

**FINDINGS AND RECOMMENDATIONS FOR ISSUANCE OF SECTION
10(a)(1)(B) INCIDENTAL TAKE PERMIT (TE-10049B-0) ASSOCIATED WITH
THE YAMHILL COUNTY ROAD MAINTENANCE ACTIVITIES
HABITAT CONSERVATION PLAN
YAMHILL COUNTY, OREGON**

I. DESCRIPTION OF THE PROPOSED ACTION

A. Introduction

The U.S. Fish and Wildlife Service (Service) proposes to issue an Incidental Take Permit (Permit) to Yamhill County, Oregon (County) under the authority of section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (ESA). Under the Permit, the County would receive 30-year incidental take authorization for certain covered activities and covered species, as identified in their Yamhill County Road Maintenance Activities Habitat Conservation Plan (“HCP”, Yamhill County 2012).

Documents used in the preparation of this statement of Findings and Recommendations include the Service’s biological opinion on the permit application (U.S. Fish and Wildlife Service 2014), and the above referenced HCP. Both of these documents are incorporated by reference as described in 40 § CFR1508.13. The Service has determined that activities conducted in compliance with the incidental take permit are not likely to jeopardize the continued existence of the covered species. This document presents the Service’s analysis and findings regarding whether the HCP meets the incidental take permit issuance criteria described in section 10(a)(2)(B) of the Act.

B. Covered Species and Covered Lands

The two species covered under the HCP include the federally-listed Fender’s blue butterfly (*Plebejus icarioides fender* Macy 1931) and Kincaid’s lupine (*Lupinus oreganus*) (collectively, “Covered Species”). Kincaid’s lupine is also one of the primary host plants for Fender’s blue butterfly larvae. Although there is no Federal prohibition against taking of plants on non-federal lands, the County has minimized and mitigated impacts to Kincaid’s lupine; therefore, they will be able to receive “no surprises” assurances under the Service’s regulations [50 CFR §17.22(b)(5)] for the covered plant.

The Covered Land is the area for which Yamhill County requests authorization from the Service for activities and projects that may result in incidental take of the Covered Species. The Covered Lands include the County right-of-way along County Roads and Deer Creek Park. For some roads, the County’s right-of-way starts at the road centerline and extends 9.1 meters (30 feet) on either side; for other roads, the right-of-way width from centerline is 4.8 meters (20 feet). The access road to Deer Creek Park extends 5.0 meters (16.5 feet) from centerline (described in Chapter 4 of the HCP). The Covered Species only occur in small segments of the Covered Lands. The Covered Lands are

broadly defined to address potential future, but currently unknown Covered Species' occurrences.

C. Types of Covered Activities:

Yamhill County (County) is seeking coverage for its road maintenance activities conducted on 1,090 km (677 miles) of County roads and right-of-ways. The activities proposed to be covered under the Permit are the otherwise lawful activities that are described in detail in Chapter 4 of the HCP. Covered Activities include: mowing, brush cutting, spraying, large tree and shrub removal, snow plowing, sign posting, drainage maintenance, seeding, planting, emergency earth removal, road improvements, soft spot dig-outs, grading and gravel placement, dust abatement, grinding, hot mix asphalt concrete overlay, chip sealing, crack sealing, shoulder preparation and rocking, sweeping and washing, centerline and fog-line striping, deicing, and sanding. Some of the covered activities, such as mowing, brush cutting, spraying, and large tree and shrub removal will also be done for the purpose of habitat management and restoration.

D. Proposed Impacts

For Fender's blue butterfly, effects are quantified based on impacts to two components of butterfly habitat: Kincaid's lupine and nectar plants (see the HCP and our biological opinion for detailed descriptions of the methods used to determine the extent of suitable habitat and to predict effects to Fender's blue butterflies and Kincaid's lupine plants). Effects to Kincaid's lupine plants are quantified on the basis of acreage and plant cover. In the biological opinion (U.S. Fish and Wildlife Service 2014) the Service analyzed effects to designated critical habitat for Fender's blue butterfly and Kincaid's lupine by evaluating potential change in the primary constituent elements caused by the activities covered in the HCP.

County right-of-way varies between 12 and 18 m (40 and 60 feet); potential effects were assessed using the greater distance of 18 m (60 feet). Within the 18 m (60-foot) right-of-way, there is a 6 m (20-foot) road prism (includes the ditch, the shoulder and the roadbed). The road prism was eliminated from the impact analysis, since it does not provide usable habitat. The remaining right-of-way used for the analysis was 12 m (40 feet) wide, 6 m (20 feet) from the edge of each side of the road prism. This 6 m (20 foot) County right-of-way was divided into two distinct sections:

1. "Potential Impact Zone" - the first 1.52 m (5 feet) from the shoulder of the road to the back of the ditch (where normal maintenance is performed), and
2. "No Impact Zone" - the remaining 4.57 m (15 feet) from the back of the ditch to the end of the right-of-way (no normal maintenance is performed here).

Although the analysis in the HCP utilizes the term "No Impact Zone", the Service believes there may still be impacts to listed species in this area. Any Fender's blue butterfly or Kincaid's lupine in this area might still be subject to disturbance, drifting herbicides, wind-blown gravel dust, or habitat management activities, for example.

Within the Fender's blue butterfly 2 km (1.24 mile) dispersal zone, 118.31 hectares (292.34 acres) of habitat along 96.56 km (60.00 miles) County road was surveyed for Kincaid's lupine (Salix Associates 2011). Kincaid's lupine was identified on 0.18 hectare (0.45 acre) during the survey. Based on this information, the HCP surmised that Kincaid's lupine will occur in 0.15 percent of the potential suitable habitat outside the Threatened and Endangered Species (T&E) Special Maintenance Zones in Yamhill County.

There are 1,283.84 hectares (3,172.43 acres) of County right-of-way outside of the T&E Special Maintenance Zones. Using the percentage calculated above, the HCP concluded there will be a total of 1.97 hectare (4.88 acres) in the County right-of-way, including both the Potential Impact and No Impact Zone, outside of the T&E Special Maintenance Zones. The Potential Impact Zone outside of the T&E Special Maintenance Zones were given a slightly larger buffer, extending the 1.52 m (5 foot) area to 2.01 m (6.60 feet) to account for spray drift and brushing. This increase in the Potential Impact Zone reduces the No Impact Zone to 4.08 m (13.4 feet) from 4.57 m (15 feet). Of the total acreage, 0.66 hectare (1.62 acres) occurs in the Potential Impact Zone and 1.32 hectare (3.26 acres) occurs in the No Impact Zone.

To determine the area of Kincaid's lupine potentially affected by County road maintenance activities, the HCP utilized an analysis similar to what is described above. However, the area was corrected to reflect actual plant cover in the Potential Impact Zone. Kincaid's lupine surveys identified lupine occurring in the Potential Impact Zone at 4 of 13 Service known locations and at one of seven sites in the 2 km (1.24 mile) dispersal zone (Chapter 3 of the HCP). The combined Kincaid's lupine cover at these five sites within the T&E Special Maintenance Zones was 0.004 hectare (0.01 acre). To determine Kincaid's lupine cover outside of the T&E Special Maintenance Zones, the HCP further refined the 0.66 hectare (1.62 acres) identified above to account for actual plant cover. Kincaid's lupine occurred in the Potential Impact Zone at one of seven sites (14 percent) identified during the 2 km (1.24 mile) dispersal survey. Using this information, the HCP concludes that Kincaid's lupine could occur in 0.09 hectare (0.23 acre) of the potential suitable habitat outside the T&E Special Maintenance Zones in Yamhill County.

To determine the area of nectar plants used by Fender's blue butterfly potentially affected by County road maintenance, a 0.5 km (0.3 mile) nectar zone was drawn around known Kincaid's lupine locations. The area (hectare/acre) and frontage (km/mile) was then calculated using the Potential Impact and No Impact Zone for the area that occurs outside of the known locations, but inside of the 0.5 km (0.3 mile) nectar zone along the County right-of-way. Habitat within the 0.5 km (0.3 mile) nectar zone was not classified; for the purpose of the HCP analysis, it was assumed that the entire area could potentially contain nectar plants.

The implementation of special maintenance practices within the T&E Special Maintenance Zones protects nectar habitat in the vicinity of known populations of

Fender's blue butterfly. In order to address potential effects to nectar species for undiscovered populations of Fender's blue butterfly, the HCP assumed that a total of eight "unknown" Fender's blue butterfly populations could occur in the vicinity of the County right-of way outside of the T&E Special Maintenance Zones. The forage area for Fender's blue butterfly is 0.5 km (0.3 mi) from their host site. At least 5 hectares (12 acres) of high quality habitat are necessary to support a population of Fender's blue butterfly, and a larger quantity of lower grade habitat is required (U.S. Fish and Wildlife Service 2010). Nectar plants within the foraging area that occur within the Potential Impact Zone of the right-of-way could be affected by County road maintenance activities.

The HCP concluded that native nectar habitat associated with the potential eight unknown populations could encompass as much as 148 hectares (366 acres); of this, 32.50 hectares (80.32 acres) would occur within County managed right-of-way, with 8.15 hectares (20.16 acres) occurring in the Potential Impact Zone. These 8.15 hectares (20.16 acres) represent 5.5 percent of the total native nectar habitat (148 hectares [366 acres]) potentially available. The HCP assumes that the nectar habitat in the remainder of the right-of-way, 24.35 hectares (60.16 acres) will continue to be available to the Fender's blue butterfly. Additional nectar habitat could also exist on the 115.5 hectares (285.7 acres) that occur within the 0.5 km (0.3 mile) forage zone that is outside of the right-of-way.

E. Conservation Strategy

The overall biological goal of the Plan is to maintain local populations of the Covered Species and habitat connectivity. The HCP provides a template that governs the road maintenance activities necessary for the County to maintain safe road conditions while promoting long-term conservation and recovery of the Covered Species. Primary emphasis is given to:

- Preserving habitat for the covered species in the County right-of-way.
- Implementing avoidance and minimization measures for road maintenance activities in the County right-of-way to reduce potential impacts on the covered species and their habitat.
- Increasing habitat available for the covered species in an undisturbed area outside of the County right-of-way.

Locations within the County right-of-way known to support Fender's blue butterfly, Kincaid's lupine or designated critical habitat for Fender's blue butterfly are included in Threatened and Endangered Species Special Maintenance Zones (T&E Special Maintenance Zones). In 2005, the County established T&E Special Maintenance Zones and began modifying their maintenance activities to avoid adverse effects on Fender's blue butterfly habitat including Kincaid's lupine from road maintenance activities. Under the HCP additional T&E Special Maintenance Zones within 6.43 miles of road to encompass the Kincaid's lupine identified during the 2 km (1.24 mile) dispersal survey will be established. The maintenance activities will conserve covered species in the T&E Special Maintenance Zones and protect critical habitat and nectar species while allowing

the County to maintain their roads and right-of-way to preserve a safe environment for public use.

Avoidance and Minimization

Avoidance and minimization measures, described in section 6.2.2 of the HCP, will be implemented within T&E Special Maintenance Zones during maintenance activities along the County right-of-way to reduce potential adverse effects on Covered Species and Fender's blue butterfly nectar species. There will be timing restrictions on road maintenance activities during sensitive periods for the Covered Species. All County maintenance vehicles will be equipped with a manual that includes a description of the special maintenance measures and photos of covered species. The County will provide similar training for contractors working in T&E Special Maintenance Zones, and the contractors will be required to follow the avoidance and minimization measures in the HCP.

Mitigation

Mitigation will be provided through restoring upland prairie habitat at County-owned Deer Creek Park or other areas containing suitable habitat within the County and conducting long-term management of these lands for the benefit of the covered species.

Mitigation will occur when impacts are unavoidable, and will be completed at sites with appropriate habitat in the County. Mitigation may be achieved by habitat enhancement for Fender's blue butterfly, or species planting for Kincaid's lupine. Mitigation actions will occur at sites that already support Fender's blue butterfly and Kincaid's lupine, or at sites that contain suitable habitat but do not currently have an established Fender's blue butterfly population or host plants. Mitigation will not occur at sites where there is no suitable habitat for the covered species. To mitigate for the effects of the covered activities, 2.82 hectares (6.96 acres) of that land within the T&E Special Maintenance Zones and Deer Creek Park will be managed to benefit the listed species. All T&E Special Maintenance Zones and Deer Creek Park will have habitat restoration plans in place within one year of permit issuance and will be implemented.

Monitoring

Monitoring plans will be developed one year from incidental take permit issuance for all sites where monitoring is required, including mitigation sites. Monitoring plans will include the following: management goals and objectives for the site; species to be monitored; variables to be measured and data collection methods; frequency of monitoring; and, data analysis methods.

Monitoring would occur at sites where habitat restoration, enhancement, and management occur (T&E Special Maintenance Zones outside of the Service known locations and Deer Creek Park). This monitoring would be done once every three years to determine the success of habitat restoration, enhancement, and management, as measured by tracking species status and habitat condition.

Effectiveness monitoring data objectives include:

- Monitor Fender's blue butterfly populations in the portion of the T&E Special Maintenance Zones not included in on-going Service monitoring.
- Record changes in Fender's blue butterfly habitat quality at Deer Creek Park (plant community composition and species cover) every three years.
- Measure the success of habitat enhancement activities in County T&E Special Maintenance Zones (mowing, brushing, herbicide application).
- Measure the County's fulfillment of their mitigation requirements.
- Monitoring would be performed by a qualified biologist in possession of the necessary permit(s) for the activities they are conducting.

Changed and Unforeseen Circumstances

Section 7.3 of the HCP addresses changed and unforeseen circumstances. Changed circumstances are circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such an event). Reasonably foreseeable circumstances for which the County will submit draft responses to the Service, should they occur, are listed in Table 7-3 of the HCP. The process for responding to changed circumstances will be initiated as soon as practicable but no later than 60 days after a changed circumstance is revealed. The County will rely on the Implementation Committee to develop a draft response that provides a summary of the impact or effects the changed circumstance would have on the implementation of the HCP. The County will forward the draft response letter to the Service for review. If additional conservation management or mitigation measures are deemed necessary to address a changed circumstance that was not provided for in the plan, and assuming that the HCP is being properly implemented, the Service will gain the consent of the County before requiring implementation of these additional measures.

Unforeseen circumstances are changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by HCP developers and the Service during the HCP's development. An unforeseen circumstance must result in a substantial adverse change in status of a covered species. The Service is responsible for determining if an unforeseen circumstance has occurred based on an analysis of the circumstances and the information provided by the County.

II. ANALYSIS OF EFFECTS

The Service has determined that the impacts to the Covered Species from the proposed action will be minimized and mitigated to the maximum extent practicable by measures described in the HCP and the associated Permit. The effects of the proposed action on the Covered Species are fully analyzed in the HCP and the Service's biological opinion, which are incorporated by reference, and a summary of the analysis is provided below.

The primary form of take is harm resulting from habitat alteration associated with the Covered Activities. Harm is defined by the 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.

Direct impacts 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 are reasonably certain to occur later in time. Yamhill County contains approximately 2,000 hectares (4,943 acres) of County right-of-way along 1,090 km (677 miles) of roadway. Continued County road maintenance within the right-of-way could potentially affect approximately 0.75 hectares (1.86 acres) of Fender's blue butterfly and Kincaid's lupine habitat in the Potential Impact Zone along 3.69 km (2.28 miles) of County road within the T&E Special Maintenance Zones. The 0.75 hectares (1.86 acres) along 3.69 km (2.28 miles) of County road represents the area where the species is known to be present, or where the species were identified during surveys. Effects on Fender's blue butterfly nectar plants could potentially occur over 8.15 hectares (20.16 acres) in the Potential Impact Zone along 26.82 km (16.67 miles) of County road.

Effects to covered species outside of the T&E Special Maintenance Zones could potentially occur in 1.97 hectare (4.88 acres) of potential habitat along the County right-of-way. Within the above acreage, Kincaid's lupine cover occurs on 0.004 hectare (0.01 acre) of the Potential Impact Zone within the T&E Special Maintenance Zones and could potentially occur on 0.09 hectare (0.23 acre) of potential habitat outside of the T&E Special Maintenance Zones. There will be less impact on listed species in the Vineyard Special Maintenance Zones due to the spraying, brushing and mowing restrictions in those zones. Road maintenance activities could inhibit or promote the expansion of Fender's blue butterfly and Kincaid's lupine distribution. Table 5 of the HCP identifies the activities with anticipated effects on each of the covered species, the frequency and duration of those activities, and the type of anticipated effect.

Fender's blue butterfly

Adult Fender's blue butterflies will be vulnerable to more types of road maintenance activities than larvae. The County generally performs mowing and brushing activities between April and November. Posting signs and emergency earth removal occur throughout the year as necessary, while drainage activities, such as cleaning or replacing culverts, are generally scheduled during the dry time of the year. In a typical year in the Willamette Valley, the Fender's blue butterfly normally flies from mid-May through early-mid June, with the larvae dropping to the ground in mid-June or July, where they lie dormant through the fall and winter. If maintenance activities occur during times when the adults are present, butterfly death could occur if equipment contacts the butterflies. Direct effects could also occur if equipment kills, maims, or displaces larvae on plants during their active stage or near the soil in their dormant phase. Road improvement projects will have effects similar to those described above; however, this

type of project will encompass a much larger footprint and therefore potentially affect a greater number of butterflies than other road maintenance activities.

Mowing in habitat patches with eggs or larvae of Fender's blue butterfly at any time during the year may crush or otherwise kill a small number of individuals of these life stages of the butterfly. However, studies in the southern Willamette Valley have found that both adult and larval Fender's blue butterflies increased in number following mowing that reduced the stature of herbaceous non-native vegetation, (Fitzpatrick 2005, Kaye and Benfield 2005). A study on the effects of fire and mowing on Fender's blue butterfly and native upland prairie at Baskett Slough National Wildlife Refuge found that Fender's blue butterfly eggs were 10 to 14 times more abundant in plots that were mowed or burned compared to undisturbed, control plots; woody plants were reduced 66 percent with mowing (Wilson and Clark 1997). At the U.S. Army Corps of Engineers' Fern Ridge Reservoir, the Fender's blue butterfly population has increased dramatically since fall mowing of lupine patches has been implemented (Messinger 2006). Fender's blue butterfly population trends have been correlated with lupine vigor; high leaf growth appears to produce larger butterfly populations. The abundance of Fender's blue butterfly eggs was found to be correlated with the abundance of Kincaid's lupine leaves at a number of study sites (Kaye and Cramer 2003); egg abundance increased substantially at sites which had been treated to control non-native weeds (Schultz *et al.* 2003).

Indirect effects on Fender's blue butterfly could occur through the loss of nectar sources or host plants as a result of vegetation maintenance, posting signs, emergency earth removal, drainage activities, cleaning or replacing culverts, and road improvement projects. These activities could lead to decreased fitness and potentially death of butterflies. There is potential for Fender's blue butterfly to experience greater pressure at nectar sources in the following areas: ORA 1, 2, and 3; ORA 5 and 6; and GVA 1, 2, and 4. Each of the three areas experience overlapping nectar zones (within the area, not overall; Yamhill County 2012, Appendix C) that could increase competition among the butterfly for access to high quality nectar sources. If vegetation maintenance (i.e., mowing, spraying, shrub and tree removal) is conducted in the late summer and early fall after plants have set seed and senesced (dried up and no longer growing), it can be beneficial if it improves habitat conditions for host plants by removing or lowering the height of plant species that compete for light and nutrients.

Grading, chip sealing, soft spot dig-outs and grinding, hot mix asphalt concrete (HMAC) overlays, crack sealing, shoulder preparation and rocking, and centerline and fog-line striping are less likely to affect the butterfly either directly or indirectly compared to vegetation removal activities. For these activities, equipment is operated only to the ditch line of the road, and will only affect plants on the foreslope of the road. Plants have been observed growing in the foreslope of the road; however, this is not a common occurrence. Additionally, grading typically occurs during the wet winter months, when the larvae are dormant; thus, only larvae near the base of plants in the foreslope of the road would be affected.

There are limited studies that can aid in identifying direct effects on Fender's blue butterfly from dust abatement (lignosulfonate), deicer (liquid magnesium chloride), or herbicide application. Toxicological studies on lignosulfonate indicate that the chemical is non-toxic to humans. However, studies to determine a lethal dose to butterflies have not been performed. Exposure to dust abatement product (lignosulfonate) or deicer (liquid magnesium chloride) is less likely. The products are applied directly to the road bed. The only pathway into the roadside areas will be by rain runoff. The rain may carry these chemicals into the ditch, but the opportunity for direct effects on the butterfly is remote. Application of these chemicals could result in indirect effects on nectar or host species for the butterfly if they are located in close proximity to the drainage ditch, as they could be exposed to chemicals in the runoff.

Effects on Fender's blue butterfly are more likely to result from application of herbicides, which could indirectly affect the butterfly if nectar species or host species are exposed to the herbicide, resulting in a die-off. However, removal of invasive species like blackberries and scot's broom provides additional habitat for native species such as Kincaid's lupine, which could benefit the butterfly.

Snowplowing is unlikely to affect Fender's blue butterfly, as this activity occurs within the 6-meter (20-foot) road prism. Sanding is also unlikely to affect Fender's blue butterfly, as there is a very small proportion of salt in the sand mixture (27 kg (60 pounds) of salt to 20,000 kg (44,092 pounds) of sand). Additionally, these activities occur in the fall and winter months when the larvae are dormant.

Hydro seeding is unlikely to affect the butterfly as the equipment stays on the road prism and this activity occurs along un-vegetated slopes where neither lupines, nor butterflies would be present. Hand seeding may cause trampling of larvae or lupines if they are present.

The conservation measures and mitigation projects associated with HCP implementation will result in direct and indirect positive effects to Fender's blue butterfly and its habitat (larval host plants, nectar plant sources, and stepping stone habitat). The establishment of T&E Species Special Maintenance Zones where covered species occur along the County right-of-way provides Fender's blue butterfly with a more secure environment with a reduced threat of adverse effects. The implementation of avoidance and minimization measures for roadside populations within T&E Special Maintenance Zones will reduce the possibility of adverse effects to the species. Control of invasive species in T&E Special Maintenance Zones will increase potential habitat for Fender's blue butterfly because this will provide host plant and native nectar species with increased potential for survival and reproduction. The designation and management of conservation areas for Fender's blue butterfly on County land will provide secure habitat for the species and thereby increase their potential for survival and reproduction. Any additional habitat enhancement in the County right-of-way that promotes ground-reaching sunlight will increase the survival and reproduction potential of present host plant and nectar species, thereby increasing potential habitat for Fender's blue butterfly. At Deer Creek Park, the planting of Kincaid's lupine and nectar species will increase potential habitat for Fender's

blue butterfly. Finally, regular monitoring and reporting of the above conservation measures will inform managers of unforeseen adverse effects to Fender's blue butterfly and its primary host plant, Kincaid's lupine, and provide an opportunity to alter activities as necessary to minimize or eliminate those effects.

Kincaid's lupine

Kincaid's lupine could be directly affected by mowing, brushing, spraying, tree and shrub removal, hand seeding, drainage activities, cleaning or replacing culverts, emergency earth removal, and sign posting operations. Mowing could prevent reproduction by cutting off flowers or inhibiting seed set and dispersal. Other activities that may trample or damage listed plants, leading to death or decreased propagation include shrub removal, cleaning or replacing culverts, sign posting and emergency earth removal. Road improvement projects could have effects similar to those described above, as well as potentially reducing the population of Kincaid's lupine by digging up the plant.

Spring mowing within patches of listed plants may remove much of the above ground growing parts of the plants, which would reduce growth and reproductive success for that year. Fall mowing is not likely to have any adverse effects to listed plants, as the above ground portions of the plants will have senesced. Research on prairie management techniques has shown that mowing is an effective method for reducing non-native plants, with generally positive effects to native prairie species. Annual fall mowing has significant positive effects, including increased leaf, flower and foliar cover, on Kincaid's lupine (Kaye and Thorpe 2006). Soil compaction by mowing equipment may adversely affect Kincaid's lupine but the likelihood of this effect is expected to be small and will be prevented by the use of rubber tracks on tractors used for mowing. In general, if vegetation maintenance (including mowing, brushing, shrub and tree removal, and spraying) within the County right-of-way is conducted during the fall, it can benefit Kincaid's lupine by removing or controlling species that compete for light and nutrients. Selective vegetation management will promote expansion of lupine populations.

Application of herbicides could kill plants or stunt growth. Application of dust abatement chemical (lignosulfonate) and deicer (liquid magnesium chloride) could affect the growth of vegetation adjacent to the roadway if it comes into contact with Kincaid's lupine. Particles of liquid magnesium chloride can get into the cells of the plants and make them less cold hardy and more susceptible to freezing (Perry n.d.). Application of lignosulfonates and liquid magnesium chloride could alter the pH of the soil, which could affect the growing environment. However, reduction of dust collecting on the plant will benefit lupine, as there will be no reduction of their photosynthetic rate (Hiarano *et al.* 1995).

Grading, chip sealing, soft spot dig-outs and grinding, HMAC overlays, crack sealing, shoulder preparation and rocking, and centerline and fog-line striping are less likely to affect lupines than mowing or other vegetation removal, as equipment is operated only to the ditch line of the road, and will only affect plants on the foreslope of the road. Road

maintenance activities during the plant's dormant phase will be less likely to cause direct or indirect effects.

Snowplowing is unlikely to affect Kincaid's lupine, as this activity occurs within the 6-meter (20-foot) road prism. Sanding is also unlikely to affect Kincaid's lupine as there is a very small proportion of salt in the sand mixture. Additionally, these activities occur in the fall and winter months when the plants are dormant. Hydro seeding is unlikely to affect Kincaid's lupine as the equipment stays on the road prism and this activity occurs along un-vegetated slopes where lupines are not present. Hand seeding may cause trampling of lupines if they are present.

The conservation measures and mitigation project associated with HCP implementation will result in direct and indirect positive effects to Kincaid's lupine. The establishment of T&E Species Special Maintenance Zones where covered species occur along the County right-of-way provides Kincaid's lupine with a more secure environment with a reduced threat of adverse effects. The implementation of avoidance and minimization measures for roadside populations within T&E Special Maintenance Zones will reduce the possibility of adverse effects to the species. Control of invasive species in T&E Special Maintenance Zones will increase potential habitat for Kincaid's lupine and provide the species with increased potential for survival and reproduction. Any additional habitat enhancement in the County right-of-way that promotes ground-reaching sunlight will increase the survival and reproduction potential of Kincaid's lupine already present. At Deer Creek Park, the planting of Kincaid's lupine will increase the abundance of the species. Finally, regular monitoring and reporting of the above conservation measures will inform managers of unforeseen adverse effects to Kincaid's lupine and provide an opportunity to alter activities as necessary to minimize or eliminate those effects.

During the 30-year term of the 10(a)(1)(B) permit for the HCP, the permit will authorize take of Covered Species associated with the road maintenance activities of Yamhill County. Table 7 of the Service's biological opinion summarizes the amount of take to be authorized by the permit. Over the life of the permit, activities covered by the Yamhill County HCP will result in relatively minor adverse effects to each of the covered species. The mandated habitat restoration, enhancement, and management activities will all have some short term negative effects on the Covered Species, but in the long term, the effects will be beneficial, and each of the covered species will be more protected and secure than they are at present.

The incidental take of Fender's blue butterfly take resulting from the proposed action will be minimized due to timing restrictions that will avoid the active butterfly and larval stage season for Fender's blue butterfly; road maintenance activities will not occur in T&E Special Maintenance Zones between March 1 and August 15. Activities subject to this timing restriction include mowing, brush cutting, spraying, large shrub and tree removal, routine drainage maintenance, shoulder preparation and rocking, sweeping and washing. In addition, the mower deck will be set at a minimum of 15 cm (6 inches) above ground to avoid Fender's blue butterfly larvae.

These and other conservation measures will limit but not eliminate direct mortality to any Fender's blue butterfly larvae and eggs on or near Fender's blue butterfly host plants as well as any potential indirect harm to adults due to destruction of food sources (nectar plants).

Effects to Critical habitat

Critical habitat has been designated in Yamhill County for Fender's blue butterfly and Kincaid's lupine. Approximately seven percent of Fender's blue butterfly critical habitat within Yamhill County could be potentially affected by the covered activities. Yamhill County supports a total of 28.85 hectares (71.30 acres) of critical habitat for Fender's blue butterfly. Road maintenance activities will occur along only 1.62 km (1.02 miles) or 1.98 hectare (4.90 acres) of Fender's blue butterfly critical habitat units FBB-1 and FBB-2 (HCP Table 6).

Approximately four percent of Kincaid's lupine critical habitat within Yamhill County could be potentially affected by the covered activities. Yamhill County supports a total of 57.34 hectares (141.7 acres) of critical habitat for Kincaid's lupine. Critical habitat for lupine is mostly coincident with critical habitat for Fender's blue butterfly (HCP Table 6). Road maintenance activities will occur along 1.64 km (1.03 miles) or 2.15 hectares (5.31 acres) of Kincaid's lupine critical habitat in units KL-2, KL-3, and KL-4.

The effect of mowing on designated critical habitat for Fender's blue butterfly and Kincaid's lupine is a short-term reduction in some primary constituent elements (PCEs) with clear long-term benefits. Spring mowing will temporarily reduce the cover of native prairie species, which would be an adverse effect to that PCE for Fender's blue butterfly. It will also reduce the availability of nectar sources for Fender's blue butterfly. Concomitantly, spring mowing will have beneficial effects to critical habitat for both Fender's blue butterfly and Kincaid's lupine as it removes competing non-native plant species. Fall mowing is not likely to have any adverse effects to the PCEs of designed critical habitat for either of the species. Both spring and fall mowing have clear beneficial effects in the long-term; mowing is one of the most effective techniques for increasing native prairie species cover and reducing the dominance of competitive invasive species.

Road maintenance activities, such as vegetation control, spraying, shrub and tree removal, and dust abatement, could have both positive and negative effects on the primary constituent elements of critical habitat. If these activities are conducted in the late summer and early fall after plants have set seed and senesced, they can be useful in restoring native prairies, larval host plants, nectar sources, and stepping-stone habitat by removing or lowering the height of plant species that compete for light and nutrients. However, if these activities are conducted during the reproduction season (April – June), they can have a negative effect on prairie ecosystems by reducing productivity of nectar and host plants or inhibiting reproduction. If maintenance activities occur from late April through June, road maintenance crews could trample, run over, remove, or otherwise prevent reproduction by flower and seed removal. Stepping stone habitat could be affected if large machinery (e.g., mowers and earthmovers) compact the soil so that

prairie plant species can no longer flourish. However, this is unlikely because road maintenance machinery operates from the roadbed, where plants do not generally grow.

In addition to the effects described above, road improvement projects could negatively affect all PCEs associated with Fender's blue butterfly critical habitat (prairie ecosystem, larval host plants, nectar sources, and stepping stone habitat) by digging up plants associated with these primary constituent elements. Grading, chip sealing, soft spot dig-outs and grinding, HMAC overlays, crack sealing, shoulder preparation and rocking, and centerline and fog-line striping is less likely to affect the PCEs, as equipment is operated only to the ditch line of the road, and will only affect plants in the foreslope of the road. Application of dust abatement chemicals (lignosulfonate) could potentially stunt the growth of vegetation in the area adjacent to the roadway. Sanding is unlikely to result in direct effects on the prairie habitat due to the very low proportion of salt included in the sand mixture. Maintenance activities conducted during the host and nectar plants' dormant phase are unlikely to have any effect on Fender's blue butterfly critical habitat.

The conservation measures and mitigation associated with HCP implementation will directly and indirectly minimize adverse effects to the critical habitat of Kincaid's lupine and Fender's blue butterfly. The establishment of T&E Species Special Maintenance Zones where covered species occur along the County right-of-way will increase the security of any critical habitat that overlaps with those areas of species' occurrence, by reducing the threat of adverse effects in critical habitat. The implementation of avoidance and minimization measures for roadside populations of Kincaid's lupine that overlap with either Fender's blue butterfly critical habitat or Kincaid's lupine critical habitat within T&E Special Maintenance Zones will reduce the possibility of adverse effects to Kincaid's lupine and therefore critical habitat for either species. Control of invasive species in T&E Special Maintenance Zones will increase potential habitat for Kincaid's lupine and native nectar species. The designation and management of conservation areas for Kincaid's lupine and Fender's blue butterfly on County land will increase the security of any Fender's blue butterfly critical habitat or Kincaid's lupine critical habitat that overlaps with these conservation areas. Any additional habitat enhancement in the County right-of-way that occurs in critical habitat for Kincaid's lupine or Fender's blue butterfly will increase the quality of that critical habitat by promoting ground-reaching sunlight, increasing the growth potential of host plant and nectar species. At Deer Creek Park, the planting of Kincaid's lupine will increase the abundance of Kincaid's lupine and Fender's blue butterfly critical habitat. Finally, regular monitoring and reporting of the above conservation measures will inform managers of unforeseen adverse effects to the critical habitat of Fender's blue butterfly and Kincaid's lupine and provide an opportunity to alter activities as necessary to minimize or eliminate those effects.

Effects Conclusion

After reviewing the status of Fender's blue butterfly and Kincaid's lupine, the environmental baseline for the action area, and the effects of the proposed action, including all measures proposed to avoid, minimize and mitigate adverse effects including cumulative effects, the Service's biological opinion concluded that the issuance

of an incidental take permit to Yamhill County pursuant to section 10(a)(1)(B) of the Act is not likely to jeopardize the continued existence of any of these listed species nor destroy or adversely modify designated critical habitat. The reasons for this determination are summarized as follows:

1. The proposed action is not likely to appreciably diminish the effectiveness of the conservation program established under the Recovery Plan for the Prairie Species of Western Oregon and Southwest Washington to protect Fender's blue butterfly and its habitat or Kincaid's lupine within their ranges.
2. The impacts from the proposed action will not alter the overall adverse cumulative impacts expected to occur in the action area.

The inherent significance of the effects associated with impacts of the proposed action will be reduced or perhaps eliminated through the conservation and mitigations actions included in the proposed action.

Road right-of-way maintenance and management that will follow from issuing the proposed 10(a)(1)(B) permit to Yamhill County is expected to result in incidental take of Fender's blue butterfly. Take will be in the form of disturbance, harm and death of individuals. Estimates of the total amount of annual take based on affected suitable habitat are shown in Table 7 of our biological opinion. We expect that annual take of all eggs and larvae associated with 68 adult Fender's blue butterflies will occur as a result of the issuance of a permit for the Yamhill County HCP. We expect that actual incidental take of Fender's blue butterfly will be difficult to detect and vary year to year in the field for the following reasons: (1) the cryptic nature and relatively small body size of the butterflies makes the finding of a dead specimen unlikely, and (2) species abundance may be masked by seasonal fluctuations in numbers or other causes. Given the difficulty of tracking take of individuals, Yamhill County will track take using the surrogate measure of area of habitat affected (see Section 6.4.1 in the HCP).

Over the life of the permit, activities covered by the HCP will result in relatively minor adverse affects to each of the covered species. The mandated habitat restoration, enhancement, and management activities will all have some short term negative effects on the covered species, but in the long term, the effects would be beneficial, and the covered species will be more protected and secure than they are at present.

III. Public Comment

A notice of availability and receipt of application for the draft proposed HCP, the application for an incidental take permit, and the draft environmental action statement (EAS) and preliminary determination that the draft HCP qualifies for a categorical exclusion under the National Environmental Policy Act was published in the Federal Register on October 5, 2012 (77 FR 61017). Public comment on the HCP, permit application, and EAS were requested by November 5, 2012.

We received two public comment letters. One of the comment letters was from the Oregon Department of Agriculture (ODA). ODA is the state agency responsible with overseeing the conservation and protection of state-listed plants, including Kincaid's lupine. ODA subsequently met with representatives from Yamhill County on December 5, 2012. After that meeting, ODA and sent Yamhill County a letter on December 21, 2012 (and copied the Service), indicating that the HCP "adequately addresses how the County will avoid or minimize impacts to Kincaid's lupine whenever possible, and mitigate the unavoidable impacts."

Comments received from the other comment letter from a conservation organization were summarized and the Service's responses to comments are listed below:

Comment 1: The commenter disagreed with the Service's determination that the draft HCP qualifies for a categorical exclusion under NEPA, primarily on the basis to potential impacts to designated critical habitat.

Response: As the final rule for critical habitat designation for Kincaid's lupine and Fender's blue butterfly pointed out (71 FR 63873), areas designated may require special management consideration. Activities under the HCP are intended to manage the roadsides to maintain the early seral prairie habitat and/or low growing grasses, which are listed as one of the primary constituent elements for both Fender's blue butterflies and Kincaid's lupine. We have revised the low effect screening form to further explain our rationale for why critical habitat for the covered species will not be adversely impacted and why management is appropriate within designated critical habitat and why the effects of management under the HCP would help maintain designated critical habitat.

Comment 2: The site management plans should be created for each T&E Special Maintenance Zone. Site management plans should include both restoration as well as management at Deer Creek Park and be reviewed by outside experts.

Response: Within one year from issuance of the incidental take permit, the HCP states that the County will develop habitat restoration plans in conjunction with appropriate outside partners for the T&E Special Maintenance Zones. The habitat restoration plans will maintain and enhance the covered species' habitat within the T&E Special Maintenance Zones in the County right-of-way and at the mitigation site for Kincaid's lupine and Fender's blue butterfly habitat located in Deer Creek Park. Prior to implementation of the restoration plan, the Service will review and approve the restoration plan for Fender's blue butterfly habitat. Restoration and monitoring tasks at Deer Creek Park are anticipated to include control of invasive species, native grass seeding, and planting of Kincaid lupine and nectar species to increase habitat for Fender's blue butterfly and increase the cover of Kincaid's lupine plants. The County would apply for a permit from the Oregon Department of Agriculture for cultivation and planting of Kincaid's lupine at Deer Creek Park. Monitoring for Fender's blue butterfly and Kincaid's lupine would occur at Deer Creek Park where habitat restoration, enhancement,

and management would occur. This monitoring would be done annually until Kincaid's lupine is established. Once established, monitoring would occur every three years.

Comment 3: The HCP should only allow spot spraying of herbicides and language within the site management plans should include steps to minimize overspray.

Response: Language was added to the HCP to clarify that spot spraying will generally be used for weed control and habitat restoration; however, broadcast spraying will be considered for large infestations where spot spraying would not be practical. Applications would be site-specific and chemical specific, and there will be timing restrictions to avoid impacts to Fender's blue butterfly and Kincaid's lupine. Licensed applicators would follow label recommendations.

Comment 4: The County should ensure that material from drainage or vegetation management is not sidecast into special maintenance zones.

Response: Language was added to the HCP to indicate that excess material from drainage maintenance will be carefully removed, will not be placed on top of vegetation, and will be disposed of at an approved dumpsite.

Comment 5: The goal of restoration at Deer Creek Park and the special maintenance zones should go beyond simply restoring Kincaid's lupine and include other native plants.

Response: Language was added to the HCP to clarify that habitat restoration will be accomplished through control and removal of invasive species and the planting of native plants. Native grass and Fender's butterfly nectar plants will be seeded in disturbed areas or areas being controlled for weeds in special maintenance zones.

Comment 6: The HCP Implementation Committee should include a representative of the Yamhill Soil and Water Conservation District and the Yamhill Watershed Stewardship Fund.

Response: Under the HCP, membership of the Implementation Committee will consist of the HCP Administrator, two representatives from both the County Road Improvement Advisory Committee and the County Parks and Recreation Board. Ex-officio members of the Implementation Committee will include the USFWS and up to two species experts. Meetings of the Implementation Committee will be open to the public and will be held as necessary to administer and implement the HCP. Implementation Committee meetings will be held semi-annually to review annual road maintenance activities, monitoring reports, and mitigation actions at a minimum. The Service cannot require the County to include a representative of the Conservation District or Stewardship fund. Those entities can attend the Implementation Committee meetings and work with the County on a day-to-day basis to coordinate their respective conservation related measures within Yamhill County.

Comment 7: There should be a way that the public can easily access information about on-going efforts and annual reports, and the County's take avoid manual (a.k.a. "Blue Book").

Response: Under the HCP, data on the monitoring methods, results, and analysis will be managed, stored, and made available to interested parties. A database and clear reporting procedures will be developed for incidental take permit compliance. The data will be managed to ensure accurate and up-to-date information is available for making management decisions.

Comment 8: Monitoring should occur every two years at Deer Creek Park and in the Special Maintenance Zones.

Response: The Service has been monitoring Fender's blue butterflies and Kincaid's lupine along Yamhill County roads annually for several years and will continue to do so, as funding allows. Under the HCP, surveys will be coordinated between the Service and Yamhill County. If the Service does not have the funds, Yamhill County will conduct the surveys every three years. Data on the monitoring methods, results, and analysis will be managed and stored by Yamhill County, and made available to interested parties.

Comment 9: Newly discovered populations of Kincaid's lupine should be subsequently surveyed and included in Special Maintenance Zones.

Response: It is possible that additional populations of Kincaid's lupine may be found within Yamhill County right-of-way lands and the HCP evaluated the potential effects to an estimated, undiscovered population and provided mitigation should this occur. The Service's biological opinion addressed the potential impact on these unknown populations. Any newly discovered populations would have been established with existing and on-going right-of-way management and may likely persist even without the designation of a new special maintenance zone. Because of the mitigation provided, and the management within the special maintenance zones that is likely to increase the quantity and quality of available habitat, we did not believe the establishment of additional special maintenance zones was needed under the HCP. The Service will continue to work with Yamhill County and other interested parties in the county to manage for Kincaid's lupine, Fender's blue butterfly, and native prairie species wherever they may occur.

IV. INCIDENTAL TAKE PERMIT CRITERIA – ANALYSIS AND FINDINGS

Section 10(a)(2)(A) of the ESA requires the Service not authorize take unless the applicant submits a conservation plan that specifies the following: the impact that will likely result from such taking; what steps the applicant will take to minimize and mitigate such impacts and the funding that will be available to implement such steps; what alternative actions to such taking the applicant considered and the reasons why such

alternatives are not utilized; and such other measures as the Service may require as being necessary or appropriate for the purposes of the habitat conservation plan. Section 10(a)(1)(B) of the ESA mandates that the Service issue a permit if the taking will be incidental; the impacts of such taking are minimized and mitigated to the maximum extent practicable; the applicant has adequate funding for the plan; and, if the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

With regard to this specific HCP, permit actions, and section 10(a)(2)(B) requirements, the Service makes the following findings:

1. The taking will be incidental.

The Service finds that the taking of Covered Species under the HCP will be incidental to otherwise lawful activities. The activities for which incidental coverage are sought under the Permit are primarily directly related to roadway maintenance and habitat restoration activities on Yamhill County-owned right-of-way lands. Any take of Covered Species associated with these activities will be incidental to, and not the purpose of, these lawful activities.

2. The County will, to the maximum extent practicable, minimize and mitigate the impacts of taking of Covered Species that may occur within the Permit area.

The County has developed the HCP, pursuant to the incidental take permit requirements at 50 CFR 17.22(b)(1) which require measures to minimize and mitigate the effects of issuing the Permit. Under the provisions of the HCP, the impacts of take will be minimized, mitigated, and monitored through the following measures:

- (a) Establishing Threatened & Endangered Special Maintenance Zones that encompass all known locations of Fender's blue butterflies and Kincaid's lupine along the road right-of-way, including a 0.5 km buffer (0.31 miles).
- (b) Implementing modified road maintenance protocols in the Special Maintenance Zones for the protection and benefit of the Covered Species and their habitats.
- (c) Removing invasive species within the Special Maintenance Zones and Deer Creek Park to enhance habitat.
- (d) Developing management plans for each Special Maintenance Zone and Deer Creek Park.
- (e) Identification and implementation of incidental take avoidance and minimizations measures to reduce impacts to Covered Species for all Covered Activities (including mitigation activities) (see Chapter 6 of the HCP).
- (f) To mitigate for the effects of the covered activities, 2.82 hectares (6.96 acres) of land within the Special Maintenance Zones and Deer

Creek Park would be specifically managed to benefit the listed species.

The Service believes the level of avoidance, minimization, and/or mitigation provided for in the HCP compensates for the impacts of take of Covered Species that will or could potentially occur under the HCP. This finding is based on the fact the extensive avoidance and minimizations measures have been identified in the HCP. All mitigation will take place in Deer Creek Park and the T&E Special Maintenance Zones which will be enhanced and maintained to protect habitat for the Covered Species according to the conservation measures set forth in the HCP (See Chapter 6 of the HCP). Special Maintenance Zones represent all the known locations of Fender's blue butterfly and Kincaid's lupine associated within the County managed road right-of-way. Mitigation for impacts to Covered Species within the right-of-way occurring at Deer Creek Park would provide for a larger area closer to other known Fender's blue butterfly and Kincaid's lupine populations. Habitat management at Deer Creek Park would also not be subject to any routine, needed, road maintenance activities that could have some negative impacts to the Covered Species. Management for mitigation purposes may have some short-term adverse effects to the Covered Species, but will have predominantly positive long-term benefits to the species through increased population sizes, improved habitat quality and greater habitat security.

3. Yamhill County will ensure that adequate funding for the HCP and procedures to deal with unforeseen circumstances will be provided.

The Service finds that Yamhill County will ensure funding adequate to implement the Plan. Sections 7.8-7.11 of the HCP provide an estimate of costs associated with implementing the HCP and potential sources of funds for implementation. Administrative costs to implement the management actions identified in the HCP as well as the mitigation costs associated with Covered Species habitat restoration, enhancement, and monitoring will primarily come from County road maintenance funds. The County Commissioners may choose to supplement these funds with County general funds or other County funds. Other possible sources may include legislative appropriations, grants, donations, and other sources to be determined. The County has a proven capacity to successfully manage the right-of-way to support the Covered Species and their activities have maintained the populations where they occur today.

Section 7.3 of the HCP describes potential changed and unforeseen circumstances and the County's proposed responses to each potential change of circumstance.

4. The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The Service finds that the taking to be authorized under the proposed Permit will not appreciably reduce the likelihood of the survival and recovery of the Covered Species in the wild. This issuance criterion is essentially the same as our finding of "no jeopardy" pursuant to section 7(a)(2) of the ESA and the implementing regulation pertaining thereto (50 CFR 402.02). As a result, the Service has reviewed the HCP under section 7 of the ESA. In a biological opinion (Fish and Wildlife Service 2014), which is incorporated

herein by reference, the Service has concluded that the issuance of the proposed Permit is not likely to jeopardize the continued existence of the Covered Species. Our conclusion is based on the fact that over the life of the permit, activities covered by the Yamhill County HCP will result in relatively minor adverse effects to the Covered Species. The planned habitat restoration, enhancement, and management activities will all have some short term negative effects on the Covered Species, but in the long term, the effects would be beneficial, and the Covered Species will be more protected and secure than they are at present.

5. Other measures, as required by the Director of the Fish and Wildlife Service, as necessary or appropriate for purposes of the HCP will be met.

The Service finds that no additional measures are required for the purposes of the HCP to be met.

6. The Service has received the necessary assurances that the HCP will be implemented.

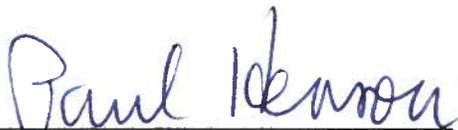
The Service finds that the HCP provides the necessary assurances that Yamhill County will carry out all actions described within the Plan.

V. GENERAL CRITERIA AND DISQUALIFYING FACTORS – FINDINGS

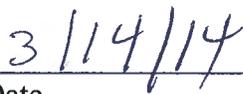
The Service has no evidence that the Permit application should be denied on the basis of the criteria and conditions set forth in 50 CFR 13.21(b) through (c). The applicant has met the criteria for the issuance of the permit under 50 CFR 17.22(a)(2), and approval of the HCP, and does not have any known disqualifying factor that would prevent the Permit from being approved under current regulations.

VI. RECOMMENDATION ON PERMIT ISSUANCE

Based on the foregoing findings with respect to the proposed action, I recommend the approval and issuance of permit **TE-10049B-0** to Yamhill County for the incidental take of Fender's blue butterfly in accordance with the HCP.



State Supervisor
Portland Oregon



Date

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