



# ***BENTON COUNTY PRAIRIE SPECIES HABITAT CONSERVATION PLAN***

***DECEMBER 2010***

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***Front cover photos, top to bottom:***

*Kincaid's lupine, photo by Tom Kaye*  
*Nelson's checkermallow, photo by Tom Kaye*  
*Fender's blue butterfly, photo by Cheryl Schultz*  
*Peacock larkspur, photo by Lori Wisehart*  
*Bradshaw's lomatium, photo by Tom Kaye*  
*Taylor's checkerspot, photo by Dana Ross*  
*Willamette daisy, photo by Tom Kaye*

# Preamble

The draft Benton County Prairie Species Habitat Conservation Plan (HCP) was initiated to bring Benton County's activities on its own lands into compliance with the Federal and State Endangered Species Acts. Federal law requires a non-federal landowner who wishes to conduct activities that may harm ("take") threatened or endangered wildlife on their land to obtain an incidental take permit from the U.S. Fish and Wildlife Service. State law requires a non-federal public landowner who wishes to conduct activities that may harm threatened or endangered plants to obtain a permit from the Oregon Department of Agriculture. To receive an incidental take permit, a landowner must develop a HCP or Plan. Without this Plan, the County would not be able to continue its routine responsibilities, including road maintenance, without delays and added costs from habitat surveys and regulatory agency consultations prior to each action. With the HCP, the County will avoid and minimize impacts to threatened and endangered species of prairie habitats, but where impacts are unavoidable, the County will mitigate (complete habitat restoration to offset habitat damage) as required.

During HCP development the County also fully recognized its own liability in issuing construction permits to rural private landowners in endangered butterfly habitat. The County also realized the liability and added burden that those landowners face when completing construction of a home, outbuilding, farm or forest structure on their property. Without an HCP, the County would be unable to issue building permits in endangered butterfly habitat until the landowner had received authorization from the U.S. Fish and Wildlife Service. This authorization would involve having a butterfly habitat survey completed in May or June, and if habitat were present the landowner would either have to avoid the habitat, or complete their own HCP and any mitigation required. Waiting for the survey season and completing a survey, developing a HCP, and completing mitigation would frequently delay and add significant cost to a project.

To reduce the burden to private landowners, the Benton County Board of Commissioners decided to offer HCP coverage, through this draft HCP, as an option to rural private landowners in endangered butterfly habitat. If landowners elect to use this coverage, it eliminates the requirement that they complete a survey, develop their own HCP, or complete or fund their own mitigation. Because the County already manages more than 1,100 acres of natural areas, including over 150 acres of prairie habitat, it can efficiently incorporate the required mitigation into its management of large and protected sites with existing habitat.

This HCP helps the County and its citizens comply with endangered species regulations while protecting at-risk species through long-term planning, avoiding and minimizing impacts, and mitigating for losses.

# Acknowledgments

This draft Habitat Conservation Plan is the result of collaboration among numerous individuals and organizations working to conserve prairie habitats in the Benton County. We appreciate the considerable time and effort expended by each individual in providing technical expertise, foresight, and/or community stewardship in the preparation of this draft HCP.

The project relied on individuals sharing their knowledge about prairie habitats and the Covered Species dependent on these habitats for their survival. We would like to thank the Technical Advisory committee members and we hope these individuals will continue to provide Benton County with support as the County moves forward in the completion and implementation of the Habitat Conservation Plan.

We wish acknowledge the time, commitment, and resources of another major group that assisted in the development of the Habitat Conservation Plan – the Stakeholder Advisory Committee. This committee provided the HCP Planning Team with insight and direction in the development of the HCP. We wish to acknowledge their dedication and participation in this important process.

Without the assistance of Benton County staff members we would not have been able to complete the draft Plan. We would especially like to thank Laurie Starha, Al Kitzman, Mary Simpson, Jon Stratton, Doug Sackinger, Andrew Monaco and Lisa Grisham.

We also wish to thank all those community members who participated at public meetings so far and who provided invaluable comments on the process to date.

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Appendix H: Public Presentations about the HCP

Appendix I: Avian, Botanical and Butterfly Survey Methodology

Appendix J: Prairie Habitat Vegetation Management Guidelines

Appendix K: Project Site Survey and Reporting Protocols for Plants and Butterfly Habitat

Appendix L: Plant Material Collection and Plant Introduction Protocols

Appendix M: Roadside and Streambank Management Guidelines for Covered Plants

Appendix N: Draft Taylor's Checkerspot Management Plan

Appendix O: Covered Plant Soils Lists

Appendix P: Sample Annual Compliance Report

Appendix Q: Draft Cooperator Reporting Forms

Appendix R: Draft Implementing Agreement

# Executive Summary

This Draft Habitat Conservation Plan (HCP or Plan) is submitted to the U.S. Fish and Wildlife Service and Oregon Department of Agriculture by Benton County, Oregon ("County") to allow the County to receive an incidental take permit under the Endangered Species Act Section 10(a)(1)(B) for Fender's blue butterfly, Taylor's checkerspot butterfly, Willamette daisy, peacock larkspur, Kincaid's lupine, Nelson's checkermallow and Bradshaw's lomatium ("Covered Species"). An incidental take permit will allow the County to continue to perform its otherwise lawful duties, which have the potential to impact these Covered Species. In return for impacting the Covered Species, the County will minimize and mitigate its impacts. The incidental take permit, once issued, will be in effect for 50 years.

The vision of the Plan is to achieve long term viability of rare species populations that is compatible with essential public services, public and conservation land management and home, farm and forest construction on private lands.

## Goals:

- Maintain viable populations of the Covered Species in Benton County.
- Increase community appreciation of prairie habitats, enhance positive community engagement, and demonstrate the success of voluntary actions and programs to promote prairie conservation.
- Achieve compliance with State and Federal Endangered Species Act protections and regulations.

Lands with prairie habitat owned and/or managed by Benton County will be covered by the HCP. Private landowners who need a County permit or agricultural building authorization for home, farm, and forest construction will have the option of obtaining incidental take permit coverage from the County. The entities ("Cooperators") identified below may also obtain incidental take coverage for certain lands (lands in the "Plan Area") and certain activities ("Covered Activities") under the HCP by requesting a Certificate of Inclusion from Benton County.

- City of Corvallis
- Oregon Department of Transportation
- Oregon State University
- Greenbelt Land Trust
- Pioneer Telephone Cooperative
- NW Natural

Activities within the Plan Area to be covered by the incidental take permit and for which the Plan provides avoidance, minimization and mitigation for impacts to Covered Species include:

- Home, Farm and Forest Construction on private lands
- Benton County construction Permits and Agricultural Building Authorizations

- Public Service Facility Construction
- Transportation Activities and Authorized Work in Rights-of-Way
- Utility (including natural gas and telephone) Construction and Maintenance
- Water and Wastewater Management
- Parks/Natural Areas/Open Space Management
- Agriculture on City of Corvallis Land
- HCP Implementation Activities
- Emergency Response Activities

Total permanent impacts, or “take”, requested for the 50 year permit term for each of the Covered Species is summarized in the following table:

Bradshaw's lomatium (#)	Willamette daisy (#)	Peacock larkspur (#)	Nelson's checkermallow (#)	Kincaid's lupine outside the Fender's Blue Zone (m <sup>2</sup> )	Kincaid's lupine inside the Fender's Blue Zone (m <sup>2</sup> )	Nectar for Fender's blue butterfly (m <sup>2</sup> )	Taylor's checkerspot butterfly habitat (m <sup>2</sup> )
2	1	56	222	8	402	8570	57

“Conservation Measures” are the actions proposed to avoid, minimize, and mitigate for impacts to the Covered Species resulting from Covered Activities, in accordance with the HCP’s biological goal. The biological goal of this Plan is to maintain viable populations of the Covered Species in Benton County. Objectives to reach that goal are to:

- 1) Conserve Covered Species populations and habitat.
- 2) Enhance Covered Species populations and habitat.
- 3) Increase the distribution and connectivity of Covered Species populations.

Each objective will be accomplished through a set of Conservation Measures, including:

- Acquire from willing sellers and enhance properties (Benton County Fender’s Blue Butterfly Conservation Areas) with existing populations of Fender’s blue butterfly and prairie habitat.
- Designate Prairie Conservation Areas (PCAs) on over 200 ha (500 ac) public lands or lands under conservation easement, including the Benton County Fender’s Blue Butterfly Conservation Areas described above. These lands within the County will be managed specifically for conservation of the Covered Species. Some areas of some PCAs may be designated for use as mitigation sites.
- Implement best management practices for Covered Species populations in Prairie Conservation Areas and other Covered Lands owned by Benton County and the Cooperators.
- Augment and/or enhance populations of Covered Species to mitigate for impacts.
- Develop a Prairie Conservation Strategy to facilitate effective and voluntary conservation actions by public and willing private landowners, which contribute to the recovery of the Covered Species and other imperiled prairie species in Benton County.



In the event that impacts to Covered Species cannot be avoided, mitigation will be completed at sites with appropriate habitat in Benton County at the closest appropriate location to the impacted site. Mitigation may be achieved by habitat enhancement or species augmentations at sites already supporting the impacted species, or by introducing the species to currently unoccupied sites containing suitable habitat. For a site to be suitable it must:

- Have the correct vegetation structure;
- Possess suitable soils;
- Be located within current or historic prairie habitat;
- Be located on lands protected by permanent conservation easement or under non-federal public ownership; and
- The site cannot be dominated by List A or B noxious weeds.

Mitigation requirements have been fulfilled when the following conditions are met:

- Required amount of covered plants or habitat persists six years after initiation of the mitigation.
- Covered Species population or habitat trend is stable over the final three years of the six year period (no significant population declines during that period).
- For covered plants, at least 40% of the individuals initially planted or seeded are reproductive and produce seeds. This requirement does not apply to portions of the population that recruit (self-seed) naturally after planting.

Monitoring and adaptive management are crucial to successful HCP implementation. Benton County and Cooperators will adopt a monitoring and adaptive management program to allow changes in the Conservation Measures to reach the long-term biological goal of the Plan, and contribute to the survival and recovery of the species.

The County Board of Commissioners has overall responsibility for implementation of the HCP. Many of the tasks to be performed by the County will be delegated to staff in the Natural Areas and Parks Department, the Community Development Department, and the Public Works Department.

Benton County considered a number of alternatives throughout the development of the habitat conservation plan (HCP), including whether to complete the Plan and pursue an incidental take permit. The analysis included what species to cover, what lands and entities to cover, what activities to cover, how to fund County-led mitigation for impacts on private lands, and how to address future partitions and subdivisions of properties.

# 1 Introduction

## 1.1 Introduction

Benton County is located within the southern portion of the Willamette Valley ecoregion (Figure 1.1). Prior to Euro-American settlement in the mid-1800's, native grassland prairie and savanna habitats occupied an estimated 700,000 hectares (ha) (1.7 million acres [ac]) of western Oregon's Willamette Valley (Figure 1.2) (Alverson 2005). Almost all native upland and 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). Benton County comprises 7% of the Willamette Valley ecoregion, and is home to an estimated 12% of the remaining native prairie and oak savanna habitat.

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), where protection of the native species supported by these native prairie habitats is limited or absent.

Benton County has taken the lead to preserve some of the remaining prairie habitat, as well as rare prairie species endemic to the region, through implementation of a Benton County Prairie Species Habitat Conservation Plan (HCP or Plan). To achieve a lasting legacy of this once abundant native prairie habitat, Benton County will work in cooperation with other public agencies, two utility companies, and a conservation organization to balance conservation of seven rare native species "Covered Species" (Table 1.1) and their habitats with home, farm, and forest construction; vegetation management in parks, natural areas, and open spaces; and essential public services for the citizens of Benton County, including transportation, utility construction and maintenance, rural school and fire station construction, and water and wastewater management ("Covered Activities").

Table 1.1 Benton County Prairie Species HCP Covered Species and their status under the State and Federal Endangered Species Acts.

Scientific Name	Common Name	Federal Status	State Status
<i>Erigeron decumbens</i>	Willamette daisy	Endangered	Endangered
<i>Icaricia icarioides fenderi</i>	Fender's blue Butterfly	Endangered	None
<i>Lomatium bradshawii</i>	Bradshaw's lomatium	Endangered	Endangered
<i>Lupinus sulphureus</i> ssp. <i>kincaidii</i>	Kincaid's lupine	Threatened	Threatened
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	Threatened	Threatened
<i>Euphydryas editha taylori</i>	Taylor's checkerspot butterfly	Candidate	None
<i>Delphinium pavonaceum</i>	peacock larkspur	Species of Concern	Endangered

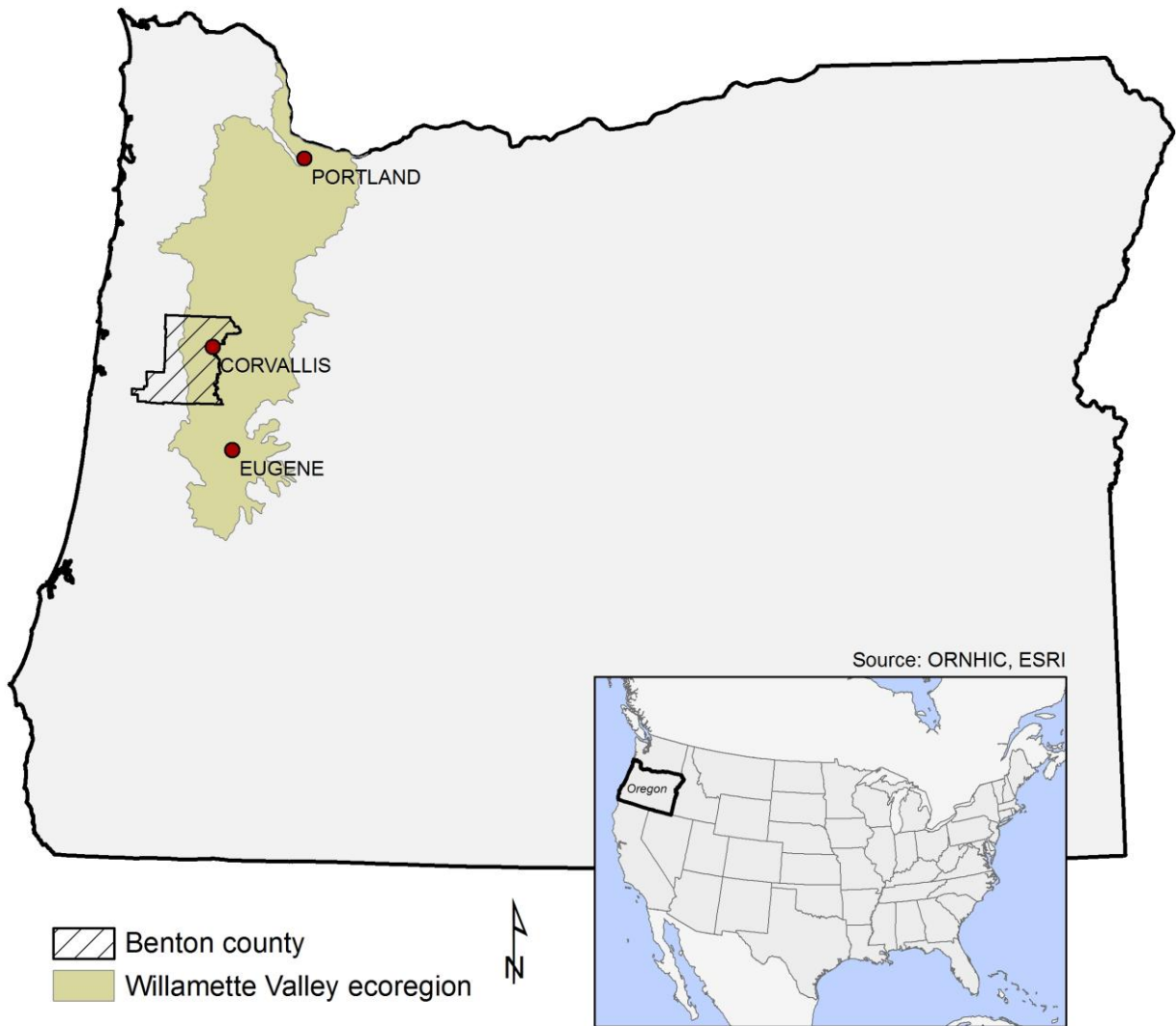


Figure 1.1 Benton County and the Willamette Valley Ecoregion of Oregon.

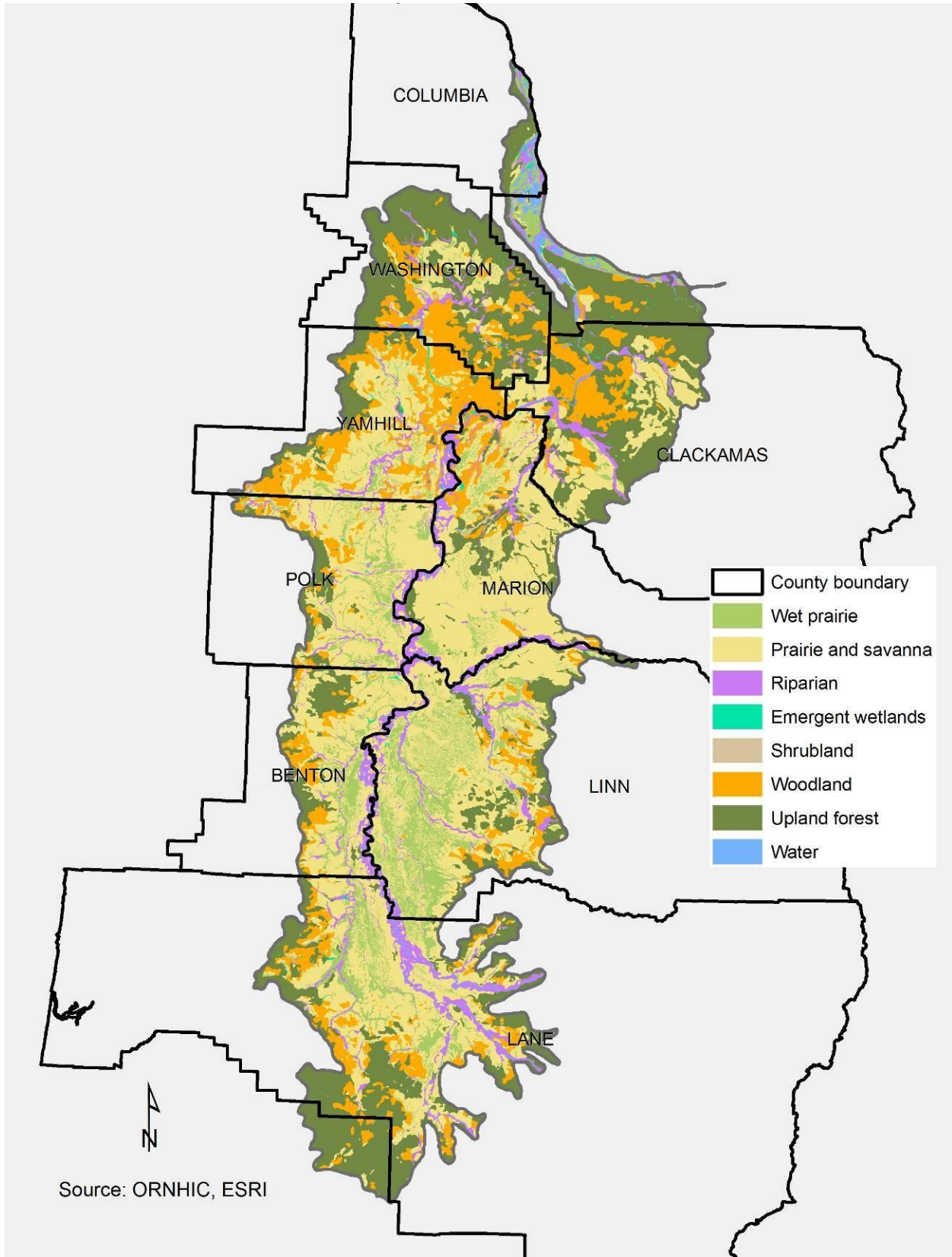


Figure 1.2 Historic prairie habitat in the Willamette Valley.

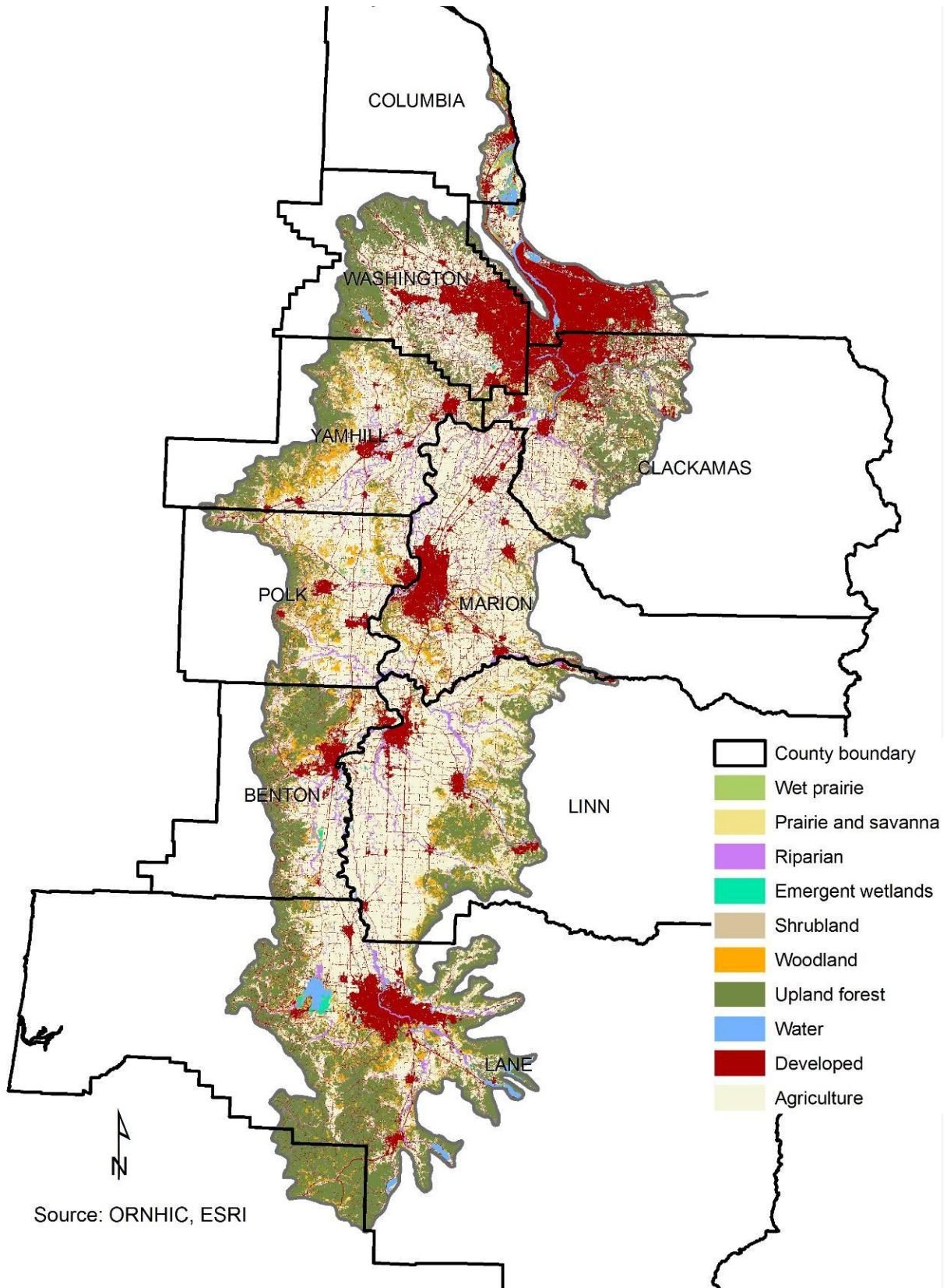


Figure 1.3 Remaining prairie habitat in the Willamette Valley.

Benton County has developed this Plan to address how the County and the participating non-federal public landowners and conservation organization intend to manage for rare native species and their habitats within Benton County while allowing otherwise lawful activities performed on those properties.

## **1.2 Purpose and Need**

The purpose of this HCP is to set forth Conservation Measures the County agrees to take for the protection and enhancement of native prairie systems and to offset any impacts resulting from the Covered Activities. These Conservation Measures outline how the County and its citizens can avoid, minimize, and mitigate for their impacts to prairies and the native species dependent upon them. Implementation of the HCP will encourage creative partnerships between the County, its local citizens, local entities and the two primary regulatory agencies, the Oregon Department of Agriculture (ODA), and the U.S. Fish and Wildlife Service (USFWS).

The Federal Endangered Species Act (ESA) makes it illegal to negatively impact listed animal species (known as “take”) without an incidental take permit. Negative impacts result from activities that cause death, harm, or harassment to such an extent the impacted species are unable to breed, feed, or seek shelter. Significant impacts to the species’ habitat can also result in violation of the ESA. An incidental take permit can be issued to the County that allows a limited amount of take, if the following criteria are satisfied: (1) take is incidental, (2) the impacts of such taking are minimized and mitigated to the maximum extent practicable, (3) the County ensures funding for the HCP and procedures to deal with unforeseen circumstances, and (4) take does not appreciably reduce the likelihood of the survival and recovery of the species in the wild (USFWS 1996).

Despite best efforts, preventing impacts to listed species or their habitat during the County’s performance of otherwise lawful activities<sup>1</sup> (such as road construction and maintenance, permit issuance, park and natural area vegetation management) is difficult or costly. The County is voluntarily seeking an incidental take permit from the USFWS and authorization from ODA to perform these otherwise lawful activities which have the potential to impact listed species. The County is not required by law to obtain an incidental take permit from the USFWS; it is only required by law to comply with the state and federal ESA. Therefore, if the appropriate authorization is not obtained, all impacts must be avoided. As a condition of the incidental take permit, Benton County agrees to perform Conservation Measures spelled out in this Plan. The HCP identifies how the County intends to avoid, minimize, and mitigate to the maximum extent practicable impacts to Covered Species from Covered Activities identified in the incidental take permit.

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<sup>1</sup> Otherwise lawful activities are those activities consistent with other federal, state, and local laws.



Benton County is including a listed animal (Fender’s blue butterfly) under this HCP. In addition, a candidate species and five plant species are included that currently have no take prohibition under the federal ESA. By including these species, Benton County is voluntarily assuming responsibility to avoid, minimize, and mitigate for impacts to these species resulting from activities it conducts or authorizes on lands it owns or manages<sup>2</sup>, even though the federal ESA does not require such actions. However, by avoiding, minimizing and mitigating impacts to plant species, Benton County is fulfilling the requirements of the State of Oregon ESA. Additionally, including the candidate and plant species ensures the terms and conditions of the incidental take permit and the HCP do not change over time with the subsequent listing of the candidate species or a change in the law regarding the take of listed plant species.

The County also includes in this HCP coverage for (1) persons<sup>3</sup> in Benton County requiring a Benton County permit for home, farm or forest construction, and (2) certain non-federal public agencies, two utility companies, and a conservation organization (Cooperators) whose activities are likely to affect one or more of the Covered Species on lands they own or work on within the County. Obtaining take coverage under the County’s incidental take permit will provide additional predictability in planning and conducting Covered Activities. These private landowners and Cooperators will save time and expense by obtaining take coverage directly from Benton County, rather than having to apply for take coverage (including preparing their own HCP) from the U.S. Fish and Wildlife Service and/or the Oregon Department of Agriculture.

### **1.3 Goals**

Vision: Achieve long term viability of rare species populations that is compatible with essential public services, public land management and home, farm and forest construction.

Goals:

- Maintain viable<sup>4</sup> populations of the Covered Species (Table 1.1) in Benton County.
- Increase community appreciation of prairie habitats, enhance positive community engagement, and demonstrate the success of voluntary actions and programs to promote prairie conservation.
- Achieve compliance with State and Federal Endangered Species Act protections and regulations.

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<sup>2</sup> County “managed” lands are those lands owned by others but managed by the County, such as City or State road rights-of-way.

<sup>3</sup> Persons is defined, to include, but not be limited to individuals, public agencies, corporations, partnerships, limited liability partnerships, limited liability corporations.

<sup>4</sup> A viable population has a sufficient number of individuals, reproduction by those individuals, and habitat conditions to persist over time.

## 1.4 Proposed Action

### 1.4.0 Scope

Benton County seeks incidental take coverage for seven imperiled prairie species. Benton County seeks authorization to issue Certificates of Inclusion to (1) persons requiring a County permit or agricultural building authorization (Appendix A: Draft Certificate of Inclusion Template – Private Landowner) and (2) Cooperators, including select non-federal public agencies, two utility companies, and a conservation organization (Appendix B: Draft Certificate of Inclusion Template – Cooperator). Cooperators will also be required to enter into a Cooperative Agreement with the County; this agreement sets forth the responsibilities of the parties with respect to minimization and mitigation (conservation) measures (Appendix C: Cooperative Agreement Template).

#### 1.4.0.0 Covered Entities and Lands

Lands covered by the HCP are included in the “Plan Area” and described in Chapter 3. The Plan area includes lands owned and/or managed by Benton County. Those listed below may obtain coverage for their activities, under the HCP, by requesting a Certificate of Inclusion from Benton County.

- Private landowners seeking a County permit or agricultural building authorization for work in the Fender’s Blue Zone
- HCP Cooperators
  - City of Corvallis
  - Oregon Department of Transportation (ODOT)
  - Oregon State University (OSU)
  - Greenbelt Land Trust
  - Pioneer Telephone Cooperative
  - NW Natural

#### 1.4.0.1 Covered Species

The scope of this HCP is limited to wet or upland prairie habitat in Benton County. The seven species covered under this HCP exclusively occupy these habitats and include Fender’s blue butterfly (*Icaricia icarioides fenderi*), Taylor’s checkerspot butterfly (*Euphydryas editha taylori*), Bradshaw’s lomatium (*Lomatium bradshawii*), Kincaid’s lupine (*Lupinus sulphureus* ssp. *kincaidii*), peacock larkspur (*Delphinium pavonaceum*), Nelson’s checkermallow (*Sidalcea nelsoniana*), and Willamette daisy (*Erigeron decumbens*) (Chapter 2).

All seven species are covered on lands in the Plan Area (Chapter 3) owned and/or managed by Benton County. Fender’s blue butterfly and the five plant species are covered on land owned or managed by the City of Corvallis, OSU and ODOT. Fender’s blue butterfly is also covered on privately owned lands, including those owned by



Greenbelt Land Trust, within mapped potential habitat for the species (the Fender's Blue Zone- see Chapter 5, Section 5.1.0.0).

Taylor's checkerspot butterfly, currently a candidate species, occurs only on lands under County or private ownership. In this HCP, Taylor's checkerspot is only covered on land owned by Benton County. In the event that Taylor's checkerspot becomes listed as threatened or endangered, Benton County will continue to implement conservation actions for the species on County lands, and collaborate with other public landowners to benefit the species. See Chapter 5 Impacts for more information.

#### **1.4.0.2 Covered Activities**

Covered Activities include: (1) ground-disturbing activities necessary to allow home, farm and forest construction; (2) management of public and conservation organization lands; and (3) activities providing essential public services in the County (e.g., transportation and water system management, and utilities construction and maintenance). An activity is included in this Plan only if: (1) it is the type of impact evaluated in Chapter 5; (2) there is sufficient take coverage available under the incidental take permit issued to Benton County for that activity; (3) it does not preclude achieving the biological goals and objectives of this Plan; and (4) it is an action under the jurisdiction of Benton County, one of the Cooperators, or certain private landowners. Covered activities are identified in Chapter 4.

#### **1.4.0.3 Biological Goals and Conservation Measures**

The overall biological goal of this HCP is to achieve sustainable populations of Covered Species, while maintaining local populations and enhancing connectivity. Through the proposed Conservation Measures, the County and Cooperators will accomplish this by enhancement of selected existing Covered Species populations and habitat, and increasing the distribution and connectivity of Covered Species populations in the County.

This HCP also proposes managing select habitat for the Covered Species, including reducing or managing for current threats to the species on over 200 ha (500 ac) of lands owned or managed by the County or Cooperators. These areas will be designated as Prairie Conservation Areas (PCAs; Appendix D: Maps of Prairie Conservation Areas). Lands designated as PCAs will be areas where the Covered Species are present or where there is suitable habitat for introductions of the Covered Species. PCAs are lands under public ownership or conservation easement and set aside for active conservation, and where habitat restoration and enhancement will take place. Some areas of some PCAs may be used as mitigation sites for impacts to the Covered Species resulting from Covered Activities at the discretion of Benton County or the Cooperators.

#### **1.4.0.4 Prairie Conservation Strategy**

Benton County has developed a Prairie Conservation Strategy, a Conservation Measure of this Plan and an appendix to this document (Appendix E: Draft Prairie Conservation Strategy). The strategy outlines an approach for interested parties, both public and private, to work together to help conserve and restore rare habitat and recover at-risk prairie-dependent species in Benton County in a non-binding, non-regulatory framework. The continued existence of rare habitats and species depends on the willingness of land managers and private landowners to voluntarily undertake conservation actions. The Prairie Conservation Strategy document provides an overview of voluntary actions that can be enacted in Benton County to increase rare habitat and recover at-risk species. Developed as part of the Habitat Conservation Plan, the strategy serves as a stand-alone document but is one component of the Conservation Measures identified in the HCP.

#### **1.4.0.5 Reducing Disincentives for Conservation on Private Lands**

In a letter dated March 1, 2010 (Appendix F), USFWS has agreed to provide discretion under the ESA because of and to encourage the voluntary efforts to contribute to recovery of the HCP species through the HCP Prairie Conservation Strategy (Appendix E).

Habitat loss is the primary threat to at-risk prairie species in Benton County and, with the majority of remaining prairie habitat in Benton County occurring on private lands, encouraging habitat conservation by private landowners is vital to protecting at-risk prairie species. Due to federal Endangered Species Act 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 Covered Species, 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 Covered Species in the region. One of the goals of this HCP, and the accompanying Prairie Conservation Strategy, is to alleviate fears of regulation by clearly explaining the regulations that may impact landowners, increasing community appreciation of prairie habitats, enhancing positive community engagement, and demonstrating the success of voluntary actions and programs to promote prairie conservation. More than 30 landowners and over 790 ha (>1,900 ac) of upland or wet prairie habitat in Benton County are already enrolled in various voluntary conservation programs (J. Jebosek, Pers. comm. 2009). The County hopes to involve even more landowners in prairie conservation through efforts to reduce regulatory disincentives from managing for prairie habitats on private lands.

This HCP identifies the permanent impacts resulting from activities under Benton County's regulatory oversight (e.g., home, farm and forest construction) that will occur on private lands in Fender's blue butterfly habitat (the Fender's Blue Zone) and sets forth the mitigation requirements to be fulfilled for these impacts. However, many activities that may impact Fender's blue butterfly habitat are outside the County's

regulatory oversight. Some of these activities may have short term impacts to the butterfly, yet may result in long term positive effects for the species and its habitat. This HCP strives to reduce the regulatory disincentives for landowners to conduct activities which will help maintain disturbance-dependent prairie habitats. Mechanisms to achieve this reduction, both inside and outside the Fender's Blue Zone, are described below.

### **Inside the Fender's Blue Zone**

The USFWS has identified a suite of habitat and property management activities that are outside Benton County's regulatory oversight, and have the potential for short term or negligible impacts but long term benefit to Fender's blue butterfly habitat. Neither Benton County nor USFWS intends to regulate these activities with regard to Fender's blue butterfly habitat. Such activities, as described in Appendix F, include:

- mowing a field, pasture, or vineyard row middle or margin that has been regularly mowed up to the time of HCP enactment;
- haying a field after July 15th;
- grazing the same type of livestock at a similar timing and intensity as has occurred in the same area in the past;
- spot-spraying or manual removal of noxious weeds;
- planting native prairie species; and
- installing, maintaining or replacing a fence that existed prior to HCP enactment.

Many of these activities would aid in maintaining prairie habitats and thereby benefit the Covered Species. If a landowner wishes, they may receive assistance and guidance in completing these activities by enrolling in an existing program that assists private landowners interested in conservation on their lands. These programs, including the USFWS Partners for Fish and Wildlife program and the Safe Harbor Agreement with Assurances, are described in the Prairie Conservation Strategy (Appendix E) Chapter 6: Voluntary Conservation Tools. While enrollment in such programs is strictly voluntary, the monitoring and assessment that occurs through these programs would contribute information about prairie management, benefit prairie conservation, and demonstrate the success of voluntary actions.

The following activities not covered under this Plan do not require incidental take coverage because they will not result in new impacts to the Covered Species, beyond those that have occurred prior to this plan:

- Maintaining an existing garden, lawn, landscaped area or driveway; and
- Vegetation clearing to maintain the County recommended 30 ft fire break around existing structures or any other ground disturbing activity within 30 ft of an existing permanent structure within the Fender's Blue Zone. The 30 ft fire break around existing structures is assumed to have been disturbed during construction or landscaping, and therefore is unlikely to support Fender's blue butterfly habitat.

### **Outside the Fender's Blue Zone**

Habitat restorations (including species introductions) in areas where Covered Species are currently absent are Conservation Measures that this HCP promotes and facilitates. Successful restoration will result in the establishment of a population of a Covered Species at a new site. If this new population is successful, individuals could disperse from the restoration site onto adjacent properties (within Benton County and outside the Fender's Blue Zone). Where these adjacent properties are currently unoccupied by Covered Species, such dispersal could put the landowners at risk of regulation under the Endangered Species Act. This may create a disincentive for public and private 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 Covered Species or may oppose restoration out of fear for their property rights. Taken together, these concerns could severely limit the potential for recovery of Covered Species in the region.

Benton County has worked closely with the USFWS to address these concerns expressed by the public through a Good Neighbor Principle. Under this principle, private landowners whose properties outside the Fender's Blue Zone are colonized by Fender's blue butterfly as a result of habitat restoration or species introductions are held harmless for take resulting from their actions on their property during the 50 year permit term. Neighboring land owners of public properties will be notified of restoration/introduction activities by the public landowner. If neighboring landowners intend to subsequently change their property management in a manner that results in decline of habitat for the Covered Species, they will be encouraged, but not required, to notify and work with 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 its mapped habitat zone: the area in which the species has the potential to occur given its current distribution in the wild (see Section 8.7.3 for a description of what would occur in the unlikely event that a new wild population of Fender's blue is found outside the mapped habitat). The principle does not apply to other species or areas for the following reasons:

- Inside the mapped Fender's blue habitat zone take will already be mitigated for Covered Activities; take for non-covered activities outside Benton County's regulatory oversight (e.g., land management activities such as road maintenance, grazing) are addressed above (see Inside the Fender's Blue Zone) or in Section 4.3 Non-Covered Activities.
- The Good Neighbor Principle is unnecessary for covered plant species on private lands without a federal nexus in the County because plants are not protected under these conditions by the U.S. or Oregon Endangered Species Acts.
- In the event that Taylor's checkerspot is listed under the ESA in the future, landowners wishing take coverage inside the mapped habitat zone for Taylor's checkerspot will need to work directly with USFWS to secure necessary permits.

Mitigation for take of Taylor's checkerspot is not provided by Benton County to private landowners under this HCP (unless the HCP is amended, see Section 8.7.1).

#### **1.4.0.6 Term of Incidental Take Permit**

Benton County is seeking a 50-year incidental take permit.

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

### **1.5.0 Introduction**

The overall conservation planning process is outlined in Figure 1.4 and Figure 1.5. At the request of the Board of County Commissioners, the Natural Areas and Parks Department Director formed three primary groups to assist in developing the HCP: The HCP Planning Team, the Stakeholder Advisory Committee, and the Technical Advisory Committee (Appendix G: HCP Advisory Committees and Planning Team). Membership in the advisory committees was subject to approval and invitation by the Commissioners. Input from these groups and comments from private citizens was essential to identifying Covered Lands and Covered Activities, as well as developing Conservation Measures and refining funding mechanisms for HCP implementation. The advisory committees met several times during the course of HCP development. The general public was involved throughout the process through a series of public meetings and all advisory committee meetings were open to the public.

#### **1.5.1 Evaluation Process**

Throughout the HCP development process Benton County considered whether it was in the County's and its citizens' best interests to seek an incidental take permit from the USFWS. During the HCP planning process the County evaluated the following six topics: Covered Species; entities; lands; activities; incidental take permit term; and Conservation Measures to be taken to avoid, minimize, and mitigate for impacts to the Covered Species. The proposed action is the result of the County's analysis of these topics. For more detail on this process see Chapter 9: Alternatives.

#### **1.5.2 County Board of Commissioners**

Benton County is one of nine home-rule charter counties in Oregon. A home-rule charter provides greater control to its citizens. By County charter, Benton County must have three full-time elected commissioners to manage the legislative, executive, and quasi-judicial responsibilities of the County. Each commissioner is elected at-large to a four-year term. No individual commissioner has any more, or less, power than the others to act. Board action requires at least two of the commissioners to be in agreement. The Benton County Commissioners during the development of this plan were Jay Dixon, Annabelle Jaramillo, and Linda Modrell. The Benton County Board of Commissioners is ultimately responsible for preparation, adoption, and implementation of this Plan.

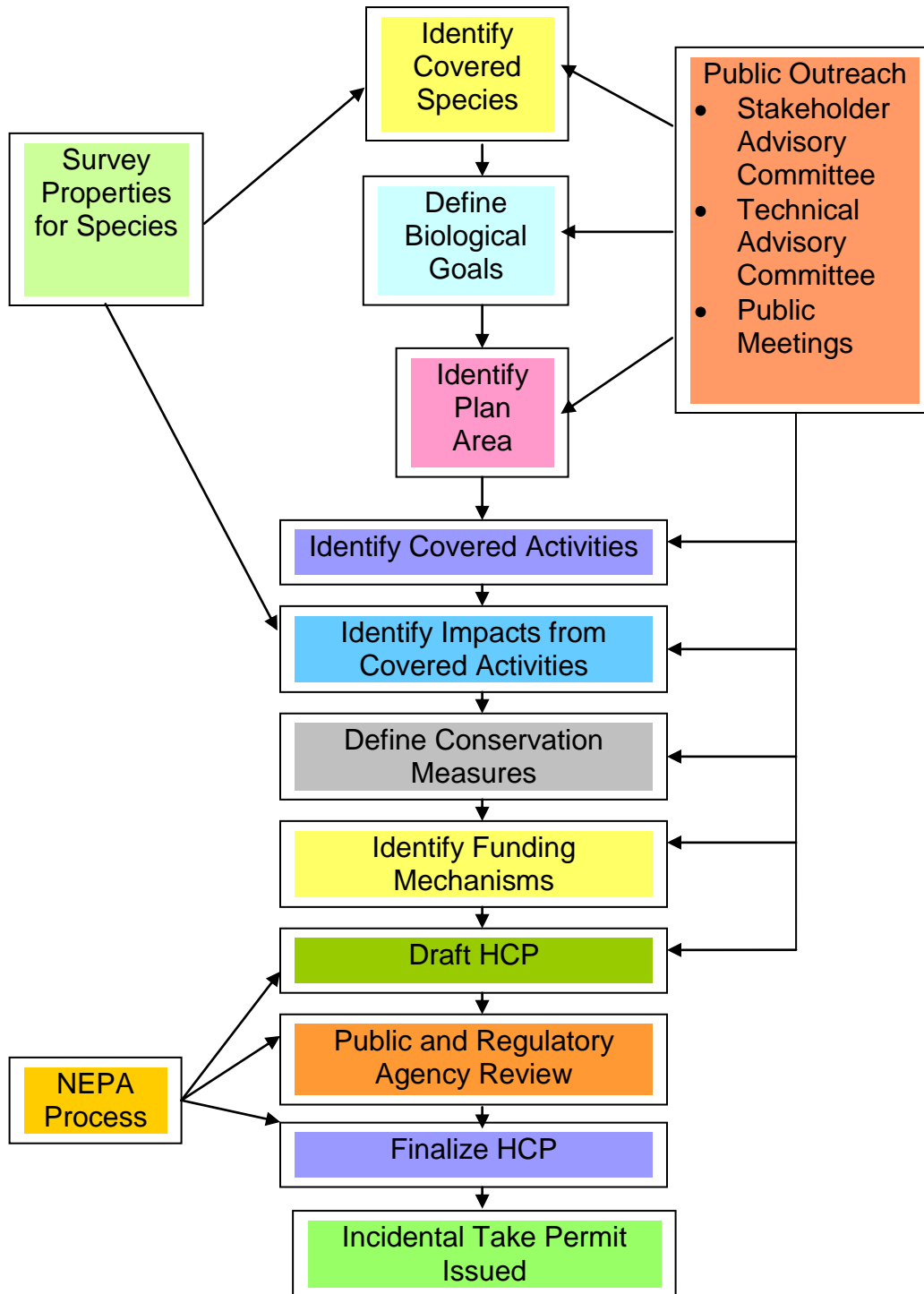


Figure 1.4 HCP planning process.

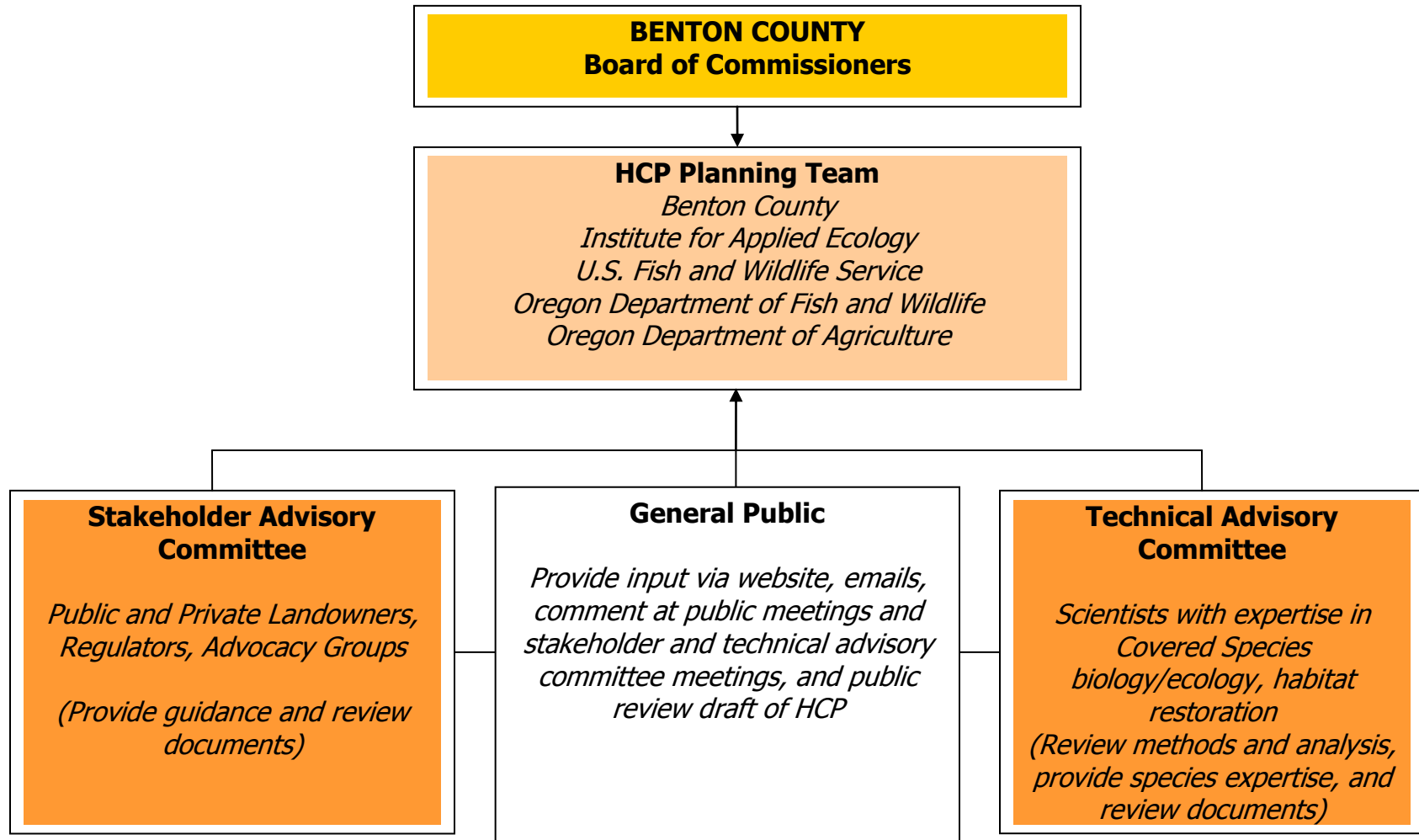


Figure 1.5 Advisory Committee, Planning Team and public involvement.

### **1.5.3 Habitat Conservation Planning Team**

The HCP Planning Team included personnel from Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, and Benton County. Benton County contracted with the Institute for Applied Ecology (IAE) to assist with development of the HCP and Jerry Davis, former Benton County Natural Areas and Parks Director, to serve as Project Manager. The planning team met on a regular basis to address issues arising during the planning process. Members of the Planning Team (Appendix G: HCP Advisory Committees and Planning Team) also regularly updated the Board on the status of the Plan's development and outstanding issues. Meetings with the Commissioners occurred during regular Board work sessions, as requested.

### **1.5.4 Technical Advisory Committee**

The Technical Advisory Committee (TAC) was composed of scientists from Pacific Northwest universities and experts from local research or conservation organizations. The role of the Technical Advisory Committee (Appendix G: HCP Advisory Committees and Planning Team) was to bring the best available science to the planning process and assist the County in the following:

- Define and refine the biological goals and objectives of the HCP.
- Review habitat assessment/field inventory analysis prepared by County staff and contractors.
- Review potential impacts considered in the take analysis.
- Define and refine monitoring and adaptive management needs for long term population viability and connectivity.
- Identify conservation and restoration measures.
- Conduct formal and informal peer review of the HCP and related documentation.

The TAC formed subcommittees to focus on butterfly species, plant species, and the Streaked Horned Lark.<sup>5</sup>

### **1.5.5 Stakeholder Advisory Committee**

The role of the Stakeholder Advisory Committee (SAC) was to advise the County on the biological goals and objectives of the HCP, Covered Activities, Covered Species, monitoring and management activities, Conservation Measures and alternatives from the perspective of local landowners, land managers, regulators, and groups with expertise in conservation planning.

Members of the SAC included representatives from local, state, and federal agencies; conservation organizations (e.g., The Nature Conservancy, Greenbelt Land Trust, Corvallis Audubon Society, Defenders of Wildlife, and Xerces Society); Watershed

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<sup>5</sup> The Streaked Horned Lark was considered as a Covered Species, but was not included. See Chapter 9 Alternatives.



Councils (Marys River and Luckiamute); and private landowners (Appendix G: HCP Advisory Committees and Planning Team).

### **1.5.6 Public Outreach**

Benton County provided public outreach opportunities through workshops and presentations during development of the HCP (Appendix H: Public Presentations about the HCP).

### **1.5.7 Public Meetings**

Public meetings were held to encourage and benefit from public comment on the HCP during its development.

- On January 22, 2007, Benton County held an evening public meeting in Corvallis to explain the HCP process and goals, describe the native prairie species to be covered and give an estimated time frame for completing the HCP. HCP Planning Team members answered extensive questions from the public.
- On October 15, 2007, Benton County held an evening public meeting in Corvallis. The focus of the meeting was an update of activities undertaken by the County, including results of the 2007 field season, butterfly habitat mapping, potential Conservation Measures, and development of a Prairie Conservation Strategy.
- On January 27, 28 and 31, 2009, Benton County held a series of three public meetings, in Corvallis, Wren, and Kings Valley. The County introduced the public to the draft HCP, and took public comment on the draft.
- On September 16, 2009, Benton County held a public meeting in Corvallis to discuss the revised draft HCP and take comments and questions.

### **1.5.8 Data Collection**

To obtain a better understanding of the abundance of the Covered Species, surveys were conducted within Benton County for populations and habitat of the butterfly species, Streaked Horned Lark<sup>6</sup>, and the five plant species. See Appendix I: Avian, Botanical and Butterfly Survey Methodology for survey methodologies.

#### **1.5.8.0 Botanical Surveys**

Botanical surveys were completed by Institute for Applied Ecology. On-the-ground field assessments took place over approximately 4,010 ha (9,910 acres) during the appropriate growing seasons of 2006, 2007, 2008 and 2009. The goals of the field assessments were to:

- Locate and map populations of Covered Species and describe their size (abundance/extent), evaluate the threats or risks to the populations, and describe the associated plant species and abiotic environment of occupied habitat.

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<sup>6</sup> The Streaked Horned Lark was considered as a Covered Species, but was not included. See Chapter 9 Alternatives.

- Assess quality and threats for as much of the upland/wet prairie and oak woodland habitat remaining in Benton County as possible to prioritize areas for protection or restoration in the HCP.
- Describe habitat reference conditions from high quality native plant communities to inform restoration activities.
- Develop a database for Benton County that includes species locations, areas surveyed for Covered Species, and habitat descriptions.
- Refine the habitat mapping for Fender's blue butterfly by evaluating sites within the Fender's Blue Zone for Kincaid's lupine and nectar species presence/abundance.

#### **1.5.8.1 Streaked Horned Lark Surveys**

Streaked Horned Lark surveys were completed by Dr. Randy Moore, Oregon State University. On-the-ground field assessments took place during the breeding seasons of 2007 (Moore 2007) and 2008. The goals of the field assessments were to:

- Locate and map areas of Streaked Horned Lark use in Benton County rights-of-way, County Natural Areas and Parks, and other conservation lands. If use occurs, describe habitat needs (e.g., nesting, foraging), evaluate the threats or risks to the populations, and describe the associated plant species and abiotic environment of occupied habitat (2007 field season).
- Determine abundance (nesting pairs) of Streaked Horned Larks at the City of Corvallis Airport and evaluate the threats to the population (2008 field season).

#### **1.5.8.2 Butterfly Surveys**

Butterfly surveys were completed by Dana Ross in 2007 and 2008. Presence/absence surveys for Taylor's checkerspot and Fender's blue butterflies were conducted during April, May and early June at specific sites. When target butterflies were not observed at a site, the site was assessed from the standpoint of potential habitat for these butterflies (Ross 2007). Survey reports included a general assessment of the potential for each site to host the butterflies, and a population estimate where Taylor's checkerspot or Fender's blue was observed (Ross 2007).

Additional Fender's blue butterfly surveys were performed by Dr. Paul Hammond in 2006-2009. Benton County sites surveyed by Hammond included the West Hills Road area, McDonald Forest (Butterfly Meadows), Wren area, and Henkle Way area (Hammond 2008).

Further survey work to define and describe nectar species for Fender's blue butterfly were conducted by Dr. Elizabeth Crone (University of Montana, Missoula) in collaboration with Dr. Cheryl Schultz (University of Washington, Vancouver) (Crone and Kallioniemi *in prep*).

## 1.6 Regulatory Framework

### 1.6.0 Federal Endangered Species Act

Section 9 of the Endangered Species Act (ESA) and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, 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. Harm is further defined by the U.S. Fish and Wildlife Service (Service) to 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. Harass is defined by the Service 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. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Pursuant to section 11(a) and (b) of the ESA any person who knowingly violates this 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.

Individuals and State and local agencies proposing an action that is expected to result in the 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 CFR 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.

#### **1.6.0.0 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
- 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, 3) a permit application, and 4) a \$100 fee from the applicant, Benton County.

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 as 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. An Implementing agreement is required for HCPs unless the HCP qualifies as a low-effect HCP. 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:

- the taking will be incidental;
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable;
- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided by the Permittee, Benton County;
- 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.

### **1.6.1 National Environmental Policy Act**

The purpose of the National Environmental Policy Act (NEPA) is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an incidental take permit) and to utilize public participation. 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.

### **1.6.2 National Historic Preservation Act**

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.

### **1.6.3 Oregon Endangered Species Act**

Oregon's Endangered Species Act (ESA) was enacted in 1987, and amended in 1995. Oregon may list a species as threatened or endangered under the State Endangered

Species Act even though the species is not listed by the Federal government as threatened or endangered. The two agencies in Oregon responsible for administering the State ESA and the State Sensitive Species List are the Oregon Department of Agriculture (ODA) and ODFW. ODA is responsible for plants while ODFW lists animals, (except freshwater invertebrates and insects). There is no state governmental agency responsible for listing invertebrate species (e.g., Fender's blue butterfly) under the state's ESA, nor do any state agencies designate critical habitat.

The Oregon ESA is much more limited in scope than the federal ESA. Oregon's ESA applies only to state-owned or leased lands and waters. State lands are defined under regulation as any non-federal public lands in Oregon and this includes state, county, and city property. Therefore, Oregon's Endangered Species Act applies to Benton County-owned property, Oregon State University property, Oregon Department of Transportation property and rights-of-way, as well as property owned by local communities such as the Cities of Corvallis, Monroe, Adair Village, North Albany, and Philomath.

Once a species is listed as threatened or endangered under the state's ESA, state law prohibits the take (resulting from collecting, damaging, killing, removing, transplanting, transporting, or otherwise disturbing) of the listed species. Any land action that results in or may result in the taking of a listed species requires consultation with ODA staff or an ODA permit.

#### **1.6.4 Other Introductory or Background Topics as Appropriate**

Other relevant laws to the incidental take permit process include the Migratory Bird Treaty Act, Clean Water Act, and other state and local legislation.

## 2 Covered Species

Covered Species are those animals and plants that Benton County requests authorization from USFWS and ODA for incidental take due to activities on lands covered by this Plan. Photos of each species are included in Figure 2.1.

### 2.1 Fender's blue butterfly

#### 2.1.0 Species Description and Ecology

Fender's blue butterfly (*Icaricia icarioides fenderi*) was listed as an endangered species under the federal Endangered Species Act in 2000 (USFWS 2000) primarily because of its extreme rarity due to prairie habitat loss and fragmentation. Fender's blue 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). Fender's blue butterfly is currently found in five counties in Oregon: Lane, Linn, Benton, Yamhill and Polk. On October 31, 2006, the USFWS designated critical habitat for the species (USFWS 2006). USFWS has released a draft recovery plan for Fender's blue butterfly and several other native prairie species (USFWS 2008b).

Two critical elements of Fender's blue butterfly habitat are larval host plants and nectar plant species. Kincaid's lupine is the primary larval host plant for Fender's blue butterfly, and is listed as threatened. Alternate host plants include sickle-keeled lupine (*Lupinus albicaulis*) and spur lupine (*Lupinus arbustus*) (Wilson et al. 1997).

Adult butterflies lay their eggs on lupine leaves in May and June, and larvae hatch a few weeks later. The larvae feed for a few weeks, and then go into diapause on the soil near the base of the plant until the following February or March. Emerging larvae then feed on young lupine leaves and inflorescences (Wilson et al. 1997). The larvae grow and develop, pupate, and emerge as butterflies in early May.

Adult butterflies feed on nectar produced by native species (Table 2.1), including but not limited to narrowleaf onion (*Allium amplexans*), Tolmie's startulip (*Calochortus tolmie*), common camas (*Camassia quamash*), dwarf checkermallow (*Sidalcea virgata*), and Oregon sunshine (*Eriophyllum lanatum*). Adult butterflies may also use non-native nectar species, including species of vetch (*Vicia* spp.). Native nectar species provide greater nectar than non-native nectar species, and appear to be the preferred food source of Fender's blue butterfly (Schultz and Dlugosch 1999, Wilson et al. 1997). Non-native nectar species may be of greater importance if no native nectar species are available.



Fender's blue butterfly:  
*Photo by Cheryl Schultz*



Taylor's checkerspot  
*Photo by Tom Kaye*



Bradshaw's lomatium  
*Photo by Tom Kaye*



Willamette daisy  
*Photo by Tom Kaye*



Nelson's checkermallow  
*Photo by Tom Kaye*



Kincaid's lupine  
*Photo by Tom Kaye*



Peacock larkspur  
*Photo by Lori Wisheart*

Figure 2.1 Covered Species for the Benton County Prairie Species HCP.



### 2.1.1 Species Distribution

Fender's blue butterfly is endemic to the Willamette Valley. In 2001, 16 populations were known range wide (Schultz et al. 2003). There are currently four known population areas in Benton County: Wren; McDonald Forest/Oak Creek; Greasy Creek and West Hills/Philomath; each is composed of several subpopulations.

Table 2.1 Flowering plants identified as nectar sources for Fender's blue butterfly in Benton County.

Species	Common Name	US Nativity
<i>Allium acuminatum</i>	Narrow leaf onion	Native
<i>Allium amplexans</i>	Tapertip onion	Native
<i>Calochortus tolmiei</i>	Tolmie's mariposa lily	Native
<i>Camassia quamash</i>	small camas	Native
<i>Camassia leichtlinii</i>	tall camas	Native
<i>Cryptantha intermedia</i>	clearwater cryptantha	Native
<i>Eriophyllum lanatum</i>	Oregon sunshine	Native
<i>Geranium oreganum</i>	Oregon geranium	Native
<i>Iris tenax</i>	toughleaf iris	Native
<i>Lomatium triternatum</i>	nine-leaf lomatium	Native
<i>Plectritis congesta</i>	seablush	Native
<i>Sidalcea campestris</i>	meadow checkermallow	Native
<i>Sidalcea virgata</i>	dwarf checkermallow	Native
<i>Vicia americana</i>	American vetch	Native
<i>Linum bienne</i>	pale flax	Introduced
<i>Linum perenne</i>	blue flax	Introduced
<i>Vicia cracca</i>	bird vetch	Introduced
<i>Vicia hirsuta</i>	tiny vetch	Introduced
<i>Vicia sativa</i>	garden vetch	Introduced

## 2.2 Taylor's checkerspot butterfly

### 2.2.0 Species Description and Ecology

Taylor's checkerspot (*Euphydryas editha* ssp. *taylori*) was classified as a candidate for Endangered Species Act protection in 2001 (USFWS 2001) and is currently known to survive in only 13 populations. The name "checkerspot" comes from the checkered pattern of orange, white, and black on the upper and lower surface of the wings. The life cycle of Taylor's checkerspot lasts approximately one year. Adult butterflies appear in April and May to mate and lay eggs (Pyle 1989). They are one of the first butterflies to appear in the spring, but individuals only live for a week or two. Larvae emerge and feed on host plants until mid-June to early July, then enter diapause through the

winter. During diapause no feeding, growth or development occurs. Larvae emerge the following spring to mature, pupate and finally emerge as butterflies.

This species occurred historically in grasslands or oak savanna in the Willamette Valley of Oregon, the Puget Sound area of Washington, and southeast Vancouver Island in British Columbia. Currently, it is known from a total of two sites in Oregon, 10 sites in Washington, and one newly discovered site in British Columbia. Both populations of Taylor's checkerspot in Oregon occur within Benton County.

Suitable upland prairie habitat for Taylor's checkerspot must have host plants for the butterfly's larvae and nectar plants for the adults to feed on. In Oregon, their preferred host plant is a non-native weed, English plantain (*Plantago lanceolata*), although historically they may have used native paintbrushes (*Castilleja* spp.) (Stinson 2005). Adult butterflies in Oregon nectar most frequently on strawberry (*Fragaria virginiana*), Tolmie's startulip (*Calochortus tolmiei*) and seablush (*Plectritis congesta*). Female butterflies may be able to recognize their host plant species by the size, color, and shape of the leaves or by detecting certain chemicals in the plants (Stinson 2005) (Baron & Backhouse 1999).

### **2.2.1 Species Distribution**

Taylor's checkerspot was thought to be extinct in Oregon until a population was discovered in 1999 (ORNHIC 2007). By 2002, there were four confirmed populations (Xerces et al. 2002), three in Washington and one in Oregon (in the Bonneville Power Administration powerline corridor in Benton County), with an estimated population size of 1,000 butterflies in Oregon (Ross 2005). In 2004, a population of Taylor's checkerspot butterfly was discovered at Bezell Memorial Forest (owned and managed by Benton County). This site was found to support a population of approximately 500 butterflies (Ross 2005).

## **2.3 Kincaid's lupine**

### **2.3.0 Species Description and Ecology**

Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) was listed as threatened under the federal Endangered Species Act in 2000 (USFWS 2000) and it is also listed as threatened by the state of Oregon. A draft recovery plan for Kincaid's lupine and several other native prairie species was released in 2008 (USFWS 2008b). Critical habitat was designated by USFWS for this species on October 31, 2006 (USFWS 2006).

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 its characteristic ruffled banner petal on the flower. The species reproduces by seed and by vegetative 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 of foliar (leaf) cover (estimated from data reported by Kaye and Kuykendall 1993, Kaye 1999, Wilson et al. 2003). Lupine foliar cover correlates with lupine abundance, and has been adopted as the standard metric for lupine abundance in the draft USFWS Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington (USFWS 2008b).

Kincaid's lupine is found in southwestern Washington, the Willamette Valley, and Douglas County, Oregon. Within the Willamette Valley, Kincaid's lupine typically occurs in upland prairies on the valley bottom or surrounding foothills. Kincaid's lupine is a host plant for the endangered Fender's blue butterfly (See Section 2.1).

### **2.3.1 Species Distribution**

At the time of listing, there were 54 known populations of Kincaid's lupine, covering 158 ha (370 ac): two in Lewis County, Washington; 48 within the Willamette Valley, Oregon; and four populations in the Umpqua Valley, Oregon (USFWS 2000). Of these 54 sites, 45 occurred on less than 3.4 ha (8.3 ac).

In Benton County, 17 population areas are known with approximately 59 subpopulations. These occur primarily in the Philomath, Greasy Creek, Soap Creek, Wren and Kings Valley area. Twenty-eight subpopulations occur on private lands with no conservation easement. A large population of Kincaid's lupine occurs in the Soap Creek area of the County on lands managed by Oregon State University for cattle grazing. Small scattered populations are also found on roadside rights-of-way, on City of Corvallis property, and at Oregon Department of Fish and Wildlife's E.E. Wilson Wildlife Area.

## **2.4 Peacock larkspur**

### **2.4.0 Species Description and Ecology**

Peacock larkspur (*Delphinium pavonaceum*) is listed as endangered under the Oregon Endangered Species Act (ODA 2008), and is a federal Species of Concern.

Peacock larkspur is a perennial plant in the buttercup family (Ranunculaceae). The plants are generally 15-30 inches tall, with flowers that are white with dark blue centers. Peacock larkspur blooms from April through early July and reproduces only by seed. Seedlings germinate in winter but may take up to five years to flower. Peacock larkspur can be easily distinguished from the more common field larkspur (*Delphinium menziesii*) which has entirely blue flowers, although the two species occasionally form hybrids.

Peacock larkspur occurs only in the Willamette Valley (McKernan 2004). It is currently found primarily in Benton, Marion and Polk Counties. Only 18 occurrences have been seen since 1980. Historically, 35 occurrences were known in Benton, Polk, Marion,

Multnomah, and Clackamas counties. Population sizes range from as little as 1 to as many as 2,000 plants, although most existing populations have between 10 and 100 plants. Peacock larkspur lives in native wet prairie habitats and on the edges of Oregon ash (*Fraxinus latifolia*) and Oregon white oak (*Quercus garryana*) woodlands. Several remaining populations are found along roadsides and fencerows that have escaped development.

Peacock larkspur does not self-pollinate and instead requires the aid of bumblebees to transfer pollen between plants. The lifespan of individual plants is not known although it is believed to be relatively long. While some extraordinary plants have been observed to have over 100 flowers, not all plants flower every year. Even large, mature, plants may remain dormant through a growing season. Based on data collected by McKernan and reported by Gisler (2004), we estimate each larkspur plant produces an average of 215.4 seeds.

### **2.4.1 Species Distribution**

In Benton County, there are approximately 10 population areas and 17 subpopulations of peacock larkspur. Three entire populations and one large subpopulation reside on private land with no conservation easement. While the largest population resides at Finley NWR, important populations are also found on land owned by the City of Corvallis (Herbert Farm and Natural Area and the Corvallis Watershed). Significant populations are also found in Benton County rights-of-way in Special Management Areas. Populations are also present in Oregon Department of Transportation rights-of-way.

## **2.5 Willamette daisy**

### **2.5.0 Species Description and Ecology**

Willamette daisy was listed as endangered under the federal Endangered Species Act in 2000. The species is also listed by the state of Oregon as endangered. Critical habitat for the species was designated in 2006 (USFWS). A draft recovery plan for Willamette daisy and several other native prairie species was released in 2008 (USFWS 2008b).

Willamette daisy is a small perennial plant in the sunflower family (Asteraceae). It has pale blue-lavender, daisy-like flower heads the size of a quarter that may fade to white late in the season. The grass-like, gray-green leaves are clustered at the plant base. Flowers appear from June to July then produce seeds in July and August. Based on data from Clark et al. (1993 and 1995) reported in Gisler (2004), we estimate each daisy plant produces an average of 2,699.6 seeds, though potentially as few as 20% of the seeds may be viable.

This species is currently found only in the Willamette River Basin, and is primarily known to occur in Lane County, Oregon. Willamette daisy was thought to be extinct between 1934 and 1980, but is now known from approximately 33 sites in Benton, Lane, Linn, Marion and Polk Counties. Willamette daisy occurs in both wetland prairie

and upland prairie or oak savanna, preferring sites with very little shrub cover. It often occurs with tufted hairgrass (*Deschampsia caespitosa*), Roemer's fescue (*Festuca roemerii*), California oatgrass (*Danthonia californica*) and several species of rushes (*Juncus*).

Small populations of Willamette daisy are at increased risk of extinction because of reproductive failure. When the number of plants in a patch falls below about 20 individuals, seed production ceases, possibly due to inbreeding depression (Kaye et al. 2006).

### **2.5.1 Species Distribution**

Two of the three naturally occurring Willamette daisy populations in Benton County occur on private lands, with only a small population (57 individuals) on public land (Bald Hill Park). Suitable potential habitat for Willamette daisy occurs at several protected sites (such as Fitton Green Natural Area) at which the species could be reintroduced. A planted population occurs at Finley National Wildlife Refuge, and a total of 750 Willamette daisies were planted at Bald Hill in 2007 and 2008.

## **2.6 Bradshaw's lomatium**

### **2.6.0 Species Description and Ecology**

Bradshaw's lomatium was listed under the federal Endangered Species Act as endangered in 1988 (USFWS 1988). The species is also listed as endangered by the state of Oregon. Most known occurrences of this species are in southern Washington and the Willamette Valley of Oregon. The USFWS prepared a recovery plan in 1993, but a new recovery plan has been drafted for this and other listed prairie species (USFWS 1993a, USFWS 2008b). The USFWS has not designated critical habitat for Bradshaw's lomatium.

Bradshaw's lomatium is a perennial plant in the carrot family (Apiaceae). Plants are low growing and have highly dissected leaves and yellow flowers in umbrella-shaped clusters. Bradshaw's lomatium flowers in April and May and sheds its seeds in late May and June. Based on data reported by Kaye and Kirkland (1994) we estimate each Bradshaw's lomatium plant produces an average of 21.6 seeds.

Habitat for this species includes wetland prairies dominated by tufted hairgrass and sedges. Prescribed fires are an effective tool to manage habitat for this species and increase its populations (Pendergrass et al. 1999, Kaye et al. 2001).

### **2.6.1 Species Distribution**

Seven naturally occurring sites with Bradshaw's lomatium are known in Benton County, totaling over 1,500 plants. One population is split between City of Corvallis and County ownerships at Jackson-Frazier Wetland, two occur at Finley National Wildlife Refuge, and the remaining four occur on private lands. About 20 Bradshaw's lomatium have

been planted on County land at Jackson-Frazier Wetland, and sufficient habitat exists there to support further augmentation of the population.

## **2.7 Nelson's checkermallow**

### **2.7.0 Species Description and Ecology**

Nelson's checkermallow was listed as threatened under the federal Endangered Species Act in 1993 (USFWS 1993b). The species is also listed as threatened by the state of Oregon. A recovery plan was completed September 30, 1998 (USFWS 1998). An updated draft recovery plan for this and other listed prairie species was released in September, 2008 (USFWS 2008b). Critical habitat has not been designated for this species.

Nelson's checkermallow is a perennial plant in the mallow family (Malvaceae). Its pinkish-purplish flowers are clustered at the end of tall stems that appear from mid-June to mid-July. Nelson's checkermallow reproduces both by seeds that typically mature in August, and also by vegetative rhizomes. Plants may produce from 1,500 to 15,000 seeds, for a midpoint of 8,250 seeds per plant.

This species typically occurs in wet prairies of the Willamette Valley and Coast Range. Nelson's checkermallow is primarily found in native prairies remnants, wetlands, ash swales, along the edges of woodlands and riparian areas, in small clearings and edges with fairly open canopies, and along roadsides and fencerows (Gisler 2004; Glad et al. 1994; Wilson 2004; Bartels & Wilson 2003).

A native weevil frequently feeds on the developing seeds of this and other related checkermallow species, consuming up to 90% of the seeds at any given population (Gisler 2004). This weevil in turn serves as host to a parasitic wasp, both of which may be at least as rare as Nelson's checkermallow. The showy flowers of Nelson's checkermallow also attract a diverse array of insect visitors although the most common pollinators of these plants are bumblebees. At least one native bee is a specialist on Willamette Valley checkermallows.

### **2.7.1 Species Distribution**

Nelson's checkermallow can be found from southern Benton County northward through the central and western Willamette Valley and into Cowlitz and Lewis Counties, Washington (USFWS 1998). In Benton County there are 23 population and approximately 39 subpopulations. Eight subpopulations are located on private lands, of which only four are under temporary or permanent conservation easement. Over 30% of the known Nelson's checkermallow plants in Benton County are found on roadside rights-of-way. Large populations are found at ODFW's E.E. Wilson Wildlife Area and Finley National Wildlife Refuge. Smaller populations are distributed across Jackson-Frazier Wetland and Oregon State University properties.

## 2.8 Listed Species Not Covered

Fifteen species were initially evaluated for inclusion in this Plan. Listed species not included for coverage in this HCP:

- Marbled Murrelet (*Brachyramphus marmoratus*) – Threatened
- Northern Spotted Owl (*Strix occidentalis caurina*) – Threatened
- Bald Eagle (*Haliaeetus leucocephalus*) - De-listed
- Oregon Chub (*Oregonichthys crameri*) – Endangered
- Spring Run – Upper Willamette River Chinook salmon (*Oncorhynchus tshawytscha*) – Threatened
- Winter Run - Upper Willamette River Steelhead (*Oncorhynchus mykiss*) – Threatened
- Water howellia (*Howellia aquatilis*) – Threatened

These species are not covered in this HCP because they generally do not occupy prairie habitat or are no longer on the federal endangered species list.

## 3 Plan Area

The Plan Area is the area for which Benton County requests authorization from USFWS and ODA for activities and projects that may result in incidental take of the Covered Species. Not all lands within Benton County (Table 3.1) are included within the Plan Area of the HCP. The Plan Area does not cover federal lands, even if the federal lands are managed by state agencies. The Plan Area includes two separate planning units. Planning Unit One is prairie habitat owned and/or managed by certain non-federal public agencies and conservation organizations. Planning Unit Two is potential Fender's blue butterfly habitat under private ownership located outside city limits.

Lands to be included within the Plan Area (Covered Lands) are identified below. Descriptions of lands with known occurrences of the Covered Species are provided in this chapter.

### 3.1 Planning Unit One

Planning Unit One (Figure 3.1) includes roughly 4,734 ha (11,700 ac) of lands and rights-of-way within Benton County with prairie habitat that are owned and/or managed during the term of this incidental take permit by:

- Benton County
- City of Corvallis
- Oregon Department of Transportation
- Oregon State University
- Greenbelt Land Trust

#### 3.1.0 Entities in Planning Unit One

##### 3.1.0.0 Benton County

As of 2009, Benton County owns approximately 478 ha (1182 ac) of land in the HCP Planning Unit One, in addition to County Road rights-of-way and public road districts. Benton County lands with known locations of the Covered Species include Beazell Memorial Forest, Fitton Green Natural Area, Fort Hoskins Historic Park, Jackson-Frazier Wetland, and Special Management Areas within Benton County road rights-of-way (Table 3.2).

##### 3.1.0.1 City of Corvallis

As of 2009, the City of Corvallis owns or manages approximately 341 ha (842 ac) of land within the HCP Planning Unit One. City of Corvallis lands with known locations of



Table 3.1 Land ownership in Benton County.

<b>Land Ownership</b>	<b>Hectares</b>	<b>Acres</b>	<b>Percent</b>
<b>Federal Lands</b>	<b>33016</b>	<b>81522</b>	<b>18.78%</b>
BLM	22915	56581	13.04%
Forest Service	7735	19099	4.40%
US National Guard	214	528	0.12%
USFWS (Finley)	2153	5315	1.22%
<b>State Lands</b>	<b>10823</b>	<b>26723</b>	<b>6.16%</b>
Linn Benton Community College	1	2	0.00%
OR State Human Resources	0	1	0.00%
Oregon Department of Fish and Wildlife	705	1740	0.40%
Oregon Department of Forestry	4487	11079	2.55%
Oregon Department of State Lands	4	10	< 0.01%
Oregon Parks and Recreation Department	197	486	0.11%
Oregon State University	5231	12917	2.98%
Oregon Transportation Department	59	146	0.03%
State of Oregon (other)	121	298	0.07%
<b>County Lands</b>	<b>646</b>	<b>1596</b>	<b>0.37%</b>
Benton County	629	1553	0.36%
Linn County	17	43	0.01%
<b>City Lands</b>	<b>2697</b>	<b>6659</b>	<b>1.53%</b>
Adair Village	83	205	0.05%
Albany	53	132	0.03%
Alsea	0	0	0.00%
City lands (other)	0	1	0.00%
Corvallis	2217	5473	1.26%
Monroe	20	49	0.01%
Philomath	126	312	0.07%
School districts	197	487	0.11%
<b>Private Lands</b>	<b>128614</b>	<b>317566</b>	<b>73.16%</b>
<i><b>Total acreage in county</b></i>	<i><b>175797</b></i>	<i><b>434066</b></i>	

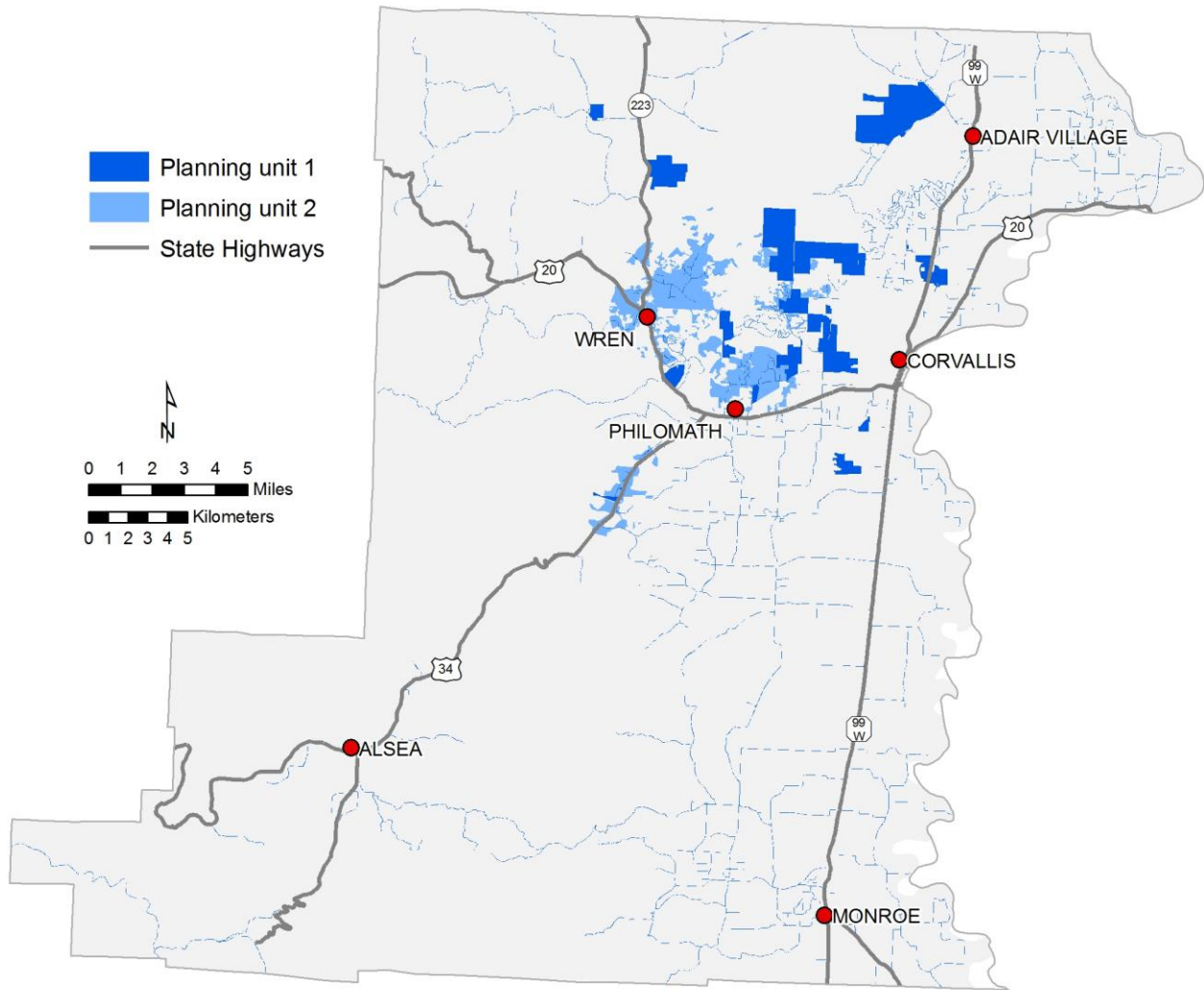


Figure 3.1 Lands covered under the Benton County Prairie Species HCP Planning Units 1 and 2.

Table 3.2 Known and projected abundance of Covered Species across all land ownerships in Benton County as of July, 2009 (% refers to percent of total known or projected abundance in County).

	Bradshaw's lomatium		Willamette daisy		Peacock larkspur		Nelson's checkermallow		Kincaid's lupine outside the Fender's blue zone		Kincaid's lupine inside the Fender's Blue Zone <sup>b</sup>		Native Nectar species for Fender's blue <sup>c</sup>		Non-Native Nectar species for Fender's blue <sup>d</sup>		Taylor's checkerspot Occupied Habitat		
	(#)	%	(#)	%	(#)	%	(#)	%	(m <sup>2</sup> )	%	(m <sup>2</sup> )	%	(m <sup>2</sup> )	%	(m <sup>2</sup> )	%	(m <sup>2</sup> )	(%)	
<b>Benton County</b>																			
Bezell Memorial Forest																			
Jackson-Frazier Wetland	103	6.6%					53	1.6%	5	1.2%									
Benton County & Public Road Dist. ROW					634	14.3%	892	26.6%	4.30	1.0%	44.0	1.6%	2031	1%	1987	1%		5743	65%
<b>City of Corvallis</b>																			
Lancaster Property	128	8.1%					2	0.1%											
Bald Hill			57	13.4%			8	0.2%											
Herbert Open Space					115	2.6%	5	0.1%	4	1.0%									
Corvallis watershed					1935	43.7%							882	10%	1453	1%			
Noyes Property							25	0.7%											
Dunawi Creek/Starker Arts							43	1.3%											
Martin Luther King Jr. Park							6	0.2%											
Owens Farm							5	0.1%											
<b>City of Philomath (not covered)</b>																			
Philomath Blvd. near couplet							38	1.1%											
Other Philomath Lands													55	0%	90	0%			
<b>Oregon Department of Fish and Wildlife (not covered)</b>																			
E.E. Wilson Wildlife Area							377	11.3%	33	7.9%									
<b>Oregon State University</b>																			
Butterfly Meadows							36	1.1%	319	76.4%	16.5	0.6%	1201	1%	1978	1%			
Soap Creek Ranch							90	2.7%					3826	2%	6302	3%			
Horse Facility							73	2.2%											
Poultry Facility											5.5	0.20%							
Other Ag lands																			
<b>Oregon Department of Transportation</b>																			
ODOT Rights-of-Way					373	8.4%	70	2.1%	9	2.2%	3	0.11%	701	0%	686	0%			
ODOT Lands													291	0%	480	0%			
<b>Subtotal: Non-federal Public Lands</b>	<b>231</b>	<b>15%</b>	<b>57</b>	<b>13%</b>	<b>3057</b>	<b>69%</b>	<b>1723</b>	<b>51%</b>	<b>374</b>	<b>90%</b>	<b>69</b>	<b>3%</b>	<b>8987</b>	<b>6%</b>	<b>12976</b>	<b>5%</b>	<b>5743</b>	<b>65%</b>	
<b>Greenbelt Land Trust (not covered for plants)</b>																			
Lupine Meadows							20	0.6%			90.5	3.3%	2902	2%	4780	2%			
Owens Farm							145	4.3%											
<b>The Nature Conservancy (not covered)</b>																			
Wren Preserve									4	1%	10	0.4%	130	0%	215	0%			
Philomath prairie																			
<b>Other Private Lands (not covered for plants or candidate species)</b>																			
Private lands - Under easement	21	1.3%					23	0.7%	7	1.7%									
Private lands - Not protected	1320	84%	369	86.6%	1375	31%	340	10.1%	32	7.7%	2583	93.8%	141815	92%	233577	93%	3034	35%	
<b>Federal (not covered)</b>							1100	32.8%											
<b>Grand Total</b>	<b>1572</b>		<b>426</b>		<b>4432</b>		<b>3351</b>		<b>418</b>		<b>2753</b>		<b>153834</b>		<b>251548</b>		<b>8777</b>		

<sup>a</sup> Data not available, not included in totals.

<sup>b</sup> Data reported result from on-the-ground survey. Not all private lands have been surveyed. Projected abundance on unprotected private lands, based on average Kincaid's lupine cover of 0.028%, is 8,165 m<sup>2</sup>.

<sup>c</sup> Estimated based on acreage of prairie within the nectar zone and average native nectar species occupancy of 1.39% (roadsides) and 1.7% all other areas.

<sup>d</sup> Estimated based on acreage of prairie within the nectar zone and average non-native nectar species occupancy of 1.36% (roadsides) and 2.8% all other areas.

the Covered Species include Herbert Farm and Natural Area, Owens Farm, the Lancaster property adjacent to Jackson-Frazier Wetland, Bald Hill Park, Martin Luther King Jr. Park, the Noyes property, Dunawi Creek and Corvallis Forest/Watershed (Table 3.2).

### **3.1.0.2 Oregon Department of Transportation**

The HCP Plan Area includes all ODOT highway right-of-way and any off-highway lands within the nectar zone of the Fender's Blue Zone or an ODOT Special Management Area for the Covered Species, or approximately 14 ha (35 ac). ODOT rights-of-way in Benton County with known locations of the Covered Species (including Fender's blue nectar habitat) include Highway 34, Highway 20, Highway 99, and Kings Valley Highway 223 (Table 3.2).

### **3.1.0.3 Oregon State University**

Planning Unit One includes lands with prairie habitat owned and/or managed by Oregon State University totaling 2,216 ha (5,475 ac). Oregon State University covered lands with known locations of the Covered Species include Butterfly Meadows, Soap Creek Ranch, the horse facility off Walnut Boulevard, and agriculture lands adjacent to the poultry facility on Harrison Boulevard (Table 3.2).

### **3.1.0.4 Greenbelt Land Trust**

Covered lands for Greenbelt Land Trust (GLT) include Lupine Meadows, Owens Farm and Lone Star Ranch, for a total of 135 ha (333 ac). Prairie habitat is found at each of these sites and populations of the Covered Species occur at Lupine Meadows and Owens Farm (Table 3.2).

## **3.1.1 Prairie Conservation Areas**

A Conservation Measure under this Plan is the designation of over 200 ha (500 ac) of Prairie Conservation Areas (Chapter 6), lands within the County to be managed specifically for prairie and Covered Species conservation, and where habitat restoration and enhancement activities may occur. Prairie Conservation Areas (PCAs) will be identified where the Covered Species are naturally present or where there is suitable habitat for introductions of the Covered Species. Some areas of some PCAs may be used as mitigation areas for impacts to the Covered Species resulting from Covered Activities at the discretion of the Cooperators (See Section 3.1.10). Management of PCAs should follow habitat enhancement and management recommendations outlined in Appendix J: Prairie Habitat Vegetation Management Guidelines.

Lands proposed for designation as Prairie Conservation Areas under this Plan are described below, and mapped in Appendix D: Maps of Prairie Conservation Areas. Any future acquisitions that have appropriate habitat for the Covered Species may be designated as Prairie Conservation Areas under the discretion of the Cooperator managing that parcel, the USFWS and ODA. Strategies for cooperative management

and species introductions are discussed in Appendix E: Draft Prairie Conservation Strategy.

### **3.1.1.0 Lupine Meadows**

#### **Site Description**

Lupine Meadows is a 23.5 ha (58 ac) site owned by Greenbelt Land Trust (GLT). The dominant habitats include wetland and upland prairie, ash swale and savanna and riparian forest habitat (Kaye 2008). A large portion of the property is jurisdictional wetland (approximately 15.4 ha [38 ac]) (Rorick and Wilson 2003), although a prominent feature of the site is a basalt hill with upland prairie at the north end. Lupine Meadows has a high diversity of native vegetation. This site will be managed for high species diversity and Willamette Valley prairie, with conservation goals linked to the draft USFWS Recovery Plan for Prairie Species of Western Oregon and Southwestern Washington (USFWS 2008b).

#### **Species Occurrences**

The upland prairie supports natural populations of Kincaid's lupine and Fender's blue butterfly. The wetland prairie, ash swales, and riparian areas support an existing small and scattered population of Nelson's checkermallow (Kaye 2008).

Nelson's checkermallow was planted on the western side of the property by IAE (Institute for Applied Ecology; Table 3.3). In addition, Nelson's checkermallow were planted in the southeastern portion of the southern prairie by Oregon Department of Transportation.

### **3.1.1.1 Owens Farm**

#### **Site Description**

Greenbelt Land Trust acquired 38.5 ha (95 ac) of the original 126 ha (312 ac) Owens Farm property in 2002. An additional 53.4 ha (132 ac) were acquired by City of Corvallis and 34.4 ha (85 ac) were acquired by Good Samaritan Health Services (Salix Associates 2006). In 2002, GLT granted to OWEB in perpetuity a conservation easement on its parcel for the protection and enhancement of natural habitats and educational opportunities associated with the site. Much of the GLT portion of Owens farm is composed of oak and ash forest, wooded riparian corridors, and valley bottom wetlands (Salix Associates 2006). The site lies just upstream of Jackson-Frazier Wetland.

#### **Species Occurrences**

There is a naturally occurring population of Nelson's checkermallow at the site, and plants occur on both the City of Corvallis and Greenbelt Land Trust ownerships (Table 3.2). IAE has planted additional Nelson's checkermallow at the site (Table 3.3).

Table 3.3 Introductions and augmentations of the Covered Species since 2002.

	Site	Species	Date	# Seeds	# Transplants	# Established*
Benton County	Beazell Memorial Forest	Kincaid's lupine	11/1/2006	1000		271
			4/19/2007		213	20
			4/29/2009		81	
	Fitton Green Natural Area	Kincaid's lupine	11/1/2006	500		130
			4/1/2007		139	43
			11/2/2007		5400	918
			1/15/2009		3400	
	Jackson-Frazier Wetland	Nelson's checkermallow	4/20/2006		7	6
			5/4/2006		19	6
			5/11/2007		92	88
			5/15/2007		167	65
			6/1/2007		34	26
			5/29/2008		134	
6/3/2008				71		
	Bradshaw's lomatium	4/3/2007		20	9	
		2/12/2008	500		17	
City of Corvallis	Lancaster property	Nelson's checkermallow	4/20/2006		30	4
			4/10/2007		143	103
			5/29/2008		47	38
			6/4/2009		244	
	Bald Hill	Kincaid's lupine	11/1/2005	500		38
			4/13/2006		72	16
			11/1/2006	500		140
			4/11/2007		170	73
			11/9/2007	2900		1198
			1/15/2009		2400	
		Willamette daisy	4/21/2009		94	
			4/23/2007		600	377
			4/1/2008		534	516
5/1/2009				150		
Greenbelt Land Trust	Owens Farm	Nelson's checkermallow	4/25/2008		188	
			4/14/2009		99	
			11/4/2008	800		
	Lupine Meadows	Kincaid's lupine	5/12/2009		28	
			5/1/2006		69	8
			10/1/2006		8	
			2/25/2005		101	24
			6/27/2005		63	1
			4/10/2006		13	10
			3/22/2007		250	
4/1/2007		135	83			
TNC	Philomath Prairie	Kincaid's lupine	1/29/2009	1000		
			4/22/2009		102	
Federal	USFWS Finley	Kincaid's lupine	4/16/2002	1500		31
			4/3/2009		98	
			5/15/2009		100	
			4/1/2007		551	403
		Willamette daisy	4/1/2008		504	462
			12/10/2008	1000		16
ODFW	EE Wilson Wildlife Area	Kincaid's lupine	11/13/2008	1000		
			4/15/2009		66	

\*Approximate, as of data available 8/2009.

**3.1.1.2 Butterfly Meadows****Site Description**

Butterfly Meadows is a 4.95 ha (12.8 ac) meadow owned by Oregon State University (0.45 ha [1.1 ac]) and Starker Forest, Inc. (4.5 ha [11.7 ac]). The meadow is surrounded by forest lands.

**Species Occurrences**

Kincaid's lupine and Fender's blue butterfly are present at the site (Table 3.2).

**3.1.1.3 Benton County Fender's Blue Butterfly Conservation Areas (FBBCAs)**

As a conservation and mitigation measure for Fender's blue butterfly, Benton County plans to acquire (fee simple or conservation easement) 20-24 ha (50-60 ac) of lands containing high quality occupied Fender's blue butterfly habitat. The FBBCAs will occur within the Fender's blue butterfly Critical Habitat Unit FBB-8, as designated in the final rule on October 31, 2006 (Federal Register 71:63862-63977). Additional acquisition will take place as needed over the permit term.

These lands will be managed as PCAs with the specific objective of conserving and enhancing some of the highest quality Fender's blue butterfly habitat in the County. Enhancement of areas of these PCAs and resulting increases in the Fender's blue butterfly habitat and population above pre-existing levels will be used for mitigation for impacts to butterfly habitat incurred on private lands where Benton County issues permits for home, farm or forest construction or impacts Fender's blue butterfly habitat within County right-of-way, and for construction of two rural schools and fire stations.

**3.1.1.4 Bezell Memorial Forest****Site Description**

This 237 ha (586 ac) property is located in Kings Valley and was gifted to Benton County in 2000 for perpetual park purposes (ITS Management, Inc. 2001). Land and Water Conservation funds were spent on the property, restricting the sale or conversion of use of the property unless similar resources are provided (J. Davis personal communication 2007). The property has a demonstration forest and open space area, with progressive ecosystem management practices used to protect, conserve, and restore the natural, scenic, outdoor recreation, and wildlife values. Revenue generated from logging is used to manage the property (ITS Management, Inc. 2001). Bezell is open to the public, and has restrooms, drinking water, hiking trails, and picnicking facilities.

Only the meadows within the park, approximately 40 ha (100 ac) will be included in the Prairie Conservation Area, and some of these meadows may be designated for mitigation sites.

**Species Occurrences**

Taylor's checkerspot butterfly is present (Ross 2007), and Kincaid's lupine was planted at the site by IAE (Table 3.3).

**3.1.1.5 Fort Hoskins Historic Park**

This 52.6 ha (130 ac) park was acquired by Benton County in 1992. Fort Hoskins is open to the public for day use and features accessible restrooms and a covered picnicking area. There are two self-guided trails: a 0.97 km (0.6 mile) interpretive trail and a 1.9 km (1.2 mile) recreation trail. The area adjacent to the public use area is mowed. The park is used for natural resource research work, including mowing and burning, and an OSU research project involving plant community response to light variations and prescribed burning.

**Species Occurrences**

A single Taylor's checkerspot butterfly was discovered in 2005. Roughly 2.6 ha (6.3 ac) of Fort Hoskins will be managed as a PCA if and when >20 individuals of any Covered Species, including Taylor's checkerspot, occur there or are introduced there.

**3.1.1.6 Fitton Green Natural Area****Site Description**

Fitton Green Natural Area is a 124.6 ha (308 ac) property acquired by Benton County for the purposes of demonstrating progressive stewardship practices (David Reed & Associates 2000). Approximately 56.6 ha (140 ac) of the natural area (northern meadow) is covered by a conservation easement held by the Greenbelt Land Trust. High quality upland prairie occurs in the southern portion of the natural area, and approximately 18 ha (45 ac) of this area will be managed as a PCA. A portion of the Fitton Green PCA will be designated for use as a mitigation site.

**Species Occurrences**

A single Taylor's checkerspot butterfly was observed in 2007 in the southern meadow (Ross 2007). IAE introduced Kincaid's lupine to the site (Table 3.3).

**3.1.1.7 Jackson-Frazier Wetland****Site description**

This 58 ha (144 ac) site is located northeast of Corvallis. The park was established in 1992 to protect the natural features of the area and provide educational and research opportunities (Frenkel & Reed 2005). The site is open to public use, although foot traffic is limited to a wooden boardwalk winding through the wetland. Most of this property has a wetland overlay, restricting the type of land use at this site (G. Verret, personal communication 2007). Four acres outside the wetland overlay, and lacking



Covered Species occurrences, have a conservation easement held by the Greenbelt Land Trust. Approximately 16 ha (40 ac) of Jackson-Frazier will be managed as a PCA. A portion of the Jackson-Frazier PCA area will be used as a mitigation site.

### **Species Occurrences**

There are naturally occurring populations of Kincaid's lupine, Nelson's checkermallow, and Bradshaw's lomatium within the wetland (Table 3.3). IAE has also planted additional Nelson's checkermallow and Bradshaw's lomatium at the site (Table 3.3).

#### **3.1.1.8 Herbert Farm and Natural Area**

##### **Site Description**

This 89.4 ha (221 ac) historic farmland site includes wetlands, oak woodlands, wet prairie, and riparian habitat supporting diverse plant communities and wildlife. Marys River and Muddy Creek converge on the property. There are no existing trails, but future passive public use is under consideration at this time. The City of Corvallis owns Herbert Farm and Natural Area, but The Trust for Public Lands holds the conservation easement. The property serves as mitigation for the Bonneville Power Administration's Willamette Basin federal hydro-electric dams and reservoirs. Approximately 10 ha (25 ac) of Herbert, including the high quality prairie area, will be managed as a PCA.

##### **Species Occurrences**

Naturally occurring populations of Kincaid's lupine, Nelson's checkermallow and peacock larkspur are present at this site (Table 3.2).

#### **3.1.1.9 Bald Hill Park**

##### **Site Description**

This 115 ha (284 ac) site includes oak savanna, upland prairie, wetlands, riparian, and oak woodlands. The park also includes a historic barn, an interpretive trail, and trails that connect with the Benton County Fairgrounds. This site has a 2.4 km (1.5 mile) multi-modal path along the base of the park and several dirt and gravel foot paths that lead to the summit of Bald Hill. Approximately 30 ha (75 ac) of Bald Hill will be managed as a PCA. A portion of the Bald Hill PCA will be designated as a mitigation area.

##### **Species Occurrences**

The site has a natural population of Willamette daisy (Table 3.2). IAE has introduced Kincaid's lupine and planted additional Willamette daisy at this site (Table 3.3).

#### **3.1.1.10 Lancaster Property**

##### **Site Description**

The City of Corvallis owns approximately 3.3 ha (8.1 ac) of property with wet prairie habitat adjacent to the County-owned Jackson-Frazier Wetland. These lands, referred

to here as the Lancaster Property, are managed by the City of Corvallis Housing Division of Community Development. As a result of its location between a residential area and the County-owned Jackson-Frazier Wetland, the area receives light pedestrian traffic. A portion of the Lancaster Property will be designated as a mitigation area.

### **Species Occurrences**

There are natural populations of Bradshaw's lomatium and Nelson's checkermallow (Table 3.2). IAE has augmented the Nelson's checkermallow population (Table 3.3).

#### **3.1.1.11 Corvallis Watershed**

##### **Site Description**

The City of Corvallis owns 951.8 ha (2,352 ac) encompassing the lower elevations of the 4,407 ha (10,000 ac) Rock Creek Watershed on the northeast flanks of Marys Peak. The land is managed primarily by the City of Corvallis Public Works Department although a section near south east end of the property is managed by the Parks Department as "Rock Creek Park". There are native prairie remnants along Rock Creek Road and on the rocky knoll adjacent to Highway 34 significant for their concentration of native prairie species. The 2 ha (5 ac) wedge-shaped parcel of land (Rock Creek Corner) containing the rocky knoll and bordered by Highway 34 and Rock Creek Road will be managed as a PCA and mitigation area.

##### **Species Occurrences**

Peacock larkspur is present at the site, both along the Rock Creek Road and in Rock Creek Corner (Table 3.2). No Covered Species introductions have occurred to date.

#### **3.1.1.12 Lone Star Ranch**

##### **Site Description**

This 80.5 ha (199 ac) property west of Philomath is under conservation easement to the Greenbelt Land Trust. Lone Star includes wet and upland prairie and oak savanna. Roughly 36 ha (89 ac) of the property will be managed as a PCA. Portions of the PCA may be managed as a mitigation area for purposes of the HCP, provided they are not used as mitigation for any other project.

##### **Species Occurrences**

No Covered Species are known to occur at this site.

#### **3.1.1.13 ODOT Wren Mitigation Site**

##### **Site Description**

This 2.5 ha (6.1 ac) property is owned by Oregon Department of Transportation, and is located between Wren and Highway 20. The site includes wet and upland prairie vegetation. Portions of the site will be managed as a mitigation area for purposes of the HCP, provided they are not used as mitigation for any other project.

**Species Occurrences**

This site is located within the nectar zone of the Fender's Blue Zone.

**3.1.1.14 ODOT Henkle Quarry**

This 1.2 ha (2.9 ac) property is owned by Oregon Department of Transportation and is located in the Henkle Way area. The site includes oak woodland and prairie vegetation. Portions of the site will be managed as a mitigation area for purposes of the HCP, provided they are not used as mitigation for any other project.

**Species Occurrences**

This site is located within the nectar zone of the Fender's Blue Zone.

**3.2 Planning Unit Two****3.2.0 Potential Fender's Blue Butterfly Habitat under Private Ownership Located outside City Limits**

As of 2007, approximately 128,514 ha (317,566 ac) of land within Benton County were under private ownership. Of this amount, 127,978 ha (316,242 ac) are located outside the city limits of Corvallis, Philomath, Monroe, Adair Village, and North Albany. Based on the current best available information (including approximately 4,010 ha [9,910 ac] of habitat surveys) describing current Fender's blue butterfly locations, an estimated 2,917 ha (7,208 ac) of this land (excluding Greenbelt Land Trust property included in Planning Unit 1) is potential habitat for Fender's blue butterfly and is included in Planning Unit 2 (Figure 3.1).

# 4 Covered Activities

## 4.1 Introduction

This chapter describes the activities and projects within the Plan Area that are covered by the incidental take permit and for which the Habitat Conservation Plan provides avoidance, minimization and mitigation for impacts to Covered Species (Table 4.1). Incidental take authorization is sought only for activities described in this chapter. An activity is covered under this Plan only if it is the type of impact evaluated in Chapter 5: Impacts, and:

- 1) There is sufficient take coverage available under the incidental take permit issued to Benton County for that activity;
- 2) The activity does not preclude achieving the biological goals and objectives of this Plan;
- 3) The activity must be an action under the jurisdiction of Benton County, one of the Cooperators, or certain private landowners (See Chapter 3: Plan Area);
- 4) The activity must occur within the Plan Area; and
- 5) The activity must occur within the term of the incidental take permit.

## 4.2 Covered Activities Summary

### 4.2.0 Home, Farm and Forest Construction

On private lands zoned Exclusive Farm Use (EFU), Forest Conservation (FC), Rural Residential (RR) or Urban Residential (UR) within the Fender's Blue Zone (areas identified as potential Fender's blue butterfly habitat), each lot or parcel existing as of July 31, 2009 is covered for home, farm and forest construction activities for which the property owner obtains a permit or land use authorization from Benton County and that are allowable under zoning regulations in effect on July 31, 2009. If an already-developed property is partitioned or subdivided after July 31, 2009, the HCP coverage carries to the resulting parcel or lot containing the existing structures. If a property partitioned or subdivided after July 31, 2009 is vacant or if existing structures will be located on more than one of the resulting parcels or lots, the HCP coverage carries to one of the resulting parcels or lots which will be designated by the property owner at the time of land use approval of the partition or subdivision. The other parcels or lots are not covered by this Plan.

Home, farm and forest construction covered by this Plan include, but are not limited to the following:

- Site-built dwellings (single family residences with or without attached garages);
- Manufactured homes (including medical hardship dwellings);

Table 4.1 Benton County Prairie Species HCP Covered Activities.

	Benton County	City of Corvallis	ODOT	OSU	GLT	Pioneer Telephone	NW Natrual	Private landowners
<b>Home, Farm and Forest Construction</b>								✓
<b>Benton County Permits and Authorizations</b>	✓							
<b>Utility Construction and Maintenance</b>						✓	✓	
<b>Public Service Facility Construction</b>	✓							
<b>Transportation Activities and Authorized Work in Rights-of-Way</b>								
Transportation construction and maintenance	✓		✓					
Work in right-of-way, road approach and utility work	✓					✓	✓	
<b>Waterand Wastewater Management</b>		✓						
<b>Parks/Natural Areas/Open Space Management</b>								
Voluntary habitat restoration, enhancement and management	✓	✓		✓	✓			
<b>Agricultural Activities</b>		✓						
<b>HCP Implementation Activities</b>								
Habitat restoration, enhancement and management for mitigation	✓	✓		✓	✓	✓	✓	
Monitoring	✓	✓		✓	✓	✓	✓	
Plant materials collection	✓	✓		✓	✓	✓	✓	
<b>Emergency Response Activities</b>	✓	✓	✓	✓	✓	✓	✓	

- Residential accessory structures (un-attached garage, shop, shed, pool, etc.);
- Agricultural buildings and structures (including those exempt from building permit requirements but requiring County authorization);
- Septic system feasibility studies;
- Septic system installation, alterations, and repairs;
- Driveways, if associated with a County-issued permit;
- Installation of underground or above ground plumbing, mechanical, or electrical facilities; and
- Additions to structures (e.g., attached garage, added room, etc.).

### 4.2.1 Benton County Permits and Authorizations

Benton County issues permits for activities on both private and public lands, including its own lands.

#### 4.2.1.0 Community Development Department Permits

The jurisdiction of the Benton County Community Development Department includes all of Benton County outside of city limits. The department is divided into the Building and Planning Divisions with the primary objective being to ensure the Building and Land Use

laws of the State of Oregon and Benton County are followed in a fair and equitable manner.

### **Permit Exempt Agricultural Building Authorization**

Agricultural buildings are exempt from Oregon's Structural Specialty Code (unless the building will be located within a floodplain) and the landowner is not required to obtain a building permit for construction. However, the landowner is required to complete an "exemption" application, and plumbing, mechanical, and electrical permits are still required. If the use of an agricultural building later changes, a building permit may be required.

Oregon Revised Statute 455.315 defines an agricultural building as "... a structure located on a farm and used in operation of such farm for storage, maintenance or repair of farm machinery and equipment or the raising, harvesting and selling of crops or in the feeding, breeding, management and sale of dairy products or any other agricultural or horticultural use or animal husbandry, or any combination thereof, including the preparation and storage of the produce raised on such farm for human use and animal use and disposal by marketing or otherwise".

A farm is land primarily used for obtaining a profit from crops, livestock, poultry, fur-bearing animals, honeybees, or dairy. Also exempt from building permits are equine facilities, defined as a structure located on a farm and used for stabling or training equines, or for riding lessons and training clinics.

An exempt structure may not:

- be a dwelling;
- have 10 or more persons present at any one time (unless the structure is used for growing plants);
- be a structure regulated by the State Fire Marshal pursuant to ORS Chapter 476;
- be used by the public (except for an equine facility); or
- be in the regulatory floodplain.

Examples of agricultural buildings exempt from building permits include:

- Poultry barns
- Hay barns
- Livestock barns
- Tractor and farm equipment storage buildings
- Farm licensed vehicle storage units
- Shop buildings for servicing and repairing farm equipment used in conjunction with farming activities on the property
- Grain or seed storage structures storing only produce from the farm on which they are constructed
- Dairy barns or milking parlors with fewer than ten persons present

Examples of structures on farms requiring a building permit include the following:

- Residences
- Structures used for a purpose other than growing plants with ten or more persons present
- Structures regulated by the State Fire Marshall (pursuant to ORS Chapter 476)
- Buildings open to the public (ex: nurseries, auction barns, produce stands)
- Horse facilities where ten or more people are present at any one time
- Structures used to store RVs, trailers, motor homes, boats, motorcycles, cars, pickup trucks, or any other licensed vehicle
- Shops used for private or commercial non-farm use
- Hobby shops (metal, wood, ceramics)
- Structures used for private or commercial storage, although on farm property
- Agricultural exempt structures within designated floodplains
- Greenhouses open to the public
- Structures determined to be agriculturally non-exempt by the Building Official in conjunction with the Director of Community Development based on intent of the statute

There are no limitations on the number of agriculturally exempt structures that can be built on lands zoned Exclusive Farm Use (EFU).

### **Building Permits**

A building permit is required to construct, enlarge, alter, move, or demolish one or more family dwellings or other structures. Examples include, but are not limited to: constructing a new home or accessory structure; adding a room; finishing an attic, garage, or basement; moving, removing, or adding walls; applying a roof where the old roof is removed and new sheathing is installed; building a stairway; building a retaining wall greater than four-feet high; building a deck more than 76 cm (30 in) above grade; building a fence greater than 1.8 m (6 ft) high. Not all of these activities involve land disturbance.

- New single-family site-built dwelling permit: This permit is required for anyone constructing a new single family site-built dwelling. Construction of a dwelling involves land disturbance activities.
- New manufactured dwelling permit: This permit is required for anyone wanting to place a manufactured dwelling on their property. Placement of a new manufactured dwelling involves land disturbance activities.
- Replacement Permit (single family or manufactured dwelling): A permit is required if a landowner intends to replace a single family residential or manufactured dwelling. Construction of a replacement residence involves land disturbance activities, where replacement occurs outside the original footprint.
- Addition Permit: An addition permit is required when any new square footage is added to an existing structure. Examples would include; attached garage, attached carport, additional living area, decks and/or porches. Construction of an addition involves land disturbance activities.

- **Accessory Permit:** This permit is required for construction of an accessory building, which is a building that is accessory to an established primary use on the property (such as a personal shop building that is accessory to the residential use of the property). A Permit is not required if a structure is 18.5 m<sup>2</sup> (200 ft<sup>2</sup>) or smaller for residential structures and 11 m<sup>2</sup> (120 ft<sup>2</sup>) for commercial structures, less than 3 m (10 ft) in height, and at least 1.8 m (6 ft) from all other structures. Examples include, but are not limited to: detached garages, detached carports, barns, pole barns, shops, and utility buildings. Construction of an accessory building involves land disturbance activities.
- **Demolition Permit:** Structural demolitions and decommissions are regulated by Benton County and the Oregon Department of Environmental Quality. Structural demolitions require removal of the structure and foundation, including the basement walls and floors and utility systems.
- **Electrical Permits** are required for electrical work on building structures. The electrical work may include installation of electrical lines below ground, requiring the construction of trenches, a land disturbance activity.
- **Mechanical Permits** are required for new or replacement installation on heating, cooling, or ventilation systems including gas/propane appliances and their connections, woodstoves, fireplaces, furnaces, heat pumps, and air handlers. Installation of mechanical systems may require construction of trenches, a land disturbance activity.
- **Plumbing Permits** are required for installation of new baths or kitchens, the addition of baths or kitchens, remodel of existing fixtures replacement of water heaters repair, alteration, or replacement of an existing system if piping exceeds 1 m (3 ft), and for new piping installation for water, sewer, or rain drains. Plumbing systems may include installation of, or connection to, existing piping located below ground, requiring the construction of trenches, a land disturbance activity.

#### **4.2.1.1 Benton County Health Department Permits**

The County's Environmental Health Division, located within the Health Department, provides technical assistance and permitting for the installation of septic sewage systems on public and private property.

A septic system consists of a septic tank, a distribution box, a drainfield with a replacement area, and the surrounding soil. The system may also include a sand filter system or alternative treatment technology (ATT). Septic systems are installed below ground surface and require land clearing/ground disturbance during installation. The size of septic tanks depends on the number of bedrooms in a residential building and the number of employees or seating in a commercial building. The drainfield lines and line lengths are based on the design of the system specific to the property. In addition, there is piping between the tank and the sand filter/ATT and/or drainfield.



The permitting process involves two steps. Step one is site feasibility. The suitability of a proposed site is based on soil type and depth and water table depth. Other factors include the size of the property; size of home; topography/landforms; location of the system relative to streams, wells, cuts, and fills (set backs); and whether sewer service is available. An area for a replacement system is also required. At least two test pits approximately 23 m (75 ft) apart and 10.7 m (35 ft) up and down the slope must be dug in the area of the proposed drainfield. Each test pit is approximately 1.7 m to 2 m (5 ft to 6 ft) deep by 3.7 m (12 ft) wide – essentially one scoop with a backhoe. The number of test pits to be dug will depend upon the soil. The best place to locate a septic system is in an upland area. There are some circumstances where the homeowner is unable to locate a septic system on his property due to the setbacks, topography (too steep), and soils (lacking the correct soil type). Step two involves applying for the permit, which must be obtained before installation of the septic system. Permits must also be obtained for any repair work on septic systems, even minor repair work.

### **Septic System Permits**

- Feasibility Permit: These permits are required for residential and commercial facilities. This permit allows the landowner to dig test holes to identify areas where installation of a septic system is feasible and also the type of system most appropriate based on the site's conditions.
- Septic Installation Permit: This permit is required whenever a landowner intends to install a new septic system on his property.
- Authorization Permit: This permit is required when one dwelling is replaced by another dwelling, or there is an increase in the number of bedrooms.
- Alteration Permit: This permit allows for alteration of an existing system, which may involve a land disturbance activity.
- Minor Repair Permit: This permit is required when the septic tank has filled and needs replacing. Replacement of the septic tank is a land disturbance activity.
- Major Repair Permit: This permit is required when drain fields are failing and need replacing. Replacement or repair of the drain field is a land disturbance activity.
- System Evaluation for Domestic Water Supply: In 2006, 186 permits were issued to install, conduct minor or major repairs, or authorize alterations to a septic system.

#### **4.2.1.2 Public Works Department Permits**

The Public Works Department issues a number of permits for activities occurring on the County's road system, including the road right-of-way. Benton County will be covered for issuing these permits except when a permit applicant requests work in or adjacent to a Type 1 roadside population (see Section 5.2.3.0).

**Work in County Right-of-Way**

This permit is required for any activity impacting public infrastructure - under ground, at surface, or overhead. Work could include trenching, mowing, tree removal, utility work, excavation, or any other activity affecting public infrastructure.

**Utility Permit**

This permit is required whenever a utility company (e.g., Pioneer Telephone Cooperative, Quest, CPI, Comcast, and NW Natural) wishes to install and maintain utilities within the County road right-of-way. Utilities are generally placed in the backslope of the right-of-way.

Construction to place these utilities involves land disturbance, including trenching, movement of heavy equipment, and potential disruption of surface hydrology. Land disturbance activities are most intense during the installation of underground utilities. Maintenance and operational activities have the potential to indirectly or temporarily affect the Covered Species. Maintenance activities include: routine or emergency repairs, minor grading or soil disturbance, and vegetation management.

**Road Approach Permit**

These permits are required whenever a new entrance onto a County or a non-ODOT public road is created or a landowner's driveway does not meet County standards and requires modification.

**4.2.2 Utilities Construction and Maintenance on Private Lands****4.2.2.0 Telephone Utilities**

Pioneer Telephone Cooperative is responsible for all of their buried facilities in right-of-ways as well as on private property to the demarcation box (typically found on the side of the business or residence building).

Pioneer Telephone Cooperative common practices on burying cables are a combination of the following:

- Plow method: Use of a typical vibratory plow, which involves a plow blade that disturbs approximately 15.24 cm (6 in) of soil, with communications cable and/or conduit placed into plow chute and placed into ground as plowing is accomplished. Area of machinery disturbance (including temporary flattening of vegetation) is typically 3 m (10 ft) wide.
- Bore method: Use of a bore machine, which involves a placing the boring machinery (approximately 1.2 m x 3.7 m (4 ft x 12 ft) dimensions) and initiating a bore pit (approximately 0.2 m<sup>2</sup> [2 ft<sup>2</sup>]) where a bore head is inserted into the ground and a receive pit (approximately 0.84 m<sup>2</sup> [9 ft<sup>2</sup>]) where the bore head ends. Communications cable and/or conduit is attached and pulled back through the hole created by the bore head. Average bore length is 91.4 m (300 ft).

Typical replacement of copper or fiber facilities occurs every 30-40 years, dependent upon many conditions, such as landowner or contractor dig up damages, possible rodent damage (rare), exhaustion of facilities due to population growth and many unforeseen situations that can lead to replacement. Many older cables (35+ years) were of an inferior quality to today's cables which led to earlier replacement due to water infiltration. These facilities have been almost entirely replaced and today's cables have a greater lifespan (G. Vick, Pers. comm. 2009).

#### **4.2.2.1 Natural Gas Utilities**

NW Natural's existing pipeline infrastructure within the HCP Plan Area is almost exclusively under existing pavement. Typical modifications, maintenance and repair will be limited to the infrastructure already in existence in these areas, and there will be no anticipated impacts to habitat or species of concern in these instances.

Expansion of the pipeline system within the HCP Plan Area is anticipated to be minimal. In the event that expansion occurs, it will typically track housing development or industrial development and will therefore likely be developed in associated roadways. In the event of a required repair of a damaged pipeline or the addition of a gas service pipeline outside of the roadway, or in a sensitive habitat zone, below is a description of NW Natural construction procedures.

- Excavation/trenching: Excavation is typically uses a backhoe or trackhoe. Equipment is usually staged on the pavement and excavation spoils are directly loaded into trucks for disposal. Excavations are minimized to the extent practical, both to control cost and minimize restoration requirements. Typical linear trench dimensions for service main installation is the overall length required x 28 in width x 36 in depth. The width may vary, according the dimensions of the excavation attachment used. Service installations and repairs are limited to minimal requirements necessary for work completion (e.g., 6 ft x 8 ft x depth required) and vary according to discrete conditions.
- Directional drill/bore: Directional drill/bore technology effectively eliminates all surface impacts to natural resources. Pipelines are directionally drilled underground. The impact is limited to the footprint for the bore rig to set up and the receiving pit where the pipeline ties in or the terminal point of the pipeline. Set up and receiving areas can be moved and amended to avoid critical resources and habitat and depend on the size of the machine (which is a function of the length of the bore and the diameter of the pipe being installed). Directional drill technology is a viable option in many instances though can be cost prohibitive under certain circumstances.

Construction procedures are selected on a job by job basis, depending on multiple criteria including natural resource assessment cost, efficiency, and efficacy (J. Payson, Pers. comm. 2009).

### **4.2.3 Public Service Facility Construction**

Activities included under this category include, but are not limited to construction of rural schools or rural fire stations within the Fender's Blue Zone. Construction of such facilities is covered for Benton County provided avoidance measures and other applicable Conservation Measures are implemented as described in Chapter 6.

### **4.2.4 Transportation and Authorized Work in Rights-of-Way**

This section includes maintenance activities that occur within existing Benton County or ODOT rights-of-way, easements or Public Road Districts under County jurisdiction. All activities will follow the best management practices (BMPs) and avoidance and minimization measures described in Chapter 6.

#### **4.2.4.0 Transportation Maintenance**

The County has jurisdiction over 740 km (460 mi) of roads: 435 km (270 mi) paved, 306 km (190 mi) gravel, in addition to 124 km (77 mi) of Public Road Districts (Public Roads). The life of a paved road is typically 20 years with preventative maintenance, after which time an asphalt overlay is needed. The County's current schedule includes 22 km (13.5 mi) of overlay each year, however far fewer miles are actually overlaid due to financial constraints.

The County conducts road maintenance activities for other local communities (e.g., the City of Corvallis), state and federal governments, and fire departments. The number of roads and mileage maintained varies with funding availability.

In addition to road maintenance work, the County also maintains the land from the edge of the road surface to the outer edge of County's right-of-way. The County's right-of-way starts at the road centerline and can vary from 6.1 m to 30 m (20 ft to 100 ft) outward, but generally average around 12 m (40 ft) to 18 m (60 ft) either side of the centerline.

Transportation maintenance activities carried out by the County with potential to impact the Covered Species include:

- **Bridge Construction and Maintenance:** Benton County maintains 98 bridges within the county. There are 51 wooden bridges, 44 concrete bridges and 3 steel bridges. The average life of a wooden bridge is 40 years, and the average life of a concrete bridge is 60 years. An estimated 15 bridges will need to be replaced within the life of the Permit. Annual routine bridge maintenance includes washing and cleaning, deck sealing, deck resurfacing, guardrail repairs, approach and deck pavement repairs, scour repair, and bank stabilization. Bridge cleaning involves using high-pressured sprayers to spray off accumulated debris. Bridge restoration projects may involve strengthening the substructure with larger caps, deck, and stringer, replacement of timber deck with pre-

stressed slab deck, replacement of pilings, installation of a waterproof deck or guardrails, and new bridge road approaches and paving.

- Culvert Installation, Maintenance, and Repair: The County owns or maintains 7,000 culverts. New culverts are installed as needed, generally to replace existing failing structures. The County generally inspects cross culverts on a seven-year cycle timed with chip seal maintenance projects. The 100-125 County owned culverts over 1.2 m (4 ft) are inspected at least once every two years. Culvert cleaning generally occurs from October to December and involves using a high pressure hydraulic hose to pull debris to the front of the culvert where it can be collected and removed with an excavator. If the culvert is plugged, a grader may be required to dislodge the jammed debris. Approximately 700 – 1,000 culverts are cleaned annually.
- Cut banks for sight distance
- Dead deer removal
- Deicing
- Ditch Cleaning: Ditches are inspected annually to determine whether cleaning is needed and work is completed in late spring (May). Ditches are cleaned with an excavator, grader, or ditch head (auger style/3 blade machine) depending on the size of the ditch. Vegetation and sediment at bottom of the ditch are removed and placed on the back slope or hauled away. The maintenance cycle for ditch cleaning is every seven years.
- Ditch realignment: This activity is rare and only occurs if the ditch is overflowing, erosion is occurring, or a road or shoulder is being widened.
- Emergency Management: Unscheduled work on the road system involving a natural or manmade event causing damage or that could cause damage to the road system and/or pose a significant threat to public safety or the environment. Includes cleanup from vehicle accidents, hazardous material spill, landslides or wind storms, and snow plowing.
- Fence installation, repair and removal: Benton County installs or repairs field fencing (metal T-post and wire) whenever it removes or damages private landowner fencing as part of a road project. The County does not maintain the fencing.
- Grading of Gravel Roads
- Gravel Road Stabilization – Surface Rock Replacement: The placement of rock on roads worn out over time. The County is testing lignin sulfonate, an environmentally benign product, as a tool for binding the surface of gravel roads, stabilizing them so they require less gravel and less grading.
- Legend installation and repair
- Litter pick-up
- Mailbox Installation: Benton County will install a new mailbox whenever it undertakes a project requiring the removal of an existing mailbox.
- Pavement repairs, repainting and resurfacing: Including, but not limited to chip seal, crack seal, hot mix asphalt concrete surfacing, line stripping and traffic marking, oil mat surfacing and pothole patching, slurry seal

- Sanding
- Shoulder Widening and Grading
- Sign Installation and Maintenance: The County maintains over 6,500 signs along the roadways. Roadside signs are installed, cleaned, straightened, and maintained on an as-needed basis. The County rotates out a sign generally every 12-15 years; sign removal and/or installation occurs year-round.
- Vegetation Management: Vegetation management activities carried out in County managed rights-of-way include mechanical, chemical, and manual control of vegetation to maintain sight distances, control noxious weeds and remove hazard trees.
  - One Pass Mowing: Between April and September, the County mows all County maintained rights-of-way (756 km/470 miles), cutting vegetation 15 to 20 cm (6 to 8 inches) in height. A 2 m (3 -6 ft) wide swath is mowed, with equipment remaining on the highway. Mowing focuses on reducing grass height.
  - Full pass mowing: The entire right-of-way is mowed between October and April. The County attempts to do a full pass mowing on all County rights-of-way, but timing and budgetary considerations may prevent this task from being accomplished on all County maintained roads. Full pass mowing targets shrubs and trees.
  - Spraying: Approximately 483 km (300 miles) of road shoulders are sprayed with herbicide each year. Adjacent property owners have the ability to participate in the County's no-spray program. Between April and June broad-spectrum pre- and post-emergent herbicides are applied along road shoulders to control grasses and weeds. Site and weed specific spot application of broadleaf herbicide is used for control of invasive and/or problematic species periodically during May and June. Most of the broadleaf herbicide for Himalayan blackberry and Poison oak control is applied between October/November.
  - Shrub and tree removal: Occurs year-round, as needed. Hazard trees are taken down by chainsaw and generally left on site, although trees will be removed away from drainage areas. Shrubs are removed using mowers.

#### **4.2.4.1 Transportation Construction Activities**

Transportation construction projects, including but not limited to extension and widening of roadways, bike paths, and bridges will be covered under this Plan. Specific projects to be covered are discussed in Chapter 5, however currently unknown projects that arise during the 50 year permit term will also be covered.

#### **4.2.4.2 Authorized Work in Rights-of-Way**

Authorized work in rights-of-way includes activities authorized by Benton County through:

- Utility Permits;
- Road Approach Permits; and

- Work in Right-of-Way Permits.

These activities are described with in Section 4.2.1.2 Public Works Department Permits.

#### **4.2.5 Water and Wastewater Management**

The City of Corvallis owns and operates a water supply and delivery system with water received from the Willamette River and the Rock Creek Watershed. Projects and activities conducted by City of Corvallis that are related to water and wastewater management covered under this Plan include:

- Construction, installation, extension, and maintenance of surface water intake facilities, pumping plants, water treatment facilities, and water supply pipelines. Specific maintenance activities within existing rights-of-way or easements include inspection, cleaning, rehabilitation, repair, and/or replacement of pipelines, pumping stations, etc.
- Construction, installation, replacement, and maintenance of wastewater facilities.

Annual vegetation management of streams within Corvallis city limits is conducted by the City of Corvallis Public Works Department. Weed-eating, mowing, or other vegetation removal methods will take place in Nelson's checkermallow habitat, however this activity is not covered and no take for Nelson's checkermallow is requested from this activity as impacts will be avoided by surveying prior to conducting activities in waterways and following timing guidelines for vegetation management in Appendix M: Roadside and Streambank Management Guidelines for Covered Plants.

#### **4.2.6 Parks/Natural Areas/Open Space Management Activities**

Covered activities involved with managing parks, natural areas, and open space for public enjoyment as well as preservation of biological resources are described below. Some of these areas are managed as Prairie Conservation Areas.

##### **4.2.6.0 Voluntary Habitat Restoration, Enhancement and Management**

Benton County, Oregon State University, City of Corvallis, and Greenbelt Land Trust are seeking coverage for the following activities that are conducted for the purposes of voluntary habitat restoration, enhancement and management:

- Mowing
- Herbicide application
- Prescribed burning
- Removal of encroaching trees and shrubs
- Planting native species
- Road and trail decommissioning and restoration
- Livestock grazing managed such that it does not reduce the ability of any of the Covered Species to survive or reproduce

#### **4.2.7 Agriculture**

City of Corvallis allows agricultural activities including hay and vegetable crop production on their Herbert Farm and Natural Area, Rock Creek Watershed, and Owens

Farm properties, and is seeking coverage for these activities at Owens Farm, subject to implementation of minimization and avoidance measures described in Chapter 6.

#### **4.2.8 HCP Implementation Activities**

Benton County and all Cooperators except ODOT (ODOT will obtain any needed coverage independently) are seeking coverage of HCP implementation activities, including but not limited to mitigation related habitat restoration, enhancement, and management, and Covered Species monitoring. These activities may result in temporary impacts to the Covered Species and may occur in Prairie Conservation Areas and/or other public lands within the Plan Area as well as roadside rights-of-way where Covered Species are present.

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

Habitat restoration, enhancement and management activities, described in Section 4.2.6 will be covered for Benton County and all Cooperators except ODOT (who will obtain coverage independently) for the purpose of HCP Implementation, provided the actions follow recommendations in Chapter 6 and Appendix J: Prairie Habitat Vegetation Management Guidelines.

##### **4.2.8.1 Monitoring**

Monitoring actions include but are not limited to:

- Species presence/absence surveys;
- Species abundance surveys; and
- Monitoring activities associated with habitat restoration, enhancement, and management.

Monitoring activities for covered plants or for butterfly habitat that are required for HCP implementation are covered provided they follow protocol described in Appendix K: Project Site Survey and Reporting Protocols for Plants and Butterfly Habitat. Monitoring activities for Fender's blue butterfly that require any netting or other handling of the butterfly are not covered. The biologists conducting such work must possess the appropriate permits from USFWS.

##### **4.2.8.2 Plant Materials Collection**

Restoration and enhancement activities may call for the collection of seeds and plant materials for introduction, relocation, and augmentation projects. Plant material collection activities include:

- Seed collection;
- Plant material (tubers, rhizomes, etc.) removal; and
- Removal of the entire plant or population and its relocation to another site.

Activities related to collection of plant materials required for HCP implementation will be covered for the County and Cooperators (excluding ODOT) provided they follow



protocol described in Appendix L: Plant Material Collection and Plant Introduction Protocols.

#### **4.2.8.3 Plant Population Augmentation and Introduction**

Covered plant populations may be augmented or introduced to increase the number and viability of listed plant populations. Augmentation may be accomplished by sowing seeds or planting propagules to increase the population size. Introduction (via seeds or propagules) of covered plants at an unoccupied site may be used to create new populations or to recreate a lost population at suitable sites. Population augmentation and introductions may include the covered plant species as well as nectar and host species for Fender's blue butterfly and Taylor's checkerspot butterfly.

Activities related to plant population augmentation and introduction required for HCP implementation will be covered provided they follow protocols described in Appendix L: Plant Material Collection and Plant Introduction Protocols.

#### **4.2.9 Emergency Response Activities**

Benton County and all Cooperators are seeking coverage for emergency response activities where public health, safety, and welfare are involved that may have occasional impacts on populations of Covered Species. Emergency activities foreseeable during the term of the incidental take permit include but are not limited to firefighting, utility repairs, hazardous materials clean up, traffic accident clean up, disaster relief and medical assistance. Emergency activities that result in substantial adverse impacts to the Covered Species are considered changed circumstances and are described in Section 8.7.

### **4.3 Non-Covered Activities**

Activities not covered under this Plan, because impacts will be avoided, include, but are not limited to:

- Public use of natural areas, or open spaces (e.g., hiking, picnicking, mountain biking, horseback riding). Impacts to Covered Species from these activities will be prevented with avoidance measures described in Chapter 6; and
- Benton County's issuance of Special Events Permits, as all impacts resulting from such permits will be avoided (see Chapter 6).

Activities not covered under this Plan, but that still require consultation and/or incidental take coverage from the USFWS or ODA, now or in the future, include, but are not limited to:

- Road approach construction or utility construction and maintenance activities in Benton County rights-of-way that will impact Type 1 roadside populations of Covered Species;
- Road construction or maintenance by the Cities of Corvallis, Philomath, Albany, Adair Village, and Monroe;

- Management activities undertaken by Benton County for Taylor's checkerspot butterfly conservation on private property. Taylor's checkerspot is only covered on County lands (see Appendix N: Draft Taylor's Checkerspot Management Plan), and as the species is not listed, coverage is currently unnecessary on private lands. If and when the butterfly is listed, and if Benton County is managing private property for the species, the County will seek a 10(a)(1)(A) Permit from the USFWS for this work;
- Industrial development projects and any commercial (e.g., gas stations, grocery stores, taverns, RV parks) developments in the Fender's Blue Zone;
- Residential development within the Fender's Blue Zone on lots with land use zoning changes that increase the level of development allowed (only the level of development allowed under zoning as of July 31, 2009<sup>7</sup> is covered);
- Residential, farm, or forest construction within the Fender's Blue Zone on lots created after July 31, 2009 by partition or subdivision;
- Ground disturbing activities on private lands within the Fender's Blue Zone (e.g., constructing a new road within a property, plowing to create a new agricultural field or grading for vineyards) impacting Fender's blue butterfly habitat for which a County permit or authorization is not required;
- Research beyond monitoring or adaptive management measures identified in the HCP; and
- Grazing occurring on public lands with the Covered Species that does not comply with best management practices as described in Appendix J: Prairie Habitat Vegetation Management Guidelines.

Activities not covered under this Plan because they will not result in new impacts to the Covered Species, beyond those that have occurred prior to this Plan, and therefore do not require incidental take coverage, include:

- Maintaining an existing garden, lawn, landscaped area or driveway; and
- Vegetation clearing to maintain the County recommended 30' fire break around existing structures or any other ground disturbing activity within 30' of an existing permanent structure within the Fender's Blue Zone. The 30' fire break around existing structures is assumed to have been disturbed during construction or landscaping, and therefore is unlikely to support Fender's blue butterfly habitat.

Activities not requiring incidental take coverage because they are likely to result in a net long-term benefit to the species are discussed in Section 1.4.0.5.

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<sup>7</sup> July 31, 2009 was the date of the impacts analysis for the Fender's Blue Zone.

# 5 Impacts

Incidental take of the Covered Species is determined by tracking loss of habitat for butterflies (host and native nectar plants) or loss of individual covered plants. This chapter describes and quantifies the unavoidable impacts to the Covered Species that are predicted to result from Covered Activities over the 50 year term of the HCP. The amount of take identified here (Table 5.1) is what Benton County requests from the USFWS and ODA (plants only) through an incidental take permit. Chapter 6: Conservation Measures describes the measures to avoid, minimize, and mitigate for this take. Any additional take beyond this estimate will require separate negotiations with USFWS and/or ODA, or an amendment to the incidental take permit and HCP that involves adding Conservation Measures to offset the additional impacts.

## 5.1 Quantifying Impacts

### 5.1.0 Fender's Blue Butterfly

For Fender's blue butterfly, incidental take is quantified based on impacts to two components of butterfly habitat: Kincaid's lupine and nectar plants (Table 2.1). The following steps were taken to quantify potential take of Fenders blue butterfly habitat:

- **Survey and Map Habitat:** Gather information about population locations and habitat conditions for Fender's blue butterfly, Kincaid's lupine, and nectar species during four years of field work throughout Benton County, in which approximately 4,010 ha (9,910 ac) were surveyed.
- **Establish Fender's Blue Zone Map:** Develop a map to delineate a region of potential habitat based on known Fender's blue butterfly population locations, and typical butterfly dispersal (travel) distances.
- **Forecast Construction Impacts:** Estimate the amount of area within the mapped butterfly habitat likely to be impacted over the next 50 years.
- **Measure Habitat Occupancy:** Estimate the proportion of this area likely to contain Kincaid's lupine and nectar plants.
- **Determine Take:** Calculate the total area of habitat loss to estimate take of Fender's blue butterfly habitat.

This process is described below along with any assumptions used to complete the analysis.

#### 5.1.0.0 Delineating Suitable Habitat: Fender's Blue Zone Mapping

Using data gathered during four years of field surveys of approximately 4,010 ha (9,910 ac) throughout Benton County for the HCP, a map of known or likely suitable

Table 5.1 Total take requested for permanent and short term impacts to Covered Species resulting from Covered Activities by Benton County/Cooperators throughout the County, and home, farm and forest construction on private lands within the Fender’s Blue Zone.

	Bradshaw's lomatium (#)	Willamette daisy (#)	Peacock larkspur (#)	Nelson's checkermallow (#)	Kincaid's lupine outside the Fender's Blue Zone	Kincaid's lupine inside the Fender's Blue Zone	Native Nectar for Fender's blue (m <sup>2</sup> )	Non-Native Nectar for Fender's blue (m <sup>2</sup> )	Taylor's checkerspot habitat (m <sup>2</sup> )
<b>Permanent Impacts from Covered Activities</b>									
<b>Private lands:</b>									
<b>Home, Farm and Forest Construction</b>	-	-	-	-	-	346	5364	8835	-
<b>Telephone Utility Construction and Maintenance</b>	-	-	-	-	-	6.4	101.1	137.4	-
<b>Natural Gas Utility Construction and Maintenance</b>	-	-	-	-	-	0.2	1.4	1.4	-
<b>Private lands subtotal</b>	-	-	-	-	-	352.6	5466.5	8973.8	-
<b>Benton County &amp; Cooperator Lands:</b>									
<b>Public Service Facilities Construction</b>	-	-	-	-	-	12.3	222	366	-
<b>Transportation Activities and Authorized Work in Rights-of-Way</b>									
Construction, maintenance, utility work and road approach	-	-	7	169	4.3	35	2732	2673	-
Maintenance, utility and road approach outside known populations <sup>a</sup>	-	-	19	27	0.1	1.3	61	60	-
<b>Water and Wastewater Management</b>	-	-	-	10	-	-	-	-	-
<b>Agriculture</b>	-	-	-	5	-	-	-	-	-
<b>Emergency Response Activities</b>	2	1	30	11	3.4	1.1	88	146	57
<b>County &amp; Cooperator lands subtotal</b>	2	1	56	222	7.8	49.2	3103	3244	57
<b>Permanent Impacts Total</b>	<b>2</b>	<b>1</b>	<b>56</b>	<b>222</b>	<b>7.8</b>	<b>401.8</b>	<b>8570</b>	<b>12218</b>	<b>57</b>
<b>Short Term Impacts from Covered Activities<sup>b</sup></b>									
<b>Benton County &amp; Cooperator Lands:</b>									
<b>Parks/Natural Areas/Open Space Management<sup>b</sup></b>									
Voluntary habitat restoration, enhancement, and management	249 <sup>c</sup>	1,426,739 <sup>c</sup>	274,635 <sup>c</sup>	5,552,250 <sup>c</sup>	418 <sup>c</sup>	2,649 <sup>c</sup>	4,406 <sup>d</sup>	n/a	2,872 <sup>d</sup>
<b>HCP Implementation Activities<sup>b</sup></b>									
Habitat restoration, enhancement, and management for mitigation	86 <sup>c</sup>	10,798 <sup>c</sup>	7,280 <sup>c</sup>	1,097,575 <sup>c</sup>	220 <sup>c</sup>	17,819 <sup>c</sup>	6,756 <sup>d</sup>	n/a	17 <sup>d</sup>
Monitoring	4	11	34	29	207	9	244	n/a	59
Seed Collection (annual maximum number of seeds to be collected)	748 <sup>c</sup>	23,082 <sup>c</sup>	119,838 <sup>c</sup>	2,235,060 <sup>c</sup>	2,468 <sup>c</sup>	3,242 <sup>c</sup>	n/a	n/a	n/a
<b>Short Term Impacts Total</b>	<b>1,087</b>	<b>1,460,630</b>	<b>401,787</b>	<b>8,884,914</b>	<b>3,313</b>	<b>23,720</b>	<b>11,405</b>	<b>n/a</b>	<b>2,948</b>

<sup>a</sup> Impacts to currently unknown populations in unsurveyed areas estimated at 3% of existing Covered Plant populations in ROW.

<sup>b</sup> Short term impacts from habitat restoration, enhancement and management do not require mitigation.

<sup>c</sup> Estimated number of seeds affected, based on average seed production described in Chapter 2.

<sup>d</sup> Refers to seeds produced by host/nectar plants within the identified area. Direct impacts to butterfly eggs/larvae from restoration work included in Tables 5.7-5.8.

Fender's blue butterfly habitat (the "Fender's Blue Zone") was developed to identify where in Benton County take of the butterfly's habitat might occur (Figure 5.1).

To develop this map:

- 1) All areas within 2 km (1.2 mi) of a known butterfly population were mapped by placing a 2 km (1.2 mi) buffer around known butterfly locations using GIS. Two kilometers (1.2 mi) is the typical maximum dispersal distance of Fender's blue butterfly between lupine patches (USFWS 2006).
- 2) Prairie, grassland, and oak savanna habitats were overlaid on the buffered region 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 2005 aerial photos showing current vegetation were used to map habitat within the buffered area. Historic maps were used to include some areas which were prairie habitat at the time the Willamette Valley was surveyed and settled and may still support limited butterfly habitat, but have started to become forest over time. In areas where on-the-ground surveys have not been completed, potential butterfly habitat contiguous with habitat within the buffer areas, and/or forming a natural, connecting corridor between these areas was also included. These areas provide critical connectivity (stepping stones) between dispersal zones, and have a far greater likelihood to support Kincaid's lupine used by Fender's blue butterflies than other areas of the County.

The Fender's Blue Zone includes nectar and dispersal zones.

- The nectar zone includes butterfly habitat within 0.5 km (0.3 mi) of a known Fender's blue butterfly population. Fender's blue butterflies are estimated to nectar most heavily within 0.5 km (0.3 mi) of their natal Kincaid's lupine patch (Cheryl Schultz, Personal Communication 2007).
  - Nectar species (Table 2.1) and Kincaid's lupine within this zone are critical for the butterfly, and any impact to these species in this zone is considered take and requires avoidance, minimization or mitigation. Total impacts to both native and non-native nectar species are enumerated in Table 5.1; however, mitigation will only be required for native nectar species. See Section 6.3 Mitigation Requirements for more information.
- The dispersal zone includes butterfly habitat within 2 km (1.2 mi) of the known Fender's blue butterfly population or in the corridor areas between populations.
  - Kincaid's lupine in the dispersal zone is critical to host any dispersing Fender's blue and support establishment of new butterfly populations. Therefore any impacts to Kincaid's lupine in this zone are considered take and require avoidance, minimization or mitigation.

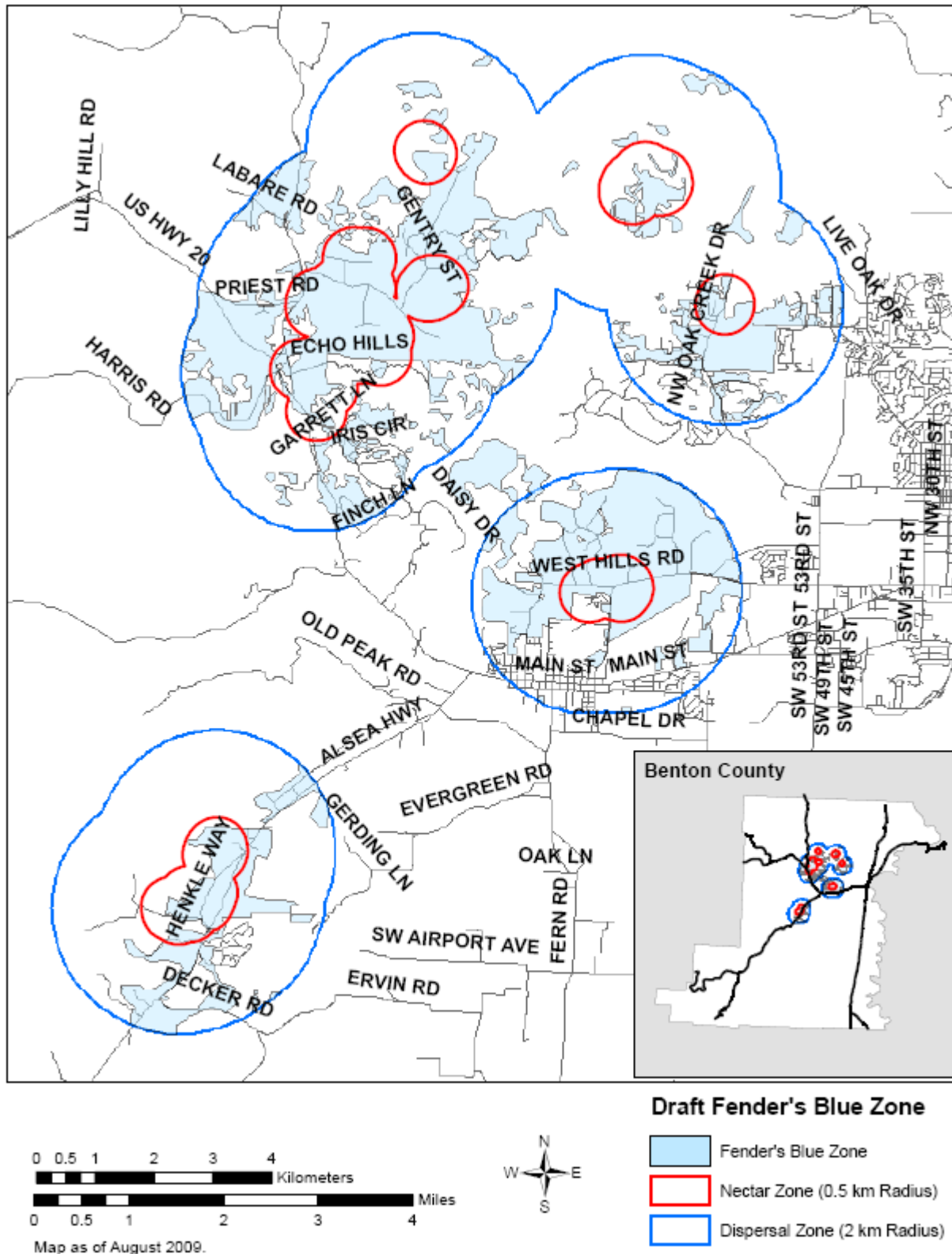


Figure 5.1 Draft map of Fender's Blue Zone, showing the 0.5 km nectar zone and the 2 km dispersal zone.

**Assumptions for Fender's blue butterfly:**

1. Butterflies disperse up to 2 km (1.2 mi) to travel between Kincaid's lupine patches.
2. Butterflies travel up to 0.5 km (0.3 mi) from their natal Kincaid's lupine patch to forage for nectar.
3. Where survey information is lacking, butterflies may occur in the corridors of habitat between and contiguous with known dispersal zones.
4. No other butterfly populations are present in the County, based on survey information through 2009. Lands adjacent to butterfly populations created through habitat restoration or physical reintroductions are covered under the Principle described in Section 1.4.0.5.

If new scientific data determines an increased or decreased dispersal distance or nectaring distance for Fender's blue butterfly, this HCP shall be modified to address such information as appropriate and practicable.

**5.1.1 Taylor's Checkerspot Butterfly**

Incidental take for Taylor's checkerspot butterfly is quantified on the basis of area of known occupied habitat (nectar plants and host plants) impacted. Known occupied habitat for this butterfly is quite limited and dispersal and nectaring distances are poorly understood (Stinson 2005). The best available information estimates this species is likely to disperse approximately 1.5 km (0.93 mi) between habitat patches (USFWS 2008c). We estimate that host and nectar species for the butterfly cover 10% of the ground area within habitat occupied by Taylor's checkerspot butterfly. For example, there are 174,015 m<sup>2</sup> (1,873,082 ft<sup>2</sup>) of meadow habitat at Beazell Memorial Forest. Taylor's are known to use approximately 1/3 of that habitat (Al Kitzman, personal Communication), or 57,425 m<sup>2</sup> (618,116 ft<sup>2</sup>). Of that habitat, we estimate 10% of it is covered with host and/or nectar plants for the butterfly, or 5,743 m<sup>2</sup> (64,811.6 ft<sup>2</sup>).

**5.1.1.0 Delineating Suitable Habitat for Taylor's Checkerspot**

Taylor's checkerspot is currently only found on Benton County owned lands and privately owned lands. Based on current population locations and the likely dispersal distance of 1.5 km (0.93 mi), the butterfly is likely only to disperse to lands under Benton County or private ownership. Figure 5.2 shows potential Taylor's checkerspot habitat; it delineates open grassland habitat within the likely dispersal distance (1.5 km [0.9 mi]) of a site where documented Taylor's populations occur.

As the species is currently a candidate species, and not listed as threatened or endangered, this Plan only addresses Taylor's checkerspot on County lands. In the event that the species becomes listed as threatened or endangered, Benton County may need to consult with USFWS to determine whether revision of its private lands building permit issuance processes or modification of the HCP is necessary.

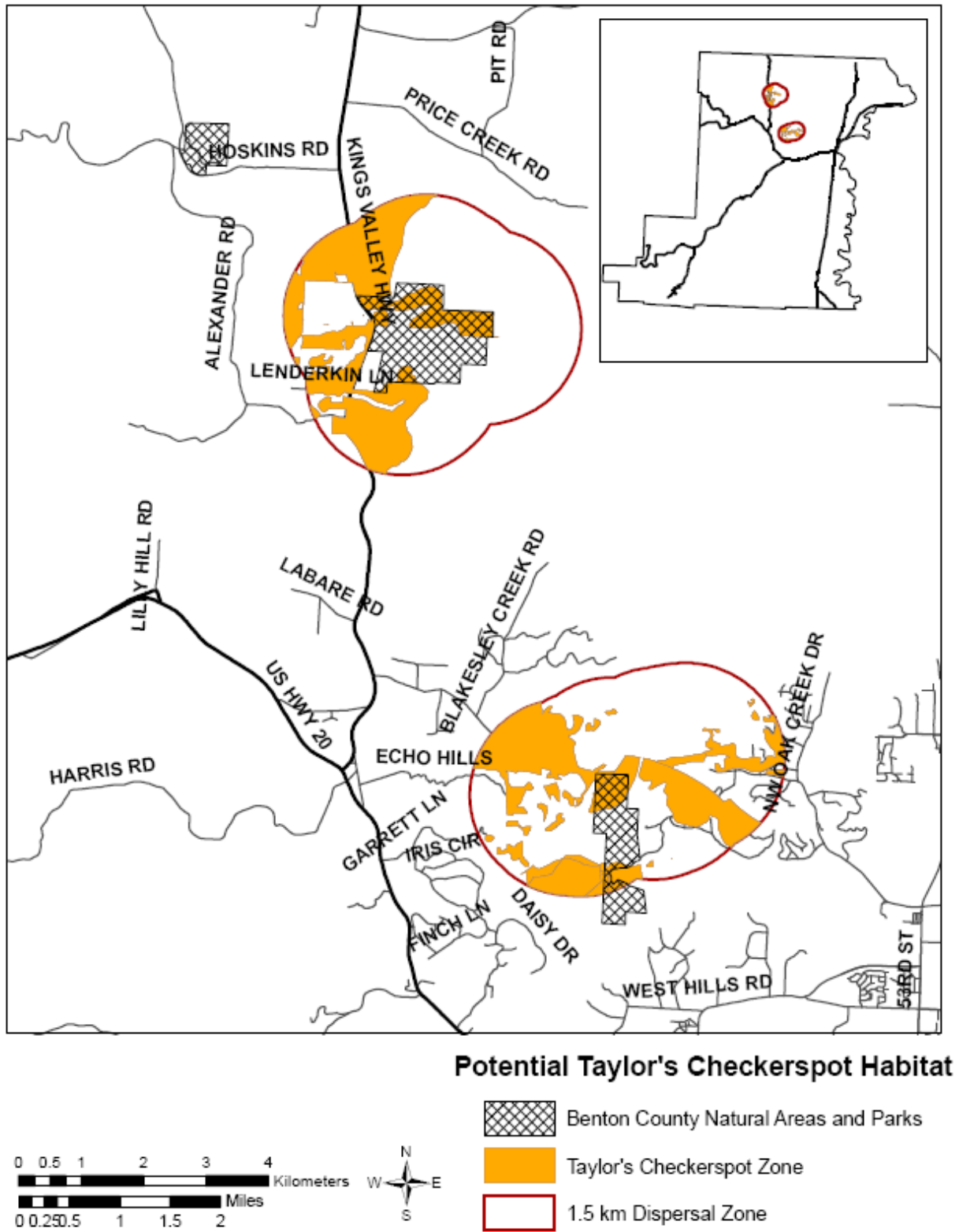


Figure 5.2 Potential habitat for Taylor's checkerspot butterfly in Benton County based on a 1.5 km likely dispersal distance and currently known locations.



### 5.1.2 Plants

Impacts to Kincaid's lupine are quantified on the basis of square meters of foliar cover impacted. Impacts to all other covered plant species are quantified on the basis of individual plants impacted (see Section 7.2.1.2 for more information).

## 5.2 Estimating Impacts to Covered Species from Covered Activities

This section compares the Covered Activities data with Covered Species occurrences documented in recent field surveys conducted for this Plan and data from the Oregon Natural Heritage Information Center (ORNHIC) to describe the amount of incidental take and related impacts expected to result from Covered Activities. Take requested is listed by activity in Table 5.1.

This section includes the potential direct and indirect impacts resulting from Covered Activities. Direct impacts to the Covered Species result from activities causing ground disturbance or removing land cover, habitat, or populations (or portions of populations) of Covered Species. Indirect impacts are caused by the Covered Activities but occur, or are reasonably certain to occur, later in time. The Conservation Measures identified in this Plan (Chapter 6) are designed to avoid, minimize and mitigate for direct and indirect impacts resulting from Covered Activities.

### 5.2.0 Home, Farm and Forest Construction

#### 5.2.0.0 Take Requested for Impacts to Fender's Blue Butterfly Habitat from Home, Farm and Forest Construction

The following total impacts to Fender's blue butterfly habitat are anticipated over the course of the incidental take permit (50 years) as a result of County permitted or authorized home, farm and forest construction (as covered under the HCP) (Table 5.1).

- Ground disturbance will occur on up to 122.5 ha (305.8 ac), which represents 3.8% of the overall Fender's Blue Zone habitat. Within the disturbed area there will be impacts of up to:
  - 346 m<sup>2</sup> (3,730 ft<sup>2</sup>) of Kincaid's lupine in the nectar and dispersal zone
  - 5,364 m<sup>2</sup> (57,740 ft<sup>2</sup>) of native nectar species in the nectar zone
  - 8,835 m<sup>2</sup> (95,102 ft<sup>2</sup>) of non-native nectar species in the nectar zone

The analysis of impacts was accomplished by estimating the following:

- Kincaid's lupine and nectar species occupancy (% cover) within the Fender's Blue Zone.
- Impact area for home, farm and forest construction.
- Number of Benton County home, farm and forest construction permit or authorization (Agricultural building) requests anticipated during the incidental take permit term (50 yrs).

**5.2.0.1 Modeling Lupine and Nectar Occupancy in the Fender's Blue Zone**

The proportion of the nectar zone and dispersal zone habitat within the Fender's Blue Zone that includes Kincaid's lupine (lupine occupancy) was estimated using data from field surveys conducted between 2006 and 2009. Specifically in the identified Fender's Blue Zone, a total of 872 ha (2,155 ac) of prairie, grassland, and oak savanna habitats were surveyed and 0.24 ha (0.60 ac) of Kincaid's lupine foliar cover was recorded, resulting in an estimated average lupine cover of 0.028%.

The proportion of the nectar zone habitat that includes nectar species (nectar occupancy) was estimated using community composition data collected in 2009. The data were collected from 64 5 m x 5 m (16.4 x 16.4 ft) vegetation plots placed at randomly selected sites surveyed within the greater area of the Fender's Blue Zone. The average percent cover of nectar plants (both native and non-native species) was 4.5% (1.7% native and 2.8% non-native).

**5.2.0.2 Estimating Impact Area from Home, Farm, and Forest Construction Projects in the Fender's Blue Zone**

Average impact area for home, farm, and forest construction projects was estimated by GIS analysis of Benton County taxlot data in combination with analysis of permits on file, and is listed in Table 5.2. Dwelling and accessory structure size and driveway width were averaged across 30 randomly selected taxlots in the Fender's Blue Zone. Average driveway length, already compiled in the Benton County GIS database, was calculated from all driveways in the Fender's Blue Zone. Average agricultural building and medical hardship dwelling size and the area of impact from utilities (e.g., electrical) and additions to structures were calculated by the Benton County Community Development Department. Average impact area for a septic system was calculated by the Benton County Environmental Health Department. A 9.14 m (30 ft) wide firebreak buffer was added to the footprint of all new structures to account for the fire safety buffer the County recommends, and to account for disturbance from construction and landscaping. This increased the average structure footprint area used for analysis (Table 5.2).

**5.2.0.3 Predicted Dwelling Construction and Related Permits**

Anticipated future dwelling construction-related permit requests (including dwelling, utilities, driveway and septic) in the Fender's Blue Zone were estimated by identifying all buildable taxlots in the nectar and dispersal zones existing as of July 31, 2009, and evaluating permit request trends. Across all buildable zones, taxlots of less than 0.25 acres were not considered developable in the analysis, as they are likely too small for construction of a dwelling with septic and required setbacks. Home, farm, and forest construction activities on these lots are still covered, but are expected to occur infrequently (due to setback limitations) and will therefore have little impact.

Rural/Urban Residential zones and Exclusive Farm Use/Forest Conservation Zones were assessed separately. See Table 5.3 for the number of lots identified and resulting impacts for each type of construction.

### Rural and Urban Residential Zones

Permit trends indicate private landowners of each vacant lot in these residential zones (UR/RR) in the Fender's Blue Zone will construct a dwelling (either site built or manufactured) with utilities, one driveway, and a septic system. This will result in 156 new dwellings during the 50 year HCP.

Table 5.2 Average impact area and structure size within the Fender's blue butterfly Zone.

<b>Average Impacts</b>	<b>Area (m<sup>2</sup>)</b>	<b>Area (ft<sup>2</sup>)</b>	<b>Area (acres)</b>
Dwelling footprint	246.4	2651.8	0.061
Dwelling footprint + firebreak <sup>#</sup>	1154.9	12431.3	0.285
<b>Dwelling (with firebreak, utilities, driveway, septic)</b>	<b>2760.2</b>	<b>29715.8</b>	<b>0.7</b>
Accessory Structure	101.4	1091.2	0.025
Accessory Structure + firebreak <sup>#</sup>	804.1	8655.2	0.199
<b>Accessory Structure (with firebreak, utilities)</b>	<b>831.9</b>	<b>8955.2</b>	<b>0.2</b>
Agricultural Building	501.7	5400.0	0.124
Agricultural Building + firebreak <sup>#</sup>	1655	17818	0.409
<b>Agricultural Building (with firebreak, utilities)</b>	<b>1683.2</b>	<b>18118.2</b>	<b>0.4</b>
Medical Hardship Dwelling	139.4	1500.0	0.034
<b>Medical Hardship Dwelling + firebreak<sup>#</sup></b>	<b>955.9</b>	<b>10290.0</b>	<b>0.236</b>
<b>Added Utilities, Septic and Driveway</b> (for 10% of Medical Hardship Dwellings)	<b>1605.4</b>	<b>17284.5</b>	<b>0.4</b>
<b>Additions to Structures</b>	<b>77.2</b>	<b>831.0</b>	<b>0.019</b>
Driveway*	184.0	1984.5	0.046
Septic	1393.5	15000.0	0.344
Utilities	27.9	300.0	0.007

<sup>#</sup>County recommended 30' firebreak around buildings.

\*Driveway length calculated from all driveways in Fender's blue zone n=708.

### Exclusive Farm Use and Forest Conservation Zones

Analysis of land use approvals for dwellings in the Farm (EFU) and Forest (FC) zones indicates an average of 11.625 new dwellings per year countywide. The current density of dwellings on resource-zoned land in the Fender's Blue Zone is virtually the same as the density of dwellings on resource-zoned land county-wide (79.1 ac/dwelling vs. 78.6 ac/dwelling), implying that resource land in the Fender's Blue Zone experiences approximately the same demand for dwellings as resource land in the rest of the county. The Fender's Blue Zone contains 6.1% of the county's resource land. Therefore, 6.1% of 11.625 new dwellings per year equal 0.71 dwellings per year in the Fender's Blue Zone, for a total of 39 new dwellings over the 50 year HCP.

Table 5.3 Estimated take of Fender’s blue butterfly habitat (in m<sup>2</sup> and ft<sup>2</sup> [shaded] to result from home, farm and forest construction on private lands within the Fender’s Blue Zone during the 50 year incidental take permit term.

	Estimated # Permits / Authorizations	Estimated Footprint per Project		Estimated Occupancy (%)		Estimated Total Impacts (m <sup>2</sup> )		Estimated Total Impacts (ft <sup>2</sup> )		
		m <sup>2</sup>	ft <sup>2</sup>	Kincaid's lupine	Native Nectar	Kincaid's lupine	Native Nectar	Kincaid's lupine	Native Nectar	
Nectar Zone	Vacant Lot Dwelling Construction in Residential Zones	23	2760	29712	0.028%	1.70%	17.8	1079.3	191	11617
	Dwelling Construction in Farm and Forest Zones	16	2760	29712			12.2	738.7	131	7952
	Accessory Structure Construction (all zones)	153	832	8955			35.6	2160.0	383	23251
	Agricultural Building Construction	35.4	1683	18118			16.7	1012.6	180	10900
	Additions to Structures	123	77	831			2.7	161.3	29	1737
	Medical Hardship Dwellings	11.2	956	10290			3.0	181.6	32	1955
	Added Driveway, Septic and Utilities for 10% of Medical Hardship Dwellings	1.1	1605	17281			0.5	30.5	5	328
	<b>Sub-Total Impacts</b>								<b>88</b>	<b>5364</b>
Dispersal Zone (outside nectar)	Vacant Lot Dwelling Construction in Residential Zones	133	2760	29712	0.028%	n/a	102.8	-	1106	-
	Dwelling Construction in Farm or Forest Zones	23	2760	29712			17.8	-	191	-
	Accessory Structure Construction (all zones)	360	832	8955			83.8	-	902	-
	Agricultural Building Construction	83.4	1683	18118			39.3	-	423	-
	Additions to Structures	290	77	831			6.3	-	67	-
	Medical Hardship Dwellings	26.3	956	10290			7.0	-	76	-
	Added Driveway, Septic and Utilities for 10% of Medical Hardship Dwellings	2.6	1605	17281			1.2	-	13	-
	<b>Sub-Total Impacts</b>								<b>258</b>	<b>0</b>
<b>Grand Total</b>							<b>346</b>	<b>5364</b>	<b>3730</b>	<b>57740</b>

#### **5.2.0.4 Predicted Accessory Structure Construction and Related Permits**

Building permit trends within the Fender's Blue Zone indicate an average of 10.25 new accessory structures (with utilities) are constructed per year across all zoning types, for a total of 513 new accessory structures in the Fender's Blue Zone over the 50 year HCP. The estimated impact is shown in Table 5.3.

#### **5.2.0.5 Predicted Agricultural Building Authorizations**

Agricultural buildings can be constructed on any land put to commercial agricultural use. This is most likely to be in Exclusive Farm Use (EFU) zoning, although it can be on Forest Conservation (FC), or other zoning as well. Permit trends indicate that on average, 2.375 agricultural buildings (with utilities) will be constructed per year in the Fender's Blue Zone, for a total of 119 new agricultural buildings over 50 years. The estimated impact is shown in Table 5.3.

#### **5.2.0.6 Predicted Medical Hardship Dwelling Requests**

Medical hardship dwellings may be placed in any zone. While these are technically temporary dwellings, generally site modifications (e.g., gravel, utilities installation, or concrete pad) are permanent. Permit trends within the Fender's Blue Zone indicate an average of 0.75 requests per year (all zones included), for a total of 37.5 new medical hardship dwelling placements for the term of the incidental take permit. Permit trends also suggest that roughly 10% of all medical hardship dwellings require their own driveway and septic (in addition to the required utilities). The total estimated impact added for these special cases is shown in Table 5.3.

#### **5.2.0.7 Predicted Addition to Structure Permit Requests**

Permit trends indicate 8.25 requests for structure additions (e.g., new attached garage) per year (all zones), for a total of 413 additions in the Fender's Blue Zone during this Plan. The estimated impact is shown in Table 5.3.

### **5.2.1 Utilities Construction and Maintenance on Private Lands**

#### **5.2.1.0 Telephone Utilities**

Telephone utility construction and maintenance activities, primarily copper and fiber cable replacement, completed by Pioneer Telephone Cooperative on private lands within the Fender's Blue Zone will disturb 2.3 ha (5.7 ac), or 0.07% of the Fender's Blue Zone, and are estimated to result in take of 6.4 m<sup>2</sup> (69 ft<sup>2</sup>) of Kincaid's lupine, 101.1 m<sup>2</sup> (1,088 ft<sup>2</sup>) of native nectar species, and 137 m<sup>2</sup> (1,479 ft<sup>2</sup>) of non-native nectar species. This estimate assumes roughly 50% of all fiber replacements will be bored (directional drilled), 25% will be plowed within an existing road/driveway, 12.5% to be plowed immediately adjacent to an existing road/driveway, and 12.5% will be plowed cross-country (G. Vick, Pers. comm. 2009).

Table 5.4 Estimated impacts for telephone utility construction and maintenance by Pioneer Telephone Cooperative on private lands in the Fender's Blue Zone.

Copper Cable for Replacement	Length of Cable		# Bores	Impact Area <sup>a,b,c</sup>		Impacts to Lupine & Native Nectar Species <sup>d</sup>			
	m	ft		m <sup>2</sup>	ft <sup>2</sup>	Lupine (m <sup>2</sup> )	Lupine (ft <sup>2</sup> )	Nectar (m <sup>2</sup> )	Nectar (ft <sup>2</sup> )
50% Bored (average bore length = 300 ft)	13391	43933	147	805.7	8673.0	0.23	2.43	3.88	41.77
25% Plowed in Roadway	6695	21966		0	0	0	0	0	0
12.5% Plowed in Vegetation along Roadway	3348	10983		10203.3	109831.3	2.86	30.75	40.17	432.45
12.5% Plowed in Vegetation Cross Country	3348	10983		10203.3	109831.3	2.86	30.75	49.13	528.90
Fiber Cable for Replacement	Length of Cable		# Bores	Impact Area <sup>a,b,c</sup>		Impacts to Lupine & Native Nectar Species <sup>d</sup>			
	m	ft		m <sup>2</sup>	ft <sup>2</sup>	Lupine (m <sup>2</sup> )	Lupine (ft <sup>2</sup> )	Nectar (m <sup>2</sup> )	Nectar (ft <sup>2</sup> )
50% bored (average bore length = 300 ft)	1135	3724	13	71.3	767.0	0.02	0.21	0.34	3.69
25% Plowed in Roadway	568	1862		0	0	0	0	0	0
12.5% Plowed in Vegetation along Roadway	284	931		864.9	9310.0	0.24	2.61	3.41	36.66
12.5% Plowed in Vegetation Cross Country	284	931		864.9	9310.0	0.24	2.61	4.16	44.83
<b>Total Impacts:</b>						<b>6.4</b>	<b>69.4</b>	<b>101.1</b>	<b>1088.3</b>

<sup>a</sup> Assumes impact per bore of 59 ft<sup>2</sup> (48 ft<sup>2</sup> from machine, 2 ft<sup>2</sup> entry pit, 9 ft<sup>2</sup> exit pit).

<sup>b</sup> Assumes no impact when cable plowed in existing road.

<sup>c</sup> Assumes 10 ft wide plow disturbance footprint.

<sup>d</sup> Assumes lupine occupancy of 0.028%, native nectar occupancy along roadsides of 1.39%, and native nectar occupancy of 1.7% for non-roadside habitat.

### 5.2.1.1 Natural Gas Utilities

Natural gas utility construction and maintenance activities completed by NW Natural on private lands within the Fender's Blue Zone will disturb 0.7 ha (1.7 ac), or 0.02% of the area of the Fender's Blue Zone, and are estimated to result in take of 0.2 m<sup>2</sup> (2.2 ft<sup>2</sup>) of Kincaid's lupine, 1.4 m<sup>2</sup> (15.4 ft<sup>2</sup>) of native nectar species (Table 5.5), and 1.4 m<sup>2</sup> (15.4 ft<sup>2</sup>) of non-native nectar species. This estimate assumes roughly 90% of all new line construction and line replacements will be excavated in existing roads, and 10% will be excavated immediately adjacent to an existing road/driveway (J. Payson, Pers. comm. 2009).

## 5.2.2 Public Service Facility Construction

### 5.2.2.0 Total Estimated Impacts from Public Service Facility Construction

Rural schools and fire stations can be constructed on EFU or FC lands in Benton County. The County estimates two rural schools and two fire stations may be constructed within the Fender's Blue Zone (potentially in the Wren and Greasy Creek areas). As the potential impact to Fender's blue butterfly habitat from these facilities is much larger than a regular home, farm or forest construction project, and involves more time-

intensive planning, Benton County will require the properties to be surveyed for Fender's blue butterfly habitat prior to construction. However, in the event that impacts to Fender's blue butterfly habitat cannot be avoided or minimized through planning, Benton County requests take for 12.3 m<sup>2</sup> (117.5 ft<sup>2</sup>) of Kincaid's lupine, 222 m<sup>2</sup> (2,393 ft<sup>2</sup>) of native nectar and 366 m<sup>2</sup> (3,940 ft<sup>2</sup>) of non-native nectar species for Public Service Facility Construction (Table 5.6). Benton County does not anticipate impacts to the other Covered Species from this activity.

Table 5.5 Estimated impacts for natural gas utility construction and maintenance by NW Natural on private lands in the Fender's Blue Zone.

Private Lands- New Lines	Length of Line		Disturbance Area <sup>b</sup>				Impacts <sup>a,c</sup>			
			Nectar Zone		Dispersal Zone (entire)		Lupine		Nectar	
	m	ft	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
90% Trenched in Roadway	2913	9558	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10% Trenched in Vegetation along Roadway	324	1062	27.50	443.4	295.98	3186.0	0.08	0.89	0.57	6.16
Private Lands- Replacement Lines	Length of Line		Disturbance Area <sup>b</sup>				Impacts <sup>a,c</sup>			
			Nectar Zone		Dispersal Zone (entire)		Lupine		Nectar	
	m	ft	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
90% Trenched in Roadway	4141	13585	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10% Trenched in Vegetation along Roadway	460	1509	39.08	665.1	420.67	4528.2	0.12	1.27	0.86	9.24
<b>Total Impacts:</b>							0.20	2.16	1.43	15.41

<sup>a</sup> Assumes no impact when line excavated into existing road.

<sup>b</sup> Assumes 3 ft wide trenching disturbance footprint.

<sup>c</sup> Assumes lupine occupancy of 0.028%, native nectar occupancy along roadsides of 1.39%

### 5.2.2.1 Rural School Construction

Benton County estimates two rural schools may be constructed on property acquired in the Fender's Blue Zone during the 50 year term of the incidental take permit. For purposes of determining potential impacts, these two schools are estimated as being similar in size to the Muddy Creek Charter School – 1.72 ha (4.27 ac) and the Kings Valley Charter School – 1.93 ha (4.78 ac). Benton County estimates a total of 36,437 m<sup>2</sup> (392,220 ft<sup>2</sup>) (two schools of identical size) of ground disturbance will result from construction of the schools and associated parking lot, driveway, playgrounds/ball fields, and buffers, representing 0.11% of the total area in the Fender's Blue Zone.

Table 5.6 Estimated take of Fender’s blue butterfly habitat (in m<sup>2</sup> and ft<sup>2</sup> [shaded] from anticipated Public Service Facility Construction within the Fender’s Blue Zone during the 50 year incidental take permit term.

		# Constructed	Estimated Footprint per Project		Estimated Occupancy (%)		Estimated Total Impacts (m <sup>2</sup> )		Estimated Total Impacts (ft <sup>2</sup> )	
			m <sup>2</sup>	ft <sup>2</sup>	Kincaid's lupine	Native Nectar	Kincaid's lupine	Native Nectar	Kincaid's lupine	Native Nectar
<b>Nectar Zone</b>	Rural Schools	0.60	18219	196110	0.028%	1.70%	3	185	32.7	1987
	Rural Fire District Stations	0.60	3725	40094			0.6	38	6.7	406
	<b>Total</b>	<b>1.2</b>	<b>21943</b>	<b>236204</b>			<b>3.7</b>	<b>222</b>	<b>39.4</b>	<b>2393</b>
<b>Dispersal Zone (Outside Nectar)</b>	Rural Schools	1.4	18219	196110	0.028%	N/A	7.2	N/A	77.1	N/A
	Rural Fire District Stations	1.4	3725	40094			1.5		0.0	
	<b>Total</b>	<b>2.8</b>	<b>21943</b>	<b>236204</b>			<b>8.6</b>		<b>-</b>	
<b>GRAND TOTAL</b>		<b>4.0</b>	<b>43887</b>	<b>472407</b>			<b>12.3</b>	<b>222</b>	<b>116.5</b>	<b>2393</b>



### **5.2.2.2 Rural Fire District Station Construction**

Benton County estimates two rural fire district stations may be constructed on property acquired in the Fender's Blue Zone during the 50 year term of the incidental take permit. These rural fire stations would be similar in size to a dwelling with two accessory structures. Benton County estimates a total of 7,449 m<sup>2</sup> (80,187 ft<sup>2</sup>) (two stations at 3,725 m<sup>2</sup> [40,094 ft<sup>2</sup>] each) of ground disturbance resulting from construction of the fire stations, driveway, parking, and buffer. This represents 0.02% of the total area of the Fender's Blue Zone.

### **5.2.3 Transportation Activities and Authorized Work in Rights-of-Way**

Total take requested for transportation and work in rights-of-way activities is included in Table 5.1.

#### **5.2.3.0 Type 1 and Type 2 Roadside Population Classification Criteria**

Known Benton County roadside populations of Covered Species were classified into two groups, Type 1 and Type 2 (see below), based on their size, connectivity potential, and quality of associated vegetation. These criteria have been applied to all currently known populations in Benton County rights-of-way (Table 5.7), and can be applied to any additional populations found during the incidental take permit term, though any impacts to these additional populations must not exceed those requested in Table 5.1. For definitions of "individuals" for each species, see Section 7.2.1.2.

Category A Criteria (1 of 2 criteria must be met):

1. Population size
  - Site must support  $\geq 60$  m<sup>2</sup> (646 ft<sup>2</sup>) of Kincaid's lupine, or  $\geq 200$  individuals of Nelson's checkermallow or peacock larkspur, or  $\geq 100$  m<sup>2</sup> (1,076 ft<sup>2</sup>) of Fender's blue butterfly habitat (Kincaid's lupine and native nectar species), of which at least 60% must be Kincaid's lupine cover. These size thresholds were selected for the covered plant species because this is the minimum size for a population to contribute to the recovery of the species (USFWS 2008b).
2. Rarity
  - Site supports naturally occurring Bradshaw's lomatium or Willamette daisy, neither of which is currently known to persist in a roadside right-of-way.

Category B Criteria (2 of 4 criteria must be met):

1. Population Size
  - Site must support  $>10$ m<sup>2</sup> (108 ft<sup>2</sup>) of Kincaid's lupine, or  $>50$  individuals of the other covered plants, or 15m<sup>2</sup> (162 ft<sup>2</sup>) of Fender's blue butterfly habitat (Kincaid's lupine and native nectar species), of which at least 60% must be Kincaid's lupine cover.
2. Connectivity

- Site contributes to connectivity by providing a stepping stone between naturally occurring or introduced populations of the Covered Species on protected lands that would otherwise be greater than 3 km (1.8 mi) apart (covered plants) or 2 km (1.2 mi) apart (Fender's blue butterfly habitat).
  - These distances are the maximum suggested separation between populations contributing to recovery (USFWS 2008b).
3. Community composition
    - Site supports native vegetation by having >25% cover of native forb or grass species and less than 5% cover of A or B list noxious weed species.
  4. Uniqueness
    - Site must represent a unique facet of the species' ecology, e.g., the most northerly or southerly population in the species' range.

### **Type 1 Roadside Populations**

Roadside populations to be designated as Type 1 must meet one of the Category A criteria or two of the four Category B criteria.

### **Type 2 Roadside Populations**

Roadside populations not meeting the criteria established for Type 1 will be classified as a Type 2 roadside population.

#### **5.2.3.1 Assessing Impacts from Benton County Transportation Activities and Authorized Work in Rights-of-Way**

### **Type 1 Roadside Populations**

All impacts to Type 1 roadside populations will be avoided. Benton County will survey rights-of-way prior to road construction projects, and will avoid any populations found to meet the Type 1 Criteria. These sites have been prioritized for avoidance because of their biological importance due to large size, high quality of associated species, uniqueness and/or greater potential to provide connectivity. Any entity seeking a road approach permit, utility permit, or work in right-of-way permit in Type 1 right-of-way will not be covered under this Plan, and will be referred to USFWS and ODA.

### **Type 2 Roadside Populations**

Benton County requests take of all Type 2 roadside populations. The majority of impacts are likely to result from transportation construction projects (i.e., those described in the Benton County Transportation System Plan (2001)) including those identified in Table 5.7. Additional but currently unplanned construction projects may also result in impacts. Impacts may also occur from routine road maintenance, road approach, utility or other authorized work in rights-of-way. Impact avoidance or minimization may be possible in many cases, by following the guidelines identified in Appendix M: Roadside and Streambank Management Guidelines for Covered Plants. However, the County recognizes the inherent vulnerability of roadside populations and

Table 5.7 Type 1 and Type 2 roadside populations on Benton County rights-of-way. Sites with A, B, C or D following the same road name are sites at different locations along the same road.

	Kincaid's lupine inside the Fender's Blue Zone	Kincaid's lupine outside the Fender's Bue Zone	Peacock larkspur (#)	Nelson's checkermallow (#)
<b>Type 1 Roadside Populations</b>				
Decker Road A			248	
Decker Road B				600
Fern Road A			280	
McFarland Road			99	78
Tampico Road				44
West Hills Road	9.5			
<b>Sub-Total Type 1 Populations</b>	<b>9.5</b>	<b>0</b>	<b>627</b>	<b>722</b>
<b>Type 2 Roadside Populations</b>				
Bellfountain Road <sup>1</sup>				1
Bellfountain Road at Bruce Road <sup>2</sup>				14
Blakesley Creek Road A <sup>3</sup>	3			
Blakesley Creek Road B <sup>3</sup>	2			
Bruce Road		0.30		
Cardwell Hill Drive A <sup>4</sup>	2.50			
Cardwell Hill Drive B <sup>4</sup>	0.25			
Cardwell Hill Drive C <sup>4</sup>	2			
Chapel Drive <sup>5</sup>				18
Cherry Creek Road		0.25		
Fern Road B				6
Fern Road C				1
Fern Road D				52
Gellatly Way A	3.75			
Gellatly Way B	0.5			
Gellatly Way C		0.5		
Gellatly Way D		0.75		
Henkle Way	12.50		7	
Llewellyn Road				2
NW Harrison Boulevard <sup>6</sup>				69
NW Walnut Boulevard				6
Price Creek Road		1.5		
Tanager Road	7			
Ward Road		1		
Wren Road	1			
<b>Sub-Total Type 2 Populations</b>	<b>34.50</b>	<b>4.30</b>	<b>7.00</b>	<b>169.00</b>
<b>Grand Total</b>	<b>44.00</b>	<b>4.30</b>	<b>634</b>	<b>891</b>

<sup>1</sup> May be impacted by bridge improvement/replacement, realignment of Greenberry intersection, or road widening.

<sup>2</sup> All or part may be impacted by spot improvement at intersection or road widening.

<sup>3</sup> May be impacted by possible road widening and surface treatment.

<sup>4</sup> May be impacted if shoulders are added to road.

<sup>5</sup> May be impacted by bikeway between 19th Street and Bellfountain.

<sup>6</sup> All or part may be impacted widening and intersection improvement at Walnut Blvd, or by possible bikeway.

proposes pre- mitigating for additional unforeseen potential impacts to these populations in more secure areas (see Chapter 6).

### **5.2.3.2 Estimating Impacts to Fender's Blue Butterfly Native Nectar Species in ODOT and Benton County Rights-of-Way**

Impacts to nectar plants in roadside rights-of-way were estimated by quantifying the area of right-of-way in Fender's blue butterfly nectar zones and multiplying it by the average native nectar occupancy for roadsides (1.39%, obtained from roadside vegetation plot data collected during HCP development) in the Fender's Blue Zone. Non-native nectar species cover along roadsides was estimated at 1.36% cover.

ODOT requests take for all of its rights-of-way within the Fender's blue nectar zone. ODOT road maintenance activities will affect 3.9 km (2.4 mi) of right-of-way, or 5 ha (12.5 ac) within the Fender's blue nectar zone. This represents 0.15% of the overall Fender's Blue Zone area, and is predicted to result in take of 701 m<sup>2</sup> (7,550 ft<sup>2</sup>) of native nectar species, and 686 m<sup>2</sup> (7,387 ft<sup>2</sup>) of non-native nectar species.

Benton County requests take for nectar in all of its rights-of-way within the nectar zone of the Fender's Blue Zone. Impacts may result from routine road maintenance, road approach, utility work or other authorized work in rights-of-way. Benton County road maintenance activities will affect 15 km (9.3 mi) of County road and Public Road District right-of-way within the Fender's blue nectar zone, or 14.6 ha (36 ac). This represents 0.4% of the overall Fender's Blue Zone area, and is predicted to result in impacts to 2,031 m<sup>2</sup> (21,859 ft<sup>2</sup>) of native nectar species and 1,987 m<sup>2</sup> (21,387 ft<sup>2</sup>) of non-native nectar species. Work by Pioneer Telephone Cooperative will overlap with Benton County road maintenance activities. Of the County impacts, 59 m<sup>2</sup> (638 ft<sup>2</sup>) of impact to native nectar species and 57 m<sup>2</sup> (617 ft<sup>2</sup>) of impact to non-native nectar species is likely to result from work by Pioneer Telephone Cooperative.

### **5.2.3.3 Estimating Impacts to Covered Plants Outside Known Populations from Transportation Maintenance, Road Approach and Utility or Work in Rights-of-Way**

Benton County will complete surveys prior to implementing road construction projects and classify any populations found as Type 1 or Type 2 roadside populations. Recognizing the impracticality of surveying all roadsides before all activities related to routine maintenance, road approach, utility work or work in the right-of-way, the County requests take for impacts to populations of covered plants that may occur in the right-of-way outside established Special Management Areas (known populations) and/or impacts to plants that may be in the operational roadway (i.e., edge of pavement spraying that may impact seedlings recruiting in the gravel road edge). Potential take of the covered plant species resulting from these activities is estimated at 3% of the current known population sizes occurring on County road rights-of-way Special Management Areas.

## **5.2.4 Water and Wastewater Management**

Existing City of Corvallis water and sewer pipelines in the Plan Area will likely require maintenance and possibly replacement during the incidental take permit term. Future development may also require construction of new lines and structures. Most of these lines will be underground and may require excavation for access. Impacts to Covered Species will be avoided and minimized with use of appropriate vegetation management guidelines (Chapter 6). To account for the possibility that future development by City of Corvallis may require construction of water and wastewater infrastructure in areas with Nelson's checkermallow, take of 10 Nelson's checkermallow plants is requested (Table 5.1).

## **5.2.5 Parks/Natural Areas/Open Space Management Activities**

Take for short term impacts resulting from habitat restoration, enhancement, and management is requested for these activities (Table 5.1). These impacts do not require mitigation as they are expected to result in a net benefit to the Covered Species..

### **5.2.5.0 Park Development, Construction, and Maintenance**

Benton County and the Cooperators who own and/or manage parks, natural areas, and open spaces are responsible for conducting maintenance of infrastructure such as trails, roads, parking areas. Benton County and the Cooperators will implement avoidance measures (e.g., locating any new trails in forest edge rather than through a prairie) to ensure there are no impacts to the Covered Species.

#### **5.2.5.1 Recreation and Public Use**

Impacts to Covered Species from public use will be avoided (avoidance mechanisms are described in Chapter 6), thus, no take for public use is requested.

#### **5.2.5.2 Voluntary Habitat Restoration, Enhancement, and Management**

On-going (over the term of the incidental take permit), short term impacts from activities such as mowing, prescribed burning, and herbicide application activities intended to remove competition with non-native plants and enhance native prairie habitats will occur. These short-term adverse effects will be avoided or greatly minimized by following the recommended restoration, enhancement and management guidelines (Appendix J: Prairie Habitat Vegetation Management Guidelines), and are anticipated to have long-term benefit to the Covered Species (USFWS 2008a).

### **Fender's Blue Butterfly and Taylor's Checkerspot Butterfly**

Prescribed burning may result in 100% mortality of butterfly larvae in burned parcels. Burning is also predicted to result in mortality to 5% of the seeds in the soil seedbank and produced by existing Kincaid's lupine and nectar plants. Chemical treatments can largely avoid negatively impacting the butterflies, but incidental exposure may result in the death or injury of some butterfly larvae (<5% estimated) (USFWS 2008a). Take is

requested for these short term impacts to the butterfly populations (Table 5.1); detailed estimates of take by management treatment are presented in Table 5.8.

### **Covered Plants**

Take is requested for damage to seeds of the covered plants resulting from prescribed burning at covered parks/natural areas/open spaces in the amount of 5% of the existing populations (existing populations shown in Table 3.2) each time the sites are burned. Take resulting from prescribed fire is also requested for impacts to seeds of covered plants anticipated to be established through voluntary species introductions during the 50 year HCP. Anticipated species introductions include:

- 1,000 Nelson's checkermallow;
- 1,000 Willamette daisy;
- 500 peacock larkspur;
- 100 Bradshaw's lomatium; and
- 180 m<sup>2</sup> (1,938 ft<sup>2</sup>) of Kincaid's lupine.

Estimated total mortality to seeds of each species, if prescribed fire occurs 10 times over the course of the HCP, is identified in Table 5.1

## **5.2.6 Agricultural Activities**

### **5.2.6.0 Crop Production**

A Farm Services Contract at Owens Farm allows City of Corvallis property with Nelson's checkermallow to be used for grass crop production and harvest. Impacts have been avoided to these species to date, but the take of the five Nelson's checkermallow plants on the property is requested in the event the plants are inadvertently harmed as a result of farming activities (Table 5.1).

No take of Covered Species is anticipated or requested from agriculture activities on the City of Corvallis' Herbert Farm and Natural Area or Rock Creek properties.

## **5.2.7 HCP Implementation Activities**

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

This section addresses on-going, short term impacts to Covered Species that may result from habitat restoration, enhancement, and management activities (e.g., mowing, prescribed burn, and herbicide application) conducted for mitigation purposes over the term of the incidental take permit. The short-term adverse effects from this work will be avoided or greatly minimized by following the recommended restoration, enhancement and management actions (Appendix J: Prairie Habitat Vegetation Management Guidelines), and are expected to have long-term benefit to the Covered Species (USFWS 2008a). Impacts to the covered plants, and host and nectar species for the butterflies are included in Table 5.1.

**Fender's blue butterfly and Taylor's checkerspot butterfly**

Habitat restoration, enhancement, and management impacts to butterfly habitat for mitigation purposes are described in detail in Table 5.9. Activities will be conducted within the parameters identified in Appendix J: Prairie Habitat Vegetation Management Guidelines.

Table 5.8 Short term impacts to butterflies resulting from voluntary habitat restoration, enhancement and management activities over the 50 year HCP.

	Management Treatment	Treatment Frequency	Affected Habitat Component	Affected Habitat Component Area	Anticipated Impacts per Treatment	Cumulative Impacts over 50 yr HCP
Fender's Blue Butterfly	Burning of Conservation Areas	10 times over 50 years	Eggs/Larvae	112.5 m <sup>2</sup>	Mortality to 100% Eggs/Larvae	All Eggs/Larvae residing in 1,125 m <sup>2</sup>
	Herbicide application at conservation areas and roadsides	10% of area annually, or entire area 5 times	Eggs/Larvae	156.5 m <sup>2</sup>	Mortality to 5% Eggs/Larvae	All Eggs/Larvae residing in 39.1 m <sup>2</sup>
Taylor's Checkerspot Butterfly	Burning of Conservation Areas	10 times over 50 years	Eggs/Larvae	5,743 m <sup>2</sup>	Mortality to 100% Eggs/Larvae	All Eggs/Larvae residing in 57,430 m <sup>2</sup>
	Herbicide application at conservation areas	10% of area annually, or entire area 5 times	Eggs/Larvae	5,743 m <sup>2</sup>	Mortality to 5% Eggs/Larvae	All Eggs/Larvae residing in 1,436 m <sup>2</sup>

**Covered Plants**

At Prairie Conservation Areas (PCAs) where mitigation occurs, take is requested for 5% of the seeds produced by covered plants that are added for mitigation (identified in Chapter 6), to cover seed mortality incurred during prescribed fire. Assuming prescribed fire will occur four times over the course of the mitigation work, and using estimates of each species' typical seed production (Chapter 2), the resulting seed mortality for each species is identified in Table 5.1. No take of covered plants is anticipated from other habitat restoration, enhancement and management techniques, including mowing or herbicide use, as the activities will be conducted within the parameters identified in Appendix J: Prairie Habitat Vegetation Management Guidelines.

**5.2.7.1 Monitoring Activities****Fender's blue butterfly, Taylor's checkerspot butterfly and Covered Plants**

Monitoring activities, including pre- and post-activity monitoring and monitoring associated with habitat restoration, enhancement, and management activities will be

conducted to determine how well the activities are working. Monitoring activities have the potential to result in minor trampling of covered plants, host plants, nectar sources, and butterfly eggs and larvae. We estimate that monitoring activities will result in take of 1% of the Covered Species, host, and nectar plant populations, including those added through mitigation and conservation actions. Take requested is included in Table 5.1.

Table 5.9 Short term impacts to butterfly species resulting from mitigation related habitat restoration, enhancement, and management activities over the 50 year HCP.

	Management Treatment	Treatment Frequency	Affected Habitat Component	Affected Habitat Component Area	Anticipated Impacts per Treatment	Cumulative Impacts over 50 yr HCP
Fender's Blue Butterfly	Burning of Mitigation Areas	Burning 10 times over 50 years.	Eggs/Larvae	404 m <sup>2</sup>	Mortality to 100% Eggs/Larvae	All Eggs/Larvae residing in 4,041 m <sup>2</sup>
	Herbicide application at Mitigation Areas	10% of area annually, or entire area 5 times	Eggs/Larvae	404 m <sup>2</sup>	Mortality to 5% Eggs/Larvae	All Eggs/Larvae residing in 101 m <sup>2</sup>
Taylor's Checkerspot Butterfly	Burning of Mitigation Areas	Burning 2 times	Eggs/Larvae	172 m <sup>2</sup>	Mortality to 100% Eggs/Larvae	All Eggs/Larvae residing in 345 m <sup>2</sup>
	Herbicide application at Mitigation Areas	60% of entire area.	Eggs/Larvae	172 m <sup>2</sup>	Mortality to 5% Eggs/Larvae	All Eggs/Larvae residing in 5 m <sup>2</sup>

### 5.2.7.2 Plant Materials Collection Activities

Increasing the size and number of Covered Species populations is essential to ensure the conservation of Covered Species. Activities related to plant material collection and plant enhancement (Appendix L: Plant Material Collection and Plant Introduction Protocols) are expected to benefit the Covered Species by resulting in larger populations and wider distributions (USFWS 2008), but for tracking purposes, is estimated as "take" in Table 5.1. Estimates are based on current plant abundance within populations on lands owned or managed by Benton County or the Cooperators, the allowable annual seed collection for each population size (Appendix L: Plant Material Collection and Plant Introduction Protocols), and the best available information regarding the average seed output of each covered plant species (see Chapter 2 Covered Species).



### **5.2.8 Emergency Response Activities**

To account for the possibility that emergencies (e.g., fire-fighting, vehicle accident clean-up, hazardous material spill cleanup, and ambulance response) may result in some incidental take of Covered Species, impacts from these activities are estimated at the amount of 1% of the populations that remain on Benton County and Cooperator Lands, including rights-of-way, after the already described amounts of incidental take (e.g., projects covered by the HCP) have occurred (Table 5.1).

## **5.3 Indirect Impacts**

Development of private lands in urban and rural areas and road improvements will indirectly impact biological resources as the human population grows. Population growth will increase the general use of Prairie Conservation Areas and prairie habitat in general.

### **5.3.0 Habitat Degradation**

Increased human use may 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 road runoff. 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. Covered plant species' habitats may be harmed by introduction and spread of noxious weeds and non-native plants.

### **5.3.1 Habitat Fragmentation**

Habitat fragmentation will reduce the spatial and ecological continuity within the County as habitat is reduced in size and becomes more isolated from adjacent areas of similar habitat types. Fragmentation by roads, home construction, etc., can separate a continuous population into subpopulations, making each subpopulation more vulnerable to local extinction.

### **5.3.2 Isolation**

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

### **5.3.3 Loss of Biological Diversity**

Any conversion of open space, including construction of homes on prairie habitats, will result in loss of biological diversity as habitat loss occurs and species may be removed from the area.

# 6 Conservation Measures

## 6.1 Biological Goal

For Habitat Conservation Plans (HCPs), biological goals are the broad, guiding principles of the required Conservation Measures set forth in the HCP. Conservation Measures are the actions proposed to avoid, minimize, and mitigate for impacts to the Covered Species resulting from Covered Activities. While the biological goal in this Habitat Conservation Plan (HCP or Plan) can contribute to range-wide recovery goals for the Covered Species, HCP goals and recovery goals are not required to be equivalent. Benton County will plan and design the habitat protection, restoration and enhancement required as mitigation in the HCP to contribute, to the maximum extent practicable, to the recovery of the Covered Species.

The biological goal of this Plan is to maintain viable populations of the Covered Species in Benton County.

## 6.2 Biological Objectives, Conservation Measures and Tasks

To achieve the biological goal, the following objectives shall be accomplished through the Conservation Measures of the HCP:

- 1) Conserve Covered Species populations and habitat.
- 2) Enhance Covered Species populations and habitat.
- 3) Increase the distribution and connectivity of Covered Species populations.

The Conservation Measures required of the County or any holder of a certificate of inclusion shall be commensurate with the type of impacts likely to occur to the Covered Species. Each conservation measure has one or more distinct tasks to be accomplished.

The USFWS and ODA may issue the County an incidental take permit provided the impacts to the Covered Species and the Conservation Measures to be performed to mitigate for those impacts do not appreciably reduce the likelihood of survival and recovery of the Covered Species. The USFWS and/or ODA will also consider the extent to which the HCP is likely to enhance the habitat for Fender's blue butterfly and the other Covered Species or increase these Covered Species' long term survivability or that of their ecosystem.

**6.2.0 Objective 1: Conserve Covered Species populations and habitat.**

<b>Conservation Measures</b>	<b>Tasks</b>
<p>1.1 Acquire from willing sellers and manage properties (as Benton County Fender’s Blue Butterfly Conservation Areas) with existing populations of Fender’s blue butterfly and prairie habitat.</p>	<p>1.1.1 Identify public or private properties for acquisition (fee simple or conservation easement).                      1.1.2 Pursue funding for property acquisition.                      1.1.3 Acquire (fee simple or conservation easement) approximately 20-25 ha (50-60 acres) of Fender’s blue butterfly habitat.                      1.1.4 Develop management plans for properties.                      1.1.5 Implement management plans, including habitat restoration and enhancement activities.</p>
<p>1.2 Establish roadside Special Management Areas (SMAs) for roadside populations of Covered Plants.</p>	<p>1.2.1 Identify new Covered Species locations.                      1.2.2 Classify roadside populations in SMA areas as Type 1 or Type 2, to prioritize roadside populations for management.                      1.2.3 Sign SMA areas.                      1.2.4 Conduct outreach to landowners adjacent to SMA zones, with the goal of avoiding accidental impacts to the Covered Species.                      1.2.5 Conduct outreach to public road districts with roadside Covered Species.                      1.2.6 Conduct outreach to utility companies with potential to impact roadside Covered Species.</p>
<p>1.3 Implement best management practices for roadside populations.</p>	<p>1.3.1 Follow guidelines in Appendix M: Roadside and Streambank Management Guidelines for Covered Plants during any ground disturbing activity.                      1.3.2 In Type 2 roadside populations with anticipated impacts, avoid impacts to the maximum degree possible, salvage seeds and plant materials as possible prior to unavoidable impacts and replant at a PCA with appropriate habitat, and complete any mitigation according to the requirements outlined in Section 6.3.</p>

<b>Conservation Measures</b>	<b>Tasks</b>
<p>1.4 Designate Prairie Conservation Areas (PCAs), lands within the County managed for prairie habitat and conservation the Covered Species. Some areas of some PCAs may be designated for use as mitigation sites.</p>	<p>1.4.1 Designate prairie areas within the following properties as PCAs</p> <ul style="list-style-type: none"> <li>• Benton County: Beazell Memorial Forest, Fitton Green Natural Area, Jackson Frazier Wetland, Fort Hoskins Historic Park</li> <li>• City of Corvallis: Bald Hill Park, Herbert Farm and Natural Area, Lancaster Property, Corvallis Watershed</li> <li>• ODOT Henkle Quarry &amp; Wren Mitigation Site</li> <li>• Greenbelt Land Trust Lone Star Ranch, Lupine Meadows, Owens Farm</li> <li>• Any newly acquired and appropriate lands within the Plan Area.</li> </ul> <p>See Appendix D: Maps of Prairie Conservation Areas.</p>
<p>1.5 Implement best management practices for Covered Species populations in Prairie Conservation Areas and other Covered Lands owned by Benton County or the Cooperators.</p>	<p>1.5.1 Follow Prairie Vegetation Management Guidelines (Appendix J) during any habitat restoration, enhancement or management activities.</p> <p>1.5.2 Avoid impacts to Covered Species to the maximum extent possible during any monitoring work.</p> <p>1.5.3 Follow protocols for seed and plant materials collection that are set forth in the Prairie Vegetation Management Guidelines (Appendix I).</p> <p>1.5.4 Follow protocols for population augmentations and introductions (Appendix L: Plant Material Collection and Plant Introduction Protocols).</p> <p>1.5.5 At PCAs with public use, install signs to encourage the public to avoid impacting Covered Species and prairie habitat.</p> <p>1.5.6 Avoid all impacts to Covered Species from construction of trails or interpretive structures.</p> <p>1.5.7 Avoid all impacts to Covered Species from construction of recreation related facilities including but not limited to restrooms, picnic areas, and parking lots.</p> <p>1.5.8 Establish and maintain a surveyed areas database for the Covered Species.</p> <p>1.5.9 Avoid impacts to Covered Species to the maximum extent practicable</p>

<b>Conservation Measures</b>	<b>Tasks</b>
	during any of the Covered Activities (Table 4.1) within the Plan Area (Figure 3.1).
1.6 Implement Taylor’s checkerspot management plan.	1.6.1 See Appendix N: Draft Taylor’s Checkerspot Management Plan.
1.7 Conduct outreach to the public.	<p>1.7.1 Distribute informational brochures regarding prairie species, habitats and conservation programs.</p> <p>1.7.2 Hold workshops about prairie habitat management.</p> <p>1.7.3 Participate in local community organization activities involving prairie habitat or species.</p> <p>1.7.4 Encourage landowners with prairie habitat to engage in existing conservation programs, including those providing technical assistance, assistance for habitat improvements, funding for conservation easements, or conservation tax deferral programs such as the Wildlife Habitat Conservation and Management Program (WHCMP) (see Appendix E: Draft Prairie Conservation Strategy for more information).</p> <p>1.7.5 Encourage landowners with prairie habitat to enter into Safe Harbor Agreements (SHA) with the USFWS if they have Covered Species on their property, or are interested introducing these species as part of a habitat restoration, enhancement and management project (see Appendix E: Draft Prairie Conservation Strategy for more information).</p> <p>1.7.6 Encourage landowners with Taylor’s checkerspot butterfly to enter into Candidate Conservation Agreements with Assurances (or Safe Harbor Agreements if the butterfly is listed) with the USFWS to conserve the butterfly (see Appendix E: Draft Prairie Conservation Strategy for more information).</p>

<b>Conservation Measures</b>	<b>Tasks</b>
	1.7.7 Recruit and train volunteers to assist with monitoring and restoration work.
1.8 Work with County permit and agricultural building authorization applicants (see Chapter 4 for list of covered permits) in the Fender’s Blue Zone to avoid impacts to Fender’s blue butterfly habitat from private development.	1.8.1 Offer home or farm building permit applicants in the Fender’s Blue Zone information about the butterfly and its habitat, and encourage them to have their property surveyed for butterfly habitat (Appendix K: Project Site Survey and Reporting Protocols for Plants and Butterfly Habitat).  1.8.2 On sites with known use by Fender’s blue butterfly, work with landowners to site their construction activities to avoid or minimize impacts to the butterfly and its habitat.
1.9 When Special Event Permits are issued by Benton County in areas where Covered Species occur, County will mandate avoidance of impacts to Covered Species.	1.9.1 Modify language of Special Event Permits to include species protection language.
1.10 Permits issued for utility work, other work, and road approach permits in County Rights-of-Way will mandate avoidance of all impacts to Covered Species on Type 1 roadsides, and mandate avoidance and minimization of impacts where possible in Type 2 roadsides.	1.10.1 Utilize permit issuance process and permit language to reflect the difference between Type 1 and Type 2 roadside populations and include species protection language.  1.10.2 In the event that an applicant is not able to avoid impacts to Type 1 roadside populations, they shall be referred to USFWS and/or ODA to obtain incidental take authorization. County permit issuance will be contingent upon receipt of such authorization and any required mitigation by the USFWS/ODA.

**6.2.1 Objective 2: Enhance Covered Species populations and habitat.**

<b>Conservation Measures</b>	<b>Tasks</b>
<p>2.1 Implement best management practices during any habitat restoration, enhancement and management at the Prairie Conservation Areas (PCAs).</p>	<p>2.1.1 Follow guidelines in Appendix J: Prairie Habitat Vegetation Management Guidelines at PCAs.</p>
<p>2.2 Augment populations of covered plant species using appropriate genetic sources, to mitigate for impacts (See Section 6.3 Mitigation Requirements and Table 6.1).</p>	<p>2.2.1 Augment Bradshaw’s lomatium at the Lancaster Property and Jackson-Frazier Wetland (combined) by a minimum of 20 plants to offset estimated impacts to 2 plants at these sites from emergency activities.</p> <p>2.2.2 Augment peacock larkspur populations at the Corvallis Watershed PCA by a minimum of 21 plants to offset impacts to 7 plants on Henkle Way from possible County road improvements.</p> <p>2.2.3 Augment peacock larkspur populations at the Corvallis Watershed PCA by a minimum of 91 plants to offset impacts to 30 plants for estimated emergency activities on City, County, and ODOT lands.</p> <p>2.2.4 Augment Nelson’s checkermallow populations at Lancaster Property by a minimum of 45 plants to offset impacts to 5 plants on the agricultural portion of Owens Farm and 10 plants from water and wastewater management projects.</p> <p>2.2.5 Augment Nelson’s checkermallow populations at Jackson-Frazier Wetland by a minimum of 507 plants to offset impacts to 169 plants in Benton County rights-of-way.</p> <p>2.2.6 Augment Nelson’s checkermallow populations at Jackson-Frazier Wetland by a minimum of 33 plants to offset impacts to 11 plants from estimated emergency response activities.</p>

Conservation Measures	Tasks
	<p>2.2.7 Introduce Kincaid’s lupine populations (outside the Fender’s Blue Zone) of a minimum of 23 m<sup>2</sup> (248 ft<sup>2</sup>) total at Fitton Green, Lone Star Ranch or Beazell Memorial Forest to offset impacts to 4.3 m<sup>2</sup> (46 ft<sup>2</sup>) of Kincaid’s lupine in Benton County right-of-way from transportation projects, road maintenance, utility work and road approaches, and impacts to 3.4 m<sup>2</sup> (36.6 ft<sup>2</sup>) from estimated emergency response activities.</p> <p>2.2.8 Augment Willamette daisy populations at Bald Hill by at least 20 plants to offset impacts to 1 plant from estimated emergency response activities.</p>
<p>2.3 Enhance habitat for populations of Fender’s blue butterfly and associated Kincaid’s lupine at Fender’s Blue Butterfly Conservation Areas (See Section 6.3 Mitigation Requirements and Table 6.1).</p>	<p>2.3.1 Follow Prairie Vegetation Management Guidelines (Appendix J) to avoid any permanent impacts to Fender’s blue habitat other than short term impacts resulting from habitat restoration, enhancement and management activities for mitigation.</p> <p>2.3.2 Through enhancement at the Benton County Fender’s blue butterfly Conservation Areas, increase native nectar species cover by a minimum of 2,031 m<sup>2</sup> (21,862 ft<sup>2</sup>) and Kincaid’s lupine cover by a minimum of 35 m<sup>2</sup> (377 ft<sup>2</sup>) to offset impacts in Benton County right-of-way within the Fender’s Blue Zone.</p> <p>2.3.3 Through enhancement at Benton County Fender’s Blue Butterfly Conservation Area PCAs, increase native nectar species cover by a minimum of 222 m<sup>2</sup> (2,390 ft<sup>2</sup>) and Kincaid’s lupine cover by a minimum of 12.3 m<sup>2</sup> (129 ft<sup>2</sup>) to offset impacts from Public Services Facility construction in the Fender’s Blue Zone.</p> <p>2.3.4 Through enhancement at Benton County Fender’s Blue Butterfly Conservation Areas, increase native nectar species cover by a minimum of 5,466.5 m<sup>2</sup> (58,843 ft<sup>2</sup>) and Kincaid’s lupine cover by a minimum of 352.6 m<sup>2</sup> (3,789 ft<sup>2</sup>) to offset impacts to Fender’s blue butterfly habitat from home, farm and forest construction and utility construction and</p>



Conservation Measures	Tasks
	<p>maintenance on private lands in the Fender’s Blue Zone.</p> <p>2.3.5 Through enhancement at the ODOT Wren Mitigation Site and Henkle Quarry, increase native nectar species cover by a minimum of 2,103 m<sup>2</sup> (22,637 ft<sup>2</sup>) to offset impacts to Fender’s blue butterfly habitat from maintenance of ODOT rights-of-way in the nectar zone of the Fender’s Blue Zone.</p> <p>2.3.6 Through enhancement at one or more of the PCAs with Fender’s blue butterfly, increase Kincaid’s lupine cover by a minimum of 3.3 m<sup>2</sup> (36 ft<sup>2</sup>) and increase native nectar species cover by a minimum of 265 m<sup>2</sup> (2,852 ft<sup>2</sup>) to offset impacts from estimated emergency response activities on all Cooperator lands in the Fender’s Blue Zone.</p>
<p>2.4 Enhance habitat for populations of Taylor’s checkerspot butterfly (see Table 6.1).</p>	<p>2.4.1 Through habitat restoration, enhancement and management at Bezell Memorial Forest, increase habitat available to Taylor’s checkerspot by 172 m<sup>2</sup> (1,854 ft<sup>2</sup>) to offset impacts to 57 m<sup>2</sup> (618 ft<sup>2</sup>) from estimated emergency response activities. Work may include augmentation of native nectar species, limited augmentation of plantain where it is limiting, control of aggressive introduced species, and habitat management to maintain the low vegetation structure preferred by Taylor’s checkerspot.</p>
<p>2.5 Manage and maintain Type 1 roadside populations of peacock larkspur, Kincaid’s lupine and Nelson’s checkermallow (Table 5.7).</p>	<p>2.5.1 Manage and maintain the 722 Nelson’s checkermallow plants in Type 1 roadside populations (SMAs) to offset estimated impacts to 27 plants that may result from transportation maintenance activities, utility work and road approach permits in unsurveyed County rights-of-way outside established SMAs.</p> <p>2.5.2 Manage and maintain the 627 peacock larkspur plants in Type 1 roadside populations to offset estimated impacts to 19 plants that may result from transportation maintenance activities, utility work and road approach</p>

Conservation Measures	Tasks
	<p>permits in unsurveyed County rights-of-way outside established SMAs.</p> <p>2.5.3 Manage and maintain the 9.5 m<sup>2</sup> (110 ft<sup>2</sup>) of Kincaid’s lupine and associated nectar species that are located in Type 1 roadside populations to offset estimated impacts to 1.4 m<sup>2</sup> (15 ft<sup>2</sup>) of Kincaid’s lupine and 61 m<sup>2</sup> (657 ft<sup>2</sup>) of nectar species that may result from transportation maintenance activities, utility work and road approach permits in unsurveyed County rights-of-way outside established SMAs.</p>
<p>2.6 Conduct restoration activities including burning, seeding with native plant species and planting plugs of native plant species at Prairie Conservation Areas.</p>	<p>2.6.1 Follow guidelines in Appendix J: Prairie Habitat Vegetation Management Guidelines to avoid any permanent impacts to Covered Species other than short term impacts resulting from habitat restoration and enhancement.</p>

**6.2.2 Objective 3: Increase the distribution and connectivity of Covered Species populations.**

Conservation Measure	Tasks
<p>3.1 Develop, update and maintain a Prairie Conservation Strategy (Appendix E) to facilitate effective conservation actions that contribute to the recovery of the Covered Species and other imperiled prairie species in Benton County.</p>	<p>3.1.1 Identify prairie and oak habitats and habitat attributes important to Benton County’s at-risk species.</p> <p>3.1.2 Encourage voluntary cooperative partnerships among public and private landowners and the general community to enhance conservation.</p> <p>3.1.3 Facilitate access to diverse sources of funding to maximize the likelihood of stable support.</p> <p>3.1.4 Identify and engage public lands partners in this strategy, including Oregon State University, Oregon Department of Fish and Wildlife, City of Corvallis, Oregon Department of Agriculture, U.S. Fish and Wildlife</p>

Conservation Measure	Tasks
	Service, The Nature Conservancy and Greenbelt Land Trust.
	3.1.5 Use the Draft Recovery Plan for Prairie Species of Western Oregon and Southwest Washington (USFWS 2008b) and the Oregon Conservation Strategy (ODFW 2006) to identify conservation targets for listed, candidate, and at risk species.

Table 6.1 Summary of mitigation to be completed by Benton County and Cooperators. Amounts reported are the minimum required, and assume pre-mitigation will be completed. If mitigation is concurrent, a higher mitigation ratio will be applied, and a larger amount of mitigation will be required (see Table 6.2). No mitigation required for impacts to non-native nectar species for Fender’s blue butterfly (See Section 6.3 for more information).

	Bradshaw's lomatium (#)	Willamette daisy (#)	peacock larkspur (#)	Nelson's checkermallow (#)	Kincaid's lupine (m <sup>2</sup> ) (outside Fender's Blue Zone)	Kincaid's lupine (m <sup>2</sup> ) inside the Fender's blue zone	Native nectar for Fender's blue butterfly (m <sup>2</sup> )	Non-Native Nectar for Fender's blue butterfly (m <sup>2</sup> )	Taylor's checkerspot butterfly habitat (m <sup>2</sup> )					
<b>Mitigation for Private Lands Impacts Under HCP:</b>														
<b>Home, Farm and Forest Construction</b>	-	-	-	-	-	346	5364	n/a	-					
<b>Telephone Utility Construction and Maintenance</b>	-	-	-	-	-	6.4	101.1	n/a	-					
<b>Natural Gas Utility Construction and Maintenance</b>	-	-	-	-	-	0.2	1.4	n/a	-					
<b>Private lands subtotal</b>						<b>352.6</b>	<b>5466.5</b>							
<b>Mitigation for Benton County and Cooperator Impacts:</b>														
<b>Public Service Facility Construction</b>	-	-	-	-	-	12.3	222	n/a	-					
<b>Transportation Activities and Authorized Work in Rights-of-Way</b>														
Construction, maintenance, utility work and road approach	-	-	21	507	12.9	35	4134	n/a	-					
Maintenance, utility and road approach outside known populations	-	-	57	80	0.4	1.3	61	n/a	-					
<b>Water and Wastewater Management</b>	-	-	-	30	-	-	-	-	-					
<b>Agriculture</b>	-	-	-	15	-	-	-	-	-					
<b>Emergency Response Activities</b>	7	2	91	33	10.1	3.3	265	n/a	172					
<b>County &amp; Cooperator lands subtotal</b>						<b>7</b>	<b>2</b>	<b>169</b>	<b>665</b>	<b>23</b>	<b>51</b>	<b>4682</b>	<b>n/a</b>	<b>172</b>
<b>Mitigation Total</b>						<b>20*</b>	<b>20*</b>	<b>169</b>	<b>665</b>	<b>23.4</b>	<b>756.7</b>	<b>15615</b>	<b>n/a</b>	<b>172</b>

\* A minimum of 20 plants will be established for any covered plant mitigation project.

### 6.3 Mitigation Requirements

Mitigation will occur when impacts are unavoidable and will be completed at sites with appropriate habitat at the closest appropriate location in Benton County (e.g., for Fender's blue butterfly, within the Fender's Blue Zone). Mitigation may be achieved by butterfly habitat enhancement or species augmentations for covered plants. Mitigation will take place at sites already supporting the impacted species, or currently unoccupied sites containing suitable habitat. Mitigation will not take place at sites where there is not suitable habitat for the species. Habitat enhancement or species augmentations must establish the amount of plants/butterfly habitat required for mitigation regardless of the pre-existing population or habitat amounts at the site. For definitions of "individuals" for each species see Section 7.2.1.2.

The estimated quantity of mitigation required for impacts requested in this Plan is identified in Table 6.1 (exact amounts will vary with actual project impacts, mitigation site, and timing of mitigation).

Mitigation requirements have been fulfilled when the following conditions are met:

- The required amount of plants or habitat persists six years after initiation of the mitigation;
- The trend in population size or habitat abundance is stable over the last three years of the six years (no significant population declines during that period); and
- For plants, at least 40% of the individuals initially planted or seeded are reproductive and produce seeds. This requirement does not apply to portions of the population that recruit (self-seed) naturally after planting.

If permanent impacts are to take place at a site (e.g., plants will be eliminated from the area as a result of construction activities), covered plants may be relocated from the impact site and transplanted to a mitigation site. At a minimum, any seeds produced in the population to be permanently impacted will be collected for use at the mitigation site or elsewhere. Successfully transplanted individuals that survive may count towards mitigation requirements. Section 8.5.1 describes the eligibility of funding sources and mitigation projects completed prior to HCP completion.

Mitigation shall not be required for impacts to non-native nectar species for Fender's blue butterfly, as these species, many of which are considered weeds, are common across the landscape. Fender's blue have demonstrated a preference for utilizing native nectar species over non-native ones (Schultz and Dlugosch 1999, Wilson et al. 1997). All of the nectar zones of the Fender's Blue Zone contain private properties with native nectar species present and confirmed by survey (Figure 6.1). A mix of native and non-native nectar species are found along roadside rights-of way. Non-native nectar species tend to be self-mitigating (ground disturbance from projects tends to increase their cover, often at the expense of native species). Mitigation involving augmentation of

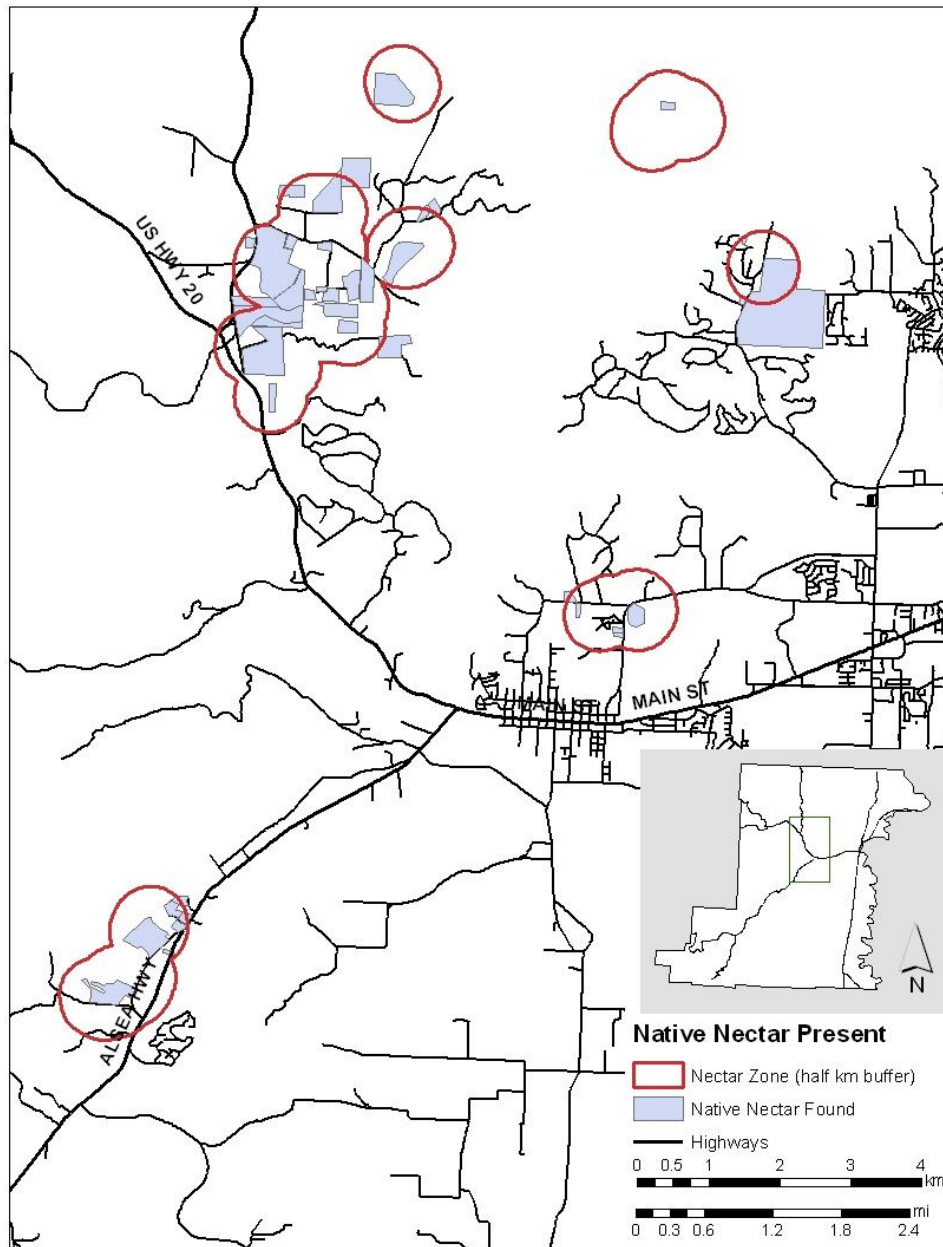


Figure 6.1 Properties surveyed between 2006 and 2009 within the Fender's blue butterfly nectar zone that contained native nectar species for Fender's blue butterfly.

non-native nectar species at mitigation sites, would be counterproductive to long term goals of enhancing native habitat components. At sites with conservation easements, augmentation of non-native species may be prohibited in easement terms.

### 6.3.0 Factors Determining Mitigation Ratios

The quantity of mitigation to be completed is set forth in mitigation ratios. Mitigation ratios (Table 6.2) reflect the amount of plants (for covered plants) or habitat (for

butterflies) to be added to a site relative to the amount of plants or habitat impacted (Table 6.1). The type and quantity of mitigation required for specific impacts is determined by a combination of the:

- quality of the impacted site;
- quality of the mitigation site;
- timing of mitigation (before impacts or concurrent with impacts); and
- mitigation site status (site under permanent conservation easement/deed restriction or on non-federal public lands absent an easement or deed restriction).

For the purposes of determining population size, even if a naturally occurring population spans multiple ownerships, such as Bradshaw's lomatium at Jackson-Frazier Wetland and the Lancaster Property, it will be treated as one population. The size of that overall population will be used in site quality assessments at either site, even though only a portion occurs on each.

Table 6.2 Mitigation ratios that define the amount of plants (for covered plants) or habitat (for butterflies) to be added to a site relative to the amount of plants or habitat impacted.

Site Quality		Site Protection	Mitigation Ratios Based on Timing of Mitigation	
Impacted Site	Mitigation Site	Under permanent conservation easement or deed restriction?	Pre-Mitigation	Concurrent Mitigation
High	Exceptional	Yes	1:1	3:1
	Exceptional	No	3:1	5:1
	Adequate	Yes	4:1	5:1
	Adequate	No	5:1	5:1
Low	Exceptional	Yes	1:1	3:1
	Exceptional	No	3:1	5:1
	Adequate	Yes	3:1	5:1
	Adequate	No	3:1	5:1

In the event that a new mitigation site becomes available in the future, or if Benton County or a Cooperator makes a property acquisition (from willing sellers, fee simple or conservation easement) and wishes to use the acquisition, perpetual maintenance, and/or enhancement of a site to fulfill a mitigation requirement, the site will be evaluated for baseline conditions and potential for enhancement. Negotiations with the County/Cooperator and USFWS and/or ODA will take place to determine mitigation ratios.

### **6.3.0.0 Impact and Mitigation Site Quality**

The quality of an impacted site or a site where mitigation may take place will be determined by a combination of 1) Covered Species population size or area of habitat, for Fender's blue butterfly or Taylor's checkerspot butterfly, 2) associated vegetation and 3) connectivity.

#### **Impacted site quality**

For an impacted site to be classified as high quality it must satisfy one of the site quality criteria (1-3) below. Any impacted site not meeting at least one of these criteria will be classified as low quality.

#### **Mitigation site quality**

All mitigation sites must contain suitable habitat for the species for which mitigation is being completed. For a site to be considered as a mitigation site, and be categorized as having adequate quality, it must:

- have the correct vegetation structure;
- possess suitable soils (see Appendix O: Covered Plant Soils Lists);
- be located within current or historic prairie habitat;
- be located on lands protected by permanent conservation easement or under non-federal public ownership; and
- the site cannot have significant cover (e.g., >30% cover) by List A or B noxious weeds in the prairie area to be planted or enhanced.

For a mitigation site to be classified as exceptional quality it must satisfy at least one of the site quality criteria (1-3) below, in addition to the above general requirements. Any mitigation site that meets the general requirements (above), but not meeting any of the site quality criteria will be classified as adequate. The site quality criteria (below) have been used to classify all currently proposed mitigation sites (Table 6.3). Any newly acquired mitigation sites can also be classified using these criteria.

#### **Site quality criteria**

Criterion 1:

- Population supports  $\geq 60$  m<sup>2</sup> (646 ft<sup>2</sup>) of Kincaid's lupine outside the Fender's Blue Zone, or  $\geq 200$  individuals of the other covered plants, or  $\geq 100$  m<sup>2</sup> (1,076 ft<sup>2</sup>) of Fender's blue habitat (Kincaid's lupine and native nectar species), of which at least 60% must be Kincaid's lupine cover, or 100 m<sup>2</sup> (1,076 ft<sup>2</sup>) of occupied Taylor's checkerspot habitat (host plants and nectar species). The size threshold of 200 individuals was selected for the covered plants because this is the minimum size for a population to contribute to the recovery of the species (USFWS 2008).

Criterion 2:

- Population supports more than 30 m<sup>2</sup> (323 ft<sup>2</sup>) of Kincaid's lupine outside the Fender's Blue Zone, or 100 individuals of the other covered plants, or 50 m<sup>2</sup> (538

ft<sup>2</sup>) of Fender's blue habitat (Kincaid's lupine and native nectar species), of which at least 60% must be Kincaid's lupine cover, or 50 m<sup>2</sup> (538 ft<sup>2</sup>) of occupied Taylor's checkerspot habitat (host plants and nectar species); and

- Site supports  $\geq$  25% native forb and/or grass cover.

Criterion 3:

- Population supports more than 30 m<sup>2</sup> (323 ft<sup>2</sup>) of Kincaid's lupine outside the Fender's Blue Zone, or 100 individuals of the other covered plants, or 50 m<sup>2</sup> (538 ft<sup>2</sup>) of Fender's blue habitat (Kincaid's lupine and native nectar species), of which at least 60% must be Kincaid's lupine cover, or 50 m<sup>2</sup> (538 ft<sup>2</sup>) of occupied Taylor's checkerspot habitat (host plants and nectar species); and
- Population provides connectivity between two other wild or introduced populations on protected lands that would not otherwise be connected. Covered plant populations must be within 3 km (1.8 mi) of each other, Fender's blue butterfly populations must be within 2 km (1.2 mi) of each other, and Taylor's checkerspot populations must be within 1.5 km (0.9 mi) of each other to be considered connected.

### **6.3.0.1     Timing of Mitigation**

Pre-mitigation is mitigation completed and established for six or more years prior to when impacts take place, thus reducing or eliminating any temporal loss to the species. If mitigation efforts are not successful after six years, the entity responsible for ensuring completion of the mitigation will continue efforts until mitigation requirements are met, using an alternate site, if necessary.

Concurrent mitigation is implemented within one year of when impacts occur and can result in temporal loss of habitat. In most cases, pre-mitigation will require lower mitigation ratios than concurrent mitigation. If concurrent mitigation efforts are not successful after six years, the entity responsible for ensuring completion of the mitigation will continue efforts until mitigation requirements are met, using an alternate site, if necessary. If mitigation continues to be unsuccessful 12 years after initiation, no additional take will be allocated to that entity pending completion of the initial mitigation, and the entity will be referred to the USFWS and/or ODA.

See Section 8.5 Mitigation Policies, for more information.

### **6.3.0.2     Mitigation Site Protection**

Mitigation must occur on publicly owned sites or lands with some degree of protection (e.g., it cannot occur on privately owned sites without a permanent deed restriction or permanent conservation easement). A lower mitigation ratio will be required at mitigation sites under permanent deed restriction or conservation easement. A higher mitigation ratio will be required on non-federal public land not under permanent deed restriction or conservation easement.



### 6.3.1 Mitigation Ratios

Mitigation ratios are set forth in Table 6.2.

If a project will only require mitigation of a few plants or a small area of habitat, there will be a mandatory minimum of 20 covered plants or 6 m<sup>2</sup> (65 ft<sup>2</sup>) of Kincaid's lupine or native nectar species established as mitigation.

If Benton County acquires and protects sufficient Fender's blue butterfly habitat to establish the Benton County Fender's Blue Butterfly Conservation Areas, and restoration, enhancement and management activities (including Kincaid's lupine and native nectar species population augmentations) commence immediately, the County may use a pre-mitigation ratio during the first ten years of the HCP even though mitigation is concurrent.

Table 6.3 Species present and site quality at sites where some level of mitigation is planned, or may be planned in the future (including PCAs and Type 1 roadside populations (SMAs)).

Site Name	Species Present at Site							Site Quality
	WD	PL	BL	NC	KL	FBB	TCB	
Bald Hill Park (PCA)	X <sup>c</sup>				b,d			Adequate
Bezell Memorial Forest (PCA)					b,d		X	Adequate (KL), Exceptional (TCB)
Benton County Fender's Blue Conservation Areas (PCA)					X	X		Exceptional
Corvallis Watershed (PCA)		X			a,d	X		Exceptional
Decker Road SMA I				X				Exceptional
Decker Road SMA II		X						Exceptional
Fern Road SMA		X						Exceptional
Fitton Green Natural Area (PCA)					b,d		e	Adequate
Fort Hoskins Historic Park					d		e	Adequate
Jackson-Frazier Wetland (PCA)			X <sup>c</sup>	X <sup>c</sup>	X			Exceptional
Lancaster Property (PCA)			X <sup>c</sup>	X <sup>c</sup>				Exceptional
Lone Star Ranch (PCA)					d	d		Adequate
McFarland Road SMA		X		X				Adequate
ODOT Henkle Quarry (PCA)						X		Adequate
ODOT Wren Mitigation Site (PCA)					X	X		Adequate
Tampico Road SMA				X				Exceptional
West Hills Road SMA					X	X		Adequate

<sup>a</sup> Adjacent to naturally occurring Kincaid's lupine

<sup>b</sup> Supports introduced plants

<sup>c</sup> Supports natural and augmented plants

<sup>d</sup> Supports suitable habitat for this species

<sup>e</sup> One TCB individual seen between 2005-2009.

## **6.3.2 Mitigation Implementation**

### **6.3.2.0 For Impacts on Non-Federal Public Lands**

Any mitigation required of Benton County will be completed at a Prairie Conservation Area or a Type 1 Special Management Area (for road right-of-way impacts only). Benton County will conduct the required monitoring (See Chapter 7).

Any mitigation required of Cooperators will be completed by that entity on-site or at a PCA. See Section 8.5 Mitigation Policies, for more information regarding how Cooperators will submit notices of mitigation initiation and completion. Any required monitoring will be completed by the Cooperator and reported to Benton County.

### **6.3.2.1 For Impacts on Private lands**

Any mitigation required for impacts to Fender's blue butterfly in the Fender's Blue Zone due to home, farm, and forest construction on private lands will be completed through habitat enhancement by Benton County at the Benton County Fender's Blue Butterfly Conservation Areas. All enhancement work, monitoring, and required reporting will be completed by Benton County. Funding for this mitigation is discussed in Chapter 8 and Chapter 9. If a private landowner proposes a project that will result in impacts to Fender's blue butterfly habitat and wishes to complete mitigation, along with the associated monitoring and reporting on their own property they may elect to work with USFWS to do so.

### **6.3.2.2 Strategy for Fender's Blue Butterfly Conservation Areas**

Benton County will maintain and enhance the entirety of upland prairie and oak habitat at the Fender's Blue Butterfly Conservation Areas (FBBCAs) for Fender's blue butterfly - see Section 3.1.1.3 for more information about these sites. Based on Benton County's mitigation requirements to be fulfilled at these sites (area of Kincaid's lupine and native nectar species to be established- see Table 6.1), the County has projected the acreage of prairie habitat that will need to be enhanced. These projections (described below), are based on mitigation required and the potential for habitat enhancement (increase in cover of lupine and native nectar species) at the FBBCAs. The actual acreage needed will vary with site conditions, and Benton County will acquire or use additional acreage if necessary to fulfill mitigation requirements.

To identify the potential increase in native nectar species cover, Benton County examined data from 5 m x 5 m vegetation plots sampled throughout Benton County (both inside and outside the Fender's Blue Zone) during HCP development, including Finley National Wildlife Refuge, other public lands, and private properties. These data were analyzed to estimate a range of achievable density of native nectar species (Table 2.1) for Fender's blue butterfly. Within the 240 plot dataset, few if any sites were actively managed or restored. Cover of native nectar species ranged from 0% to 50% cover. Of the sites with native nectar species present, their average cover was 4.55%,

with a standard deviation of 7.1%. Benton County estimates that with regular management, restoration, and enhancement, they will be able to achieve an average of 5-10% cover of native nectar species at their mitigation sites (Figure 6.2).

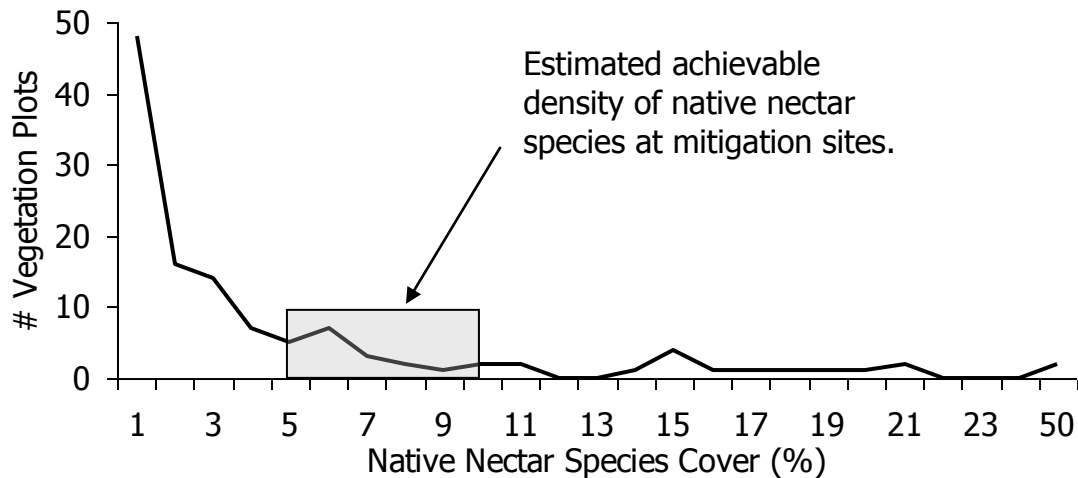


Figure 6.2 Ground cover (%) of native nectar species for Fender's blue butterfly within vegetation plots with native nectar species present sampled throughout Benton County in 2006-2009.

To identify the potential increase in Kincaid's lupine cover at mitigation sites, Benton County examined data from sites occupied by the species in Benton and Lane Counties. A large site on private land in Benton County, which has received minimal maintenance (sporadic mowing only), has average Kincaid's lupine cover of 1.1% (Benton County, unpublished data). Two Eugene District Bureau of Land Management sites in Lane County, Fir Butte and Oxbow West, both of which have been intensively managed and have expanded three-fold or greater in lupine cover over 10 years, have average Kincaid's lupine cover of approximately 3.5% and 18%, respectively (Thorpe et al. 2008). Benton County estimates that with regular management, restoration and enhancement, they will be able to achieve 1-3% cover of Kincaid's lupine at their mitigation sites.

Based on the County's estimate of achievable Kincaid's lupine and native nectar species cover, and the estimated mitigation required, the County anticipates that between 7.7 ha and 15.4 ha (19.1 ac and 38.2 ac) of mitigation area will be needed. Kincaid's lupine and native nectar species will co-occur in this area. To achieve the 7,720 m<sup>2</sup> (83,098 ft<sup>2</sup>) of native nectar species cover needed for Benton County's mitigation, an average increase of about 155 m<sup>2</sup> (1,668 ft<sup>2</sup>) of nectar species cover per year will need to be achieved (Figure 6.3). To achieve the 399 m<sup>2</sup> (4,295 ft<sup>2</sup>) Kincaid's lupine cover needed for Benton County's mitigation, an average increase of about 8 m<sup>2</sup> (87 ft<sup>2</sup>) of lupine cover per year will need to be achieved (Figure 6.3). Actual area needed and increase per year will undoubtedly vary with site, herbivore, management, and climatic conditions.

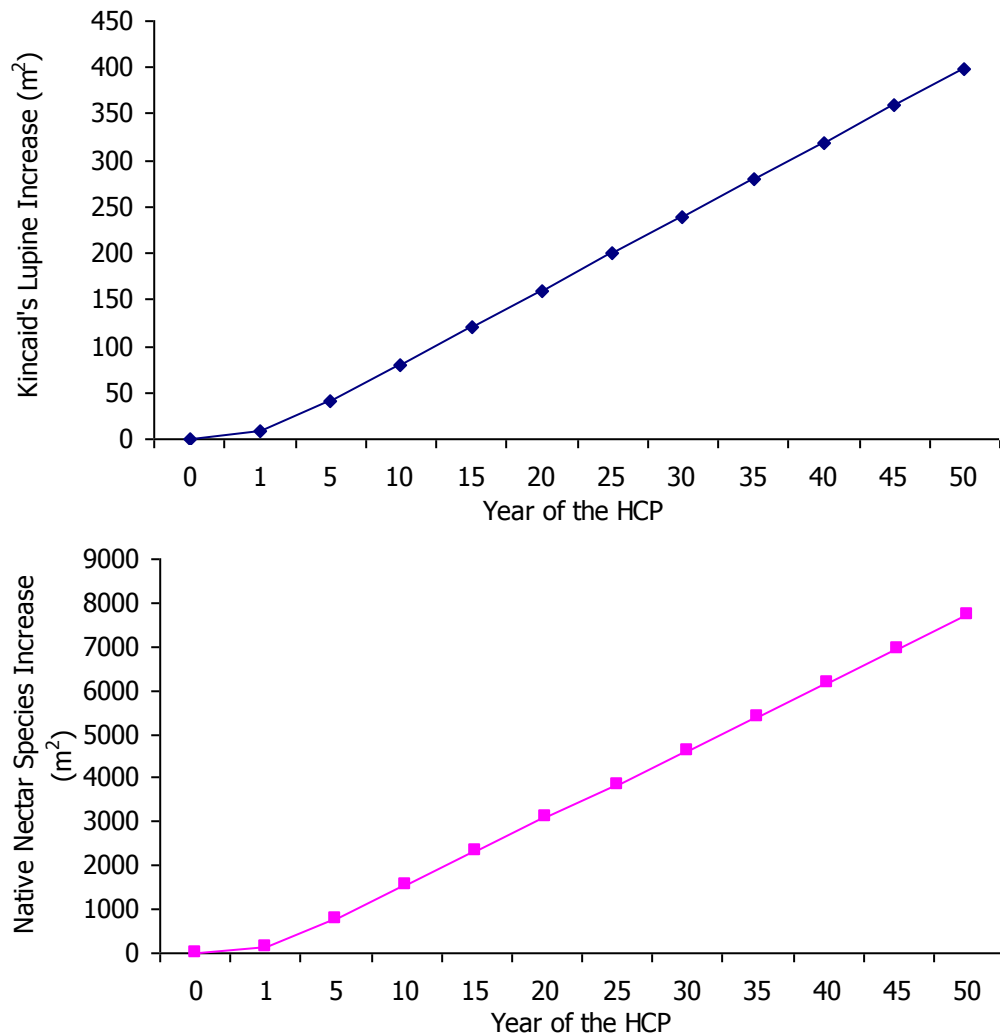


Figure 6.3 Projected increase in Kincaid’s lupine and native nectar species for Fender’s blue butterfly needed for mitigation over the 50 year term of the HCP.

## 6.4 Restrictions and Best Management Practices for Covered Activities in Areas with Covered Species

Selected activities conducted under this Plan should meet the specified conditions described below.

- **Avoidance:** Impacts to the Covered Species will be avoided by: (1) pre-project planning and design; (2) reconfiguring an existing project design; or (3) adopting the no-project alternative.
- **Reducing impacts:** The magnitude of impacts will be minimized by reducing the size of the project (partial avoidance) and by locating the project in the least environmentally sensitive area.

Projects (other than home, farm and forest construction, and regular road maintenance) with permanent impacts to all or part of a population, such as road construction, will have pre-project take assessments completed and monitoring conducted post-project to determine actual take that occurred.

#### **6.4.0 Transportation and Public Service Facility Construction Projects in Areas with Covered Species**

1. Project Planning
  - a. USFWS and/or ODA will be consulted during project planning to assess the possibility of avoiding and minimizing any impacts, while weighing other factors including public safety.
2. Surveys
  - a. A survey will be conducted by a competent biologist or qualified natural resource specialist prior to construction to determine the presence and abundance of Covered Species or habitat.
3. Pre-Construction Take Assessment
  - a. For Benton County construction projects, Public Works staff will meet annually with the HCP Coordinator to plan pre-construction assessments for upcoming projects in order to avoid delays to construction and to quantify project level take estimates, if any. Construction projects will be evaluated as they occur by the HCP Coordinator (or designee) to ensure (1) all effects are within the range of the incidental take permit and HCP and (2) all appropriate best management practices are properly followed.
  - b. For Cooperators' construction projects, the Cooperator will designate an individual to (1) ensure all impacts are within the range included in the Certificate of Inclusion, (2) quantify extent of take, and (3) ensure all appropriate environmental performance standards are being properly followed.
4. No-Work Zones
  - a. Benton County and Cooperators shall establish "no-work zones" for all sensitive habitats within the construction project area that will not be affected by the proposed construction project. Contractors will be shown the specific location of the no-work zones prior to the start of construction activities and provided with a map of no-work zones.
  - b. To demarcate the vegetative buffer (generally  $\geq 10$  m [33 ft]) zone around sensitive plants or butterfly habitat and ensure protection of the Covered Species during project construction, a temporary fencing barrier will be installed to physically separate the construction project area from no-work zones. A fencing plan will be included in the project's design plans.
5. Staging and Equipment Storage

- a. Specific short- and long-term staging and equipment storage will be situated at least  $\geq 10$  m (33 ft) away from areas designated as no-work zones.
6. Construction Monitoring
  - a. A qualified biologist/natural resource specialist will monitor active construction projects during environmentally sensitive work at a frequency adequate to detect compliance with the appropriate environmental performance standards. Visits to the project area will occur regularly so general contractors and construction inspectors are kept aware of the species' locations and restrictions associated with these areas. The biologist/natural resource specialist will attend the pre-construction meetings to review with the contractor all incidental take permit restrictions associated with the project.
  - b. A biologist/natural resource specialist will conduct on-site monitoring visits during construction to ensure designated no-work zones are avoided.
  - c. Post construction monitoring will be conducted the growing season after the project has been completed to determine actual levels of take to the Covered Species.
  - d. Staging areas will be monitored by a biologist/natural resource specialist and the construction inspector to verify that staging areas remain stationary and do not inadvertently migrate from designated areas.
7. Erosion Control and Spill Prevention Plan
  - a. An Erosion Control and Spill Prevention Plan will be developed by the Construction Contractor addressing risk reduction from sediments and/or oil-based compounds entering no-work zone areas. Site specific measures will be developed for each project and may include, but are not limited to, silt fences or sediment barriers at the base of exposed slopes.
  - b. Erosion control devices will not take the place of fencing designed for purposes of species and habitat protection. Maps or written instructions provided by the County to the on-site construction inspector will show areas to receive this treatment.
8. Re-vegetation Using Native Plant Species
  - a. In areas disturbed during construction, native plant species will be planted before the end of the first planting season following construction. These species will include native grasses and/or forbs. Use of native vegetation will reduce the likelihood of noxious weed introduction and spread. Native plant species and seed mixes will be appropriate for the habitat. No fertilizer or seed mixes containing non-native species will be spread in any open areas created during construction. All seeding to control erosion will use native grasses and forbs as outlined in contract plans or as directed by a biologist/natural resource specialist. Grubbing and brushing activities prior to, during, and following construction will be prohibited in no-work zones.
9. Landscaping

- a. Any landscaping associated with the construction project will be consistent with a prairie environment. Trees and shrubs will not be planted within upland/or wet prairie habitat with known populations of the Covered Species.
10. Timing of Construction Projects
  - a. In areas where Fender's blue or Taylor's checkerspot butterfly are present, construction work will take place before or after the flight period of the butterfly, and while Kincaid's lupine plants are dormant. Work will be located  $\geq 10$  m (33 ft) from known occupied habitat.
11. Covered Plant Species Relocation
  - a. If a proposed project will result in the destruction of covered plant species, relocation of the affected Covered Species may occur pursuant to the protocols established in Appendix L: Plant Material Collection and Plant Introduction Protocols.
12. Seed Collection
  - a. Before excavation or any ground disturbance in the project area, seeds from any Covered Species to be impacted may be collected and stored, subject to established protocols (Appendix L: Plant Material Collection and Plant Introduction Protocols), for future planting at Prairie Conservation Areas or other protected conservation sites.

#### **6.4.1 Transportation Maintenance Activities in areas with Covered Species**

1. Special Management Areas
  - a. Benton County has designated those areas within County rights-of-way where Covered Species or other rare and sensitive species are located as Special Management Areas (SMA). As of 2008, Benton County has established 31 SMAs for the HCP Covered Species. Whenever a new Covered Species population is located in a Benton County right-of-way, a new SMA will be established, and classified as a Type 1 or Type 2 roadside population (Chapter 5). The County's SMA program provides Benton County road maintenance staff with the information needed to avoid impacts to roadside populations of Covered Species. Upon notification and confirmation of a new population within a road right-of-way, Benton County will immediately notify its Public Works maintenance staff of the population's location and any proposed work halted. Within 60 working days, Benton County will establish a new SMA.
  - b. All vegetation management within SMAs with Covered Species will follow guidelines in Appendix M: Roadside and Streambank Management Guidelines for Covered Plants.
  - c. The Oregon Department of Transportation has also introduced a SMA program designed to protect threatened and endangered plant species occurring on its lands. ODOT SMAs are generally signed and certain activities are restricted. SMA signs installed at the edge of buffer areas

(at least 15 m [49 ft] from the edge of a population) for sensitive species are coded so that maintenance staff can determine which activities are allowed for that area of roadway.

2. Routine Road/Bridge Maintenance Activities
  - a. Road or bridge maintenance activities have the potential to affect Covered Species by introducing sediment and other pollutants into downstream waterways, spreading invasive weeds, and directly disturbing roadside populations of Covered Species. To minimize and mitigate for these impacts, Benton County and the Cooperators will implement the Best Management Practices identified below, where appropriate and feasible, for all covered road maintenance activities where there is the potential to impact Covered Species:
    - i. Silt fencing or other sediment control devices will be installed downslope from soil disturbing maintenance activities to minimize the transport of sediment off site.
    - ii. No erodible materials will be deposited into watercourses. No brush, loose soils, or other debris will be stockpiled within stream channels or on adjacent banks.
    - iii. Herbicides and pesticides will only be used when necessary and applied in strict compliance with label requirements and state and federal regulations.
    - iv. Heavy equipment (e.g., mowers) will be thoroughly cleaned to remove mud, debris, and vegetation before use in areas so they are free of noxious weeds (e.g., false brome) and do not introduce such weeds to new areas.

#### **6.4.2 Parks/Natural Areas/Open Space Management Activities**

To avoid impacts to Covered Species from the development of parks, natural areas, and open spaces, Benton County and Cooperators will adhere to the following best management practices:

1. Surveys
  - a. Prior to design and construction of any recreational facility (including trails and kiosks), if suitable habitat exists, the proposed project area will be surveyed for the presence of Covered Species, unless the lands have been surveyed within 10 years.
2. Facility Location
  - b. Trails and facilities will be located at least 50 m (164 ft) away from existing Covered Species populations or butterfly habitat to minimize impacts to the species.
  - c. Whenever possible, trail alignments will use existing dirt roads.
  - d. Trails will be kept along the edges of large sensitive prairie habitat areas.
  - e. The type, width, and intensity of trail uses will be consistent with protection of the resources being traversed.



- f. Existing trails adjacent to Covered Species will be realigned if impacts to the Covered Species from public use are detected.
3. Soil disturbance and erosion prevention
  - a. Trails and recreation facilities will not be constructed in areas subject to high levels of erosion.
  - b. Water breaks will be installed, where necessary, on trails to prevent accelerated runoff and erosion.
  - c. Boardwalks will be utilized for trails through wetlands to minimize soil disturbance and erosion.
4. Trampling and trail cutting
  - a. Trails and facilities will be designed to discourage and prevent intrusion into adjacent environmentally sensitive areas.
5. Road access
  - a. Where possible, new trails and facilities will be accessible from existing public roads.
  - b. Environmentally sensitive grading techniques, drainage management, and vegetation buffers will be used for trail/facility runoff absorption/filtration.
6. Native landscaping
  - a. When landscaping is required, only native species that are appropriate for the habitat type will be used. The use of invasive plant (native or non-native) species will be prohibited.
7. Natural resource interpretation & Signage
  - a. Interpretive displays will be constructed within PCAs with public access. Displays will describe the species present and their importance to prairies.
  - b. Interpretive materials describing the importance of the prairie habitat and the sensitive species found there will be designed and distributed to visitors. Visitors and pets will be encouraged to stay on established trails and to appreciate the biological diversity of the area.
  - c. Signs will be installed notifying public users that areas with Covered Species or butterfly habitat are off-limits.
8. Recreation
  - a. Only low-impact, non-motorized recreational activities that do not impact the Covered Species (e.g., hiking, wildlife viewing) will be allowed in PCAs.
9. Vegetation Management Practices
  - a. Vegetation management will follow guidelines in Appendix J: Prairie Habitat Vegetation Management Guidelines.

### **6.4.3 Water and Wastewater Management**

#### **6.4.3.0 Surveys**

Prior to design and construction of any publicly owned or managed water supply and delivery system, the proposed project area will be surveyed for the presence of Covered Species and their habitat. Any construction of such a system will, at a minimum, follow the best management practices for road construction projects (Section 6.4.0).

# 7 Monitoring and Adaptive Management

## 7.1 Introduction

Monitoring and adaptive management are crucial to a successful habitat conservation plan. Benton County and Cooperators will adopt a monitoring and adaptive management program to allow changes in the Conservation Measures to reach the long-term biological goal (Chapter 4) of the Habitat Conservation Plan, and thus to contribute to the survival and recovery of the species.

## 7.2 Monitoring

Compliance Monitoring and Effectiveness Monitoring will be completed by Benton County and the Cooperators. Compliance Monitoring will be conducted annually to assess the implementation of the HCP terms and conditions, and track levels of incidental take of the Covered Species authorized by Benton County under the incidental take permit. Effectiveness Monitoring will be completed at a minimum of three-year intervals at all sites where voluntary or mitigation related habitat restoration, enhancement and management occur.

### 7.2.0 Compliance Monitoring

Benton County Natural Areas and Parks Department shall annually review the terms and conditions of the County's incidental take permit and HCP to determine whether the County is implementing such terms and conditions and the effectiveness of that implementation.

Benton County will submit Annual Compliance Reports to the USFWS and ODA by March 31st of the following year for each year the incidental take permit is in effect (Appendix P: Sample Annual Compliance Report). This report shall include, at a minimum, the following:

1. Summary of assessment of implementation of HCP terms and conditions.
2. Amount of take authorized during the year, including:
  - a. The number of Certificates of Inclusion issued to private landowners and the amount of Fender's blue butterfly habitat impacted;
  - b. The number of Certificates of Inclusion issued to each Cooperator for each species, and the amount of take authorized for each species; and
  - c. The number of Cooperative Agreements entered into with each Cooperator. Copies of the Cooperative Agreement will be provided.

3. Conservation Measures undertaken by Benton County and the Cooperators, including:
  - a. Mitigation Information
    - i. Mitigation projects initiated
    - ii. Mitigation requirements fulfilled
    - iii. Funding spent on mitigation
    - iv. When Covered Species are present, acres mowed, grazed, or treated with herbicide for mitigation purposes
  - b. Voluntary Conservation Activity Information
    - i. Acres mowed, grazed or treated with herbicide for parks/natural areas/open space management
4. Effectiveness Monitoring data (see Section 7.2.1).
5. Monitoring results requiring changes to management techniques (adaptive management outcomes).

Cooperators will submit their compliance information, if any, to Benton County by December 31 of each year, to allow Benton County to incorporate the information into the Annual Compliance Report.

### **7.2.1 Effectiveness Monitoring**

Effectiveness Monitoring will be undertaken as a component of the HCP. The purpose of this monitoring is to determine the success of habitat restoration, enhancement, and management, as measured by tracking species status and habitat condition. Effectiveness monitoring will be conducted on Covered Lands where voluntary or mitigation related habitat restoration, enhancement, and management activities are implemented by Benton County or Cooperators. Each Cooperator is responsible for collecting and reporting their own Effectiveness Monitoring data to Benton County.

Effectiveness Monitoring objectives include:

- Tracking population trends of Covered Species on Covered Lands
- Detecting changes in habitat quality (plant community composition and species cover) over time
- Determining whether and what management actions are necessary
- Measuring success of restoration activities (i.e., evaluate effects of mowing, limited livestock grazing, burning, herbicide application, etc.)
- Measuring fulfillment of mitigation requirements
- Early detection of invasive plants and animals
- Detecting woody plant encroachment and litter/thatch build up
- Providing feedback for adaptive management

Monitoring shall be conducted by qualified biologists or natural resource specialists in possession of any permits required by regulatory agencies (state or federal) for the monitoring activities they are conducting.

**7.2.1.0 Monitoring Plans at Sites where Effectiveness Monitoring may be Required**

Monitoring plans will be developed for all sites where Effectiveness Monitoring is required, including mitigation sites. At Prairie Conservation Areas, the monitoring plan may be added to any existing management plans or guidelines, such that the required levels of monitoring for the HCP are included. Monitoring plans will be developed by qualified biologists/natural resource specialists, and in some cases, sites may already have a monitoring plan established.

At a minimum, each monitoring plan will include:

1. Name of site.
2. Management goals and objectives (e.g., control of invasive species) for the site.
3. Subject of the monitoring program (e.g., species and/or habitat status).
4. Description of what is being monitored (e.g., species and/or habitats), including a site description (which may be generated using the first year's monitoring data and any prior surveys) with information about the abundance of Fender's Blue or Taylor's Checkerspot butterfly host plants and nectar plants or Covered plants.
5. Variables to be measured and how data will be collected.
6. Frequency (minimum of three year cycle), timing (dependent on species being monitored), duration (minimum of six years), and intensity (number of sample plots) of the sampling.
7. Field procedures.
8. Sampling locations.
9. How data will be analyzed, who will conduct analysis (e.g., qualified biologist, statistician), and how results will determine whether the HCP goals and objectives are being met through the Conservation Measures.
10. Adaptive management process (such as use of the results to update management methods).
11. Monitoring equipment needs.
12. Personnel responsible for implementing monitoring program.
13. Process for reviewing/modifying monitoring plan.

**7.2.1.1 Effectiveness Monitoring Timing and Frequency**

Monitoring shall be conducted during the growing season of the Covered Species or habitat. This may vary by 1-3 weeks per year due to weather conditions, and differences in site conditions (elevation, aspect, etc.).

The first year of monitoring data, along with data from any prior surveys, will serve as the site's baseline inventory. Once baseline conditions have been established, periodic re-sampling (monitoring) will occur at a minimum of every three years. If significant management activities (e.g., prescribed fire) are implemented, monitoring should be conducted at a greater frequency (e.g., to collect pre-and post-treatment data) if needed to supply data for adaptive management, then return to regular three year monitoring cycles.

If implementation of habitat restoration, enhancement, or management activities at a given site ceases, monitoring will be conducted for a minimum of two monitoring cycles (six years) after cessation of the activities, as long as no adaptive management thresholds (e.g., decrease in population abundance- see Table 7.2) have been triggered. If an adaptive management threshold is triggered, monitoring will be required until the problem has been addressed.

### **7.2.1.2 Species Status Monitoring for Effectiveness Monitoring**

Species status monitoring will be completed for Covered Species at sites where:

- Covered Activities occur that are likely to result in temporary impacts.
- Habitat restoration and enhancement activities are conducted for conservation purposes.
- Any mitigation work is completed by Benton County or a Cooperator.

Species abundance (or habitat, in the case of Fender's blue and Taylor's checkerspot butterflies) will be monitored. Direct counts of butterflies will not be required as these numbers are extremely variable from year-to-year, and fluctuations may be due to multiple conditions outside the control of the County or Cooperators, including weather. Abundance of each species will be measured using the following metrics:

- Fender's blue butterflies are quantified on the basis of square meters of Kincaid's lupine and native nectar species cover (see Table 2.1 for a list of nectar species).
- Taylor's checkerspot butterflies are quantified on the basis of square meters of host plants (primarily English plantain) and native nectar plants present.
- Kincaid's lupine are quantified on the basis of square meters of foliar cover.
- Nelson's checkermallow are quantified on the basis of individual plants. Plants that are  $\geq 30$  cm (11.8 in) apart are considered separate individuals.
- Willamette daisy are quantified on the basis of individual plants. Plants that are  $\geq 10$  cm (3.9 in) apart are considered separate individuals.
- Bradshaw's lomatium are quantified on the basis of individual plants. Plants that are  $\geq 10$  cm (3.9 in) apart are considered separate individuals
- Peacock larkspur are quantified on the basis of individual plants.

Species abundance will be censused by:

- Counting individuals of the covered plants, using the descriptions above to differentiate individuals. Where necessary, sites will be divided with a grid. The grid will be marked with permanent or GPS markers as needed. This will allow tracking of population trends within specific areas of the population and site.
- Measuring the quantity of butterfly habitat, including cover of host and nectar plants within sections of a grid. The grid will be marked with permanent or GPS markers as needed. This will allow tracking of population trends within specific areas of the population and site.

**7.2.1.3 Prairie Habitat Condition Monitoring for Effectiveness Monitoring**

Prairie Habitat Condition Monitoring will be completed at sites where habitat restoration and enhancement activities are implemented. Monitoring will include measurements of:

- Shrub and tree encroachment into prairie habitats
- Invasive species
- Disturbance (anthropogenic and natural)
- Thatch and plant litter accumulation
- Plant community composition

**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. When appropriate, individual trees and shrubs (identified to species) or patches of trees and shrubs will be mapped using a combination of sketch maps, aerial photos, photo points, and GPS.

**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. Occurrences of invasive animals will be noted and areas of damage caused by these species will be mapped.

Any "A" or "B" Noxious Weeds, following Oregon Department of Agriculture's classification (e.g., ODA 2009) will be identified and mapped. "A" classified weeds are weeds of known economic importance not known to occur in Oregon, or occur in small enough infestations to make eradication/containment possible. "B" classified weeds are weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties (Table 7.1). 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. Group A and B classified weeds will be addressed specifically through adaptive management (Table 7.2).

**Disturbance**

Signs of man-made disturbance will be evaluated during habitat assessments at all sites, especially those with known use by the public. Any signs of new or existing trails or parts of trails with use by horses, mountain bikes, or hikers, will be mapped and tracked using a combination of sketch maps, aerial photos, photo points, and GPS during each monitoring cycle. Trampling off any established trail will be noted. Changes in surrounding land use will also be noted and described.

Table 7.1 Examples of Oregon Department of Agriculture "A" and "B" classified weeds.

<b>Common Name</b>	<b>Latin Name</b>	<b>Group A</b>	<b>Group B</b>
oblong spurge	<i>Euphorbia oblongata</i>	x	
squarrose knapweed	<i>Centaurea virgata</i>	x	
Himalayan blackberry	<i>Rubus armeniacus</i>		x
Canada thistle	<i>Cirsium arvense</i>		x
oneseed hawthorn	<i>Crataegus monogyna</i>		x
false brome	<i>Brachypodium sylvaticum</i>		x
Italian thistle	<i>Carduus pycnocephalus</i>		x
meadow knapweed	<i>Centaurea pratensis</i>		x
milk thistle	<i>Silybum marianum</i>		x
Scotch broom	<i>Cytisus scoparius</i>		x
spotted knapweed	<i>Centaurea maculosa</i>		x
spurge laurel	<i>Daphne laureola</i>		x
Future species identified as EDRR priorities		x	
Any Oregon State A-listed noxious weeds		x	
Any Oregon State B-listed noxious weeds			x

Signs of natural disturbance will be evaluated during habitat assessments at all sites, including:

- Soil disturbance by animals such as rodents
- Game trails
- Intensive herbivory by animals
- Windfall of trees
- Erosion
- Changes in hydrology

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

Measurement of plant community composition and thatch and litter accumulation will involve fine scale habitat sampling using an appropriate number of randomly placed 5 m x 5 m (16.4 ft by 16.4 ft) plots to sample plant community attributes. The number of plots will vary with the size of the site, the proportion of the site occupied by the Covered Species, and the heterogeneity of the site. Within each plot, the following variables will be estimated:

- Percentage cover of each vascular plant species present
- Percentage cover of plant litter, moss, gravel/rock, and bare soil

#### **7.2.1.4 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, but not limited to, Benton County staff, Cooperators, any technical advisors, USFWS, ODA and the Oregon Natural Heritage Information Center (ORNHIC). A database and clear reporting procedure are also required for incidental take permit compliance. Information about data management is available in Section 8.2.2 **Error! Reference source not found.** The data will be managed to ensure accurate and up-to-date information is available for making management decisions.

## 7.3 Adaptive Management

Adaptive management is a process allowing resource managers to adjust their actions to reflect new information or changing conditions in order to reach a goal. Adaptive management will allow Benton County and Cooperators to minimize the uncertainty associated with gaps in scientific information or knowledge of the biological requirements of the species. While substantial research has been completed with some Covered Species (e.g., Fender's blue butterfly), more information is needed. For some Covered Species there has been very little research (e.g., peacock larkspur).

Additionally, adaptive management will allow the County and Cooperators to make changes in how they manage habitat for the Covered Species where there is uncertainty about the effects of habitat restoration and enhancement techniques, such as mowing or prescribed burning, or the optimum methods for applying such treatments.

Information used in the adaptive management process will come from implementation of the Conservation Measures pertaining to habitat restoration, enhancement, and management activities (Chapter 6). Effectiveness Monitoring data collected by the County or Cooperators will be analyzed to determine if the goals and objectives of the HCP are being met. If the Conservation Measures are not producing the desired results, adjustments will be made to the Conservation Measures in the HCP and, in particular, to management actions at the PCAs, and to the Prairie Habitat Vegetation Management Guidelines (Appendix J), the Roadside and Streambank Management Guidelines for Covered Plants (Appendix M) and the Plant Material Collection and Plant Introduction Protocols (Appendix L).

### 7.3.0 Adaptive Management to Update and Improve Habitat Restoration and Enhancement Techniques

In management plans and guidelines prepared for the Prairie Conservation Areas, Benton County or the Cooperator will:

1. Identify the uncertainty and the questions to be addressed to resolve the uncertainty.
2. Develop alternative strategies and determine which experimental strategies to implement.
3. Integrate a monitoring program able to detect the necessary information for strategy evaluation.
4. Incorporate feedback loops linking implementation and monitoring to appropriate changes in management.

### 7.3.1 Other Adaptive Management Methods

Adaptive management also may be used to update management strategies to 1) redefine Conservation Measures or 2) incorporate Conservation Measures recommended in future recovery plans for the Covered Species.



### **7.3.1.0 Redefining Conservation Measures**

If new techniques become available for more effective implementation of the Conservation Measures, then revisions to the Conservation Measures in the HCP will be made as soon as practicable (See Section 8.8 Amendments or Appendix R: Draft Implementing Agreement).

### **7.3.1.1 Recovery Plans in the HCP Area**

Recovery plans for the Covered Species may be developed or revised by USFWS over the life of the incidental take permit. The HCP may be amended to incorporate recommendations contained in recovery plans when such recommendations:

1. Identify relevant new information, approaches, techniques, or Covered Species protection needs.
2. Fit within the overall biological goals and objectives, framework, and funding levels of this HCP.
3. Do not exceed require more of mitigation than identified in this HCP.

## **7.3.2 Monitoring Interface with Adaptive Management**

The objective of the Effectiveness Monitoring for purposes of adaptive management is to determine whether the Covered Species populations and/or habitats are declining. Declines may be due to Covered Activities or changes in habitat conditions. Through adaptive management, managers may detect changes in habitat conditions (e.g., increasing invasive species populations) prior to a resulting decline in Covered Species populations. Thresholds of Covered Species population trends and habitat quality are set forth in Table 7.2. If and when thresholds are crossed, adaptive management actions will be triggered (Table 7.2).

### **7.3.2.0 Species Status Monitoring**

#### **Fender's blue butterfly and Taylor's checkerspot butterfly**

If host or nectar plant abundance (as measured by cover) decreases by  $\geq 30\%$  at any single monitoring event it will trigger Benton County or the Cooperator owning or managing the sites to meet with USFWS within 90 days to discuss any necessary changes in habitat management at the site. If host plant or nectar plant abundance (as measured by cover) decreases by  $\geq 30\%$  over two consecutive three year monitoring cycles, it will trigger Benton County or the Cooperator owning or managing the sites to cease the activity and meet with USFWS to discuss changes in habitat management at the site.

#### **Plant Species**

If covered plant abundance decreases by  $\geq 30\%$  at any single monitoring event it will trigger Benton County or the Cooperator owning or managing the sites to meet with USFWS and/or ODA within 90 days to discuss any necessary changes in habitat management at the site. If covered plant abundance decreases by  $\geq 30\%$  over two consecutive three year monitoring cycles, it will trigger Benton County or the

Cooperator owning or managing the sites to cease the activity and meet with USFWS and/or ODA within 60 days to discuss changes in habitat management at the site.

### 7.3.2.1 **Habitat Condition Monitoring**

If any of the habitat condition thresholds (Table 7.2) are triggered, Benton County or the Cooperator owning or managing the sites will take the necessary actions to adjust management and/or make an immediate response (e.g., in the case of new populations of new invasive species), in coordination with USFWS and ODA.

Table 7.2 Habitat condition monitoring thresholds.

<b>Condition</b>	<b>Threshold</b>	<b>Adaptive Management Response</b>
Tree and Shrub Encroachment	Meadow decreases in size by $\geq$ 30%	If decreases are due to tree or shrub encroachment, evaluate and elevate control of such encroachment.
Invasive species: Group A	New population discovered.	Immediate eradication efforts will be undertaken. Work will be coordinated with USFWS/ODA when invasive species population is adjacent to or overlapping with Covered Species. Additional monitoring will take place the first growing season following treatment.
	>30% increase in abundance of any Group A species at the site.	Current containment efforts will be evaluated and elevated upon review by and recommendations of USFWS/ODA.
Invasive species: Group B	New population discovered.	Immediate eradication efforts will be undertaken. Work will be coordinated with USFWS/ODA when invasive species population is adjacent to or overlapping with Covered Species. Additional monitoring will take place the first growing season following treatment.
	>30% increase in abundance of any Group B species at the site.	Current containment efforts will be evaluated and elevated upon review by and recommendations of USFWS/ODA.
Natural Disturbance	Rodent ground disturbance over $\geq$ 30% of the site.	Confer with USFWS and ODA for recommended actions.
	$\geq$ 30% of covered plants at a site grazed by mammals.	
	Significant windfall, erosion or change in hydrology detected.	
Anthropogenic Disturbance	Any signs of new or existing trails or parts of trails with use by horses, mountain bikes, or hikers.	Evaluate management of public use, and revise outreach (including interpretive signs) as needed.
Plant Community Composition	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 mowing and prescribed fire frequency/timing with USFWS/ODA.
Plant litter/thatch accumulation	Plant litter/thatch cover increases by $\geq$ 30%.	Evaluate site management, including mowing and prescribed fire frequency and timing with USFWS/ODA.

# 8 Implementation

## 8.1 Roles, Responsibilities, and Tasks

### 8.1.0 Introduction

This Habitat Conservation Plan (HCP or Plan) is executed through an Implementing Agreement (IA) between Benton County, ODA, and the USFWS. This section describes the roles and responsibilities of Benton County in implementing the HCP.

### 8.1.1 Responsibilities of Benton County

For the duration of the incidental take permit, Benton County will provide the staff and resources necessary for implementation of the HCP.

#### 8.1.1.0 Benton County Board of Commissioners

The County Board of Commissioners has overall responsibility for implementation of the HCP. Many of the tasks to be performed by the County will be delegated to staff in the Natural Areas and Parks Department, Public Affairs Office, Community Development Department, Public Works Department, and County Attorney's office (Figure 8.1). The following tasks will be performed by the Benton County Board of Commissioners:

- Program Administration
  - Review and approve Implementing Ordinance
  - Review and approve Amendments to the HCP, incidental take permit and Implementing Agreement
  - Approve submittal of Annual Compliance Reports to USFWS and ODA
  - Approve submittal of Grant Applications
- Land Acquisition
  - Provide guidance and approval for acquisition of lands and/or conservation easements
- Work Plan/Budget
  - Biennially, Benton County will prepare a budget and work plan for implementation of the HCP. Each department with responsibility for implementation of the HCP will submit their budgets to the County's budget office. The County Commissioners have the overall responsibility for adopting the County's budget.
- Updating County Ordinances to meet requirements of the HCP.
- Approval of major amendments to the HCP and Implementing Agreement.

The Benton County Board of Commissioners shall by ordinance amend the County's Comprehensive Plan and Development Code, to include procedures and requirements for implementation of the HCP, incidental take permit, and Implementing Agreement

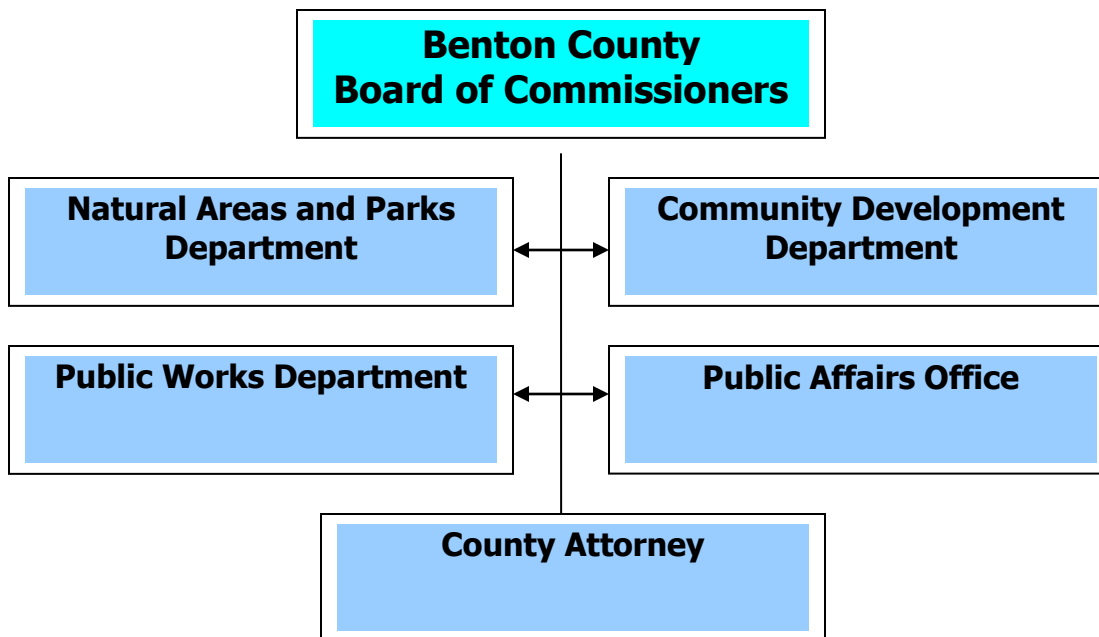


Figure 8.1 Benton County Departments with responsibility for implementation of the Benton County Prairie Species HCP.

terms and conditions. The ordinance will be finalized and adopted no later than one year after issuance of the incidental take permit by USFWS. The ordinance may be amended over time based on HCP amendments.

#### **8.1.1.1 Natural Areas and Parks Department**

The Natural Areas and Parks Department Director will be designated as the County's HCP Coordinator with the task of providing overall program implementation oversight. Implementation tasks and responsibilities of this department are described below.

- Preparation of department work plans and budgets for HCP related tasks
- Grants
  - The Natural Areas and Parks Department, when appropriate, will seek grant opportunities for the habitat restoration, enhancement and management activities at the PCAs. This department will be responsible for administering any grant funding Benton County receives for HCP implementation.
- HCP Amendments
  - Amendments to the HCP are expected during the incidental take permit term (50 years). Amendments will be made through the Natural Areas and Parks Department, in consultation with affected departments. Benton County staff will be notified of any amendments to the HCP affecting their duties. For details on the process to amend the HCP see the Implementing Agreement.
- Land Acquisition

- Benton County will acquire (from willing sellers) lands or conservation easements supporting occupied Fender's blue butterfly habitat to mitigate for impacts to Fender's blue butterfly from home, farm, and forest construction on private lands within the Fender's Blue Zone. The County may also acquire lands outside of the Fender's Blue Zone to support other species covered by the HCP.
- Training
  - Benton County staff responsible for HCP implementation will be trained by the HCP Coordinator on the requirements of the HCP. This training will be offered to all staff members within six months of issuance of the incidental take permit. For staff beginning work with the County after the initial training, the training will become part of new employee orientation.
- Management Guidelines for Parks and Natural Areas
  - The Natural Areas and Parks Department will prepare site management guidelines for Bezell Memorial Forest, Fitton Green Natural Area, and Jackson-Frazier Wetland Prairie Conservation Areas, as well as any PCAs acquired by Benton County during the incidental take permit term. These guidelines will describe the types of restoration, enhancement, and management activities, including monitoring, to occur at the site; the entity responsible for management of the site; and a schedule of management activities. Guidelines will be consistent with the Conservation Measures and protocols set forth in the HCP. Until site management guidelines are prepared, Benton County will manage the Covered Species at each park according to the Conservation Measures in this Plan (Chapter 6).
  - A management plan for Taylor's checkerspot butterfly has been prepared (Appendix N: Draft Taylor's Checkerspot Management Plan). Benton County will follow guidelines described in the plan when conducting activities and managing County lands where Taylor's checkerspot butterfly is present. The plan will be amended, as needed, pursuant to adaptive management principles.
- Management Guidelines and Protocols
  - Management guidelines (Appendix J: Prairie Habitat Vegetation Management Guidelines, Appendix M: Roadside and Streambank Management Guidelines for Covered Plants, and Appendix L: Plant Material Collection and Plant Introduction Protocols) will be updated as new information becomes available through research or the adaptive management process and following discussions with the USFWS and ODA.
- Prairie Conservation Area Management
  - Habitat restoration, enhancement, and management activities on County owned or managed PCAs will be the responsibility of the Natural Areas and Parks Department. The County will implement these activities in accordance with the Conservation Measures (Chapter 6) and the site management plans or guidelines. Benton County may enter into partnerships and use volunteers to achieve management goals. This department will also maintain a database

- to track habitat restoration, enhancement, and management activities occurring on County PCAs, including monitoring results showing pre- and post- management activity data.
- Compliance Monitoring
    - The Natural Areas and Parks Department will be responsible for compiling and submitting the information necessary for the annual Compliance Report (Appendix P: Sample Annual Compliance Report). For each year the incidental take permit is in effect, Benton County shall submit an annual Compliance Report by March 31st of the following year for Benton County and Cooperator activities occurring during the previous year. The Benton County Commissioners will review and approve submittal of the Compliance Report to the USFWS and ODA. The contents of the annual Compliance Report are described in Section 7.2.0 and Appendix P: Sample Annual Compliance Report.
    - Cooperators shall submit all necessary Compliance Report information to Benton County by December 31 of each year.
  - Effectiveness Monitoring
    - Benton County will conduct Effectiveness Monitoring for any habitat restoration and/or enhancement activities occurring on Benton County PCAs. Documentation of monitoring shall be prepared by the Natural Areas and Parks Department and submitted as part of the annual Compliance Report.
  - Data Management
    - The Natural Area and Parks Department will maintain databases tracking HCP information as specified in Section 8.2.2.
  - Public Outreach
    - Public outreach is critical to the success of prairie habitat conservation. Benton County will utilize a variety of outreach methods to work with and build community support for prairie conservation. The Natural Areas and Parks Department will:
      - Maintain web pages on the County's web site providing information about the HCP, including a final copy of the HCP. The web pages will be updated as needed to address conservation actions being undertaken by the County. The website will provide information on opportunities to conserve and manage prairie habitat on private property.
      - Seek opportunities to involve local watershed councils, conservation organizations, and public agencies in partnering with private landowners for conserving Covered Species on their property.
      - Coordinate with other County departments, public agencies, and conservation organizations in presenting workshops and field trips 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.
      - Prepare interpretive materials for County owned and managed PCAs.

- Contractor Management
  - Contractors may be needed to assist Benton County in implementation of the HCP (primarily conducting species surveys, preparing site management plans, conducting Effectiveness Monitoring, and performing management activities). The Natural Areas and Parks Department will be responsible for soliciting and managing contractors.

### **8.1.1.2 Public Affairs**

The office of Public Affairs will be responsible for working with other Benton County departments in the dissemination of information about the HCP and about prairie conservation in general. Tasks may include (1) assisting the Natural Areas and Parks Department with maintaining the HCP webpage, and (2) reviewing and submitting press releases to media outlets, and (3) provide assistance with interpretive materials, as needed.

### **8.1.1.3 Community Development Department**

The HCP is programmatic, allowing Benton County to issue Certificates of Inclusion to select entities. The Benton County Community Development Director will be responsible for issuing (1) Certificates of Inclusion to County permit and agricultural building authorization applicants seeking authorization to impact Fender's blue butterfly habitat in the Fender's Blue Zone and (2) Certificates of Inclusion and Cooperative Agreements to Cooperators seeking take authorization from the County. The Community Development Department will conduct the following activities in the implementation of the HCP:

- Program Administration
  - Prepare department work plans/budgets for HCP related tasks.
  - Maintain records of impacts to Covered Species (Take).
  - Track the number of Certificates of Inclusion and Cooperative Agreements issued by the County.
  - Annually prepare, in cooperation with Natural Areas and Parks Director, information for the Compliance Report.
  - Prepare Implementing Ordinance(s).
  - Revise the Comprehensive Plan and Development Code to incorporate the incidental take permit, HCP, and Implementing Agreement requirements.
  - Modify the Comprehensive Plan and Development Code to reflect any modifications to the HCP that may arise.
- Permitting
  - Work with private landowners to avoid take of Fender's blue butterfly habitat when possible.
  - Review County permit and agricultural building authorization applications for properties located in Fender's Blue Zone (Figure 8.2).
  - Communicate requirements to applicants for activities that are either covered (no action required) or not covered (USFWS approval required).
  - Coordinate with USFWS prior to permitting activities not covered by this HCP.

- Calculate extent of potential impacts.
- Issue Certificates of Inclusion.
- Negotiate, review, and issue Cooperative Agreements to Cooperators.
- Training
  - Benton County Community Development Department will train its staff regarding the HCP initially, and when new staff is hired. Department staff training will cover:
    - Identifying properties within the Fender's Blue Zone
    - Issuing Cooperative Agreements
    - Issuing Certificates of Inclusion
    - Maintaining records of impacts to Covered Species
    - Tracking Cooperative Agreements and Certificates of Inclusion

#### **8.1.1.4 Public Works Department**

Responsibilities of the Public Works Department regarding implementation of the HCP include:

- Program Administration
  - Prepare work plans/budgets for HCP related tasks.
  - Manage consultants as necessary (contractors may be needed for surveys, specific vegetation management activities, etc.).
  - Annually provide Natural Areas and Park Director with information needed for Compliance Report.
- Road Construction
  - Implement Best Management Practices on road construction projects.
- Vegetation Management
  - Manage Type 1 roadside populations as set forth in the HCP.
  - Manage Type 2 roadside populations as set forth in the HCP, where possible.
- Training
  - Conduct annual training of appropriate staff on the roadside vegetation guidelines for Special Management Areas (Appendix M: Roadside and Streambank Management Guidelines for Covered Plants).

#### **8.1.1.5 County Attorney**

The County Attorney is responsible for the legal review of documents to ensure the County is adequately covered for legal liability purposes. Implementation of the HCP will rely on the County Attorney to:

- Review and revise the draft Implementing Ordinance.
- Review and negotiate Cooperative Agreements, where appropriate.
- Enforcing Cooperative Agreements, where necessary.
- Work with Natural Areas and Parks Director to negotiate land acquisitions.



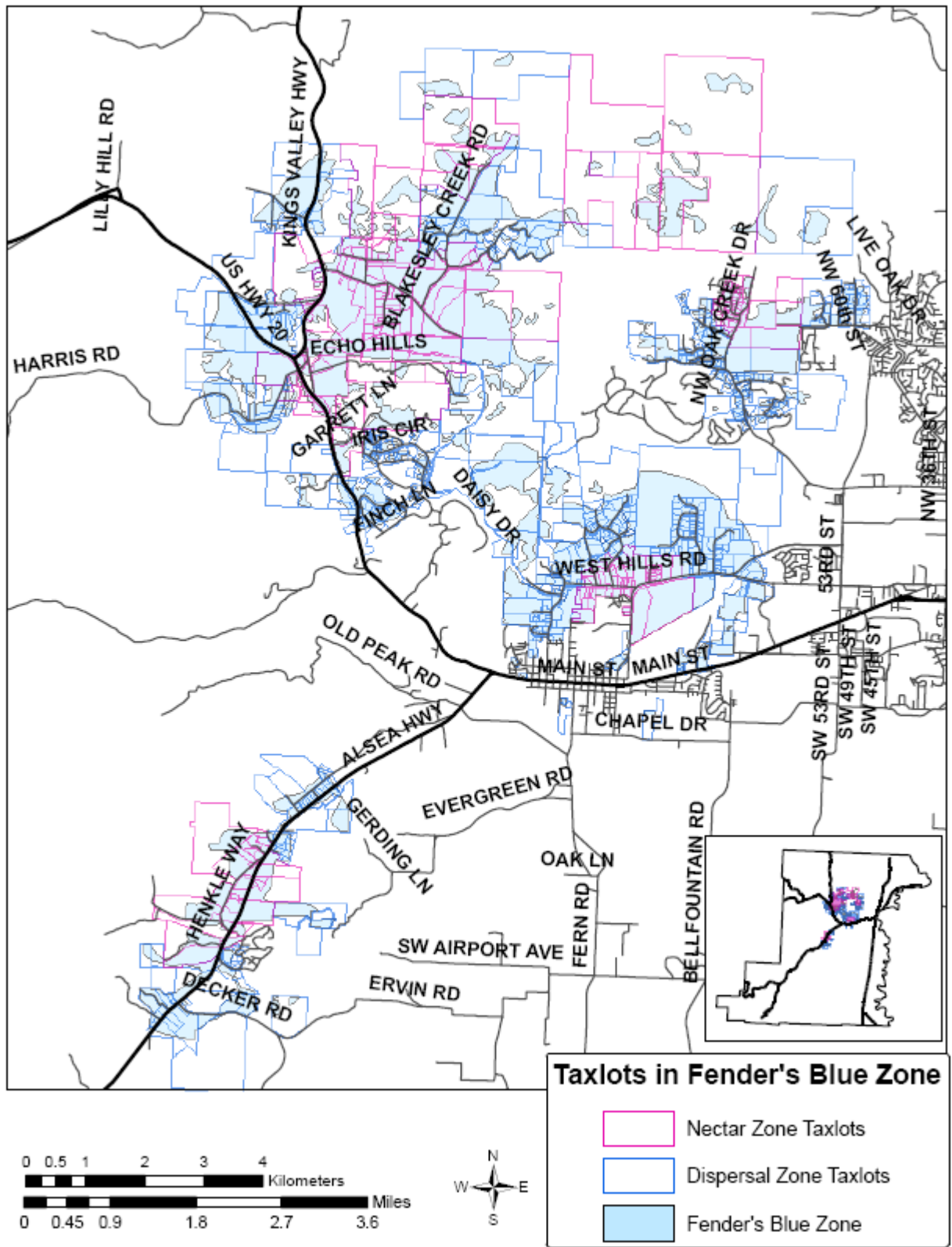


Figure 8.2 Taxlots in Fender's blue butterfly habitat.

### **8.1.2 Advisory Committees**

General oversight will be provided as needed by an existing Advisory Committee to Benton County, such as the Benton County Parks Advisory Board. An ad-hoc Technical Advisory Committee may be formed to seek scientific expertise from scientists or Agency personnel when needed.

## **8.2 Certificates of Inclusion and Cooperative Agreements**

### **8.2.0 County Permits and Agricultural Building Authorizations to Private Parties**

As part of Benton County's incidental take permit, the County seeks authorization to issue Certificates of Inclusion (take authorization) to persons needing a County permit or agricultural building authorization for impacts to Fender's blue butterfly habitat resulting from home, farm or forest construction in the Fender's Blue Zone.

At any time during the HCP, if there is no remaining take available for the County to allocate, no Certificates of Inclusion will be issued and the permit applicant or Cooperator will need to work with the USFWS or ODA to obtain incidental take authorization. The County also reserves the right to refuse issuance of a Certificate of Inclusion and incidental take permit coverage to any party.

#### **8.2.0.0 Permits for Home, Farm and Forest Construction**

County planning staff will review the building and agricultural building authorization applications (Figure 8.3) it receives for ground-disturbing activities to determine whether the applicant's proposed project is located within the Fender's Blue Zone (Figure 8.2). If the proposed project or activity does not occur within the Fender's Blue Zone, then the application process can proceed. If the proposed project is located within the Fender's Blue Zone, County staff will assess whether the proposed project or action is a Covered Activity.

- If the activity is covered by the HCP, the applicant may:
  1. Seek a Certificate of Inclusion from Benton County (Appendix A: Draft Certificate of Inclusion Template – Private Landowner) authorizing impacts to Fender's blue butterfly habitat.
  2. Seek authorization to impact Fender's blue butterfly habitat from USFWS.
- If the proposed project or activity is not covered by the HCP and the activity will impact butterfly habitat, the landowner must seek authorization from USFWS. This typically involves conducting a survey at the appropriate time of year and if habitat is found, applying for a take permit and mitigating for any impacts. Once USFWS authorization has been obtained, the County will continue processing the permit application

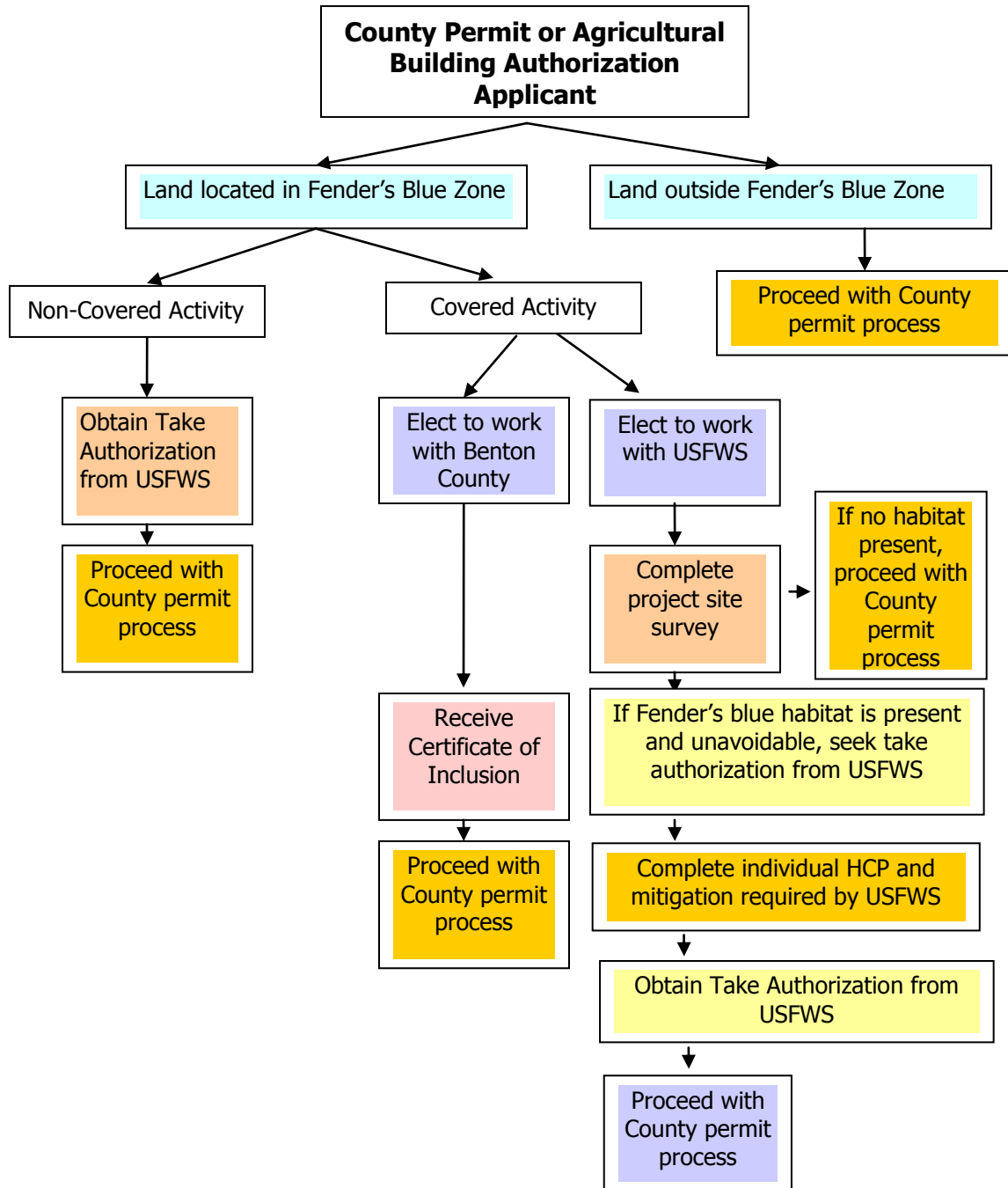


Figure 8.3 Certificate of Inclusion process for County permit or agricultural building Authorization applicants inside and outside the Fender's Blue Zone.

- .Applicants obtaining authorization directly from USFWS may be required to conduct any mitigation USFWS may require before a County permit or agricultural building authorization will be issued.

In some cases, an applicant from the Fender's Blue Zone may have already had their property surveyed by a qualified biologist, or may elect to survey prior to requesting a permit from the County.

- If a survey has been conducted within 10 years of an application for a permit or agricultural building authorization, with **no Kincaid's lupine and no native nectar species** (nectar species only applicable if the site is within the Nectar Zone) found, and adequate documentation (e.g., existing documentation from HCP surveys, or a survey report from a qualified biologist with sufficient detail) of the survey is provided to Benton County planning staff by the applicant, or is already included in the Benton County GIS database (for surveys completed during HCP development), then the application process may proceed and no HCP Permit will be required. Surveys greater than 10 years old will not be accepted as evidence of Kincaid's lupine and native nectar species absence.
- If a survey has been conducted within 5 years<sup>8</sup> of an application for a permit or agricultural building authorization, and **Kincaid's lupine or native nectar species were found** (nectar species only applicable if the site is within the Nectar Zone), and adequate documentation of the survey is provided to Benton County planning staff, County planning staff will work with the applicant to site construction projects to avoid impacts to the Fender's blue habitat.
  - If avoidance is achieved, the County will not need to count any impact as "take" or conduct mitigation.
  - If avoidance is not possible, the amount of impact will be determined using the survey data. The applicant may elect to seek take authorization from USFWS, or proceed with the County process, in which case a Certificate of Inclusion will be issued to the applicant, and the application process will proceed.
- Surveys older than 10 years will not be considered in the County's permitting or agricultural building authorization process.

### **8.2.0.1 Road Approach or Utility Work in Rights-of-Way Permit Applicants**

Public Works staff will review road approach and utility work permit applications it receives to determine whether the proposed activity would occur within the County's Type 1 or Type 2 roadside populations (SMAs: Section 5.2.3.0, Table 5.7). If so, County staff will determine if the proposed activity will affect the Covered Species located within the SMA and will work with the applicant to avoid impacts. If the impacts are unavoidable, Benton County shall:

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<sup>8</sup> Surveys with habitat found are good for 5 years only as the likelihood of habitat expanding or shifting across the landscape is greater when habitat is present, necessitating more frequent survey information.

- For Type 2 roadside populations, determine the amount of impact (take) to the species. A Certificate of Inclusion will be issued to the applicant, if necessary. Mitigation will be completed by the County for road approach applicants, and by utility companies for utility work applicants.
- For Type 1 roadside populations, refer the permit applicant to ODA or USFWS, and only issue a permit if the applicant has satisfied any needed negotiation, take authorization, and mitigation with ODA or USFWS.

### **8.2.1 Cooperative Agreements and Certificates of Inclusion for Cooperators**

As part of Benton County's incidental take permit, the County is seeking authorization to issue Certificates of Inclusion to the Cooperators for impacts to the Covered Species resulting from their Covered Activities within the Plan Area (Figure 3.1). In order to receive a Certificate of Inclusion, Cooperators must (Figure 8.4):

- Describe, in writing, the proposed project or activity and ensure the project or activity is covered by the HCP (for forms, see Appendix Q: Draft Cooperator Reporting Forms).
- Survey the specific project area for the Covered Species (Appendix K: Project Site Survey and Reporting Protocols for Plants and Butterfly Habitat).
- Identify any anticipated impacts to the Covered Species.
- Enter into a Cooperative Agreement. This agreement (Appendix C: Cooperative Agreement Template), sets forth the requirements of the parties, including monitoring and reporting commitments.
  - If the Cooperator elects to complete concurrent mitigation, they must demonstrate that they are prepared to initiate the mitigation by submitting a Notice of Mitigation Initiation, including a monitoring plan and mitigation site baseline assessment, to Benton County when they sign the Cooperative Agreement. The Cooperator shall also submit a notice to the County when mitigation requirements have been fulfilled (for forms, see Appendix Q: Draft Cooperator Reporting Forms). Mitigation must be initiated within 1 year of the effective date of the Cooperative Agreement.
  - If the Cooperator elects to pre-mitigate for impacts, they must submit the needed mitigation notices to Benton County to document when pre-mitigation was initiated and completed.

Once the Cooperative Agreement has been signed by the parties, Benton County will issue a Certificate of Inclusion. A Certificate of Inclusion will be issued only for discrete projects occurring within a yearly timeframe, or for those actions that are repeated in the same location(s) at pre-determined intervals, and not for blanket coverage.

At any time during the HCP, if there is no remaining take available for the County to allocate, no Certificates of Inclusion will be issued, and Cooperators wishing to impact the Covered Species must work with USFWS or ODA to obtain incidental take authorization.

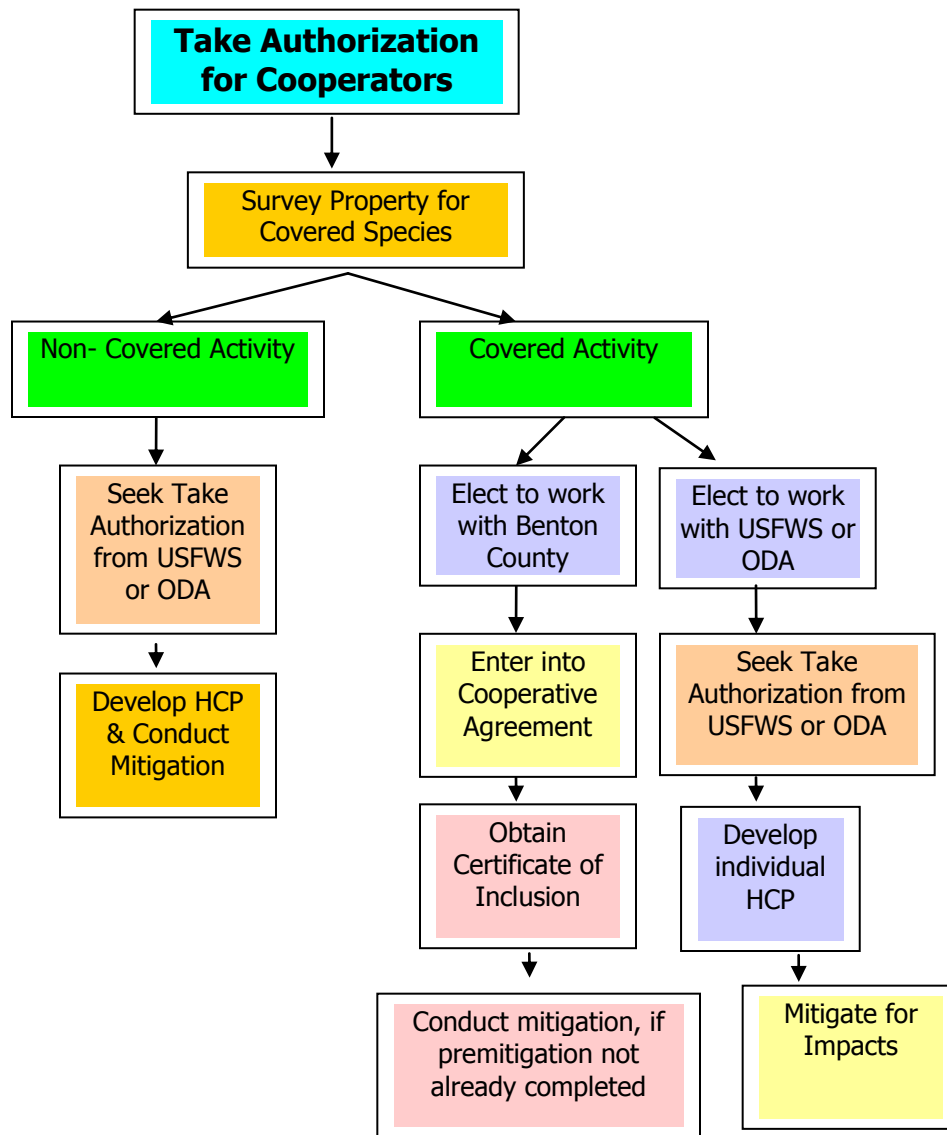


Figure 8.4 Cooperator options for obtaining take authorization following implementation of the Benton County Prairie Species HCP.

### 8.2.2 Data Management

Benton County will maintain a comprehensive data repository to track incidental take permit compliance, monitoring data, and all appropriate aspects of the HCP. The data repository will updated as needed. The County 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 County’s data management system for the HCP include, but are not limited to:

- Status of Covered Activities.
  - Activities undertaken and where.
- Take of Covered Species from each of the Covered Activities.
  - Including location.
- Status of Conservation Measures.
  - Voluntary or mitigation related habitat restoration, enhancement, and management activities undertaken and where.
- HCP funding and expenditures.
- Records and locations of sites (including County rights-of-way) where habitat surveys have been completed.
- Monitoring data and adaptive management decisions.
- Reports and documents related to the HCP.
- Number of Certificates of Inclusion and Cooperative Agreements issued, with details of:
  - Who they were issued to;
  - When they were issued;
  - Which species they were issued for;
  - Which lands and activities for which take was authorized;
  - How much take was authorized; and
  - Mitigation initiated/completed, including mitigation ratios applied.

## **8.3 Schedule**

Milestones for Plan implementation are outlined below. This schedule does not prevent Benton County from accomplishing these milestones earlier than anticipated.

### **8.3.0 First Year**

- Pass local ordinance to implement HCP.
- Train staff on HCP requirements.
- Begin receiving and reviewing permit applications from private parties and issuing Certificates of Inclusion for coverage under the HCP where impacts are unavoidable.
- Begin receiving and reviewing requests from Cooperators for Certificates of Inclusion and Cooperative Agreements.
- Establish GIS and other databases to track the elements set forth in Section 8.2.2.

### **8.3.1 First Three Years**

- Create management plans and/or guidelines for any conservation properties newly acquired by the County with Covered Species or habitat.
- Create effectiveness monitoring plans for County PCAs.
- Implement habitat restoration and enhancement projects at PCAs.

### **8.3.2 1–50 years**

- Follow management guidelines at PCAs and update them as needed through Adaptive Management.
- Prepare and revise Natural Area and Parks management guidelines, as needed.
- Monitor biological resources and management actions.
- Prepare annual Compliance Report.
- Update Fender’s Blue Zone Map as new information becomes available.
- Update Taylor’s checkerspot butterfly management plan.
- Update Roadside and Streambank Management Guidelines for Covered Plants (Appendix M) as necessary.
- Update Prairie Habitat Vegetation Management Guidelines (Appendix J), as necessary.
- Update Plant Material Collection and Plant Introduction Protocols (Appendix L), as necessary.
- Update Prairie Conservation Strategy.
- Conduct public outreach activities.

## **8.4 Land and/or Conservation Easement Acquisition Policies**

Protection of high quality habitat that supports thriving populations of Fender’s blue butterfly, with ensuing enhancement, restoration and management of that habitat is paramount to conservation of Fender’s blue butterfly. Such protection, whether through conservation easements or fee simple acquisition is a major contribution to the recovery of Fender’s blue butterfly. Benton County plans to acquire from willing sellers, and work to restore, enhance, and manage up to 20-24 ha (50-60 ac) of such habitat. Any increases in quantity and quality of Fender’s blue butterfly habitat at these sites above and beyond the pre-existing levels (baseline) may be used as mitigation to offset impacts from home, farm and forest construction on private lands, utility construction and maintenance, public service facility construction, and transportation maintenance activities.

### **8.4.0 Willing Sellers**

Properties or conservation easements acquired as part of the HCP will only be acquired from willing sellers. Benton County will not condemn land to satisfy the Conservation Measures in the HCP, nor will the County partner with any organization to condemn land for the HCP, including contributing funding towards condemnation.

### **8.4.1 Gifts of Land**

Benton County may accept land or easements as a gift or charitable donation. The County will evaluate the conservation benefit of the lands donated relative to the goals, objectives, and requirements of the HCP. Donated land not meeting these goals, objectives, and requirements may be sold or exchanged, subject to any restrictions



imposed by the donating entity, to enable acquisition of land or conservation easements that do meet these goals, objectives, and requirements.

### **8.4.2 Conservation Easement Compliance Monitoring**

If Benton County contracts with a conservation easement landowner or another party to manage property for conservation of Covered Species, Benton County will monitor the party's compliance with the terms of the conservation easement.

### **8.4.3 Public Access to Conservation Easements**

Public access to County-owned conservation easements on private lands will only be allowed with the County and landowner's consent and where access does not result in harm to the Covered Species.

## **8.5 Mitigation Policies**

### **8.5.0 Non-Benton County Owned Lands Used for Mitigation**

Mitigation for Cooperator activities may be conducted on lands owned by Cooperators as long as the lands, or designated portions of those lands, are managed for conservation of the Covered Species. All costs associated with mitigation for Cooperator activities will be borne by the Cooperator completing the activity.

#### **8.5.1 Pre-mitigation**

Enhancement activities on lands owned and/or managed by the County and Cooperators occurring after 2005 but prior to the HCP may be considered pre-mitigation for future impacts to the Covered Species, as long as the enhancement activities comply with the mitigation requirements, are not counted towards mitigation for another project, and are not funded with federal dollars or other funds not permitted or intended for use in mitigation. Cooperators must submit a notice of mitigation initiation and completion (Appendix Q: Draft Appendix Q: Draft Cooperator Reporting Forms) to Benton County when mitigation projects are initiated and completed. Notices for mitigation initiated and/or completed prior to HCP enactment shall be submitted to Benton County as soon as the HCP is adopted.

## **8.6 Implementation Costs and Funding**

### **8.6.0 Introduction**

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. Benton County 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.

### **8.6.1 Implementation Costs**

Benton County will include in its operating budget funding to support the activities necessary to implement the HCP, including but not limited to:

- Project administration (including HCP amendments).
- Acquisition (fee simple or conservation easements) on Fender's blue butterfly habitat from willing sellers.
- Management of Fender's blue butterfly habitat for mitigation.
- Training (staff and volunteers).
- Issuing certificates of inclusion, developing Cooperative Agreements,
- Monitoring (compliance and effectiveness).
- Reporting.
- Habitat restoration, enhancement, and management activities for the County's Prairie Conservation Areas where mitigation is planned or conducted.
- Vegetation management of Type 1 roadside population SMAs.
- Database management.
- Preparation and update of management plans, effectiveness monitoring plans, and management guidelines and protocols.
- Public outreach, including website management.

Implementation costs are summarized in Table 8.1. 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, Benton County will consult with the USFWS to determine whether the HCP or incidental take permit need amending. (Appendix R: Draft Implementing Agreement). USFWS may suspend the County's incidental take permit until these issues are resolved.

#### **8.6.1.0 HCP Funding Sources**

Because of the uncertainty associated with the allocation of local, state, and federal funds, a variety of funding sources will be sought. Administrative costs to implement the management actions identified in the HCP as well as the mitigation costs associated with Fender's blue butterfly habitat restoration, enhancement, monitoring and outreach will be borne through one or more of the following funding mechanisms:

##### **Local County Funding; Departmental Level**

Benton County Natural Areas and Parks, Community Development, and Public Works Departments will each submit to the Board of Commissioners, on a biennial basis, an agency operating and capital budget to fulfill the County's obligations under the HCP, incidental take permit, and Implementing Agreement. A Cost Center for monitoring HCP revenues and expenses already exists within the Natural Areas and Parks Department (NAPD) Budget, and the County intends to keep this budget instrument in place throughout the term of the incidental take permit. Several aspects of HCP implementation will be absorbed into established Departmental practices and operations.

Table 8.1. Summary of estimated costs to implement the Benton County Prairie Species Habitat Conservation Plan.

Summarized Estimates of HCP Implementation Costs <sup>1,2</sup>				
Benton County Costs	Labor (Hrs)	FTE <sup>3</sup>	Labor (\$)	Services/ Supplies
Annual New HCP Costs	562	0.27	\$ 25,738	\$ 28,541
Start-up New HCP Costs	81	0.04	\$ 15,250	
<i>Subtotal: New HCP Costs</i>	<i>643</i>	<i>0.31</i>	<i>\$ 40,988</i>	<i>\$ 28,541</i>
Annual Absorbed HCP Labor Costs	329	0.16	\$ 20,418	
Start-up Absorbed HCP Labor Costs	100	0.05	\$ 8,120	
<i>Subtotal: Absorbed HCP Costs</i>	<i>429</i>	<i>0.21</i>	<i>\$ 28,538</i>	<i>\$ -</i>
<b>HCP Total Costs</b>	<b>1071</b>	<b>0.52</b>	<b>\$ 69,525</b>	<b>\$ 28,541</b>

<sup>1</sup> Based on 2008 dollars.

<sup>2</sup> Excludes estimated \$4300/yr Cooperators (collectively) will spend on mitigation, monitoring and reporting.

<sup>3</sup> Full time employee.

NAPD has a history of and capacity for managing the costs and duties for preservation and restoration activities. For example, several years prior to initiating the Prairie Species HCP, the NAPD set aside several hundred acres of important prairie habitat as public parks and open space. Benton County, through the NAPD, will seek a range of additional revenue sources to balance costs incurred as the result of HCP implementation and associated mitigation. The following potential revenue sources will be analyzed as a means to balance HCP costs: the sale of Carbon Credits, voluntary contributions, and System Development Charges.

### Undesignated County Funds

The County's budget is comprised of 24 active funds and constitutes a complex mix of undesignated and dedicated resources. The County will underwrite, with undesignated funds, any portion of HCP implementation and mitigation costs not balanced by additional revenues generated at the Departmental level. Revenues from the other active funds which are dedicated for specific projects or programs cannot be used to implement the HCP.

**General Obligation Bond**

Benton County may seek voter approval of a general obligation bond for the acquisition, restoration, and enhancement of Fender's blue butterfly habitat for the purposes of establishing the Benton County Fender's Blue Butterfly Prairie Conservation Areas. For more information about these areas, see Section 3.1.1.3 and 6.3.2.2.

**Local Property Tax Option Levy**

Benton County has the option of seeking voter approval for a local property tax option levy. Property taxes may be levied for up to 5 years for any purpose or for 10 years for capital projects. The funds could be used to purchase and restore, enhance, and manage the Benton County Fender's Blue Butterfly Prairie Conservation Areas (see Section 3.1.1.3 and 6.3.2.2).

**Potential Federal Grant Sources**

Benton County will pursue any Federal grant sources available for projects related to or complementing implementation of the HCP.

**8.7 Changed Circumstances****8.7.0 Introduction**

If circumstances change during the term of the incidental take permit, Benton County may modify its activities and amend the HCP to address such changes. Possible changed circumstances, and the County's response to them, are discussed in this section.

**8.7.1 Additional Federally Listed or State Listed Species**

Should additional prairie species not covered by the HCP be listed, proposed, or petitioned for listing, Benton County may request that USFWS or ODA add such species to the incidental take permit and the HCP. To determine whether to make this request, Benton County may consider whether the species is present in the Plan Area and if it is likely to be affected by the Covered Activities. If incidental take coverage is desired, Benton County will seek to amend the incidental take permit and HCP. Alternatively, Benton County may apply for a new and separate incidental take permit. Procedures for amending the HCP are outlined in Section 8.8 and Appendix R: Draft Implementing Agreement. Alternatively, the County may elect to refer affected Cooperators or landowners seeking a County permit to the USFWS or ODA.

**8.7.2 Delisting**

In the event that a Covered Species is delisted by the federal and/or state government, Benton County will continue to manage and mitigate for impacts to the affected Covered Species for an additional five-years beyond delisting.

### **8.7.3 Previously Undiscovered Wild Fender's Blue Butterfly outside the Fender's Blue Zone**

The Fender's Blue Zone reflects the best assessment of where Fender's populations occur (based on >4,010 ha [9,910 ac] of field survey). Therefore, the likelihood of discovering a new wild population is low. However, if a new wild population is found outside the Fender's Blue Zone during the 50 year HCP term, all non-HCP covered activities (e.g., land conversion or sub-division) will be regulated at that location at the discretion of the USFWS. For activities covered by the HCP in the Fender's Blue Zone, Benton County may consider the following actions:

- Amend the HCP to expand the Fender's Blue Zone, adding the needed anticipated impacts and mitigation to be fulfilled; or
- Refer affected Cooperators or landowners seeking a County permit to the USFWS.

### **8.7.4 New Invasive Species**

Invasive species are a continuing threat to native prairie habitat. Additional invasive species could further stress areas already threatened by invasive species. The County will work with ODA an early detection and control program for any new invasive species likely to threaten prairie habitat in any Benton County Prairie Conservation Areas.

### **8.7.5 Natural Catastrophes**

A number of natural catastrophes could occur during the term of the Permit, including flooding, drought, wildfires, and windstorms.

#### **8.7.5.0 Flooding**

Wet prairies may become flooded during the incidental take permit term. If any Benton County Prairie Conservation Areas are flooded, Benton County will evaluate the site during the field season following the flood to determine any negative effects the flooding may have had on the site, and the County will take appropriate action, in consultation with USFWS, to determine effectiveness of restoring or enhancing the site.

#### **8.7.5.1 Drought**

Extreme and prolonged drought may threaten drinking water, water supplies for fire suppression, water-dependent agriculture, industry, and fish, wildlife, and plants. The most recent drought occurrence was in 1992; Benton County and 32 other Oregon counties were declared a disaster area due to continuing drought conditions. Drought is a serious problem for all the Covered Species, but particularly for the butterfly species. If their host and/or nectar species do not produce sufficient food at the right time, the butterfly adults and larvae may starve to death. During drought conditions some plants do not produce seed, which could further affect the continued existence of the population of that species. If drought conditions threaten Covered Species in Prairie Conservation Areas, Benton County, in collaboration with the Cooperators, will

determine if water is available elsewhere and, if it is reasonably feasible, transport it to the affected sites for drought abatement.

#### **8.7.5.2 Wildfires**

When managed, prescribed fires are a useful tool for managing native prairie species. However, uncontrolled wildfires may negatively affect Covered Species populations either directly by burning the organisms or indirectly through fire fighting 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 Covered Species. Within one year of a wildfire in a Benton County Prairie Conservation Area the County will determine the status of the site and the need for restoration and/or enhancement efforts. Any restoration/enhancement work needed will be performed pursuant to the contingency measures in the Prairie Conservation Area's site management plan.

#### **8.7.5.3 Windstorms**

The Pacific Northwest may experience strong windstorms in the fall and winter months. These windstorms can damage trees, buildings, and structures. Following a windstorm, Benton County staff will assess the damage to the County's Prairie Conservation Areas within six months. Any fallen trees negatively affecting the Covered Species or its habitat will be removed with care to avoid further impacts to the species. Benton County Prairie Conservation Areas will be restored or enhanced, as needed.

#### **8.7.5.4 Other Unanticipated Catastrophes**

Benton County may respond to additional natural catastrophes to protect or conserve one or more of the Covered Species.

### **8.8 Amendments**

The incidental take permit will be issued for a 50-year period based upon actions to be implemented in the HCP. During that period the County may seek to amend or modify the HCP, the incidental take permit, or the Implementing Agreement.

If a member of the public wishes to propose an amendment to the HCP, they may seek an audience with the Benton County Parks Advisory Board. The Advisory Board will determine if the proposed amendment is within the vision, goals, and objectives of the HCP, and will evaluate the implications of making such an amendment. The Advisory Board will inform the Natural Areas and Parks Department of the request. Staff will review the request and inform the County Board of Commissioners of the amendment request, and the Board will determine how to proceed.

## **8.8.0 Amendments to the HCP, Incidental Take Permit, or Implementing Agreement**

Benton County, ODA, or the USFWS may propose minor or major amendments to the HCP, the incidental take permit, and/or the Implementing Agreement. The party proposing the amendments shall provide the other parties 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) the Covered Species, and (3) implementation of the HCP. The incidental take permit may be amended in accordance with all applicable laws and regulations.

### **8.8.0.0 Minor Amendments**

Benton County may make minor amendments to the incidental take permit, Implementing Agreement, or HCP. 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, Implementing Agreement, or HCP.
- Changes in land ownership.
- Changes to non-USFWS 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 Covered Species.
- Discontinuing any Conservation Measures determined through monitoring and adaptive management to be ineffective.
- Any other types of modifications clarifying components of the incidental take permit, Implementing Agreement, or HCP.

The party proposing the amendment must provide the other parties with written notice as specified in the Implementing Agreement, except when another process is specifically identified under the terms of the HCP or the Implementing Agreement with respect to a particular amendment. The parties agree to use their best efforts to respond to proposed amendments within sixty (60) days of receipt of such written notice. The amendment shall be approved upon written agreement of both parties. Minor amendments do not require an amendment of the incidental take permit or the Implementing Agreement, but require approval from USFWS and ODA before being implemented. If the USFWS and ODA concur with the minor amendments proposed by Benton County, they will submit such approval in writing within 120 days or less. If the USFWS and ODA do not send notice or approval or disapproval, the amendment is approved automatically. The modifications will be considered effective on the date of USFWS' and ODA's written authorization or after 120-days if USFWS and ODA fail to send notice of approval or disapproval. A record of any minor amendments to the HCP, incidental take permit, or Implementing Agreement shall be documented in writing.

Minor modifications to the HCP, incidental take permit, and/or Implementing Agreement do not require amendment of the County's Implementing Ordinance.

Minor amendments do not include actions:

- Resulting in obligations under the HCP significantly different from those analyzed in connection with the original HCP.
- Resulting in adverse effects on the environment significantly different from those analyzed in connection with the original HCP.
- Allowing additional take not analyzed in connection with the original HCP.
- Reducing the number of mitigation areas.

### **8.8.0.1 Major Amendments**

A major amendment to the HCP is a change affecting the impact analysis, need for additional incidental take coverage, or the required Conservation Measures. Major amendments require amending the HCP, the incidental take permit, and/or the Implementing Agreement following a formal review process similar to that used for the original HCP and incidental take permit, including USFWS and ODA 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 one or more species to the list of 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 the Covered Species 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.

Benton County will submit requests for major amendments to the USFWS and ODA. The request shall include a description of the proposed amendment, the need for the amendment, and an assessment of its impacts.

Major amendments to the HCP, incidental take permit, and/or Implementing Agreement will require amendment of the County's Implementing Ordinance pertaining to the HCP, Implementing Agreement, or incidental take permit.

### **8.8.0.2 Amendments for Future Species Listings**

If a currently unlisted species is federally listed as threatened or endangered pursuant to the federal or state Endangered Species Act during the Term of the HCP, and Benton



County desires incidental take coverage for activities in Benton County that may impact these newly listed species, Benton County will coordinate with ODA and the USFWS on an HCP and incidental take permit amendment to include the newly listed species.

The process to amend the HCP and incidental take permit shall include a review of the HCP to determine if the Conservation Measures identified in the HCP are adequate for conservation of the newly listed species. If the USFWS, ODA and Benton County determine the Conservation Measures are adequate, then Benton County shall request an amendment to the HCP and incidental take permit to include the newly listed species.

If the Conservation Measures in the HCP do not adequately cover the newly listed species, Benton County shall submit a revised or supplementary HCP and supporting documentation with the 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.

Amending the HCP to add one or more additional species is considered a "major" amendment to the HCP, incidental take permit, and Implementing Agreement.

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

Once the incidental take permit expires (50 years), take is no longer available under Benton County's permit to Benton County for the Covered Activities it conducts or authorizes on land it owns or manages or for issuing County permits or agricultural building authorizations in Fender's blue butterfly habitat; persons needing a County permit or agricultural building authorization in Fender's blue butterfly habitat; or Cooperators.

Benton County may apply to USFWS for a renewal of its incidental take permit and to ODA for a renewal of the HCP. If a written request for renewal is on file with USFWS and ODA at least 30 days prior to the HCP/incidental take permit expiration, the incidental take permit and 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.

## **8.10 Enforcement**

The provisions in this HCP are enforceable by the USFWS and ODA through the terms and conditions of the incidental take permit (USFWS) and the Implementing Agreement (USFWS and ODA). For further details, see the incidental take permit and the Implementing Agreement (Appendix R: Draft Implementing Agreement).

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## **8.11 Notice**

Any notice required to be given by USFWS or ODA pursuant to the terms and conditions of the HCP, incidental take permit (USFWS), and/or Implementing Agreement (USFWS and ODA) must be given to the Benton County Board of Commissioners by personal delivery or by certified mail/return receipt requested as described in the incidental take permit or Implementing Agreement.

## **8.12 Suspension/Revocation**

The USFWS may suspend or revoke the incidental take permit if Benton County 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) and the Implementing Agreement.

Benton County may suspend or revoke a Certificate of Inclusion or Cooperative Agreement with a Cooperator and refer the Cooperator to ODA or USFWS if the Cooperator does not abide by the terms of the Certificate of Inclusion or the Cooperative Agreement, does not satisfy mitigation and monitoring requirements in a timely manner, or if the Cooperator is delinquent in reporting Compliance and Effectiveness Monitoring information to the County by December 31 of the year it is due.

# 9 Alternatives

## 9.1 Introduction

Benton County considered a number of alternatives during development of the HCP. The analysis included what species, lands, entities, and activities to cover, how to fund County-led mitigation for impacts on private lands, and how to address partitions and subdivisions of properties. In addition to these questions, Section 10(a)(1)(a)(iii) 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 or activities would not be constructed or implemented.

## 9.2 Alternatives Considered

### 9.2.0 Alternatives Regarding Covered Species

Part of the evaluation process involved deciding which species to cover in the HCP. The HCP can include listed (threatened and endangered) and unlisted species (e.g., candidate species, species of concern). The following 12 plants or animals occurring in Benton County are listed as endangered or threatened under the Federal ESA.

#### Listed Species (T= Threatened, E= Endangered)

• <i>Erigeron decumbens</i>	Willamette daisy	E
• <i>Icaricia icarioides fenderi</i>	Fender's blue butterfly	E
• <i>Lomatium bradshawii</i>	Bradshaw's lomatium	E
• <i>Oregonichthys crameri</i>	Oregon chub	E
• <i>Brachyramphus marmoratus</i>	Marbled Murrelet	T
• <i>Howellia aquatilis</i>	Water howellia	T
• <i>Lupinus sulphureus ssp. kincaidii</i>	Kincaid's lupine	T
• <i>Oncorhynchus mykiss</i>	Upper Willamette River Steelhead	T
• <i>Oncorhynchus tshawytscha</i>	Upper Willamette River Chinook	T
• <i>Sidalcea nelsoniana</i>	Nelson's checkermallow	T
• <i>Strix occidentalis caurina</i>	Northern Spotted Owl	T
• <i>Castilleja levisecta</i>	Golden paintbrush	T <sup>9</sup>

<sup>9</sup> This species is currently extirpated from Oregon.

**Candidate Species**

- *Eremophila alpestris strigata* Streaked Horned Lark
- *Euphydryas editha taylori* Taylor's checkerspot butterfly
- *Coccyzus americanus* Yellow-billed Cuckoo
- *Rana luteiventris* Columbia spotted frog

**Species of Concern**

There are currently 41 species of concern occurring in Benton County. Of these, the Commissioners decided to limit potential coverage to one plant species, peacock larkspur (*Delphinium pavonaceum*).

The Benton County Commissioners chose to focus the HCP on prairie species, thereby limiting the possible number of species to be considered for inclusion into the HCP to five listed (Fender's blue butterfly, Willamette daisy, Bradshaw's lomatium, Kincaid's lupine, and Nelson's checkermallow), two candidate (Taylor's checkerspot butterfly, Streaked Horned Lark), and one species of concern (peacock larkspur). The County next considered which of these eight prairie species to cover in the HCP. The following options were considered:

**9.2.0.0 Alternative A: Listed Animal Species**

Under this option only Fender's blue butterfly would be covered by the County's incidental take permit as it is the only listed prairie animal species in Benton County for which take by non-federal landowners is prohibited.

**9.2.0.1 Alternative B: Listed and Candidate Butterfly Species**

Under this option only the butterfly species (Fender's blue butterfly and Taylor's checkerspot butterfly) would be covered under the County's incidental take permit. Although there is no "take" of Taylor's checkerspot butterfly under the federal ESA, by including the butterfly in the HCP, take liability is presumed. If Taylor's checkerspot butterfly is ever listed as threatened or endangered under the federal ESA in the future, this species would already be covered and no amendment to the County's incidental take permit and HCP would be required.

**9.2.0.2 Alternative C: Listed and Candidate Animal Species Only**

This option would include Fender's blue butterfly, Taylor's checkerspot butterfly, and the Streaked Horned Lark. Although there is no "take" of Taylor's checkerspot butterfly or Streaked Horned Lark under the Federal Endangered Species Act, by including these species in the HCP, take liability is presumed. If the candidate species (Taylor's checkerspot butterfly and Streaked Horned Lark) are ever listed as threatened or endangered under the Federal Endangered Species Act in the future, these species would already be covered and no amendment to the County's incidental take permit and HCP would be required.

Plants would not be included in the HCP. The County and Cooperators would be required to consult with ODA prior to any action on non-federal public lands that may affect State-listed plant species. If Congress decided to provide take coverage for the listed plant species during the term of the County's incidental take permit or if the species of concern (peacock larkspur) later becomes listed, the County would need to amend its incidental take permit and HCP to cover these plant species or seek a new incidental take permit and HCP.

### **9.2.0.3 Alternative D: Listed Prairie Animal and Plant Species Only**

This option includes Fender's blue butterfly and four of the five plant species: Willamette daisy, Nelson's checkermallow, Bradshaw's lomatium, and Kincaid's lupine. Although there is no "take" of federally listed plant species, they are protected under the Oregon Endangered Species Act, and by including these species in the County's incidental take permit and HCP, take liability will be presumed. However, if the listed plant species are ever given take protection under the federal ESA in the future, these species would already be covered and no amendment to the County's incidental take permit and HCP would be required.

The candidate species and species of concern would be excluded from coverage under this option. If the candidate species and species of concern are later listed under the federal ESA the County would not have take coverage for these species under its incidental take permit. The County's incidental take permit and HCP would require amendment to include these species. The County and Cooperators would be required to consult with ODA prior to any action on non-federal public lands that may affect State-listed plant species.

### **9.2.0.4 Alternative E: Listed and Candidate Butterfly Species and Plant Species**

This option includes the two butterfly species and all five plant species. Although there is no "take" of federally listed plant, candidate, or species of concern, by including these species in the County's incidental take permit and HCP, take liability will be presumed. However, if these species are ever listed and/or given take protection under the federal ESA in the future, these species would already be covered in the County's incidental take permit and HCP, and no amendment would be required.

The Streaked Horned Lark would be excluded under this option. If the Streaked Horned Lark is later listed, the County would not have take coverage for the lark under its incidental take permit. The County would need to amend its incidental take permit and HCP to include the species if take coverage was desired.

This alternative does not include peacock larkspur, a federal species of concern. If Congress decides to list this species during the term of the County's incidental take permit and provide take coverage for the species, the County would need to amend its incidental take permit and HCP to cover peacock larkspur or seek a new incidental take

permit and HCP. The County and Cooperators would be required to consult with ODA prior to any action on non-federal public lands that may affect State-listed plant species.

### **9.2.0.5 Alternative F: Listed, Candidate, and Species of Concern Prairie Animal and Plant Species**

Under this option all eight federally listed, candidate, and species of concern prairie animal and plant species would be included in the County's incidental take permit and HCP. Although there is no take of federally listed plant, candidate, or species of concern, by including these species in the County's incidental take permit and HCP take liability will be presumed. If these species are ever listed and/or given take protection under the federal ESA in the future, these species would already be covered in the County's incidental take permit and HCP and no amendment would be required.

### **9.2.0.6 Proposed Alternative**

Benton County proposes to seek incidental take coverage for the following seven species:

- Fender's blue butterfly
- Taylor's checkerspot butterfly
- Kincaid's lupine
- Willamette daisy
- Nelson's checkermallow
- Bradshaw's lomatium
- Peacock larkspur

The County decided not to include the Streaked Horned Lark, a candidate species, in the proposed alternative. The County conducted Streaked Horned Lark surveys in 2007, and the results indicated there are no larks nesting on Benton County owned and/or managed lands (Moore 2007). The two primary concentrations of Streaked Horned Lark occurrences in Benton County are located on William L. Finley National Wildlife Refuge and at the City of Corvallis Airport. However, the Streaked Horned Lark is clearly imperiled, and the Corvallis Airport population is the largest known population in Benton County. Benton County and the City of Corvallis believe the Streaked Horned Lark can best be addressed through a Candidate Conservation Agreement with Assurances (CCAA) between the City of Corvallis and the USFWS.

## **9.2.1 Alternatives Regarding Covered Lands and Entities**

Part of the evaluation process is the decision of whose lands should be covered by the County's incidental take permit and HCP, which revolved, in part, around who was interested in obtaining take coverage under the County's incidental take permit and HCP. The options considered include the following:

### **9.2.1.0 Alternative A: Benton County Owned and/or Managed Lands Only**

This option would only include lands owned and/or managed by the County. The County's incidental take permit would only apply to County owned and/or managed

lands. Any other landowner in Benton County would need to obtain take coverage from the USFWS and/or ODA (public lands only) for impacts to listed species on their lands.

#### **9.2.1.1 Alternative B: Non-federal Public Lands Only**

This option would include Benton County lands as well as other non-federally public owned and/or managed lands, including city and state lands. Private lands would not be included. Under this option, take coverage would be available for any non-federal public landowner seeking coverage under the County's incidental take permit for their activities on their lands. Such landowners would need to undertake Conservation Measures set forth in the HCP to minimize and mitigate for take of the Covered Species.

#### **9.2.1.2 Alternative C: Non-federal Public Lands, Private Lands Located Outside City Limits**

This option would include all non-federal public lands mentioned above, as well as any private lands located outside city limits. Under this option, in addition to Benton County, incidental take coverage would be available for any non-federal public and private landowners seeking coverage under the County's incidental take permit, if the Conservation Measures set forth in the HCP to minimize and mitigate for take of the Covered Species are completed. Private landowners inside the city limits of Philomath, Monroe, Corvallis, Adair Village, and Albany would not be covered by the County's incidental take permit.

#### **9.2.1.3 Alternative D: Benton County Lands and Private Lands**

This option would include all Benton County owned and/or managed lands and all private lands, including those private lands located within incorporated cities. Under this option, in addition to Benton County, any private landowners wishing to obtain take coverage under the County's incidental take permit and promising to undertake the Conservation Measures set forth in the HCP to minimize and mitigate for take of the Covered Species would be covered by the County's incidental take permit. Other non-federal public landowners would need to obtain incidental take coverage directly from the USFWS as their lands would not be covered by the County's incidental take permit and HCP.

#### **9.2.1.4 Alternative E: All Benton County Lands**

This alternative would include all wet and upland prairie habitat (non-federal public and private) in Benton County, including, but not limited to urban lands. Take coverage under the County's incidental take permit would be available to any non-federal public or private landowner, so long as the landowner promised to undertake the Conservation Measures set forth in the HCP to minimize and mitigate for take of the Covered Species.

#### **9.2.1.5 Proposed Alternative for Covered Lands**

Benton County considered all the various options listed above. The County will seek coverage of lands it owns and/or manages. The County will also include the lands of

Cooperators interested in obtaining take coverage under the County's HCP and incidental take permit. Finally, the County will also include the lands of private landowners in Rural or Urban Residential (outside City Limits), Exclusive Farm Use, or Forest Conservation Zones within Fender's Blue Zone (Figure 5.1).

## **9.2.2 Alternatives Regarding Coverage of Private Development Activities on Lots Generated through Partitions in Fender's Blue Zone**

### **9.2.2.0 Alternative A**

Under this option, if a private landowner decides to partition the property and create more lots, then the newly created lots (with the exception of the one "original" lot) will not be covered under the County's incidental take permit and HCP. The owners of these newly created lots would need to obtain incidental take coverage from the USFWS.

### **9.2.2.1 Alternative B**

Under this option, the owner(s) of the newly created lots would be allowed to seek take coverage under the County's incidental take permit for the Covered Activities on each lot located within the Fender's Blue Zone. This option would add approximately 300 vacant residential lots to the home, farm, and forest construction impacts analysis. Predicted development on the added lots would increase the impact to Kincaid's lupine by about 40%, and increase the impacts to native nectar species by about 15%. Mitigation required would increase proportionally. The County is currently proposing to acquire (fee simple or conservation easement) and manage 20-24 ha (50-60 ac) of high quality prairie habitat. The County would need to acquire and manage additional acreage of Fender's blue butterfly habitat to satisfy the additional mitigation required.

### **9.2.2.2 Proposed Alternative**

In the HCP, the County proposes covering those lots established as of July 31, 2009, the date of the most recent impacts analysis for the HCP. If a private landowner after that date petitions to have the property divided, only one of the newly created lots, the "original" lot, will be covered under the County's incidental take permit and HCP. The landowners will need to obtain take coverage directly from the USFWS before the County will issue them a County permit or agricultural building authorization for home, farm or forest construction activities on the other lots.

## **9.2.3 Alternatives Regarding Funding to Mitigate Impacts on Private lands**

The question was raised as to who would pay to mitigate for impacts to Fender's blue butterfly habitat occurring on private land. Options considered included (1) private landowners would pay the entire cost of mitigating for impacts to Fender's blue



butterfly habitat on their land; (2) Benton County would pay the entire cost to mitigate for these impacts; and (3) a combination of the two first options.

The County proposes acquiring (fee simple or conservation easement) approximately 20-24 ha (50-60 ac) of high quality Fender's blue butterfly habitat in Benton County. Securing these sites will benefit populations of the butterfly and contribute to the recovery of the species. Benton County will manage and enhance the habitat at these sites. Any increases in habitat for the butterfly (above baseline) can be used to offset and mitigate for impacts to Fender's blue butterfly from home farm, and forest construction on private lands within the Fender's Blue Zone.

The estimated cost for annual enhancement and management work at the Benton County Fender's Blue Butterfly Conservation Areas (including monitoring and outreach) is approximately \$20,000 per year (in 2008 dollars). Annual administrative costs for implementing the private land permitting program are estimated to be approximately \$4,500 (2008 dollars), which will cover:

- Working with the permit applicant to:
  - help them understand the program
  - obtain the necessary information
  - avoid and/or minimize habitat impacts
- Record-keeping and compliance reporting
- Ensuring the Permittee does not exceed the permitted impact.

### **9.2.3.0 Alternative A**

Under this alternative, applicants within the Fender's Blue Zones seeking to obtain a County permit or agricultural building authorization would pay the full mitigation and administration costs. Costs would be paid from a fee added to the regular permit fees of individuals obtaining a County building or septic system permit for one or more of the covered activities. The fee would be scaled to the area impacted. For development of a typical homesite the HCP Permit and Mitigation Fee would be approximately \$3,500 (2008 dollars). This would be added to the County fees for homesite construction (building permits, septic system installation permit, electrical permit, etc.), which currently total \$3,500 to \$4,500 for an average homesite.

If Benton County does not obtain an incidental take permit and offer take coverage to private landowners or if private landowners seek to obtain their own incidental take coverage from the USFWS, they would pay approximately \$6,000 to 9,000 to complete their own HCP, obtain their own incidental take permit, and mitigate for impacts to Fender's blue butterfly habitat.

### **9.2.3.1 Alternative B**

Under this alternative, Benton County would incur 50% of the annual cost to mitigate for impacts on private lands resulting from home, farm, and forest construction development in the Fender's Blue Zones allowed under a County permit or agricultural

building authorization. These funds would come from the County's general fund. The other 50% of the mitigation costs would be paid for by the applicant within the Fender's Blue Zones seeking a County permit or agricultural building authorization. The private landowner would also pay an administrative cost. It is estimated the HCP Permit and Mitigation Fee under this alternative would average \$1,500-\$2,000. Because permit activity will vary unpredictably over time, the Board of Commissioners would review the HCP Permit and Mitigation fee every 5 years and adjust as necessary to maintain as close to a 50% portion of the mitigation costs as possible.

### **9.2.3.2 Proposed Alternative**

Under this alternative Benton County will develop the funding needed to mitigate for impacts resulting from home, farm, and forest construction allowed under a County permit or agricultural building authorization on private lands in the Fender's Blue Zone. The County will still issue those private landowners a Certificate of Inclusion for take of Fender's blue butterfly habitat, but the landowner will not be required to pay for the mitigation or associated administrative costs incurred by the County. This alternative distributes the burden of endangered species conservation across all citizens in the County, rather than individuals who own property within the Fender's Blue Zone.

## **9.3 No HCP Alternative**

Under this alternative, Benton County would avoid take of all the Covered Species and not seek an incidental take coverage from the USFWS or ODA. If Benton County were to avoid take altogether, they could not issue County permits or agricultural building authorizations to persons whose activities would impact Fender's blue butterfly habitat without those persons first obtaining authorization from USFWS to impact the butterfly's habitat. The process would merely delay impacts to some Fender's blue butterfly habitat as the USFWS would, in all likelihood, allow some level of take; but the federal process would delay the landowner's ability to develop their property. The no take alternative could potentially affect owners of approximately 1,100 private taxlots in Benton County.

Other than emergency response actions, the County's potential permanent long term impacts to the Covered Species are limited to roadside habitat. Without an HCP, the County could not issue permits for utility, road approaches or authorized work in rights-of-way that may impact Covered Species without first obtaining approval from ODA. The County could not perform certain vegetation management activities along roadsides or complete road improvement projects that may result in take of the Covered Species. Growth of vegetation in roadside areas could eventually pose sight distance problems, and excess vegetation could pose a fire hazard. For public safety reasons, the County needs to maintain the vegetation along County roadsides. Even with implementation of roadside vegetation management timing restrictions it would be difficult for the County to avoid take altogether in these situations.

The County proposes to protect and maintain a significant amount of the known occupied Fender's blue butterfly habitat in Benton County (via fee simple or conservation easement acquisition) through the Conservation Measures set forth in the HCP. If there is no HCP, this habitat could be lost to land conversion activities. Even if the land is not converted, this Fender's blue butterfly habitat could be lost to the spread of invasive species or through ecological succession (conversion of prairie habitat into forest habitat).

With respect to Taylor's checkerspot butterfly and the five covered plant species, absent inclusion of these species in the HCP, there is no federal take for these species. Inclusion of these species in the HCP affords the species greater protection than they currently receive under federal law, and heightens awareness of and compliance with state law.

## 9.4 Reduced Take Alternative

Under this alternative Benton County would seek to purchase from willing sellers fee simple title and/or conservation easements on up to 100% of all remaining Fender's blue butterfly habitat in private ownership. Benton County estimates approximately 2,917 ha (7,208 ac) of Fender's blue butterfly habitat is in private ownership with no protection status. This alternative, in all likelihood, would minimize, but not eliminate take altogether.

This alternative was rejected for the following reasons:

- Not all landowners would be willing to sell their property or an interest in their property to the County for protection of the Fender's blue butterfly habitat and Benton County would not exercise its condemnation authority to acquire the property;
- Benton County does not have the funds available to acquire and/or manage this amount of habitat;
- Acquisition of all this property would take considerable time and effort and during that time some of the Fender's blue butterfly habitat could be lost to land conversion activities, ecological succession processes, or the spread of invasive species; and
- Benton County is proposing to acquire up to 20-24 ha (50-60 acres) of Fender's blue butterfly habitat, containing some of highest quality butterfly habitat.

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# 11 Acronyms

The following is a list of acronyms used in the Benton County Prairie Species Habitat Conservation Plan.

CCAA – Candidate Conservation Agreement with Assurances  
COI – Certificate of Inclusion  
EFU – Exclusive Farm Use  
ESA – Endangered Species Act  
FC - Forest Conservation  
GLT – Greenbelt Land Trust  
HCP – Habitat Conservation Plan  
IA – Implementing Agreement  
IAE – Institute for Applied Ecology  
ITP – incidental take permit  
NEPA – National Environmental Policy Act  
OAR – Oregon Administrative Rule  
ODA – Oregon Department of Agriculture  
ODFW – Oregon Department of Fish and Wildlife  
ODOT – Oregon Department of Transportation  
OPRD – Oregon Parks and Recreation Department  
OSU – Oregon State University  
PCA – Prairie Conservation Area  
ROW – Right-of-Way  
RR - Rural Residential  
SHA – Safe Harbor Agreement  
SMA – Special Management Areas  
TIP – Transportation Improvement Plan  
TNC – The Nature Conservancy  
UR – Urban Residential  
USFWS – United States Fish and Wildlife Service or U.S. Fish and Wildlife Service

# 12 Glossary

**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.

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

**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.

**Biological Opinion:** 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.

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

**Candidate Conservation Agreement with Assurances (CCAA):** A voluntary agreement between the U.S. Fish and Wildlife Service and a non-federal property owner who agrees to manage lands or waters to remove threats to candidate or proposed species, with assurances that the property owner's conservation efforts will not result in future regulatory obligations that exceed those agreed to at the time the agreement is signed. The CCAA authorizes take through a section 10 Permit if the species is later listed.

**Candidate species:** Candidate species are plants and animals for which the U.S. Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

**Certificate of Inclusion:** This is a document issued by Benton County that enrolls a landowner into the HCP for purposes of obtaining coverage under the county'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:** 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.

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

**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 Service (or National Marine Fisheries Service) and may be formal or informal.

**Cooperative Agreement:** An agreement between Benton County and anyone wishing to obtain incidental take coverage under the County's Permit. The agreement will specify the obligations of the parties.

**Cooperator:** Non-federal public agencies, utility companies and a conservation organization whose activities are likely to affect one or more of the Covered Species, and who have elected to obtain coverage under the County's incidental take permit.

**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 (ESA):** 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).

**Cumulative effects (NEPA):** Impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes the action.

**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-relationship 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.

**Ecosystem management:** a management process that rather than considering natural resources only as commodities (such as timber or fuel) for human use, focuses instead on the ecosystem processes of population (plants, animals) community (a grouping of different organisms living together), and biogeochemical interactions to maintain the condition and function of a site as a whole.

**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. Species can be listed as endangered or threatened for a number of reasons, including disease or predation. Natural or human factors affecting chances for survival: 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. For ESA purposes, a species currently believed to be extinct.

**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.

**Fender's Blue Zone:** Area of potential habitat for Fender's blue butterfly, determined by mapping grassland and oak habitat within the 2km (1.2 mi) flight distance (dispersal distance) of known populations of the butterfly.

**Functioning networks:** A well-connected set of functional landscapes within an ecoregion or across multiple ecoregions.

**Globose:** Spherical.

**Graminoids:** Grasses, sedges, and rushes.

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

**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.

**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.

**Historic range:** The geographic area where a species was known to or believed to occur within historic time.

**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.

**Implementing Agreement:** Agreement between Benton County, Oregon Department of Agriculture and the U.S. Fish and Wildlife Service that describes the terms of the

HCP, describes remedies and recourse should any of the parties to the agreement fail to perform their obligations, and provides assurances to Benton County that as long as the terms of the HCP, the Permit (USFWS only), and this Agreement are performed, no additional mitigation will be required of Benton County by USFWS or ODA, except as provided for in the Agreement or required by law.

**Inbreeding depression:** Reduced fitness (reproductive success) in a given population as a result of inbreeding.

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

**Incidental take permit:** 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.

**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.

**Instar:** In arthropods, larvae stages between molts until sexual maturity is reached.

**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.

**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.

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

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

**Petition:** A formal request from an interested individual or organization to list, reclassify, or delist a species, or to revise critical habitat for a listed species.

**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.

**Reclassify:** To change a species' status from threatened to endangered or endangered to threatened. An example of a reclassification was the downlisting of the Bald Eagle from endangered to threatened.

**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.

**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.

**Secured:** Habitat of local populations are (1) owned or managed by a government agency or private conservation organization identifying maintenance of the species and its habitat as the primary management objective for the site, or (2) private land is protected by a long term or permanent conservation easement committing the landowner to conservation of the species.

**Senescencing:** Dying off at the end of a season (annuals) or approaching dormancy (perennials).

**Sink population:** A population with a higher mortality rate than birth rate.

**Source population:** A population with a higher birth rate than mortality rate; a self sustaining population capable of dispersing to other populations.

**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.

**Species of Concern:** An informal term referring to a species that may need conservation action due to declining population sizes. Similar terms include "species at risk" and "imperiled species". Such species receive no legal protection, nor is there any guarantee that the species will be listed in the future.

**Subspecies:** A taxonomic rank below species, usually recognizing individuals with certain heritable characteristics distinct from other subspecies of a species.

**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.

**Terms and conditions:** Required actions described in an incidental take permit under section 10 or Incidental Take Statement intended to implement the Reasonable and Prudent Measures under section 7.

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

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

**Watershed:** An area of land draining to a common point.