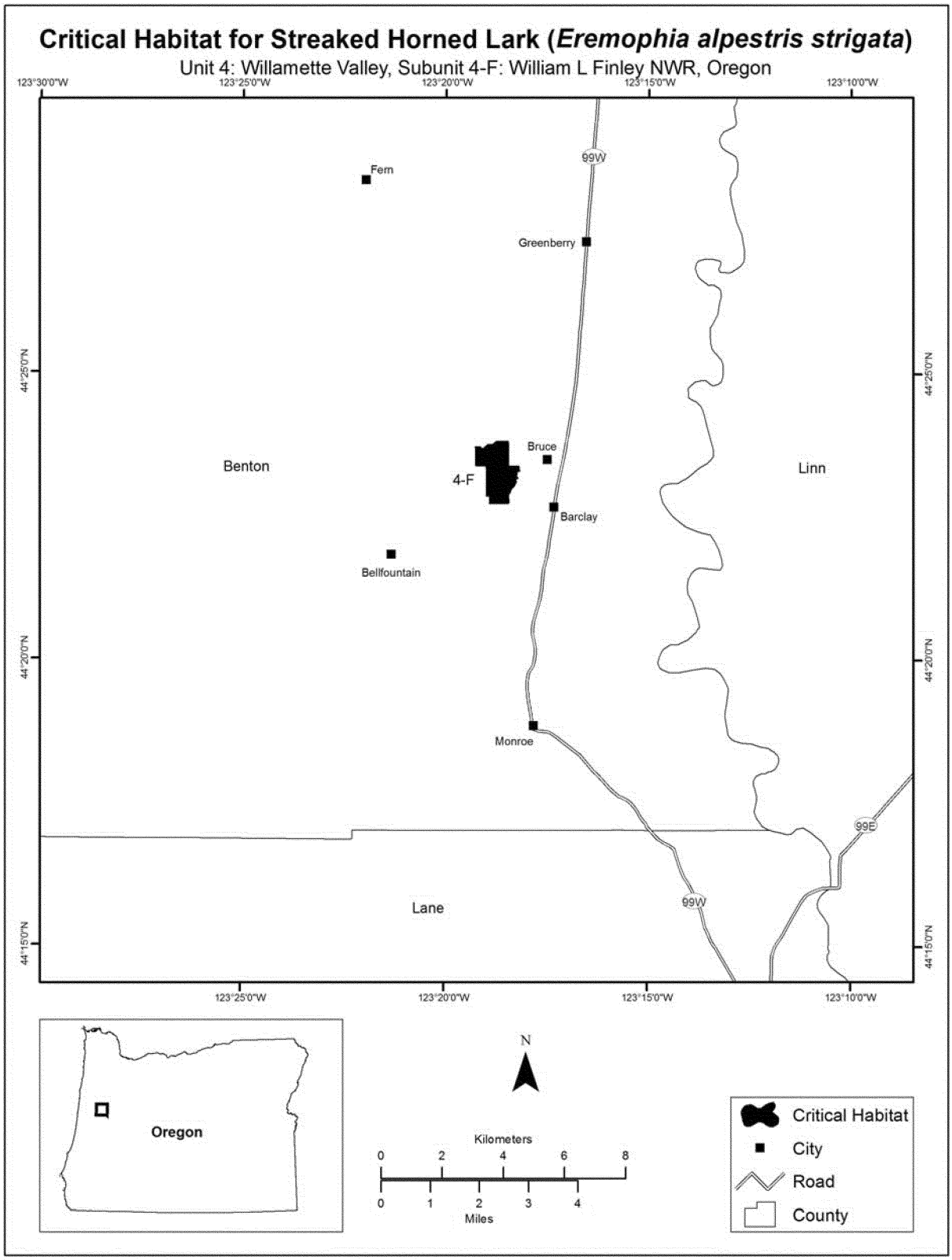
(30) Unit 4—Willamette Valley, Subunit 4–D: Ankeny National Wildlife Refuge, Marion County, Oregon. Map of Unit 4, Subunit 4–D follows:



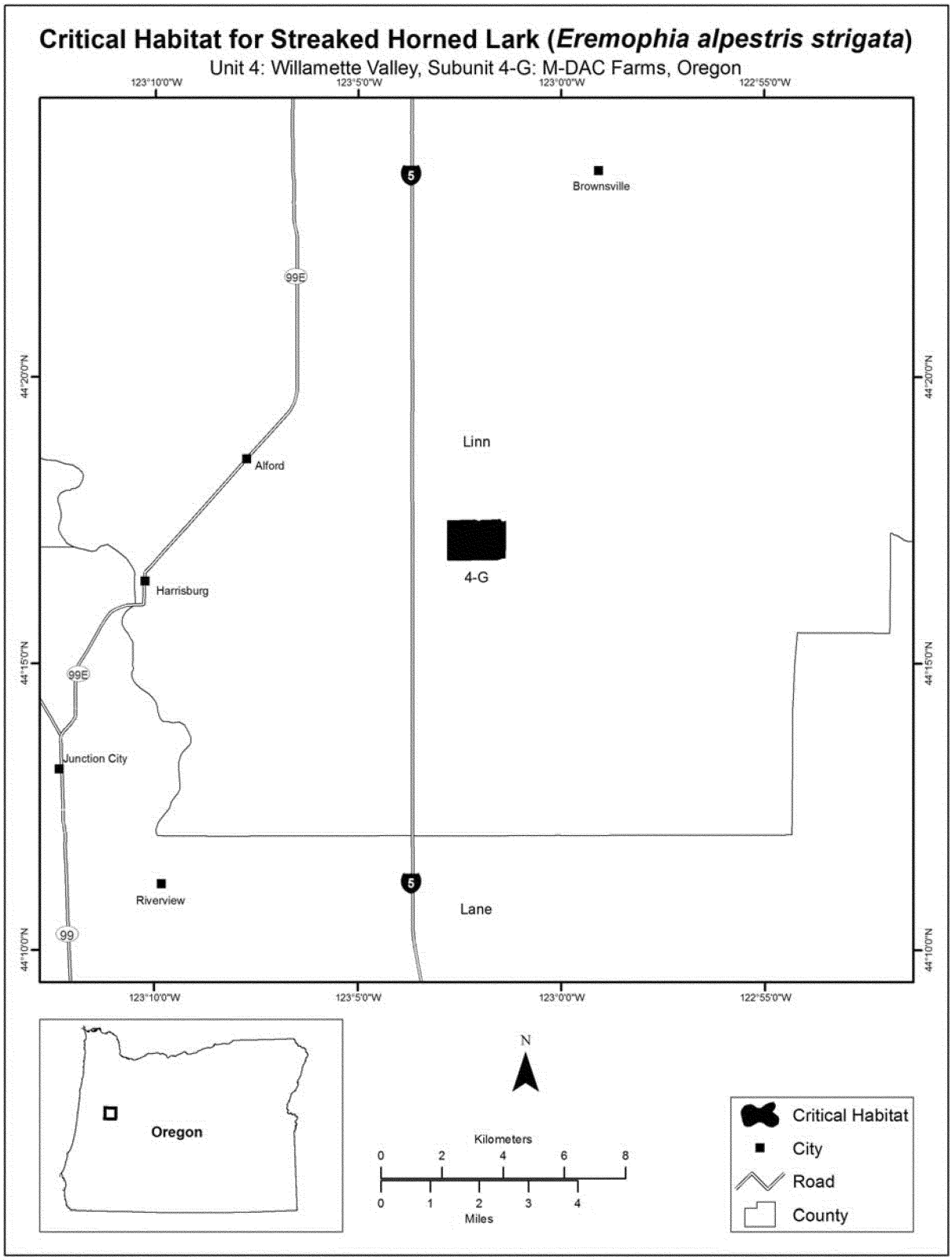
(31) Unit 4—Willamette Valley, Subunit 4–E: Corvallis Municipal Airport, Benton County, Oregon. Map of Unit 4, Subunit 4–E follows:



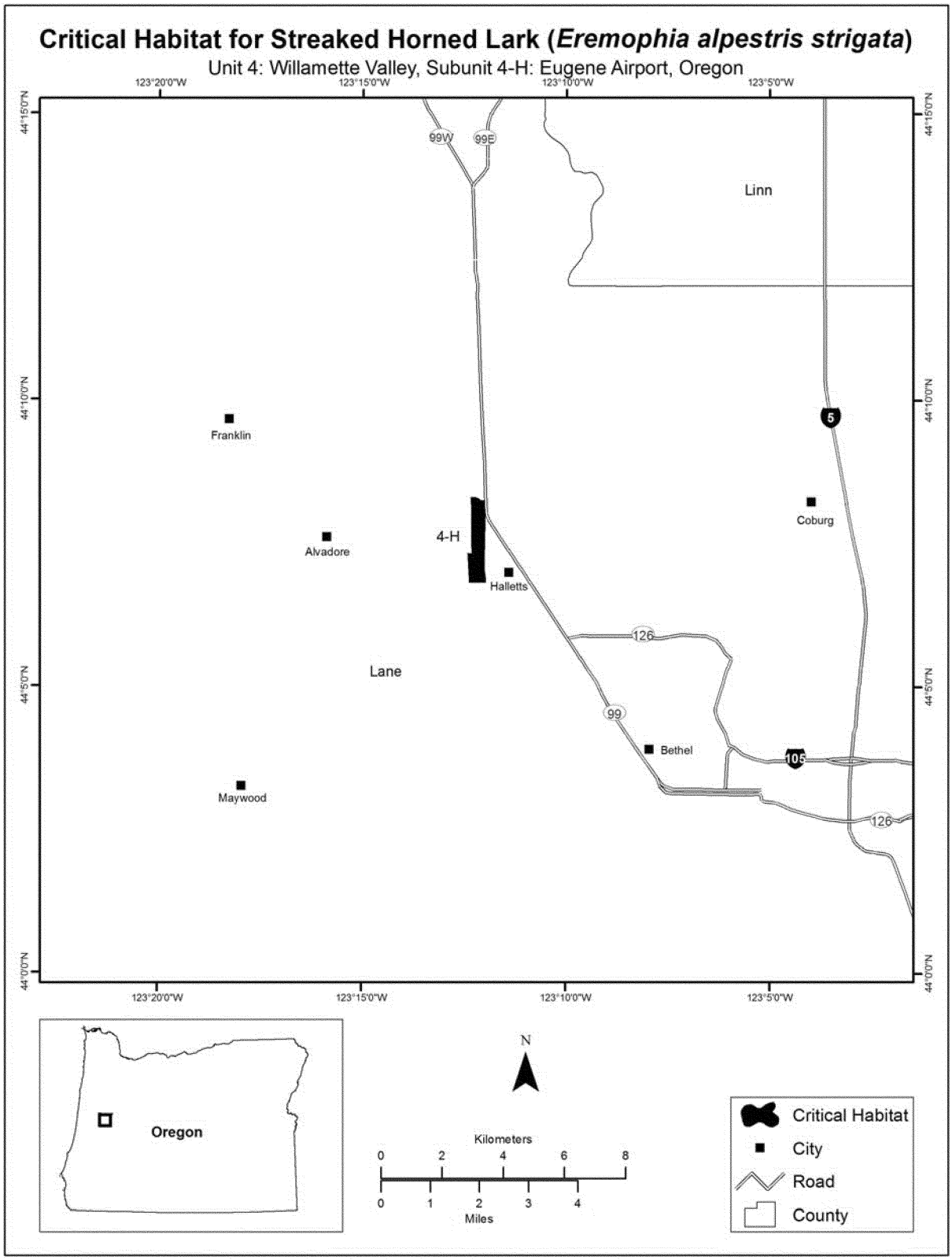
(32) Unit 4—Willamette Valley, Subunit 4–F: William L. Finley National Wildlife Refuge, Benton County, Oregon. Map of Unit 4, Subunit 4–F follows:



(33) Unit 4—Willamette Valley, Subunit 4–G: M–DAC Farms, Linn County, Oregon. Map of Unit 4, Subunit 4–G follows:



(34) Unit 4—Willamette Valley, Subunit 4–H: Eugene Airport, Lane County, Oregon. Map of Unit 4, Subunit 4–H follows:



* * * * *

(i) *Insects.*

* * * * *

Taylor's checkerspot butterfly (*Euphydryas editha taylori)*

(1) Critical habitat units are depicted for Thurston, Pierce, Island, Clallam Counties in Washington, and Benton County, Oregon, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of *Euphydryas editha taylori* consist of:

(i) Patches of early seral, short-statured, perennial bunchgrass plant communities composed of native grass

and forb species in a diverse topographic landscape ranging in size from less than 1 ac up to 100 ac (0.4 to 40 ha) with little or no overstory forest vegetation that have areas of bare soil for basking that contain:

(A) In Washington and Oregon, common bunchgrass species found on northwest grasslands include *Festuca roemeri* (Roemer's fescue), *Danthonia californica* (California oat grass), *Koeleria cristata* (prairie Junegrass), *Elymus glaucus* (blue wild rye), *Agrostis scabra* (rough bentgrass), and on cooler, high-elevation sites typical of coastal bluffs and balds, *Festuca rubra* (red fescue).

(B) On moist grasslands found near the coast and in the Willamette Valley, there may be *Bromus sitchensis* (Sitka brome) and *Deschampsia cespitosa* (tufted hairgrass) in the mix of prairie grasses. Less abundant forbs found on the grasslands include, but are not limited to, *Trifolium* spp. (true clovers), narrow-leaved plantain, harsh paintbrush, Puget balsam root, woolly sunshine, nine-leaved desert parsley, fine-leaved desert parsley, common camas, showy fleabane, Canada thistle, common yarrow, prairie lupine, and sickle-keeled lupine.

(ii) Primary larval host plants (narrow-leaved plantain and harsh paintbrush) and at least one of the secondary annual larval host plants (blue-eyed Mary, sea blush, or dwarf owl-clover) or one of several species of speedwell (marsh speedwell, American speedwell, or thymeleaf speedwell).

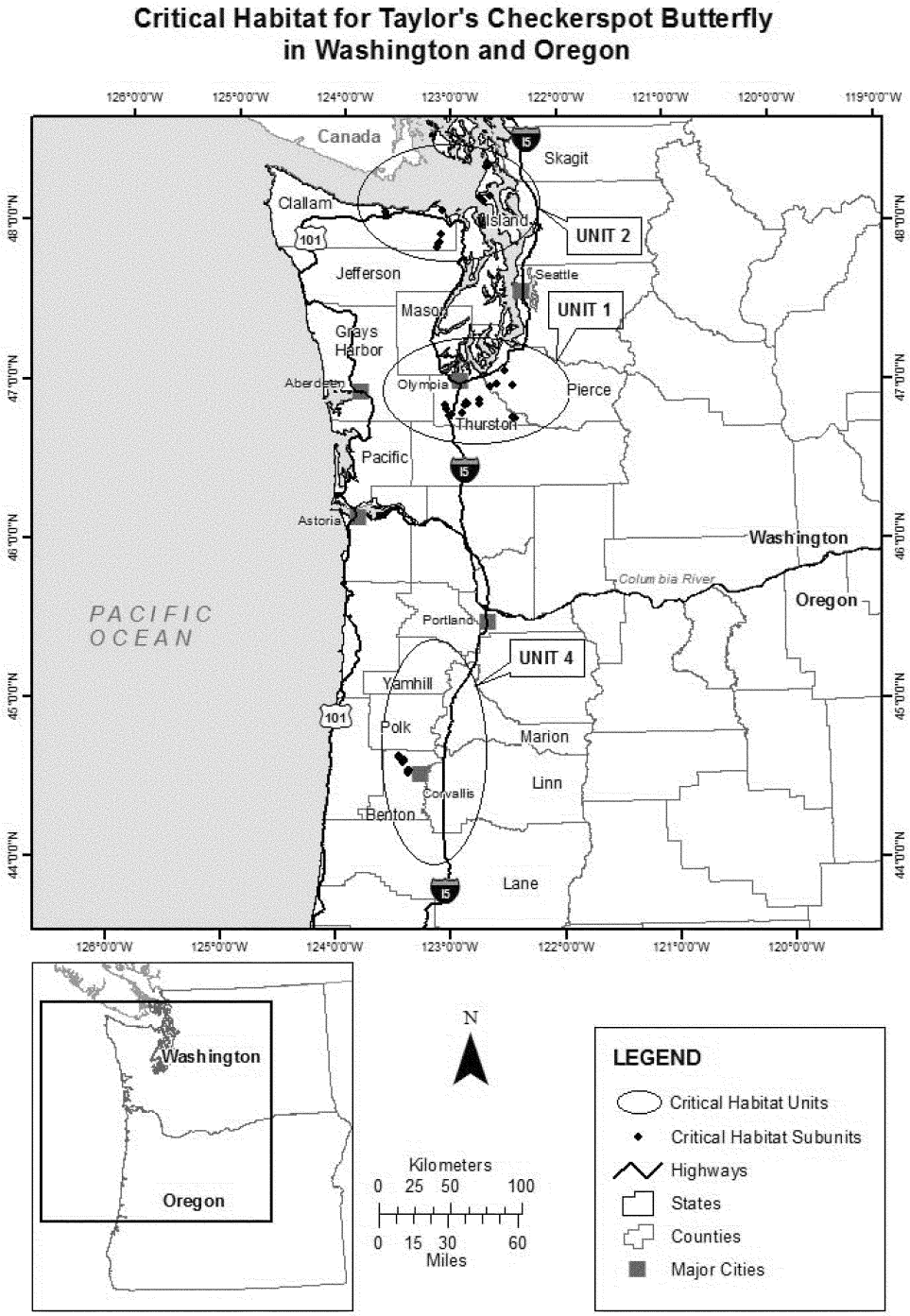
(iii) Adult nectar sources for feeding that include several species found as part of the native (and one nonnative) species mix on northwest grasslands, including: narrow-leaved plantain; harsh paintbrush; Puget balsam root; wooly sunshine; nine-leaved desert parsley; fine-leaved desert parsley or spring gold; common camas; showy fleabane; Canada thistle; common yarrow; prairie lupine; and sickle-keeled lupine.

(iv) Aquatic features such as wetlands, springs, seeps, streams, ponds, lakes, and puddles that provide moisture during periods of drought, particularly late in the spring and early summer. These features can be permanent, seasonal, or ephemeral.

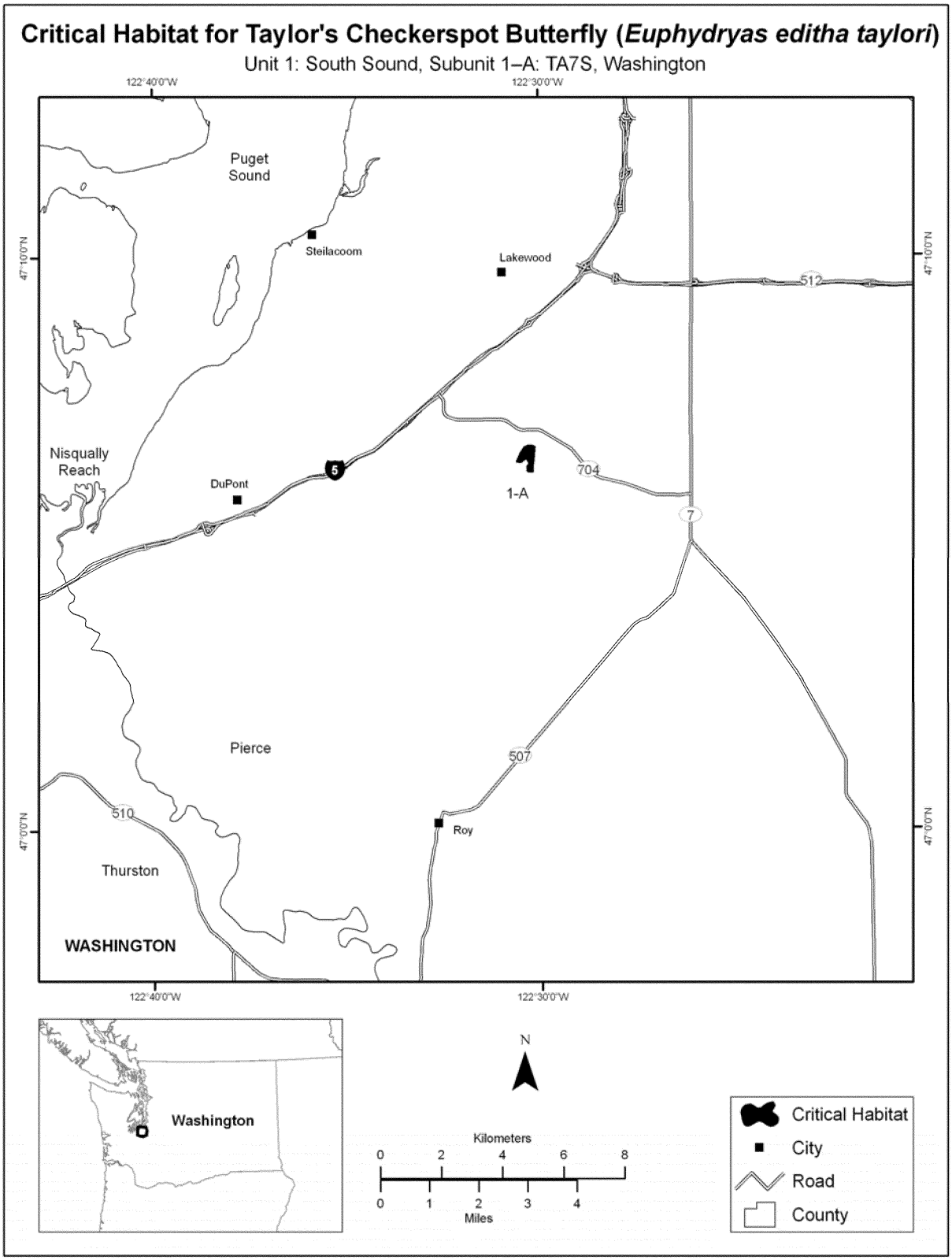
(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [DATE 30 DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE].

(4) *Critical habitat map units.* Data layers defining the map unit were created on 2010 aerial photography from U.S. Department of Agriculture, National Agriculture Imagery Program base maps using ArcMap (Environmental Systems Research Institute, Inc.), a computer geographic information system (GIS) program. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site, (*http://www.fws.gov/wafwo/*), the Federal eRulemaking portal (*http://www.regulations.gov* at Docket No. FWS–R1–ES–2012–0080), and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

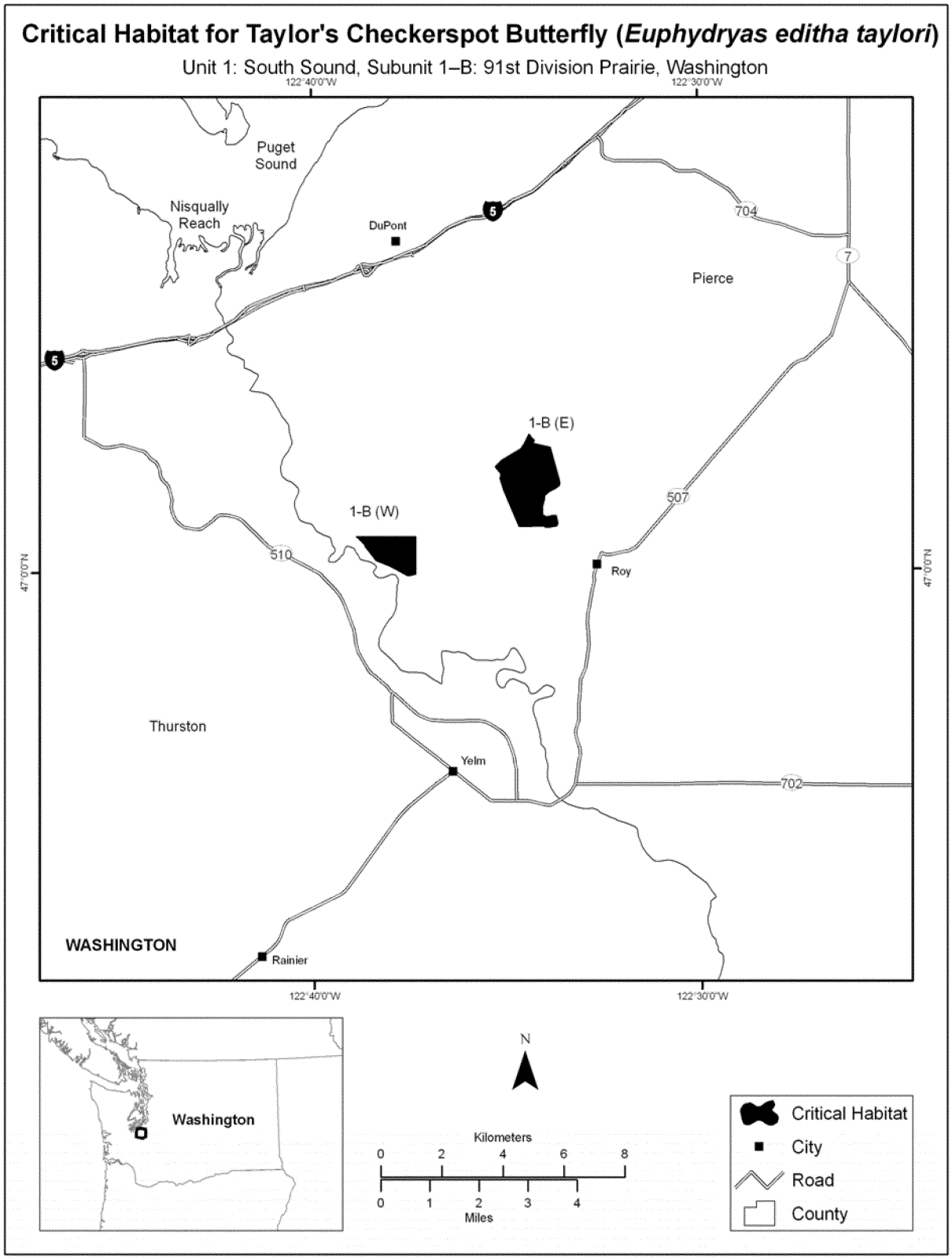
(5) **Note:** Index map follows:



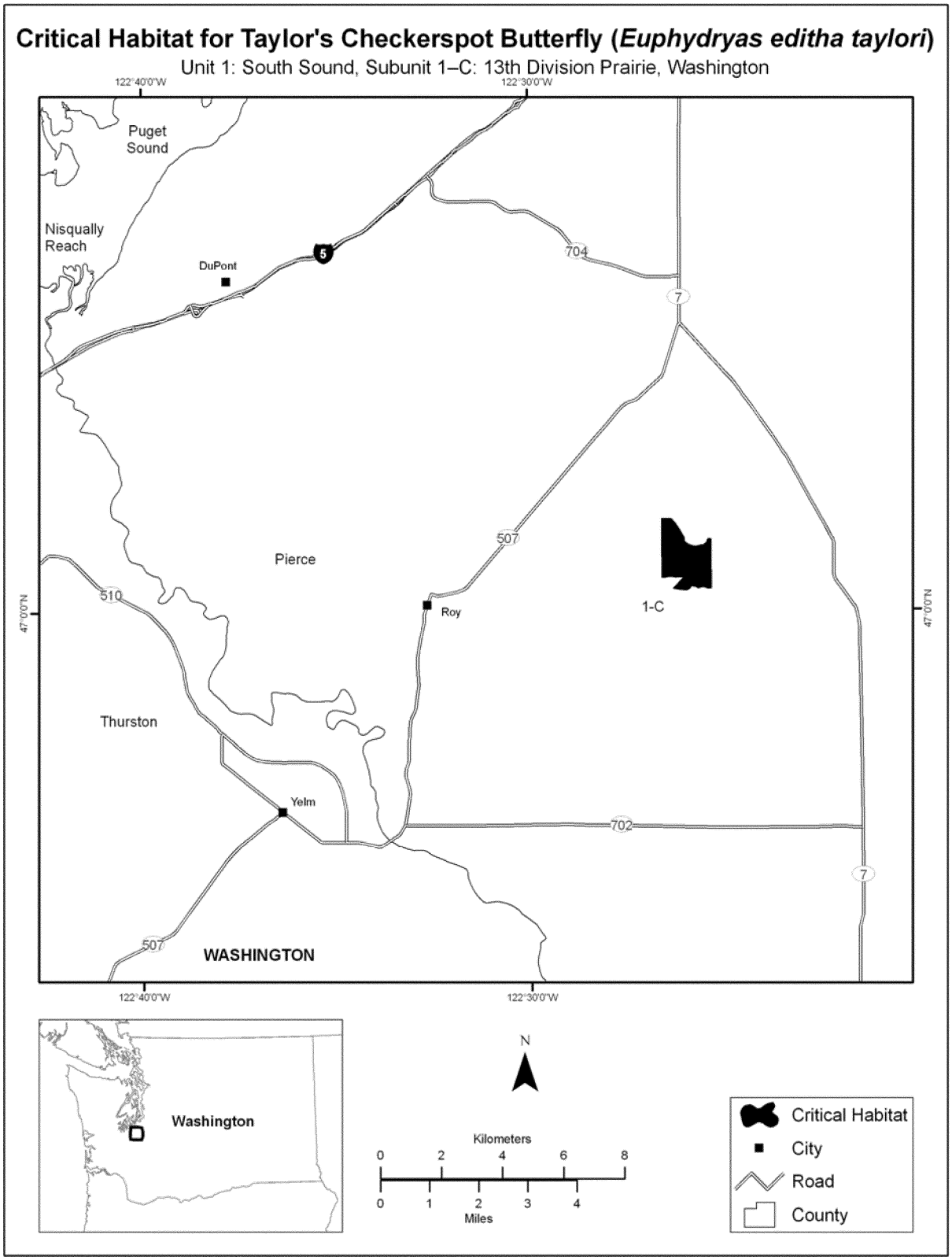
(6) Unit 1—South Sound, Subunit 1–A: TA7S, Pierce County, Washington. Map of Unit 1, Subunit 1–A follows:



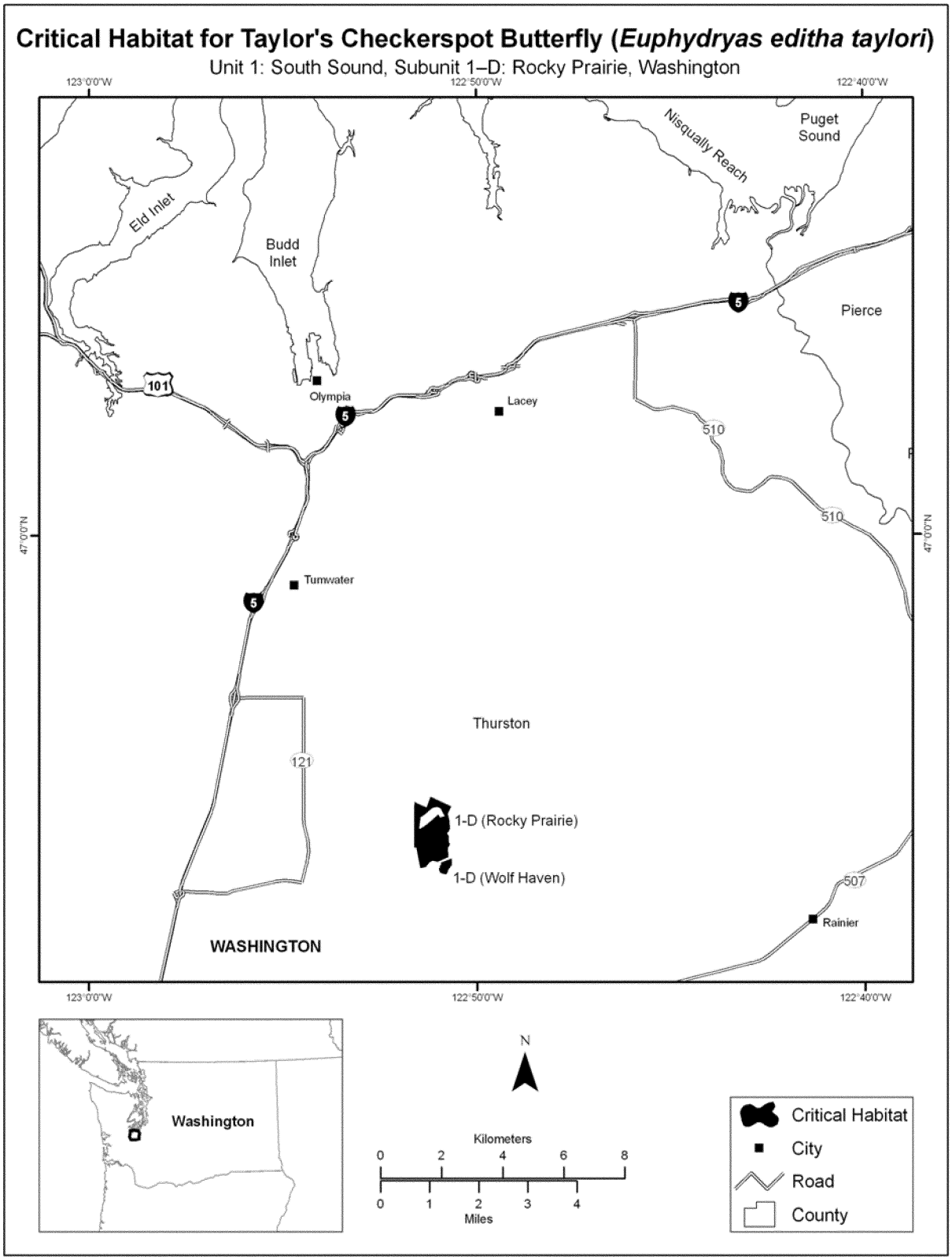
(7) Unit 1—South Sound, Subunit 1–B: 91st Division Prairie, Pierce County, Washington. Map of Unit 1, Subunit 1–B follows:



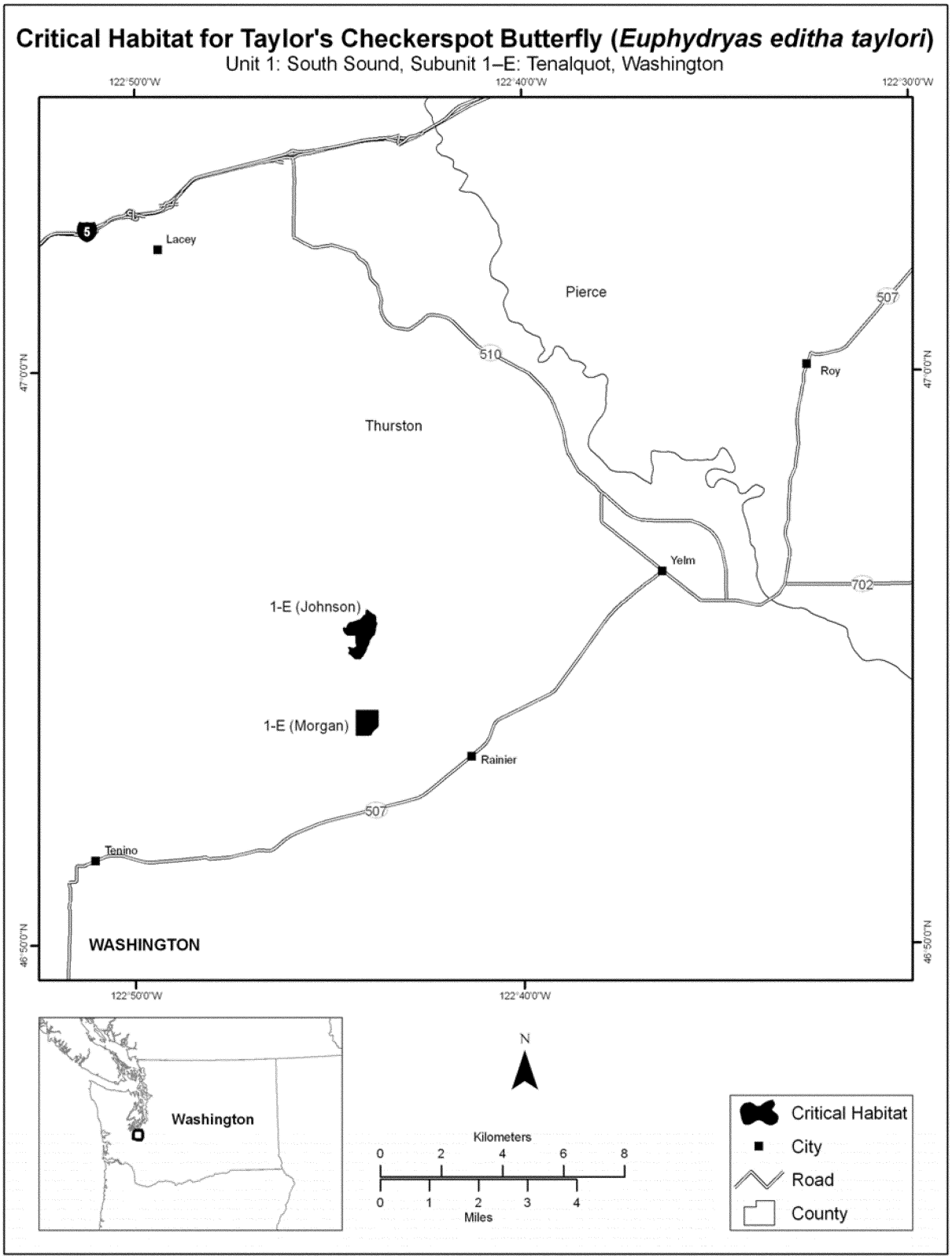
(8) Unit 1—South Sound, Subunit 1–C: 13th Division Prairie, Pierce County, Washington. Map of Unit 1, Subunit 1–C follows.



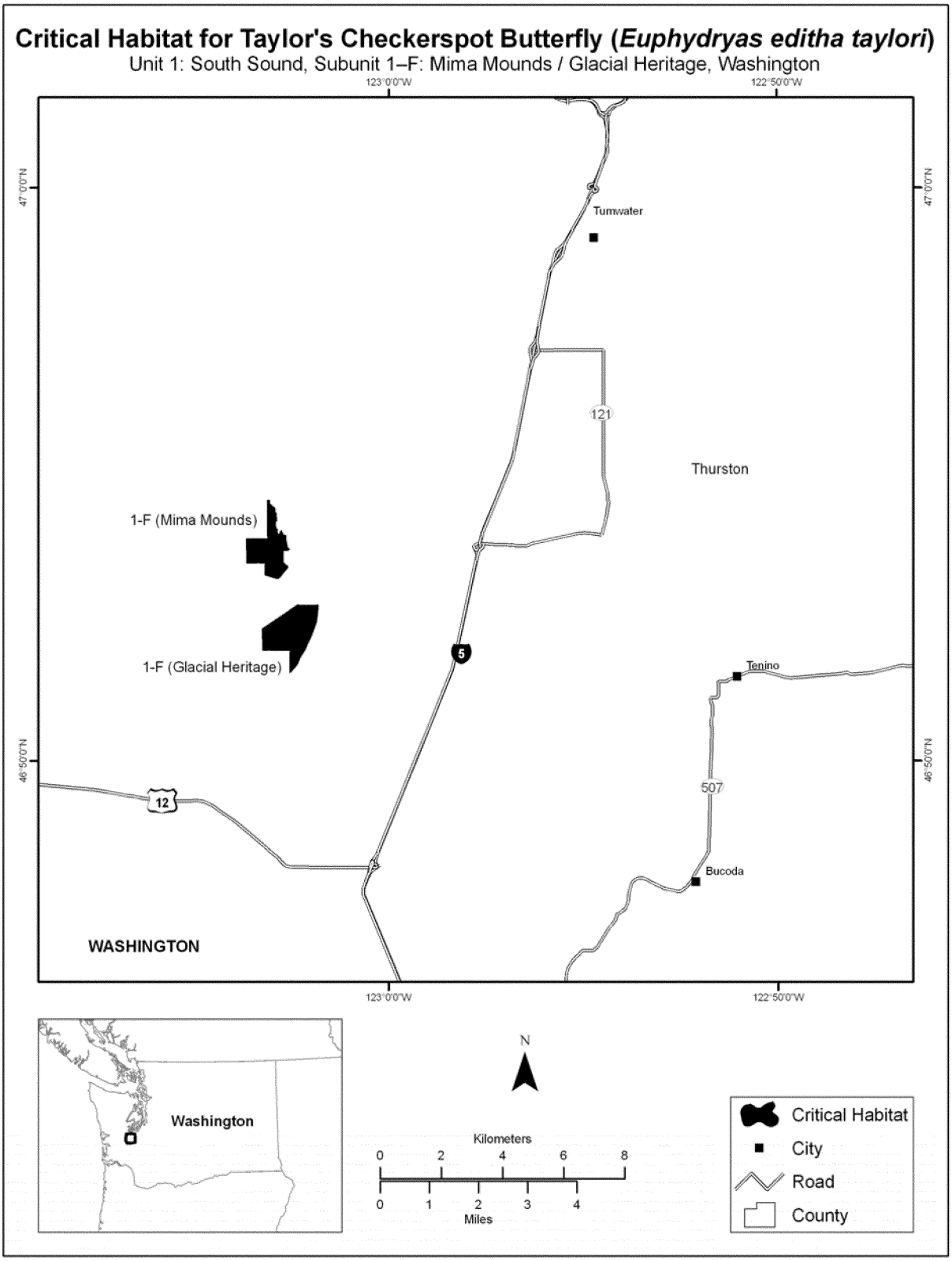
(9) Unit 1—South Sound, Subunit 1–D: Rocky Prairie, Thurston County, Washington. Map of Unit 1, Subunit 1–D follows:



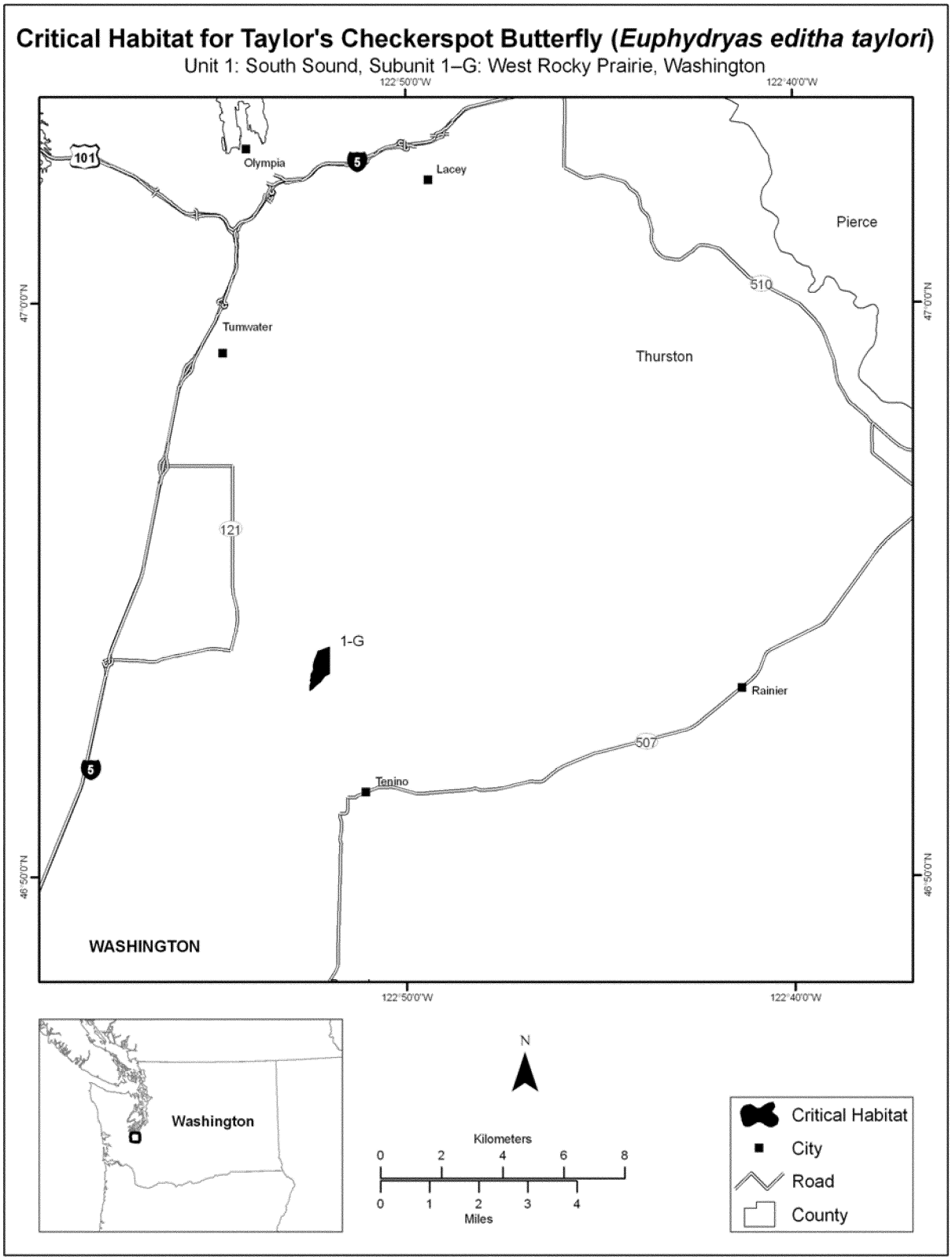
(10) Unit 1—South Sound, Subunit 1–E; Tenalquot, Thurston County, Washington. Map of Unit 1, South Sound, Subunit 1–E follows:



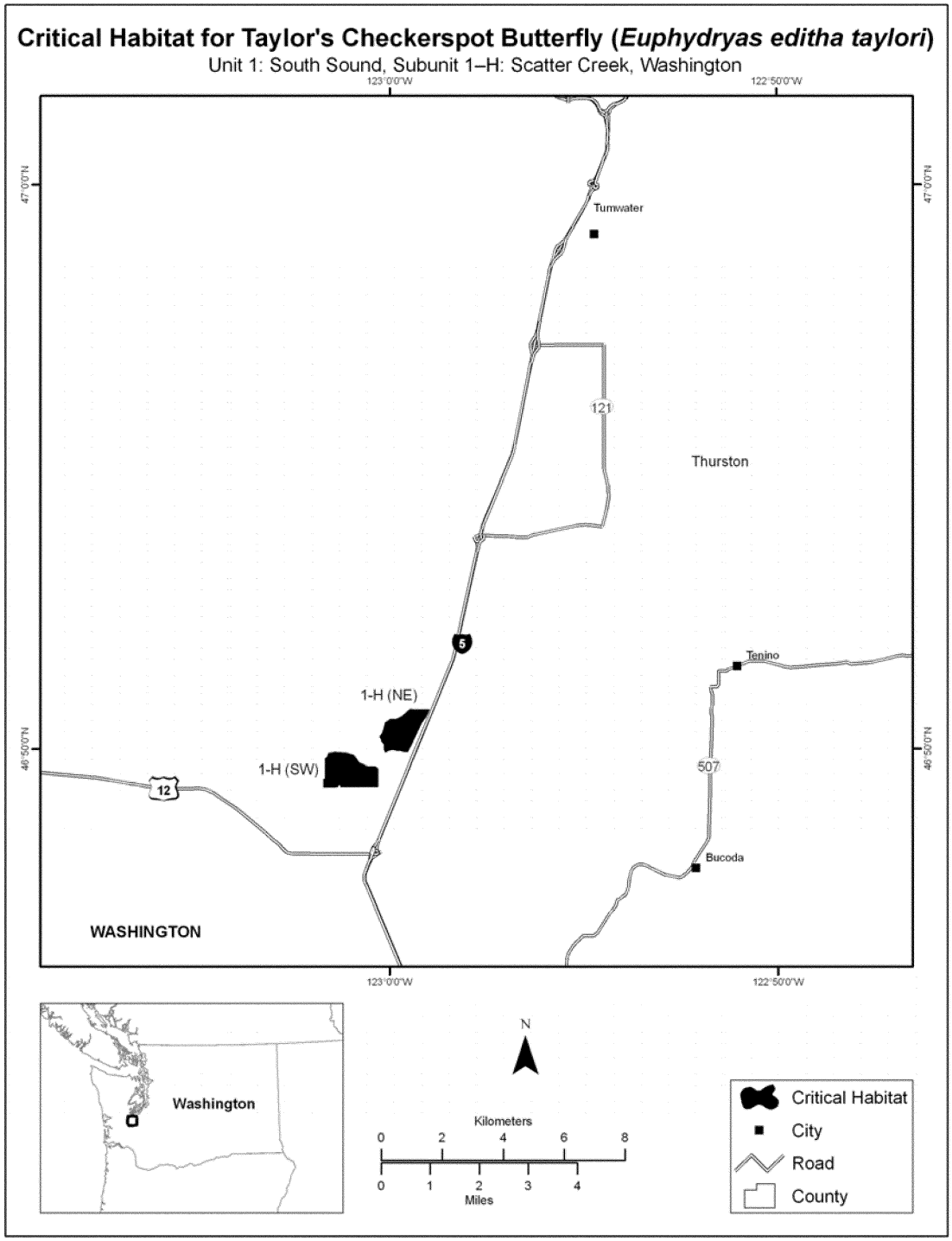
(11) Unit 1—South Sound, Subunit 1–F: Mima Mounds/Glacial Heritage, Thurston County, Washington. Map of Unit 1, Subunit 1–F follows.



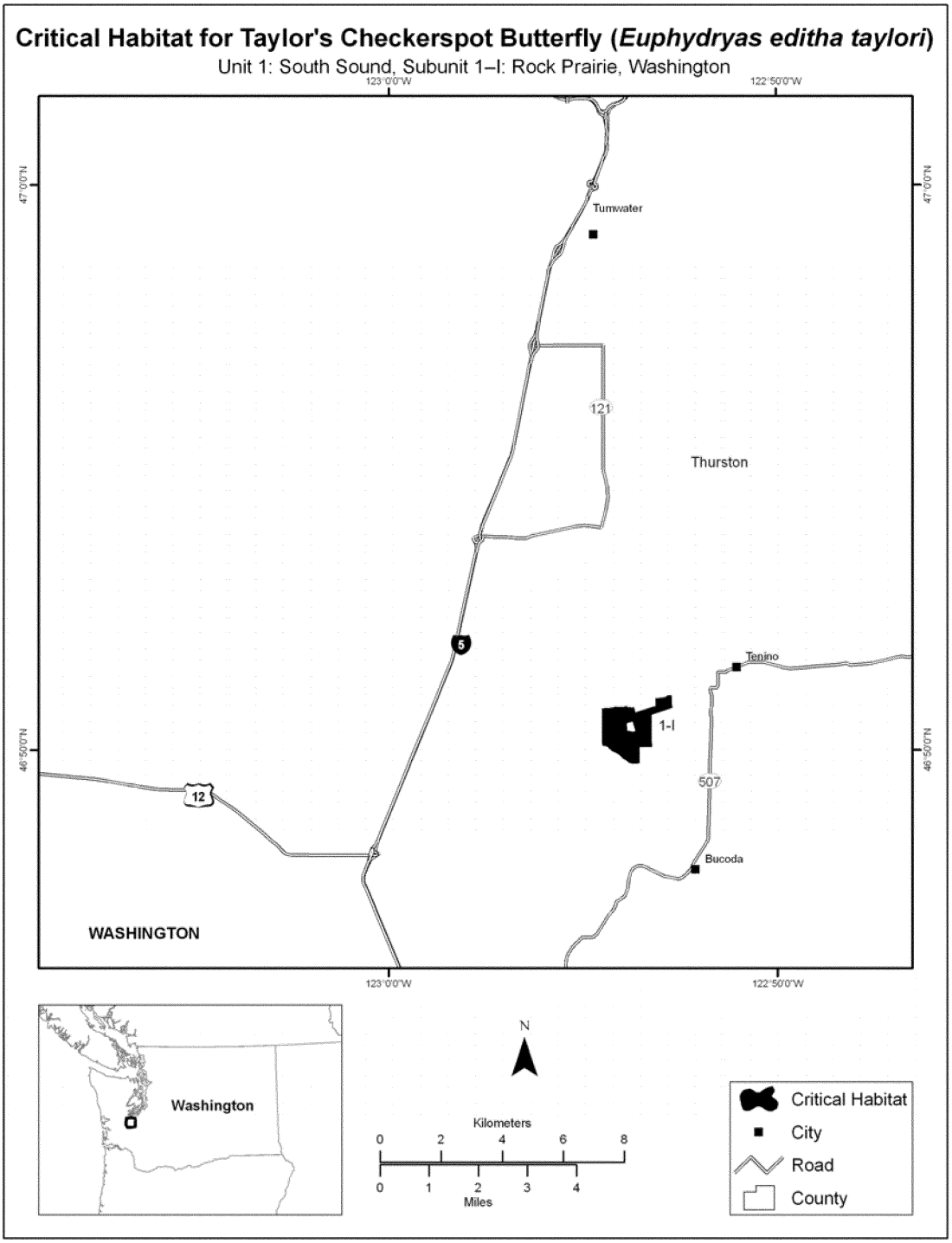
(12) Unit 1—South Sound, Subunit 1–G: West Rocky Prairie, Thurston County, Washington. Map of Unit 1, Subunit 1–G follows.



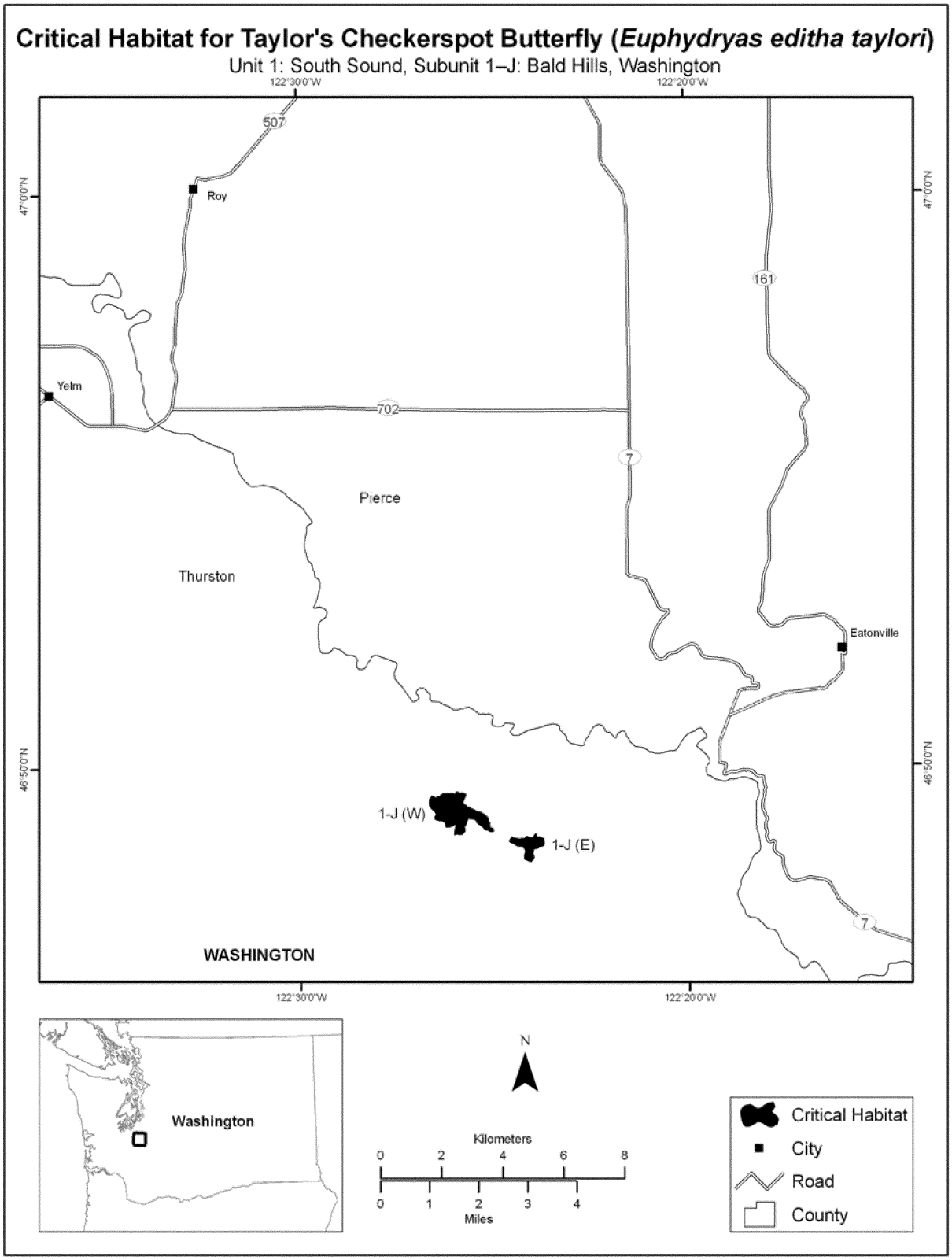
(13) Unit 1—South Sound, Subunit 1–H: Scatter Creek, Thurston County, Washington. Map of Unit 1, Subunit 1–H follows:



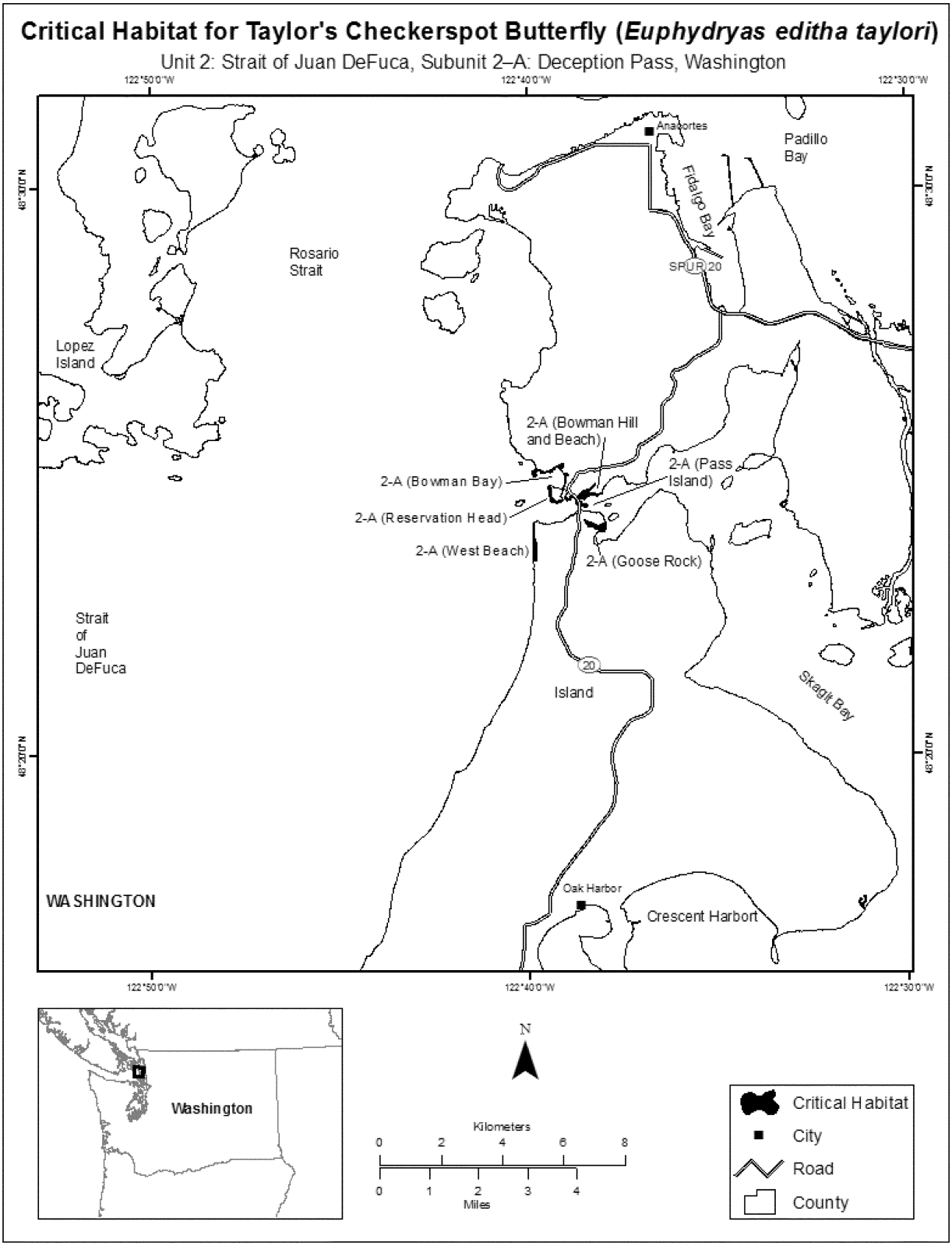
(14) Unit 1—South Sound, Subunit 1–I: Rock Prairie, Thurston County, Washington. Map of Unit 1, Subunit 1–I follows:



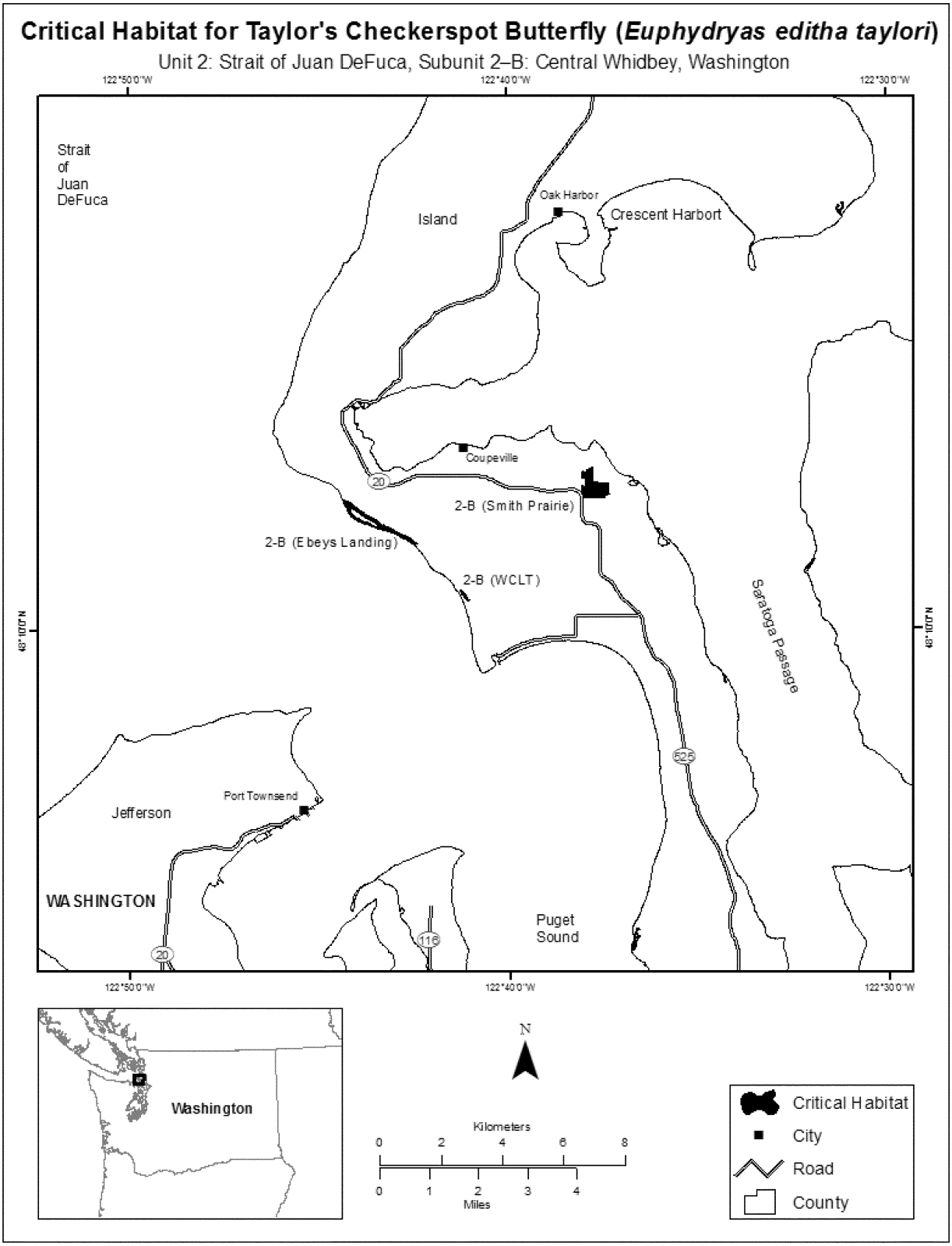
(15) Unit 1—South Sound, Subunit 1–J: Bald Hills, Thurston County, Washington. Map of Unit 1, Subunit 1–J follows:



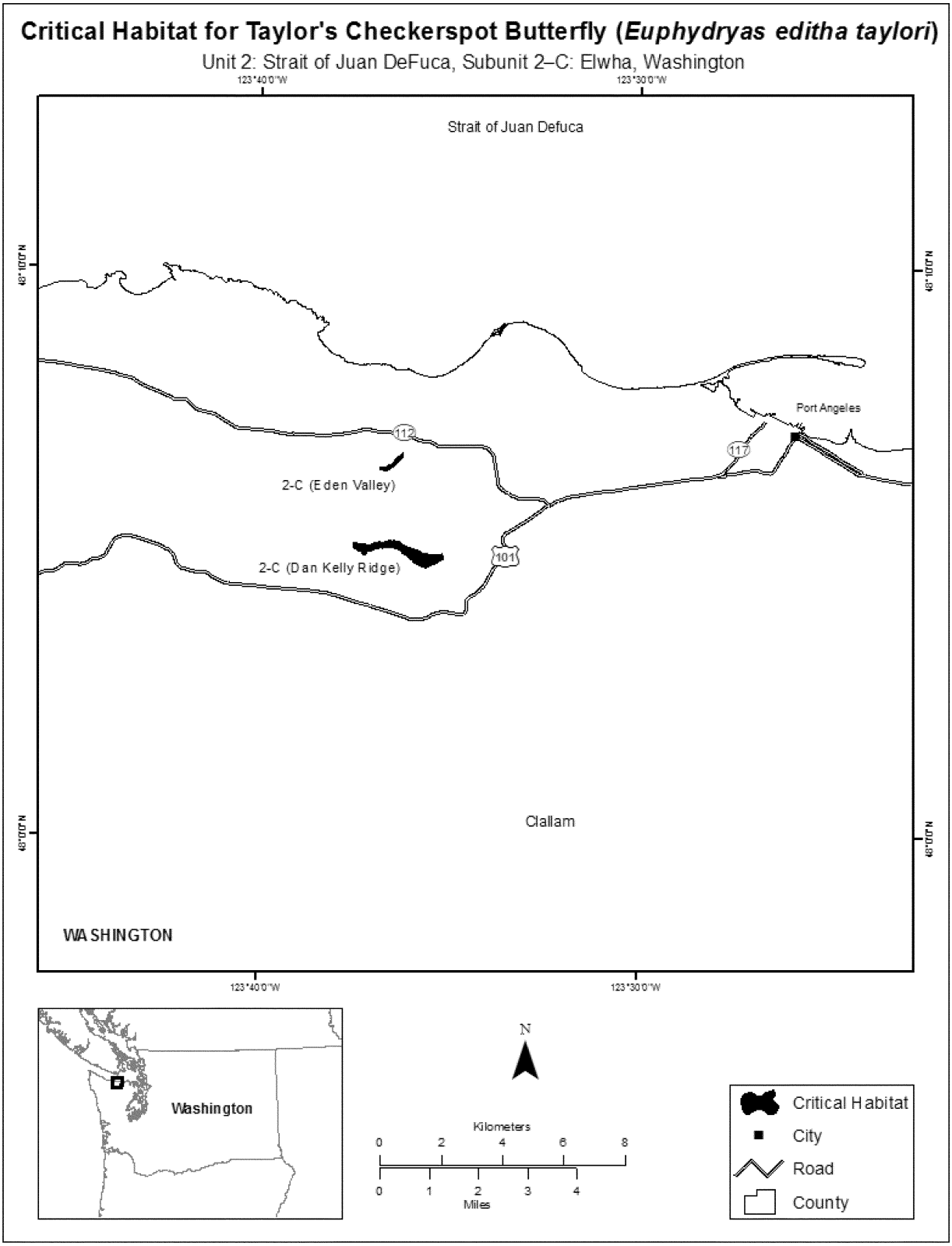
(16) Unit 2—Strait of Juan DeFuca, Subunit 2–A: Deception Pass, Island County, Washington. Map of Unit 2, Subunit 2–A, follows:



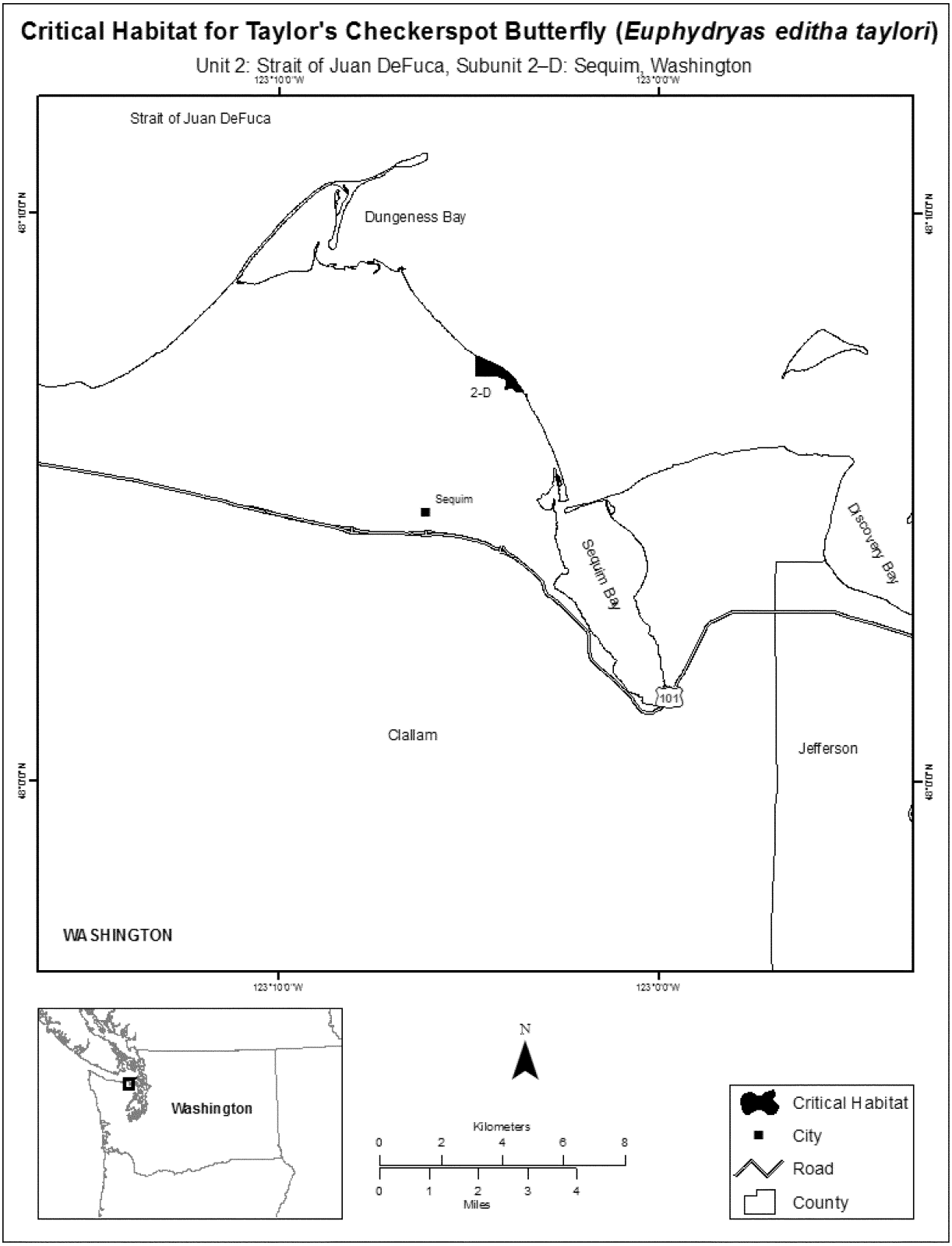
(17) Unit 2—Strait of Juan DeFuca, Subunit 2–B: Central Whidbey, Island County, Washington. Map of Unit 2, Subunit 2–B follows:



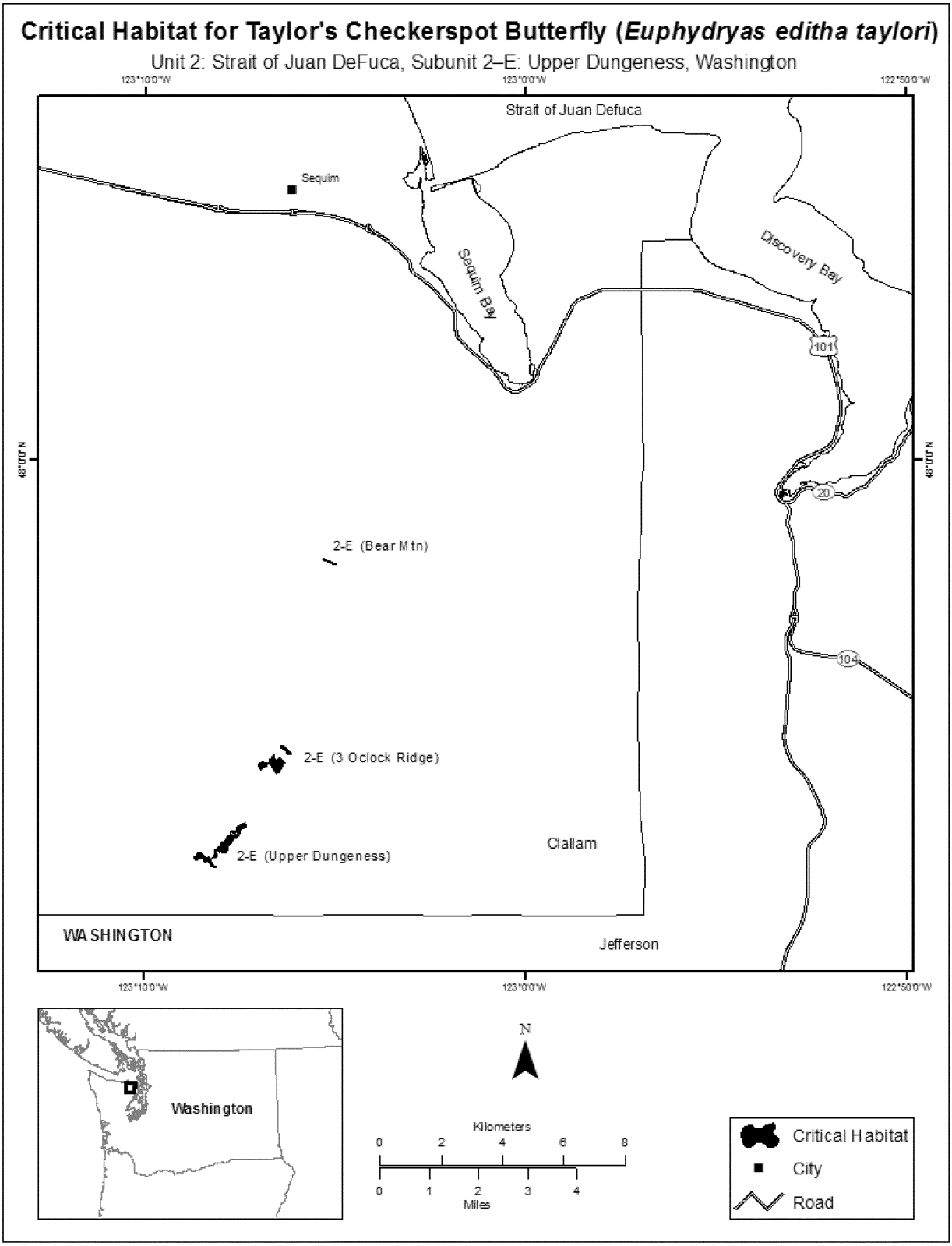
(18) Unit 2—Strait of Juan DeFuca, Subunit 2–C: Elwha, Clallam County, Washington. Map of Unit 2, Subunit 2–C follows:



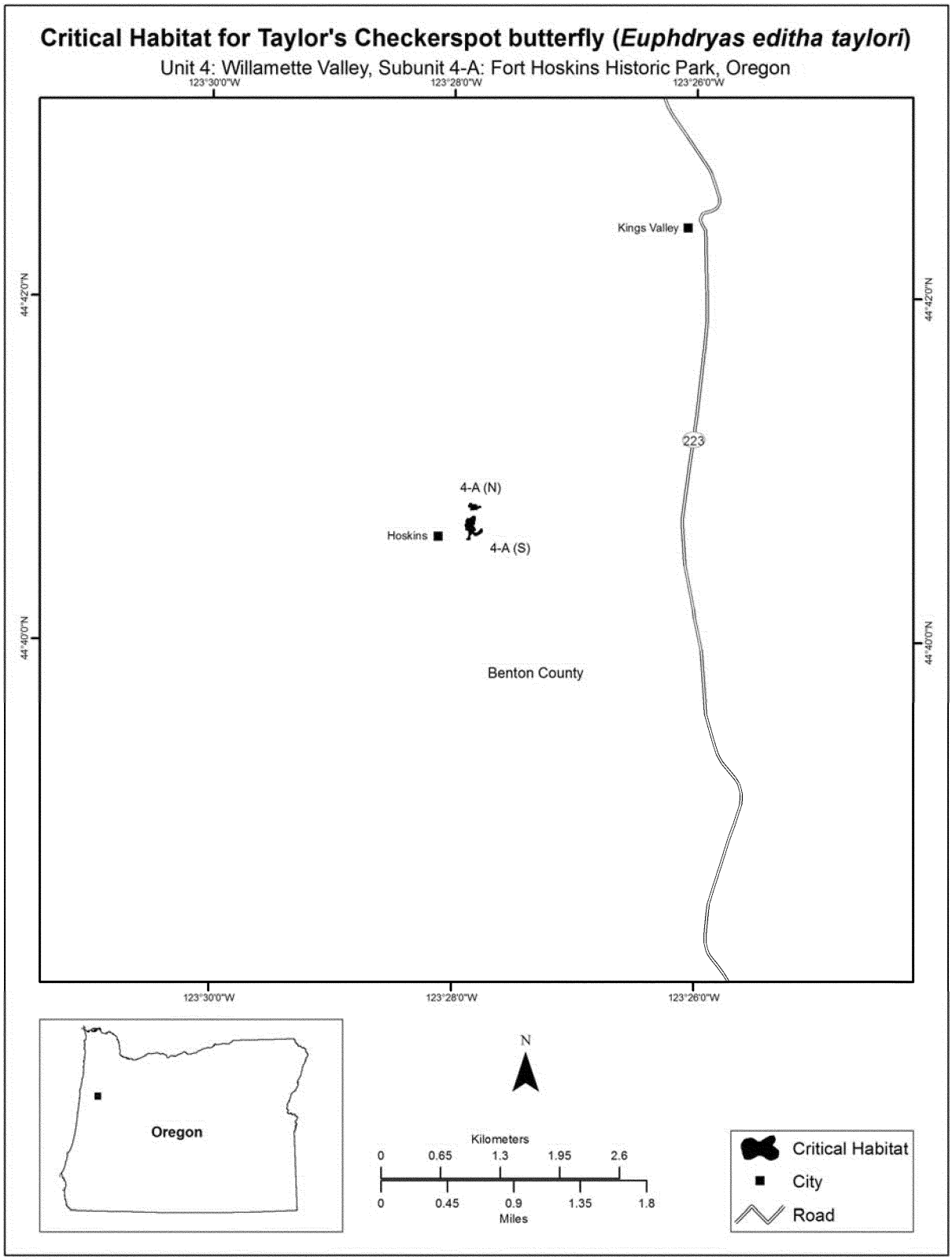
(19) Unit 2—Strait of Juan DeFuca, Subunit 2–D: Sequim, Clallam County, Washington. Map of Unit 2, Subunit 2–D follows:



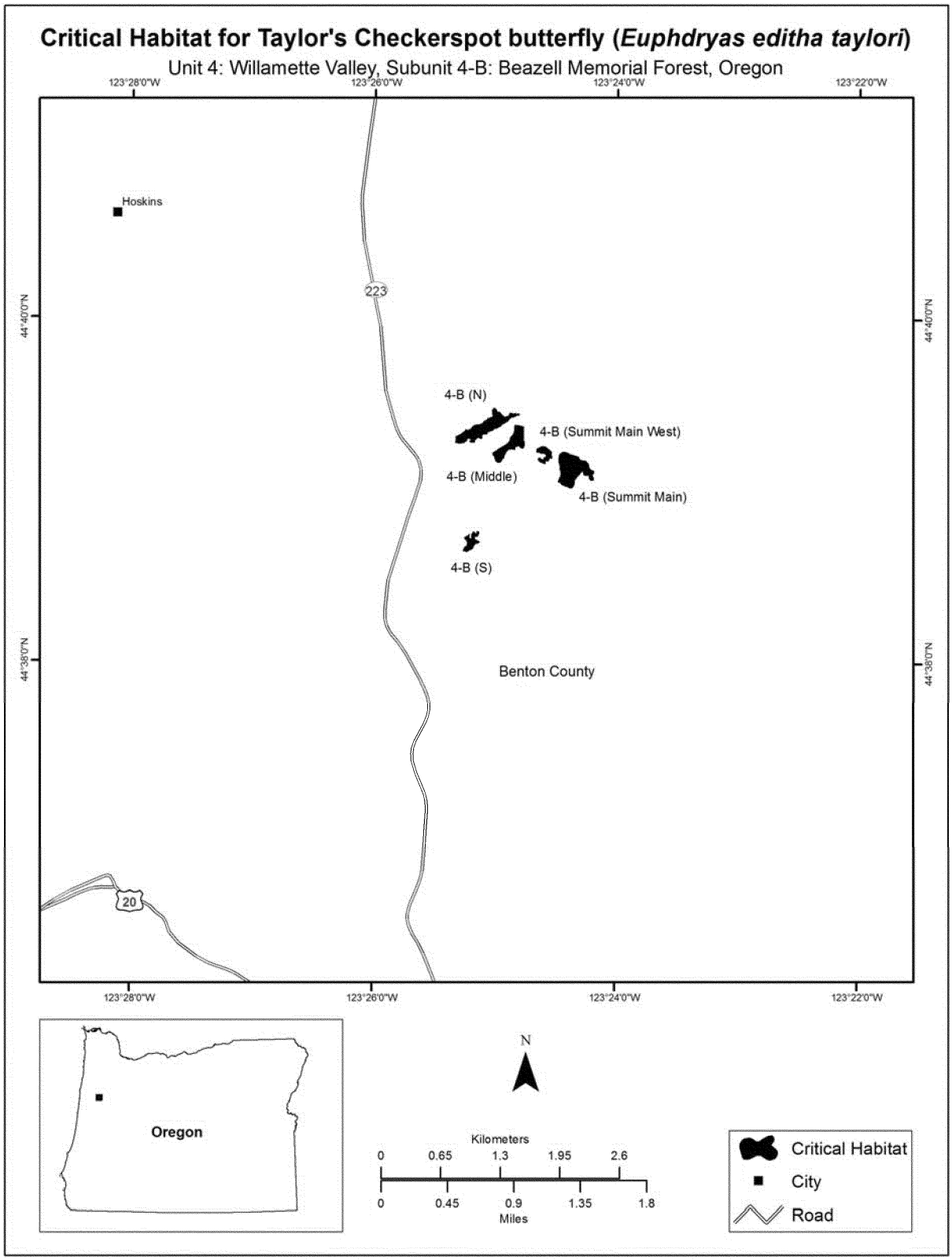
(20) Unit 2—Strait of Juan DeFuca, Subunit 2–E: Upper Dungeness, Clallam County, Washington. Map of Unit 2, Subunit 2- E, follows:



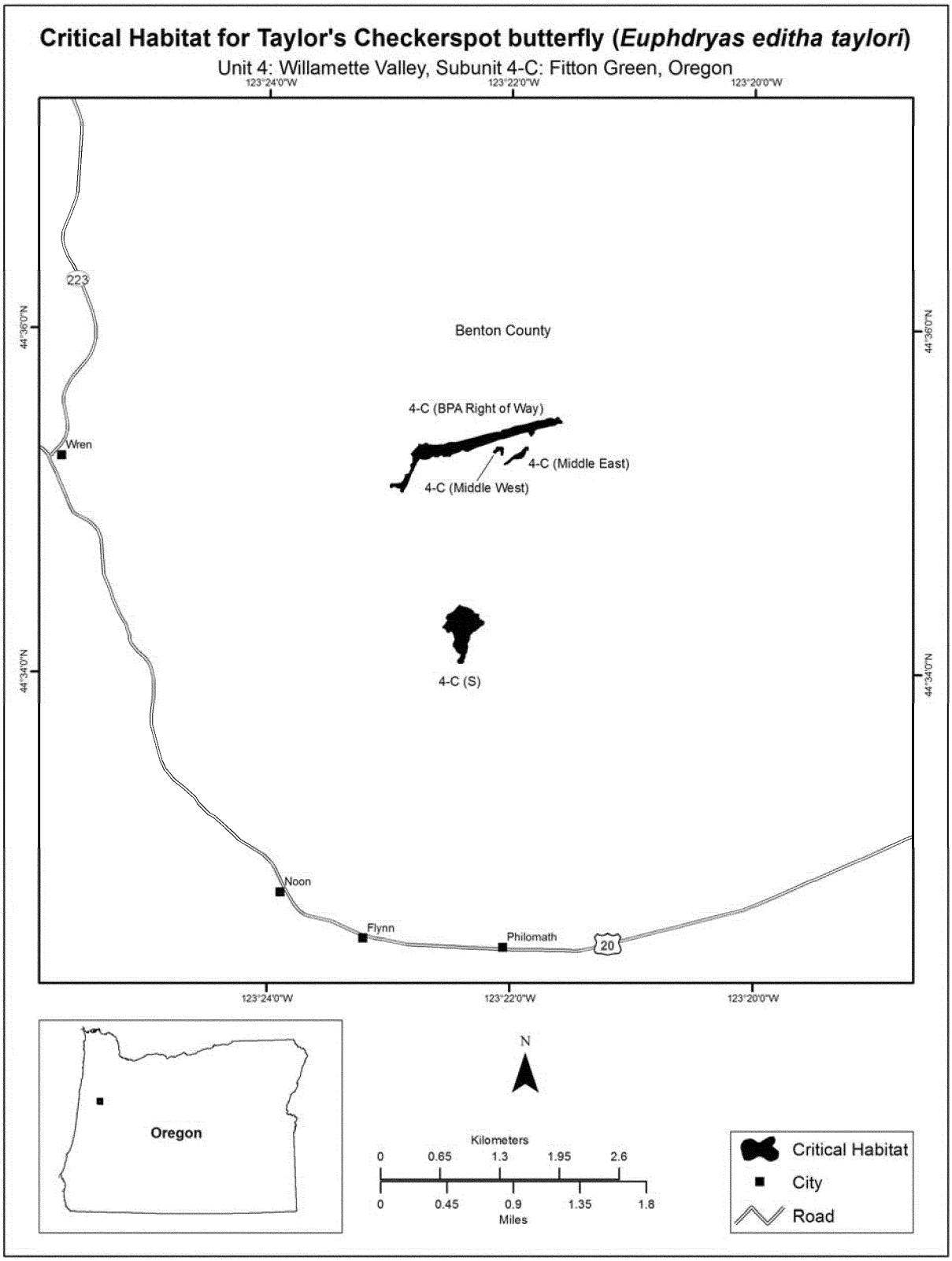
(21) Unit 4—Willamette Valley, Subunit 4–A: Fort Hoskins Historic Park, Benton County, Oregon. Map of Unit 4, Subunit 4–A follows:



(22) Unit 4—Willamette Valley, Subunit 4–B: Beazell Memorial Forest, Benton County, Oregon. Map of Unit 4, Subunit 4–B follows:



(23) Unit 4: Willamette Valley, Subunit 4–C: Fitton Green, Benton County, Oregon. Map of Unit 4, Subunit 4–C, follows:


Critical Habitat for Taylor's Checkerspot butterfly (*Euphdryas editha taylori*)
Unit 4: Willamette Valley, Subunit 4-C: Fitton Green, Oregon
123°24'0"W
123°22'0"W
123°20'0"W
44°36'0"N
44°34'0"N
223
Benton County
4-C (BPA Right of Way)
4-C (Middle East)
4-C (Middle West)
Wren
4-C (S)
Noon
Flynn
Philomath
20
Oregon
N
Kilometers
0
0.65
1.3
1.95
2.6
0
0.45
0.9
1.35
1.8
Miles
Critical Habitat
City
Road

* * * * *

Dated: September 27, 2012.

Eileen Sobeck,

Deputy Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2012–24465 Filed 10–10–12; 8:45 am]

BILLING CODE 4310–55–C