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# Yamhill Habitat Conservation Plan for Fender's Blue Butterfly on Private Lands

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This document was prepared for Yamhill SWCD

by staff at the Institute for Applied Ecology:

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## Executive Summary

This Habitat Conservation Plan (HCP) was submitted to the U.S. Fish and Wildlife Service (USFWS) by Yamhill Soil and Water Conservation District (Yamhill SWCD) to allow Yamhill SWCD to receive an incidental take permit under the Endangered Species Act section 10(a)(1)(B) for Fender's blue butterfly. Private landowners who wish to be covered under this incidental take permit may apply for a Certificate of Inclusion to the permit after signing a Cooperative Agreement with Yamhill SWCD. This will allow landowners within identified butterfly habitat in Yamhill County to continue to perform otherwise lawful activities which have the potential to impact Fender's blue butterfly. To compensate for impacts, Yamhill SWCD will work with participating landowners to minimize and mitigate their impacts. The incidental take permit will be in effect for 50 years.

The vision of the HCP is to achieve long term viability of Fender's blue butterfly populations while at the same time allowing landowners to manage their properties for economic return and general livability.

### Plan Goals:

- Maintain viable populations of Fender's blue butterfly in Yamhill County.
- Demonstrate the ability of voluntary actions on private lands to promote endangered species preservation and prairie habitat conservation.
- Facilitate and simplify fulfillment of Endangered Species Act protections and regulations on private lands.

This HCP focuses on 3,169 ha (7,831 ac) of privately owned lands with upland prairie habitat in Yamhill County that are within butterfly flight distance (2 km or 1.2 mi) of known Fender's blue populations. These rural lands encompass at least part of 506 taxlots, and support a variety of agricultural activities, some of which have the potential to impact butterfly habitat. Activities proposed for coverage under the HCP (Covered Activities) include:

- Forage production
- Livestock grazing
- Vineyard establishment
- Timber establishment
- Voluntary habitat restoration
- HCP implementation (mitigation/monitoring)

Total impacts or "take" of the butterfly is measured in the quantity of the butterfly's host plants (Kincaid's lupine) and nectar resources that are harmed. These impacts are projected based on the acreage of butterfly habitat where the Covered Activities occur, and the average abundance of Kincaid's lupine and nectar plants in those affected areas. The resulting estimate is the maximum amount of impact that cannot be exceeded in the permit for the entire Plan Area for the 50-year permit term.

### Maximum estimated impacts to Fender's blue butterfly habitat components (measured in ground cover for lupine and grams of sugar in flower nectar)

	Kincaid's Lupine	Native Nectar (g sugar)	Exotic Nectar (g sugar)
Forage production	0.01 ac (50 m <sup>2</sup> )	79	166
Pasture/Livestock grazing	0.16 ac (657 m <sup>2</sup> )	74	156
Vineyard establishment	0.63 ac (2,562 m <sup>2</sup> )	126	266
Timber establishment	0.10 ac (398 m <sup>2</sup> )	45	94
Total	0.91 ac (3,667 m <sup>2</sup> )	324	682

The biological goal of this HCP is to maintain viable populations of Fender's blue butterfly within Yamhill County. With implementation of the Best Management Practices (BMPs) in the HCP, the Yamhill SWCD hopes to decrease the amount of impacts that occur and reduce the mitigation that is required.

Objectives to reach the biological goal include:

- Promote conservation of Fender's blue butterfly and its habitat at sites with the species.
- Enhance suitable habitat at occupied sites to increase populations of Fender's blue butterfly.
- Expand existing Fender's blue butterfly networks and promote new independent populations of the species in Yamhill County.

Each objective will be accomplished through a set of Conservation Measures. Conservation Measures are the actions proposed to avoid, minimize, and mitigate for impacts to the Covered Species resulting from the Covered Activities, in accordance with the HCP's biological goal. Conservation measures in the HCP include:

- Identify population locations on the lands of private landowners who are interested in conserving the species.
- Offer outreach and education regarding prairie habitat conservation and management.
- Promote avoidance and minimization of impacts to Fender's blue butterfly and its habitat.
- Promote Best Management Practices at sites with populations of Fender's blue butterfly.
- Coordinate conservation actions to mitigate Fender's blue butterfly habitat losses.
- Identify potential locations to expand existing butterfly networks or promote new independent populations in Yamhill County.

If impacts to the Covered Species cannot be avoided, mitigation through habitat restoration and enhancement will be completed at a Yamhill SWCD coordinated mitigation site under permanent conservation easement. In some cases, limited on-site mitigation through habitat protection or enhancement may also occur. All mitigation sites will, at a minimum, have the correct vegetation structure, possess suitable upland prairie soils and be located within current or historic prairie habitat without significant cover (e.g., >30%) of List A or B noxious weeds in the prairie area to be protected or enhanced.

Mitigation requirements will vary according to:

- type of impact (temporary or permanent);
- type of mitigation to be implemented- habitat protection or habitat enhancement;
- mitigation site status (site under permanent conservation easement/deed restriction or lacking such protection);
- the habitat quality at the impact site and at the mitigation site; and
- for some activities, the degree to which impacts are avoided and minimized.

The Yamhill SWCD will adopt a monitoring and adaptive management program to allow changes in the Conservation Measures to reach the long-term biological goal of the HCP, and thus to contribute to the survival and recovery of the species.

Overall responsibility for implementation of the HCP lies with the Yamhill SWCD Board of Directors. Most tasks will be delegated to staff. An HCP Coordinator from Yamhill SWCD will lead plan administration, implementation, monitoring, and reporting.

During development of the HCP, Yamhill SWCD considered covering additional species, activities, and lands, as well as a no action (no HCP) alternative.

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# 1 Introduction

## 1.1 Background

The majority of land in the United States is privately owned, making stewardship by private landowners critical to the well-being of our natural resources. Across the country, Soil and Water Conservation Districts (SWCDs; also called Regional Conservation Districts-or Soil Conservation Districts) are located in nearly every county of every state. These SWCDs work to enable local natural resource conservation projects by providing information on Best Management Practices and helping to connect landowners to Federal, State or local conservation assistance and funding sources. This Habitat Conservation Plan (HCP) is undertaken by the Yamhill SWCD to assist Yamhill County private landowners with endangered species habitat conservation on their lands.

Yamhill County is located in the northwestern part of Oregon's Willamette Valley Ecoregion (Figure 1.1). Prior to Euro-American settlement in the mid 1800's, this valley was dominated by native grassland prairie and oak savanna habitats (Habeck 1961; Figure 1.2). Almost all native upland prairies, wet prairies, and oak savanna habitats have vanished in the Willamette Valley Ecoregion, with less than 0.5% remaining (Figure 1.3) (Ingersoll et al. 1991). Much of the habitat loss in the Willamette Valley has occurred due to conversion of native habitats to agricultural crops and urbanization, introduction of invasive species, and elimination fire regimes that historically kept woody vegetation (trees and shrubs) from dominating the habitat (ODFW 2006). The majority of remaining prairie habitat is located on privately owned lands (Alverson 2005).

With the decline in prairie and savanna habitat, several native species dependent on prairie habitats have become critically rare, among them Fender's blue butterfly (*Icaricia icarioides fenderi*). Fender's blue is now listed under the Federal Endangered Species Act (ESA) as an endangered species. With ESA listing come protections against harming the butterfly or parts of its habitat essential to its survival. Critical elements of Fender's blue habitat include its larval (caterpillar) host plant, Kincaid's lupine (*Lupinus oreganus*), also a threatened species, and several native nectar plant species that provide food for adult butterflies (Chapter 2: Covered Species). Regulations to protect endangered species can restrict activities on private lands, and impede the landowner's ability to perform regular activities like haying or grazing livestock. Regulations and inflexible restrictions can create a negative outlook towards endangered species and habitat conservation, decreasing the enthusiasm of private landowners to take actions to conserve the species, and potentially contributing to their decline (Fischer & Bliss 2008, Kaye et al. 2011).

While the Federal ESA makes it illegal to negatively impact listed animal species (known as "take"), a permit (called an incidental take permit) can be issued by the U.S. Fish and Wildlife Service (USFWS) that allows a limited amount of incidental take if the following conditions are met:

- The taking will be incidental;
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such takings;
- The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided;
- The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;
- The measures, if any, required under § 17.22 paragraph (b)(1)(iii)(D) will be met; and

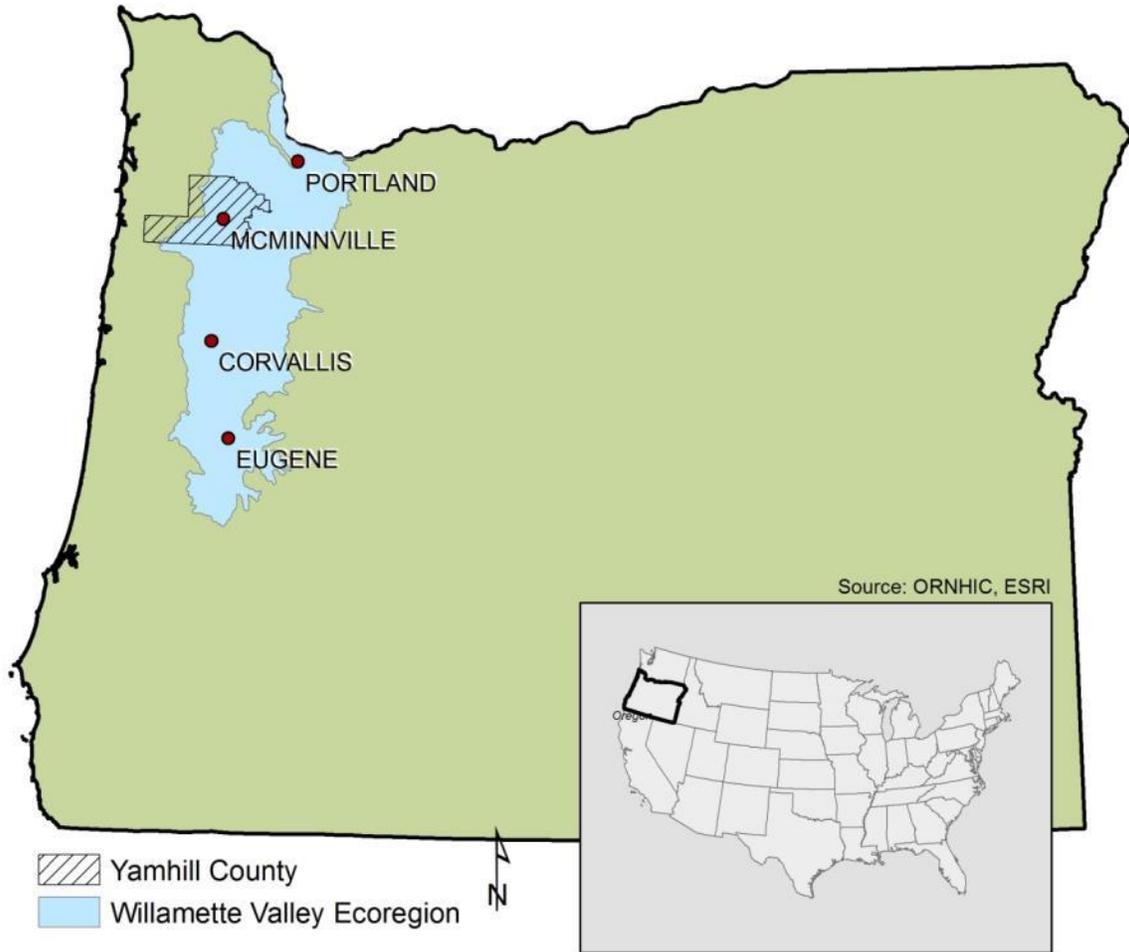


Figure 1.1 Yamhill County and the Willamette Valley Ecoregion of Oregon.

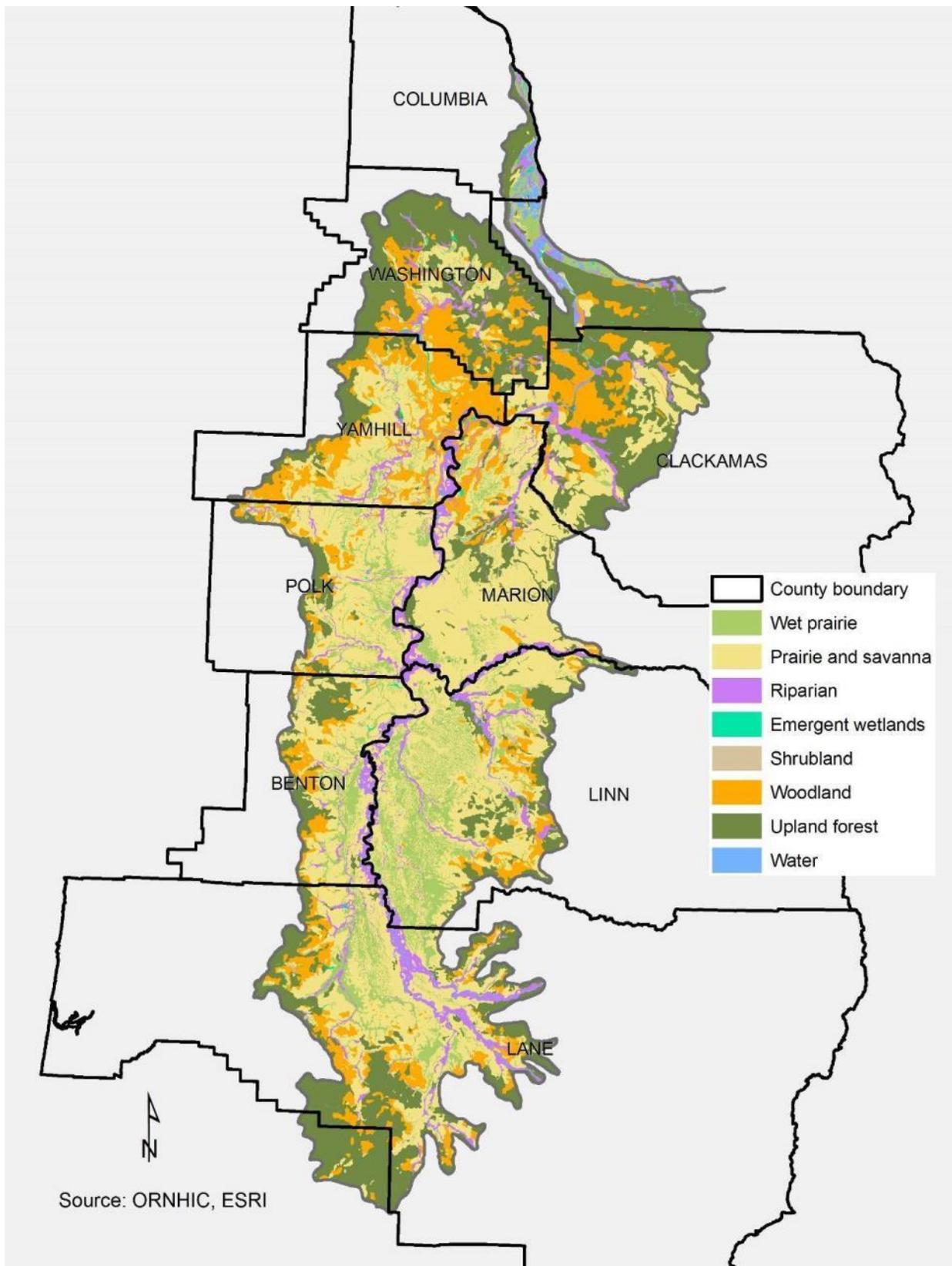


Figure 1.2 Historic prairie habitat in the Willamette Valley.

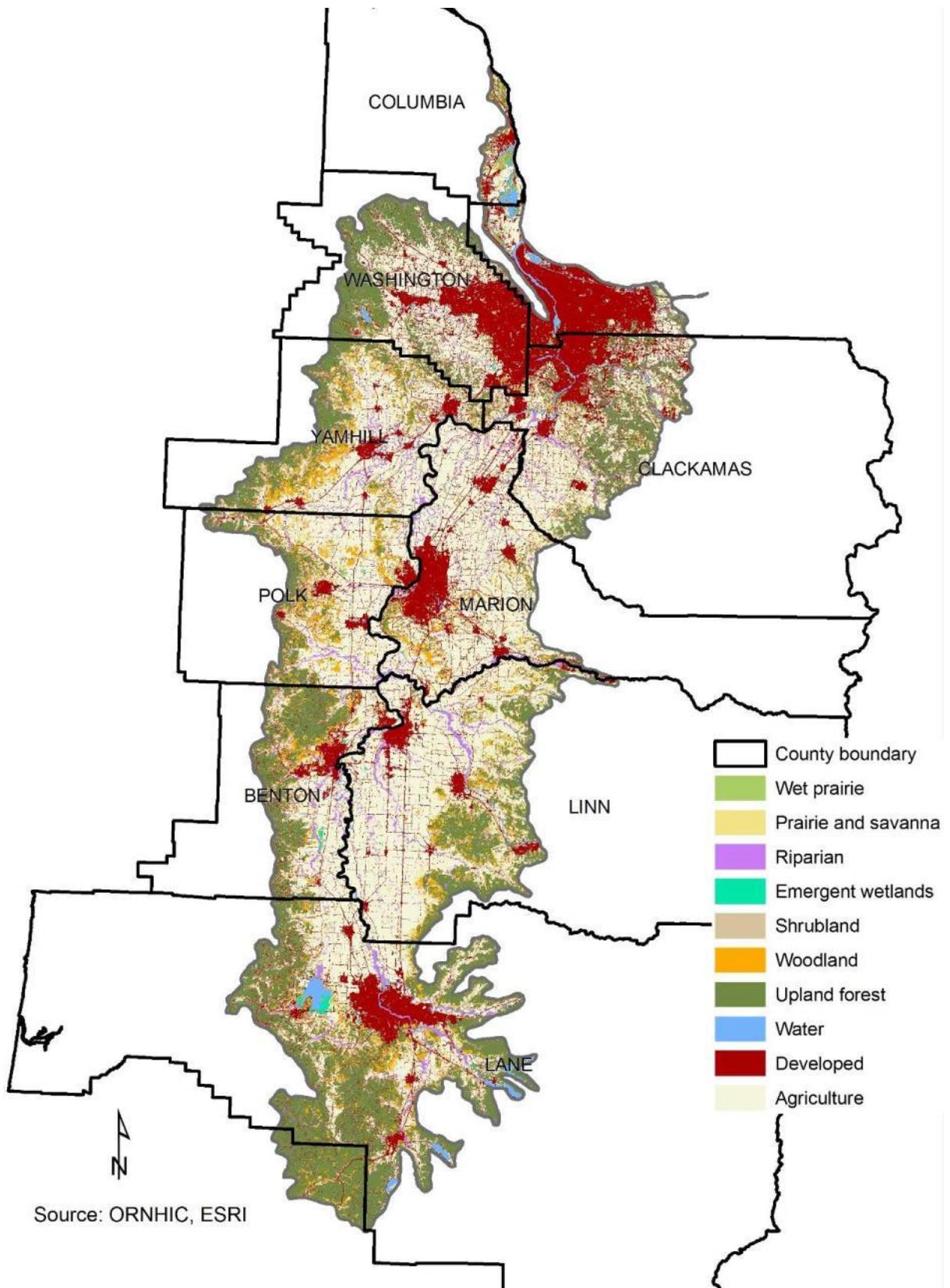


Figure 1.3 Remaining prairie habitat within the Willamette Valley.

- The USFWS has received such other assurances as it may require that the plan will be implemented.

The economy of Yamhill County is largely dependent on agriculture and forestry (Globalwise, Inc. 2008). Though some aspects of agricultural processes may be beneficial or neutral to prairie habitats (e.g., mowing for hay or well managed livestock grazing), others (e.g., conversion of prairie to vineyard or forest) will likely result in permanent destruction of Fender's blue butterfly habitat. Likewise, abandonment of prairie pasture habitats currently managed by grazing or regular mowing may also result in habitat loss due to encroachment from exotic weeds and shrubby species. In many cases, private landowners can avoid impacts to Fender's blue butterfly and its habitat, however in other cases, avoidance may be difficult or costly. The Yamhill SWCD is seeking an incidental take permit from the USFWS to allow participating private landowners to perform activities that have the potential to impact Fender's blue butterfly and its habitat. The Yamhill SWCD and private landowners are required by law to comply with the Federal ESA; if an incidental take permit from the USFWS is not obtained (via the Yamhill SWCD HCP or other means), all impacts must be avoided.

## **1.2 Purpose of the Plan**

This HCP identifies a set of Covered Activities to occur within the Plan Area that will result in impacts to Fender's blue butterfly, the Covered Species. The HCP quantifies the impacts projected to result from the Covered Activities over the 50-year permit term and identifies Conservation Measures to offset these impacts. The Conservation Measures outline how landowners participating in the HCP can avoid, minimize, and mitigate for their impacts to Fender's blue butterfly on private lands in Yamhill County. Private landowners who wish to participate in the HCP must agree to perform Conservation Measures as described in the HCP.

This HCP includes coverage for persons who:

- Own property in HCP Plan Area;
- Choose to partner with and obtain incidental take coverage from the Yamhill SWCD; and
- Wish to complete Covered Activities that are likely to affect Fender's blue butterfly and its habitat.

In return for developing this plan, the USFWS will issue the Yamhill SWCD an Incidental Take Permit, which authorizes a limited amount of impacts to the butterfly and its habitat, so long as the terms of the HCP are met. This plan outlines Best Management Practices that allow farm activities such as mowing, haying or livestock grazing to occur without negative impacts to Fender's blue, and in some cases, even produce a benefit to the butterfly. Where avoidance of impacts is not feasible, landowners partnering with the Yamhill SWCD may complete their activities under the protection of Yamhill SWCD's incidental take permit, issued by the USFWS. As needed, the Yamhill SWCD will help direct landowners to offset their impacts through restoring or managing habitat for the butterfly elsewhere on their property or on other lands nearby. Obtaining take coverage under the Yamhill SWCD's permit will provide participating landowners with predictability in planning and conducting Covered Activities. These private landowners will save time and expense by obtaining their take coverage directly from Yamhill SWCD, rather than having to apply for take coverage (including preparing their own HCP) from the USFWS.

## **1.3 Goals**

The goals of this HCP are to:

- Maintain viable populations of Fender's blue butterfly in Yamhill County.
- Demonstrate the ability of voluntary actions on private lands to promote endangered species preservation and prairie habitat conservation.

- Facilitate and simplify fulfillment of Endangered Species Act protections and regulations on private lands.

## **1.4 Proposed Action**

### **1.4.1 Scope**

Yamhill SWCD is seeking incidental take coverage for Fender's blue butterfly and its habitat. The Yamhill SWCD wishes to obtain authorization to issue Certificates of Inclusion (Appendix A) to private landowners wishing to perform Covered Activities on lands within the HCP Plan Area. These landowners will also be required to enter into a Cooperative Agreement with the Yamhill SWCD; this agreement sets forth the responsibilities of the parties with respect to monitoring, minimizing negative effects, and mitigating impacts to Fender's blue butterfly (Appendix A).

#### **1.4.1.1 Covered Entities and Lands**

The scope of this HCP is limited to Fender's blue butterfly habitat within privately owned upland prairies in Yamhill County. Only private lands included in the "Plan Area" and described in Chapter 3: Plan Area are included in this HCP.

#### **1.4.1.2 Covered Species**

Fender's blue butterfly is the species covered in this HCP. Fender's blue habitat includes its larval host plant Kincaid's lupine and several nectar plant species that provide food for the adult butterfly.

#### **1.4.1.3 Covered Activities**

Covered Activities under this Plan are described in detail in Chapter 4: Covered Activities, and include:

- Forage production
- Livestock grazing
- Vineyard establishment (not including any structure construction)
- Timber establishment
- Voluntary habitat restoration
- HCP implementation (mitigation and monitoring)

#### **1.4.1.4 Biological Goals and Conservation Measures**

The overall biological goal of this HCP is to maintain populations of Fender's blue butterfly within Yamhill County. This will be achieved through the Conservation Measures outlined in Chapter 6, which include significant survey work to identify where populations occur, outreach to engage landowners in prairie conservation, development of Best Management Practices to avoid and minimize impacts to the butterfly, and replacement of lost habitat through Yamhill SWCD coordinated mitigation at sites that are protected under conservation easement.

#### **1.4.1.5 Reducing Disincentives for Conservation**

Habitat loss, resulting from land conversion or from lack of land management, is a primary threat to Fender's blue butterfly and its habitat within Yamhill County. With nearly all remaining prairie habitat in Yamhill County occurring on private lands, encouraging habitat conservation by private landowners is vital to protecting this species. Due to Federal ESA restrictions on certain activities occurring in areas with listed animal species, some private landowners may decline to manage their properties to promote prairie habitat and Fender's blue butterfly, or may oppose restoration out of fear for future land use

restrictions on their property. Such concerns could limit the potential for persistence and recovery of Fender's blue butterfly in the region.

One of the goals of this HCP is to demonstrate the success of voluntary actions and programs to promote prairie conservation. More than 300 hectares (ha) (750 acres (ac)) of upland habitat in Yamhill County are already enrolled in voluntary conservation programs such as the USFWS Partners for Fish and Wildlife Program, with an additional 567 ha (1,400 ac) of land under conservation easement held by the Yamhill SWCD. Yamhill SWCD hopes to involve even more landowners in prairie conservation through efforts to reduce regulatory disincentives to managing for prairie habitats on private lands.

Through the Conservation Measures, including the *Conservation Strategy for Fender's Blue Butterfly and Associated Prairie Habitats in Yamhill County* (Appendix B), this HCP promotes and facilitates habitat restoration in areas where Fender's blue is currently absent. Successful habitat restoration, potentially in combination with butterfly introductions, could result in the establishment of new Fender's blue populations. If new populations are successful, individuals could disperse from a restoration site onto adjacent properties (within Yamhill County and outside the HCP Plan Area). Where these adjacent properties are currently unoccupied by Fender's blue, such dispersal could put the landowners at risk of regulation or enforcement under the ESA. This may create a disincentive for land owners and managers to conduct habitat restoration out of concern for their neighbors. In addition, neighbors may decline to manage their properties to promote Fender's blue butterfly habitat, or may oppose restoration out of fear for their property rights. Taken together, these concerns could severely limit the potential for recovery of Fender's blue in the northern Willamette Valley.

Similar to the Prairie Species HCP in Benton County (2010), this Plan incorporates a Good Neighbor Principle (Appendix C). Under this principle, private landowners whose properties outside the HCP Plan Area are colonized by Fender's blue butterfly as a result of habitat restoration or species introductions on nearby lands are held harmless for take resulting from their actions on their property during the 50-year permit term. Landowners implementing restoration/introduction activities are encouraged to notify their neighbors of their actions. If neighboring landowners intend to subsequently change their property management in a manner that results in decline of quality or quantity of habitat for Fender's blue, they will be encouraged, but not required, to work with the Yamhill SWCD and USFWS to transplant or capture and move individuals or habitat elements from the property to a secure location.

This principle applies only to Fender's blue butterfly outside of the HCP Plan Area (the area in which the species has the potential to occur given its current distribution in the wild). See Chapter 8: Implementation, Section 8.6.3 for a description of what would occur in the event that a new wild population of Fender's blue is found outside the mapped habitat.

#### 1.4.1.6 Relationship to Other Habitat Conservation Plans

The Yamhill County Road Maintenance Activities HCP (Yamhill County 2013) also occurs within Yamhill County. Its Plan Area/Covered Area is limited to County roadside right-of-way, its Covered Activities are limited to road maintenance actions, and its mitigation will occur on County right of way or on County lands (e.g., Deer Creek Park). While these areas and activities are not covered in this Yamhill HCP for Fender's Blue Butterfly on Private Lands, restoration at Deer Creek Park in Gopher Valley will complement the greater conservation strategy of the Yamhill SWCD HCP.

#### 1.4.1.7 Term of Incidental Take Permit

Yamhill SWCD is seeking a 50-year incidental take permit. This term was selected to allow the Yamhill SWCD to fully integrate prairie and Fender's blue butterfly Conservation into their on-going operations for this period. The 50-year permit term will accommodate a gradual start to HCP implementation, as

Yamhill SWCD continues to conduct outreach activities and landowners become increasingly aware of this HCP. And, as described in Chapter 7, adaptive management will allow Yamhill SWCD to adjust their management strategies to reflect new information or changing conditions, and minimize the uncertainty associated with gaps in scientific information or knowledge of the biological requirements of Fender's blue butterfly.

## **1.5 Overview of Conservation Planning Process**

The overall conservation planning process is outlined in Figure 1.4. Two advisory committees were formed by the Yamhill SWCD to assist in the HCP development process.

### **1.5.1 Stakeholder Advisory Committee**

The role of the Stakeholder Advisory Committee was to advise the Yamhill SWCD on the following aspects of the HCP from the perspective of local landowners and land managers:

- Identifying Covered Activities and defining the Plan Area.
- Establishing Conservation Measures and outlining HCP implementation strategies.
- Reviewing plan alternatives.

### **1.5.2 Technical Advisory Committee**

The Technical Advisory Committee was composed of scientists from Pacific Northwest universities and experts from local research or conservation organizations. The role of the Technical Advisory Committee was to assist Yamhill SWCD in the following:

- Defining the biological goals and objectives of the HCP.
- Reviewing field data and methods used to estimate impacts.
- Identifying Conservation Measures.
- Defining monitoring and adaptive management needs for plan implementation.
- Reviewing the HCP and related documentation.

### **1.5.3 Outreach to the Public**

Throughout the HCP planning process, Yamhill SWCD worked to engage the public in HCP development through presentations, Yamhill SWCD Newsletter articles, and prairie habitat field tours. The SWCD also sent out multiple mailings to landowners that shared information about the HCP and offered free surveys for butterflies and butterfly habitat on private lands. Yamhill SWCD also held public meetings during HCP planning and development in order to encourage public participation and benefit from public comment. Newspaper articles about the HCP have appeared in the Yamhill Valley News-Register and Newberg Graphic. Information about outreach efforts is included in Appendix D.

### **1.5.4 Data Collection**

To obtain a better understanding of the distribution and abundance of the Fender's blue butterfly in Yamhill County, survey for the butterfly and its habitat were conducted by Yamhill SWCD on over 4,850 ha (12,000 ac) of lands of willing landowners between 2011 and 2013. The goals of the surveys were to:

- Locate and map populations of Kincaid's lupine and Fender's blue butterfly and estimate their size (abundance/extent).
- Assess quality and stability for as much of the upland prairie and oak woodland habitat on private lands in Yamhill County as possible to prioritize areas for protection or restoration in the HCP.

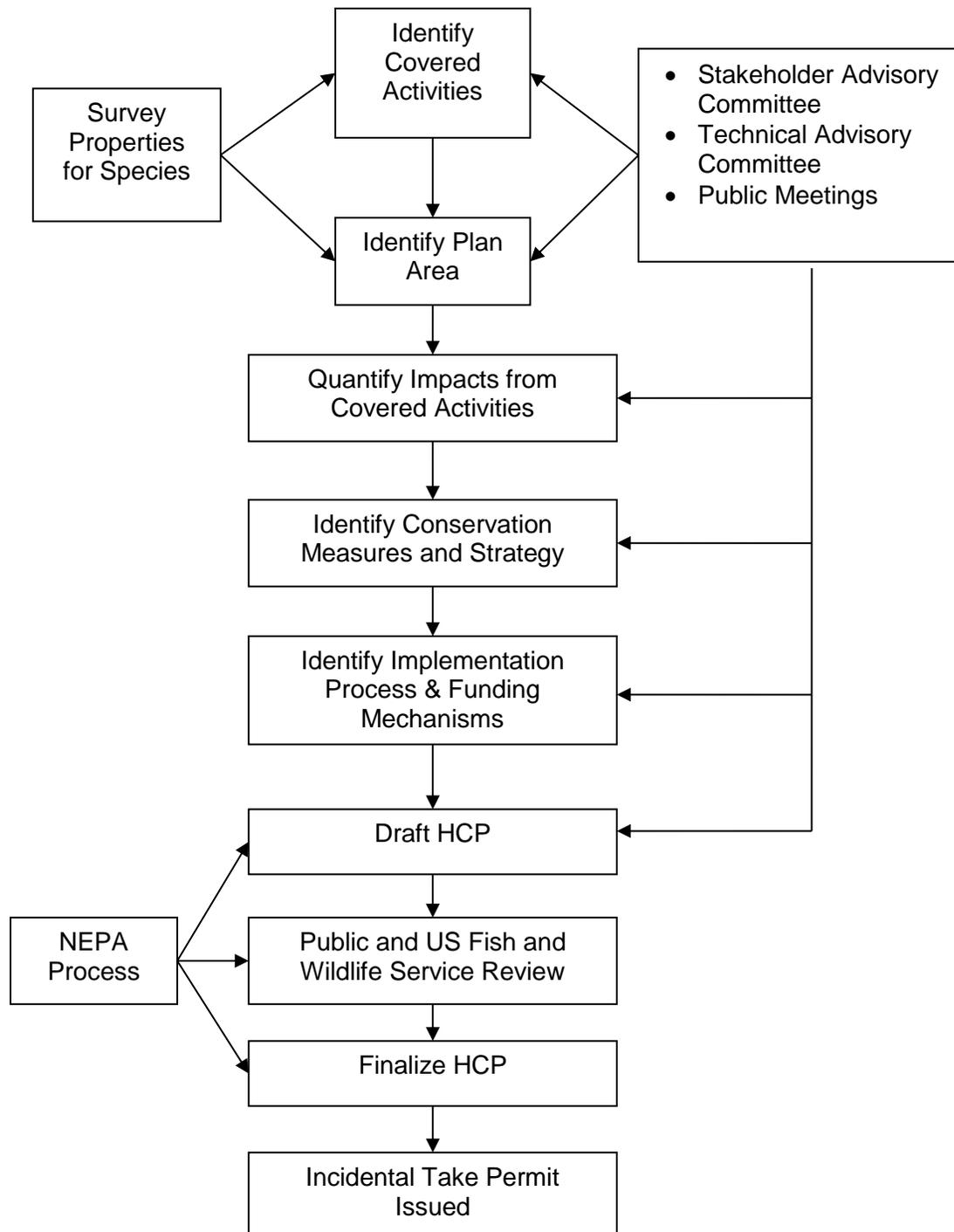


Figure 1.4 Steps to development and finalization of Yamhill HCP for Fender's blue butterfly on private lands.

- Develop a database for the Yamhill SWCD with Fender's blue locations and areas surveyed for Fender's blue butterfly and its habitat.
- Refine the habitat mapping for Fender's blue by evaluating sites within the HCP Plan Area for Kincaid's lupine and nectar species abundance.

### **1.5.5 Evaluation Process**

The proposed action is the result of Yamhill SWCD's analysis of Covered Activities, Covered Lands; Conservation Measures; and implementation logistics. For more detail on this process, and the alternatives considered, see Chapter 9: Alternatives.

## **1.6 Regulatory Framework**

### **1.6.1 Federal Endangered Species Act**

The ESA (16 U.S.C. 1531 et seq.) was passed by Congress in 1973 and amended multiple times between 1976 and 2004. The stated purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and to act on specified relevant treaties and conventions" (16 U.S.C. 1531 (b)).

Section 9(a)(1)(B) of the Endangered Species Act (ESA) prohibits the take of endangered and threatened species without special exemption. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." ESA § 3(19). The USFWS's ESA regulations further define harm to mean "an act which actually kills or injures fish or wildlife" and which "may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." 50 C.F.R. § 17.3 (2012). Harass is defined by the USFWS as intentional or negligent actions that create the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. 50 C.F.R. § 17.3 (2012). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. 50 C.F.R. § 17.3 (2012).

Pursuant to section 11(a) and (b) of the ESA, any person who knowingly violates section 9 of the Act or any permit, certificate, or regulation related to section 9, may be subject to civil penalties of up to \$25,000 for each violation or criminal penalties up to \$50,000 and/or imprisonment of up to one year.

The ESA was amended in 1982 when section 10 was added to provide a means whereby non-Federal entities could obtain an exemption to the prohibitions of section 9, while providing for the long term conservation of both listed and non-listed species and their habitats.

Individuals and State and local agencies proposing an action that is expected to result in take of Federally listed species are encouraged to apply for an incidental take permit under section 10(a)(1)(B) of the ESA to be in compliance with the law. Such permits are issued by the Service when take is not the intention of and is incidental to otherwise legal activities. An application for an incidental take permit must be accompanied by a habitat conservation plan, commonly referred to as an HCP. The regulatory standard under section 10(a)(1)(B) of the ESA is that the effects of authorized incidental take must be minimized and mitigated to the maximum extent practicable. Under section 10(a)(1)(B) of the ESA, a proposed project also must not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and adequate funding for a plan to minimize and mitigate impacts must be ensured.

Section 7 of the ESA requires Federal agencies to ensure that their actions, including issuing permits, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species'

critical habitat. "Jeopardize the continued existence of..." pursuant to 50 C.F.R. § 402.2, means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an incidental take permit under section 10(a)(1)(B) of the ESA by the Service is a Federal action subject to section 7 of the ESA. As a Federal agency issuing a discretionary permit, the Service is required to consult with itself (i.e., conduct an internal consultation). Delivery of the HCP and a section 10(a)(1)(B) permit application initiates the section 7 consultation process within the Service.

The requirements of section 7 and section 10 of the ESA substantially overlap. Elements unique to section 7 include analyses of impacts on designated critical habitat, analyses of impacts on listed plant species, if any, and analyses of indirect and cumulative impacts on listed species. Cumulative effects are effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area, pursuant to section 7(a)(2) of the Act. The action area is defined by the influence of direct and indirect impacts of Covered Activities. The action area may or may not be solely contained within the HCP boundary. These additional analyses are included in this HCP to meet the requirements of section 7 and to assist the Service with its internal consultation.

#### *1.6.1.1 The Section 10(a)(1)(B) Process - Habitat Conservation Plan Requirements and Guidelines*

The section 10(a)(1)(B) process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- Impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- Measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances;
- Alternative actions considered that would not result in take and the reasons why such alternatives are not proposed to be implemented; and
- Additional measures the Service may require as necessary or appropriate for purposes of the plan.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of 1) an HCP, 2) an Implementing Agreement (IA) if applicable and 3) a permit application.

The Service must then publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. The Service also prepares an Intra-Service Section 7 Biological Opinion; and prepares a Set of Findings, which evaluates the section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below). An Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement serves as the Service's record of compliance with the National Environmental Policy Act (NEPA), which has gone out for a 30-day, 60-day, or 90-day public comment period. A section 10(a)(1)(B) incidental take permit is granted upon a determination by the Service that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify

that in addition to the taking being incidental and that the impacts of incidental take will be minimized and mitigated to the maximum extent practicable, the following will also occur:

- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided by the Permittee, Yamhill SWCD;
- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
- the applicant will provide additional measures that the Service requires as being necessary or appropriate; and
- the Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the Permittee and other responsible entities implement the HCP, and the Service monitors the Permittee's compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

### **1.6.2 State of Oregon Endangered Species Act**

The Oregon ESA does not list invertebrates (e.g., Fender's blue butterfly) as threatened or endangered. While the Oregon ESA does address threatened and endangered plant species on state lands, it does not provide protections for these plants on private lands, which are the covered lands of this HCP.

### **1.6.3 National Environmental Policy Act**

The National Environmental Policy Act (NEPA) was passed by Congress in 1969. The purpose of the NEPA is two-fold: to ensure that Federal agencies examine the environmental impacts of their actions (in this case deciding whether to issue an incidental take permit) and to ensure public participation. The NEPA analysis required for all Federal actions is distinct from that required by the applicant in the development of an HCP in that NEPA provides an analytical process rather than a planning process. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help the Service decide whether to issue an incidental take permit. NEPA analysis must be done by the Service for each HCP as part of the incidental take permit application process.

### **1.6.4 National Historic Preservation Act**

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 *et seq.*) requires Federal agencies to take into account the effects of their undertakings on cultural resources that are, or may be, eligible for inclusion in the National Register of Historic Places (NRHP). An undertaking is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency, those carried out with Federal financial assistance, those requiring a Federal permit, license or approval, and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency. All Federal agencies are required to examine the cultural impacts of their actions (e.g. issuance of a permit). This may require consultation with the State Historic Preservation Office (SHPO) and appropriate American Indian tribes. All incidental take permit applicants are requested to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicants may be required to contract for cultural resource surveys and possibly conduct mitigation.

## 2 Covered Species

The Yamhill SWCD requests authorization from the USFWS for incidental take of Fender's blue butterfly and its habitat due to activities on lands covered by this HCP. Critical elements of the butterfly's habitat include Kincaid's lupine and several native nectar plant species.

### 2.1 Fender's Blue Butterfly

#### 2.1.1 Species Description and Ecology

Fender's blue butterfly (*Icaricia icarioides fenderi* Macy = *Plebejus icarioides fenderi* Macy) (Figure 2.1) was thought to be extinct from about 1940 until the late 1980's, when biologists discovered a few remaining populations on prairie remnants in the Willamette Valley (USFWS 2000). The species was listed as endangered under the Federal Endangered Species Act in 2000 (USFWS 2000) due to its extreme rarity resulting from prairie habitat loss and fragmentation. Fender's blue butterfly ("Fender's blue") is known from six counties in Oregon: Lane, Linn, Benton, Yamhill, Washington and Polk. The USFWS designated critical habitat for the species in 2006 (USFWS 2006), and released a recovery plan for Fender's blue and several other native prairie species in 2010 (USFWS 2010). The first Habitat Conservation Plan for Fender's blue was completed by the government of Benton County, Oregon, in 2010 (Benton County 2010).

Two critical elements of Fender's blue habitat are larval host plants and nectar plants. Kincaid's lupine is the primary larval host plant for Fender's blue, and the lupine is listed as a threatened species. Alternate host plants for the butterfly include sickle-keeled lupine (*Lupinus albicaulis*) and spur lupine (*Lupinus arbustus*) (Wilson et al. 1997). Adult Fender's blue butterflies lay their eggs on the underside of lupine leaves in May and June, then tiny larvae hatch a few weeks later. The larvae feed on the lupine plant for a few weeks before going into diapause (similar to hibernation in animals) on the soil near the base of the plant until the following February or March. The larvae then emerge and feed on young lupine leaves and inflorescences (Wilson et al. 1997). The larvae grow and develop, pupate, and emerge as butterflies in early May. The butterflies are thought to travel a maximum of two kilometers from their natal (home) lupine patch (Schultz 1998). This makes patches of lupine within a two-kilometer flight distance of known butterfly locations important potential areas of use and expansion for butterfly populations.

Adult butterflies live roughly 10-15 days and feed on nectar produced by several native plant species, including but not limited to Kincaid's lupine, narrowleaf onion (*Allium amplexans*), toughleaf iris (*Iris tenax*), Tolmie's startulip (*Calochortus tolmiei*), and rose checkermallow (*Sidalcea virgata*). Adult butterflies may also use non-native nectar plants, including species of vetch (*Vicia sativa*, *V. cracca*, *V. villosa*, *V. hirsuta*, *V. tetrasperma*). Native nectar species appear to be the preferred and superior food source of Fender's blue (Wilson et al. 1997, Schultz and Dlugosch 1999) and may provide more nectar than non-native nectar species, but non-native nectar species are still important for Fender's blue, especially at sites where few native nectar species are present.

At least 6 ha (15 ac) of high quality habitat, including native nectar species, is needed to support an independent population of Fender's blue butterflies (USFWS 2010).



**Figure 2.1 Fender's blue butterfly, the Covered Species for the Yamhill Habitat Conservation Plan for Fender's blue butterfly. Top photo shows a male (more grey) and female (more tan), center is a male displaying the upper surface of the wings, and lower photo is a Fender's blue butterfly larva feeding on Kincaid's lupine.**

### **2.1.2 Species Distribution**

Fender's blue is endemic to the Willamette Valley. As of 2010, there were a total of 17 documented populations of Fender's blue (USFWS 2010). As of the 2013 flight season, there were five known population areas for Fender's blue in Yamhill County, with roughly 13 subpopulations (Fitzpatrick 2013).

### **2.1.3 Primary Host Species**

Kincaid's lupine (*Lupinus oreganus* A. Heller) (Figure 2.2) is a nectar source and the primary host plant for Fender's blue. Kincaid's lupine was listed as threatened under the Federal ESA in 2000 (USFWS 2000), critical habitat was designated for this species in 2006 (USFWS 2006), and the USFWS issued a recovery plan for Kincaid's lupine and several other rare prairie species in 2010 (USFWS 2010).

Kincaid's lupine is a long-lived perennial plant in the pea family (Fabaceae). It has palmately compound leaves clustered at the base of single, unbranched stems, and produces unbranched inflorescences of whitish-purplish to tan flowers. Kincaid's lupine can be distinguished from other Willamette Valley lupines by the lack of branching in structure and a characteristic ruffled banner petal on the flower. The species reproduces by seed and by vegetative clonal spread. The flowers are visible in May and June and require insects for pollination and seed production. Seed production is variable, but on average is estimated to be approximately 47.1 seeds per square meter (yard) of foliar (leaf) cover (estimated from data reported by Kaye and Kuykendall (1993), Kaye (1999) and Wilson et al. (2003)). Lupine foliar cover correlates with lupine abundance (Currin and Meinke 2013), and has been adopted as the standard

metric for lupine abundance in the USFWS Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington (USFWS 2010).

Kincaid's lupine is found in southwestern Washington (Lewis County), the Willamette Valley (Washington, Yamhill, Polk, Benton, Lane and Linn Counties), and the Umpqua Valley (Douglas County) of Oregon. Within the Willamette Valley, Kincaid's lupine typically occurs in dry upland prairies on the valley bottom or surrounding foothills. The species is currently known from about 164 sites, comprising 246 ha (608 ac) (USFWS 2010). In Yamhill County, roughly 22 population areas of Kincaid's lupine are known as of spring 2013; these are primarily in central Yamhill County, and the majority are on private lands. Small scattered populations of the lupine are also found on roadside rights-of-way.



**Figure 2.2 Kincaid's lupine, the primary host plant for Fender's blue butterfly in Yamhill County.**

#### **2.1.4 Nectar Species for Fender's Blue Butterfly**

Adult Fender's blue butterflies obtain nectar from the flowers of a variety of plant species (Table 2.1, Figure 2.3) (Schultz and Dlugosch 1999, Crone and Kallioniemi 2009). The quantity of nectar available and the sugar content of the nectar vary in each species. The phenology, or timing of development and flowering, of each species is also unique. Tolmie's mariposa lily tends to be one of the earliest to flower and produce nectar, whereas Oregon sunshine (*Eriophyllum lanatum*) is a later flowering species. With global climate change, if conditions push Fender's blue to emerge earlier during the 50-year term of this HCP, the butterfly may begin to use nectar from strawberry (*Fragaria virginiana*), as it is one of the earliest suitable native species to flower. If conditions push the butterfly to extend its flight period later in the year, it may adapt to use nectar from species like native cinquefoil (*Potentilla* spp.), which flower after many of the currently known nectar species (Personal Communication, Cheryl Schultz, 2012).

According to the Recovery Plan for Prairie Species of Western Oregon and SW Washington (USFWS 2010), when sufficient butterfly resources are available (e.g., an average density of 20 mg of nectar sugar produced per square meter of habitat or greater), Fender's blue adults are thought to travel a relatively short distance (50 m (164 ft)) from their natal (home) lupine patch to visit nectar plants. In lower quality habitat, butterflies may travel greater distances. Nectaring distances for Yamhill County were calculated based on habitat quality in the HCP Plan Area, and are discussed in Section 3.2.

**Table 2.1 Flowering plants identified as nectar sources for Fender's blue butterfly as of February 2012, and their average density within the HCP Plan Area. Species nectar sugar data from Schultz and Dlugosch (1999) unless noted otherwise. Flower density data from Fitzpatrick (2012).**

Common Name	Species	US Nativity	Relative Flowering Phenology	Flowering Unit (FU)	Sugar (mg) per FU	Average flower units/m <sup>2</sup>	Average mg sugar/m <sup>2</sup>	Average g sugar/acre
Narrow leaf onion	<i>Allium acuminatum</i>	Native	Late	Head	<sup>b</sup>	0.018	0.42	1.71
Tapertip onion	<i>Allium amplexans</i>	Native	Late	Head	22.9	<sup>c</sup>		
Tolmie's mariposa lily	<i>Calochortus tolmiei</i>	Native	Early-Peak	Flower	1.52	0.09	0.13	0.54
small camas	<i>Camassia quamash</i>	Native	Early	Stalk	4.96	0.004	0.02	0.07
tall camas	<i>Camassia leichtlinii</i>	Native	Early	Stalk	14.7 <sup>a</sup>	<sup>c</sup>		
clearwater cryptantha	<i>Cryptantha intermedia</i>	Native	<sup>b</sup>	Flower	0.74	<sup>c</sup>		
Oregon sunshine	<i>Eriophyllum lanatum</i>	Native	Late	Head	3.87	0.633	2.45	9.91
Oregon geranium	<i>Geranium oreganum</i>	Native	Early	Flower	1 <sup>a</sup>	<sup>c</sup>		
toughleaf iris	<i>Iris tenax</i>	Native	Early-Peak	Flower	14.6 <sup>a</sup>	<sup>c</sup>		
nine-leaf lomatium	<i>Lomatium triternatum</i>	Native	Early-Peak	Umbelette	0.4 <sup>a</sup>	<sup>c</sup>		
Kincaid's lupine	<i>Lupinus oreganus</i>	Native	Early-Late	Stalk	10.28	0.633	6.5	26.3
meadow checkermallow	<i>Sidalcea campestris</i>	Native	Late	Stalk	9.3	<sup>c</sup>		
dwarf checkermallow	<i>Sidalcea virgata</i>	Native	Peak	Stalk	25.12	0.009	0.22	0.91
American vetch	<i>Vicia americana</i>	Native	Peak	Branch	1.8 <sup>a</sup>	<sup>c</sup>		
pale flax	<i>Linum bienne</i>	Introduced	Peak	Plant	0.13	0.14	0.02	0.07
bird vetch	<i>Vicia cracca</i>	Introduced	Peak-Late	Branch	2.3 <sup>a</sup>	2.27	5.23	21.14
tiny vetch	<i>Vicia hirsuta</i>	Introduced	Early-Peak	Branch	1.98	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
garden vetch	<i>Vicia sativa</i>	Introduced	Early-Peak	Branch	0.77	2.06	1.58	6.41
<b>Subtotal Native Species</b>							9.75	39.5
<b>Subtotal Introduced Species</b>							6.83	27.6
<b>GRAND TOTAL</b>							16.6	67.1

<sup>a</sup>Data from Crone and Kallioniemi (2009). <sup>b</sup>No data available. <sup>c</sup>Not present.

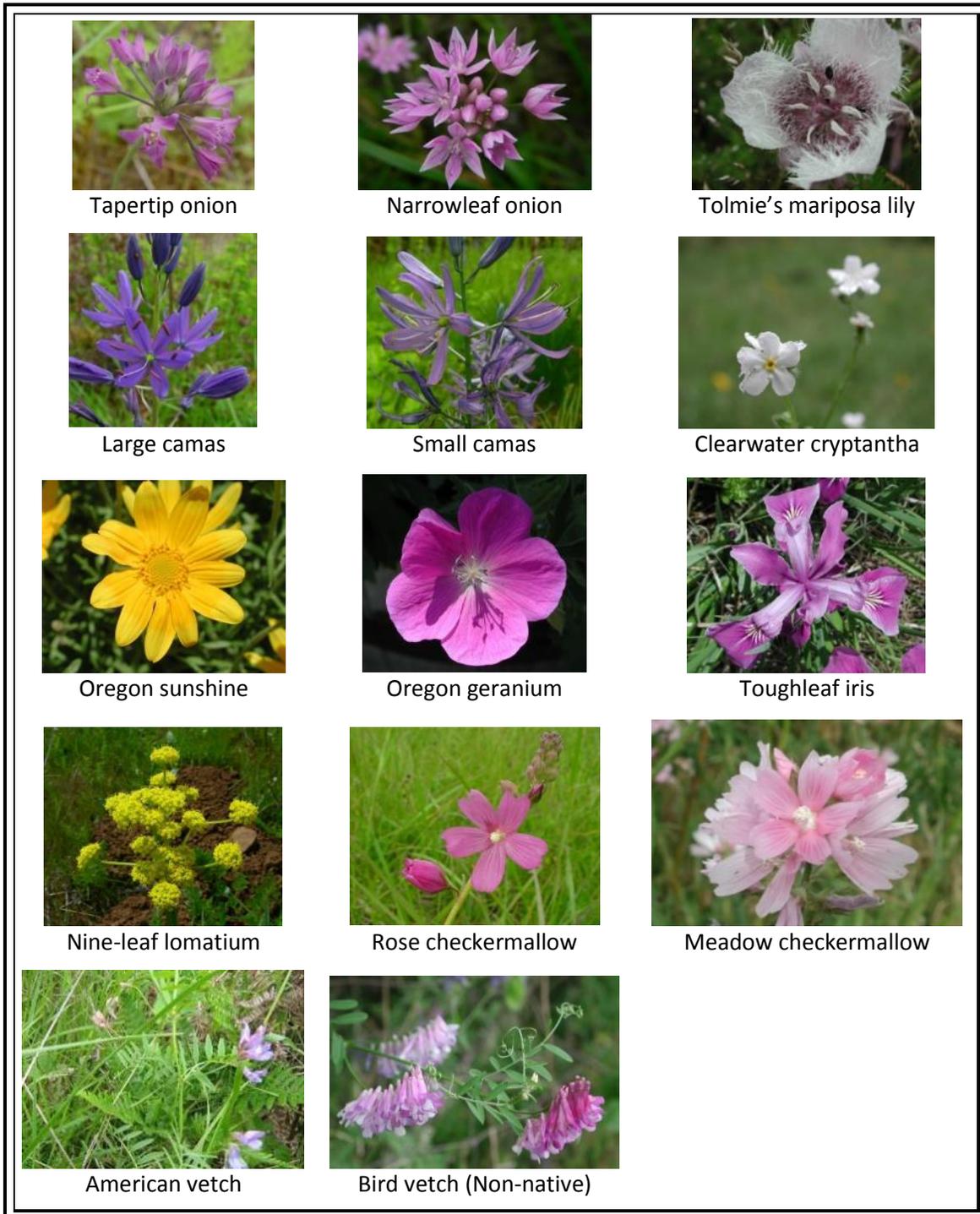


Figure 2.3 Nectar species for Fender's blue butterfly.

## 3 Plan Area

### 3.1 Environmental Setting

The Plan Area is located in Yamhill County, which is situated in the Northern Willamette Valley, and bounded by Washington, Clackamas, Polk, Marion, and Tillamook Counties. Yamhill County is located within the Willamette Valley and Coast Range ecoregions. Fender's blue butterfly habitat is only found in the Willamette Valley ecoregion, and the Plan Area is entirely within the Willamette Valley ecoregion (Figure 3.1).

The Willamette Valley ecoregion is a low elevation, broad alluvial plain oriented north to south, encompassing 13,748 sq km (5,308 sq mi) (ODFW 2006). The ecoregion extends from the valley floor to the adjacent foothills and spans from north of Portland to south of Eugene (ODFW 2006). The Willamette Valley is approximately 193 km (120 miles) long and ranges from 32 to 64 km (20-40 miles) wide (ODFW 2006). The valley, located approximately 64 km (40 mi) inland from the Pacific Coast, is essentially flat and defined by the Coast Range along the west and the Cascade Range along the east. The Willamette River bisects the valley and is the main drainage system for the valley (ODFW 2006).

While the exact composition of natural communities within the Willamette Valley is not known, estimations of prairie habitat prior to European settlement included 300,000 ha (741,316 ac) of wet prairie habitat, 700,000 ha (1,729,738 ac) of upland prairie habitat, and 500,000 ha (1,235,527 ac) of oak savanna, comprising approximately 45% of the Willamette Valley ecoregion (Macdonald 2000). These native prairies were home to many species endemic to the Willamette Valley including Fender's blue butterfly.

Prior to European settlement of the Willamette Valley in the 1800s, the native Kalapuya tribe used fires to maintain prairie habitat and increase food production (Alverson 2005). As Euro-American settlers arrived, native habitats were converted to agricultural landscapes, annual burning ceased, those prairies not converted to crop lands or urban development began to be overtaken through forest succession and invasive species (ODFW 2006). Today, less than one percent (>1%) of native prairie habitat within the Willamette Valley remains intact (Alverson 2005), making prairie habitat one of the rarest ecosystems in North America (Noss and Peters 1995).

### 3.2 Upland Prairie Habitat

The lands covered in this HCP consist primarily of upland prairie habitat. Upland prairies occur on well drained soils, often on dry slopes (ODFW 2006). These habitats are occupied by plant communities dominated by small stature bunchgrasses interspersed with forb species (Wilson 1998). Wetland, forest and riparian habitats are generally not found in the Plan Area.

After Euro-American settlement the landscape of the Willamette Valley underwent substantial change resulting in upland prairie persisting in less than 1% of its former area (Roth et al. 2004). The removal of regular burning allowed woody species and non-native plants to encroach (Wilson 1998). These new species shaded out prairie species or were able to out-compete them for water and other resources (Wilson 1998). While the exclusion of fire and spread of invasive non-native species continue to threaten upland prairies in the Willamette Valley, additional factors causing the loss and fragmentation of upland prairie habitats include conversion to agriculture, urban and rural residential development, and hydrological changes (Wilson 1998; Roth et al. 2004).

A wide variety of native and non-native plant species are found throughout upland prairies in the Willamette Valley. Although non-native grasses and forbs are now dominant, native grasses including Roemer's fescue (*Festuca roemerii*), California oatgrass (*Danthonia californica*) blue wildrye (*Elymus glaucus*), Lemmon's needlegrass (*Achnatherum lemmonii*), and prairie junegrass (*Koeleria macrantha*) still persist in some areas (Wilson 1998). Native forbs that are important to upland prairie habitat include Oregon sunshine (*Eriophyllum lanatum*), slender cinquefoil (*Potentilla gracilis*), Tolmie star-tulip (*Calochortus tolmiei*), and wild strawberry (*Fragaria virginiana*) (Wilson 1998).

### 3.3 Land Ownership in Yamhill County

Yamhill County consists of approximately 185,443 ha (458,240 ac) with approximately 83% of land under private ownership (Table 3.1).

**Table 3.1 Land ownership in Yamhill County.**

Land Ownership	Hectares	Acres	Percent
<b>Federal Lands<sup>1</sup></b>	<b>23,749</b>	<b>58,684</b>	<b>12.81%</b>
<b>Tribal Lands</b>	<b>3,870</b>	<b>9,811</b>	<b>2.14%</b>
<b>State Lands</b>	<b>322</b>	<b>796</b>	<b>0.17%</b>
Oregon Department of Forestry	70	172	0.04%
Oregon Department of Transportation	3	8	0.00%
Oregon Parks and Recreation Department	149	369	0.08%
Oregon State University	91	225	0.05%
Chemeketa Community College	9	22	0.00%
<b>County Lands</b>	<b>189</b>	<b>468</b>	<b>0.10%</b>
<b>City Lands</b>	<b>3,886</b>	<b>9,604</b>	<b>2.11%</b>
Amity	21	53	0.01%
Carlton	50	124	0.03%
Dayton	31	76	0.02%
Dundee	51	127	0.03%
McMinnville	3,045	7,525	1.64%
Newberg	283	699	0.15%
Sheridan	19	46	0.01%
Willamina	62	154	0.03%
Yamhill	53	130	0.03%
School Districts	271	670	0.15%
<b>Private Lands</b>	<b>153,326</b>	<b>378,877</b>	<b>82.68%</b>
Linfield College	62	153	0.03%
The Nature Conservancy	236	582	0.13%
Yamhill Soil & Water Conservation District	115	285	0.06%
Other Private Lands	15,2913	377,857	82.46%
<b>Total Acreage in County</b>	<b>185,443</b>	<b>458,240</b>	

<sup>1</sup> Federal lands in Yamhill County are primarily forested and located outside the HCP Plan Area.

### **3.4 Establishing the HCP Plan Area**

The Plan Area of this HCP is the area for which Yamhill SWCD requests authorization from the USFWS for incidental take of Fender's blue butterfly that results from the Covered Activities of this Plan. As described below, the Plan Area for this HCP is constructed such that it includes all Fender's blue butterfly habitat on private lands in Yamhill County, including both currently occupied sites and those within dispersal distance of currently occupied sites. All mitigation lands will be within the Plan Area.

This plan focuses on rural lands with upland prairie habitat, which are almost exclusively under private ownership and have the highest potential of supporting Fender's blue butterfly and Kincaid's lupine.

To establish the Plan Area for this HCP, the following steps were completed:

- (1) Identify Fender's Blue Butterfly Habitat in Yamhill County: Perform on-the-ground surveys where possible with landowner permission to identify butterfly populations and areas of suitable potential habitat.
- (2) Map the HCP Plan Area: Develop a map to delineate a region of potential habitat for Fender's blue butterfly, based on known Fender's blue butterfly population locations, typical butterfly flight distances and suitable habitat types. This area includes the Fender's blue butterfly habitat on private lands in Yamhill County.
- (3) Evaluate Habitat Quality to Determine the Nectar Zone of the Plan Area: Assess the availability of nectar resources for adult Fender's blue butterflies and estimate the distance butterflies will need to travel to obtain nectar resources.

#### **3.4.1 Identify Fender's Blue Butterfly Habitat in Yamhill County**

GIS synthesis data created by The Nature Conservancy (TNC 2009) and 2012 aerial imagery were used to target potential suitable habitats for surveys, including grassland, upland prairie and disturbed shrub/scrub. This resulted in a target area of taxlots encompassing roughly 33,567 ha (82,974 ac) (this figure calculated from the acreage of entire taxlots- some unsuitable habitat included) and over 3,100 landowners. Yamhill SWCD contacted the landowners within the targeted area and requested permission to survey for presence of Kincaid's lupine and Fender's blue butterfly. Yamhill SWCD surveyed approximately 4,850 ha (12,000 ac) throughout Yamhill County from 2011 to 2013.

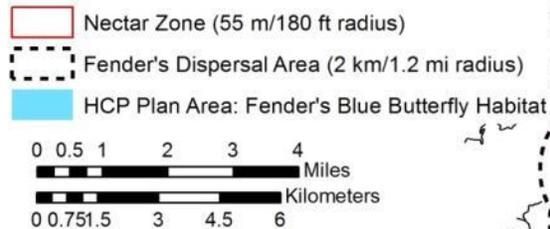
Multiple layers of field surveys were completed. First pass surveys searched for Kincaid's lupine (or alternate host plants for Fender's blue, including spur lupine and sickle keel lupine) and evaluated habitat quality in terms of native species presence and abundance. Where Kincaid's lupine plants were located, additional surveys mapped them via GPS and estimated their abundance in square meters of foliar (leaf) cover. Follow up Fender's blue butterfly surveys, including searches for butterflies and eggs, were completed to determine whether the butterfly was present and estimate its rough abundance.

#### **3.4.2 Map the HCP Plan Area**

Using habitat data gathered during field surveys throughout Yamhill County, a map of known or likely suitable Fender's blue butterfly habitat on private lands was developed to identify where impacts to Fender's blue habitat might occur (HCP Plan Area) (Figure 3.1). To develop the map:

- Known Fender's blue population locations were mapped and areas within the 2 km (1.2 mi) flight distance of those populations were identified.
  - A 2 km buffer was added around known butterfly locations using GIS. This distance is the average expected flight (dispersal) distance of Fender's blue butterfly between lupine patches (USFWS 2006). Kincaid's lupine within flight distance of known Fender's blue locations is vital to promote connectivity that allows genetic exchange and migration between Fender's blue populations.

## Yamhill SWCD Fender's Blue Butterfly HCP Plan Area



This map is produced for informational purposes only and is subject to change. Map Date 3/12/14.

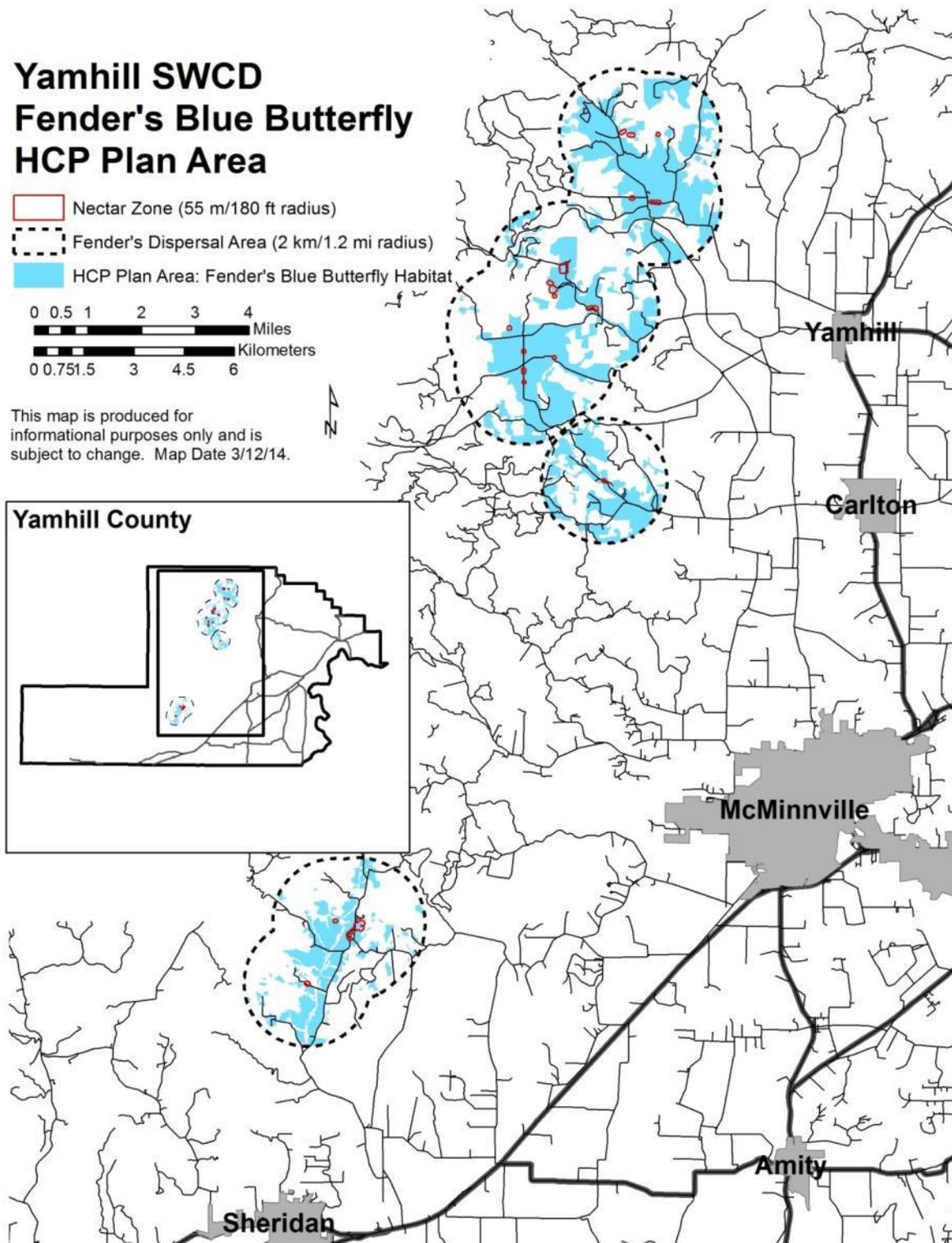


Figure 3.1 The HCP Plan Area, which includes potential Fender's blue butterfly habitat on private lands outside roadside rights-of-way. The Nectar Zone is the portion of the Plan Area within 55 m (180 ft) of a currently known Fender's blue butterfly population, where nectar availability is important for adult butterflies.

- Prairie, grassland, and oak savanna habitats were overlaid on the area within the 2 km buffer to identify areas within butterfly dispersal distance capable of providing habitat for the butterfly.
  - Existing maps of historic vegetation in the Willamette Valley (Christy 2005) as well as current aerial photos showing current vegetation were considered when mapping habitat within the buffered area. Historic maps were used to identify areas that were prairie habitat at the time the Willamette Valley was surveyed and settled and that may still support limited butterfly habitat, but have started to become forest over time.
- All public lands, including roads (assuming an average 10 m (33 ft) right-of-way width from road centerline) were removed, since the HCP will only address private landowners.

This mapping analysis yielded a HCP Plan Area covering 3,169 ha (7,831 ac) of private land in Yamhill County (Figure 3.1) and intersecting 506 taxlots. In the 2012 flight season there were 477 Fender’s blue butterflies known in the Plan Area (Fitzpatrick 2013), along with roughly 2,267 m<sup>2</sup> foliar cover (0.56 ac) of Kincaid’s lupine. The HCP Plan Area comprises 1.7% of Yamhill County acreage overall, or 2.3% of the Willamette Valley Ecoregion (“valley”) portion of the County. It is almost exclusively composed of lands that are zoned Exclusive Farm Use (EF-20, EF-40, EF-80) or Agriculture/Forestry (Zones AF-10, AF-40, AF-80), and Commercial Forestry (F-80) (Table 3.2).

**Table 3.2 Yamhill County Land Use Zoning within the HCP Plan Area.**

Zoning Classification		Area (ac)	Area (ha)	Percent of Plan Area
<b>Agriculture/Forestry District</b>				
	AF-20	295.64	119.64	3.77%
	AF-40	452.64	183.18	5.78%
	AF-80	1344.15	543.96	17.16%
<b>Exclusive Farm Use District</b>				
	EF-20	349.10	141.28	4.46%
	EF-40	259.00	105.21	3.32%
	EF-80	4352.93	1761.57	55.58%
<b>Forestry District</b>				
	F-80	704.26	285.00	8.99%
<b>Public Assembly/Institutional District</b>				
	PAI	21.86	8.85	0.28%
<b>Parks, Recreation, and Open Spaces District</b>				
	PRO	0.04	0.02	0.00%
<b>Public Works/Safety District</b>				
	PWS	0.10	0.04	0.00%
<b>Very Low Density Residential District</b>				
	VLDR-5	51.68	20.92	0.66%
<b>Total</b>		<b>7831.40</b>	<b>3169.66</b>	<b>100%</b>

### 3.4.3 Evaluate Habitat Quality to Determine Nectar Zone of the Plan Area

In order to ensure adequate protection of critical nectar resources, Yamhill SWCD also identified a “Nectar Zone” within the Plan Area (Figure 3.1). The Nectar Zone was mapped as the critical area of nectar resources in Fender’s blue habitat, those areas within the average nectaring (flight) distance of

adult Fender's blue. Adult Fender's blue may travel up to 50 m (164 ft) for nectar resources in high quality habitat with abundant nectar plants. However, where nectar resources are less dense, butterflies may need to travel greater distances to obtain sufficient nectar. Yamhill SWCD therefore surveyed habitat quality in the Plan Area in order to estimate average nectaring distance and establish the boundaries of the "Nectar Zone."

Yamhill SWCD evaluated the density of nectar plant resources available to Fender's blue by completing vegetation sampling in HCP Plan Area (Fitzpatrick 2012). At 19 sites with or near Fender's blue populations, flowers of native and introduced nectar species (Table 2.1) were counted in 77 5 m by 5 m (16.4 x 16.4 ft) randomly placed vegetation plots (Fitzpatrick 2012). Plot data were averaged to the site level for analyses, combined with data regarding the sugar content of nectar produced by Fender's blue's nectar plants (Schultz and Dlugosch 1999; Crone and Kallioniemi 2009), and used to estimate the average nectar sugar densities in the HCP Plan Area.

The average density of nectar sugar produced by nectar plants (including native and non-native species and Kincaid's lupine) for Fender's blue was 16.6 mg/m<sup>2</sup> (Table 2.1), which is only 83% of the required sugar density for Fender's blue (20 mg sugar/m<sup>2</sup>) as identified in the USFWS Recovery Plan (2010). With lower density nectar sugar, Fender's blue butterflies will have to travel farther than the usual 50 m nectaring distance, and cover roughly 120% of the area to obtain the same net quantity of sugar. To ensure adequate consideration of nectar resources, Yamhill SWCD mapped a 55 m Nectar Zone around lupine patches occupied by Fender's blue (a circle with a 55 m radius has approximately 120% the area of a circle with a 50 m radius).

If new scientific data determines a significantly increased or decreased dispersal or nectaring distance for Fender's blue butterfly, this HCP shall be modified (see Section 8.8: Amendments) to address such information as appropriate and practicable. If new wild populations of Fender's blue are discovered outside the HCP Plan Area, they could be addressed through modification of this HCP or development of a separate HCP.

## 4 Covered Activities

This section describes the activities within the Plan Area for which this Habitat Conservation Plan provides measures to avoid, minimize, and mitigate impacts to Fender's blue butterfly. Incidental take authorization is sought for activities described in this chapter, provided that:

- It is the type of impact evaluated in Chapter 5: Impacts Analysis;
- There is sufficient take coverage available under the incidental take permit issued to Yamhill SWCD for that activity;
- The activity does not preclude achieving the biological goals and objectives of this Plan;
- The activity must occur within the Plan Area on private lands only; and
- The activity must occur within the term of the incidental take permit.

### 4.1 Agricultural Activities

Activities to be covered under the HCP were selected based on Yamhill SWCD staff and Stakeholder Advisory Committee knowledge of local land use. Aerial photography was also utilized to visualize current land uses. There are a wide variety of agricultural activities occurring in the Plan Area; this plan only provides coverage for the most common agricultural land uses, which include:

- Forage production, including mowing and haying
- Pasture and livestock grazing
- Vineyard establishment
- Timber establishment

Land uses within the County are dynamic depending on changing agricultural markets. The HCP may be amended if the Covered Activities are no longer relevant within the term of the incidental take permit. For more information on plan amendment see Chapter 8: Implementation.

#### 4.1.1 Forage Production

Forage production within Yamhill County is focused on hay production including grass, clover, and alfalfa hays. Haylage and silage production are minimal and occur infrequently within the Plan Area. Hay production typically involves mowing the grass/alfalfa/clover and laying it in windrows to dry during May-July. The hay is baled once it has dried sufficiently. More intensively managed hayfields may receive annual application of pesticides, fertilizers, and lime. Occasional tilling and reseeding (pasture improvement) may occur when pastures become less productive. Improved pastures and alfalfa or clover fields may have little to no remaining Fender's blue habitat after years of tilling and seeding; site surveys may reveal that such pastures lack butterfly habitat and will not need incidental take coverage. Mowing may also occur for fire protection and weed control. These are activities that are either critical to human health and safety, have been occurring regularly in the past, or are likely to have neutral to positive effects on Fender's blue butterfly, therefore no impacts will be assessed for mowing for fire safety or weed control. All mowing is grouped together and addressed within the same Best Management Practices (Chapter 6: Conservation Measures).

#### 4.1.2 Pasture and Livestock Grazing

Animals pastured and grazed in Yamhill County include beef cattle, horses, scattered herds of sheep, llamas, alpacas, goats, and hogs. The most intense grazing usually occurs from March through November, as the remainder of the year is the wettest season in the Willamette Valley and overly wet

pastures can be damaged by livestock. Some upland pastures (where Fender's blue butterfly may occur) tend to be better drained soils, making them viable for winter grazing. As of 2013, only two grazed sites in Yamhill County are known to support Fender's blue.

Minimal research has been completed on whether grazing has effects on Fender's blue survival or the potential mechanisms of such effects. As tall non-native grasses are known to reduce Fender's blue reproductive potential (Severns 2008a; 2008b), grazed areas, with reduced tall grass cover, may provide improved habitat for Fender's blue. A single study in 2012-2013 with sheep in Benton County, Oregon, found a short pulse of grazing in late May (butterfly flight season) reduced abundance of native nectar species flowers and decreased butterfly egg numbers (Hicks and Fitzpatrick *in prep*). A separate study (Hicks 2012) in Benton County found grazing did reduce tall grass cover and did not produce significant soil compaction, but that Fender's blue females may avoid laying eggs in areas very intensively grazed by llamas. Kaye and Benfield (2005) observed the effects of accidentally escaped domestic pigs into a regularly monitored Fender's blue habitat area near Eugene, Oregon. The animals thoroughly and completely disturbed the soil in approximately 9% of the site. Analysis found neither lupine abundance nor butterfly egg survival were significantly reduced in the areas of damage. Grazing effects appear variable, and may be specific to livestock species, management or site conditions.

Results from future research and monitoring data gathered for this HCP will feed into adaptive management, and may lead to modification of the Best Management Practices for grazing in the future. Poorly managed grazing can be detrimental to maintaining upland prairie. However, through implementation of a grazing plan that includes seasonal rotations/exclusions and herd size monitoring, this land use can potentially be compatible with Fender's blue habitat.

#### 4.1.3 Vineyard Establishment

Yamhill County is the leading wine grape producer of Oregon's wine industry. As of 2010, it has more than double the number of vineyards, planted acreage, harvested acreage and total production of any other county in Oregon. In 2010, Yamhill County produced 42% of Oregon's chardonnay grapes, 63% of Oregon's pinot blanc grapes, 22% of Oregon's pinot gris grapes, 44% of Oregon's pinot noir grapes, and had nearly four times as many active wineries as any other county (NASS 2010). Continued vineyard expansion is expected through the permit term. Between 1987 and 2010, an average of 98 ha (242 ac) per year were converted into vineyards in Yamhill County (Figure 4.1) (NASS 1987-2010). The majority of vineyards in Yamhill County occur on well-drained hillside soils, which is habitat with great potential for Fender's blue. Much of the remaining upland prairie in the County could be converted to vineyards within the next 50 years.

Vineyard establishment generally removes native plant communities. Site preparation can involve land clearing, deep tillage (sub soiling) with multiple passes and mechanical and/or chemical weed control. This land use is not usually compatible with maintaining habitat appropriate for Fender's blue unless special precautions are employed ahead of site preparation. Vineyard maintenance may include fungicide and pesticide application, which may involve chemical drift onto adjacent lands under some conditions. Since chemical drift is extremely

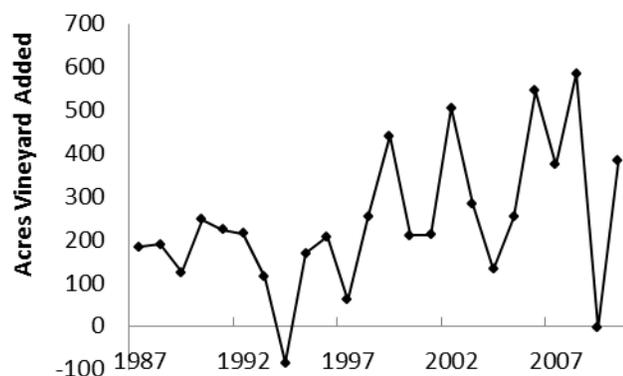


Figure 4.1 Acres of vineyard added or lost in Yamhill County between 1987 and 2010.

hard to predict or quantify, and documentation of chemical drift impacting Fender's blue butterfly is lacking, Yamhill SWCD is not including impacts from drift in the HCP or incidental take permit. See Chapter 9: Alternatives, for a more detailed explanation.

#### **4.1.4 Timber Establishment**

The intent of this Plan is to cover timber establishment as an activity only where land is being converted to forestry from another use (e.g., pasture or natural area). Forestry has been a common land use within the County since it was first settled in the mid 1800's. One-third of the county is covered with commercial timber and logging and timber products are vital to the economy of western Yamhill County. The primary timber species is Douglas-fir (*Pseudotsuga menziesii*), a conifer that creates an enclosed and shady understory.

Timber establishment tends to be incompatible with native upland prairie due to intensive site preparation and the heavy shade of mature forests. Pre-planting site preparation involves chemical treatment over the entire area or in planting strips or circles to remove competing species. Hand scalping can be used as an alternative to use of chemicals. Trees are spaced eight to twelve feet apart. Timber establishment and early stages of management may involve chemical drift onto adjacent lands under some conditions. Since chemical drift is extremely hard to predict or quantify, and documentation of chemical drift impacting Fender's blue butterfly is lacking, Yamhill SWCD is not including impacts from drift in the HCP or incidental take permit. See Chapter 9: Alternatives, for a more detailed explanation.

## **4.2 Voluntary Habitat Restoration**

Voluntary (unrelated to mitigation) habitat restoration, enhancement and management activities include mowing, prescribed burning and herbicide application for non-native species control. Such activities may result in temporary adverse (negative) effects on habitat and Fender's blue (Russell and Schultz 2010, LaBar and Schultz 2012) but generally have long-term benefits for the butterfly.

## **4.3 HCP Implementation Activities**

Yamhill SWCD seeks coverage of HCP implementation activities including but not limited to monitoring and habitat restoration for mitigation. These activities may result in temporary adverse effects on habitat, but will have long-term benefits to Fender's blue.

### **4.3.1 Habitat Enhancement, Restoration and Management for Mitigation**

Habitat restoration, enhancement and management activities including mowing, prescribed burning, and herbicide application are covered under the HCP at all Yamhill SWCD coordinated mitigation sites and at private sites where landowners have committed to on-site mitigation under the HCP through a Cooperative Agreement with Yamhill SWCD.

### **4.3.2 Monitoring**

Effectiveness monitoring activities for Fender's blue and its habitat that follow guidelines in Chapter 7: Monitoring and Adaptive Management are covered under this HCP. Monitoring will include species presence/absence and abundance surveys and monitoring activities associated with habitat restoration, enhancement and management. Monitoring that requires netting or other handling of Fender's blue butterflies is not covered under this HCP and requires a permit issued by USFWS to biologists who have completed required training.

## 5 Impacts Analysis

This chapter projects the impacts (incidental take) most likely to occur to Fender's blue butterfly from the Covered Activities within the HCP Plan Area during the permit term of 50 years. Yamhill SWCD requests take coverage only for the type and quantity of impacts identified in this chapter and described in Chapter 4 (Covered Activities). Any impacts resulting from activities not covered by this Plan and any impacts exceeding the quantity covered by this Plan must be addressed independently with the USFWS, potentially in a separate HCP.

For Fender's blue butterfly, incidental take is measured based on impacts to two components of the butterfly's habitat: its host plant, Kincaid's lupine, and nectar plants. Impacts to habitat rather than actual butterflies are used because the number of butterflies in a population can fluctuate widely from year to year due to weather conditions and other factors, making tracking impacts to actual butterflies, butterfly larvae or eggs extremely difficult and potentially inconsistent. Population fluctuations were reported by Fitzpatrick (2013) and shown in population data reported the Intra-Service Programmatic Biological Assessment for the Fish and Wildlife Service's Western Oregon Prairie Restoration Activities (USFWS 2008a).

Yamhill SWCD took the following steps to estimate potential take of Fender's blue habitat:

- **Determine Habitat Occupancy**-Estimate the proportion of the Plan Area (see Chapter 3) likely to support Kincaid's lupine and nectar plants.
- **Estimate Impact Avoidance**-Establish Best Management Practices (BMPs) and evaluate the potential to avoid impacts while completing the Covered Activities.
- **Forecast Impacts**-Estimate the amount of area within the Plan Area likely to be impacted by each Covered Activity over the next 50 years and calculate the total area of host and nectar plant loss in that area to estimate take of Fender's blue butterfly.

### 5.1 Determine Habitat Occupancy

The proportion of the Plan Area that includes Kincaid's lupine (lupine occupancy) was estimated using data from field surveys (Section 3.1). Within the 358 ha (885 ac) portion of the final HCP Plan Area that Yamhill SWCD was able to obtain permission to survey, a total of 2,267 m<sup>2</sup> (0.56 ac) of Kincaid's lupine leaf (foliar) cover was recorded at 19 sites (excluding roadsides), resulting in an estimated average lupine cover of 0.0633% across the HCP Plan Area.

The average nectar resources available for Fender's blue within the HCP Plan Area were estimated using nectar species flower counts completed in 2012 (Fitzpatrick 2012), which are described in Chapter 3: Plan Area. Within the Nectar Zone, on average, Kincaid's lupine provides 6.5 mg nectar sugar/m<sup>2</sup>, other native nectar species provide 3.25 mg nectar sugar/m<sup>2</sup>, and non-native nectar plants provide 8.83 mg nectar sugar/m<sup>2</sup>. Impacts will be assessed for native and non-native species when nectar is scarce and potentially limits the ability of the butterfly to forage and reproduce.

Available research indicates Fender's blue populations require 20 mg nectar sugar/m<sup>2</sup> in their nectaring habitat to support butterfly survival and reproduction (USFWS 2010). This HCP uses a 55 m radius Nectar Zone from Kincaid's lupine patches occupied by Fender's blue (calculated in Chapter 3: Plan Area). At sites in the Nectar Zone where pre-impact nectar sugar (native and non-native combined) is above the threshold of 20 mg/m<sup>2</sup>, impacts will be quantified as the amount of reduction of sugar resources below 20 mg/m<sup>2</sup>. Where pre-impact nectar resources (native and non-native combined) are

already below the 20 mg/m<sup>2</sup> threshold, impacts will be quantified as the difference between pre- and post-impact nectar resources (in mg sugar/m<sup>2</sup>). Activities at a site that do not reduce nectar resources (native and non-native combined) below 20 mg sugar/m<sup>2</sup> will not be considered impacts (Figure 5.3).

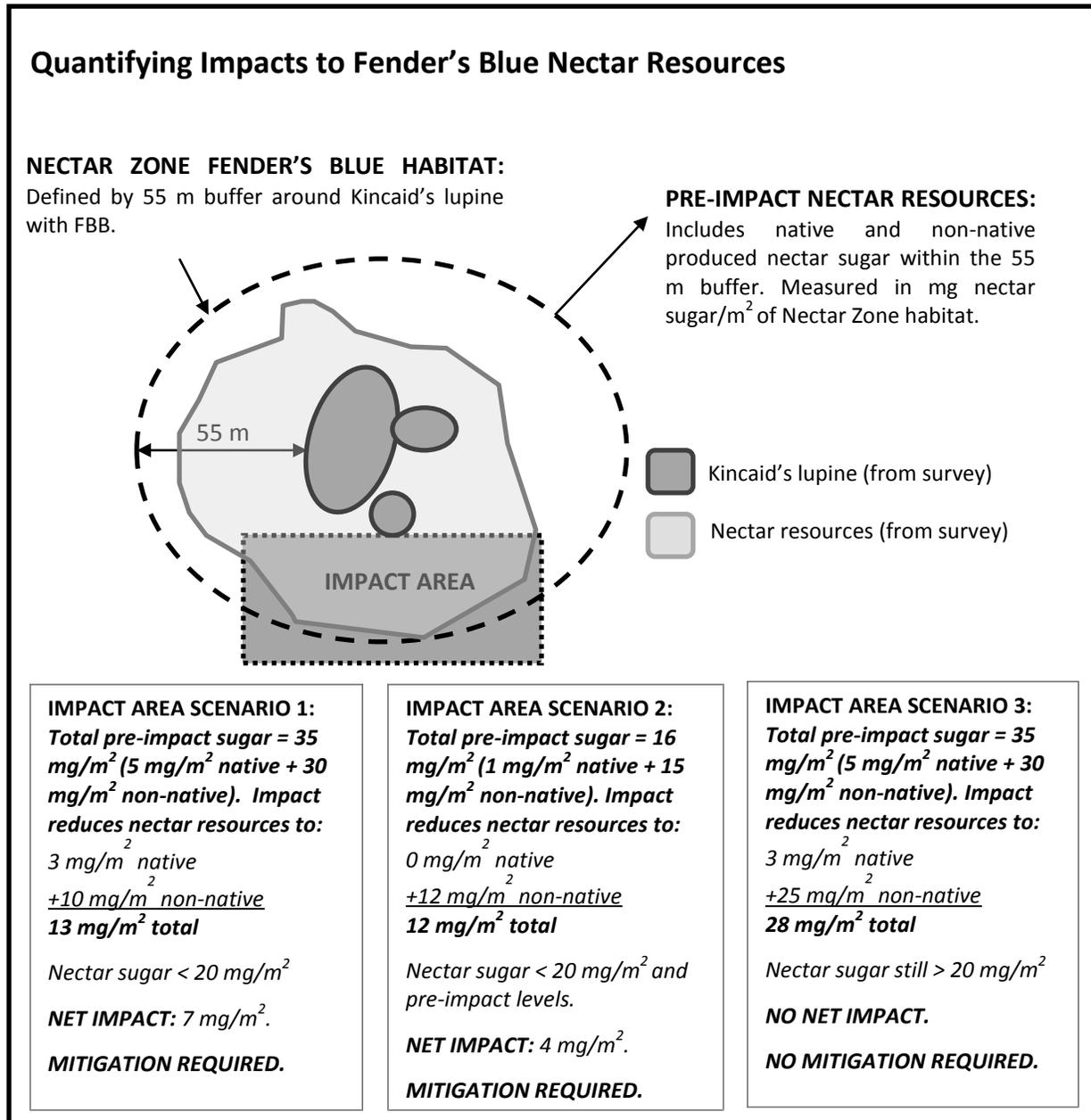


Figure 5.1 Description of how to quantify impacts to Fender's blue nectar species in the Nectar Zone.

## 5.2 Establish Best Management Practices (BMPs)

Within the HCP Plan Area, the Covered Activities (described in Chapter 4) are likely to result in impacts to Fender's blue habitat. The scale and degree of impacts will vary with the timing, location, extent, and other details of the Covered Activity. In collaboration with the Technical Advisory Committee and the USFWS, and with feedback from the Stakeholder Advisory Committee, the Yamhill SWCD has developed a set of Best Management Practices (BMPs), which are included in Chapter 6: Conservation Measures. The BMPs set forth guidelines for conducting Covered Activities to avoid or reduce impacts at sites with Fender's blue habitat, and are derived from the USFWS Biological Opinion for Prairie Restoration (USFWS 2008b). Current and ongoing research into land management practices within Fender's blue habitat contributed to the BMPs and the BMPs will continue to be updated through the process of Adaptive Management (Chapter 7: Monitoring and Adaptive Management).

## 5.3 Direct Impacts from the Covered Activities

Specific data describing activities to be completed at each of the 506 properties that intersect the Plan Area over the 50-year HCP permit term are not available. Therefore, Yamhill SWCD projects impacts over the 50-year permit period based on the best data available, including information from the USDA's National Agricultural Statistics Service (NASS), the HCP Technical and Stakeholder Advisory Committees, and Yamhill SWCD records and staff expertise. Measures of actual impacts that occur over the HCP permit term will be derived from surveys occurring before Covered Activities take place at a site. Logistics of plan implementation are described in Chapter 8: Implementation.

This section estimates the impacts to Fender's blue that are likely to occur when following the BMPs and avoiding impacts is not feasible for landowners. Yamhill SWCD first estimated the area within the HCP Plan Area likely to be affected by each Covered Activity over the 50-year permit term, then calculated the likely impact to each of the butterfly's habitat components (Kincaid's lupine and nectar plants) within that area. Losses of nectar from Kincaid's lupine are not included with the other native nectar species, because impacts to Kincaid's lupine as the host plant for Fender's blue are tallied (and mitigated) separately. The Covered Activities are described in detail in Chapter 4. Estimated impacts to Fender's blue host and nectar plants over the 50-year HCP permit term are summarized by Covered Activity in Table 5.1. Projected acreages of the HCP Plan Area to be affected by each Covered Activity are included in Table 5.2.

**Table 5.1 Estimated impacts to Fender's blue habitat from the Covered Activities over the 50-year HCP permit term, in acres and square meters of foliar (leaf) cover (at 100% lupine ground cover).**

Estimated impacts to Fender's blue habitat components (measured in ground cover for lupine and grams of sugar in flower nectar).			
	Kincaid's Lupine	Native Nectar (g sugar)	Exotic Nectar (g sugar)
Forage production	0.01 ac (50 m <sup>2</sup> )	79	166
Pasture/Livestock grazing	0.16 ac (657 m <sup>2</sup> )	74	156
Vineyard establishment	0.63 ac (2,562 m <sup>2</sup> )	126	266
Timber establishment	0.10 ac (398 m <sup>2</sup> )	45	94
<b>Total</b>	<b>0.91 ac (3,667 m<sup>2</sup>)</b>	<b>324</b>	<b>682</b>

**Table 5.2 Current and projected future land use within the HCP Plan Area (PA).**

	Estimated current area <sup>1</sup> (ac)	Current % of PA	Projected rate of increase <sup>2</sup> (ac/year)	Projected total increase <sup>2</sup> (ac)	Projected increase % of PA	Projected area in 50 years (ac)	Projected % of PA in 50 years
Forage production	455	5.8%	-	-		455	5.8%
Pasture/Livestock grazing	401	5.1%	6.4	320	4.1%	721	9.2%
Vineyard	330	4.2%	20	1000	12.8%	1330	17.0%
Timber	-	< 1	3.1	155	2.0%	155	2.0%
<b>Total</b>	<b>1,186</b>	<b>15.1%</b>	<b>29.5</b>	<b>1,475</b>	<b>18.8%</b>	<b>2,661</b>	<b>34%</b>

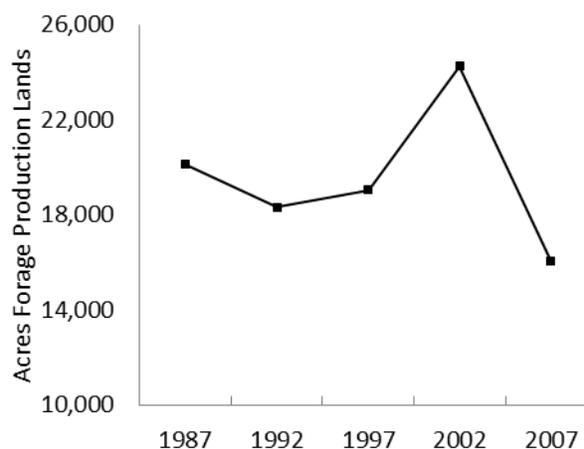
<sup>1</sup> Vineyard acreage as of 2010, all other data as of 2007.

<sup>2</sup> Projected net increase for forage production and pasture/livestock grazing.

### 5.3.1 Forage Production

The USDA NASS reports that between 1987 and 2007, on average, 7,914 ha (19,555 ac) were in forage production in Yamhill County as a whole. In the last 20 years, production peaked near 9,814 ha (24,250 ac) in 2002, and declined to roughly 647 ha (16,000 ac) in 2007 (Figure 5.2). Yamhill SWCD expects forage production levels to be similar to the 20-year average over the next 50 years.

As site specific forage production data and maps are not available, Yamhill SWCD used a proportional approach to estimate the quantity of land in forage production in the HCP Plan Area. Within Yamhill County, about 136,307 ha (336,822 ac) are “valley habitat” defined by the Willamette Valley ecoregion. The HCP Plan Area covers 3,169 ha (7,831 ac), which is approximately 2.32% of the Yamhill County “valley habitat”. The Nectar Zone (69.8 ha or 172.5 ac) covers 0.05% of the Yamhill County “valley habitat.” Yamhill SWCD expects a proportional amount of the 7,914 ha (19,555 ac) of Yamhill County forage land is in forage production in the HCP Plan Area, equating to approximately 184 ha (454 ac) of forage land in the HCP Plan Area overall, and 6 ha (10 ac) in the Nectar Zone.



**Figure 5.2 Trends in land (acres) used for forage production between 1987 and 2007 in Yamhill County (USDA NASS).**

Because lupine is toxic to most livestock and has to be excluded from hay and forage, Yamhill SWCD anticipates that most impacts to Fender's blue habitat from forage production will be limited to nectar plants, except cases where a landowner elects to remove lupine from a pasture as part of pasture improvement. Yamhill SWCD expects impacts to Kincaid's lupine will occur at ten or fewer sites, and affect 5 m<sup>2</sup> (54 ft<sup>2</sup>) of lupine or less per site, resulting in impacts to a total of 50 m<sup>2</sup> (540 ft<sup>2</sup>) of lupine.

To avoid impacting nectar species, the BMPs for mowing and forage production (Chapter 6: Conservation Measures, Section 6.2.2) in the Nectar Zone (Figure 3.1) require that haying occur after June 30 (too late for quality hay production), unless the landowner is able to provide an unmowed

“nectar reserve” for Fender’s blue, still within the nectaring distance of the butterfly (55 m). The nectar reserve would replace the nectar affected by mowing/forage production, not exceeding the 20 mg/m<sup>2</sup> needed by Fender’s blue (USFWS 2010), and allowing the remainder of the habitat to be hayed or mowed for other forage purposes. Yamhill SWCD estimates that 40% of landowners will be willing and able to provide the “nectar reserve” and avoid impacts and mitigation responsibilities. Therefore, the SWCD requests impacts to 60% of the nectar in forage production areas of the Nectar Zone, or native nectar plants producing 79 g sugar and non-native nectar plants producing 166 g sugar.

### **5.3.2 Pasture and Livestock Grazing**

As there is little research describing the interaction between cattle or other livestock and Fender’s blue butterfly (see discussion in Chapter 6: Conservation Measures, Section 6.2.2) Yamhill SWCD proposes the following approach to assess impacts from grazing, at least until more information is available. Yamhill SWCD will offer landowners wishing to graze livestock in the HCP Plan Area three options:

**Grazing Option 1:** The landowner may follow the BMPs for grazing (Chapter 6: Conservation Measures, Section 6.2.2), and no impacts to Fender’s blue will be assessed if they remain within the BMP guidelines.

**Grazing Option 2:** The landowner may request an exception from the BMPs, and graze outside the BMP parameters without being assessed any impacts and mitigation initially if the landowner works with Yamhill SWCD to develop and follow a grazing management plan, and is willing to have their pastures monitored regularly to track the effects of grazing on Fender’s blue habitat (see Chapter 7: Monitoring). If, once sufficient data are available, the grazing management plan being implemented is found to have neutral or positive Fender’s blue and its habitat, then that plan may be continued with no mitigation requirement. However, if regular monitoring indicates that the grazing plan is resulting in adverse impacts to Fender’s blue, and the landowner is unable or unwilling to promptly modify their practices, impacts may be assessed at that time, and mitigation will be required.

**Grazing Option 3:** The landowner may elect to graze as they wish but they will be assessed impacts and required to mitigate based on the area grazed and the best available information existing at that time to quantify the impacts of grazing on Fender’s blue.

The following steps were taken to estimate the incidental take needed for Grazing Options 2 and 3 above, in the event that grazing is found to result in impacts to Fender’s blue:

- Estimate the current area of pasture in the HCP Plan Area, and project the rate of pasture expansion (ha or ac/year) during the HCP permit term (50 years), considering historic rates.
- Estimate the proportion of landowners that will participate in the HCP and select Grazing Option 1, 2 or 3, and estimate the proportion of Option 2 landowners that will eventually need take coverage.
- Grazing has a variable and potentially patchy nature; estimate the proportion of a pasture, on average, that is actually used and impacted by grazers.
- Collect monitoring data at sites that are grazed outside the recommended BMPs with a grazing plan (Option 2). Use this information and other on-going research to modify the BMPs and adjust impact estimates over time as needed. If projected impacts are insufficient, Yamhill SWCD may elect to modify the HCP or refer landowners directly to the USFWS.

Data from the USDA NASS indicate 6,982 ha (17,254 ac) were used as pasture in 2007 in Yamhill County (Figure 5.3). As with forage production activities, Yamhill SWCD used a proportional approach to estimate the quantity of land in pasture in the HCP Plan Area. The HCP Plan Area covers approximately 2.32% of the "valley habitat" portion of Yamhill County. 162 ha (401 ac) of the Yamhill County pasture land (6,982 ha or 17,254 ac) is currently in the HCP Plan Area. The Nectar Zone comprises 0.16% of the valley habitat portion of Yamhill County, therefore Yamhill SWCD estimated 0.16% of the county-wide pasture acreage, 11 ha (28 ac), to be in the Nectar Zone.

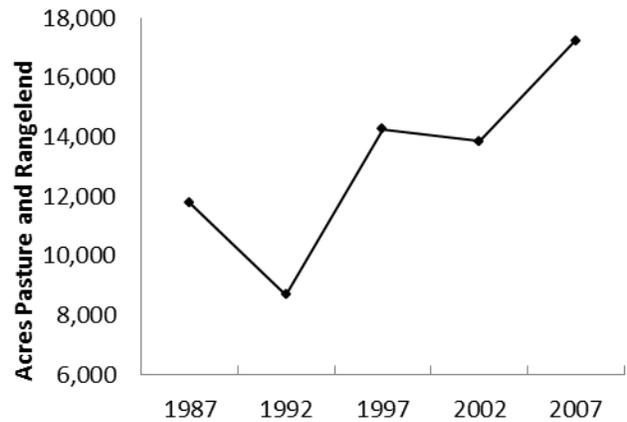


Figure 5.3 Changes in land area (acres) used as pasture or rangeland for livestock grazing between 1987 and 2007 in Yamhill County (USDA NASS).

The area of pasture and rangeland in Yamhill County increased on average about 111 ha (274 ac)/year between 1987 and 2007 (USDA NASS). Yamhill SWCD expects land used for pasture and rangeland will continue to increase from 2007 levels at a similar rate. Yamhill SWCD expects 2.32% of this annual increase (2.6 ha or 6.4 ac/year) to add another 129 ha (319 ac) of pasture in the HCP Plan Area over the 50-year permit. The SWCD projects that 0.16% of this annual increase (0.18 ha or 0.44 ac) will occur in the Nectar Zone, for a total of 9 ha (22 ac) impacted over 50 years.

While there is undoubtedly wide variation, for the purposes of projecting future impacts Yamhill SWCD suggests that on average, grazing a pasture outside the BMPs (Grazing Option 2 or 3) with lupine or nectar present during the growing season will not impact all of the lupine or nectar plants within the pasture. The SWCD also recognizes that on average, only a portion of the area (and butterfly resources) are likely to be affected through grazing or trampling. Based on consultation with the Technical and Stakeholder Advisory Committees, the SWCD assumed that an average of 75% of the vegetation, including host and nectar plants, will be impacted by pasture grazing activities.

Yamhill SWCD estimates that:

**Grazing Option 1:** 20% of landowners will be able to graze within the BMPs and avoid impacts and mitigation. No take is requested for lands using Grazing Option 1.

**Grazing Option 2:** 65% of landowners will request grazing outside the BMPs but with a grazing and monitoring plan and that no more than half of them (32.5%) will end up needing take coverage. For sites using Grazing Option 2, Yamhill SWCD requests take of 24% (75% vegetation removal in the 32.5% of pasture lands Yamhill SWCD projects having impacts) of the Kincaid's lupine within the pasture areas (and areas projected to become pasture) of the HCP Plan Area, which totals 450 m<sup>2</sup> (0.11 ac). Yamhill SWCD requests take for 24% (75% of 32.5%) of the native and non-native nectar in pasture areas (and areas to become pasture), or 50.8 g and 106.8 g sugar, respectively.

**Grazing Option 3:** 15% of landowners will request direct impacts to butterfly habitat. The SWCD requests take for 11.25% (75% of 15%) of the Kincaid's lupine in the HCP Plan Area, and 11.25% of the nectar plants within the Nectar Zone, which equates 207 m<sup>2</sup> (0.05 ac) of lupine, native nectar plants producing 23.4 g sugar, and non-native nectar plants producing 49.3 g sugar.

### 5.3.3 Vineyard Establishment

The following two steps were taken to determine likely impacts to Fender's blue from vineyard establishment:

- (1) Project the rate of vineyard establishment (ac/year) during the HCP permit term (50 years), considering historic rates, and future dynamics, such as the marketability of Oregon wines.
- (2) Estimate the capacity for vineyards in Yamhill County and specifically in the HCP Plan Area, targeting land with appropriate abiotic environmental conditions (e.g., climate, topography) and including adjustments based on property turnover, sales, and availability for conversion to vineyard.

In cooperation with the Oregon Wine Board, Oregon Wine Growers Association and the Oregon Department of Agriculture (ODA), the USDA NASS produces an annual Oregon Vineyard and Winery Report. Annual reports have been regularly produced since 1987, with less frequent reports in the early 1980s. Yamhill County is currently the leading wine production region in Oregon. Production has steadily increased since 1981, from roughly 182 ha (450 ac) planted to wine grapes at under 30 vineyards to over 2,630 ha (6,500 ac) at 255 vineyards in 2010 (Figure 5.4).

Between 1987 and 2010, an average of 98 ha (242 ac)/year were converted into vineyards in Yamhill County (USDA NASS Wine and Vineyard Reports 1987-2010). More recently, between 2005 and 2008, an average of 177 ha (438 ac) of new vineyard were established per year (approximately 8.9 ha (22.2 ac) per year in the Plan Area). The SWCD used the latter, more current growth rate estimate, as it is more representative of growth rates prior to the economic slowdown in 2009. Marketing of Oregon wines has improved since the early 1980s and 1990's, which will likely further enhance demand and production. Though current wine production may be limited by winery capacity, this is a short-term barrier that should not hinder production in the future (David Beck, Ph.D., Oregon Wine Board-Board of Directors, Personal Communication 2012).

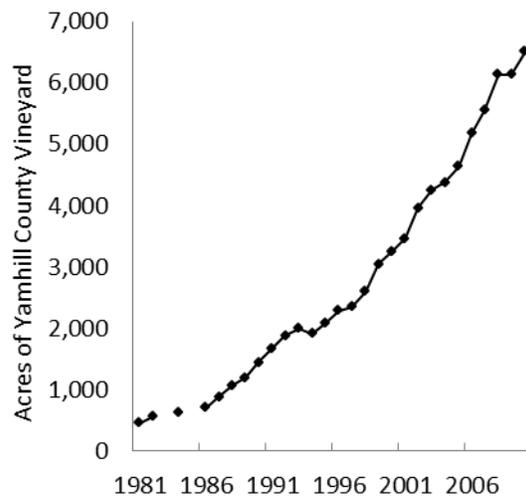


Figure 5.4 Acres in wine grape production in Yamhill County in 1981-2010 (USDA NASS).

To maximize the likelihood of quality wine production, vineyard site selection involves analysis of microclimate, which includes climate, weather, topography and soil conditions (Hellman 2003). In Yamhill County, the desirable vineyard sites are those with southerly aspects, including those between 135° and 225° aspect, with 100- 250 m (328– 820 ft) in elevation (David Beck, Ph.D., Oregon Wine Board-Board of Directors, Personal Communication 2012). Realistically, land must also be zoned for agricultural uses. Analysis with GIS shows that 12,010 ha (29,678 ac) in Yamhill County meet these criteria. Of this potential vineyard habitat, 609 ha (1,505 ac) or 5.07% are in the HCP Plan Area. Based on the proportion of the County's suitable vineyard land in the HCP Plan Area, the SWCD estimates that of the 2,634 ha (6,511 ac) in existing Yamhill County vineyards (as of 2010 (NASS)), 134 ha (330 ac) are currently in the HCP Plan Area, leaving 476 ha (1,175 ac) of remaining capacity for new vineyards in the future. Realistically, not all of this land will be converted to vineyard. Not all properties will change ownership over 50 years, some owners will not be interested in conversion to vineyard, and some properties have conservation easements that prohibit vineyard development. Based on these

limitations, Yamhill SWCD estimates that 404 ha (1,000 ac) within the HCP Plan Area will be converted to vineyard during the 50-year permit term, at an average rate of 8.1 ha (20 ac)/year. Of the area to be converted to vineyard in the Plan Area, approximately 21.5 ha (53.2 ac) are in the Nectar Zone.

Using average lupine and nectar occupancy rates (Section 5.1), the SWCD estimates the predicted vineyard expansion in the Plan Area over the 50-year permit will result in loss of 2,562 m<sup>2</sup> (0.63 ac) of Kincaid's lupine, native nectar plants producing 126 g sugar and non-native nectar plants producing 266 g sugar.

#### 5.3.4 Timber Establishment

Converting prairie to timber can generate income and receive a property tax deferral in Yamhill County (Yamhill County 2012). Outreach about the values of prairie habitats by Yamhill SWCD and improvements in the economic climate may reduce rates of conversion to timber, as may the addition of other more prairie-friendly ways to receive tax deferral, including programs such as the Oregon Department of Fish and Wildlife (ODFW) Wildlife Habitat Conservation and Management Program (ODFW 2012). Based on USDA NASS data from 1987 to 2007, it appears roughly 40.8 ha (101 ac)/year are converted to timber in Yamhill County (Figure 5.5). Though it may take more than 20 years for planted conifers to develop a canopy that shades out prairie species, for the purposes of this analysis the SWCD will assume that once an area has been planted to trees, the shading out of Kincaid's lupine and nectar plants for Fender's blue is inevitable.

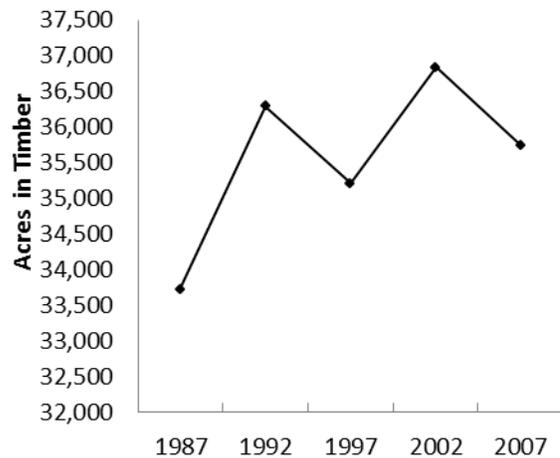


Figure 5.5 Yamhill County trends in land (ac) in timber production between from 1987 and to 2007 in Yamhill County (USDA NASS).

Yamhill SWCD estimated the area of private lands with the potential to be converted to timber by excluding currently forested areas, the current area in vineyards, urban areas and historic wetland/riparian habitat. This left roughly 103,631 ha (256,077 ac) of land with the greatest potential to be planted to forest. The HCP Plan Area represents 3.06% of this potential timber land, and is likely to have a proportional quantity of the 40.8 ha (101 ac)/year converted to timber county-wide, or 1.3 ha (3.1 ac)/year. This conversion rate would result in 62.7 ha (155 ac) of habitat in the HCP Plan Area being converted to timber over the 50-year HCP. Using average lupine and nectar occupancy rates (Section 5.1), the SWCD expects timber establishment to result in take of 398 m<sup>2</sup> (0.1 ac) of lupine, native nectar plants producing 45 g sugar, and non-native nectar plants producing 94 g sugar.

#### 5.3.5 Voluntary Habitat Restoration

On-going (over the term of the incidental take permit), short-term impacts from habitat restoration actions (mowing, prescribed burning, herbicide application) are expected to occur. These activities are intended to reduce competition from exotic plants on Kincaid's lupine and native nectar plants, while also maintaining the open habitat structure favored by Fender's blue. Any short-term adverse effects from restoration work can be avoided or greatly minimized by following the recommended restoration, enhancement and management guidelines described in the Programmatic Formal Consultation on Western Oregon Prairie Restoration (USFWS 2008b). These restoration activities are anticipated to have long-term benefit to Fender's blue (USFWS 2008b) and will not require mitigation in this HCP.

Yamhill SWCD estimates that of the 3,169 ha (7,831 ac) within the Plan Area, roughly 10% will be treated with a regular prescribed fire program to restore habitat and stimulate Kincaid's lupine growth. A regular prescribed burning regime would involve burning no more than one third of the habitat at a site each year, likely resulting in a site being burned a maximum of ten times during the 50-year HCP permit term. Prescribed burning may result in 100% mortality of butterfly larvae in burned areas. Burning is also predicted to result in mortality to 5% of the lupine/nectar plant seeds in the soil seed bank.

Yamhill SWCD anticipates that about 20% of the 3,169 ha (7,831 ac) within the Plan Area will be regularly managed using herbicides to control exotic plant species. Chemical treatments can largely avoid negatively impacting Kincaid's lupine, native nectar species, and Fender's blue, but incidental exposure may result in the death or injury of some butterfly larvae (<5% estimated; USFWS 2008b). Incidental take is requested for these short-term impacts to the Fender's blue populations; detailed estimates of take by management treatment are presented in Table 5.3.

### **5.3.6 HCP Implementation Activities**

HCP implementation activities will include but are not limited to habitat restoration and enhancement for mitigation, as well as monitoring and seed collection. Short-term adverse effects from this work will be avoided or greatly minimized through implementation of Best Management Practices (Section 6.2) and the Programmatic Formal Consultation on Western Oregon Prairie Restoration (USFWS 2008b). Mitigation is not required for these activities under this HCP because they will result in a net benefit to Fender's blue (USFWS 2008b). Estimated short-term impacts to Fender's blue habitat from HCP implementation activities are described in detail in Table 5.3.

#### **5.3.6.1 Habitat Restoration for Mitigation**

Short-term impacts from mitigation related habitat restoration actions (mowing, prescribed burning, herbicide application) are expected to occur. As with voluntary habitat restoration actions (Section 5.3.5) short-term adverse effects will be avoided by adhering to USFWS prairie restoration guidelines (USFWS 2008b), and the activities are expected to have long-term benefit to Fender's blue (USFWS 2008b) and will not require mitigation in this HCP. Impacts from mitigation-related habitat restoration were estimated using an average 2:1 mitigation ratio (See Table 6.4), and assuming that on average, intensive restoration for mitigation will be completed six years after impacts are assessed (Section 6.3.3). The SWCD assumed that rates of vineyard and forest establishment will be relatively constant, resulting in mitigation for these activities being completed continuously over the 50-year permit term. In contrast, the SWCD expected the majority of forage production and grazing activities were already underway, and that landowners will enroll properties with these activities in the HCP primarily during the first 10 years of Plan implementation.

#### **5.3.6.2 Monitoring**

Monitoring will be conducted to determine how well the habitat restoration activities are working. Monitoring activities may result in minor trampling of host and nectar plants and butterfly eggs or larvae. Yamhill SWCD estimates that monitoring activities will result in impacts to 0.5% of the Kincaid's lupine (and associated butterfly eggs/larvae) and nectar plants added through mitigation (Table 5.3).

#### **5.3.6.3 Plant Materials Collection**

Seeds of existing Kincaid's lupine populations and seeds, bulbs or rhizomes from existing native nectar plant populations may be collected and used for habitat restoration and enhancement projects. Annual collections should not exceed recommendations in Table 5.4.

**Table 5.3 Estimated short-term adverse effects to Fender's blue butterfly from projected habitat restoration actions and HCP implementation activities over the course of the 50-year HCP in the HCP Plan Area (PA).**

	Management Treatment	Treatment Frequency	Affected Habitat Component	Anticipated Mortality per Treatment	Cumulative Impacts over 50 yr HCP
Voluntary Restoration	Prescribed burning over 10% of PA	10X over 50 years	Eggs/Larvae	100%	All eggs/larvae in 20,060 m <sup>2</sup> (4.96 ac)
			Kincaid's lupine	5% seeds	47,242 seeds
			Native Nectar Plants		1,481,843 seeds <sup>a</sup>
	Herbicide application over 20% of PA	10% of area annually, or entire area 5X	Eggs/Larvae	5%	All eggs/larvae in 1,003 m <sup>2</sup> (0.25 ac)
Mitigation-related Restoration	Prescribed burning of Mitigation Areas	10X over 50 years	Eggs/Larvae	100%	All eggs/larvae in 34,678 m <sup>2</sup> (8.56 ac)
			Kincaid's lupine	5% seeds	72,304 seeds
			Native Nectar Plants (mitigating native impacts)		897,120 seeds
			Native Nectar Plants (mitigating exotic impacts)		1,644,335 seeds
	Herbicide application at Mitigation Areas	10% of area annually, or entire area 5X	Eggs/Larvae	5%	All eggs/larvae in 904 m <sup>2</sup> (0.22 ac)
Monitoring	Monitoring at Mitigation Areas	Every 3 years	Eggs/Larvae	0.5%	All eggs/larvae in 300 m <sup>2</sup> (0.07 ac)
			Kincaid's lupine		300 m <sup>2</sup> (0.07 ac)
			Native Nectar Plants (mitigating native impacts)		Plants producing 36 g sugar
			Native Nectar Plants (mitigating exotic impacts)		Plants producing 65 g sugar

<sup>a</sup> Estimated # seeds of *Sidalcea virgata*, if it were the sole species involved.

**Table 5.4 Guidelines on collection of plant materials within Fender's blue habitat. Based on USFWS guidelines (2008b), though that document includes no guidance specifically for native nectar species plant materials.**

Species	Areas with <50 nectar plants or 25m <sup>2</sup> lupine	Areas between 50-500 nectar plants or 25-250m <sup>2</sup> Lupine	Areas of >500 nectar plants or 250m <sup>2</sup> lupine	Any population to be permanently impacted by a Covered Activity
Kincaid's lupine	50% of seeds	15% of seeds	25% of seeds	100% of seeds and plants
Native nectar species in Nectar Zone	50% of seeds, 2% of rhizome biomass	15% of seeds, 5% of rhizome biomass	25% of seeds, 5% of rhizome biomass	100% of seeds, plants, and rhizome biomass

## **5.4 Indirect Impacts**

In addition to direct impacts, conversion of prairie habitats to other uses (e.g., timber, vineyard, pasture, hayfield) will indirectly impact biological resources.

### **5.4.1 Habitat Degradation**

Increased human use in converted habitats have adverse effects on biological resources in the form of collection, harassment, introduction or spread of diseases or non-native species, trash dumping, spills of hazardous materials, and water quality degradation from runoff from associated roads. Trampling would not necessarily result in loss of covered plant species, but could indirectly harm them by compacting soils and negatively impacting plant growth.

Vehicles, clothing, and equipment may transport plant seeds, vegetative material, and pathogens. Fender's blue habitat may be harmed by introduction and spread of noxious weeds and non-native plants.

### **5.4.2 Habitat Fragmentation**

Habitat fragmentation will reduce the spatial and ecological continuity within the Yamhill County as habitat is reduced in size and becomes more isolated from adjacent areas of similar habitat types. Fragmentation by newly established timber or vineyard may separate a continuous population into subpopulations, making each subpopulation more vulnerable to local extinction.

### **5.4.3 Isolation**

Isolation can affect ecological functions and the long-term viability of species through genetic bottlenecks and genetic drift.

### **5.4.4 Loss of Biological Diversity**

Any conversion of open space, including conversion to timber, vineyard, pasture or hayfield, will result in loss of biological diversity as habitat loss occurs and species may be removed from the area.

## 6 Conservation Measures

This chapter identifies the biological goal, objectives, and Conservation Measures for the HCP. Biological goals and their objectives are the broad, guiding principles of the Conservation Measures, the actions proposed to avoid, minimize, and mitigate the impacts to the Covered Species that result from the Covered Activities. While the goals and objectives of the HCP may contribute to range-wide recovery goals (e.g., steps to down list or de-list) for Fender's blue, HCP biological goals and recovery goals are not required to be equivalent. Yamhill SWCD has designed the offsetting conservation actions of this HCP to contribute, to the maximum extent practicable, to the recovery of Fender's blue and its host plant, Kincaid's lupine.

The compensatory conservation actions (mitigation) required of any holder of a Certificate of Inclusion to this HCP will be commensurate with the quantity and type of impacts (permanent or temporary, loss of host or nectar plants) likely to occur to Fender's blue. The specific quantity of impacts resulting from any Covered Activity will be assessed through pre-activity surveys. Different types and quantities of impacts will receive different but appropriate levels of offsetting measures.

The USFWS will allow Certificates of Inclusion to be issued under Yamhill SWCD's incidental take permit provided the impacts to Fender's blue butterfly, in combination with the Conservation Measures to be performed to compensate for those impacts, do not appreciably reduce the likelihood of survival and recovery of Fender's blue. The USFWS will also consider the extent to which the HCP is likely to enhance the habitat for Fender's blue and promote the recovery of the species or the long-term survival of prairie ecosystems.

### 6.1 Biological Goal, Objectives and Conservation Measures

The biological goal of this HCP is to maintain viable populations of Fender's blue in Yamhill County.

To achieve the biological goal, the following objectives shall be accomplished through the Conservation Measures of the HCP by Yamhill SWCD and those obtaining incidental take coverage through the Yamhill SWCD incidental take permit:

- Promote conservation of Fender's blue butterfly and its habitat at sites that currently support the species.
- Enhance suitable habitat at occupied sites to increase populations of Fender's blue butterfly.
- Expand existing Fender's blue butterfly networks, and promote new independent populations<sup>1</sup> of the species in Yamhill County through a Conservation Strategy for Fender's Blue Butterfly (Appendix C).

The Conservation Measures for the Yamhill HCP, including measures to avoid, minimize, and mitigate impacts to Fender's blue, are described in Table 6.1.

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<sup>1</sup> As defined by the USFWS (2010), an independent population is an isolated population that meets certain minimum size and habitat quality criteria, and which would be likely to persist in the long-term. It must be at least the minimum patch size (currently defined as 6 ha [15 ac]).

**Table 6.1 Conservation Measures for the Yamhill HCP for Fender's Blue Butterfly on Private Lands.** Each objective to reach the biological goal has multiple conservation measures. Each Conservation Measure has one or more specific tasks to accomplish.

<b>Objective 1: Promote conservation of Fender's blue and its habitat at sites that currently support the species.</b>	
<b>CONSERVATION MEASURE</b>	<b>TASK</b>
<i>Identify population locations on the lands of private landowners who are interested in conserving Fender's blue.</i>	<ul style="list-style-type: none"> <li>• Conduct outreach to find landowners willing to allow YSWCD to visit their property.</li> <li>• Offer and complete site evaluations at no or reduced cost to landowners.</li> <li>• Assess population status and site management needs.</li> </ul>
<i>Conduct outreach and provide education to the public regarding prairie habitat conservation and management.</i>	<ul style="list-style-type: none"> <li>• Distribute informational materials regarding prairie species, habitats and conservation programs.</li> <li>• Distribute informational materials about managing prairie habitats.</li> <li>• Encourage participation in conservation programs such as the Safe Harbor Agreement with Assurances or Partners for Fish &amp; Wildlife.</li> <li>• Encourage landowners who must complete mitigation to protect occupied Fender's blue habitat through conservation easement or deed restriction on their property.</li> </ul>
<i>Promote avoidance and minimization of impacts to Fender's blue and its habitat.</i>	<ul style="list-style-type: none"> <li>• Provide landowners seeking incidental take coverage a free or reduced cost evaluation of their property or project area to determine if the butterfly and its habitat are present.</li> <li>• Provide information to the landowner about Best Management Practices (BMPs) for the Covered Activities.</li> <li>• Work with the landowners to avoid or minimize impacts through BMP implementation.</li> </ul>

<b>Objective 2: Enhance suitable habitat at occupied sites to increase populations of Fender's blue butterfly.</b>	
<b>CONSERVATION MEASURE</b>	<b>TASK</b>
<i>Promote Best Management Practices at sites with existing populations of Fender's blue butterfly.</i>	<ul style="list-style-type: none"> <li>• Conduct outreach to spread information about Best Management Practices (BMPs) to maintain prairie habitats in Yamhill County.</li> <li>• Assist in developing site management plans where there is landowner interest in conserving Fender's blue and its habitat.</li> <li>• Provide technical assistance for habitat restoration and enhancement to help meet the landowner's goals.</li> <li>• Encourage collaboration and information sharing between landowners with similar restoration goals and need for plant materials, equipment and monitoring.</li> <li>• Use the Yamhill SWCD website as a tool to engage interested</li> </ul>

	landowners and notify landowners when they are cleared to mow or graze habitats in late summer (in accordance with BMPs).
<i>Coordinate compensatory conservation actions to mitigate Fender’s blue habitat losses.</i>	<ul style="list-style-type: none"> <li>Identify sites to receive mitigation actions, including Yamhill SWCD or partnering organization conservation easement sites. Landowners may also elect to complete enhancement on-site at their own property, if suitable habitat exists.</li> <li>Develop a Site Conservation Plan for each YSWCD coordinated mitigation site that incorporates the BMPs for Fender’s blue habitat to describe site-specific enhancement actions and schedule enhancement tasks.</li> <li>Implement the Site Conservation Plan and BMPs, which may include regular late season mowing, control of aggressive exotic species and augmentation of Kincaid’s lupine and native nectar species.</li> <li>Monitor to establish baseline conditions and track expansion of Fender’s blue habitat.</li> <li>Analyze monitoring data and utilize adaptive management to improve enhancement outcomes.</li> </ul>

**Objective 3: Expand existing Fender’s blue butterfly networks and promote new independent populations of the species in Yamhill County.**

CONSERVATION MEASURE	TASK
<i>Develop a Conservation Strategy for Fender’s Blue (Appendix B) to identify and facilitate effective conservation actions and contribute to the recovery of Fender’s blue and Kincaid’s lupine in Yamhill County.</i>	<ul style="list-style-type: none"> <li>Identify expansion zones where enhancing Fender’s blue habitat could expand an existing butterfly network or initiate a new independent population for the species.</li> <li>Conduct regular outreach to sites in expansion zones.</li> <li>Encourage voluntary cooperative partnerships among public and private landowners and the general community to foster conservation actions.</li> <li>Where landowners are willing, complete on-the-ground evaluations of potential sites in the expansion zones to determine site suitability.</li> <li>Use the Recovery Plan for Prairie Species of Western Oregon and Southwest Washington (USFWS 2010) to identify conservation targets for Fender’s blue butterfly and Kincaid’s lupine.</li> </ul>

**6.2 Avoidance and Minimization through Best Management Practices (BMPs)**

The Yamhill SWCD works with private landowners within Yamhill County to provide guidance in land management practices in order to promote conservation of natural resources and habitat values. Over the permit term of the HCP, Yamhill SWCD will continue to offer guidance to these landowners, including technical assistance on implementing Best Management Practices (BMPs) and means to avoid and minimize impacts to Fender’s blue within the HCP Plan Area. By partnering with landowners and

providing site evaluations for Fender's blue habitat free of charge or at reduced cost, the Yamhill SWCD will be able to significantly reduce impacts to Fender's blue habitat within the HCP Plan Area (Chapter 5: Impacts Analysis).

To use the BMPs most effectively, Yamhill SWCD will work with the landowner to:

- (1) Identify the site's location within the Yamhill HCP Plan Area. BMPs differ depending on whether a site is within the broader Plan Area, or is within the Nectar Zone (Figure 6.1).
- (2) Evaluate the property to determine if Kincaid's lupine is present. If the site is located in the Nectar Zone, complete a survey for nectar species for Fender's blue. If both Kincaid's lupine and nectar species are absent, adherence to these BMPs may be unnecessary. If a survey has not been completed, assume both host and nectar species are present throughout the site, and complete a survey the following spring.

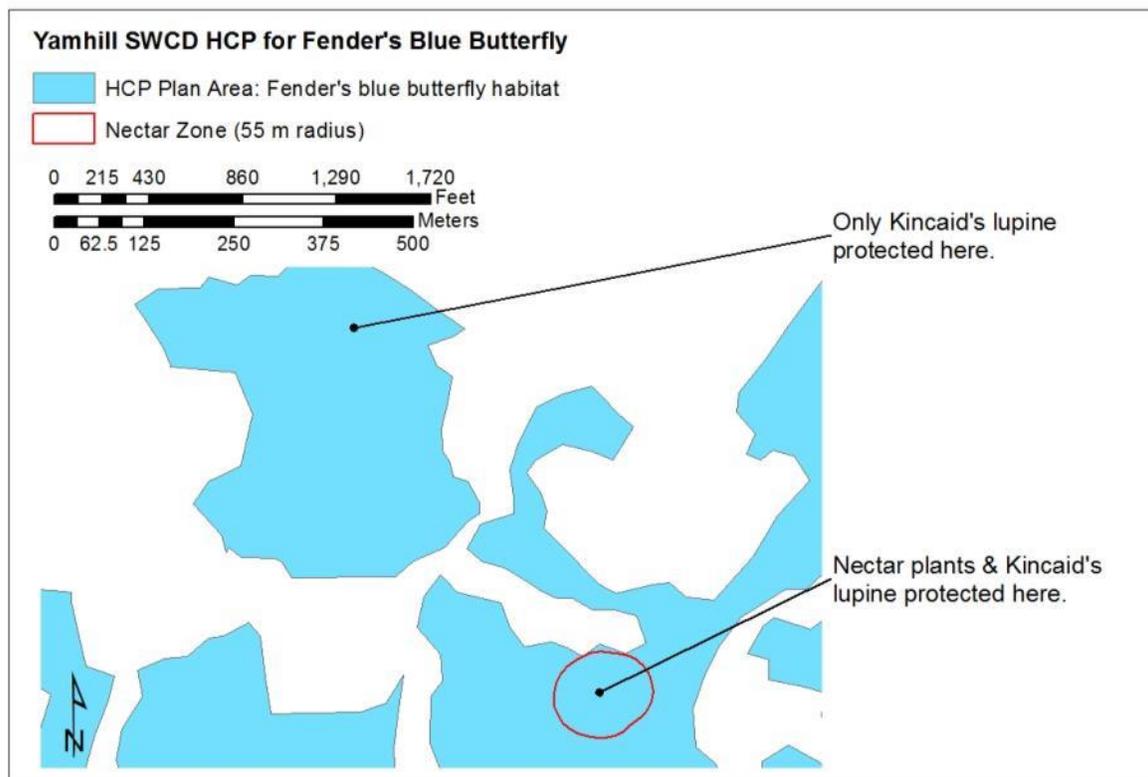


Figure 6.1 Explanation of where Kincaid's lupine and nectar species are protected in the Plan Area. Kincaid's lupine is protected throughout the entire Plan Area, all of which is within 2 km (1.2 mi) (flight distance) of a known butterfly location. Nectar plants for the butterfly are only protected within the Nectar Zone, the area within 55 m (180 ft) (nectaring distance) of a known butterfly location. The full map is shown in Chapter 3: Plan Area, Figure 3.1.

### 6.2.1 Forage Production BMPs

Mowing for hay or other purposes can benefit Fender's blue habitat, when timed correctly. Research has demonstrated that using mowing to reduce the height and dominance of non-native vegetation can increase abundance of adult, larval and egg stages of Fender's blue (Fitzpatrick 2005, Kaye and Benfield 2005, Severns 2008a & 2008b). Mowing in areas where Fender's blue eggs or larvae are present may harm a small number of butterfly eggs or larvae through incidental crushing. Mowing should not occur

during the growing season for Kincaid’s lupine (mid-February through early August) to avoid reducing the availability of lupine as a food source for Fender’s blue larvae, harming the plant, or reducing its ability to produce seed and propagate. Mowing areas with nectar plants is recommended, but should occur only after the flight season (May through June), so as not to reduce the nectar production for Fender’s blue, harm the plants, or reduce their ability to produce seed and self-propagate.

Little is known regarding the specific direct effects of using haying equipment in areas with Fender’s blue butterfly. In prairie restoration work, haying is frequently recommended as the best alternative to prescribed burning. Haying can be preferable to mowing alone because, in addition to reducing the height of non-native vegetation, haying removes plant material from a site. As with burning, haying can therefore benefit native plants by preventing plant litter (thatch) accumulation that can hinder plant growth and reproduction.

Within the entire HCP Plan Area, if a site has Kincaid’s lupine present or has not been surveyed, mowing and haying should only occur within the guidelines presented in Table 6.2. In areas with Kincaid’s lupine that potentially supports Fender’s blue, it is critical that the teeth on hay rakes and balers are set so they do not scrape the ground (15 cm/6 in minimum from ground is recommended) and disturb butterfly larvae in diapause at the soil surface. Mowing and haying should never occur when soils are wet and tracking will occur. It is not known whether the additional passes by tractors and equipment may cause more crushing of Fender’s blue larvae however this question may be addressed through monitoring and adaptive management.

**Table 6.2 Guidelines and timing restrictions for mowing or haying within Fender’s blue butterfly habitat. Mowing entire sites in fall is recommended to enhance habitat quality.**

	Jan-Feb 15	Feb 15- Apr	May- June <sup>a</sup>	July	Aug 1-15	Aug 15-30	Sept-Dec
Mow/Hay while avoiding lupine by 5 m (15 ft) and nectar <sup>b</sup> by 2 m (6.5 ft)	<b>OK year round, when soils are not too soft.</b>						
Tractor mow/hay entire site	<b>Yes</b>	No	No	No	No	<b>Yes</b>	<b>Yes</b>
		<b>Yes<sup>c</sup></b>	<b>Yes<sup>c</sup></b>	<b>Yes<sup>c</sup></b>	<b>Yes<sup>c</sup></b>		

<sup>a</sup> Fender’s flight season.

<sup>b</sup> Nectar guidelines apply in butterfly nectar zone only, and assistance may be provided by YSWCD to identify butterfly resources for avoidance.

<sup>c</sup> Mowing during is permitted if Kincaid’s lupine is avoided and un-mowed nectar reserve is provided (see below).

Mowing a portion of a site during the growing season is acceptable as long as any Kincaid’s lupine is avoided and a sufficient “nectar reserve” is provided by leaving a portion of the site unmowed. The nectar reserve area must remain unmowed during the growing season for the nectar plants (including the flight season for Fender’s blue butterfly), and be located within nectaring distance (55 m/180 ft) of the butterflies served by the site. The distribution and quantity of nectar within the ‘reserve’ will be determined upon consultation with Yamhill SWCD and USFWS, considering such factors as butterfly population size and proximity, nectar species sugar production, phenology and diversity. In most cases, the ‘reserve’ will replace the nectar lost from mowing activities, but should not exceed the threshold sugar demand of butterflies using the site (20 mg sugar/m<sup>2</sup> (USFWS 2010)). If a landowner is unable to provide the nectar reserve, they will either have to avoid the nectar plants while mowing or mitigate their impacts.

**6.2.2 Pasture and Livestock Grazing BMPs**

As with mowing, well-managed livestock grazing may reduce the height and dominance of non-native vegetation in pasture areas. However, grazing at any time in pasture areas with Fender’s blue butterfly has the potential to crush butterfly eggs or larvae. Livestock may also consume or trample nectar plant species, reducing the quantity of nectar available for adult Fender’s blue. Livestock typically avoid consuming most species of lupine as they are frequently toxic, but trampling of lupine plants may occur. The degree of impacts to lupine and nectar plants will vary with multiple factors, including but not limited to the species of livestock, season and/or frequency of pasture use, the density of grazers, locations of fences and water troughs, and the type and quantity of forage available.

Established research evaluating the effects of livestock grazing on Fender’s blue butterfly is minimal (Section 4.1.2). As grazing effects are likely to be site-, species- and stocking-rate specific, future research is needed to learn more about these interactions. Information from these research projects, in addition to monitoring data gathered as part of this HCP, will be used to modify the grazing BMPs as needed through Adaptive Management. A primary question is whether livestock hooves may crush larvae while the larvae are feeding on lupine plants or while the larvae are in diapause in the soil and plant litter layers beneath lupine plants. Also unknown is whether livestock effects to Fender’s blue and its habitat at sites that are currently grazed will differ from sites where grazing is a new activity.

In general, to reduce or avoid impacts from livestock grazing until more specific information about its effects is available (See Chapter 7. Monitoring and Adaptive Management), Yamhill SWCD suggests timing restrictions similar to those for mowing be applied to livestock grazing. Timing guidelines for grazing activities are included in Table 6.3. As with mowing, grazing should not occur when soils are soft and wet. In addition, high animal traffic areas such as feeding or water troughs, mineral supplements, and gates should never be located (regardless of season) such that trampled areas are closer than 5 m (16 ft) of Kincaid’s lupine plants, whether they are dormant or not.

**Table 6.3 Timing guidelines for livestock grazing within Fender’s blue butterfly habitat.**

	Jan-Feb 15	Feb 15 – May 15	May 15- Jun15	June 15- July 31	Aug 1- 15	Aug 15- 30	Sept- Dec
Graze while avoiding lupine by 5 m (16 ft) and avoiding native nectar plants by 2 m (6.5 ft) <sup>a</sup>	<b>OK year round, when soils are not too soft.</b>						
Graze areas with nectar species only <sup>a</sup>	<b>Yes</b>	No	No	No	No	<b>Yes</b>	<b>Yes</b>
		<b>Yes<sup>b</sup></b>	<b>Yes<sup>b</sup></b>	<b>Yes<sup>b</sup></b>	<b>Yes<sup>b</sup></b>		
Graze areas with lupine or lupine and nectar	<b>Yes</b>	No	No	No	No	<b>Yes</b>	<b>Yes</b>

<sup>a</sup> In nectar zone only. No limitation for grazing nectar species elsewhere.

<sup>b</sup> Grazing is permitted if ‘nectar reserve’ is provided (see below).

Grazing in areas in the Nectar Zone with nectar species but without Kincaid’s lupine is acceptable as long as an ungrazed (during the nectar plant growing season and butterfly flight season) ‘nectar reserve’ is provided proximal (within nectaring distance) to the butterflies using the grazed area on the property. The distribution and quantity of nectar plants within the ‘reserve’ will be determined upon consultation with Yamhill SWCD and USFWS, considering such factors as butterfly population size and current nectar

availability in the grazed area, nectar sugar content by species, and species phenology, diversity, and distribution at the site. If a landowner is unable to provide the nectar reserve, they cannot comply with the BMPs and so must elect grazing Option 2 or 3 (see Chapter 5: Impacts Analysis, Section 5.3.2 for an explanation of Grazing Options 1-3) and mitigate on-site or off-site. On-site mitigation for nectar losses is potentially most beneficial to the butterfly.

### **6.2.3 Timber Establishment and Management BMPs**

The conversion of prairie to forest is typically not compatible with preservation of existing Fender's blue habitat, as once trees establish and mature the prairie habitat will be shaded and for the most part eliminated beneath the tree canopy. Even if trees were spaced to allow sufficient light penetration to the forest floor, intensive ground disturbance during vegetation management, stand thinning and harvest would likely damage lupine and nectar plants. Dense forest may also pose a barrier to butterfly movement and dispersal.

It may be possible to promote butterfly travel through forest by establishing sufficiently wide (e.g.,  $\geq 15$  m or  $\geq 45$  ft) corridors through or between forest stands. Corridors would need to be fortified with nectar species and potentially include patches of Kincaid's lupine to encourage butterfly use.

### **6.2.4 Vineyard Establishment and Management BMPs**

In general, the establishment of a new vineyard is not compatible with preservation of existing Fender's blue butterfly habitat, as such establishment involves major soil disturbance to grade, potentially install irrigation, install vine supports, and plant grapes. Through providing Fender's blue habitat surveys and technical assistance, Yamhill SWCD will help landowners locate their vineyard development where lupine and or nectar species are absent or uncommon. To avoid impacts to the butterfly within the HCP Plan Area, the boundaries of areas to be graded or with soil disturbance for new vineyards should be located at least 10 m (33 ft) from any known lupine plants, and in the Nectar Zone, should avoid areas with native nectar plants by at least 2 m (6 ft). These distances should minimize disturbance of lupine and nectar species' roots, which in Kincaid's lupine may extend up to 10 m (33 ft) laterally underground.

It may be possible to restore butterfly habitat in a vineyard after grapes have been established, i.e., through planting native nectar species between vineyard blocks. In such vineyards the mowing timing guidelines described above should be followed to promote growth of the nectar species, and ideally let them set seed. Any targeted herbicide use would also have to be compatible with the nectar plants (e.g., only use of a grass specific herbicide or use while nectar plants are dormant). Spacing should allow room for butterfly access during the butterfly flight season (May and June).

### **6.2.5 HCP Implementation Activities BMPs**

All activities required to implement the HCP, including but not limited to tours for outreach and survey and monitoring work, should be completed with a minimum of trampling and damage to habitat. Areas used by Fender's blue should be avoided to the maximum degree possible. Activities to restore habitat should follow the guidelines set forth above for mowing for forage production, in addition to those described for prescribed burning, herbicide application, and other activities in the USFWS Biological Opinion for Prairie Restoration (USFWS 2008b).

### 6.3 Offsetting Conservation Actions- Mitigation

When impacts to Fender's blue butterfly are unavoidable, mitigation may be completed through (1) protection (by conservation easement or other means<sup>2</sup>) of existing occupied butterfly habitat; (2) butterfly habitat enhancement and management that increases the quantity of resources for Fender's blue above pre-existing levels at a site, or; (3) by the combination of protection and enhancement (Figure 6.2). The estimated quantity of mitigation required for impacts requested in this Plan is identified in Table 6.4, though exact amounts will vary with actual impacts, nectar resources as determined by pre-impact surveys, mitigation method, avoidance measures, and mitigation site characteristics.

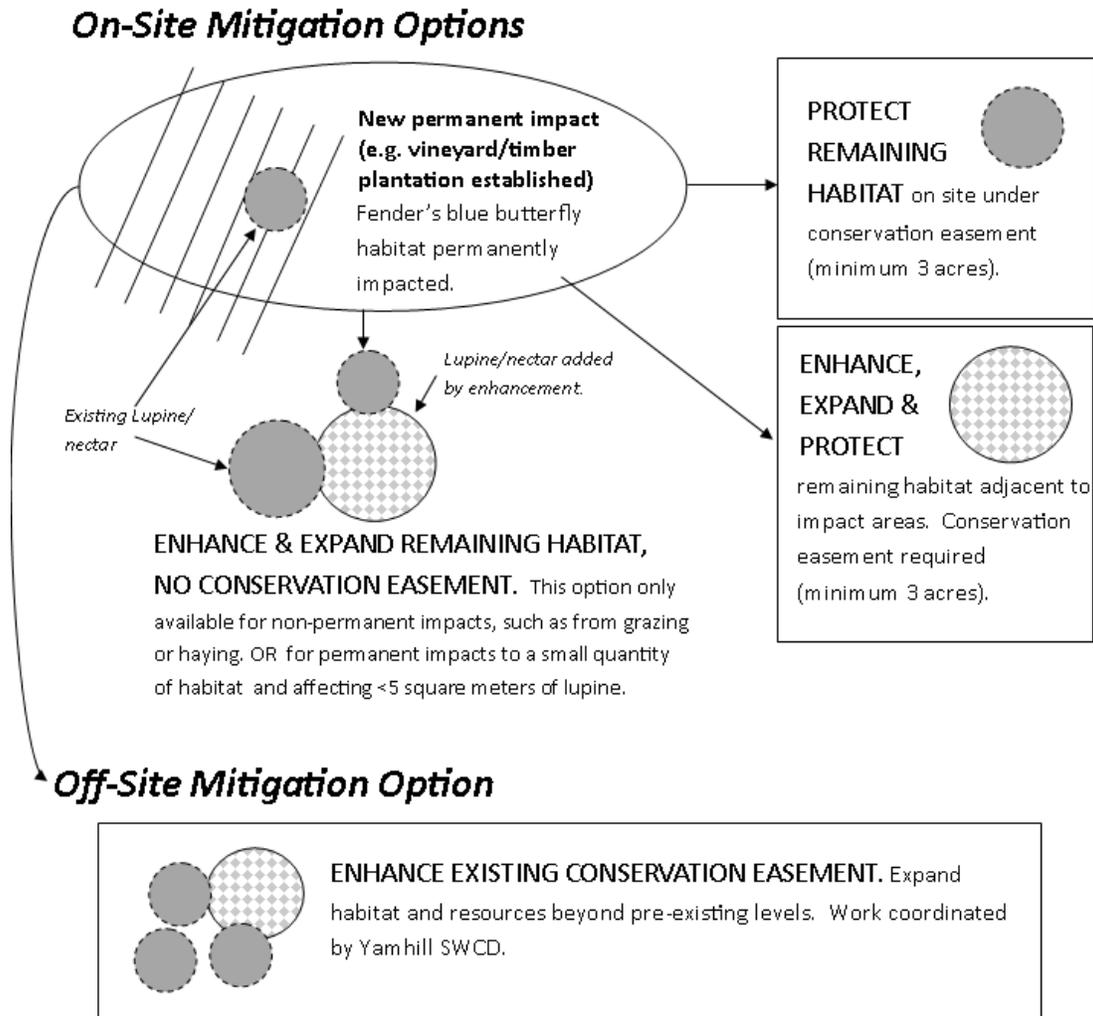


Figure 6.2 Possible means to implement mitigation for the Yamhill HCP, including on-site and off-site alternatives, as well as habitat enhancement and habitat protection options. All mitigation must occur in habitat suitable for Fender's blue butterfly.

<sup>2</sup> Yamhill SWCD will refer to conservation easements as the mechanism to protect sites throughout the document, but other means of site protection that are agreeable to USFWS may also occur to achieve the same purpose.

**Table 6.4 (a) Simplified estimate of mitigation required for each Covered Activity, in acres and square meters of 100% plant (leaf) cover. This estimate assumes a 2:1 mitigation ratio for the impacts projected in Chapter 5. Actual impacts and mitigation ratios will vary with site-specific scenarios, therefore actual mitigation may be higher or lower. (b) Estimated quantity of managed mitigation lands to support the amount of butterfly resources required for mitigation. Acreages are based on analysis of data from vegetation plot sampling (Benton County 2010) at sites managed for Fender's blue and from high quality native prairie remnants.**

**(a) Estimated<sup>a</sup> minimum mitigation required for impacts to Fender's blue butterfly habitat components.**

	Kincaid's Lupine (foliar cover) <sup>b</sup>	Native Nectar Plants (g sugar)	Exotic Nectar Plants (g sugar)
Forage production	0.02 ac (100 m <sup>2</sup> )	158	332
Livestock grazing	0.32 ac (1314 m <sup>2</sup> )	148	312
Vineyard establishment	1.27 ac (5,123 m <sup>2</sup> )	253	532
Timber establishment	0.20 ac (796 m <sup>2</sup> )	90	189
<b>Total</b>	<b>1.81 ac (7,334 m<sup>2</sup>)</b>	<b>649</b>	<b>1,364</b>

**(b) Estimated<sup>a</sup> quantity of managed mitigation habitat (acres) to support this quantity of butterfly resources**

	Mitigation for Kincaid's Lupine Acres @ 1-3% cover	Mitigation for Native Nectar Plants Acres @ 5-10% cover	Mitigation for Exotic Nectar Plants <sup>c</sup> Acres @ 5-10% cover
Forage production	0.8 - 2.5	3.4 - 6.8	5.6 - 11.2
Livestock grazing	10.8 - 32.5	1.9 - 3.8	3.2 - 6.3
Vineyard establishment	42.2 - 126.6	3.3 - 6.5	5.4 - 10.8
Timber establishment	6.6 - 19.7	1.2 - 2.3	1.9 - 3.8
<b>Total</b>	<b>60.4 - 181.2</b>	<b>9.8 - 19.5</b>	<b>16.1 - 32.1</b>

<sup>a</sup> Assumes a 2:1 final mitigation ratio for projected impacts included in Chapter 5: Impacts Analysis Table 5.2.

<sup>b</sup> Foliar cover is measured as ground area with 100% leaf cover of Kincaid's lupine.

<sup>c</sup> This mitigation would be for impacts to exotic nectar plants, but would be completed using native nectar plants.

Mitigation may occur at a variety of types of mitigation sites. The types of sites available may vary over time during the HCP permit term, depending on multiple factors including but not limited to site capacity, habitat acquisition (fee simple or conservation easement) success, and the availability of partnering lands. If permanent impacts are to take place at a site (e.g., habitat will be eliminated from the area as a result of Covered Activities), mitigation must occur through permanent protection of part of the site by conservation easement, or through enhancement at a different site that is already under permanent protection through conservation easement, or through enhancement on-site, if impacts are to a small area of habitat including less than 5 m<sup>2</sup> (54 ft<sup>2</sup>) of lupine. Temporary impacts that reduce resources available for Fender's blue for the short-term but that do not permanently remove habitat may be mitigated through habitat protection, habitat enhancement, or a combination of both (Figure 6.2).

Mitigation may take place:

- **On-site:** Mitigation would occur on the same property where impacts took place in habitat suitable for Fender's blue butterfly.
- **Off-site, In Plan Area:** Mitigation would take place at a Yamhill SWCD coordinated mitigation area within the HCP Plan Area and within flight distance of existing butterfly populations (described in section 6.3.4.3 below).

The Yamhill SWCD coordinated mitigation sites will be on lands owned by the SWCD or under conservation easement. At these sites, the Yamhill SWCD will coordinate habitat restoration, enhancement and management during the Permit term. Landowners needing to complete mitigation may pay a fee to have the SWCD complete the mitigation for them (See Chapter 8: Implementation). This will provide cost and time savings for the landowner. Expanding existing butterfly populations and habitat at fewer but larger sites under conservation easement will help contribute butterfly networks for the recovery of Fender’s blue.

**6.3.1 Impact and Mitigation Site Quality**

Impact and mitigation sites will be classified by their habitat quality. For a site to be considered as a mitigation site it must:

- possess suitable upland prairie soils(e.g., not hydric wetland soils);
- be located within current or historic prairie habitat;
- not have significant cover (e.g., >30% cover) by List A or B noxious weeds in the prairie area to be protected or enhanced; and
- be occupied by Fender’s blue, unless Yamhill SWCD and the USFWS agree the site has sufficient potential to be colonized by nearby Fender’s blue populations.

Each impact and mitigation site will be classified as “high quality” or “moderate quality” based on a combination of the following four factors: (1) Fender’s blue population size or area of habitat; (2) quality of associated vegetation, and; (3) the site’s connectivity; and (4) proximity to other Fender’s blue sites. To be classified as “high quality,” the site must meet one of the criteria in Table 6.5. Any impact site not meeting one of the criteria in Table 6.5 will be classified as moderate quality. The quality of a mitigation site may change over time, and can be re-assessed as appropriate.

**Table 6.5 Criteria to describe and classify the quality of impact and mitigation sites.**

Site Quality Criteria	Habitat Area <sup>1</sup> / Population Size	Associated Vegetation Quality	Connectivity <sup>2</sup> or Proximity
1	>100 m <sup>2</sup> habitat or 50 butterflies.	n/a	n/a
2	>50 m <sup>2</sup> habitat or 25 butterflies.	>25% of vegetation is native.	n/a
3	>50 m <sup>2</sup> habitat or 25 butterflies.	n/a	Links otherwise unconnected Fender’s blue populations.
4	n/a	n/a	Provides close proximity nectar (is located ≤25 m from lupine with Fender’s blue).

<sup>1</sup>Kincaid’s lupine and native nectar plant species cover, of which at least 60% must be Kincaid’s lupine.

<sup>2</sup>Populations must be within 2 km (1.2 mi) of each other to be considered connected.

**6.3.2 Base Mitigation Ratios and Site Quality Multipliers**

The quantity of mitigation required for specific impacts is determined by factors including:

- type of impact (temporary or permanent);
- type of mitigation to be implemented- habitat protection or habitat enhancement;
- mitigation site status (site under permanent conservation easement/deed restriction or not);
- the habitat quality at the impact site and at the mitigation site; and
- for some activities, the degree to which impacts are avoided and minimized.

The quantity of mitigation to be completed for an impact is set forth in mitigation ratios, which reflect the amount of Fender’s blue habitat to be added to a site or protected at a site relative to the amount of habitat impacted. Base mitigation ratios are determined by the type of activity and mitigation, and then adjusted by a site quality multiplier, which reflects the habitat quality of the impact and mitigation site.

$$\text{Final Mitigation Ratio} = \text{Site Quality Multiplier} \times \text{Base Mitigation Ratio}$$

(Table 6.6)                      (Table 6.7 or Table 6.8)

Impacts occurring at a moderate quality site that are mitigated at a high quality site will have a slightly lower final mitigation ratio. Impacts occurring at a high quality site that are mitigated at a moderate quality mitigation site will have a slightly higher final mitigation ratio. The minimum mitigation ratio is 1:1. If a project will only require mitigation of a small area of habitat, there will be a mandatory minimum of 5 m<sup>2</sup> (54 ft<sup>2</sup>) of Kincaid’s lupine or native nectar species established as mitigation. If possible, nectar impacts are best mitigated on-site.

**Table 6.6 Site quality multipliers to be used to adjust base mitigation ratios to reflect impact and mitigation site quality.**

Site Quality Multipliers		
Impact Site	Mitigation Site	
	Moderate	High
	Moderate	1
High	1.2	1

**6.3.2.1 Temporary Impacts**

For activities such as forage production or grazing, where impacts are typically temporary, or for any Covered Activity affecting a small area of habitat and including less than 5m<sup>2</sup> (54 ft<sup>2</sup>) of Kincaid’s lupine, mitigation may occur through habitat protection or enhancement on-site or through habitat enhancement at a Yamhill SWCD coordinated mitigation site. Temporary impact mitigation will be calculated using the temporary impact mitigation ratios in Table 6.7.

**6.3.2.2 Permanent Impacts**

Converting Fender’s blue butterfly habitat to timber plantation or vineyard, or pasture/hay field improvements that include permanent removal of Kincaid’s lupine or nectar plants (if in the Nectar Zone) will result in permanent impacts. Mitigation for such activities must be calculated using the ratios in Table 6.8, and must occur at sites under the protection of a conservation easement; if on-site, mitigation may occur through habitat protection or through protection and enhancement. Off-site mitigation may occur exclusively through habitat enhancement at a Yamhill SWCD coordinated mitigation site. When permanent impacts will take place, Kincaid’s lupine and native nectar plants and or seed may be relocated from the impact site and planted at a mitigation site. Successfully established or transplanted individuals that survive may count towards mitigation requirements.

**6.3.3 Mitigation Fulfillment**

Once mitigation is underway, specific conditions will be evaluated to determine whether mitigation requirements have been satisfied. For mitigation through habitat protection, mitigation is satisfied when the required quantity and quality of Fender’s blue habitat has been placed under permanent conservation easement with terms and Cooperative Agreement documentation satisfactory to the USFWS. For mitigation through habitat enhancement, requirements are satisfied when the required amount of Kincaid’s lupine or nectar plant expansion (above baseline conditions) from habitat enhancement at a site persists six years after initiation of the mitigation, and the trend in Kincaid’s lupine or nectar plant abundance is stable or positive over the last three of the six years. Maintenance of the habitat at the site shall occur in alignment with Cooperative Agreement and Conservation Easement terms.

**Table 6.7 Base mitigation ratios for temporary impacts to Fender's blue habitat from forage production and grazing, or for permanent impacts from any Covered Activity that affect a small area of habitat including less than 5 m<sup>2</sup> (54 ft<sup>2</sup>) of lupine.**

Type of Mitigation	Site under Conservation Easement?	Base Mitigation Ratios for Forage Production or Grazing Impacts (to be adjusted by site quality multiplier)
On-site: Habitat Protection ± Enhancement	Yes	1:1
On-Site: Habitat Enhancement	No	1.5:1
Off-Site, In Plan Area, Habitat Enhancement at YSWCD Mitigation Area	Yes	2:1

**Table 6.8 Base mitigation ratios for permanent impacts to Fender's blue butterfly habitat that affect more than a small area of habitat and greater than 5 m<sup>2</sup> (54 ft<sup>2</sup>) of Kincaid's lupine.**

Type of Mitigation	Percent of Habitat at Site that was Impacted	Base Mitigation Ratios for Timber or Vineyard Establishment (to be adjusted by site quality multiplier)
On-Site: Habitat Protection ± Enhancement	1-25%	2:1
	25-50%	2:1
	50-75%	3:1
	75-100%	4:1
Off-Site, In Plan Area: Habitat Enhancement at YSWCD Mitigation Area	1-25%	2:1
	25-50%	3:1
	50-75%	4:1
	75-100%	5:1

### 6.3.4 Mitigation Implementation

Mitigation logistics will vary with the type of mitigation completed.

#### 6.3.4.1 Site Protection With or Without Additional Enhancement

For this type of mitigation, the landowner will place part of his/her property with the required quantity of habitat to meet mitigation needs under conservation easement. The baseline habitat quantity will be maintained through basic habitat management. Any costs of obtaining the conservation easement shall be borne by the landowner. The easement may be held by Yamhill SWCD or another conservation entity. Baseline surveys will document habitat quality and populations of Fender's blue, Kincaid's lupine and nectar plants. If the landowner elects to expand habitat within the protected area to meet mitigation requirements, they may complete the work themselves or request assistance from Yamhill SWCD. Whether Yamhill SWCD provides assistance, and at what cost to the landowner, is to be determined at that time. Monitoring and reporting will be completed by Yamhill SWCD unless the landowner elects to complete the monitoring (and follow protocols outlined in Section 7.3), and agrees to allow Yamhill SWCD and USFWS access for verification upon request and commits to report the data by the end of the calendar year in which monitoring occurred to Yamhill SWCD for inclusion in its annual report to USFWS. Logistics of fees are included in Chapter 8: Implementation.

#### 6.3.4.2 Site Enhancement without Site Protection

This type of mitigation may only occur for temporary impacts, or when permanent impacts are to a small area of habitat including less than 5 m<sup>2</sup> (54 ft<sup>2</sup>) of Kincaid's lupine. For this type of mitigation, the landowner will complete habitat restoration, enhancement, and management on part of his/her property to increase lupine or nectar abundance above its baseline conditions by the required quantity to meet mitigation needs, and will complete required monitoring and reporting to Yamhill SWCD. Any costs of restoration, enhancement, management, monitoring, and reporting shall be borne by the landowner. Baseline surveys will document habitat quality and populations of Fender's blue, Kincaid's lupine and nectar species. The landowner may complete the work themselves, pay a qualified contractor, or request assistance from Yamhill SWCD. Whether Yamhill SWCD provides assistance, and at what cost to the landowner, is to be determined at that time. If the landowner elects to complete the monitoring and agrees to allow access for verification if requested by Yamhill SWCD or the USFWS (and follow protocols outlined in Section 7.3), they must report the data by the end of the calendar year in which monitoring occurred to Yamhill SWCD for inclusion in its annual report to USFWS. The logistics of fees are included in Chapter 8: Implementation.

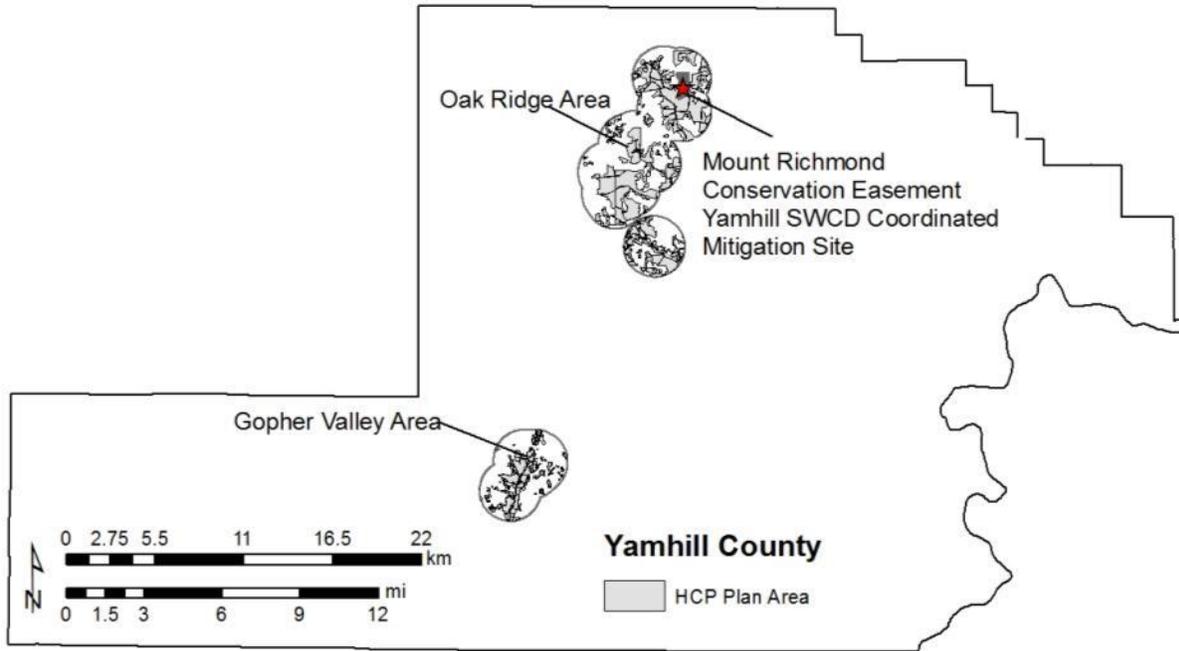
#### 6.3.4.3 Yamhill SWCD Coordinated Mitigation Site(s)

These mitigation sites may be held under conservation easement by Yamhill SWCD or a partnering entity (e.g., The Nature Conservancy). If a mitigation site is held by a partnering entity, a written agreement between the Yamhill SWCD and the partner that is approved by the USFWS must hold all parties to the terms of the HCP and Permit. In the event that a new YSWCD coordinated mitigation site becomes available in the future, the site will be evaluated for baseline conditions and potential for enhancement. Consultation with USFWS will take place to confirm site quality classification.

Yamhill SWCD holds conservation easements at multiple sites in Yamhill County. For one of these sites to be used as a mitigation site, the easement terms and any funds used in acquiring the easement must not have restrictions against mitigation taking place at the site. If the land is owned by a separate entity, the landowner must be willing to participate. Baseline conditions, including the quantity of Kincaid's lupine, nectar species, Fender's blue butterflies and vegetation descriptions will be completed at the mitigation site prior to any enhancement work for mitigation. Habitat enhancement work to expand Fender's blue populations above baseline levels will be coordinated by Yamhill SWCD, begin at the time of HCP implementation and be completed by private contractors, partnering entity staff or YSWCD staff. All monitoring of mitigation progress and required reporting to USFWS will be completed by Yamhill SWCD. This work will be funded through fees paid by landowners needing to mitigate impacts. Logistics of fees and mitigation funding, along with the process for a landowner to obtain mitigation coverage from Yamhill SWCD, are discussed in Chapter 8: Implementation.

As of the finalization of this document, one Yamhill SWCD coordinated mitigation site has been identified. Mount Richmond is a 115 ha (285 ac) property located at the northern end of the Oak Ridge/Turner Creek region of the HCP Plan Area (Figure 6.3). The property includes roughly 71 ha (175 ac) of upland prairie-savanna habitat and supports a small population of Fender's blue and Kincaid's lupine. The site also includes mixed forest, wet prairie, riparian, and agricultural habitats. No critical habitat has been identified at the site by the USFWS. The site is under permanent conservation easement funded by Bonneville Power Administration (BPA). Prior to any HCP mitigation actions occurring at the site, Yamhill SWCD will establish the baseline condition of the property where mitigation is to occur, documenting values including, but not limited to, the quantity of Kincaid's lupine present, the diversity and abundance native nectar plants for Fender's blue, and the plant community composition in probable restoration areas.

Yamhill SWCD will identify and prioritize target areas within the upland prairie-oak savanna zone of the site. Wet prairie areas may also be enhanced to provide nectar resources. Enhancement of habitat in the higher priority areas will continue with the implementation of the HCP, and will involve work to expand the Kincaid's lupine population and increase the diversity and abundance of native nectar species. Nectar species augmentation and expansion will strive to provide a diversity of nectar flower phenologies (early, peak and late flight periods), to buffer the butterflies against climate variability and climate change over time. Over the course of the HCP, intensive enhancement actions will progress throughout the prairie habitat at the site, guided by adaptive management. Regular basic habitat maintenance and weed control will occur on an as needed basis throughout the property, enhancing habitats for Fender's blue butterfly and associated prairie and oak savanna species.



**Figure 6.3** Location of Mount Richmond property, the proposed Yamhill SWCD coordinated mitigation site, in Yamhill County.

## 7 Monitoring and Adaptive Management

The Yamhill SWCD will adopt a monitoring and adaptive management program to allow changes in the Conservation Measures to reach the long-term biological goal (Chapter 6: Conservation Measures) of the Habitat Conservation Plan, and thus to contribute to the survival and recovery of the species.

Two types of monitoring will be completed by Yamhill SWCD. Compliance Monitoring will be conducted annually to assess the implementation of the HCP and track levels of incidental take of Fender's blue under the incidental take permit. Effectiveness monitoring will be completed at varying intensities and frequencies at mitigation sites, voluntary habitat restoration sites, sites where Best Management Practices (BMPs) are implemented, and sites with livestock grazing outside the BMPs (Grazing Option 2: see Chapter 5: Impacts Assessment). The frequency of effectiveness monitoring, and the components to be monitored, will vary with site-specific circumstances and the Covered Activities (Chapter 4: Covered Activities) taking place.

### 7.1 Compliance Monitoring

Yamhill SWCD will annually review the terms and conditions of the permit and HCP to determine whether it is successfully implementing such terms and conditions and evaluate the effectiveness of that implementation. Yamhill SWCD will submit Annual Compliance Reports to the USFWS by March 31st of the following year for each year the incidental take permit is in effect (e.g., the report for 2015 will be submitted by March 31, 2016). This report shall include, at a minimum, the following:

- Summarized assessment of implementation of HCP terms and conditions.
- Quantity of take authorized by YSWCD during the year, including the number of Certificates of Inclusion issued to and the amount of Fender's blue habitat impacted.
- Conservation Measures undertaken, including:
  - Mitigation Information
    - Mitigation initiated or underway
    - Mitigation requirements fulfilled
    - Estimated funding spent on mitigation
    - Acres mowed, grazed, or treated with herbicide for mitigation purposes
  - Best Management Practices: Estimated # sites/acreages following the BMPs.

### 7.2 Effectiveness Monitoring

The objectives of effectiveness monitoring will include tracking Fender's blue population trends, and:

- Detecting changes in butterfly habitat host and nectar plant abundance and diversity over time;
- Measuring success of management activities (i.e., evaluate effects of mowing, burning, herbicide application, etc.) to help determine what management actions are necessary;
- Providing data to evaluate the effects of livestock grazing on Fender's blue;
- Evaluating the effectiveness of the BMPs to provide data for adaptive management;
- Promoting early detection of invasive plants; and
- Documenting progress towards completing mitigation requirements.

The components to be monitored at any given site will vary with the site-specific circumstances and the Covered Activities taking place, and may include:

- **Fender's Blue Population Trends:** Estimate Fender's blue butterfly population size.

- **Nectar and Host Plant Trends:** Measure the abundance and diversity of host and nectar plants.
- **Habitat Characteristics:** Plant community composition, invasive species maps, plant litter (thatch) accumulation and shrub/tree encroachment.
- **Grazing Metrics:** Livestock species, density, duration, forage utilization, and nectar availability in nectar reserves.

### 7.3 Effectiveness Monitoring Protocols

The first year of effectiveness monitoring data, along with data from any prior surveys, will serve as a site’s baseline inventory. Once baseline conditions have been established, periodic re-sampling (monitoring) will occur (see Table 7.1 for frequencies for each monitoring component). When significant management activities (e.g., prescribed fire) are implemented, it may be desirable for monitoring to be conducted at a greater frequency (e.g., to collect pre-and post-treatment data) initially, in order to supply data for adaptive management, and then later return to the recommended cycles in Table 7.1.

Monitoring shall be conducted by qualified biologists or natural resource specialists with appropriate experience with Fender’s blue, Kincaid’s lupine, and prairie habitats, and who are in possession of permits required by regulatory agencies (State or Federal) for the monitoring activities they are conducting. Timing of the monitoring may vary by 1-2 weeks per year due to weather conditions and differences in site conditions (elevation, aspect, etc.).

**Table 7.1 Effectiveness monitoring components required at various sites and the recommended monitoring frequency for each component. Grazing options are discussed in Section 5.3.2.**

	FBB Trends (Annually)	Nectar/Host Trends (Every 3 years)	Habitat Characteristics (Every 3 years)	Grazing Metrics (Annually)
Active Mitigation Sites	√ <sup>1</sup>	√	√	
Voluntary Habitat Restoration Sites	1	√	1	
Grazing Option 2 Sites (Monitored Grazing outside BMPs)	√ <sup>1</sup>	√	√	√
Sites where BMPs are implemented (Haying, Grazing)	√ <sup>1,2</sup>	√ <sup>1,2</sup>	√ <sup>1,2</sup>	Grazed sites only <sup>2</sup>

<sup>1</sup> In these cases, monitoring may occur in coordination with and potentially using cost-share from USFWS, prioritizing sites that are tracked for long term, range-wide butterfly population trends, pending staff and funding availability.

<sup>2</sup> Only a subset of the sites fully implementing the BMPs will be monitored.

#### 7.3.1 Fender’s Blue Butterfly Population Trends

Fender’s blue survey methods should follow the most up-to-date USFWS survey protocol (e.g., Hicks and Fitzpatrick in preparation). Current methods, as of publication of this HCP, entail using distance sampling at larger sites and peak counts at smaller sites.

#### 7.3.2 Nectar and Host Population Trends

The most up-to-date USFWS protocol for measuring and monitoring nectar and host plants should also be implemented. The current method is a census of host plant leaf cover (Currin and Meinke 2013) and a census of nectar plant flowering units (e.g., flower, flowering stalk, head) by species (Hicks and Fitzpatrick *In preparation*). Nectar plants are then stratified by their phenology relative to the butterfly’s flight period (early, peak and late). The nectar plant flower number and nectar sugar content for each nectar species is used to calculate the total sugar per area of habitat that is available to the butterfly. A

list of currently known nectar species and their sugar content per flowering unit is included in Chapter 2: Covered Species, Table 2.1.

At sites implementing the BMPs for grazing or mowing, monitoring of nectar plants, nectar availability, and nectar species diversity monitoring may be stratified to target any required nectar reserves in addition to grazed or mowed areas.

**7.3.3 Habitat Characteristics**

**7.3.3.1 Plant Community Composition and Thatch/Litter Accumulation**

Plant community composition and plant litter/thatch accumulation will be measured with randomly placed sample units to sample vegetation attributes. The number and size of sample units will vary with site size and heterogeneity and the proportion of the site occupied by Fender’s blue. Within each sample unit, the percent cover of plants, shrub/tree species, plant litter, moss, gravel/rock, and bare soil will be estimated. Percent cover classes or species functional groups may be used as appropriate.

**7.3.3.2 Invasive Species**

During baseline monitoring, established and satellite populations (isolated patches of one to a few individuals) of invasive plant species will be identified and mapped. Methods will include using a combination of sketch maps, aerial photos, photo points, and GPS/GIS mapping. Large but diffuse populations of scattered individuals may be mapped as polygons with percent cover estimates to describe the species’ abundance in the polygon.

**Table 7.2 Examples (not a complete list) of list “A” and “B” classified weeds likely to be found in Fender’s blue habitat in Yamhill County. Go to <http://www.yamhillswcd.org> for a complete list.**

Common Name	Latin Name	A	B
False brome	<i>Brachypodium sylvaticum</i>	x	
Italian thistle	<i>Carduus pycnocephalus</i>	x	
Meadow knapweed	<i>Centaurea pratensis</i>	x	
Spurge laurel	<i>Daphne laureola</i>	x	
Armenian blackberry	<i>Rubus armeniacus</i>		x
Canada thistle	<i>Cirsium arvense</i>		x
English ivy	<i>Hedera helix</i>		x
Milk thistle	<i>Silybum marianum</i>		x
Scotch broom	<i>Cytisus scoparius</i>		x
Tansy ragwort	<i>Senecio jacobaea</i>		x

Any “A” or “B” Noxious Weeds, following the Yamhill SWCD classification for Yamhill County (e.g., YSWCD 2013) will be identified and mapped. “A” classified weeds are weeds of known economic importance not known to occur in Yamhill County, or occur in small enough infestations to make eradication/containment possible. “B” classified weeds are weeds of economic importance which are regionally abundant, and for which control is needed (Table 7.2). New problem species may be added to the groups as they are identified in Oregon and the project sites. Problem species may also be re-classified as their status changes. List A and B classified weeds will be addressed specifically through adaptive management.

**7.3.3.3 Shrub and Tree Encroachment into Prairie Habitat**

The first round of monitoring at a site (baseline monitoring) will include mapping of prairie areas by delineating prairie boundaries, which may be accomplished via GIS georeferencing of current aerial photos. Tree/shrub encroachment over time may be tracked by multiple methods, including mapping individual trees and shrubs (identified to species) or patches of trees and shrubs using a combination of sketch maps, aerial photos, photo points, GPS, and GIS georeferenced aerial photos.

#### **7.3.4 Grazing Metrics**

Site-specific grazing metric monitoring procedures will be developed as part of grazing management plans. Monitoring will help link Fender's blue habitat and population dynamics with differing levels of grazing use. Sampling or sub-sampling will quantify Fender's blue host and nectar plants in grazed areas, and may include searches for Fender's blue eggs, larvae or adults. The monitoring will include regular recording of livestock species and numbers per pasture, the length of time grazed and pasture area. Levels of forage utilization will be measured on a regular basis while pastures are in use. A possible means to measure forage utilization is to establish, photograph and clip reference plots so that 25%, 50%, 75% and 100% of vegetation (by height) is removed. These photographs would then be used to estimate forage utilization rates across pastures. At a minimum, utilization data should be collected at peak growing season (late May to early June), and whenever animals are added or removed from a pasture. This information will be provided to Yamhill SWCD by the landowner on an annual basis.

#### **7.4 Effectiveness Monitoring Plans**

Monitoring plans will be developed for all sites where effectiveness monitoring is required, including mitigation sites. Monitoring plans will be developed by qualified biologists/natural resource specialists. In some cases, sites may already have a monitoring plan established as part of an existing management plan, or Yamhill SWCD may wish to incorporate a monitoring plan into an existing management plan.

At a minimum, each monitoring plan will include:

- Statement of management goals and objectives (e.g., enhancement to reach a mitigation target or minimization of impacts from cattle grazing) for the site.
- Description of the habitat and populations of Fender's blue at the site (which may be generated using the first year's monitoring data and any prior surveys) with information about the abundance of Fender's blue host and nectar plants.
- Variables to be measured and how data will be collected.
- Frequency (as identified in Table 7.1), timing, duration (minimum of six years), and intensity (number of sample plots) of the sampling.
- Field protocols, equipment and sampling locations.
- How data will be analyzed and how results will determine whether progress towards the HCP goals and objectives is occurring through the Conservation Measures.
- Adaptive management process (e.g., use results to update BMPs).
- Process and schedule for reviewing/modifying the monitoring plan over time.

#### **7.5 Effectiveness Monitoring Data Management**

Proper data management, analysis, and reporting are critical to the success of the monitoring and adaptive management program. Data on monitoring methods, results, and analysis must be managed, stored, and made available to interested parties including technical advisors, USFWS, and the Oregon Biodiversity Information Center (ORBIC). A database and clear reporting procedure are also required for incidental take permit compliance. The data will be managed to ensure accurate and up-to-date information is available for making management decisions.

#### **7.6 Adaptive Management**

Adaptive management allows resource managers to adjust their management strategies to reflect new information or changing conditions in order to achieve the best possible management outcome. Adaptive management will allow Yamhill SWCD to minimize the uncertainty associated with gaps in scientific information or knowledge of the biological requirements of Fender's blue and its interactions

with various land management techniques, including livestock grazing. If new techniques become available for more effective implementation of the Conservation Measures, then Yamhill SWCD will revise the Conservation Measures in the HCP as soon as practicable (Chapter 8: Implementation).

Yamhill SWCD will collect and analyze effectiveness monitoring data to determine if the objectives of the HCP Conservation Measures are being met. If the Conservation Measures (e.g., the BMPs) are not producing the desired results, Yamhill SWCD will come to agreement with USFWS on adaptive management adjustments to be made to the Conservation Measures in the HCP and, in particular, to the recommended BMPs for Fender's blue.

The recovery plan for Fender's blue may be revised by the USFWS during the permit term. Yamhill SWCD may amend the HCP to incorporate recommendations contained in recovery plans that identify relevant new information, approaches, techniques, or species protection needs, fit within the overall biological goals and objectives, framework, and funding levels of this HCP, and do not require more mitigation than identified in this HCP.

#### **7.6.1 Adaptive Management in Management Plans for the HCP**

Management plans prepared for Yamhill SWCD coordinated mitigation sites or other sites participating in the HCP will:

- Identify areas of uncertainty (e.g., effects of livestock grazing on Fender's blue butterfly) and the questions to be addressed to resolve the uncertainty.
- Provide for development of alternative management strategies as needed and with consultation with USFWS, and determine which experimental strategies to implement.
- Use effectiveness monitoring to detect the necessary information to evaluate the management strategy.
- Incorporate feedback loops linking implementation and monitoring data to any appropriate changes in management strategy.

#### **7.6.2 Monitoring Interface with Adaptive Management**

The objective of the effectiveness monitoring for purposes of adaptive management is to determine whether Fender's blue populations and/or habitats are declining. Declines may be due to Covered Activities, management actions, or changes in habitat conditions that are outside the control of land managers. Through adaptive management, managers may detect changes in habitat conditions (e.g., increasing invasive species populations) prior to a resulting decline in butterfly populations and habitat. Thresholds of butterfly population trends and habitat quality are set forth in Table 7.3. If and when thresholds are crossed, adaptive management actions will be triggered.

**Table 7.3 Monitoring thresholds and adaptive management responses.**

Monitoring Component	Threshold	Adaptive Management Response
<b>Fender's Blue Population Trends</b>	Butterfly population size decreases by $\geq 50\%$ in single monitoring cycle.	Meet with USFWS within 90 days. Determine if butterfly population trends are consistent with range-wide trends. Discuss any needed changes in BMPs or site management and implement needed changes.
<b>Nectar/Host Plant Population Trends</b>	Host or nectar plant abundance decreases by $\geq 30\%$ in single monitoring cycle.	Meet with USFWS within 90 days to discuss changes in BMPs or site management and implement needed changes.
	At sites with a nectar reserve (to supplement mowed or grazed areas), the actual mowed/grazed areas are found to consistently provide nectar through two monitoring cycles (six years), even with grazing/mowing.	Yamhill SWCD will meet with landowner and adjust nectar reserve requirements for the site, reducing the quantity or diversity of nectar species in the reserve to account for what persists in the mowed or grazed area.
	Nectar reserve does not provide quantity of nectar or diversity of nectar species identified in the management plan and BMPs.	Yamhill SWCD will meet with landowner and identify deficiencies and recommend revised management actions to the landowner.
<b>Habitat Characteristics</b>	Meadow decreases in size by $\geq 30\%$ due to tree/shrub encroachment.	Evaluate source of decrease; if due to tree or shrub encroachment, increase tree/shrub control.
	New population of Group A or B invasive plant discovered.	Undertake immediate eradication efforts. Coordinate work with USFWS when invasives are proximal to Fender's blue habitat. Conduct follow up monitoring the first growing season following treatment.
	$\geq 30\%$ increase in abundance of any Group A or B invasive plants.	Evaluate and elevate containment efforts in coordination with USFWS.
	Native species cover decreases by $\geq 30\%$ , exotic species cover increases by $\geq 30\%$ , or woody species cover increases by $\geq 15\%$ .	Evaluate site management, including livestock grazing, mowing and prescribed fire frequency/timing with USFWS, and implement corresponding changes in management actions.
	Plant litter/thatch cover increases by $\geq 30\%$ .	Evaluate site management, including mowing and prescribed fire frequency and timing with USFWS.
<b>Grazing Metrics</b>	Livestock species, number, grazing duration or forage utilization exceeds guidelines in management plan.	Yamhill SWCD will meet with landowner to discuss changes in management, and implement corresponding changes in management actions.

## 8 Implementation

This section describes the tasks the Yamhill SWCD staff and Board of Directors will undertake while implementing the HCP.

### 8.1 Responsibilities and Tasks

#### 8.1.1 Yamhill SWCD Board of Directors

Overall responsibility for implementation of the HCP lies with the Yamhill SWCD Board of Directors. Most of the tasks to be performed will be delegated to staff. If tasks will affect District policy, procedures or missions, staff will present these to the Board for approval prior to implementation.

#### 8.1.2 Yamhill SWCD Executive Director

The following tasks will be performed by the Executive Director:

- HCP Program Administration.
- Review and approve any amendments to the HCP and incidental take permit.
- Review and approve submittal of Annual Compliance Reports to USFWS.
- Review and approve submittal of related grant applications.
- Land Acquisition.
- Provide guidance and approval for acquisition of lands or conservation easements from willing sellers.
- Work Plan/Budget.
- Coordinate annual preparation of budget and work plan for HCP implementation. Relevant staff will submit their budgets to the Board of Directors for approval and adoption.

#### 8.1.3 Yamhill SWCD HCP Coordinator

A member of YSWCD staff will be designated as the HCP Coordinator to oversee overall program implementation. Implementation tasks and responsibilities of the HCP Coordinator are described below.

- HCP Program Administration
  - Prepare work plans and budgets for HCP related tasks, as needed.
  - Train relevant staff regarding the HCP. Training will cover the HCP Plan Area, issuing and keeping records of Cooperative Agreements and Certificates of inclusion, and maintaining records of impacts.
- Grants
  - Seek grant opportunities as appropriate to be able to provide technical and on the ground assistance for habitat restoration, enhancement and management activities on private lands in Yamhill County.
- Land Acquisition
  - Assist in acquisition (from willing sellers) of lands or conservation easements supporting Fender's blue to mitigate for impacts in the Plan Area.
- Revisions and Amendments to HCP
  - Coordinate with USFWS as described in Chapter 1: Introduction, Section 1.7. Amendments to the HCP will be infrequent but are expected during the incidental take permit term (50 years).
- Land Management

- Prepare site management guidelines for any mitigation sites used or acquired during the permit term. Guidelines will describe restoration, enhancement, management and monitoring activities to occur at the site, the entity responsible for management, and a schedule of management activities. Guidelines will be consistent with the Conservation Measures and protocols in the HCP.
- Update the Best Management Practices (BMPs) as new information becomes available through research, adaptive management, or discussions with the USFWS.
- Complete mitigation through habitat restoration, enhancement, and management activities on Yamhill SWCD coordinated mitigation sites in accordance with the Conservation Measures (Chapter 6) and site management plans or guidelines. Enter into partnerships and use volunteers to achieve management goals. Maintain a database to track mitigation work, costs and funding sources.
- Monitoring and Data Management
  - Compliance Monitoring
    - Compile information for the annual Compliance Report, to be submitted annually by March 31st for activities occurring during the previous year. The YSWCD Board of Directors will review and approve submittal of the Report to the USFWS. Report contents are described in Section 8.7.
  - Effectiveness Monitoring
    - Conduct this monitoring for any habitat restoration and/or enhancement activities occurring on Yamhill SWCD coordinated mitigation sites. Documentation of monitoring shall be included in the annual Compliance Report.
  - Data Management
    - Maintain databases tracking HCP information.
- Public Outreach
  - Utilize a variety of outreach methods to build community support for prairie conservation, including maintaining Yamhill SWCD web pages providing information about the HCP, and a downloadable copy of the HCP. Pages will be updated as needed to address conservation actions by the SWCD, and will provide information on opportunities to conserve and manage prairie habitat on private property.
  - Seek opportunities for conservation organizations and public agencies to partner with private landowners to conserve Fender's blue butterfly and prairie habitats.
  - Coordinate with other public agencies and conservation organizations to offer workshops and field trips and educational materials for the general public on such topics as endangered species (plants and butterflies) identification, ecology of Willamette Valley prairies, and invasive weed identification and control.
  - Offer surveys for Fender's blue butterfly and its habitat.
- Contractor Management
  - Solicit and manage any contractors that assist in implementation of the HCP (e.g., conducting species surveys, monitoring, or management activities).
- Incidental Take Permitting
  - Work with private landowners to avoid take of Fender's blue, including field surveys.
  - Coordinate with landowners to determine what take coverage is needed, making site visits as necessary.
  - Calculate extent of potential impacts from Covered Activities.
  - Negotiate, review, issue and track Cooperative Agreements and Issue Certificates of Inclusion.

- Maintain records of impacts to Fender's blue, including details of location, date, footprint of impact area and quantity of Kincaid's lupine or nectar plants affected (see section 8.2.2).

## **8.2 Process to Obtain Incidental Take Coverage**

Through this HCP, Yamhill SWCD seeks authorization to issue Certificates of Inclusion (incidental take authorization) to landowners completing Covered Activities in the HCP Plan Area that impact Fender's blue. At any time during the HCP, if there is no remaining take available for the SWCD to allocate, no Certificates of Inclusion will be issued unless the SWCD decides to amend the HCP to add additional take coverage. If the SWCD did not increase take coverage, landowners would need to work with the USFWS for any needed incidental take authorization. Yamhill SWCD also reserves the right to refuse issuance of Certificates of Inclusion and incidental take permit coverage to any party for any permissible reason. The process of obtaining incidental take coverage is described below and in Figure 8.1.

### **8.2.1.1 Activity and Site Evaluation**

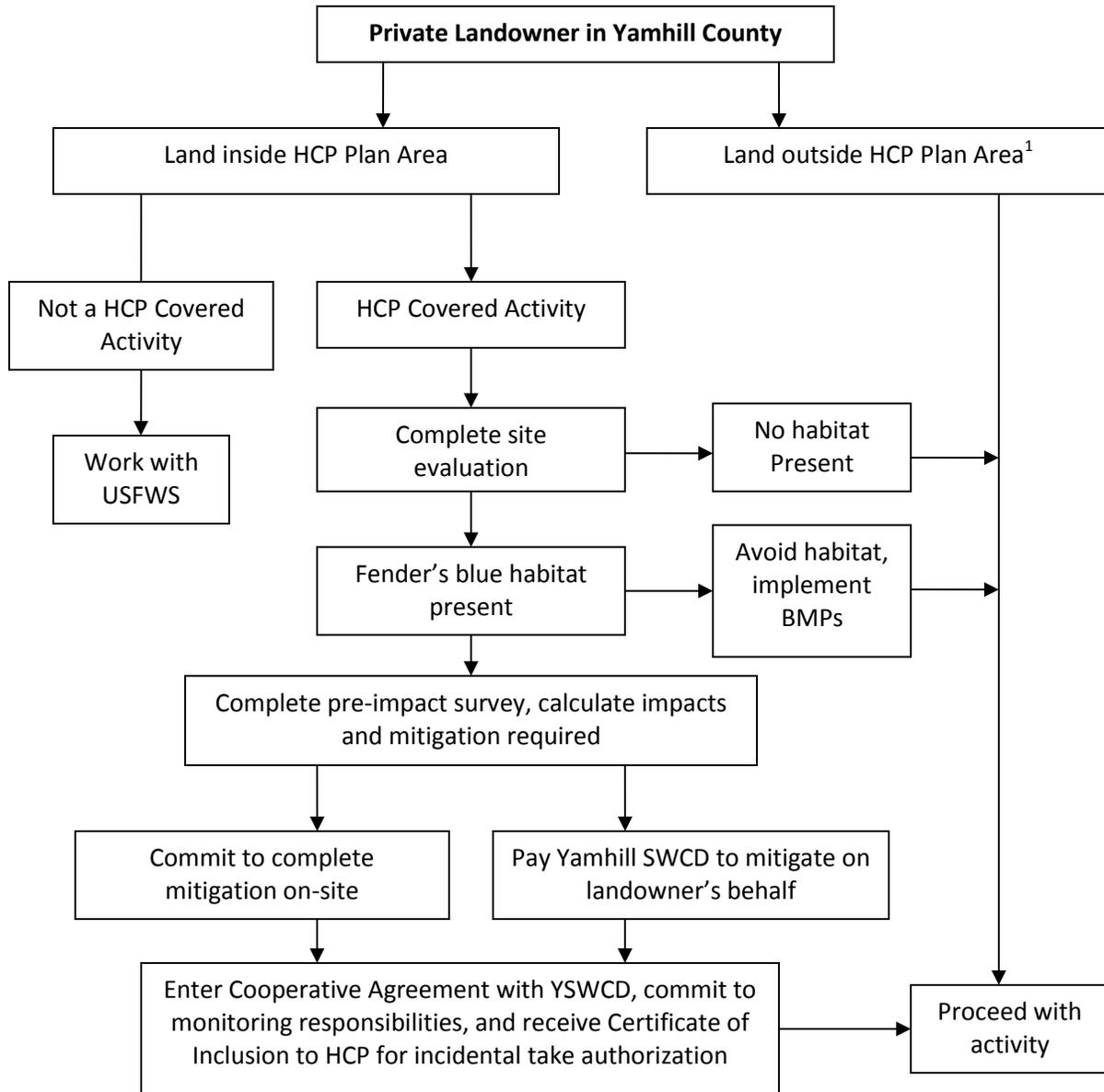
Private landowners will contact Yamhill SWCD and provide staff with information about their property and the activity they propose to complete. If the proposed project or activity is not covered by the HCP and the activity will impact Fender's blue habitat, it is the responsibility of the landowner to seek authorization from USFWS. If Yamhill SWCD can confirm that the property is within the HCP Plan Area, and the activity is covered by the HCP, Yamhill SWCD staff will schedule a visit to the property with the landowner to evaluate the site for Fender's blue and its habitat components. That survey will determine whether Kincaid's lupine and nectar species (if in the Nectar Zone) are present within the boundaries where the Covered Activity will occur. Depending on site conditions, all or part of the site evaluation visit may have to occur in May or June. If more than 10 years have passed since a previous site evaluation that did not find any Kincaid's lupine, the site evaluation should be repeated to accurately determine lupine presence. If more than 3 years have passed since a site evaluation within the Nectar Zone that did not find any nectar plants for Fender's blue, the site evaluation should be repeated.

### **8.2.1.2 Pre-Impact Survey**

When the presence of Kincaid's lupine or Fender's blue nectar plants is confirmed within a project area, landowners unable to avoid impacts to the butterfly habitat and wishing to obtain take coverage from the Yamhill SWCD must first complete a pre-impact survey to determine the impacts that will occur from the Covered Activity; this survey will identify the quantity of Kincaid's lupine ( $m^2$ ) to be impacted and the quantity of nectar plants (if in the Nectar Zone) to be impacted by species and flowering unit (Table 2.1), allowing calculation of g nectar sugar to be lost relative to the  $20 \text{ mg}/m^2$  threshold (See section 5.1: Determine Habitat Occupancy). Pre-impact surveys must occur in May or June, and take place no more than two years prior to the planned impacts. Surveys must follow up to date USFWS protocols. Depending on staff and funding availability and funding, Yamhill SWCD may be able to offer pre-impact surveys at reduced cost (See section 8.5: Implementation Costs).

### **8.2.1.3 Mitigation Calculations**

Once the quantity of impacts to Fender's blue has been determined for each Covered Activity proposed by the landowner and all possible measures to reduce or avoid impacts have been considered, Yamhill SWCD will assist the landowner in determining the quantity of mitigation required. The steps to do so are outlined in Table 8.1. The USFWS may request to coordinate with Yamhill SWCD to review mitigation calculations.



<sup>1</sup> Site must be > 2 km from a known butterfly population.

**Figure 8.1 Process for private landowners to obtain incidental take coverage under the Yamhill SWCD Habitat Conservation Plan for Fender's blue butterfly on private lands.**

**Table 8.1 Steps to calculate mitigation required for any given impact, including determining resources impacted, calculating site quality multiplier and determining base mitigation ratio. Example provided.**

<p><b>STEP 1: Survey to determine quantity of lupine and nectar to be impacted</b> in the footprint of the covered activity.</p>	<p><b>EXAMPLE STEP 1:</b> Total impact = 15m<sup>2</sup> Lupine, 50 grams nectar sugar</p>
<p><b>STEP 2: Calculate site quality multiplier</b> by determining habitat quality of impact and mitigation sites.</p>	<p><b>EXAMPLE STEP 2:</b> Using Table 6.5, <b>Impact Site Quality = Moderate</b> <b>Mitigation Site Quality= High</b> Using Table 6.6, <b>Site Quality Multiplier = 0.8</b></p>
<p><b>STEP 3: Determine base mitigation ratio</b> using type of impact and type of mitigation.</p>	<p><b>EXAMPLE STEP 3:</b> Activity = Forage production, Mitigation Site = Off site, In Zone, YSWCD Mitigation Area. Using Table 6.7, <b>Base Mitigation Ratio = 2:1</b></p>
<p><b>STEP 4: Calculate total mitigation required.</b></p>	<p><b>EXAMPLE STEP 4:</b> 15 m<sup>2</sup> * 0.8 (site multiplier) * 2 (Base Mitigation Ratio) = 24 m<sup>2</sup> lupine 50 * 0.8 (site multiplier) * 2 (Base Mitigation Ratio) = 80 g nectar sugar <b>Mitigation required = 24 m<sup>2</sup> Lupine and 80 g nectar sugar</b></p>

**8.2.1.4 Cooperative Agreements and Certificates of Inclusion**

The Certificate of Inclusion is the actual document providing incidental take coverage to a landowner under Yamhill SWCD's HCP and incidental take permit. The terms by which the landowner receives such coverage, along with the roles and responsibilities of the landowner and the Yamhill SWCD, are outlined in a Cooperative Agreement between the landowner and the Yamhill SWCD. Sample templates of a Cooperative Agreement and Certificate of Inclusion are provided in Appendix A.

In order to receive a Certificate of Inclusion, a landowner must:

- Describe the proposed activity and ensure it is covered by the HCP.
- Complete a pre-impact survey of the activity footprint to calculate the impacts (m<sup>2</sup> Kincaid's lupine and g nectar sugar to be impacted) to occur.
- Enter into a Cooperative Agreement (Appendix A) that sets forth the requirements of the parties, including mitigation, monitoring, and reporting commitments.
- If the private landowner elects to complete mitigation on-site, they must demonstrate that they are prepared to initiate the mitigation, including providing a monitoring plan and mitigation site baseline assessment to Yamhill SWCD when they sign the Cooperative Agreement (Yamhill SWCD may provide technical assistance to develop these documents at low or reduced cost). The private landowner shall also submit written notice to the Yamhill SWCD when actual mitigation requirements have been fulfilled (in the future).
- Mitigation must be initiated within one year of the Cooperative Agreement effective date, unless other arrangements are made with the Yamhill SWCD.

Once the Cooperative Agreement has been signed by the parties, Yamhill SWCD will issue a Certificate of Inclusion to the landowner. A Certificate of Inclusion will be issued only for specific identified activities occurring at predicted time intervals over pre-defined areas.

**8.2.2 Data Management**

Yamhill SWCD will maintain a database to track incidental take permit compliance, monitoring data, and all appropriate aspects of the HCP. The database will be updated as needed. Yamhill SWCD will ensure quality assurance/quality control of the data and provide adequate documentation for all data (i.e., why, how, and where data were collected). The primary types of information to be included in the SWCD’s data management system for the HCP include, but are not limited to:

- Status of Covered Activities.
  - Activities undertaken and where.
- Impacts to Fender’s blue butterfly from each of the Covered Activities:
  - Including location and measure of impact (e.g., m<sup>2</sup> of lupine damaged or removed, quantity of nectar plants/flowering units damaged or removed).
- Number of Cooperative Agreements and Certificates of Inclusion issued, with details of:
  - Who they were issued to and when they were issued;
  - Activities for which take was authorized;
  - How much take was authorized; and
  - Mitigation initiated/completed, including mitigation ratios applied.
- Status of Conservation Measures.
  - Activities undertaken and where.
- Records and locations of sites where habitat surveys have been completed.
- Monitoring data and adaptive management decisions.
- Reports and documents related to the HCP.
- HCP funding and expenditures.

**8.3 Schedule**

General milestones for plan implementation are outlined in Table 8.2.

**Table 8.2 General milestones for HCP implementation.**

Years	Accomplishments
<b>Year 1</b>	<ul style="list-style-type: none"> <li>• Train relevant staff on HCP requirements.</li> <li>• Begin receiving and reviewing requests for incidental take from private parties and issuing Certificates of Inclusion for coverage under the HCP where impacts are unavoidable.</li> <li>• Establish GIS and other databases.</li> </ul>
<b>Years 1-5</b>	<ul style="list-style-type: none"> <li>• Create management plans and/or guidelines for Yamhill SWCD coordinated mitigation sites.</li> <li>• Create Effectiveness Monitoring plans for Yamhill SWCD coordinated mitigation sites.</li> <li>• Begin habitat restoration and enhancement projects at Yamhill SWCD coordinated mitigation sites.</li> </ul>

Years	Accomplishments
Years 1-50	<ul style="list-style-type: none"><li>• Prepare and revise management guidelines for Yamhill SWCD managed sites, as needed.</li><li>• Follow management guidelines at Yamhill SWCD coordinated mitigation sites and update them as needed through Adaptive Management.</li><li>• Complete Effectiveness Monitoring.</li><li>• Prepare annual Compliance Report.</li><li>• Update HCP Plan Area as new information becomes available.</li><li>• Update BMPs as necessary.</li><li>• Conduct public outreach activities.</li></ul>

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## 8.4 Land and/or Conservation Easement Acquisition Policies

Protection of high quality habitat that supports populations of Fender's blue, with ensuing enhancement, restoration, and management of that habitat, is paramount to conservation of the butterfly. Such protection, whether through conservation easements or fee simple acquisition is a major contribution to the recovery of Fender's blue. Properties or conservation easements acquired as part of the HCP will only be acquired from willing sellers.

### 8.4.1 Gifts of Land

Yamhill SWCD may accept land or easements as a gift or charitable donation, if it will benefit the goals, objectives, and requirements of the HCP and of Yamhill SWCD in general. Donated land not meeting these goals, objectives, and requirements may be sold or exchanged, subject to any restrictions imposed by the donating entity.

## 8.5 Implementation Costs and Funding

One of the key requirements for an incidental take permit is identification and pursuit of reliable funding sources to implement the Conservation Measures set forth in the HCP. Yamhill SWCD understands that failure to ensure adequate funding of the Conservation Measures outlined in the HCP is grounds for full or partial suspension of the incidental take permit. This section addresses the costs of implementing the HCP and potential sources of funds for implementation.

### 8.5.1 Implementation Costs

Yamhill SWCD will develop sufficient funding to support HCP implementation. Some HCP tasks overlap with other regular SWCD programs or projects, objectives and tasks, and will not require additional funding. These overlapping tasks are likely to include but are not limited to general project oversight and training about the HCP (staff and volunteers), preparation and update of management plans/guidelines/protocols and monitoring plans, database management, and public outreach, including site habitat evaluations and website management.

Other aspects of HCP implementation will include new HCP-specific tasks not undertaken currently by Yamhill SWCD, including but not limited to those in Table 8.3. Predicting the number of landowners that will participate in the HCP in any given year is difficult, as landowner involvement is entirely voluntary; therefore, costs are estimated on a per unit basis.

### 8.5.2 HCP Funding Sources

Yamhill SWCD will develop a fee system to generate the funds needed to support HCP-specific tasks. Fees will be paid by landowners obtaining incidental take permit coverage from Yamhill SWCD and

landowners electing to have the SWCD mitigate or complete Effectiveness Monitoring on their behalf. Fees will be assessed on a per unit basis (Table 8.3). Sample mitigation costs are included in Figure 8.2 and Table 8.4. For Certificates of Inclusion/Cooperative Agreements, the fee will be based on the area of mitigation required. Mitigation requirements are described in Chapter 6: Conservation Measures.

Funds contributed by non-profit or private interests to support the HCP will also be accepted and used to offset costs to Yamhill SWCD. In the event that funding for implementation of the Conservation Measures identified in Chapter 6 of the HCP is not available to meet the commitments outlined in the HCP, Yamhill SWCD will consult with the USFWS to determine whether the HCP or incidental take permit need amending. USFWS may suspend the SWCD's incidental take permit until these issues are resolved.

**Table 8.3 Estimated cost of specific tasks to implement the HCP (based on 2013 costs from Willamette Valley Area contractors). Costs will vary with site conditions and change over time during the HCP permit term.**

<b>Task</b>	<b>Units</b>	<b>Yamhill SWCD Investment</b>	<b>Approximate Cost<sup>1</sup>/Unit</b>
<b>Pre-Activity Impact Assessment</b>	Acres evaluated.	Staff time to survey habitat and quantify host/nectar species to be impacted.	\$50-300/acre
<b>Certificate of Inclusion and Cooperative Agreement</b>	Certificates and Agreements.	4-8 hours of staff time to develop and finalize agreement with landowner, assemble needed materials, and issue certificate. Will vary with extent and complexity of site and activities.	\$200-500/certificate and agreement
<b>Mitigation by Yamhill SWCD (on behalf of a private landowner)</b>	Area of Fender's blue habitat, as host or nectar species, to be mitigated through habitat enhancement.	Cost of habitat management (mowing or prescribed burning, weed control, native species seeding, host and nectar plant augmentation), including project coordination and contractor management	\$500-5000/ac to enhance habitat/year x 6 year minimum maintenance period (see Table 8.4).
<b>Effectiveness Monitoring (at Yamhill SWCD Mitigation Site)</b>	Area of host or nectar habitat to be monitored.	Staff time to complete monitoring of mitigated habitat, and <u>proportional amount</u> of overall site management assessment (e.g., invasive species surveys).	\$50-300/acre per monitoring event (baseline + every 3 years)
<b>Effectiveness Monitoring (at non-Yamhill SWCD mitigation site)</b>	Area of mitigation site habitat (e.g., nectar reserve) and area of host and nectar species to be monitored.	Staff time to complete monitoring of mitigated habitat and overall site management assessment (e.g. invasive species surveys).	\$50-300/acre per monitoring event (baseline + every 3 years)
<b>Reporting</b>	Per Certificate of Inclusion or per site, if multiple sites are included per certificate.	Staff time to compile and include relevant information specific to this impact/mitigation/monitoring in report to USFWS.	\$100-300/site or certificate/year

<sup>1</sup>Cost estimates will vary with site conditions.

**Table 8.4 Sample restoration costs for intensive mitigation on five acres for six years, based on 2013 Willamette Valley restoration contractor rates. Site specific costs will vary with site condition, the quantity of mitigation to be achieved (e.g., amount of lupine and nectar plants needed for mitigation), and establishment success.**

	Tasks	Cost/unit	Units	Units needed	Frequency /year	Cost
Year 1	Skid steer mow	\$ 200.00	acre	5	2	\$ 2,000.00
	Backpack spot spray	\$ 250.00	acre	5	2	\$ 2,500.00
	Project coordination	\$ 30.00	hour	20	1	\$ 600.00
				<b>Annual Cost</b>		<b>\$ 5,100.00</b>
			<b>Cost/Acre</b>		<b>\$ 1,020.00</b>	
Year 2	Skid steer mow	\$ 200.00	acre	5	2	\$ 2,000.00
	Backpack spot spray	\$ 250.00	acre	5	2	\$ 2,500.00
	Broadcast seed of nectar plants & and other natives	\$ 400.00	acre	2.5	1	\$ 1,000.00
	Project coordination	\$ 30.00	hour	20	1	\$ 600.00
				<b>Annual Cost</b>		<b>\$ 6,100.00</b>
			<b>Cost/Acre</b>		<b>\$ 1,220.00</b>	
Year 3	Skid steer mow	\$ 200.00	acre	5	1	\$ 1,000.00
	Backpack spot spray	\$ 250.00	acre	5	1	\$ 1,250.00
	Plant lupine plugs	\$ 3.20	plug	1500	1	\$ 4,800.00
	Plant nectar plugs	\$ 1.20	plug	1000	1	\$ 1,200.00
	Project coordination	\$ 30.00	hour	40	1	\$ 1,200.00
				<b>Annual Cost</b>		<b>\$ 9,450.00</b>
			<b>Cost/Acre</b>		<b>\$ 1,890.00</b>	
Year 4	Skid steer mow	\$ 200.00	acre	5	1	\$ 1,000.00
	Backpack spot spray	\$ 250.00	acre	5	1	\$ 1,250.00
	Project coordination	\$ 30.00	hour	20	1	\$ 600.00
				<b>Annual Cost</b>		<b>\$ 2,850.00</b>
			<b>Cost/Acre</b>		<b>\$ 570.00</b>	
Year 5	Backpack spot spray	\$ 250.00	acre	5	1	\$ 1,250.00
	Project coordination	\$ 30.00	hour	20	1	\$ 600.00
				<b>Annual Cost</b>		<b>\$ 1,850.00</b>
			<b>Cost/Acre</b>		<b>\$ 370.00</b>	
Year 6	Skid steer mow	\$ 200.00	acre	5	1	\$ 1,000.00
	Backpack spot spray	\$ 250.00	acre	2.5	1	\$ 625.00
	Project coordination	\$ 30.00	hour	20	1	\$ 600.00
				<b>Annual Cost</b>		<b>\$ 2,225.00</b>
				<b>Cost/Acre</b>		<b>\$ 445.00</b>

### 8.6 Changed Circumstances

If circumstances change during the term of the incidental take permit, Yamhill SWCD may modify its activities or amend the HCP to address such changes. Possible changed circumstances and the SWCD's response to them are discussed in this section, and summarized in Table 8.5).

**Table 8.5 Summary of possible changed circumstances during the term of the incidental take permit.**

<b>Category</b>	<b>Circumstance /Scenario</b>	<b>Potential Impact on Covered Species and/or their Habitat</b>	<b>Response</b>
Species Status	Additional Federally Listed Species in the HCP Plan Area	Additional habitat protections may be enacted for new species.	YSWCD will evaluate need for incidental take coverage, and consider amending this HCP or seeking an additional incidental take permit.
Species Status	Fender's blue butterfly is delisted by the USFWS	Species protections for Fender's blue will be removed.	YSWCD will complete any mitigation work and associated monitoring underway. Basic management of reserves for mitigation will continue under terms of conservation easements.
Plan Area	Previously Undiscovered Wild Fender's blue butterfly found outside HCP Plan Area	Newly discovered wild population outside Plan Area would not have for incidental take under this HCP.	All non-HCP covered activities will be regulated at that location at the discretion of the USFWS. For activities covered by the HCP, Yamhill SWCD may elect to amend the HCP to expand HCP Plan Area, adding the needed anticipated impacts and mitigation to be fulfilled, or refer the affected landowners seeking incidental take authorization to the USFWS.
Plan Area	Previously Undiscovered Wild Fender's blue butterfly found inside HCP Plan Area	Newly discovered wild Fender's blue population inside Plan Area could be impacted by HCP Covered Activities.	For HCP covered activities, YSCWD will offer permit coverage if requested on those lands as long as sufficient take is available under the incidental take permit and the conditions described in Section 8.2 (Process to Obtain Incidental Take Coverage) are satisfied.
Invasive Species or Diseases	Invasive plant population unexpectedly expands to threaten up to 25% of a mitigation area	Loss of native species in plant communities with Fender's blue, including native nectar species, or direct impacts to Fender's blue from disease.	HCP effectiveness monitoring and adaptive management include measures to address invasive species. In the event that conditions change to favor a disease affecting Fender's blue habitat or rapid expansion of an invasive species, and it does not respond to regular response, control and eradication measures, YSWCD will consult with USFWS immediately.
Natural Catastrophes	Drought, wildfire or windstorm in HCP Plan Area	Unavoidable damage to habitat at HCP mitigation sites may occur.	YSWCD will minimize impacts as practicable. In consultation with USFWS, YSWCD will evaluate the effects from the drought, fire or windstorm, and modify mitigation site management plans as needed.

### **8.6.1 Additional Federally Listed Species**

If additional prairie species not covered by the HCP are listed, proposed, or petitioned for listing, Yamhill SWCD may request that USFWS add such species to the incidental take permit and the HCP if the species is present in the HCP Plan Area, is likely to be affected by the Covered Activities, and if there is interest by private landowners in having incidental take coverage for the species. If incidental take coverage is desired, Yamhill SWCD may seek to amend the incidental take permit and HCP, or may apply for a new and separate incidental take permit. Procedures for amending the HCP are outlined in Section 8.9. Alternatively, the Yamhill SWCD may elect to refer affected landowners seeking incidental take coverage to the USFWS.

### **8.6.2 Delisting**

In the event that Fender's blue is delisted by the Federal government, Yamhill SWCD will complete any mitigation work already underway on the part of private landowners, along with required monitoring. Basic management will continue under the terms of the conservation easement.

### **8.6.3 Previously Undiscovered Wild Fender's Blue Butterfly outside the Plan Area**

The HCP Plan Area reflects the best assessment of where Fender's blue populations occur (based on roughly 4,850 ha [12,000 ac] of field survey). The likelihood of discovering a new wild population is low. However, if a new wild population is found outside the HCP Plan Area during the 50-year HCP term, all non-HCP covered activities (e.g., home construction) will be regulated at that location at the discretion of the USFWS. For activities covered by the HCP, Yamhill SWCD may elect to (1) amend the HCP to expand HCP Plan Area, adding the needed anticipated impacts and mitigation to be fulfilled, or (2) refer the affected landowners seeking incidental take authorization to the USFWS.

### **8.6.4 Previously Undiscovered Wild Fender's Blue Butterfly inside the Plan Area**

Should a new wild population of Fender's blue be discovered inside the HCP Plan Area during the 50-year HCP term, it is the intent of Yamhill SCWD to offer permit coverage for nectar plants and/or Kincaid's lupine if requested on those lands as long as sufficient take is available under the incidental take permit and the conditions described in Section 8.2 (Process to Obtain Incidental Take Coverage) are satisfied.

### **8.6.5 Expansion of New or Existing Invasive Species or Disease**

Invasive plants are a primary threat to prairie ecosystems. Common levels of widely distributed invasive plants are present at the Yamhill SWCD coordinated mitigation site, and will be monitored and managed as described in Section 6: Conservation Measures and Section 7: Monitoring and Adaptive Management. In the event that conditions change to favor an existing invasive species or a newly introduced invasive species, and a population unexpectedly expands to threaten a HCP mitigation area, loss of native species in plant communities with Fender's blue, including host native nectar species for Fender's blue could occur. If such an expansion occurs, YSWCD will consult with USFWS within 30 days of detection.

### **8.6.6 Natural Catastrophes during the Permit Term**

#### **8.6.6.1 Drought**

Extended drought is a serious problem for prairie habitat and particularly for butterflies. If their host and/or nectar species do not produce sufficient food at the right time, the butterfly adults and larvae may starve. If drought conditions threaten Fender's blue at a Yamhill SWCD coordinated mitigation site, the SWCD, in consultation with the USFWS and in collaboration with neighboring landowners, will determine if irrigation or other water is available and, if it is reasonably feasible, apply it or transport it to the affected sites for drought abatement.

#### **8.6.6.2 Wildfires**

When managed, prescribed fire is an ideal tool for managing native prairie species. Uncontrolled wildfires may adversely affect Fender's blue directly by burning the organisms or indirectly through burning host/nectar plants or firefighting actions (trampling of plants, eggs, or larvae). If a fire occurs and fire fighters attempt to control it, human health and safety will take precedence over protection of Fender's blue. Within one year of a wildfire at a Yamhill SWCD coordinated mitigation site, the SWCD will determine the status of the site and the need for restoration or enhancement efforts. Any restoration/enhancement work needed will be performed pursuant to the site's management plan.

#### **8.6.6.3 Windstorms**

Strong windstorms can damage trees, buildings, and structures. Following a windstorm, Yamhill SWCD staff will assess the damage to any Yamhill SWCD coordinated mitigation sites. Any fallen trees negatively affecting the habitat will be removed with care to avoid further impacts to Fender's blue.

### **8.7 Unforeseen Circumstances**

Unforeseen circumstances are changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by the applicant or the USFWS at the time of a HCP's development, and that result in a substantial and adverse change in the status of the covered species. The USFWS is responsible for determining if an unforeseen circumstance has occurred, and notifying the Yamhill SWCD. In the event of an unforeseen circumstance, Yamhill SWCD will not be required increase the amount of mitigation required under the HCP, but the USFWS may request the SWCD re-allocate resources in an appropriate manner.

### **8.8 Annual Compliance Report**

Yamhill SWCD will submit an annual Compliance Report, by March 31<sup>st</sup> of each year in which the HCP is in effect. This report will include summaries of the following information:

- Progress and work toward the biological goals and objectives.
- Covered Activities completed, including spatial extent and total Fender's blue habitat impacted.
- Mitigation initiated, mitigation fulfillments completed, and work completed for on-going mitigation projects. Descriptions will include site ownership, entity completing mitigation, quantity of host/nectar species mitigated, and acres of habitat involved.
- Effectiveness Monitoring results by mitigation site (if monitoring completed in year report is due), including description of any Adaptive Management actions that were triggered.
- Changed circumstances relative to the HCP: any natural catastrophes, change in Federal ESA listing status of species in the Plan Area, new Fender's blue sites, or new invasive species in mitigation areas.
- HCP Administration: total incidental take issued per Covered Activity, the total number of Certificates of Inclusion issued, and the number of Cooperative Agreements executed.

### **8.9 Amendments**

The incidental take permit will be issued for a 50-year period. During that time Yamhill SWCD may seek to amend or modify the HCP and the incidental take permit.

#### ***8.9.1 Amendments to the HCP or Incidental Take Permit***

Yamhill SWCD or the USFWS may propose minor or major amendments to the HCP or the incidental take permit. The party proposing the amendments shall provide the other party with a written statement of the reasons for the amendments and analysis of the effects of the amendments on (1) the environment

(NEPA documents), if required, (2) Fender's blue, and (3) HCP implementation. The permit may be amended in accordance with all applicable laws and regulations.

#### 8.9.1.1 Minor Amendments

Minor amendments do not significantly alter HCP obligations from those analyzed for the original HCP and NEPA documentation. Minor amendments may include, but are not limited to, the following:

- Correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the incidental take permit or HCP.
- Changes in land ownership.
- Changes to survey, monitoring, or reporting protocols.
- Changes to the biological goals or objectives in response to adaptive management.
- Modifications to or adoption of additional Conservation Measures likely to improve the conservation of Fender's blue, or discontinuation of Conservation Measures determined through monitoring and adaptive management to be ineffective.
- Any other types of modifications clarifying components of the incidental take permit or HCP.

The party proposing the amendment must provide the other with written notice, except when another process is specifically identified under the terms of the HCP with respect to a particular amendment. The parties will respond to proposed amendments within 60 days of receipt of such written notice. Minor amendments do not require an amendment of the incidental take permit, but require approval from the USFWS before being implemented. If the USFWS concurs with minor amendments they will submit approval in writing within 120 days or less. If the USFWS does not send notice or approval or disapproval, the amendment is approved automatically. The modifications will be considered effective on the date of USFWS' written authorization or after 120 days if the USFWS fails to send notice of approval or disapproval. A record of any minor amendments to the HCP or incidental take permit shall be documented in writing.

#### 8.9.1.2 Major Amendments

Major amendments require amending the HCP and the incidental take permit following a formal review process similar to that used for the original HCP and incidental take permit, including USFWS review, NEPA review and internal USFWS section 7 consultation.

Major amendments may include, but are not limited to, the following:

- Revisions (additions or deletions) to the Plan Area, not qualifying as a minor modification.
- Adding or removing Covered Species.
- Increasing the amount of take allowed under the incidental take permit.
- Adding one or more activities to the list of Covered Activities if that activity will result in greater adverse effects to Fender's blue than those analyzed through the NEPA documentation.
- Modifying a Conservation Measure so substantially as to affect the level of authorized take, the Covered Activities, funding, or the nature and scope of the Conservation Measures.
- Extending the Permit term beyond 50 years.

Yamhill SWCD will submit requests for major amendments to the USFWS. Requests will include a description of the proposed amendment, the need for the amendment, and an assessment of its impacts.

### 8.9.1.3 Amendments for Future Species Listings

Amending the HCP to add one or more additional species is considered a “major” amendment to the HCP and incidental take permit. If a currently unlisted species is Federally listed as threatened or endangered under the Federal Endangered Species Act during the term of the HCP, and Yamhill SWCD desires the ability to offer incidental take coverage for the newly listed species, Yamhill SWCD may coordinate with the USFWS on an HCP and incidental take permit amendment to include the newly listed species. The USFWS will review the HCP to determine if the Conservation Measures are adequate for the newly listed species. If so, Yamhill SWCD may request an amendment to the HCP and incidental take permit to include the newly listed species. If the Conservation Measures are not adequate, Yamhill SWCD shall submit a revised or supplementary HCP and supporting documentation with a request to amend the incidental take permit. The USFWS is responsible for completing environmental compliance documents under NEPA and for all internal compliance under section 7 of the ESA.

## **8.10 HCP and Incidental Take Permit Renewal**

Once the incidental take permit expires (50 years), take is no longer available for private landowners under Yamhill SWCD's permit. Yamhill SWCD may apply to USFWS for a renewal of its incidental take permit, and the request for renewal is on file with USFWS at least 30 days prior to the HCP/incidental take permit expiration, the incidental take permit will continue to be valid while the renewal request is processed. The renewal request must certify the statements and information in the original HCP are correct or include a list of changes. The renewal request must also specify what take has occurred under the incidental take permit/HCP and the Covered Activities still likely to occur during the renewal time period.

## **8.11 Enforcement**

The provisions in this HCP are enforceable by the USFWS through the terms and conditions of the incidental take permit. For further details, see the incidental take permit.

## **8.12 Notice**

Any notice given by USFWS pursuant to the terms and conditions of the HCP or incidental take permit, must be given to Yamhill SWCD by personal delivery or by certified mail/return receipt requested as described in the incidental take permit.

## **8.13 Suspension/Revocation**

The USFWS may suspend or revoke the incidental take permit if Yamhill SWCD fails to implement the HCP in accordance with the terms and conditions of the incidental take permit or Federal law requires suspension or revocation. Suspension or revocation of the incidental take permit, in whole or in part, by the USFWS shall be in accordance with 50 C.F.R. §§ 13.27-29, 17.22 (b)(8), and 17.32 (b)(8).

Yamhill SWCD may suspend or revoke a Certificate of Inclusion or Cooperative Agreement if the landowner does not abide by the terms of the Certificate/Agreement, does not satisfy any mitigation or monitoring requirements in a timely manner, or is delinquent in reporting any monitoring information to the SWCD by December 31 of the year it is due.

## 9 Alternatives

This section describes the alternatives Yamhill SWCD considered during HCP development. The HCP describes the proposed action, which is development and implementation of a HCP for Fender's blue butterfly in Yamhill County to address forage/hay production, livestock grazing, timber and vineyard establishment, voluntary habitat restoration and HCP implementation on private lands.

Section 10 of the Federal Endangered Species Act (ESA) requires the incidental take permit applicant to set forth in the HCP (1) any specific alternative, whether considered before or after the HCP process was begun, that would reduce such take below levels anticipated for the project proposal; and (2) a "no action" alternative, which means no HCP would be enacted, no incidental take permit would be issued and take would be avoided.

### 9.1 Alternatives Considered

#### 9.1.1 Covered Species Alternatives

In addition to including Fender's blue Yamhill SWCD considered covering Taylor's checkerspot butterfly (*Euphydryas editha taylori*), a species listed as endangered under the Federal Endangered Species Act in 2013. Taylor's checkerspot habitat requirements are similar to Fender's blue, it inhabits open upland prairies and uses some of the same nectar species. This overlap in habitat types would make inclusion of Taylor's checkerspot relatively simple, as both species would likely occur in the same Plan Area. However, there are no known populations of Taylor's checkerspot in Yamhill County; the only known occurrences of Taylor's checkerspot in Oregon are in Benton County. Yamhill SWCD had Oregon's Taylor's checkerspot expert Dana Ross complete surveys for the species in Yamhill County in 2012 and 2013, and he did not find any new populations (Ross 2012, 2013). As a result, the SWCD decided not to include it as a Covered Species; there is no need for HCP coverage if the species is not present.

Yamhill SWCD also evaluated whether to include the streaked horned lark (*Eremophila alpestris strigata*) as a Covered Species. The lark was listed as threatened in 2013 by the USFWS. The SWCD elected not to include the lark in this HCP for two primary reasons. First, larks do not use the same habitat as Fender's blue butterfly, and will rarely, if ever, use land in the HCP Plan Area. Habitat used by streaked horned larks is usually flat with substantial areas of bare ground (16-17%) and sparse low-stature (< 13 inches) vegetation in an open landscape context (USFWS 2013). Sites used by larks are generally found in open (i.e., flat, treeless) areas of 300 ac (120 ha) or more or are of at least 100 ac (40 ha) in size and adjacent to other large open agricultural habitats or sites next to water (USFWS 2013). Such habitats do not occur in the constricted and partially forested valleys within the HCP Plan Area of Yamhill County, which are often bisected by riparian drainages. Second, the Covered Activities of this HCP are agricultural practices. A special rule addressing incidental take from airport management, agriculture, and weed control activities was promulgated along with the listing determination for the lark (USFWS 2013a). The special rule provides that incidental take of streaked horned lark on private lands resulting from accepted agricultural practices on farms consistent with State laws will not be a violation of section 9 of the ESA (USFWS 2013). This special rule recognizes the importance of maintaining certain types agricultural land for lark habitat (USFWS 2013), and makes HCP coverage unnecessary for these activities.

#### 9.1.2 Covered Activities Alternatives

Yamhill SWCD considered covering activities beyond those currently included in this HCP, including home and farm building construction. However, unlike the other Covered Activities described in

Chapter 3, Yamhill SWCD typically does not provide technical assistance in implementation of development activities. As Yamhill County is the entity regulating development activities, not Yamhill SWCD, it seemed inappropriate for the SWCD to be involved, and the SWCD elected not to cover these activities, which would also have increased the quantity of incidental take to be covered in this HCP.

Yamhill SWCD considered covering impacts from pesticide (herbicide, fungicide, etc.) drift produced during management of vineyards or timber plantations. The SWCD elected not to cover this activity for the following reasons: 1) unlike the other covered activities, it is extremely difficult to predict when drift would occur, since it may relate to site characteristics, specific weather conditions or equipment, and many different chemicals are used, particularly for vineyards, with type, rate and application frequency varying by site and weather conditions in any given year; 2) in most cases it is extremely difficult to ascertain if drift has occurred; and 3) the effects of chemical drift on Kincaid's lupine, nectar species, and Fender's blue butterfly are unknown. Yamhill SWCD will continue to work with vineyard and timber managers to reduce the occurrence of chemical drift into prairie habitats and other non-target areas.

### **9.1.3 Implementation Alternatives**

While developing the HCP, Yamhill SWCD considered the role it was willing to serve in HCP implementation, specifically relating to coordination of mitigation and monitoring activities. In the proposed action, Yamhill SWCD provides landowners the option to participate in a Yamhill SWCD coordinated mitigation effort, with habitat enhancement and monitoring occurring at a few larger mitigation sites. Landowners needing to mitigate can simply pay a fee to have Yamhill SWCD complete mitigation and monitoring on their behalf. As an alternative, the SWCD considered requiring all landowners to independently complete their own mitigation and monitoring. This would usually involve hiring contractors and biologists to complete the work. This option may have reduced the quantity of incidental take addressed in the plan because it would reduce the incentive for landowners to participate in the HCP. However, Yamhill SWCD rejected this alternative and chose to offer SWCD coordinated mitigation and monitoring in addition to some on-site mitigation for several reasons, including the following:

- Biologically, having habitat enhancement work pooled together at fewer, larger mitigation sites will be more beneficial to Fender's blue. Such sites will have permanent protection from development, and through long term enhancement from mitigation (over the 50-year term of the HCP) will have the potential to reach a size and quality to contribute to the habitat networks required for the recovery (downlisting or delisting) of the butterfly. Small fragments of mitigated habitat across the landscape are not as biologically meaningful for Fender's blue, and are unlikely to contribute to its recovery.
- Enhancing a larger quantity of habitat at a larger site is more cost effective than enhancing small fragments of habitat at many sites across the HCP Plan Area. The proposed SWCD coordinated mitigation sites are thus likely to reduce mitigation costs for landowners.
- Effectiveness monitoring is far less expensive to complete at a small number of larger mitigation sites than at a larger number of small mitigation sites. The proposed Yamhill SWCD coordinated mitigation sites, with monitoring completed by SWCD will make monitoring less expensive for landowners. Fewer mitigation sites will also make monitoring more feasible to complete within the narrow survey window for Fender's blue butterfly and its habitat.

## **9.2 No Action Alternative (No HCP)**

Under the no action alternative, Yamhill SWCD would not complete the HCP and would not receive an incidental take permit. The SWCD would be unable to offer incidental take coverage to private landowners in Yamhill County wishing to perform activities that could impact Fender's blue or its

habitat. This would potentially affect the owners of 506 private taxlots in the identified HCP Plan Area. Each of those landowners who have Fender's blue habitat and wish to perform the Covered Activities (forage/hay production, livestock grazing, timber and vineyard establishment, voluntary habitat restoration on private lands) would have three options:

1. **Independently prepare an HCP and apply for an incidental take permit to address the Covered Activities.** Individual landowners would each bear the cost of preparing the HCP and completing the required habitat surveys, mitigation, monitoring, and reporting. This option would be more expensive for each landowner than the cost to a landowner participating in the proposed action HCP.
2. **Continue with the Covered Activities in the absence of an HCP and incidental take permit coverage.** If the landowner's activities negatively affected Fender's blue, that landowner could be held responsible for violating the Endangered Species Act and may be liable for associated fines or other penalties from the USFWS. This option would be detrimental to Fender's blue butterfly because activities would not be minimized or avoided to the maximum extent practicable and planned mitigation would not be conducted for unavoidable impacts.
3. **Cease the Covered Activities.** The discontinuation of livestock grazing, vineyard development, hay/forage production and conversion to timber may have a detrimental effect on the economy and livability of Yamhill County.

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# 11 Glossary/Acronyms

**Action area:** All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved.

**Action:** An activity or program of any kind authorized, funded, or carried out, in whole or in part, by a Federal agency in the United States.

**Adaptive management:** A cyclical process whereby managers treat actions as experiments from which they improve management actions.

**Adverse modifications:** A direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

**Best Management Practices (BMPs):** Guidelines for performing the Covered Activities so as to avoid or significantly minimize the impacts to Fender's blue butterfly and its habitat.

**Biological diversity:** The variety of life and its processes that have developed on earth.

**Biological Opinion (BO):** A document stating the opinion of the U.S. Fish and Wildlife Service on whether or not a Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.

**Certificate of Inclusion (COI):** This is a document issued by Yamhill SWCD that enrolls a landowner into the HCP for purposes of obtaining coverage under the SWCD's incidental take permit.

**Community:** A group of interacting plants and animals inhabiting a particular area.

**Compliance monitoring:** An evaluation of whether the organization did what it said it would accomplish.

**Conservation measure:** A specific conservation tool employed in a specific location. May include, but is not limited to, habitat acquisition and habitat restoration.

**Conservation:** As defined by Section 3 of the ESA, "to use and the use of all methods and procedures necessary to bring any endangered or threatened species to the point at which the measures provided are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resource 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, regulated taking."

**Consultation:** The process required of a Federal agency under Section 7 of the ESA when any activity authorized, carried out, or conducted by that agency may affect a listed species or designated critical habitat. Consultation is with the U.S. Fish and Wildlife and may be formal or informal.

**Cooperative Agreement (CA):** An agreement between Yamhill SWCD and anyone wishing to obtain incidental take coverage under the SWCD's permit. The agreement will specify the obligations of the parties.

**Covered Activity:** These are activities that are included in the HCP and covered for incidental take by the incidental take permit.

**Covered Species:** These are species that are included in the HCP and covered for incidental take by the incidental take permit.

**Critical habitat:** Specific areas within the geographic area occupied by the species on which are found those physical and biological features essential to the conservation of the species and which may require special management considerations or protection.

**Cumulative effects:** For purposes of consultation under the ESA, the effects of future state or private activities not involving Federal activities that are reasonably certain to occur within the action area of an action subject to consultation. Cumulative effects are defined differently for purposes of the National Environmental Policy Act (NEPA). Council on Environmental Quality regulations for implementing NEPA define cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non- Federal) or person undertakes such other actions” (40 C.F.R. § 1508.7).

**Delist:** To remove a plant or animal species from the list of endangered or threatened species.

**Diapause:** A state of dormancy.

**Ecology:** The study of the inter-relationships among organisms and between organisms and between all aspects, living and nonliving, of their environment.

**Ecoregion:** A relatively large land and water area containing geographically distinct assemblages of natural communities, with approximate boundaries. These communities share a large majority of their species, dynamics, and environmental conditions, and function together effectively as a conservation unit at the continental and global scales.

**Ecosystem:** A discrete unit that consists of living and nonliving parts interacting to form a stable system.

**Effectiveness Monitoring:** Monitoring to determine whether the restoration or enhancement techniques are meeting the management objective.

**Endangered species:** Those species threatened with extinction throughout all or a significant portion of their range. Listing may result from disease, predation, over utilization for commercial, scientific, or recreational purposes, or current or threatened destruction of habitat or range.

**Endemic species:** A species native and confined to a certain region. Generally used for species with comparatively restricted distribution.

**Extinct species:** A species that no longer exists.

**Federal Register:** The official daily publication for actions taken by the Federal government, such as rules, proposed rules, and Notices of Federal agencies and/organizations, as well as Executive Orders and other Presidential documents.

**Habitat Conservation Plan (HCP):** A plan that outlines ways of maintaining, enhancing, and protecting a given habitat type needed to protect species. The plan usually includes measures to minimize impacts, and may include provisions for permanently protecting land, restoring habitat, and relocating plants or animals to other areas. The HCP is required before an incidental take permit will be issued.

**Habitat:** The living place of a species or community characterized by its physical or biotic properties.

**Harass:** To intentionally or negligently, through act or omission, create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, and sheltering.

**Harm:** To perform an act that kills or injures wildlife; may include significant modification of habitat or degradation when it kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering.

**Host plant:** A particular plant species required of butterflies during egg laying and for food during the larvae and pupae life stage.

**Impacts:** Impacts may be negative or positive. Negative impacts are ecological stresses to a species and the source of that stress. Positive impacts are impacts whose net effect is beneficial to the species, and may include such activities as mowing or burning.

**Incidental take permit (ITP):** A Permit issued under section 10(a)(1)(B) of the ESA to a non-Federal party undertaking an otherwise lawful project that might result in the take of a threatened or endangered species. An application for an incidental take Permit is subject to certain requirements, including preparation of habitat conservation plan.

**Incidental take:** Take that results from, but is not the purpose of, carrying out an otherwise lawful activity.

**Independent population:** An isolated population that meets certain minimum size and habitat quality criteria, and which would be likely to persist in the long-term. An independent population must be at least the minimum patch size (currently defined as 6 hectares [15 acres] by the USFWS (USFWS 2010)).

**Indirect effect:** An effect caused by a proposed action taking place later in time than the action, but is still reasonably certain to occur (Section 7 of ESA).

**Inflorescence:** A group or cluster of flowers on a stem.

**Listed species:** A species, subspecies, or distinct population segment that has been added to the Federal list of endangered and threatened wildlife and plants.

**Monitoring:** Repeated measurements carried out in a consistent manner so that observations are comparable over time.

**National Environmental Policy Act (NEPA):** Federal law mandating that before Federal agencies make decisions, they must consider the effects of their actions on the quality of the human environment.

**Native species:** Those species present in part or all of a specified range without direct or indirect human intervention, growing within their native range and natural dispersal potential.

**Nectar Plant:** A particular plant species required of adult butterflies for food/energy.

**Network:** Several potentially interacting subpopulations of Fender's blue butterfly distributed across a landscape. A "functioning network" as defined by the USFWS must be composed of three or more subpopulations, each occupying habitat of at least the minimum patch size (currently defined as 6 hectares [15 acres]) and separated by no more than the maximum separation distance (currently defined as approximately 2 kilometers [1.2 miles]) from the next nearest subpopulation or connected by stepping-stone patches of lupine less than 1 kilometer (0.6 mile) apart. The maximum distance separating subpopulations within a functioning network is based on the known flight distance of an adult Fender's blue butterfly; this distance is currently understood to be about 2 kilometers (1.2 miles) (Schultz 1998).

**Non-native species:** Species present in a region only as a direct or indirect result of human activity.

**Persons:** Includes individuals, corporations, partnerships, limited liability corporations, limited liability partnerships.

**Phenology:** The timing of biological phenomena, for example, the time of year when a plant flowers.

**Plan Area:** Area for which the HCP provides incidental take coverage.

**Population:** A group of individuals of a species living in certain areas maintaining some degree of reproductive isolation.

**Range:** The geographic area a species is known to or believed to occupy.

**Recovery plan:** A document drafted by U.S. Fish and Wildlife Service serving as a guide for activities to be undertaken by Federal, State, or private entities in helping to recover and conserve endangered and threatened species.

**Recovery:** A reduction of the risk of extinction to the point that, based upon best available science, it is reasonably sure that the species will remain secure into the foreseeable future.

**Species:** A group of organisms resembling one another, and includes subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate, fish, or wildlife that interbreeds when mature.

**SWCD:** Soil and Water Conservation District

**Take:** To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct; may include significant habitat modification or degradation if it kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, and sheltering.

**Threatened species:** A species that is likely to become endangered in the foreseeable future.

**USFWS:** United States Fish and Wildlife Service or U.S. Fish and Wildlife Service

**Viable:** A viable population has a sufficient number of individuals, reproduction by those individuals, and habitat conditions to persist over time.

# **Appendix A. Certificate of Inclusion and Cooperative Agreement Templates<sup>3</sup>**

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<sup>3</sup> Subject to revision over time with input from the USFWS.



Providing Natural Resource Leadership

2200 SW 2nd Street  
McMinnville, OR 97128  
www.yamhillswcd.org  
503-472-6403

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**Yamhill HCP for Fender's Blue Butterfly on Private Lands  
Certificate of Inclusion**

The United States Fish and Wildlife Service ("Service") issued to Yamhill Soil and Water Conservation District ("YSWCD") an Incidental Take Permit ("Permit") No. \_\_\_\_\_, on **[[[Date]]]**, for a period of 50 years, pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1539(a)(1)(B). Such Permit authorizes the "Take" of Fender's blue butterfly and its habitat in accordance with the terms and conditions of the Permit, and the Yamhill SWCD Habitat Conservation Plan for Fender's Blue Butterfly on Private Lands ("HCP"). Under the Permit, **[[[insert name of party seeking the Certificate of Inclusion]]]** ("Participating Landowner") is authorized to perform certain activities covered in the Permit resulting in the "Take" of **Fender's blue butterfly** and its habitat, provided all applicable terms and conditions of the Permit and the HCP are met.

As the owner of the property depicted on Exhibit "A", attached hereto and incorporated herein by this reference, you are entitled to the protection of the Permit for the activities authorized by the YSWCD in the attached Cooperative Agreement **[[[insert identifying number]]]**, with respect to any Take of **Fender's blue butterfly** and its habitat as identified in the HCP. In the event the property depicted on Exhibit "A" is used for other purposes without the express consent of YSWCD, Take Authorization under the Permit will automatically cease and the U.S. Fish and Wildlife Service shall be notified of the revocation of the Certificate of Inclusion within 5 business days of such action. Such authorization is provided as described in the Permit and the HCP.

By signing this Certificate of Inclusion, you signify your election to receive Take Authorization under the YSWCD's Permit in accordance with the terms and conditions thereof. This Certificate of Inclusion does not impose additional regulatory control over the signatory nor require the signatory to provide additional information not called for in the Certificate of Inclusion, but instead ensures compliance with 50 Code of Federal Regulations, section 13.25(d).

Coverage under the Permit will become effective upon receipt of the executed Certificate of Inclusion by YSWCD and Participating Landowner. In the event the subject property is sold or leased, the buyer or lessee must be informed of these provisions and execute a new Certificate of Inclusion and Cooperative Agreement **[[[insert identifying number]]]**.

---

<b>[[[Name of Private Landowner]]]</b>	Date
Address	Phone
YSWCD HCP Coordinator ,	Date



Providing Natural Resource Leadership

2200 SW 2nd Street  
McMinnville, OR 97128  
www.yamhillswcd.org  
503-472-6403

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## Yamhill HCP for Fender's Blue Butterfly on Private Lands Cooperative Agreement

**1. PARTIES AND PURPOSE.** This Cooperative Agreement ("Agreement") is between **Yamhill Soil and Water Conservation District ("YSWCD")**, and a **[Property owner]** ("Property owner"). This Agreement is intended to set forth the obligations of the Property owner for **[short term restoration or temporary or permanent]** impacts to **Fender's blue butterfly** resulting from Covered Activities performed by the Property owner on their Property **[insert location or identifier]**. Participation in this Agreement is a prerequisite for obtaining a Certificate of Inclusion from YSWCD issued as part of the YSWCD's Habitat Conservation Plan for Fender's Blue Butterfly on Private Lands ("HCP"), Incidental Take Permit (Permit # \_\_\_\_\_) from the U.S. Fish and Wildlife Service ("USFWS").

This Agreement includes, at a minimum:

- (1) Map(s) (Exhibit A) showing the following information (**provide GIS data in compatible format**):
  - (a) Property boundaries,
  - (b) Area to be impacted by the covered activity ("Impact Area"),
  - (c) Location of habitat to be impacted by the covered activity, based on a pre-project survey or calculation of nectar species abundance (Documentation attached as Exhibit B),
  - (d) For projects requiring mitigation, if mitigation is to occur on-site, maps of where mitigation will occur.
- (2) If mitigation is to occur on-site, a Current Species Survey/Baseline Assessment of site where habitat restoration, enhancement and management activities or mitigation will occur;
- (3) Property owner and YSWCD responsibilities under the Agreement; and
- (4) YSWCD HCP (incorporated herein by reference).

If a Property owner is having mitigation completed on their behalf by YSWCD, they may substitute a copy of their contract with YSWCD in place of items (1) d) and (2).

**2. AFFECTED PROPERTY.** The Property owner owns the property identified as **[list tax lot information]** in Yamhill County, Oregon (Exhibit A).

**3. IF ON-SITE MITIGATION OR HABITAT RESTOTATION WILL OCCUR: BASELINE CONDITIONS OF RESTORATION OR MITIGATION SITE.** Property owner has performed a baseline assessment of the area where mitigation will be performed. This assessment includes a species survey for Fender's blue

butterfly and an assessment of the habitat. This baseline assessment may be used to track the effectiveness of the conservation measures required under this Agreement, or the voluntary conservation actions.

**4. IMPACTED HABITAT.** The parties agree the Property owner is allowed to impact **[List the number of individuals or amount of foliar cover to be affected]** within that area shown on Exhibit A as the Impact Area, as a result of performing the following activities ("Covered Activities") which are covered under the YSWCD's Incidental Take Permit and Habitat Conservation Plan.

- **[List Covered Activities here]**

**5. CONSERVATION MEASURES.** The purpose of the YSWCD's Incidental Take Permit, Habitat Conservation Plan, and this Agreement is to minimize or mitigate for impacts to Covered Species or their habitat on Covered Lands resulting from Property owner's Covered Activities. The biological goal of the HCP is to maintain viable populations of Fender's blue butterfly in Yamhill County. To accomplish this goal, it is essential that the Property owner and the YSWCD work together to provide good habitat and positive stewardship for Fender's blue whenever possible, particularly on any mitigation sites. Mitigation may occur at a Yamhill SWCD Coordinated Mitigation site or on-site at the Property. The Property owner agrees to conduct the following activities, or have them completed on its behalf by YSWCD or an authorized contractor to minimize and mitigate for impacts to Fender's blue as provided for in the Certificate of Inclusion and this Agreement:

- **[Specify conservation measures/mitigation to be undertaken, and describe who will undertake mitigation]**

#### **6. EFFECTIVENESS MONITORING**

Yamhill SWCD shall undertake effectiveness monitoring for any habitat restoration, enhancement, and management activities required in Section 5 above. The cost of such monitoring shall be paid by the Property owner. Any applicable effectiveness monitoring information shall be included in YSWCD's annual report to the USFWS.

#### **7. RESPONSIBILITIES OF THE PARTIES**

**Property Owner's Responsibilities.** The Property owner agrees to limit its impacts to Fender's blue butterfly to those allowed through the Agreement and Certificate of Inclusion. The Property owner understands that in order for the YSWCD to fulfill the responsibilities of its Incidental Take Permit, the YSWCD must report to the USFWS all activities impacting the Property owner's Fender's blue butterfly in accordance with its Incidental Take Permit. In addition, Property owner agrees to complete the following, or have it completed on their behalf by YSWCD or an authorized contractor:

- Implement the Conservation Measures specified herein in compliance with all Federal, State and local laws, including, but not limited to, mitigation on-site or funding Yamhill SWCD to complete mitigation on the Property Owner's behalf, as deemed necessary by the YSWCD.
- Perform its Covered Activities in compliance with the Best Management Practices and Management Guidelines identified in the HCP, in addition to all Federal, State, and local laws;
- Conduct any habitat restoration, enhancement and management activities in accordance with the guidelines set forth in the HCP, and report any required data to YSWCD by December 31 of the year in which work was completed;

- Upon reasonable notice (48 hours), allow access to the Property owner's property or authorized work site by the YSWCD, USFWS or its approved contractors, for purposes related to this Agreement, including, but not limited to, compliance monitoring and technical assistance.
- Notify the YSWCD, in writing, of any transfer of ownership of Property owner lands at least 30 calendar days prior to the intended transfer, so the YSWCD can attempt to contact the new owner and explain any responsibilities applicable to the impacted property.
- If mitigation is to be completed by the Property owner, initiate mitigation and within 1 year of the effective date of this Agreement. Submit requested documentation to YSWCD in a timely fashion.
- Allow YSWCD to complete Effectiveness Monitoring on site.

**YSWCD's Responsibilities.** The YSWCD's responsibilities include the following:

- When YSWCD is completing mitigation on behalf of the Property Owner, Yamhill SWCD will fulfill the requirements set forth in the HCP.
- When YSWCD is completing Effectiveness Monitoring on behalf of the Property Owner, Yamhill SWCD will fulfill the requirements as set forth in the HCP.
- Provide 48 hours advance notification to the Property owner before any visit by YSWCD staff or its contractors to the Property.

**8. AGREEMENT DURATION.** Obligations under this Agreement will be in effect from the date executed until **[INSERT DATE or the conservation measures required under this Agreement have been satisfied, or for permanent mitigation, describe]**. Upon signing the Agreement, a Certificate of Inclusion will be issued to the Property owner under the YSWCD's Incidental Take Permit. The Certificate of Inclusion will authorize incidental take of the Fender's blue butterfly at the time the Certificate of Inclusion is issued. Copies of the Agreement and Certificate of Inclusion will be held by the YSWCD, and copies will be submitted to the USFWS as part of the YSWCD's Annual Compliance Report.

**8. INCIDENTAL TAKE.** Take is defined as actions or attempted actions to harass, harm, pursue hunt, shoot, wound, kill, trap, capture, or collect such species. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. "Harass" is further defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns including, but not limited to, breeding, feeding or sheltering. Incidental take is any take of Federally-listed wildlife that is incidental to, but not the purpose of, otherwise lawful activities.

**9. MODIFICATION OF AGREEMENT.** The YSWCD or the Property owner may propose modifications or amendments to this Agreement by providing written notice to the other party and obtaining their written concurrence. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The parties will make their best efforts to respond to proposed modifications within 60 calendar days of receiving the notice. Proposed modifications will become effective upon the parties' written concurrence.

**10. CERTIFICATE OF INCLUSION SUSPENSION OR REVOCATION.** The YSWCD may suspend or revoke a Property owner's Certificate of Inclusion if the Property owner, without the express written consent of the YSWCD, (1) performs activities other than the Covered Activities allowed for under this Agreement resulting in the take of Fender's blue butterfly, (2) does not perform the conservation measures set

forth in the Agreement or have them performed on its behalf, (3) does not conduct the required effectiveness monitoring required in the Agreement or have it completed on its behalf, or (4) does not comply with the provisions of this Agreement. The YSWCD will notify the USFWS within ten (10) business days of the suspension or revocation of the Certificate of Inclusion.

**11. SUCCESSION AND TRANSFER.** This Agreement shall be binding on and shall inure to the benefit of the parties (including officers, directors, employees, lessees and agents thereof) and their respective successors and transferees. The rights and obligations under this Agreement are transferable to subsequent non-Federal property owners, upon consent of the successor or transferee of the land, execution of a new Agreement, and issuance of a Certificate of Inclusion. A new owner(s) will have the same rights and obligations as the original owner.

**12. RELEASE.** The Property owner releases and shall hold the YSWCD harmless from any liability arising from or related to this Agreement or activities undertaken on the Property owner's Property or authorized work site pursuant to this Agreement.

**13. NOTIFICATION.** Communication/correspondence required by this Agreement should be directed to the addresses below. Names and addresses may be changed upon written notice to all parties.

Yamhill SWCD HCP Coordinator  
2200 SW 2<sup>nd</sup> Street  
McMinnville, OR 97128  
(503) 472-6403

Property owner's Name  
Address  
City, State, Zip  
Telephone Number

Dated effective as of the last date of signature below.

COOPERATIVE AGREEMENT # \_\_\_\_\_

Yamhill SWCD

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_ Title \_\_\_\_\_

PROPERTY OWNER

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_

## **Appendix B: Conservation Strategy for Fender's Blue Butterfly and Associated Prairie Species**

# Conservation Strategy

## FOR FENDER'S BLUE BUTTERFLY & ASSOCIATED HABITATS IN YAMHILL COUNTY



December 2014

Prepared for the Yamhill Soil and Water Conservation District by the  
Institute for Applied Ecology



This document was prepared for the Yamhill Soil and Water Conservation District by staff at the Institute for Applied Ecology:

Carolyn A. Menke, Lorena Wisheart & Thomas N. Kaye



The Institute for Applied Ecology is a non-profit 501(c)(3) organization whose mission is to conserve native ecosystems through restoration, research, and education.

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Cover Photo: Fender's blue butterfly on Kincaid's lupine by Tom Kaye. All photos by IAE unless labeled otherwise.

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# Section 1: Background and Purpose

Prairie and oak savanna habitats in Yamhill County support unique plant and animal species and contribute to the scenic landscape enjoyed by its residents and visitors. Much of the historic prairie and oak savanna in Yamhill County have been lost to land use conversion, habitat fragmentation, fire suppression and invasive species spread (ODFW 2006). Populations of plant and animal species dependent on prairie and oak savanna have declined and several are listed as threatened or endangered by Federal and State agencies. Strategic conservation planning can help focus conservation actions around the best remaining habitat for the benefit of both listed species and associated species that may also be in decline.

This strategy was developed to complement the Habitat Conservation Plan for the endangered Fender's blue butterfly (*Icaricia icarioides fenderi*) (Figure 1) that was developed by the Yamhill Soil and Water Conservation District and funded by a U.S. Fish and Wildlife Service (USFWS) grant, and it also serves as a stand-alone reference document. The continued existence of prairie and oak savanna habitats and associated species in Yamhill County depends on the willingness of private landowners to voluntarily undertake conservation actions. This document provides an overview of voluntary actions that can be enacted in Yamhill County to promote recovery of Fender's blue butterfly and enhance prairie and oak savanna habitats for other common and at risk species.

## Conservation Challenges in Yamhill County



Figure 1. Fender's blue butterfly.

In the Willamette Valley, prairie and oak savanna habitats have declined from their historic extent. Unless protected and restored, these habitats will likely continue to decline due to a variety of factors, including land use change, urban expansion to accommodate future population growth and spread of invasive species. Much of Yamhill County's historic prairie and oak savanna habitat has been converted to agricultural or forestry purposes, or has become Douglas-fir (*Pseudotsuga menziesii*) forest through natural succession. Remaining prairie and oak savanna habitats in Yamhill County are almost exclusively under private ownership, and tend to be managed for other purposes, including vineyards, pasture, and hay/forage production.

Prairie and oak savanna patches in the western valleys of Yamhill County (Gopher Valley, Muddy Valley) and rolling open areas in the north of the County (Oak Ridge and Turner Creek) are naturally isolated by topography. Within those areas, habitat patches are often isolated from one another by roads, forests,

agricultural fields and other habitat types. This habitat fragmentation makes it difficult for some plant and animal species to disperse between patches, reducing their ability to survive over the long term.

Fire suppression over the last two centuries has allowed shrubs and trees to displace prairie species and prairies have slowly been replaced by coniferous forests in a process called succession. In addition, non-native species introduced to our region pose a new threat to prairie and oak savanna ecosystems by changing the habitat ecology and composition.

**The primary threats to prairie and oak savanna habitats are:**

- Habitat loss and fragmentation due to change in land use
- Invasion by non-native plant species
- Vegetative succession to shrub and tree species

*Conservation Opportunities in Yamhill County*

Opportunities for habitat conservation in Yamhill County hinge on the actions of Yamhill County's private landowners. Many dedicated individuals work on their own or with the Yamhill Soil and Water Conservation District or other entities to restore and protect prairie and oak savanna habitat on private lands. Many private landowners also manage much of the best remaining native habitat on their own or in partnership with public agencies, such as the U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program, or the Oregon Department of Fish and Wildlife Landowner Incentive Program (learn more about these programs in Section 8: Voluntary Conservation Tools). Conservation actions on private lands are crucial for maintaining habitat for both rare and common native species. Engaging private landowners in prairie conservation is vital to retain native prairie and oak savanna habitat in Yamhill County and throughout the Willamette Valley.

*Goals*

This strategy was developed to guide long-term conservation of prairie and oak savanna habitats for Fender's blue butterfly and associated native prairie and oak savanna species in Yamhill County. Actions recommended by this strategy are voluntary and emphasize opportunities for public and private landowners to work together towards habitat conservation. Funding for conservation is often limited, so this strategy also identifies methods to achieve species conservation using diverse sources of funding.

**Goal 1: Prioritize areas in Yamhill County where conservation actions may have the greatest benefit for rare species and habitats.**

Goal 1 Actions

- Identify current habitats in Yamhill County that support Fender's blue butterfly and its habitat. Investigate whether these sites support other rare species.
- Identify areas within Yamhill County that support prairie and oak savanna habitats with a diversity of native plants.
- Identify lands protected under conservation easement, or ownership by a public or conservation entity, and evaluate their potential to enhance connectivity or host new populations that promote species recovery.

**Goal 2: Identify key conservation actions to promote Fender’s blue butterfly survival and expansion in Yamhill County.**

Goal 2 Actions

- Identify connectivity opportunities and obstacles for Fender’s blue on unprotected lands.
- Provide private landowners with basic information on widely beneficial management actions to enhance upland prairie and oak savanna habitats for Fender’s blue and other upland prairie or oak savanna species.
- Evaluate the potential to expand Fender’s blue butterfly distribution in Yamhill County through introductions into currently unoccupied areas.

**Goal 3: Encourage public and private partnerships to enhance prairie conservation.**

Goal 3 Actions

- Identify voluntary programs and other conservation opportunities and existing funding sources for habitat conservation (see Section 8: Voluntary Conservation Tools).
- Create opportunities such as field days, workshops and other outreach opportunities to engage private landowners in prairie and oak savanna habitat conservation.

## Section 2: Upland Prairie and Oak Savanna Habitat



**Figure 2. Upland prairie-oak savanna habitat in Yamhill County, Oregon.**

Upland prairies and oak savannas ([Figure 2](#)) are identified in the Oregon Conservation Strategy (ODFW 2006) as particularly reduced in the Willamette Valley. Loss of prairie habitat in Yamhill County has contributed to the listing of several prairie and oak savanna dependent species, such as Fender’s blue butterfly and Kincaid’s lupine, under the federal and state Endangered Species Acts. Identifying remaining areas with quality upland prairie and oak savanna habitat is a first step to promoting the down-listing from endangered to threatened of species like Fender’s blue. Further work to restore and enhance a network of prairie and oak savanna habitat will benefit a wide variety of rare and common species (see list in Attachment 1).

In the Willamette Valley, upland prairie and oak savanna habitats typically occur on low elevation, well drained slopes along the valley bottom and surrounding foothills. Upland prairies (“prairies”) are among the most threatened ecosystems in Oregon. These open grasslands historically occurred across the Willamette Valley and supported diverse animal and plant species. Upland prairies are typically

dominated by perennial grasses and annual or perennial forbs. Oak savanna areas may also contain widely spaced (a few trees per acre) open grown Oregon white oaks (*Quercus garryana*) with wide canopies. Trees may occur in widely spaced clumps ('savanna groves').

Wet prairies have an open structure similar to upland prairies, and may transition to upland prairie along hydrological, soil and topographical gradients. Both upland and wet prairies were historically maintained as open habitats with seasonal fire by native peoples. As upland prairie and oak savanna habitats are the primary system for Fender's blue and Kincaid's lupine in the north Willamette valley, they are the target habitat of this strategy, but adjacent wet prairies are likely to benefit as well.

Common native and perennial bunchgrasses in upland prairie and oak savanna include Roemer's fescue (*Festuca roemerii*), California oatgrass (*Danthonia californica*), and prairie junegrass (*Koeleria macrantha*). Somewhat drier sites on thinner soils or south facing slopes may also include Lemmon's needlegrass (*Achnatherum lemmonii*).

Native forbs commonly intermixed with the grasses frequently include Oregon sunshine (*Eriophyllum lanatum*), slender cinquefoil (*Potentilla gracilis*), dwarf checkermallow (*Sidalcea virgata*), lance selfheal (*Prunella vulgaris* ssp. *lanceolata*), and Tolmie startulip (*Calochortus tolmiei*) (Figure 3). Other common forbs include yarrow (*Achillea millefolium*) and strawberry (*Fragaria virginiana*).



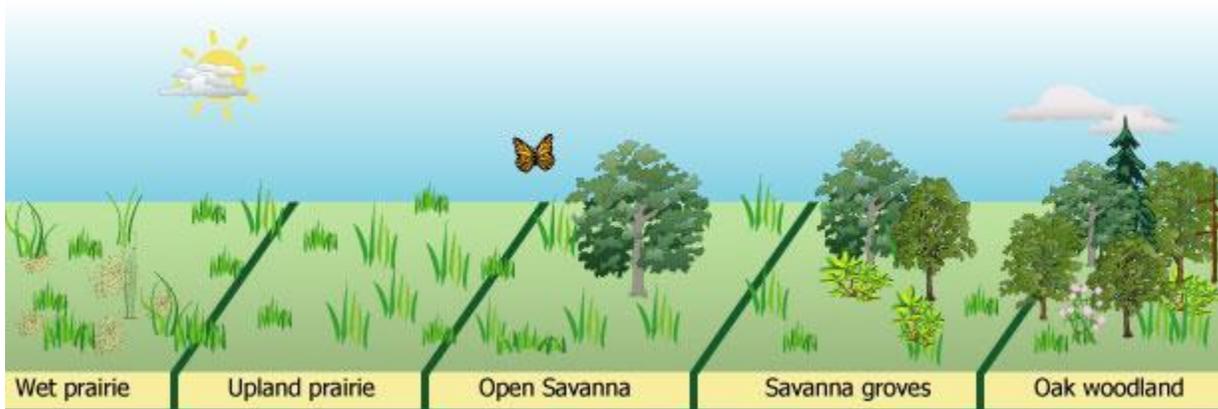
**Figure 3. Native prairie and oak savanna forb species that are also nectar species for Fender's blue butterfly, Tolmie startulip (Top) and dwarf checkermallow (Bottom).**

Several plant species frequently invade upland prairie and oak savanna habitats, reducing their size and quality for prairie species. Common problematic species include native trees such as Douglas fir, which can provide important bird habitat, but left unchecked will eventually convert prairie habitat to forest. A wide variety of non-native shrubs also invade prairie habitats, including one seed hawthorn (*Crataegus monogyna*), Scotch broom (*Cytisus scoparius*) and Armenian blackberry (*Rubus armeniacus*). The aggressive invasive grass false brome (*Brachypodium sylvaticum*) is a particular problem for upland prairie and oak savanna, as is meadow knapweed (*Centaurea pratensis*) (Figure 4).



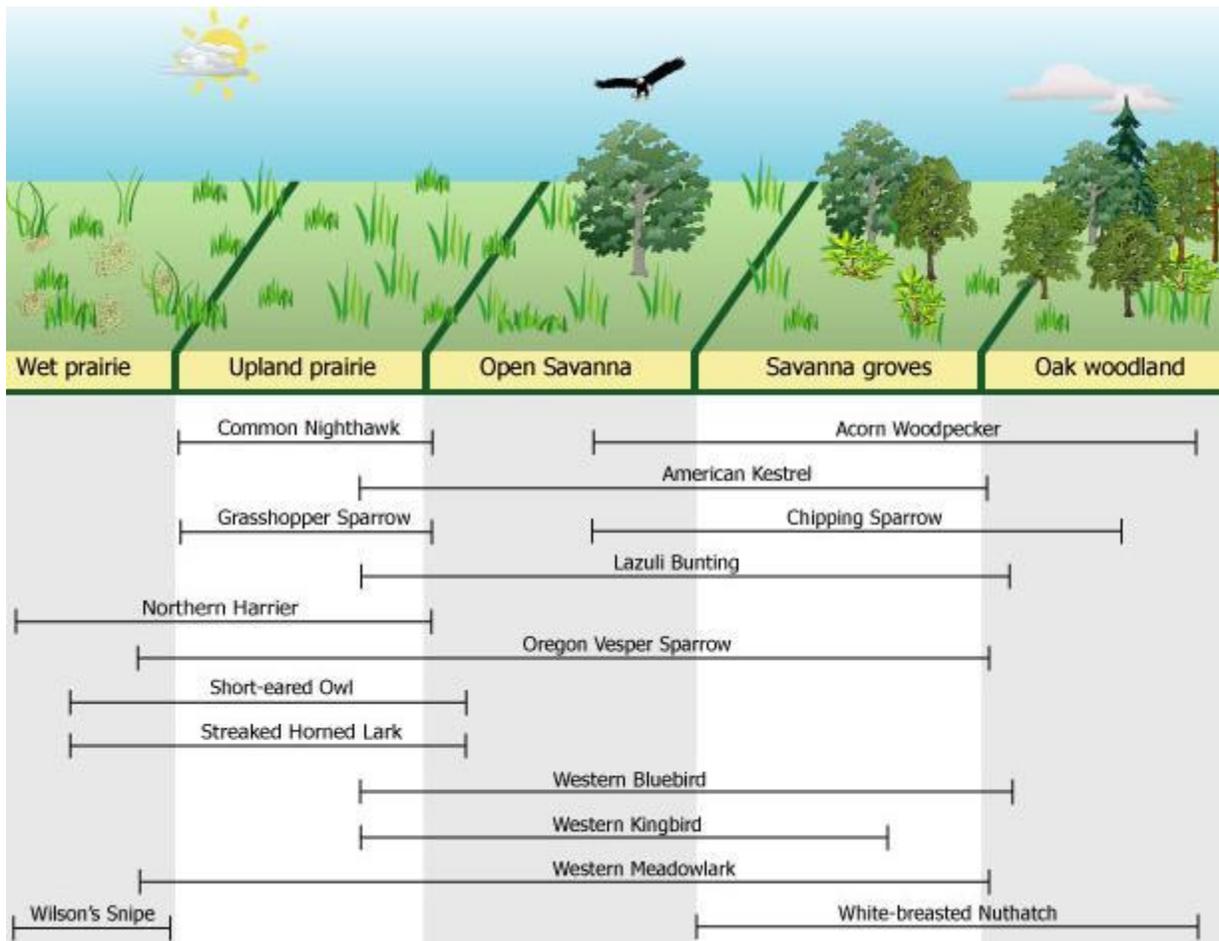
**Figure 4. Invasive species in Willamette Valley prairie-oak savanna habitats. One seed hawthorn (left) and false brome (right).**

A diversity of native plant species, insects and birds use prairie and oak savanna habitats, and may also use adjoining wet prairie or oak woodland systems (Figure 5 and Figure 6; Attachment 1). As the availability of all these habitats in the Willamette Valley has decreased over time, some of these species have declined and become less common or even rare. Conservation actions to restore, protect and enhance upland prairie and oak savanna for Fender’s blue butterfly and Kincaid’s lupine will provide benefits to many other species in these habitats at the same time (Attachment 1). More information about many of these species is available in the ODFW Oregon Conservation Strategy (ODFW 2006).



		Kincaid’s lupine	
	Willamette/Pale larkspur		
		Golden paintbrush	
	Willamette Daisy		
		Fender’s blue butterfly	
		Taylor’s checkerspot butterfly	

**Figure 5. Habitat guide for plant and butterfly species present or likely historically present in prairie and oak habitats of Yamhill County. Symbols courtesy of the Integration and Application Network ([ian.umces.edu/symbols/](http://ian.umces.edu/symbols/)), University of Maryland Center for Environmental Science.**



**Figure 6. Habitat guide for key bird species in Yamhill County. Symbols courtesy of the Integration and Application Network ([ian.umces.edu/symbols/](http://ian.umces.edu/symbols/)), University of Maryland Center for Environmental Science.**

## Section 3: Fender’s Blue Butterfly and Kincaid’s Lupine

Fender’s blue butterfly (Figure 1) and its host plant, Kincaid’s lupine (Figure 7) occur in the prairie and oak savanna habitats of central and western Yamhill County. The decline, rarity and threats to these species led the U.S. Fish and Wildlife Service to list the butterfly as endangered and the lupine as threatened under the Endangered Species Act. This strategy focuses on actions to benefit Fender’s blue butterfly and Kincaid’s lupine where it is used by the butterfly. There are additional species, while not considered endangered, that have declining populations and are likely to benefit from prairie and savanna restoration for Fender’s blue (Attachment 1). To plan the most effective conservation actions for Fender’s blue and Kincaid’s lupine, it is necessary to take population size (the number of butterflies in a habitat patch and the area of the patch) and connectivity (distance between habitat patches) into account.



Figure 7. Kincaid’s lupine, host plant for Fender’s blue butterfly.

### *Fender’s Blue and Kincaid’s Lupine Population Dynamics*

As a consequence of being rare species, populations (patches of butterflies or patches of plants occurring in the same place) of Fender’s blue and Kincaid’s lupine tend to be small and isolated from one another. They tend to have relatively few individuals and cover limited areas. Small populations are

quite vulnerable to threats from accidental damage and years of poor weather conditions, since the loss of a dozen individuals could be half or more of the population. Populations that shrink to a very small size (sometimes referred to as a 'population bottleneck') often lose much of their genetic diversity (variability between individuals in the population), and never fully recover their population vitality even if they are able to expand back to a larger size at a later time. Small populations also have fewer opportunities to outcross (breed with unrelated individuals), and may experience frequent inbreeding (crossing with related individuals), which also results in lower population genetic diversity and resiliency. Populations of insects already tend to fluctuate widely, and combined with limited habitat availability and decline in prairie quality, Fender's blue is prone to dangerously shrinking populations.

### *Fender's Blue and Kincaid's Lupine Habitat Connectivity Needs*

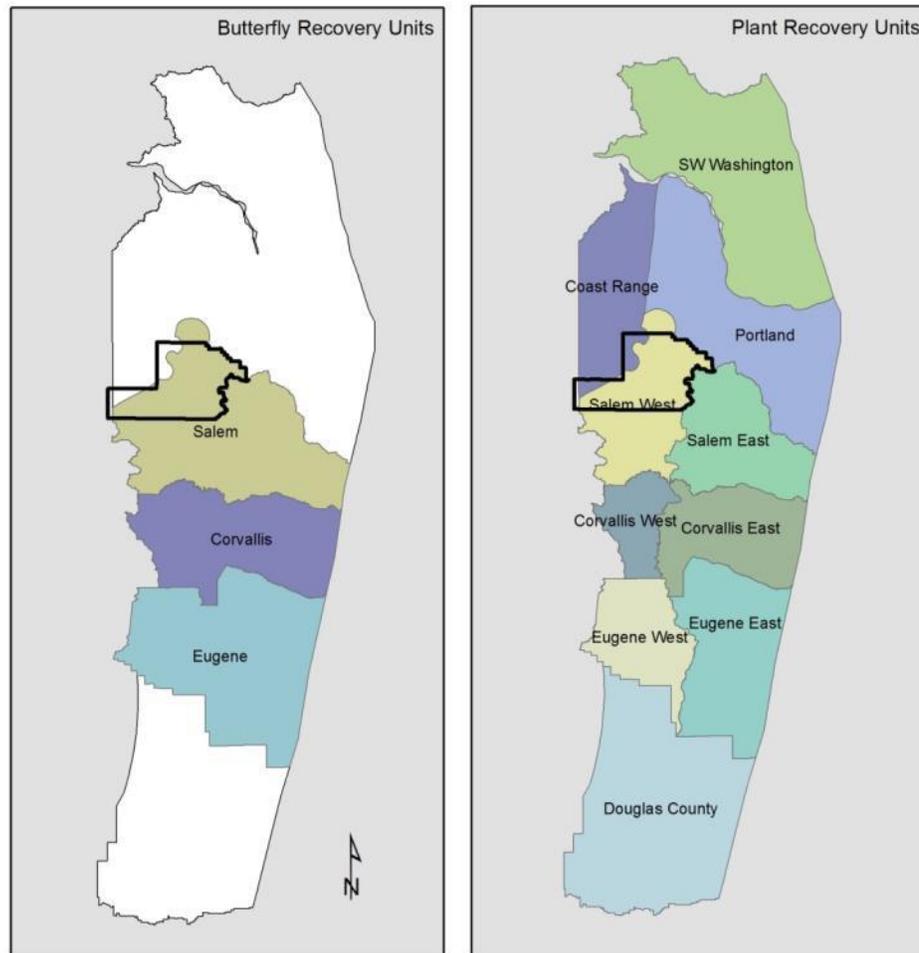
Fender's blue butterfly is not a species that travels long distances- adult butterflies typically travel only up to 2 km (1.2 mi) from the lupine patch where they hatched as larvae and eventually became adult butterflies. They travel even shorter distances, usually between 50 and 100 m (164 and 328 ft), to obtain food, the sugar containing nectar from certain flowering plants. Plants like Kincaid's lupine, by their nature, do not travel at all, and depend on pollinators (e.g., bees, bumblebees) to transfer pollen between plants and populations. The pollinators that visit Kincaid's lupine typically travel up to 3 km (1.9 mi). Keeping the flow of pollinators and butterflies between populations of Fender's blue and Kincaid's lupine is critical to maintain genetic diversity, which helps buffer the populations against disease and decline and helps maintain population vigor.

Butterflies and pollinators are often not able to cross barriers such as forests, major highways or urban/industrial areas. Ensuring butterfly populations are not isolated from each other or from nectar sources is vital to Fender's blue butterfly conservation. Small parcels of property or strips of native vegetation along field margins or roadsides can provide stepping stones to link more distant patches of habitat together. While this strategy focuses primarily on Kincaid's lupine only where it hosts Fender's blue, maintaining vigorous lupine populations requires addressing its connectivity needs in addition to those of Fender's blue.

## **Section 4: Recovery Plan Recommendations**

The U.S. Fish and Wildlife Service has prepared a Recovery Plan for listed and at risk prairie species, which includes Fender's blue butterfly and Kincaid's lupine, in addition to other threatened and endangered prairie species in the Willamette Valley and adjacent Washington (USFWS 2010). The purpose of a Recovery Plan is to identify what actions are needed to increase the abundance and stability of threatened and endangered species, and set forth criteria to move ('down-list') species from being endangered to threatened, and even remove them from the endangered species list all together ('de-list').

In the Plan, the Willamette Valley is divided into nine recovery zones for prairie plant species and three zones for Fender's blue butterfly (Figure 8).



**Figure 8. USFWS recovery zones for Fender’s blue butterfly (left) and Kincaid’s lupine (and other rare plants) (right) in Oregon and SW Washington. Bold line indicates the location of Yamhill County.**

For each recovery zone, the Recovery Plan lays out the number, size, connectivity, and quality of populations/habitat patches that would be needed to down-list or de-list Fender’s blue butterfly and Kincaid’s lupine. These recovery criteria were generated by a panel of scientists analyzing Fender’s blue butterfly population dynamics throughout the Willamette Valley; if the recovery criteria are achieved, the risk of the butterfly declining and going extinct in the future is extremely low. In this strategy we focus on achieving the benchmarks to down-list Fender’s blue from endangered to threatened. To completely remove Fender’s blue from the endangered species list the benchmarks are higher, and considerably larger numbers of butterflies are required.

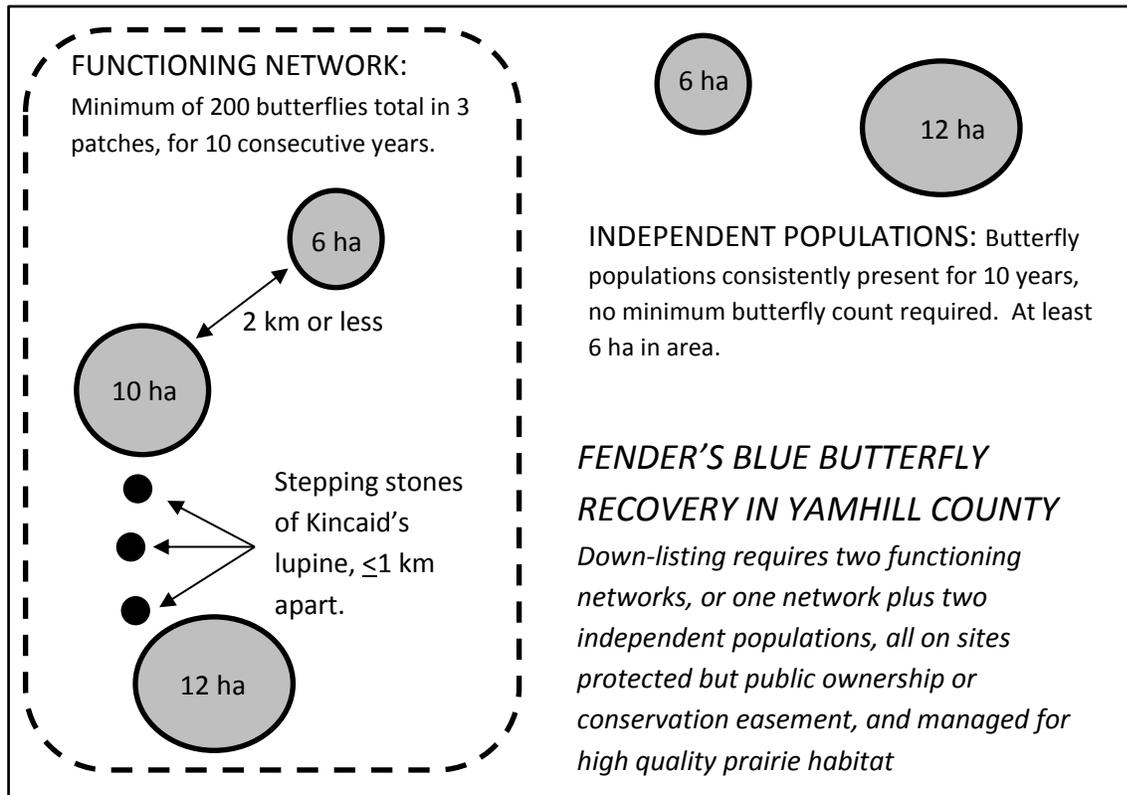
For a site to contribute to achieving the recovery benchmarks, it must be managed for high quality prairie habitat, and be under some sort of site protection- either conservation easement for prairie values, or public land ownership and management. Such protections are needed to ensure the stability of management of the population and the species as a whole into the future and across its range. Only

when sufficient populations are secure can the U.S. Fish and Wildlife Service consider lifting part or all of the protections for the species elsewhere.

We use the benchmarks from the U.S. Fish and Wildlife Service Recovery Plan to guide our strategy of actions on private lands to facilitate recovery of Fender’s blue in Yamhill County, and contribute to its recovery throughout the Willamette Valley.

**Benchmarks for Yamhill County**

Yamhill County includes much of the Fender’s blue butterfly habitat in the Fender’s blue Salem Recovery Zone. To down-list the butterfly from endangered to threatened, this zone must have two functioning networks of protected habitat or one functioning network plus two independent populations (Figure 9). Functioning networks are made up of at least three patches of protected and high quality butterfly habitat supporting Fender’s blue. Each of the three patches must be a minimum of 6 ha (15 ac) in size, and separated from each other by no more than 2 km (1.2 mi), unless they are linked by habitat stepping stones. Stepping stones are small patches of Kincaid’s lupine (no minimum size) that are located less than 1 km (0.6 mi) apart. In a recovery zone, at least one functioning network must have a minimum count of 200 butterflies each year for a 10-year period. If there is a second network, it must also support butterflies every year for a 10-year period, but there is no minimum count of butterflies required.



**Figure 9. Benchmarks in Yamhill County (as part of the Salem Recovery Zone) to down-list Fender’s blue butterfly from endangered to threatened.**

Independent populations are populations of butterflies occurring in high quality habitat patches of at least 6 ha (15 ac). There is no minimum butterfly count required for independent populations, but they must support butterflies for a period of 10 consecutive years.

To de-list the butterfly completely, two functioning networks in Yamhill County would each have to have a minimum of 4,500 butterflies for 10 years (in addition to benchmarks being met in the Corvallis and Eugene Recovery Zones). There could also be a larger number of networks or additional independent populations. The target butterfly counts are far greater for de-listing than down-listing. Further details on counts required are included in the Recovery Plan (USFWS 2010).

## Section 5: Key Habitat Areas

### *Habitat Locations and Quality*

Patches of high quality prairie and oak savanna habitat can be found throughout Yamhill County, but often these areas are isolated by topography, vegetation barriers like conifer forests, or distances beyond the dispersal ability of butterfly and plant populations. Creating and maximizing zones of protected habitat (through partnerships, conservation easements and property acquisition) will benefit many native species, especially threatened and endangered ones prone to small populations like Fender’s blue. Small, isolated populations are almost always at a greater risk of extinction. Creating larger blocks of suitable habitat and providing connections between such blocks will reduce the threat of individual populations disappearing, whether due to accidental disturbance, disease or other factors related to small, genetically isolated populations. Understanding the current distribution of upland prairie and oak savanna habitat, Fender’s blue, Kincaid’s lupine and protected sites in Yamhill County helps identify priorities for conservation and restoration actions (Goal 1 of this Strategy). Several questions that still need to be answered include:

- Is there suitable habitat on private lands for species dispersal from known population sites?
- Where can restoration work take place to enhance current species habitat?
- What are the habitat improvement and population introduction/augmentation needs?
- Where can connectivity between populations be enhanced?

### *Prioritizing Areas for Conservation Actions*

The Yamhill SWCD has completed extensive surveys for Fender’s blue butterfly and Kincaid’s lupine within the county. While not all possible areas were surveyed, the SWCD found several new populations of both species, expanding the known distribution of Fender’s blue and Kincaid’s lupine in the county. With this information, gained from more than 4,850 ha (12,000 ac) of surveys from 2011 to 2013, we can outline the main areas that have Fender’s blue butterfly or Kincaid’s lupine in Yamhill County (Figure 10) and have the greatest potential for further conservation work to benefit the species:

- Baker Creek
- Chehalem Mountain
- Gopher Valley
- Hill Road
- Meadow Lake
- Moores Valley
- Turner Creek
- Muddy Valley
- Oak Hill
- Oak Ridge
- Rock Creek
- Rockyford

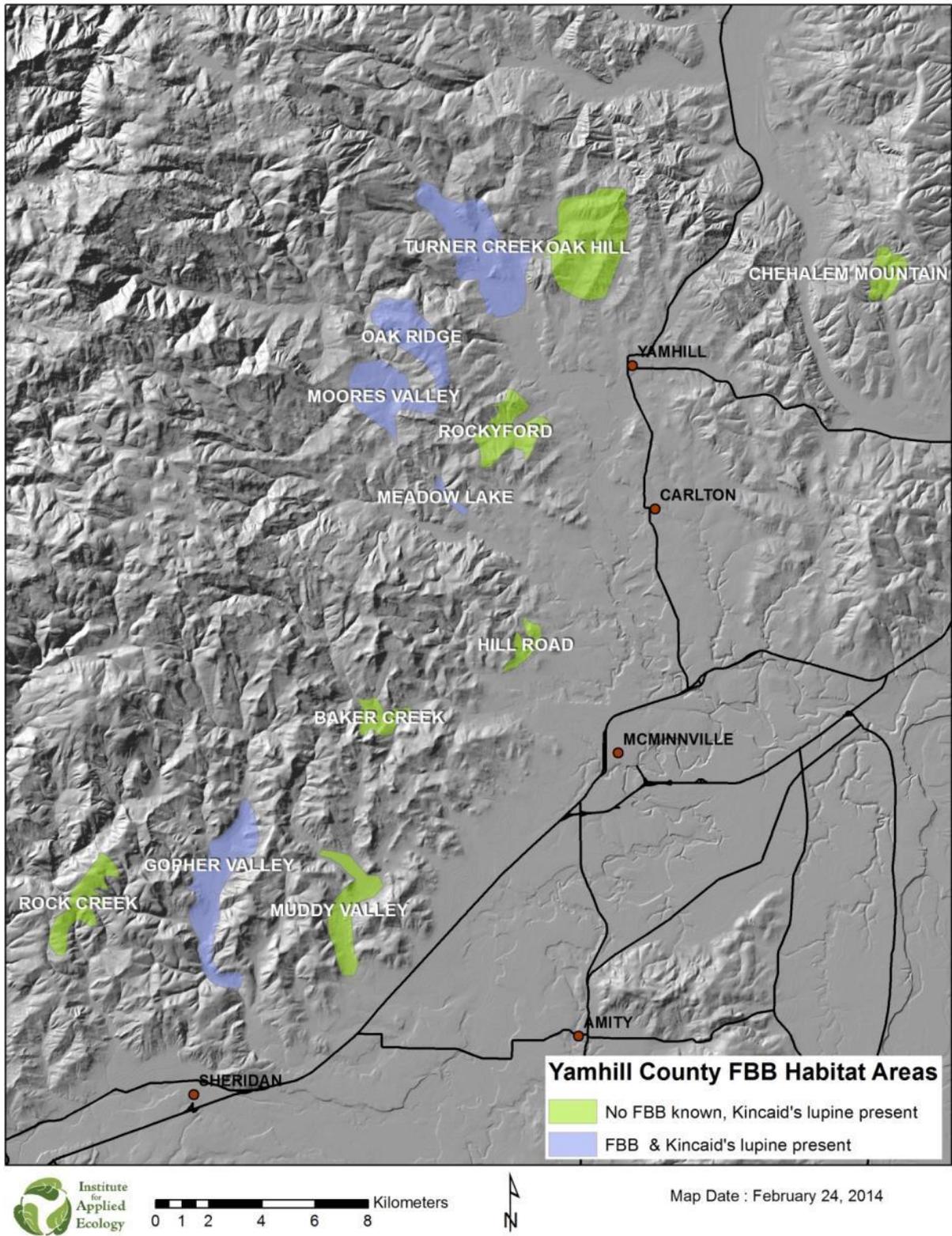


Figure 10. Priority prairie and oak savanna habitat areas with Fender’s blue butterfly and Kincaid’s lupine in Yamhill County.

Several planning efforts have defined areas of high priority for conservation in the Willamette Valley, including the Oregon Conservation Strategy (ODFW 2006). A 2007 planning initiative led by The Nature Conservancy combined areas identified as high priority for conservation in a single map for the Willamette Valley (The Nature Conservancy 2009). In addition to forest land and riparian areas, this effort mapped priority areas of upland prairie and oak savanna habitat, the focus of this document. The Nature Conservancy's mapping, in combination with more current data regarding known locations for Fender's blue butterfly and Kincaid's lupine, can help prioritize habitat and species conservation actions in Yamhill County (Figure 11). Areas outside of these zones and identified populations may also contain important habitat and can provide opportunities for meaningful habitat acquisition and restoration.

### **Sites Managed for Permanent Conservation**

Many areas in Yamhill County have key habitat or the potential for key habitat after habitat restoration. Those that are permanently protected through public ownership or habitat conservation easements that include endangered species or habitat as a conservation value can help meet the U.S. Fish and Wildlife's benchmarks for threatened or endangered species down-listing or de-listing. Sites in Yamhill County with habitat under permanent protection are listed in Table 1. The position of these sites is shown in Figure 11.

### **Sites Managed for Limited Time-frame Conservation**

There are many sites in Yamhill County that are protected under limited time-frame habitat conservation agreements, such as the Partners for Fish and Wildlife Program through the U.S. Fish and Wildlife Service, or through Safe Harbor Agreements with the U.S. Fish and Wildlife Service. Partners for Fish and Wildlife agreements are typically for 10 years (and can be renewed) and Safe Harbor Agreements last for a minimum of 10 years. Partners and Safe Harbor Agreements benefit land owners by providing financial or technical assistance with conservation, and provide benefits to species through habitat restoration, enhancement and management. See Section 8 for descriptions of conservation assistance tools. Properties currently enrolled in these programs in or near Fender's blue butterfly habitat are described in Table 2 and mapped in Figure 11.

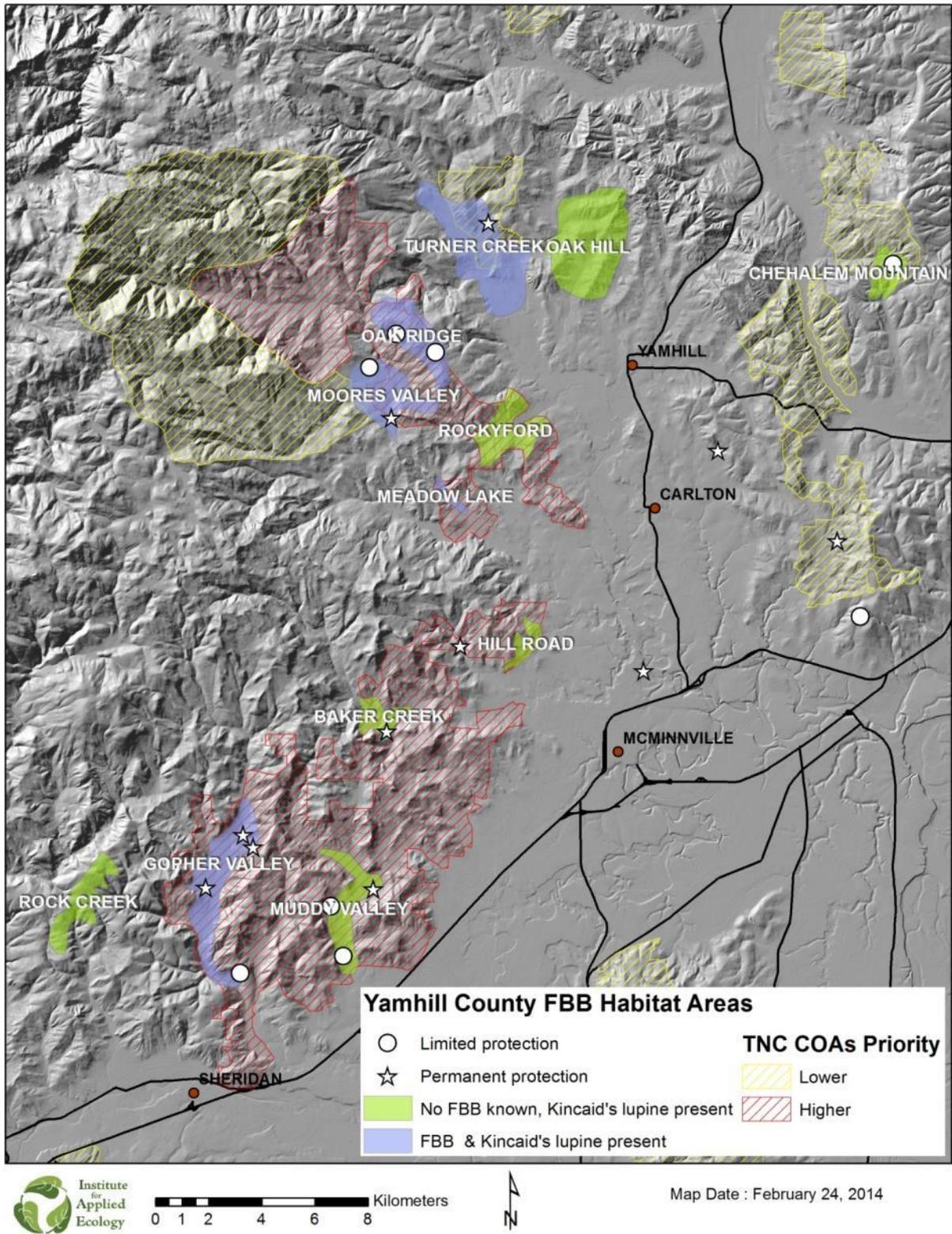


Figure 11. Prairie and oak savanna areas in Yamhill County and sites with limited time frame or permanent protection. Cross hatch overlay is conservation opportunity area (COA) prioritization synthesized by The Nature Conservancy (2009).

**Table 1. Sites with conservation easements or public ownership in prairie areas of Yamhill County.**

Site name	Total Area-hectares (acres)	Grassland/Prairie/ Savanna Area-hectares (acres)	Key species present ( <sup>1</sup> Planted)	Currently available for FBB conservation <sup>2</sup>
<i>Yamhill SWCD</i>				
Mount Richmond Conservation Easement-Turner Creek	115 (284)	61+ (150+)	Kincaid’s lupine, Fender’s blue, Western pond turtle	YES
Miller Woods	53 (132)	8 (20)	Kincaid’s lupine <sup>1</sup>	YES
Private Conservation Easement (not in priority area- east of Carlton)	19 (46)	4 (10)		
Private Conservation Easement- Moores Valley	69 (170)	14 (35)	Kincaid’s lupine, Fender’s blue, Western pond turtle	
Private Conservation Easement- Baker Creek	293 (725)	656 (160)	Kincaid’s lupine	
<i>The Nature Conservancy</i>				
Yamhill Oaks- Gopher Valley	101 (249)	32 (80)	Kincaid’s lupine, Fender’s blue	YES
Pugh Easement- Gopher Valley	20 (50)	6 (15)	Kincaid’s lupine, Fender’s blue	YES
Gahr Farms-Muddy Valley	126 (311)	20 (50)	Kincaid’s lupine	YES
<i>Yamhill County</i>				
Deer Creek County Park- Gopher Valley	12 (30)	4 (10)	Kincaid’s lupine, Fender’s blue	YES
<i>Bonneville Power Administration</i>				
Trappist Abbey	545 (1346)	24 (60)		

<sup>2</sup>Under public ownership or under conservation easement for conservation values including Fender’s blue butterfly habitat.

**Table 2. Sites with limited protection through a U.S. Fish and Wildlife conservation program- either Partners for Fish and Wildlife or Safe Harbor Agreements.**

	Site name	Total Area-hectares (acres)	Grassland/ Prairie/ Savanna Area-hectares (acres)	Key species present ( <sup>2</sup> planted)
	USFWS Partners for Fish and Wildlife Program			
	Private – Chehalem Mountain	11 (27)	1.2 (3)	Kincaid’s lupine
	Private – Gopher Valley <sup>1</sup>	20 (8)	2 (5)	Kincaid’s lupine <sup>2</sup>
	Private – Moores Valley <sup>1</sup>	13 (32)	10 (25)	Kincaid’s lupine and Fender’s blue
	Private – Muddy Valley <sup>1</sup>	22 (54)	8 (20)	Kincaid’s lupine
	Private – Muddy Valley	183 (453)	30+ (75+)	Kincaid’s lupine
	Private – Not in priority Area	20 (50)	11 (28)	
	Private – Oak Ridge <sup>1</sup>	54 (134)	6 (16)	Kincaid’s lupine and Fender’s blue
	Private – Oak Ridge	4 (9)	2 (5)	Kincaid’s lupine and Fender’s blue

<sup>1</sup>Site also has Safe Harbor Agreement with USFWS.

# Section 6: Meeting Fender’s Blue Recovery Goals in Yamhill County

While the U.S. Fish and Wildlife Service Recovery Plan recognizes the Oak Ridge/Turner Creek Gopher Valley as potential population networks (see Figure 9) for Fender’s blue butterfly, much of the framework to meet the endangered species recovery benchmarks in Yamhill County needs to be established. Of the two population networks (or one population network plus two independent populations (Figure 9)) needed for Fender’s blue in Yamhill County, a partial network exists in Gopher Valley and a single protected population occurs in Turner Creek.

Further conservation actions are needed is needed to secure additional upland prairie and oak savanna habitat, enhance habitat at existing sites to meet habitat quality benchmarks, expand existing habitat to meet acreage needs, and potentially establish new butterfly populations to satisfy network needs. This section outlines a strategy to prioritize locations to receive the needed conservation actions.

### Actions in Priority Habitat Zones

As funding for conservation actions is often quite limited, it can be necessary to prioritize areas to receive different conservation actions, including securing, enhancing, expanding and restoring habitat (Goals 1 and 2 of this Strategy). A summary of how Yamhill County sites are prioritized for prairie and oak savanna and Fender’s blue butterfly habitat conservation actions is included in [Table 3](#) and described in detail below.

**Table 3. Summary of conservation action priorities by area in Yamhill County.**

Conservation Action	Priority to Receive Conservation Actions		
	Higher	Intermediate	Lower
<b>Secure Habitat</b> Through conservation easements	Oak Ridge Moores Valley	Turner Creek Muddy Valley Gopher Valley	Baker Creek Hill Road Chehalem Mountain Oak Hill Rock Creek Rockyford
<b>Enhance</b> Existing habitat	Oak Ridge Moores Valley Turner Creek Muddy Valley Gopher Valley	Baker Creek Hill Road Rock Creek Rockyford	Chehalem Mountain Oak Hill
<b>Expand</b> Habitat within the opportunity area	Turner Creek Moores Valley Oak Ridge Gopher Valley	Meadow Lake Muddy Valley	
<b>Introduce</b> New butterfly populations	Muddy Valley Rockyford	Rock Creek	

## Secure habitat

Protecting prairie and oak savanna habitat from future land use change and securing it for conservation purposes allows it to contribute to species recovery benchmarks and sustain multiple prairie and oak savanna species into the future. The quantity of protected habitat in the priority habitat areas of Yamhill County, and the amount with permanent and limited protection, is summarized in [Table 4](#).

The two highest priority areas for securing prairie and oak savanna habitat in Yamhill County are Oak Ridge and Moores Valley. These areas are identified by the TNC as Conservation Opportunity Areas (COA), and support the highest concentrations of Fender’s blue and Kincaid’s lupine in Yamhill County, yet have the least amount of protected habitat. Oak Ridge has no permanent conservation easements, and the only conservation easement in Moores Valley is not expressly for endangered species conservation.

Lands in Turner Creek and Muddy Valley have intermediate priority for habitat protection. Turner Creek is a priority 2 TNC Conservation Opportunity Area and it is the location of the Yamhill SWCD Mount Richmond Conservation Easement. The purpose of the Mount Richmond easement area is to conserve Fender’s blue butterfly and prairie and oak savanna habitat conservation values, and is also the mitigation site for the Yamhill SWCD Habitat Conservation Plan (HCP) for Private lands (Yamhill SWCD 2014), and will be managed and enhanced into the future. Additional protected lands in this area will complement the Mount Richmond Easement, and funding for securing nearby lands may be facilitated by the HCP. Muddy Valley is a priority 1 TNC Conservation Opportunity Area, and it is the highest priority area for future species introductions (see below), which have to occur on lands already secured for conservation.

**Table 4. Summary of the acreage of prairie and oak savanna habitat areas in Yamhill County with Fender’s blue butterfly (FBB) or Kincaid’s lupine. Shaded/bold rows are in or near areas that already support Fender’s blue. Unshaded/non-bold rows only support Kincaid’s lupine.**

Sub-population Name (# sites with limited or permanent protection)	Currently available for FBB conservation*	Other Conservation Easement	Limited Term Protection	Total -
	Hectares (acres) of Habitat			
Baker Creek (1)	0	65+ (160+)	0	65+ (160+)
Chehalem Mountain (1)	0	0	1 (3)	1 (3)
<b>Gopher Valley (4)</b>	<b>42 (105)</b>	<b>0</b>	<b>2 (5)</b>	<b>44 (110)</b>
<b>Moores Valley (2)</b>	<b>0</b>	<b>14 (35)</b>	<b>10 (25)</b>	<b>24 (60)</b>
Muddy Valley (3)	20 (50)	0	38 (95)	58 (145)
<b>Oak Ridge (2)</b>	<b>0</b>	<b>0</b>	<b>8 (21)</b>	<b>8 (21)</b>
Hill Road (0)	0	0	0	0
<b>Meadow Lake (0)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Turner Creek (1)</b>	<b>61 (150)</b>	<b>0</b>	<b>0</b>	<b>61 (150)</b>
Oak Hill (0)	0	0	0	0
Rockyford (0)	0	0	0	0
Rock Creek (0)	0	0	0	0
Total (14)	123 (305)	79 (195)	59 (149)	261 (649)

\*Under public ownership or under conservation easement for conservation values including Fender’s blue butterfly habitat.

Gopher Valley is the lowest priority for habitat acquisitions of all the Fender's blue occupied areas, as it already has significant habitat protected within The Nature Conservancy's Yamhill Oaks, and also includes the Yamhill County Deer Creek Park, which is under public ownership. Deer Creek Park will be enhanced as a mitigation site for the Yamhill County Public Works HCP (Yamhill County 2013).

### **Enhance existing habitat**

Habitat enhancement work, including management and restoration to increase host and native nectar species, is most important at sites with Fender's blue butterfly, including those in Gopher Valley, Moores Valley, Turner Creek, Oak Ridge and Meadow Lake. If future butterfly introductions occur (see below), enhancing habitat at a new site (e.g., in Muddy Valley) before butterflies arrive is essential. The U.S. Fish and Wildlife Service guidelines on habitat quality for recovery sites are useful at all sites, whether under protection and able to contribute to Fender's blue recovery or not. Active management to minimize woody species encroachment and to reduce non-native plant invasions using appropriate management techniques ([Figure 12](#)) developed for the conditions at each site will enhance habitat quality for multiple species, including Fender's blue.



**Figure 12. Mowing with skid steers is often used in prairie-savanna habitats in the fall to control woody shrub species (e.g., hawthorn or blackberry) in tight spaces or between trees in oak savanna habitats.**

### **Expand habitat within priority areas**

Habitat restoration and enhancement work to expand Fender's blue butterfly populations in areas where they already occur (Turner Creek, Moores Valley, Oak Ridge, Gopher Valley, and Meadow Lake) can help achieve the butterfly population growth (networks and independent populations) needed to move the butterfly from endangered to threatened, and eventually help it be removed from the ESA list entirely (butterfly recovery) (Goal 2 of this strategy). Turner Creek is highest priority for habitat expansion as it has the lowest butterfly/habitat abundance currently, followed by Moores Valley, Oak Ridge, and Gopher Valley. Meadow Lake is intermediate priority since the confirmed butterfly population there is extremely small and potentially of limited sustainability. Muddy Valley is intermediate priority since it currently lacks Fender's blue, has multiple sites with Kincaid's lupine already, has potential as a future butterfly introduction site.

The most promising expansion opportunities exist on sites with suitable habitat that currently do not have Fender's blue, but that are within butterfly flight distance (2 km or 1.2 miles or less) of existing populations. The closer a new site (expansion site) is to an existing butterfly site, the greater the likelihood of attracting butterflies. The path between the existing population(s) and the expansion site should be free of major hills, ridges, or other topographic barriers, and not be blocked by areas of dense

forest or stream (riparian) habitat over 100 m (100 yards) wide. Enhancing the resources at expansion sites, including native nectar plants and Kincaid's lupine, and ensuring that habitat structure is free of major barriers to butterfly travel will increase the likelihood of establishing butterfly populations in new areas.

### **Introduce new butterfly populations**

New introductions of Fender's blue butterfly to secured conservation sites with suitable prairie and oak savanna habitat may occur in the future to help recover the species. Introductions may involve bringing Fender's blue eggs, larvae (Figure 13), or adults from an existing population to a new site. Such introductions have not occurred for Fender's blue to date, but in an area like Yamhill County, where much of the butterfly habitat and many of the existing butterfly populations occur in valleys that constrict the dispersal of the butterfly, introductions may be the only means to expand its local distribution.



**Figure 13. Larvae (left) and eggs (right) of Fender's blue butterfly.**

Any site for new Fender's blue butterfly introductions will need to support sufficient Kincaid's lupine and nectar species to sustain the new butterfly population, in addition to providing suitable upland prairie or oak savanna habitat. Such a site would likely contain at least 6 ha (15 ac) or more of prairie or oak savanna habitat and meet or have a strong potential to meet the U.S. Fish and Wildlife Service guidelines for habitat quality at recovery sites.

Of the prairie and oak savanna habitat areas that are currently unoccupied by Fender's blue butterfly in Yamhill County, Muddy Valley has high potential for new Fender's blue introductions. Muddy Valley currently supports multiple Kincaid's lupine populations and has similar quantities of nectar species to other butterfly sites. One property in this area is already under conservation easement for habitat values, and several other properties are enrolled in U.S. Fish and Wildlife Service programs such as Partners for Fish and Wildlife (see Section 8: Voluntary Conservation Tools).

Another high priority area for Fender's blue butterfly introductions is the upland prairie and oak savanna habitat in the Rockyford priority area, which is adjacent to, but separated from Moores Valley and Oak Ridge. Habitat in the Rockyford area is a priority 1 TNC Conservation Opportunity Area, yet currently has no habitat secured for conservation. The Yamhill SWCD is pursuing funding to acquire a conservation

easement over a 76 ha (187 ac) parcel with more than 6 ha (15 ac) of upland prairie and oak savanna habitat and successful plantings of Kincaid's lupine.

Where landowners are successful in introducing new Fender's blue butterfly populations, at least two separate mechanisms exist to ensure that land use activities on neighboring properties are not restricted. The Good Neighbor Principle described in the Yamhill SWCD HCP for Fender's Blue Butterfly on Private Lands (YSWCD 2014) provides landowners with regulatory assurance that butterflies from introduced populations may migrate off of the targeted lands and onto adjacent properties without restricting the rights of those neighboring landowners. U.S. Fish and Wildlife Service Safe Harbor Agreements provide similar assurances and are described in this document in Section 8: Voluntary Conservation Tools.

## Section 7: County-Wide Habitat Conservation Actions

All landowners in Yamhill County, urban and rural, can provide habitat for native species and can participate in conservation of prairie and oak savanna habitat. The actions described below can promote habitat conservation, wherever prairie or oak savanna habitat occurs (Goal 3 of this Strategy).

### **Conserve and protect remaining habitats**

- Participate in efforts by public agencies or conservation groups to inventory and map prairie and oak savanna sites in Yamhill County. Sharing habitat information with these groups will allow those entities to integrate the information into their planning and management programs.
- Take advantage of opportunities to learn more about the habitat quality of your property and opportunities for enhancement. Consider conserving and enhancing high quality habitat on your property. Where possible, focus on preserving large habitat blocks and areas that provide connectivity for wildlife. Collaborating with your neighbors may increase the area conserved and protected, and produce a greater benefit to Fender's blue and other prairie and oak savanna species.
- Engage with programs that offer assistance with rare habitat enhancement, like the U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program.

### **Enhance and restore degraded habitats**

- Maintain prairie and oak savanna habitat with management strategies tailored to your property that will improve the habitat structure and increase native species. Tools such as carefully timed mowing, prescribed burning, and well managed grazing can promote some native species and inhibit shrub, conifer, and Scotch broom encroachment.
- Commit to invasive species removal and long-term management. False brome, Scotch broom, Armenian blackberry, and meadow knapweed (*Centaurea pratensis*) (Figure 14) management will be crucial to control these very invasive species. Download the Field Guide to Weeds of the Willamette Valley ([www.appliedeco.org/invasive-species-resources/](http://www.appliedeco.org/invasive-species-resources/)) for more information.
- Work with knowledgeable person or group such as the Yamhill SWCD or a watershed council to identify invasive plants and determine the appropriate management timing.

- Maintain large oaks and reintroduce oaks to appropriate sites. In agricultural areas, single oaks planted along hedgerows can replace those lost to attrition.
- Remove trees that will overtop and kill oak trees through shading.
- Leave several large dead trees for wildlife habitat.
- Obtain information about oak habitat and technical assistance whether you live in rural or urban areas, since oaks can attract native wildlife in most locations.
- Remove Douglas-fir trees by pulling small trees or girdling/removing large trees. Where there is a need to block views or winds, limb the lower Douglas-fir branches to enable light to reach the ground.
- Mow after native flowers have set seed.
- Allow grazing after August 15 to control woody vegetation
- Minimize soil disturbance to reduce invasion of non-native plants. Many non-native seeds last many years in the soil and will germinate when brought to the surface.
- Plant local native flowering species to encourage pollinators. Many local nurseries sell native plants and the Yamhill SWCD holds a yearly native plant sale.
- Identify bird and turtle nesting sites and avoid impacting those areas during the nesting season (April 15-July 15 [ODFW 2006, Rosenberg et al. 2009]).
- If your property is located in the flat and open portion of Yamhill County, evaluate whether it has the potential to support Streaked Horned Lark (see Appendix 1). This extremely rare species prefers unproductive and sparsely vegetated areas, often in open intensive agricultural landscapes.



**Figure 14. Meadow knapweed plants (left) and flowers (right).**

#### **Actively manage for open habitat**

- Actively manage to reduce woody species encroachment and to reduce non-native plant invasions using appropriate management techniques developed for the conditions in the habitat on your property.
- Provide open habitat to encourage the travel of Fender’s blue butterfly and pollinators between known habitat patches and benefit other prairie species that prefer open conditions. Barriers, such as coniferous forest, often limit insect dispersal and movement between habitat patches.

### **Create network opportunities**

- Enhance stepping stone habitat (Figure 9) on your property to help connect known habitat patches that are otherwise too far for Fender's blue butterfly and pollinators to reach.
- If you are located near a possible butterfly expansion site, but lack Kincaid's lupine, consider participating in programs that encourage conservation in areas that currently do not have listed species, such as the Safe Harbor with Assurances or Partners for Fish and Wildlife (Section 8: Voluntary Conservation Tools).

### **Evaluate the success of conservation actions and use adaptive management**

- Monitor habitat restoration and enhancement projects on your property to evaluate their effectiveness. Take the time to describe and photograph what habitat conditions are like before you begin work, including the abundance of invasive and weedy species, and the diversity and abundance of native species. Keep detailed records of your restoration actions, including time of year implemented, total area treated, and the specifics of your treatment method (mowing height, herbicide concentration, etc.). Then, track the effects of your restoration methods on habitat conditions, to determine which treatments are producing the desired results which seem to be less effective. Share the information with other landowners directly or more broadly through the Yamhill SWCD, so the knowledge you gain can help others manage land more effectively.
- Share conservation strategies and monitoring results by participating in site tours with the Yamhill SWCD or watershed council, conferences, and written project evaluations. The Oregon Conservation Registry, a website to upload or search for project information, is one way to share information about the effectiveness of conservation actions (<http://or.conservationregistry.org/>).
- Use adaptive management principles to improve your methods of habitat conservation over the long-term. On at least an annual basis, review your monitoring data and determine what has been most effective. Modify your planned actions in the future to reflect what you have learned on your own property or from other land managers.

### **Use local seed sources**

- Work with the U.S. Fish and Wildlife Service, Oregon Department of Agriculture (ODA) Native Plant Conservation Program, and others to determine the best source of plant materials (seeds or live plants) for your project. Obtaining plant materials from nearby sources is ideal, but can be challenging for many species. ODA staff will be able to help you determine which source is best, and may be able to find materials that are not widely available.
- Contact ODA to learn about plant material collection laws for private landowners. A permit is required to collect seeds, plants or plant parts from Federal lands. ODA requires a permit to collect seeds or plant materials of state-listed plant species from non-federal public lands, transport seeds or plant materials on non-federal public lands (i.e. roads), and propagate or cultivate state-listed species. ODA's permit program is in place to track how much plant material is collected at various locations over time; taking too much seed or plant material from any given population, particularly if done repeatedly, can reduce a population's ability to reproduce and sustain itself, potentially leading to its decline or disappearance.
- Plant material production partnerships between ODA and local farmers can enhance the amount of material available locally for recovery.
- If Kincaid's lupine is to be established on a new site in preparation for the introduction of Fender's blue, the lupine should be sourced from a nearby Kincaid's lupine population. This may be through seeds collected directly from nearby populations, or through seeds produced by lupines grown from local seed sources in controlled conditions.

- Landowners with Kincaid’s lupine on their property can work directly with ODA to allow lupine seed collection from their property, increasing the amount of seed available for restoration efforts on their property or nearby.

### **Use conservation tools for private landowners**

- Almost all remaining prairie and oak savanna sites are on privately owned lands, making them exceptionally crucial for conservation. Voluntary tools such as technical assistance, financial incentives, and conservation easements can assist you with conservation actions (see Section 8: Voluntary Conservation Tools for a list of programs) (ODFW 2006).
- Learn about Willamette Valley habitats and species, using resources like the OSU Extension Service ecology field cards <http://extension.oregonstate.edu/benton/natural/eco>.
- Obtain information about management guidelines and resources (See Section 8: Voluntary Conservation Tools). Habitat conservation and restoration actions are most important to protect remaining high quality habitats and vital sites for connectivity, and to reduce the impact of invasive plant species on these habitats and on at-risk plant populations.

### **Research funding opportunities**

- The U.S. Fish and Wildlife Service provides grants for projects benefiting listed species through its Cooperative Endangered Species Conservation Fund (section 6 of the ESA). These grants require a 25% match of the estimated project cost, and may require coordination by a state agency. More landowner assistance programs are in Section 8: Voluntary Conservation Tools and can be found at <http://www.fws.gov/endangered/grants/section6/index.html>.
- Incentive programs, such as reduced property tax assessment, may be available at the County level to enhance and protect habitat for listed animal species other than Fender’s blue.

## **Section 8: Voluntary Conservation Tools**

### *Habitat Restoration Guides*

Several documents provide management guidelines for enhancement of prairies and oak habitats:

1. *Restoring Rare Native Habitats in the Willamette Valley* ([Campbell 2004](#))
2. *A Landowner's Guide for Restoring and Managing Oregon White Oak Habitats* ([Vesely 2004](#))
3. *Native Willamette Valley prairie and oak habitat restoration site preparation and seeding information* ([Boyer 2009](#))
4. *Techniques for restoring native plant communities in upland and wetland prairies in the Midwest and west coast regions of North America* ([Fitzpatrick 2004](#))
5. *Use of prescribed fire in Willamette Valley native prairies* ([Alverson 2006](#))
6. *Managing agricultural land to benefit Streaked Horned Larks: A guide for Landowners and Land Managers* ([Moore 2011](#)).

## *Landowner Incentives and Opportunities*

Private lands conservation is essential for preserving native habitat and rare species. Several programs are available to Yamhill County landowners that provide technical and financial assistance for restoration and enhancement of wetlands, riparian areas and wildlife habitat. These programs are offered through a variety of state and federal agencies such as Oregon Department of Fish and Wildlife ([ODFW](#)), USDA Natural Resources Conservation Service ([NRCS](#)), USDA Farm Service Agency ([FSA](#)), and U.S. Fish and Wildlife Service ([USFWS](#)). Conservation programs often lack secure funding, therefore availability of programs can vary over time. **See links under each subject for more information.**

### **Several organizations offer help accessing programs and funding:**

- Yamhill Soil and Water Conservation District ([Yamhill SWCD](#)): <http://www.yamhillswcd.org/>
- Greater Yamhill Watershed Council ([GYWC](#)): <http://www.yamhillwatershedcouncil.org/>
- Trust for Public Land ([TPL](#)): <http://www.tpl.org/>

### **Technical assistance programs**

- **Conservation Technical Assistance (CTA)** – NRCS technical assistance to landowners for conservation, maintenance, and improvement of natural resources.
- **Conservation of Private Grazing Land (CPGL)** – NRCS technical assistance program for private landowners with grazing lands. Unfunded as of 6/2009.

### **Habitat improvement programs**

- **Access and Habitat Program (A&H)** – ODFW grants for improving wildlife habitat, increasing public hunting access to private land, or addressing wildlife damage issues.
- **Conservation Innovation Grants (CIG)** – This nationally competitive grant program awards funds to projects that “stimulate the development and adoption of innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production.” Grants are awarded to help develop and demonstrate novel ideas to improve conservation on private lands and grantees “will demonstrate innovative approaches to improving soil health, conserving energy, managing nutrients and enhancing wildlife habitat.”
- **Conservation Security Program (CSP)** – This NRCS program provides technical and financial assistance to agricultural producers who undertake or increase conservation actions on their lands. These actions can include increasing native pollinator plants in hedgerows or creating windbreaks for native habitat.
- **Cooperative Endangered Species Conservation Fund (Section 6)** – USFWS grants to States that may, in turn, be provided to individual landowners and groups to benefit endangered species conservation.
- **Environmental Quality Incentives Program (EQIP)** – NRCS cost share program to help landowners install or implement structural and management practices on eligible agricultural land.
- **North American Wetland Conservation Act (NAWCA)** – USFWS matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects.
- **USFWS Partners for Fish and Wildlife (PFW)** – USFWS provides technical and financial assistance to private landowners who are willing to work with USFWS and other partners on a voluntary basis to help meet the habitat needs of Federal Trust Species.

- **Wildlife Habitat Incentive Program (WHIP)** – A voluntary program, administered by NRCS, designed to help private landowners who want to develop and improve wildlife habitat on their lands. NRCS provides technical assistance and up to 75% match (funding) to assist with establishing and improving fish and wildlife habitat.

### Easement programs

- **Conservation Reserve Program (CRP)** – This FSA program provides annual payments for 10-15 years for those landowners who retire highly erodible croplands or cropped wetlands. The intent of the program is to reduce soil erosion, reduce sedimentation into lakes and streams, improve water quality, establish wildlife habitat, and restore and enhance wetland and forest resources. Landowners are required to plant the enrolled lands with native species.
- **Forest Legacy Program (FLP)** – US Forest Service program, administered locally by ODF, provides a conservation easement payment to help protect private forest lands from development or fragmentation.
- **Grassland Reserve Program (GRP)** – Conservation easement or cost share program administered by NRCS and FSA that helps landowners and operators restore and protect grassland, including rangeland, pastureland, shrubland, and certain other lands, while maintaining the areas as grazing lands.
- **Wetlands Reserve Program (WRP)** – This program, administered by NRCS, provides a financial incentive to private landowners to restore and protect wetlands in exchange for retiring marginal agricultural lands.

### Tax incentives

- **Conservation Easement Special Assessment** – Land that has a recorded conservation easement can qualify for a reduced property tax assessment. The easement must be held in perpetuity. The property is assessed at the forestland or farm use special assessment rate.
- **Wildlife Habitat Conservation and Management Program (WHCMP)** – Not Currently Available in Yamhill County. In other Willamette Valley counties, private landowners currently in Exclusive Farm Unit (EFU) zoning, Forestland zoning, or in designated wildlife areas can receive a reduced property tax assessment to voluntarily conserve native wildlife habitat. There is no additional tax for switching to a wildlife special assessment.

### Endangered species regulatory assurance

- **Safe Harbor Agreement (SHA)** - A Safe Harbor Agreement (SHA) is a voluntary agreement between USFWS and a non-federal landowner to promote habitat management for listed species on non-federal lands. During the term of the agreement, the landowner sets aside all or a portion of a property for listed species habitat management. By entering into the agreement, the USFWS provides the landowner with assurances that if habitat management attracts or increases the population of a listed animal species, when the agreement ends the landowner may use the property in any legal manner that does not place the species below the baseline condition assessed at the beginning of the agreement. An agreement is only entered into when the USFWS finds the covered species will receive a net conservation benefit from the management actions to be taken by the landowner.

The USFWS has developed a programmatic Fender's blue butterfly SHA to streamline the enrollment process for private landowners (USFWS 2008a) in Yamhill County and neighboring counties.

- **Candidate Conservation Agreement with Assurances (CCAA)** - Candidate Conservation Agreements are voluntary agreements between the USFWS and non-federal landowners that encourage species conservation stewardship. A Candidate Conservation Agreement applies only to species that are not listed. There are currently no candidate species in prairie habitats, but should a prairie-oak savanna species become a candidate for listing, some landowners might wish to consider pursuing a CCAA because it would assure that their conservation efforts will not result in future regulatory obligations in excess of those they agree to at the time they enter into the agreement. Non-candidate species may be included. The conservation benefits sought through the CCAA are similar to those under Safe Harbor Agreements.

### **Conservation Banking**

A conservation bank is a parcel or parcels of land containing natural resource values that are conserved and managed in perpetuity for listed or at-risk species and their habitat. In exchange for permanently protecting an area, the landowner receives credits from USFWS that they may use to offset impacts to habitat or species in other areas or can sell the credits to others. This concept is similar to wetland mitigation banks that sell credits for impacts to wetlands from development. Generally it costs less per acre to manage a conservation bank than the equivalent acreage on many smaller isolated parcels of land. Additionally, larger acreage reserves are more likely to ensure ecosystem functions, biodiversity, and conservation of the species. Advantages of a conservation bank include:

- Streamlined permitting process
- Reduced cost of compliance with regulations
- Increased economic value of the conservation bank land
- Reduced administrative burden of permitting on regulatory agencies
- Support for endangered species recovery
- Effective management and monitoring in a preserve system
- Opportunity for large, un-fragmented, high quality habitat preservation
- Market incentive for habitat preservation, restoration, and enhancement.

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**Attachment 1:** Species that may benefit from the prairie and oak savanna conservation for Fender’s blue butterfly, and their habitat requirements. Ideal habitat patch or population size is the recommended minimum for sustaining a breeding population and is based on territory requirements or genetic viability (Altman 2000, Benton County 2010, USFWS 2010).

Common name	Scientific name	Status		ODFW Strategy species	Ideal habitat conditions	Habitat patch size for small population (animals) or population size (plants)
		Fed <sup>1</sup> State <sup>2</sup>				
<b>Birds:</b>						
Common Nighthawk	<i>Chordeiles minor</i>		SC	✓	Upland prairie: Gravel bars and sparse low growing vegetation and some bare ground in floodplain, lowland, or foothills.	>80 ha (200 acre)
Northern Harrier	<i>Circus cyaneus</i>				Wet and upland prairie: Lowland and floodplain prairie with large open expanses.	>80 ha (200 acre)
Streaked Horned Lark	<i>Eremophila alpestris strigata</i>	T		✓	Sparsely vegetated, treeless areas within open habitat context. Short vegetation (<30 cm (13 in) with a high proportion of bare ground (16-17%).	300 ac (120 ha), or 100 ac (40 ha) if adjacent to larger, open area.
American Kestrel	<i>Falco sparverius</i>				Oak savanna: Small groves of scattered oak or ponderosa pine with nesting cavities and herbaceous understory in floodplain, lowland, or foothills.	20-40 ha (50-100 acre)
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	SOC	SV	✓	Oak woodland and savanna: Lowland valley areas with mature oaks and open understory with dead limbs or snags for storing acorns Connectivity: <9.7 km (6 mi) habitat patch from existing occupied patch (Vesely and Rosenberg 2010).	8-20 ha (20-50 acre)
Lazuli Bunting	<i>Passerina amoena</i>				Upland prairie and oak savanna: Foothill prairie with scattered shrubs and trees with grassy openings.	4-8 ha (10-20 acre)
Oregon Sparrow Vesper Sparrow	<i>Pooecetes gramineus affinis</i>	SOC	SC	✓	Upland prairie and oak savanna: Lowland and foothill prairie with scattered shrubs and trees and some bare ground with grassy openings.	4-8 ha (10-20 acre)

Common name	Scientific name	Status		ODFW Strategy species	Ideal habitat conditions	Habitat patch size for small population (animals) or population size (plants)
		Fed <sup>1</sup> State <sup>2</sup>				
Western Bluebird	<i>Sialia mexicana</i>		SV	✓	Upland prairie and oak savanna: Lowland areas with scattered shrubs or small trees for perches or foraging with grassy (herbaceous) understory and oak cavities or nesting boxes for nesting.	4-8 ha (10-20 acre)
White-breasted Nuthatch (Slender-billed)	<i>Sitta carolinensis aculeata</i>		SV	✓	Oak woodland and savanna: Mature oaks with nesting cavities in savanna groves or open woodland (Grubb and Pravosudov 2008).	8-20 ha (20-50 acre)
Chipping Sparrow	<i>Spizella passerina</i>			✓	Oak woodland and savanna: Herbaceous cover in understory of oak woodlands or savanna in foothills or rural areas.	0.8-4 ha (2-10 acre)
Western Meadowlark	<i>Sturnella neglecta</i>		SC	✓	Upland prairie and oak savanna: Lowland or floodplain areas with large patches of scattered shrubs or trees for perches. Locate restoration sites in areas with few grass seed fields (Vesely and Rosenberg 2010).	>80 ha (200 acre)
Western Kingbird	<i>Tyrannus verticalis</i>				Upland prairie and oak savanna: Scattered oaks with a grassy (herbaceous) understory in floodplain, lowland, or foothills.	8-20 ha (20-50 acre)
<b>Butterflies:</b>						
Taylor's checkerspot (Not currently known to occur in Yamhill County)	<i>Euphydryas editha taylori</i>	E		✓	Upland prairie and oak savanna: Upland prairie and savannas with host plant species such as <i>Castilleja</i> and plantain and nectar plants like strawberry ( <i>Fragaria virginiana</i> ) and rosy plectritis ( <i>Plectritis congesta</i> ). Connectivity: 1.5 km (0.9 mi) dispersal distance between habitat patches (Converse 2009).	>~2 ha (5 acre) for annual survival probability>5% (Converse 2009)
Fender's blue	<i>Icaricia icarioides fenderi</i>	E		✓	Upland prairie and oak savanna: Lowland and foothill open upland prairie. Connectivity: 2 km (1.2 mi) dispersal distance to host lupine plants and open upland or wet prairie within 50-55 m (164-180 ft) for nectaring (USFWS 2010).	>6 ha (15 acre) (USFWS 2010)

Common name	Scientific name	Status		ODFW Strategy species	Ideal habitat conditions	Habitat patch size for small population (animals) or population size (plants)
		Fed <sup>1</sup> State <sup>2</sup>				
Tailed copper	<i>Lycaena arota</i>				Upland prairie, oak savanna and oak woodland: Open areas with yellow and mauve composites for nectar, near shrubby or riparian areas with <i>Ribes divaricatum</i> . Connectivity: habitat patches 0.5 km/0.3 mi (possibly 4-10 km/2.5-6 mi) dispersal distance between habitat patches (Schweitzer 2001b).	Information needed
Field crescent	<i>Phyciodes pulchella</i>				Upland prairie and oak savanna: Meadows with diverse composite species, larval host plants are asters such as <i>Symphyotrichum hallii</i> or <i>Erigeron decumbens</i> . Connectivity: 2 km/1.2 mi (possibly up to 10 km/6 mi) dispersal distance between habitat patches (Schweitzer 2001c).	Information needed
Sonora skipper	<i>Polites sonora</i>				Upland prairie and oak savanna: Meadows with diverse floral species, larvae feed on <i>Danthonia californica</i> , possibly <i>Festuca roemeri</i> and <i>Panicum occidentale</i> . Connectivity: 1 km/0.6 mi (possibly 4-10 km/2.5-6 mi) dispersal distance between habitat patches (Schweitzer, 2001a).	Information needed

**Plants:**

Golden paintbrush <i>(not currently found growing wild in Oregon)</i>	<i>Castilleja levisecta</i>	T	E	✓	Upland prairie and oak savanna: Dry to moist meadows and flat prairies on hill tops and at low elevations in lowlands and foothills. Connectivity: Populations within 3 km (2 mi) pollinator travel distance.	200 individuals per patch; 1,000 individuals in several populations in Salem West Recovery Zone (USFWS 2010)
Kincaid's lupine	<i>Lupinus oreganus</i>	T	T	✓	Upland prairie and oak savanna: Native open prairie or woodland edge in lowlands and foothills. Connectivity: Populations within 3 km (2 mi) pollinator travel distance.	60 m <sup>2</sup> foliar cover per patch; 7,500 m <sup>2</sup> foliar cover in several populations in Salem West Recovery Zone (USFWS 2010)

Common name	Scientific name	Status		ODFW Strategy species	Ideal habitat conditions	Habitat patch size for small population (animals) or population size (plants)
		Fed <sup>1</sup> State <sup>2</sup>				
Pale Larkspur or White Rock Larkspur	<i>Delphinium leucophaeum</i>	SOC	E	✓	Upland prairie and oak savanna: Oak edges, along river banks, bluffs, and meadows. Connectivity: Populations within 3 km (2 mi) pollinator travel distance.	200 individuals per patch; 5,000 individuals in several populations in Salem West Recovery Zone (USFWS 2010)
Willamette Valley Larkspur	<i>Delphinium oreganum</i>	SOC	C		Upland and wet prairie: Moist high elevation sites or low elevation prairie. Connectivity: Populations within 3 km (2 mi) pollinator travel distance.	200 individuals per patch; 5,000 individuals in several populations in Salem West Recovery Zone (USFWS 2010)

**Reptiles:**

Pacific (Western) pond turtle	<i>Actinemys marmorata</i>	SOC	SC	✓	Wet and upland prairie, oak savanna and woodland: Ponds and adjacent open ground up to 250 m (nesting <200 m) from water in floodplain, lowlands, and foothills (Rosenberg et al 2009). Clay soils with <25% vegetative cover and <40% litter cover for appropriate nesting habitat (Thorpe 2007). Connectivity: 1 km (0.6 mi) between habitat patches, usually along stream corridors (Hammerson 2001a)	Information needed
Northern painted turtle	<i>Chrysemys picta</i>		SC	✓	Upland prairie: Ponds and adjacent open nesting ground up to several hundred meters from water in floodplain and lowlands. Connectivity: 1 km/0.6 mi (3-10 km/1.9-6 mi) between habitat patches, usually along stream corridors (Hammerson 2001b)	Information needed

<sup>1</sup>Federal Status October 2009:

E – Listed Endangered  
T – Listed Threatened  
C – Candidate for listing  
SOC – Species of Concern

<sup>2</sup>State Status October 2009:

E – Listed Endangered  
T – Listed Threatened  
C – Candidate (plants only)  
SC – Sensitive Species, Critical category  
SV – Sensitive Species, Vulnerable Category (note: Sensitive Species applies to vertebrates only)

Note: An endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is likely to become endangered in the foreseeable future.

## **Appendix C: Good Neighbor Principle Documentation**



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Oregon Fish and Wildlife Office  
2600 SE 98<sup>th</sup> Avenue, Suite 100  
Portland, Oregon 97266

Phone: (503)231-6179 FAX: (503)231-6195

Reply To: 8539.4002 (13)

File Name: Yamhill\_goodneighbor\_response.doc

Yamhill Soil and Water Conservation District  
2200 SW 2<sup>nd</sup> Street  
McMinnville, OR 97128

**MAR 07 2014**

Re: Yamhill Soil and Water Conservation District Habitat Conservation Plan (HCP).

Dear Yamhill Soil and Water Conservation District Board Members,

The Yamhill Soil and Water Conservation District's (SWCD) habitat conservation planning effort has increased public awareness about Endangered Species Act (ESA) regulation and consequently, concern from private landowners about current and future land use. I appreciate your interest and patience in addressing these concerns. This letter is to inform you of our approach to resolving these concerns.

I understand that landowners are concerned about the voluntary conservation efforts promoted in the Conservation Strategy for Fender's Blue Butterfly (Appendix B, Draft HCP). Because these efforts are intended to increase the distribution and abundance of listed species in Yamhill County, landowners are concerned about further liability under the ESA.

I appreciate the proactive approach to conservation already implemented by the SWCD and identified in the draft HCP. Specifically, your progress towards protecting and expanding Fender's blue butterfly (*Icaricia icarioides fenderi*) populations by obtaining conservation easements, enrolling landowners in Safe Harbor Agreements and Partners for Fish and Wildlife agreements, and enhancing habitat quality exemplifies a conservation approach that is practical and implementable. These ongoing efforts, in combination with the commitments identified in the draft HCP, will significantly reduce the imminence of threats to the species and contribute to its recovery. Additionally, we anticipate a significant recovery contribution from the voluntary conservation efforts identified in the Conservation Strategy for Fender's Blue Butterfly (Appendix B, Draft HCP). Given the number of Yamhill County landowners already participating in these voluntary programs, my staff and I believe that by alleviating the above mentioned concerns, we will ensure the success of the Conservation Strategy for Fender's Blue Butterfly (Appendix B, Draft HCP) and achieve Fender's blue butterfly recovery goals in Yamhill County.

It is the U.S. Fish and Wildlife Service's (Service) responsibility to investigate and take appropriate action with respect to potential take of Fender's blue butterfly under the ESA. However, while finalizing the HCP and during its successful implementation, I will recommend that the Service not initiate prosecution for any activities that may impact introduced populations

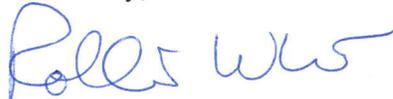
Printed on 100 percent chlorine free/60 percent post-consumer content paper.



of Fender's blue butterfly. Specifically, this would apply to any activity implemented outside of the Fender's blue butterfly habitat mapped in the "HCP Plan Area" as identified in the draft HCP. These activities pose a small risk of incidental take, and we believe the risk of harm is low and that any potential harm will be discountable from the standpoint of species recovery. However, if a naturally occurring Fender's blue butterfly population is found outside of the "HCP Plan Area," we will not be able to exercise this discretion because the impacts to the species would no longer be considered small or discountable.

I appreciate your willingness to undertake a County-wide planning effort and your commitment to ensuring the final HCP provides a meaningful contribution to prairie recovery. I look forward to working with you on finalizing the HCP and achieving prairie recovery goals in Yamhill County. If you wish to contact us to discuss this letter, please contact Mikki Collins or Rich Szlemp of my staff at (503) 231-6179.

Sincerely,



*Acting for*  
Paul Henson, PhD  
State Supervisor

cc: Cindi Bockstadter, Fish and Wildlife Service Law Enforcement, Wilsonville, Oregon  
Amie Loop-Frison, Yamhill SWCD HCP Project Manager  
Tom Kaye, Institute for Applied Ecology

## Appendix D: Public Outreach

Date	Group	Location	Type	Description
9/2010	Yamhill SWCD Newsletter	Yamhill County	Article	Announcement of grant award & general description of HCP.
9/2010	Newberg Graphic	Newberg, OR	Article	Announcement of grant award & narrative outlining anticipated process.
9/16/2010	Yamhill Partners for Land & Water	Newberg, OR	Meeting/Presentation	Presented general ideas for HCP & anticipated process.
12/8/2010	News-Register	McMinnville, OR	Article	Announcement of grant award & description of HCP as opposed to original county grant.
12/2010	Yamhill SWCD Newsletter	Yamhill County	Article	Update on status of HCP.
1/8/2011	News-Register	McMinnville, OR	Article	Feature column on HCP by Amie Loop-Frison of Yamhill SWCD.
2/16/2011	Public Meeting	McMinnville, OR	Presentation	Introductory/informational meeting for the public.
2/23/2011	Yamhill Co. Small Woodlands Association	McMinnville, OR	Presentation	Informational meeting about the HCP objectives, including species information and how it would affect woodland owners.
2/2011	Private Landowners	Yamhill County	Brochure Mailing (3,100)	General information about the HCP & invitation to sign-up for a property survey.
3/2011	Private Landowners	Yamhill County	Postcard Mailing (3,000)	Lupine information/photos with a reminder about survey sign-up.
4/2011	Yamhill SWCD Newsletter	Yamhill County	Article	Update on surveys and HCP.
4/5/2011	HCP Movie Night	McMinnville, OR	Presentation	Movie about HCPs in the US (Bulldozers & Butterflies) and presentation about Yamhill SWCD's HCP.
4/25/2011	Yamhill Co. Commissioners	McMinnville, OR	Meeting	TNC updated commissioners on new property acquisition in the county and Yamhill SWCD presented information about the HCP.
5/20/2011	Prairie Field Day	Yamhill, OR	Tour	Tour of the Koelling property which highlighted restoration efforts including the Fender's blue butterfly area. Discussed how this fit in with the HCP and upland prairie habitat information.
6/8/2011	News-Register	McMinnville, OR	Article	Article covering Prairie Tour and specifically prairie restoration.
6/11/2011	News-Register	McMinnville, OR	Article	Editorial praising the District's efforts to protect prairie habitat.
7/21/2011	Kiwanis	McMinnville, OR	Presentation	General information about the HCP
9/30/2011	Yamhill County Conservation Easement Tour	Yamhill, OR	Tour	Tour of Cooke property which will have a conservation easement on it. Presented information on how easements will tie into mitigation for the HCP.

*Yamhill Habitat Conservation Plan for Fender's Blue Butterfly on Private Lands*

<b>Date</b>	<b>Group</b>	<b>Location</b>	<b>Type</b>	<b>Description</b>
1/10/2012	Conservation Opportunities Workshop	Yamhill, OR	Presentation	Information on projects and programs available to county residents including the Private Lands HCP.
1/11/2012	Conservation Opportunities Workshop	McMinnville, OR	Presentation	Information on projects and programs available to county residents including the Private Lands HCP.
1/12/2012	Conservation Opportunities Workshop	Newberg, OR	Presentation	Information on projects and programs available to county residents including the Private Lands HCP.
1/12/2012	Conservation Opportunities Workshop	Dayton, OR	Presentation	Information on projects and programs available to county residents including the Private Lands HCP.
2/15/2012	Private landowners (general)	Yamhill County	Mailing (3,000)	Survey solicitation.
2/15/2012	Private landowners (HCP Plan Area)	Yamhill County	Mailing (300)	Information on HCP and notification that they live within the covered area.
10/15/2012	Yamhill SWCD Newsletter	Yamhill County	Article	Information on 2012 survey season.
11/1/2012	News-Register	McMinnville, OR	Article	Updated information on Yamhill SWCD's HCP & Yamhill County's HCP.
11/14/2012	Yamhill SWCD Board	McMinnville, OR	Presentation	Update on status and contents of HCP.
2/28/2013	NRCS/YSWCD Local Work Group Meeting	McMinnville, OR	Presentation	General HCP information. What the HCP is and how will it affect local landowners.
3/1/2013	Private landowners	Yamhill County	Mailing (2,400)	Survey solicitation.
3/1/2013	Private landowners	Yamhill County	Mailing (340)	Information on HCP and notification that they live within the covered area.
4/5/2013	Annual Oregon Fender's Blue Butterfly Meeting	Baskett Slough Wildlife Refuge	Presentation	Update on status and contents of HCP.
5/25/2013	Annual NPSO Cheahmill Chapter Wildflower Show	McMinnville, OR	Fliers	Informational handouts on Fender's blue butterfly and Kincaid's lupine.
5/31/2013	Annual Prairie Field Day	McMinnville, OR	Tour	Tour of Taylor and Riedman restoration projects. Presentations on restoration efforts, Fender's blue butterfly, native prairie plants, HCPs and USFWS programs.
7/18/2013	Yamhill Partners for Land & Water Meeting	Newberg, OR	Presentation	General information about the HCP.

<b>Date</b>	<b>Group</b>	<b>Location</b>	<b>Type</b>	<b>Description</b>
9/26/2013	Native Plant Society – Cheahmill Chapter	McMinnville, OR	Presentation	Overview of planning process & document.
10/1/2013	Yamhill SWCD Newsletter	Yamhill County	Article	Update on HCP.
1/18/2014	Native Plant Workshop	McMinnville, OR	Presentation	General HCP information.
2/20/2014	Yamhill Co. Local Work Group Meeting	McMinnville, OR	Presentation	General HCP information.
4/02/2014	Public Meeting	McMinnville, OR	Presentation	Description of the HCP and its development process and release of draft documents for review.