NATURAL RESOURCES
TECHNICAL REPORT:
TERRESTRIAL BIOLOGY RESOURCES

I-5: Fern Valley Interchange

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<tr>
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</tr>
<tr>
<td>BA</td>
<td>Biological Assessment</td>
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<td>BMPs</td>
<td>Best Management Practices</td>
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<td>Fern Valley Interchange</td>
</tr>
<tr>
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<td>Geographic Information System</td>
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EXECUTIVE SUMMARY

The following provides a summary of the key elements of the Terrestrial Biology Technical Report for the Fern Valley Interchange project.

METHODOLOGY

For the purposes of this report, the study area is defined as the Area of Potential Impact (API), which encompasses all areas within 100 feet of the centerline of Fern Valley Road, as well as generally within 100 feet of the centerline of proposed roads and interchanges/ramps and other areas currently anticipated for construction access and/or staging associated with the project alternatives.

Preliminary resources reviewed included species lists from the Oregon Natural Heritage Information Center and U.S. Fish and Wildlife Service, USGS 7.5 minute quadrangle map: “Medford East”, Fern Valley Interchange Biological Resources Baseline Report: Wildlife, Fish, and Plants (URS 2004), and aerial photography.

A field survey to determine the presence and extent of suitable habitat for listed terrestrial wildlife species in the API was conducted on May 22, 2007. A separate survey for rare plants and noxious weeds was conducted in 2005. Color aerial photographs were used to delineate the API into five habitat types: developed urban areas, agricultural fields/pastures, riparian forests, woodland areas, and wetlands. The field survey focused on verifying habitat for species that could occur in the vicinity of the API based on existing habitat.

Rare plant surveys completed in 2005 were conducted in order to document populations of listed plant species within the API. A rare plant survey was conducted based on the Jackson County USFWS Species List (USFWS 2005) and the Oregon Department of Agriculture (ODA) Species List (ODA 2005).

EXISTING CONDITIONS

The API is located within Township 38 South, Range 1 West, Sections 3, 9, and 10 of the Medford East USGS quadrangle map. The API is located within the Western Interior Valley Province (Jackson County 1989) of the Klamath-Siskiyou Ecoregion (WWF 2001), which runs from southwestern Oregon to northwestern California. The Klamath-Siskiyou Ecoregion represents the contact between the Pacific Northwest Floristic Province and the Californian Province (WWF 2001). The Western Interior Valley Province includes the valley bottoms bounded by the Cascade Range on the east and the Klamath/Siskiyou ranges on the west (Jackson County 1989).
Habitat

The Rogue River Valley is home to many different species of mammals, birds, reptiles, and amphibians. The ability of any specific area within the valley to provide habitat for wildlife is dependent upon many factors, such as available food, cover, and water. The relative abundance or lack of these and other resources in relation to each species’ particular requirements will, in part, determine the species composition and distribution of a particular area. In addition, the types of habitat present; the size, shape, and complexity of the habitat(s); and the surrounding land uses will further interact to determine the success of various wildlife species at the location being considered. Some wildlife species have demonstrated great adaptability and tolerance to human activity; others are less able to tolerate such activities.

The relatively warm, dry climate of the Rogue River Valley has a great influence on the habitat. Wildlife habitat within the API may be defined by cover type and seasonality of use by wildlife. Each vegetation community is considered to be a distinct wildlife habitat, supporting a specific group of wildlife species. Most wildlife species would typically be found in one or perhaps two of the vegetation communities, although some habitat generalists (e.g., the red-tailed hawk, coyote, and deer mouse) may be found in nearly all of the vegetation communities.

The API includes five distinct habitat types that have developed in response to the local topography, climatic conditions, and past land use practices. Agriculture, utility and highway construction, commercial and residential development, and industry have highly fragmented the vegetative patterns across the landscape. What exists today are developed urban areas, agricultural fields/pastures, riparian forests along Bear and Larson Creeks, woodlands, and wetlands.

Wildlife and Plants

A species list was developed identifying federal and state terrestrial wildlife and plant species that may occur in the vicinity of the FVI Project. Species include those that are listed as endangered, threatened, proposed, or candidate under the federal and state ESAs. Of the wildlife species identified, one listed terrestrial wildlife species was identified in pre-field investigations as having potentially suitable habitat within the project vicinity: the bald eagle. No rare plants were identified, but some noxious plants were found.
ENVIRONMENTAL CONSEQUENCES

Potential impacts to terrestrial resources include direct, indirect, and cumulative effects resulting from the proposed project. These effects are discussed below in the context of the No-Build, Fern Valley Thru, and N. Phoenix Thru Alternatives.

Direct Impacts

**No-Build Alternative**

The No-Build Alternative would have no temporary impacts to current biological baseline conditions for terrestrial species or habitat. Additionally, no long-term changes to current biological baseline conditions for terrestrial species or habitat would occur as a result of the No-Build Alternative. Growth and development are expected to continue in the API without construction of the interchange. Direct impacts to terrestrial resources and their functions from this growth are probable.

**Fern Valley Thru and N. Phoenix Thru Alternatives**

Temporary impacts to current biological baseline conditions for terrestrial species for the Fern Valley Thru and N. Phoenix Thru Alternatives could potentially include clearing and grubbing and removing riparian vegetation. Project actions associated with both the N. Phoenix Thru and Fern Valley Thru Alternatives have the potential for similar direct effects to habitat types. The project would impact about 12 acres of agricultural fields/pastures for both alternatives, less than 2 percent of riparian forest habitat type and woodland habitat type, and less than 8 percent of wetland habitat type for both alternatives. Because forested habitats offer higher habitat value (including cover, food resource, and nesting sites) than non-forested habitats, the loss of these habitats is most harmful to wildlife. Neither alternative is likely to impact listed terrestrial wildlife or rare plant species due to the amount of existing development, lack of species presence, and minimal and fragmented suitable habitat. The project would have the potential to spread noxious weeds. Noxious weeds were observed scattered throughout the API. Fill material has the potential to further introduce weedy species that may displace native vegetation, but the project should be planned with conservation measures to prevent the further spread of noxious weeds.

Indirect Effects

**No-Build Alternative**

Indirect impacts to terrestrial resources and species due to the No-Build Alternative could potentially include the deterioration of the bridge structure over Bear Creek and the resulting erosion of the adjacent supporting embankments. This erosion could, over time, result in destabilizing riparian forest habitat and a limited area of riparian forest habitat
could be lost. This loss of habitat could directly affect wildlife such as birds that are nesting or denning in trees that are lost. Growth and development are expected to continue in the API without construction of the interchange. Indirect impacts to terrestrial resources and their functions from this growth are probable.

**Fern Valley Thru and N. Phoenix Thru Alternatives**

An increase in the rate of development in the rural area within the API may be considered an indirect effect of the project. However, this area has experienced and is likely to continue to experience increased development regardless of the construction of either of the alternatives. Possible indirect effects of the proposed project due to the addition of impervious surface and the removal of habitat include displacement of species from their associated habitats and increased competition between species and among individuals of the same species for limited resources, including nesting and denning sites, food resource, and protective cover. No indirect impacts to ESA-listed wildlife or plant species would be expected to occur as a result of construction of N. Phoenix Thru and Fern Valley Thru Alternatives.

**Cumulative Impacts**

**No-Build Alternative**

In general, urbanization in the surrounding vicinity would likely cause loss of habitat and increased habitat fragmentation from additional impervious surface and land clearing, and result in the potential for increased introduction of non-native and or invasive weeds.

**Fern Valley Thru and N. Phoenix Thru Alternatives**

The majority of potential development and projects anticipated in the vicinity of the Fern Valley Interchange would impact terrestrial biological resources. However, the following projects could cumulatively impact terrestrial resources within the FVI Project API:

- The Jackson County Bear Creek Greenway Trail completion would further increase impervious area above Bear Creek (upstream and downstream of FVI Project API).

- The ODOT I-5 South Medford Interchange would further increase impervious area above Bear Creek (downstream of FVI Project API).

- Commercial property development may result in additional loss of terrestrial habitat and increased habitat fragmentation.
The incremental cumulative contribution to the past, present, and future foreseeable actions would likely be a relatively small loss in terrestrial species’ habitat and habitat fragmentation in the area. It should be noted that current regulations require that new impervious surface area improvements would require updated stormwater treatment and mitigation for habitat loss. As such, existing, untreated runoff in many areas would likely become treated prior to entering waterways as a result of construction, and loss of wetland acres and functions would be mitigated. Collectively, all projects when reviewed together could have a small impact on terrestrial habitat and species. All of the impacts associated with these projects would be mitigated, and residual cumulative impacts would therefore be considered negligible.

SUMMARY OF MITIGATION AND CONSERVATION MEASURES

Conservation measures would be implemented to minimize or avoid potential temporary and long-term environmental impacts to listed terrestrial species and habitat. The conservation measures would follow practices outlined in ODOT’s Standard Specifications for Highway Construction (2002). Standard specifications would be amended in the Special Provisions to include any additional conservation measures that may be applicable to specific project actions. Conservation measures for reducing impacts to species and habitat include avoiding and minimizing removal of native vegetation, wherever practicable; avoiding introducing and/or spreading non-native invasive species; using best management practices (BMP’s) to avoid and minimize erosion, sedimentation, and other environmental disturbances in aquatic habitats resulting from construction; and restricting tree removal activities. Because the Fern Valley Interchange Project is in the early stages of design, all obligations that appear in this section are non-binding and subject to change as design progresses (Section 7).

In addition to standard ODOT conservation measures, ODFW has expressed support of three mitigation measures. These include:

1. Project construction shall avoid disturbances to bridge structures between March 1 and September 15 to avoid the breeding season for bats unless pre-construction surveys are conducted by a qualified biologist and no bat roosts or nurseries are found within the project area at the time construction is scheduled.

2. If it is determined that culverts throughout the project area need replacing, design engineers should consider oversizing drainage structures to enhance wildlife (small mammal) crossing opportunities, where appropriate.

3. Construction activities such as vegetation removal have the potential to directly and indirectly affect migratory birds. However, potentially negative impacts to migratory birds can be eliminated or greatly reduced by avoiding construction activities during the most sensitive portion of the breeding season (early March through July). If seasonal restrictions are not practicable, a pre-construction
survey to identify active nests would be conducted by a qualified biologist prior to any disturbance activities.

<table>
<thead>
<tr>
<th>Measure of Change</th>
<th>Fern Valley Thru</th>
<th>N. Phoenix Thru</th>
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</thead>
<tbody>
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<td>Impacts to Individual Listed Species and/or Habitats</td>
<td>No impacts to listed terrestrial wildlife or rare plant species due to lack of presence and suitable habitat for species</td>
<td>No impacts to listed terrestrial wildlife or rare plant species due to lack of presence and suitable habitat for species</td>
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<tr>
<td>Acres of Habitat Impact</td>
<td>48.07</td>
<td>51.16</td>
</tr>
<tr>
<td>Loss of High-Value Habitat Types (Riparian Forest and Woodland Areas)</td>
<td>Negligible displacement of species from their associated habitats and increased competition between species and among individuals of the same species for limited resources, including nesting and denning sites, food resource, and protective cover. Riparian Forest – 0.79 acre Woodland Area - 0.28 acre</td>
<td>Negligible displacement of species from their associated habitats and increased competition between species and among individuals of the same species for limited resources, including nesting and denning sites, food resource, and protective cover. Riparian Forest – 0.67 acre Woodland Area - 0.02 acre</td>
</tr>
<tr>
<td>Net New Impervious Surface</td>
<td>15.8</td>
<td>15.2</td>
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</table>
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1. INTRODUCTION

The Terrestrial Biology Technical Report has been prepared to support the Environmental Assessment (EA) for the proposed Fern Valley Interchange project, located along I-5 in southwest Oregon (shown in Figures 1A and 1B).
Most of the project is located within the Phoenix city limits and urban growth boundary (UGB), and extends from OR 99¹ (in Phoenix) west of the interchange to the Phoenix UGB and to Arrowhead Ranch (north of the UGB) east of the interchange. The project

¹ OR 99 is also known as Highway 99, and also as Main Street (including the southbound portion of the couplet) through the City of Phoenix.
The purpose of this technical report is to provide an assessment of the potential terrestrial biology impacts associated with this project. This impact analysis has been conducted pursuant to the requirements of the National Environmental Policy Act; the Council of Environmental Quality; and the Federal Highway Administration (FHWA).

1.1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The following provides an overview of the purpose and need for the Fern Valley Interchange project. A detailed description of the purpose and need is provided in the EA published for this project.

The purpose of the proposed action is to reduce congestion and improve operational conditions at the Interstate 5 (I-5) interchange with Fern Valley Road, on Fern Valley Road within the City of Phoenix UGB, and on OR 99 near its intersection with Fern Valley Road. The need for the proposed action includes the following:

- The Fern Valley Interchange is experiencing increasing congestion, which has caused vehicles to queue on the off-ramps during commute times. By 2030, these queues will spill back onto I-5, increasing the risk of high-speed, rear end collisions. The capacity of the interchange is degrading rapidly, and traffic safety remains an ongoing concern. Future traffic problems will worsen these conditions.
- The Fern Valley Interchange does not meet current interchange design standards—the approaches to the overcrossing are steep and limit traffic visibility; and the length of the I-5 ramps and acceleration lanes are substandard, which results in short stopping and acceleration distances.
- Fern Valley Road and OR 99 have substandard shoulders, do not have dedicated bicycle lanes, and sidewalks are discontinuous; these conditions create safety concerns for bicyclists and pedestrians.
- Fern Valley Road crosses Bear Creek between I-5 and OR 99. This narrow bridge creates a bottleneck on Fern Valley Road. In addition, the bridge is in poor condition; the bridge is now limited to loads less than 80,000 pounds.
- The OR 99/Fern Valley Road intersection is substandard--the western leg of the intersection is a retail business parking lot rather than another roadway. There are numerous driveways close to the intersection creating safety issues.

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2 Bridge inspection (in July 2007) resulted in a bridge sufficiency rating of 6 out of 100, with 100 being the best rating possible.
2. DESCRIPTION OF THE ALTERNATIVES

Three alternatives are evaluated in this technical report: a No-Build Alternative and two build alternatives. The proposed build alternative descriptions are based on preliminary design only. Projects normally have design changes during the final design phase—after the environmental process is complete but prior to construction. A full description of the project alternatives and more detailed graphics are provided in the EA.

Addendum: Subsequent to completion of this technical report, the Fern Valley Thru Alternative was dismissed from consideration based on land use goal exception requirements. The N. Phoenix Thru Alternative was advanced as the Build Alternative into the EA.

2.1 NO-BUILD ALTERNATIVE

The No-Build Alternative is evaluated and documented to provide a basis for comparison with the build alternatives. The No-Build Alternative means the proposed project would not be built. Routine maintenance would continue and short-term minor safety improvement activities would occur. If the No-Build Alternative is selected, the following planned projects and developments in the project area are still likely to occur in the next 20 years:

- Providing bike lanes and sidewalks on 1st Street (Rose Street to OR 99 southbound), on 4th Street (Rose Street to Colver Road), on Bolz Road (OR 99 to Fern Valley Road), and on Colver Road (1st Street to the Phoenix southern UGB);
- Providing bike lanes on 4th Street (OR 99 southbound to OR 99 northbound), and on Rose Street (1st Street to 5th Street); and
- Constructing new streets with bike lanes and sidewalks on 3rd Street (existing terminus to OR 99 northbound) and Parking Street (OR 99 northbound to 3rd Street).

2.2 BUILD ALTERNATIVES

Two build alternatives are evaluated in this report: the Fern Valley Thru Alternative and the N. Phoenix Thru Alternative. Both build alternative alignments are almost the same west of I-5, but are very different east of I-5. The following summarizes the build alternatives.
2.2.1 Fern Valley Thru Alternative

The Fern Valley Thru Alternative, shown in Figure 2, generally follows the existing alignment of Fern Valley Road and includes the following:
West of I-5, the following elements are included:

- From MP 11.07 to MP 11.34, OR 99 would be two lanes in each direction (except at intersections). Fern Valley Road would be two lanes in each direction, but would turn into a one-way road just west of Bear Creek—westbound traffic would follow Fern Valley Road and eastbound traffic would use E. Bolz Road.
- Travel lane widths on OR 99 in the project area would be reduced to 11 feet.
- Bikes on Fern Valley Road and E. Bolz Road would use 6-foot-wide shoulders that would be designated by pavement markings for bike travel. OR 99 and in transition areas (e.g., when a 4-lane roadway transitions to a 2-lane roadway) would have 5-foot shoulders.
- OR 99, Fern Valley Road, and E. Bolz Road would have 6-foot sidewalks on both sides of the roadway.
- The 2-lane Bear Creek Bridge (36 feet wide) would be replaced with a 4-lane bridge (100 feet wide).
- A median would be installed on OR 99 from north of Cheryl Lane to E. Bolz Road.
- If this alternative is selected, final design could indicate that some existing pavement may no longer be needed, and would therefore be removed upon completion of the project. Minimal pavement removal is anticipated west of I-5.
- Retaining walls may be constructed east of OR 99 from Cheryl Lane to E. Bolz Road, east of the Bear Creek Greenway multi-use path and adjacent to the Bear Creek Bridge, and north and south of Fern Valley Road near the Fern Valley Road/Luman Road intersection.

The interchange would be a new interchange design concept, the Crossing Diamond Interchange (CDI) (also known as the Diverging Diamond Interchange). With this type of interchange, drivers are directed to the opposite side of the bridge to cross the interstate (see inset). This allows drivers to make “free” left turns onto the interchange ramps. This design concept results in very efficient traffic operations, and has the advantage of a narrower width than the conventional diamond interchange design concept.

The new interchange would generally follow the existing alignment of Fern Valley Road, except at the east end, which would be shifted slightly to the north. Signals would be located at both the west and east interchange ramp terminals. There would be two lanes in each direction for the CDI. Bikes would be accommodated on the CDI by 6-foot shoulders at most locations; the shoulders would be designated by pavement markings for bike travel. Pedestrian movement would be through the center of the CDI.
East of I-5, the following elements are included:

- Realigned Fern Valley Road would be two lanes in each direction (except at intersections), would be located just north of and parallel to existing Fern Valley Road, and would reconnect to existing Fern Valley Road at Breckinridge Drive.
- Realigned N. Phoenix Road would be located further east than existing N. Phoenix Road, would be two lanes in each direction (except at intersections), and would reconnect to existing N. Phoenix Road near Campbell Road.
- Bikes on Realigned Fern Valley Road, Realigned N. Phoenix Road, S. Phoenix Road, and existing Fern Valley Road would have 6-foot shoulders that would be designated by pavement markings for bike travel. (Some locations in transition areas may be 5- to 8-foot shoulders.)
- Both Realigned Fern Valley Road and Realigned N. Phoenix Road would have 6-foot sidewalks on both sides of the roadways.
- The east leg of the existing Fern Valley Road/S. Phoenix Road intersection would be blocked; no through movement for vehicles would be allowed. Bike and pedestrian circulation through the east leg of the intersection would remain.
- Retaining walls may be constructed at the east end of the I-5 structure and adjacent to the Home Depot parking lot.
- If this alternative is selected, final design could indicate that some existing pavement may no longer be needed, and would therefore be removed upon completion of the project.

2.2.2 N. Phoenix Thru Alternative

The N. Phoenix Thru Alternative, shown in Figure 3, generally follows a more north-south orientation than the Fern Valley Thru Alternative. West of I-5, the alternatives would be the same, except the N. Phoenix Thru Alternative would slightly shift the alignment to the north just west of I-5. The design concept of the CDI would be the same as the Fern Valley Thru Alternative, except the alignment would have a slightly more north/south alignment with the N. Phoenix Thru Alternative.

East of I-5, the following elements are included:

- The N. Phoenix Thru Alternative would turn north and reconnect with existing N. Phoenix Road near Campbell Road.
- S. Phoenix Road would be extended directly north, and turn west to connect with Realigned N. Phoenix Road directly across from Grove Way.
- Realigned N. Phoenix Road would be two lanes in each direction until it tapers to reconnect to existing N. Phoenix Road near Campbell Road. Existing Fern Valley Road would be one lane in each direction. Extended S. Phoenix Road would be one lane in each direction with a center turn lane. Grove Way would be one lane in each direction with a center turn lane at the intersection with Realigned N. Phoenix Road.
• Bikes on Realigned N. Phoenix Road, Extended S. Phoenix Road, and existing Fern Valley Road would be accommodated on 6-foot shoulders that would be designated by pavement markings for bike travel. (Some locations in transition areas may include 5 to 8-foot shoulders.)
• All roads affected by the project east of the interchange would have 6-foot sidewalks on both sides of the roads.
• Full traffic movements would be provided at the existing Fern Valley Road/S. Phoenix Road intersection (compared to restricted traffic movements with the Fern Valley Thru Alternative—where no traffic movement would be allowed at the east leg of the intersection).
• A median would be installed from the northbound ramps to the Realigned Phoenix Road/Grove Way intersection.
• Retaining walls may be constructed at the east end of the I-5 structure and adjacent to Home Depot.
• Short sections of pavement may be removed from existing N. Phoenix Road north of the urban growth boundary (UGB), where they are not needed for approach roads.

2.2.3 Interchange Area Management Plan

High traffic volumes can overload an interchange—using up available traffic capacity so the interchange no longer functions effectively. In order to ensure the interchange functions as long as possible, an Interchange Area Management Plan (IAMP) is being developed. The Fern Valley Interchange IAMP is being developed to:
• Preserve the capacity of the proposed interchange for at least the first 20 years of its design life, and the capacity of Fern Valley Road, OR 99 and N. Phoenix Road in the vicinity of the interchange.
• Ensure the safe and efficient operation of the interchange and connecting roadways, and protect the function of the interchange in the transportation system.

Measures included in the IAMP are intended to:
• Limit the extent of land uses that generate high rates of motor vehicle trips in the interchange area (e.g., fast-food restaurants, discount club stores, and discount “superstores”).
• Apply specific transportation system management (TSM) actions and transportation demand management (TDM) actions. TSM addresses the operation of the roadway system, transit system, and facilities for bicycles and pedestrians. TDM seeks to reduce peak-hour motor vehicle trips by encouraging people to make trips using alternatives to single-occupant motor vehicles or during off-peak times.
• Limit trip generation outside the interchange area if necessary to meet mobility performance standards and preserve interchange capacity.
The IAMP includes the measures listed below; these are described in the EA in Section 2.2.1, Land Use Measures; Section 2.2.2, Transportation System Management Measures; and Section 2.2.3, Transportation Demand Management Measures.

**Land use measures**
- Trip budget overlay zone
- Capacity expansion and retention
- ODOT adoption of plan and code components
- South Valley Transportation Strategy
- Alternative mobility standard at I-5 ramp terminal intersections
- Building setback requirements on OR 99

**TSM measures**
- Future bus transfer sites and bus stop locations
- Shared park-and-ride lots

**TDM measures**
- Motor vehicle trip reduction requirements and programs
3. METHODOLOGY

The following is a description of the review of existing information, pre-field studies, and the field reconnaissance performed for this project. This information was used to establish the baseline or existing conditions and disclose the degree of change from existing conditions that could occur with implementation of the alternatives. For the purposes of this report, the study area is defined as the Area of Potential Impact (API) (Figure 4), which encompasses all areas within 100 feet of the centerline of Fern Valley Road (including the construction footprint beyond the existing edge of pavement), as well as generally within 100 feet of the centerline of proposed roads and interchanges/ramps and any other areas of construction access and/or staging associated with the project alternatives.

3.1 INFORMATION REVIEW AND PRE-FIELD INVESTIGATION

The following sources were reviewed prior to visiting the FVI proposed construction site:

- Species lists (ORNHIC 2007) (USFWS 2007)
- USGS 7.5 minute quadrangle map: “Medford East”
- Fern Valley Interchange Biological Resources Baseline Report: Wildlife, Fish, and Plants (URS 2004)
- Aerial photographs

Initial field surveys and background research showed that the API has experienced ground disturbance and has been impacted by past land use practices (e.g., agricultural, grazing, land development, etc). It was determined that the potential for listed species within the API was unlikely due to lack of suitable habitat and species presence in the API and that no specific surveys for threatened or endangered species would be required. Preliminary vegetation community/wildlife habitat types were delineated in the API for each alternative. Color aerial photographs were used to delineate the API into five habitat types: developed urban areas, agricultural fields/pastures, riparian forests, woodland areas, and wetlands (see Figures 5-9).
3.2 FIELD METHODOLOGY

A field survey to determine the presence and extent of suitable habitat for listed terrestrial wildlife species in the API was conducted by biologists on May 22, 2007. A separate survey for rare plants and noxious weeds was conducted in 2005.

3.2.1 Terrestrial Wildlife Resources

General field studies were conducted to verify general habitat types and to identify potential habitats for listed terrestrial wildlife species. For this report, potential impacts to listed species were assessed by the impact to individuals and/or their habitats, including the area of new impervious surface and the area of impact to habitat types or unique features by alternative. The field survey focused on verifying habitat for species that could occur in the vicinity of the API based on existing habitat. No wildlife species listed under the Oregon Endangered Species Act (OESA) have been identified as occupying the API and no suitable habitat was delineated in the API in pre-field studies.

3.2.2 Rare Plant Resources

Rare plant surveys completed in 2005 were conducted in order to document populations of listed plant species within the API. The rare plant survey was conducted based on the Jackson County USFWS species list (USFWS 2005) and the Oregon Department of Agriculture (ODA) species list (ODA 2005) for the following species: Gentner's fritillary (Fritillaria gentneri), large-flowered meadowform (Limnanthes floccose ssp. grandiflora), Cook's lomatium (Lomatium cookii), and Wayside aster (Aster vialis).

4. AGENCY COORDINATION AND INVOLVEMENT

This chapter includes a description of the coordination with, and involvement of federal, state, and local agencies. In addition, proposed meetings and coordination are documented here.

4.1 TECHNICAL REPORT COORDINATION

The USFWS provided a list of federal ESA-listed species in Jackson County, which included the following terrestrial species: bald eagle (Haliaeetus leucocephalus),
northern spotted owl (*Strix occidentalis caurina*), vernal pool fairy shrimp (*Branchinecta lynchii*), Gentner mission-bells (*Fritillaria gentneri*), large-flowered wooly meadowfoam (*Limnanthes floccosa* ssp. *grandiflora*), and Cook's lomatium (*Lomatium cookie*) (Appendix A). A list of database records provided by the Oregon Natural Heritage Information Center (ORNHIC) for a 5-mile radius search area included the northern spotted owl (*Strix occidentalis caurina*) and southern Oregon buttercup (*Ranunculus austrooreganus*). A species list was developed of federal and state terrestrial wildlife and plant species that may occur in the vicinity of the FVI Project. Species include those that are listed as endangered, threatened, proposed, or candidate under the federal and state ESAs. Table 1 provides a summary of each of these species, their habitat requirements, and whether there is suitable habitat within the project area.

In addition, agency personnel for the Oregon Department of Fish and Wildlife (ODFW) were interviewed for information on fish and wildlife issues. Coordination was also conducted with ODA personnel for information on rare plant species and invasive species.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>State/Federal Status</th>
<th>Habitat Requirements</th>
<th>Likelihood of Occurrence within API</th>
</tr>
</thead>
<tbody>
<tr>
<td>California wolverine</td>
<td><em>Gulo gulo luteus</em></td>
<td>S – Threatened</td>
<td>Subalpine forests; alpine meadows; lodgepole and red fir.</td>
<td>None</td>
</tr>
<tr>
<td>Pacific fisher</td>
<td><em>Martes pennanti pacifica</em></td>
<td>S – Critical</td>
<td>Large tracts of undisturbed late-successional forest.</td>
<td>None</td>
</tr>
<tr>
<td>Northern spotted owl</td>
<td><em>Strix occidentalis caurina</em></td>
<td>S – Threatened</td>
<td>Old-growth or second-growth forest with old-growth characteristics.</td>
<td>None</td>
</tr>
<tr>
<td>Bald eagle</td>
<td><em>Haliaeetus leucecephalus</em></td>
<td>S – Threatened</td>
<td>Nests in tall conifer or hardwood trees with nearby roost site (usually tallest tree in area) near waterbodies including lakes, rivers, and reservoirs.</td>
<td>Low</td>
</tr>
<tr>
<td>Streaked horned lark</td>
<td><em>Eremophila alpestris strigata</em></td>
<td>S – Critical</td>
<td>Large expanses of herbaceous dominated habitat (cultivated grass fields, moderate to heavily grazed pasture, fallow fields, roadside shoulders), Christmas tree farms and wetland mudflats.</td>
<td>None</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>State/Federal Status</td>
<td>Habitat Requirements</td>
<td>Likelihood of Occurrence within API</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Oregon spotted frog</td>
<td><em>Rana pretiosa</em></td>
<td>S – Critical</td>
<td>Shallow water areas for egg and tadpole survival, perennial deep moderately vegetated pools for adult and juvenile survival in the dry season, and perennial water for protecting all age classes during cold wet weather.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Candidate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vernal pool fairy shrimp</td>
<td><em>Branchinecta lynchii</em></td>
<td>S – N/A</td>
<td>Ephemeral waters of swales and vernal pools.</td>
<td>None</td>
</tr>
<tr>
<td>Mardon skipper butterfly</td>
<td><em>Polites mardon</em></td>
<td>S – N/A</td>
<td>Larval food is <em>Festuca</em> spp.; adults forage on <em>Taraxicum officinale</em>.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Candidate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gentner mission-bells</td>
<td><em>Fritillaria gentneri</em></td>
<td>S – Endangered</td>
<td>Open, somewhat xeric low elevation mixed oak-madrone; ponderosa pine woodlands; chaparral.</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Endangered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-flowered wooly</td>
<td><em>Limnanthes floccosa ssp. grandiflora</em></td>
<td>S – Endangered</td>
<td>Vernal pools.</td>
<td>None</td>
</tr>
<tr>
<td>meadowfoam</td>
<td></td>
<td>F – Endangered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cook’s lomatium</td>
<td><em>Lomatium cookii</em></td>
<td>S – Endangered</td>
<td>Vernally wet habitats.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Endangered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siskiyou mariposa-lily</td>
<td><em>Calochortus persistens</em></td>
<td>S – N/A</td>
<td>Undisturbed rocky outcroppings and openings.</td>
<td>None</td>
</tr>
<tr>
<td>Umpqua mariposa-lily</td>
<td><em>Calochortus umpquaensis</em></td>
<td>S – Endangered</td>
<td>Along the Umpqua River; predominantly in grassland-forest ecotones on serpentine-derived soils.</td>
<td>None</td>
</tr>
<tr>
<td>Wayside aster</td>
<td><em>Aster vialis</em></td>
<td>S – Threatened</td>
<td>Coniferous forest at elevations of 500-1,500 feet (152-457 meters); typically occurs on dry, upland sites dominated by <em>Pseudotsuga menziesii</em>.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Species of Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dwarf wooly meadowfoam</td>
<td><em>Limnanthes floccosa ssp. pumila</em></td>
<td>S – Threatened</td>
<td>Endemic to two basalt formations; occurs at the edges of deep vernal pools.</td>
<td>None</td>
</tr>
<tr>
<td>Crater Lake rockcress</td>
<td><em>Arabis suffrutescens var. horizontalis</em></td>
<td>S – Candidate</td>
<td>Dry rocky or sandy slopes from mid- to high elevations.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Species of Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crenulate grape-fern</td>
<td><em>Botrychium crenulatum</em></td>
<td>S – Candidate</td>
<td>Moist meadows, stream banks; shrub or tree-dominated wetlands.</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F – Species of Concern</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 1: TERRESTRIAL STATE AND FEDERAL ESA LISTED WILDLIFE AND VASCULAR PLANT SPECSIES THAT OCCUR OR MAY OCCUR WITHIN THE FERN VALLEY INTERCHANGE PROJECT API

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>State/Federal Status</th>
<th>Habitat Requirements</th>
<th>Likelihood of Occurrence within API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greene’s mariposa-lily</td>
<td><em>Calochortus greenei</em></td>
<td>S – Candidate</td>
<td>Open Oregon white oak savannas, buckbrush chaparral.</td>
<td>Very low</td>
</tr>
<tr>
<td>Howell’s camassia</td>
<td><em>Camassia howelli</em></td>
<td>S – Candidate</td>
<td>Rocky openings in low elevation Jeffrey Pine woodlands, and moist grassy meadows.</td>
<td>Very low</td>
</tr>
<tr>
<td>Clustered lady’s-slipper</td>
<td><em>Cypripedium fasciculatum</em></td>
<td>S – Candidate</td>
<td>Rocky to loamy soils on damp to dry sites; deciduous or coniferous forests.</td>
<td>Very low</td>
</tr>
<tr>
<td>Siskiyou willow-herb</td>
<td><em>Epilobium siskiyouense</em></td>
<td>S – Candidate</td>
<td>Dry to somewhat moist ridges and flats in subalpine forests or alpine fell-fields.</td>
<td>None</td>
</tr>
<tr>
<td>Shaggy horkelia</td>
<td><em>Horkelia congesta ssp. congesta</em></td>
<td>S – Candidate</td>
<td>Grasslands and forest edges.</td>
<td>Very low</td>
</tr>
<tr>
<td>Bellinger’s meadowfoam</td>
<td><em>Limnanthes floccosa ssp. bellingeriana</em></td>
<td>S – Candidate</td>
<td>High elevation (3600-3900 feet) vernal pools in shallow soiled rocky meadows in spots that are at least partially shaded in the spring.</td>
<td>None</td>
</tr>
<tr>
<td>Ashland lupine</td>
<td><em>Lupinus aridus ssp. Ashlandensis</em></td>
<td>S – Candidate</td>
<td>Dry granitic outcrops over 7000 ft elevation.</td>
<td>None</td>
</tr>
<tr>
<td>White meconella</td>
<td><em>Meconella oregano</em></td>
<td>S – Candidate</td>
<td>Open ground at low elevations, usually in areas vernaly wet.</td>
<td>Very low</td>
</tr>
<tr>
<td>Coral seeded allocarya</td>
<td><em>Plagiobothrys figuratus ssp. Corallicarpus</em></td>
<td>S – Candidate</td>
<td>Vernal pool habitats.</td>
<td>None</td>
</tr>
<tr>
<td>Howell’s tsauchia</td>
<td><em>Tauschia howelli</em></td>
<td>S – Candidate</td>
<td>Dry alpine and subalpine ridges from 2000 to 2500 meters.</td>
<td>None</td>
</tr>
<tr>
<td>Southern Oregon buttercup</td>
<td><em>Ranunculus austrooreganus</em></td>
<td>S – Candidate</td>
<td>Open meadows, chaparral, valley floor.</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

#### 4.2 REGULATORY REQUIREMENTS

A review of the regulations and policies applicable to terrestrial biology resources is necessary to determine the amount of potential impacts that would require a permit and
mitigation. Table 2 includes those regulations and associated agencies applicable to the regulation of terrestrial resources.

<table>
<thead>
<tr>
<th>Regulation/Permit</th>
<th>Responsible Agency</th>
<th>Resource Studies</th>
<th>Regulated Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean Water Act (CWA) Section 404 Individual Permit; Section 10 (Rivers and Harbors Act)</td>
<td>U.S. Army Corps of Engineers (USACE)</td>
<td>Alternatives analysis; wetland functions assessment and impact analysis; mitigation plan</td>
<td>Waters of the U.S., including wetlands</td>
</tr>
<tr>
<td>National Environmental Policy Act (NEPA)</td>
<td>Federal Highway Administration (FHWA)</td>
<td>NEPA EA addressing natural resource conditions, impacts, and mitigation</td>
<td>All</td>
</tr>
<tr>
<td>Endangered Species Act (ESA)</td>
<td>National Marine Fisheries Service (NOAA Fisheries); U.S. Fish and Wildlife Service (USFWS)</td>
<td>Biological Assessment (BA) addressing project impacts to listed species, species proposed for listing, and candidate species (formal or informal consultation)</td>
<td>Wildlife, plants, fisheries, and their habitat</td>
</tr>
<tr>
<td>Fish and Wildlife Coordination Act (FWCA)</td>
<td>USFWS; NOAA Fisheries; Oregon Department of Fish and Wildlife (ODFW)</td>
<td>Agency consultation; identify impacts to fish and wildlife resources; recommend mitigation</td>
<td>Wildlife and fisheries and their habitat</td>
</tr>
<tr>
<td>Magnuson-Stevens Fishery Conservation and Management Act</td>
<td>NOAA Fisheries; Pacific Fisheries Management Council (PFMC)</td>
<td>Identify potential impacts to Essential Fish Habitat (EFH)</td>
<td>Commercially significant fisheries</td>
</tr>
<tr>
<td>Migratory Bird Treaty Act (MBTA)</td>
<td>USFWS</td>
<td>Identify impacts to migratory birds</td>
<td>Migratory birds</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon State ESA</td>
<td>ODFW; Oregon Department of Agriculture (ODA)</td>
<td>Identify project impact to state-listed and candidate species</td>
<td>Wildlife, plants, fisheries, and their habitat</td>
</tr>
<tr>
<td>Collaborative Environmental and Transportation Agreement for Streamlining (CETAS)</td>
<td>Various state and federal resource agencies</td>
<td>Environmental stewardship, agency collaboration, project scoping, and NEPA documentation</td>
<td>Environmental resources</td>
</tr>
<tr>
<td>Oregon Fish Passage Law</td>
<td>Oregon Department of Fish and Wildlife (ODFW)</td>
<td>Approval of fish passage plans</td>
<td>Fisheries</td>
</tr>
<tr>
<td>Oregon Removal – Fill Permit</td>
<td>Oregon Department of State Lands (DSL)</td>
<td>Alternatives analysis; wetland delineation report; wetland functions assessment and impact analysis; mitigation plan</td>
<td>Waters of the State, including wetlands</td>
</tr>
</tbody>
</table>
TABLE 2: POTENTIAL REGULATORY REQUIREMENTS FOR WETLAND AND OTHER WATER IMPACTS

<table>
<thead>
<tr>
<th>Regulation/Permit</th>
<th>Responsible Agency</th>
<th>Resource Studies</th>
<th>Regulated Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWA Section 401 Water Quality Certification</td>
<td>Oregon Department of Environmental Quality (DEQ); U.S. Environmental Protection Agency (EPA)</td>
<td>Assess project compliance with state water quality standards; implement mitigation measures</td>
<td>Rivers, streams, other bodies of water</td>
</tr>
</tbody>
</table>

**Local**

<table>
<thead>
<tr>
<th>Goal 5 Land Use Planning</th>
<th>Jackson County Department of Planning and Development</th>
<th>Inventory and analysis</th>
<th>Significant resources (e.g., wetlands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jackson County Land Development Ordinance</td>
<td>Jackson County</td>
<td>Riparian setback of 50 feet; vegetation and tree cover retention standard of 50 feet</td>
<td>Class 1 and 2 streams</td>
</tr>
<tr>
<td>City of Phoenix Land Development Code / City Ordinance 751</td>
<td>City of Phoenix Planning Department</td>
<td>Erosion prevention and sediment control plan prior to approval of any building or grading permit that results in land or native vegetation disturbance within 50 horizontal feet of the top of bank of wetlands and other waters; riparian setback of 50 feet; regulation of construction within floodplains</td>
<td>Erosion control plan for all wetlands and other waters; riparian setback for Class 1 streams; floodplain regulations for all streams</td>
</tr>
</tbody>
</table>

4.2.1 Federal and State

USFWS is the regulatory agency for terrestrial species under Section 7 of the ESA. Close coordination with USFWS would be required once a Preferred Alternative is selected. However, through the CETAS process, USFWS has been involved and will continue to provide input into the alternative development process. Additionally, through CETAS and the Fish and Wildlife Coordination Act (FWCA), USFWS, ODFW, ODA, and U.S. Army Corps of Engineers (USACE) have been included in pre-project meetings.
5. AFFECTED ENVIRONMENT

This chapter contains a discussion of the existing conditions of the API as it relates to terrestrial biology resources.

5.1 TERRESTRIAL WILDLIFE HABITAT

Section 5.1 discusses the environmental baseline for wildlife habitat in the geographic areas west of I-5, the interchange area, and east of I-5. For the purposes of this analysis, the area “west of I-5” includes the API extending to: (1) Luman Road to the west side of Main Street (including areas where the alignment enters Ray’s parking lot and E. Bolz Road), (2) north to the intersection of OR 99 (Main Street) and Coleman Creek, and (3) south to the southern terminus of the proposed alignment along OR 99. The environment located west of I-5 primarily consists of developed urban areas, and includes three aquatic resources: Coleman Creek, Bear Creek, and Payne Creek. A riparian reserve (Bear Creek Greenway) exists along Bear Creek for the entire length of the API.

For the purposes of this analysis, the interchange area includes a 100-foot buffer around the proposed alignments, synonymous with both alternatives, extending: (1) west to the intersection of Luman Road and Fern Valley Road, (2) east to the intersection of N. Phoenix Road, (3) south along I-5 to the southern terminus of the proposed alignment, and (4) north to the northern terminus of the proposed alignment. The interchange area consists of developed urban areas, agriculture, and one aquatic resource: Payne Creek. The interchange area extends from the east side of the northbound off-ramp road to the confluence with Bear Creek and the project impacts would be within the ODOT right-of-way, which has previously been developed with the existing interchange. The majority of Payne Creek included in the interchange area is contained within an underground pipe.

For the purposes of this analysis, the area “east of I-5” includes a 100-foot buffer around the proposed alignments extending: (1) east of I-5 to Breckenridge Road, (2) south to the southern terminus of the proposed alignment south of the intersection of Payne Creek and South Phoenix Road, and (3) north to the northern terminus of the proposed alignment where it re-enters N. Phoenix Road. The API in this sub-area consists primarily of agriculture and commercial land and includes two aquatic resources: Payne Creek and Medford Canal. Payne Creek is located in the southern portion of the project area and Medford Canal is located in the eastern portion. The area has been developing rapidly with commercial interests, stemming from growth in the Phoenix and Medford areas. Where applicable within each of the habitat categories, these differences between the geographic areas will be discussed.
5.1.1 Natural Setting

The API is located within Township 38 South, Range 1 West, Sections 3, 9, and 10 of the Medford East USGS quadrangle map. The API is located within the Western Interior Valley Province (Jackson County 1989) of the Klamath-Siskiyou Ecoregion (WWF 2001), which runs from southwestern Oregon to northwestern California. The Klamath-Siskiyou Ecoregion represents the contact between the Pacific Northwest Floristic Province and the Californian Province (WWF 2001). The Western Interior Valley Province includes the valley bottoms bounded by the Cascade Range on the east and the Klamath/Siskiyou ranges on the west (Jackson County 1989).

The Rogue River Valley is home to many different species of mammals, birds, reptiles, and amphibians. The ability of any specific area within the valley to provide habitat for wildlife is dependent upon many factors, such as available food, cover, and water. The relative abundance or lack of these and other resources in relation to each species’ particular requirements will, in part, determine the species composition and distribution of a particular area. In addition, the types of habitat present; the size, shape, and complexity of the habitat(s); and the surrounding land uses will further interact to determine the success of various wildlife species at the location being considered. Some wildlife species have demonstrated great adaptability and tolerance to human activity; others are less able to tolerate such activities.

The relatively warm, dry climate of the Rogue River Valley has a great influence on the habitat. Wildlife habitat within the API may be defined by cover type and seasonality of use by wildlife. Each vegetation community is considered to be a distinct wildlife habitat, supporting a specific group of wildlife species. Most wildlife species would typically be found in one or perhaps two of the vegetation communities, although some habitat generalists (e.g., the red-tailed hawk, coyote, and deer mouse) may be found in nearly all of the vegetation communities.

The API includes five distinct habitat types that have developed in response to the local topography, climatic conditions, and past land use practices (Figures 5-9, end of section). Agriculture, utility and highway construction, commercial and residential development, and industry have highly fragmented the vegetative patterns across the landscape. What exists today are developed urban areas, agricultural fields/pastures, riparian forests along Bear and Larson Creeks, woodlands, and wetlands.

The relative abundance of each habitat is presented in Table 3. All the vegetation communities within the API have been changed by past land use practices which have reduced the overall quality of the wildlife habitat they provide. In general terms, the developed urban areas have the lowest quality habitat for wildlife given the lack of vegetation and natural cover in these areas. Developed urban areas occupy the largest area of the API (64.51% of Fern Valley Thru Alternative and 66.75% of N. Phoenix Thru
Alternative). The agricultural fields/pastures provide fair habitat to species adapted to open fields and the absence of forest structure. The agricultural fields/pastures community does not have a high diversity of herbaceous vegetation capable of supporting a diverse mix of wildlife species. The highly valued riparian forest and woodland communities have relatively limited coverage in the API (less than 5 percent of the API in both alternatives) and the Bear Creek Greenway.

### TABLE 3: ACRES AND PERCENT OF HABITAT BY ALTERNATIVE

<table>
<thead>
<tr>
<th>Habitat Type</th>
<th>Acres of Habitat Type within Fern Valley Thru Alternative API</th>
<th>Acres of Habitat Type within N. Phoenix Thru Alternative API</th>
<th>Percent of Habitat Type within Fern Valley Thru Alternative API</th>
<th>Percent of Habitat Type within N. Phoenix Thru Alternative API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed Urban Area</td>
<td>31.01</td>
<td>34.15</td>
<td>65.22</td>
<td>67.18</td>
</tr>
<tr>
<td>Agricultural Fields/Pastures</td>
<td>12.33</td>
<td>12.31</td>
<td>25.93</td>
<td>24.22</td>
</tr>
<tr>
<td>Riparian Forests</td>
<td>0.79</td>
<td>0.67</td>
<td>1.66</td>
<td>1.32</td>
</tr>
<tr>
<td>Woodland Areas</td>
<td>0.28</td>
<td>0.02</td>
<td>0.59</td>
<td>0.04</td>
</tr>
<tr>
<td>Wetlands</td>
<td>3.14</td>
<td>3.68</td>
<td>6.60</td>
<td>7.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47.55</strong></td>
<td><strong>50.83</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Historical land disturbance activities associated with agriculture, utility and highway construction, commercial and residential development and industry have influenced vegetative patterns across the landscape, and many of the remaining vegetation communities are fragmented into small scattered patches. The acreage and percent composition of each habitat type within the API is presented in Table 3. A more detailed description of each habitat type is provided below and is shown in Figures 5 through 9.

#### 5.1.2 Developed Urban Areas

Developed urban areas are the most common habitat type within the API. These areas are of limited value to wildlife since such areas are lacking in the diversity of cover and habitat that natural vegetated areas provide. Most of the habitat present in urban areas is provided by building structures through vegetation introduced by landscaping. Some berry-producing trees and shrubs common to landscaping, such as cherry (*Prunus* sp.), juniper (*Juniperus* sp.), and mountain ash (*Sorbus scapulina*) may provide scattered and intermittent food sources for wildlife, but are patchy and without connectivity.
Multiple wildlife species have adapted to utilize developed habitats in urban areas. Species that have the potential to occur in such areas include: raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), house mouse (non-native) (*Mus musculus*), gopher snake (*Pituophis melanoleucus*), common garter snake (*Thamnophis ordinoides*), red-tailed hawk (*Buteo jamaicensis*), Steller’s jay (*Cyanocitta stelleri*), and a large number of songbirds, particularly cliff swallows (*Hirundo pyrrhonota*) and chickadees (*Parus* spp.). Cliff swallows and several bat species may use existing bridges and buildings for roosting and rearing sites (Muck pers. comm. 2007).

### 5.1.3 Agricultural Fields/Pastures

Agricultural fields / pastures are located primarily within the portion of the API east of I-5. These open habitat types are characterized by a lack of trees and a history of systemic disturbance. Localized thickets of Himalayan blackberry may provide cover and food sources for small mammals and birds. Herbivorous wildlife, such as deer, may seek out areas of dense herbaceous ground cover within the fields for forage. Due to the disturbed and fragmented nature of this habitat, species that frequent these areas are generally adapted to edge habitats and tolerant of human activity.

Wildlife species that have the potential to exist within abandoned fields and other open, herb-dominated habitats in the API are red-tailed hawk, northern harrier (*Circus cyaneus*), turkey vulture (*Cathartes aura*), burrowing owl (*Athene cunicularia*), killdeer (*Charadrius vociferous*), calliope hummingbird (*Stellula calliope*), Say’s phoebe (*Sayornis saya*), moles (*Scapanus* spp.), pocket gophers (*Thomomys* spp.), California ground squirrel (*Spermophilus beecheyi*), California meadow vole (*Microtus californicus*), California quail (*Callipepla californica*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), black-tailed deer (*Odocoileus hemionus*), striped whipsnake (*Masticophis taeniatus*), and California mountain kingsnake (*Lampropeltis zonata*) (URS 2001).

### 5.1.4 Riparian Forests

The riparian forest corridor along Bear Creek, which forms the Bear Creek Greenway, contains habitat for a variety of animals. Typical riparian trees found along Bear Creek include Oregon ash (*Fraxinus latifolia*), cottonwood (*Populus balsamifera*), white alder (*Alnus rhombifolia*), and willow (*Salix* spp.). The vegetated Greenway functions as an important corridor facilitating wildlife movement through an otherwise urbanized area, as well as between forested and non-forested habitats.

Wildlife species that have the potential to exist in the riparian forests in the Phoenix area include black-tailed deer, beaver (*Castor canadensis*), muskrat (*Ondatra zibethica*),

### 5.1.5 Woodland Areas

Woodland areas within the API are relatively small and provide only limited habitat opportunities in upland areas. These areas are vegetated with native species including Oregon white oak (*Quercus garryana*), Ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), Oregon ash, and cottonwood.

Wildlife species that typically inhabit woodland areas in the API include common flicker (*Colaptes auratus*) and other woodpeckers, American robin (*Turdus migratorius*), western kingbird (*Tyrannus verticalus*), bushy-tailed woodrat (*Neotoma cinerea*), grey fox (*Urocyon cinereoargenteus*), black-tailed deer, southern alligator lizard (*Elgaria multicarinata*), western skink (*Eumecia skiltonianus*), western fence lizard (*Sceloparus occidentalis*), Pacific tree frog, and black salamander (*Aneides flavipunctatus*).

### 5.1.6 Wetlands

Various wetlands are identified within the API. With the exception of one forested wetland (Wetland B) and three scrub-shrub wetlands (Wetlands A, 5, and 16), wetlands are mainly herbaceous emergent. Additional information about these wetland areas is contained in the Wetlands Technical Report (URS, 2007).

West of the interchange, two wetlands were delineated along the western margin of Bear Creek (Wetlands A and B). Wetland A is a low to moderate functioning wetland that was altered during construction of the access ramp to the Bear Creek Greenway Trail. Wetland B is a moderate to high functioning wetland within the Bear Creek floodplain.

Five wetlands lie within the interchange area (Wetlands 1, 16, 17, 18, and Stormwater Detention Basin 2). These consist of low functioning, vegetated stormwater conveyances and a detention pond along I-5. In the eastern portion of the API are several wetlands that are partially influenced and/or artificially created by irrigation practices in this agricultural area (Wetlands 2 through 15). These are all relatively low functioning wetlands. Another vegetated stormwater detention basin (Stormwater Detention Basin 4) is located northeast of the interchange and is associated with the Home Depot development.
Wildlife associated with wetlands of these types are usually common species found in degraded riparian habitats including: Virginia opposum, raccoon, song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), and common garter snake.

5.2 THREATENED AND ENDANGERED SPECIES, AND RARE PLANTS

A species list was developed identifying federal and state terrestrial wildlife and plant species that may occur in the vicinity of the FVI Project. Species include those that are listed as endangered, threatened, proposed, or candidate under the federal and state ESAs. Table 1 provided a summary of each of these species, their habitat requirements, and whether there is suitable habitat within the project area. Of the wildlife species identified, one listed terrestrial wildlife species was identified in pre-field investigations as having potentially suitable habitat within the project vicinity: the bald eagle. No rare plants were identified, but some noxious plants were found.

5.2.1 Bald Eagle

The bald eagle is listed as threatened by the state of Oregon. Although the bald eagle was previously listed as threatened under the ESA, the USFWS announced on June 28, 2007 that the bald eagle has recovered and would be removed from the list of threatened and endangered species effective August 8, 2007. However, the bald eagle is still federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Protection Act. Under both laws, the disturbance of eagles, their nests, and eggs is prohibited. On June 5, 2007, the USFWS issued the Bald Eagle Management Guidelines, which clarified its regulations regarding implementation of the Bald and Golden Eagle Protection Act.

Bald eagles select habitat near water with large, stoutly limbed trees, snags, broken-topped trees, or rocks that provide easy access to foraging areas. The greatest threats to nesting and wintering eagle populations are activities that permanently alter bald eagle habitat (e.g., removal of nest, roost, and perch trees and removal of buffers) and human activities that temporarily disturb eagles to the point of reproductive failure or reduced vigor (Watson and Rodrick 2001).

The pre-field review for the bald eagle included database searches and discussions with local experts. No observations of bald eagles or bald eagle nest sites were made during the field investigation. Based on this effort, it was determined that there are no known locations of bald eagle nest or roost sites within the API. The only potential habitat would be in the vicinity of Bear Creek; however, this portion of Bear Creek is bisected by I-5 with very high traffic volumes. In addition, high levels of human disturbance due to nearby commercial areas and residences also preclude the use of the area by bald eagles.
ODFW (Muck pers. comm. 2007) was contacted and confirmed that the proposed project would have no potential to affect bald eagles.

5.2.2 Rare Plant Resources

Based on the results of the botanical survey, none of the rare plant species listed in Table 1 have been documented in the API. Habitats typically occupied by the plants listed in Table 1 exist in the API. However, those habitat associations are general and do not necessarily indicate presence in the API.

This study did document the presence of noxious weeds as identified by the ODA. Species observed in the API include the following:

- Yellow starthistle (*Centaurea solstitialis*; ODA List B) and
- Medusahead rye (*Taeniatherum canput-medusae*; ODA List B).

5.3 MIGRATORY BIRD TREATY ACT

The project areas provide limited habitat for migratory birds, including songbirds and birds of prey. The USFWS Office of Migratory Bird Management maintains a list of migratory birds (50 CFR 10.13). The Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides federal protections for migratory birds, their active nests, eggs, and parts from harm, sale, or other injurious actions; the MBTA has a no-take provision. Construction activities such as vegetation removal have the potential to directly and indirectly affect migratory birds. However, potentially negative impacts to migratory birds can be eliminated or greatly reduced by avoiding construction activities during the most sensitive portion of the breeding season (early March through July). If seasonal restrictions are not practicable, a pre-construction survey to identify active nests would be conducted by a qualified biologist prior to any disturbance activities.
Terrestrial Biology - Southeast Portion of API

Figure 8
September 2007
6. ENVIRONMENTAL CONSEQUENCES

The following is a description of the anticipated impacts to terrestrial biology resources that may occur under the proposed alternatives.

This chapter discusses the direct, indirect, and cumulative impacts associated with the project. In evaluating the impact of the project on terrestrial biology resources the impacts were assessed based on:

- The direct effects occur within the footprint of the API, including construction-related activities that are short-term. Indicators for effects on terrestrial resources were measured by impact to individuals and/or their habitats, including the area of new impervious surface and the area of impact to habitat types or unique features.

- Indirect effects assess changes to ecological systems resulting in long-term habitat alterations and anticipated changes in human activities, including changes in land use.

- Cumulative impacts assess the incremental contribution of this project to the past, present, and future foreseeable actions in the API.

Due to the similarities of the impacts associated with the alternatives, this report discusses impacts to both build alternatives together. Where applicable, within each of the impact sections, differences between the geographic areas and alternatives are discussed.

6.1 DIRECT IMPACTS

Direct effects, as defined by NEPA, are those that are caused by the action and occur at the same time and place (40 CFR § 1508.8). An example of direct impacts would be construction-related impacts; whereas operation and maintenance of the facilities would be considered indirect effects.

6.1.1 No-Build Alternative

The No-Build Alternative would have no temporary impacts to current biological baseline conditions for terrestrial species or habitat. Additionally, no long-term changes to current biological baseline conditions for terrestrial species or habitat would occur as a result of the No-Build Alternative. Growth and development are expected to continue in
the API without construction of the interchange. Direct impacts to terrestrial resources and their functions from this growth are probable.

6.1.2 Fern Valley Thru and N. Phoenix Thru Alternatives

Project actions associated with both the N. Phoenix Thru and Fern Valley Thru Alternatives have the potential for similar direct effects to habitat types identified in Section 5.1.1 (see Table 3: Acres and Percent of Habitat by Alternative above). For either build alternative, the project would impact about 12 acres (about 25%) of agricultural fields/pastures, less than 1 acre (less than 2%) of riparian forest habitat type and woodland habitat type, and less than 4 acres (about 8%) of wetland habitat type. Habitats would also be impacted by the addition of 15.8 acres of impervious surface to the current pavement area with the Fern Valley Thru Alternative, and 15.2 acres with the N. Phoenix Thru Alternative (URS 2007). A large percentage of this project would be located within the existing ODOT right of way.

Because forested (woodland) and riparian habitats offer higher habitat value (including cover, food resource, and nesting sites) than other habitats, the loss of forested and riparian habitats is most harmful to wildlife. The total amount of riparian habitat that would be impacted is .79 acre with the Fern Valley Thru Alternative, and .67 acre with the N. Phoenix Thru Alternative.

Construction-related activities would have an additional direct impact on wildlife. Slow-moving wildlife, such as salamanders, could be crushed by construction equipment. More mobile species, such as mammals and birds, could be harmed by the removal or destruction of occupied nests or denning sites.

Based on the information in Sections 5.2 and 5.3, neither alternative is likely to impact listed terrestrial wildlife or rare plant species due to lack of presence and suitable habitat for species described above.

The project does have potential to spread noxious weeds. Noxious weeds were observed scattered throughout the API. Fill material has the potential to further introduce weedy species that may displace native vegetation, but the project would be planned with conservation measures to prevent the further spread of noxious weeds.

6.2 INDIRECT IMPACTS

Indirect effects caused by the proposed action are those that are later in time and are reasonably certain to occur after the proposed construction is completed (50 CFR 402.02). Indirect effects can occur outside of the area directly affected by the action.
6.2.1 No-Build Alternative

Indirect impacts to terrestrial habitat and species due to the No-Build Alternative could potentially include the deterioration of the bridge structure over Bear Creek and the resulting erosion of the adjacent supporting embankments. This erosion could, over time, result in destabilizing riparian forest habitat and a limited area of riparian forest habitat could be lost. This loss of habitat could directly affect wildlife, such as birds that are nesting or denning in trees that are lost. Growth and development are expected to continue in the API without construction of the interchange. Indirect impacts to terrestrial resources and their functions from this growth are probable.

6.2.2 Fern Valley Thru and N. Phoenix Thru Alternatives

An increase in the rate of development in the rural area within the API may be considered an indirect effect of the project. However, this area has experienced and is likely to continue to experience increased development regardless of the construction of one of the alternatives. Possible indirect effects of the proposed project due to the addition of impervious surface and the removal of habitat as indicated in Table 3 include: displacement of species from their associated habitats and increased competition between species and among individuals of the same species for limited resources, including nesting and denning sites, food resource, and protective cover.

No indirect impacts to ESA listed wildlife or plant species would be expected to occur as a result of construction of either of the build alternatives.

6.3 CUMULATIVE IMPACTS

Cumulative impacts are defined by NEPA as the environmental impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR § 1508.7).

The City of Phoenix, Jackson County, ODOT, and private landowners are planning both short-range (2005-2009) and medium-range (2010-2015) future projects and development in the vicinity of the FVI Project. City plans include several road projects, including the provision of bicycle lanes and/or sidewalks and bike lane striping and sidewalk construction along several existing roads near the FVI Project. Some of these would require widening of the existing roads, while some would not. County plans include completing the County portions of the Bear Creek Greenway trail between Talent and Medford and widening Old Stage Road. ODOT plans include widening a portion of OR 99 and relocating and constructing a new interchange at the South Medford Interchange.
along I-5. Vacant lands in the northeast quadrant of the interchange are anticipated to include highway-oriented commercial businesses, hotels, and multi-family residential development.

Long-range projects (2016-2030) are not included in this cumulative impact analysis.

6.3.1 No-Build Alternative

In general, urbanization in the surrounding vicinity would likely cause loss of habitat and increased habitat fragmentation from additional impervious surface and land clearing, and would result in a potential for increased introduction of non-native and/or invasive weeds.

6.3.2 Fern Valley Thru and N. Phoenix Thru Alternatives

The majority of the projects summarized above would impact terrestrial biology resources. However, the following projects could cumulatively impact terrestrial resources within the FVI Project API:

- The Jackson County Bear Creek Greenway Trail completion would further increase impervious area above Bear Creek (upstream and downstream of FVI Project API).

- The ODOT I-5 South Medford Interchange would further increase impervious area above Bear Creek (downstream of FVI Project API).

- Commercial property development may result in additional loss of terrestrial habitat and increased habitat fragmentation.

The incremental cumulative contribution to the past, present, and future foreseeable actions described above would likely be a relatively small loss in terrestrial species’ habitat and habitat fragmentation in the area. It should be noted that current regulations require that new impervious surface area improvements would require updated stormwater treatment, and mitigation for habitat loss. As such, existing, untreated runoff in many areas would likely become treated prior to entering waterways as a result of construction, and loss of wetland acres and functions would be mitigated. Collectively, all projects, when reviewed together, could have a small impact on terrestrial habitat and species. All of the impacts associated with these projects would be mitigated, and residual cumulative impacts would therefore be considered negligible.
7. SUMMARY OF BIOLOGICAL TERRESTRIAL MITIGATION AND CONSERVATION MEASURES

Conservation measures would be implemented to minimize or avoid potential temporary and long-term environmental impacts to listed terrestrial species. The conservation measures would follow practices outlined in ODOT’s Standard Specifications for Highway Construction (2002). Standard Specifications would be amended in the Special Provisions to include any additional conservation measures that may be applicable to specific project actions. Because the FVI Project is in the early stages of design, all obligations that appear in this section are non-binding and subject to change as design progresses. The following discussion focuses on general mitigation concepts, which would be refined once a Preferred Alternative is identified. Mitigation measures can be assumed to be the same for both build alternatives unless otherwise noted.

Conservation measures for reducing impacts to species are given below.

- **Avoid and minimize removal of native vegetation, wherever practicable.**

  Where possible, tree removal, specifically mature conifers and broad-leafed deciduous trees, would be minimized. To accomplish this, survey tape or fencing may be placed to keep the contractor out of areas beyond the proposed toe of slope. Where vegetation removal is unavoidable, the area would be replanted with appropriate native species to minimize the potential for an increase in noxious vegetation.

- **Avoid introducing and/or spreading non-native invasive species.**

  Prior to construction, ODOT would require that the contractor clean dirt and weed seed off of construction equipment within construction yards to avoid importing and tracking weed seed into the project area. Construction specifications would require that all imported soil, fill, and erosion control materials are either certified weed free or inspected by ODOT to insure the source is weed free. Areas with concentrations of noxious weeds should be cleared prior to project clearing and grading to avoid spread of weed seed or propagules.

- **Use best management practices (BMPs) to avoid and minimize erosion, sedimentation, and other environmental disturbances in aquatic habitats resulting from construction.**
ODOT would employ BMPs (including straw wattles, sandbagging, silt fencing, and geotextile fabric) to control erosion and release of sediment into jurisdictional aquatic habitats (e.g., wetlands and other waters under the jurisdiction of the USACE or the DSL) identified onsite. Install temporary and permanent erosion controls on all areas with exposed soil, per ODOT standard specifications.

- **Restrict tree removal activities.**

Trees would not be removed from March 1 through July 15. This time period was developed to minimize impacts to species covered by the MBTA.

In addition to standard ODOT conservation measures, ODFW has expressed support of three mitigation measures. Because the Fern Valley Interchange Project is in the early stages of design, all obligations that appear in this section are non-binding and subject to change as design progresses. These include:

- Project construction shall avoid disturbances to bridge structures between March 1 and September 15 to avoid the breeding season for bats, unless pre-construction surveys are conducted by a qualified biologist and no bat roosts or nurseries are found within the project area at the time construction is scheduled.

- If it is determined that culverts throughout the project area need replacing, design engineers should consider oversizing drainage structures to enhance wildlife (small mammal) crossing opportunities, where appropriate.

- Construction activities such as vegetation removal have the potential to directly and indirectly affect migratory birds. However, potentially negative impacts to migratory birds can be eliminated or greatly reduced by avoiding construction activities during the most sensitive portion of the breeding season (early March through July). If seasonal restrictions are not practicable, a pre-construction survey to identify active nests would be conducted by a qualified biologist prior to any disturbance activities.
8. LIST OF PREPARERS


9. REFERENCES AND INFORMATION SOURCES

9.1 AGENCY CONTACTS

9.1.1 Oregon Department of Fish and Wildlife


9.2 REFERENCES


USFWS. 2005. Federally Listed and Proposed Endangered and Threatened Species, Candidate Species, and Species of Concern That May Occur Within Jackson County.

USFWS. 2007. Federally Listed and Proposed Endangered and Threatened Species, Candidate Species, and Species of Concern That May Occur Within Jackson County.


APPENDIX A

Federally Listed and Proposed Endangered and Threatened Species, Candidate Species, and Species of Concern That May Occur Within Jackson County
**FEDERALLY LISTED THREATENED, ENDANGERED, PROPOSED, CANDIDATE SPECIES AND SPECIES OF CONCERN WHICH MAY OCCUR WITHIN JACKSON COUNTY, OREGON**

**LISTED SPECIES**

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<tr>
<th>Category</th>
<th>Species</th>
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</thead>
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<td>Birds</td>
<td>Bald eagle[^1] / <em>Haliaeetus leucocephalus</em> T</td>
</tr>
<tr>
<td></td>
<td>Northern spotted owl[^1] / <em>Strix occidentalis caurina</em> CH T</td>
</tr>
<tr>
<td>Fish</td>
<td>Coho salmon (S. OR/N. CA Coast) / <em>Oncorhynchus kisutch</em> CH T*</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>Vernal pool fairy shrimp / <em>Branchinecta lynchi</em> CH T</td>
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</table>

**PROPOSED SPECIES**

None

**CANDIDATE SPECIES**

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<th>Category</th>
<th>Species</th>
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</tr>
<tr>
<td>Birds</td>
<td>Streaked horned lark / <em>Eremophila alpestris strigata</em></td>
</tr>
<tr>
<td>Amphibians</td>
<td>Oregon spotted frog / <em>Rana pretiosa</em></td>
</tr>
<tr>
<td>Invertebrates</td>
<td>Mardon skipper (butterfly) / <em>Polites mardon</em></td>
</tr>
<tr>
<td>Plants</td>
<td>Siskiyou mariposa lily / <em>Calochortus persistens</em></td>
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**SPECIES OF CONCERN**

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<th>Category</th>
<th>Species</th>
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<td>Red tree vole / <em>Arborimus longicaudus</em></td>
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<td></td>
<td>Pacific western big-eared bat / <em>Corynorhinus townsendii townsendii</em></td>
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<td>California wolverine / <em>Gulo gulo luteus</em></td>
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<td></td>
<td>Silver-haired bat / <em>Lasionycteris noctivagans</em></td>
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<td>Fringed myotis (bat) / <em>Myotis thysanodes</em></td>
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<td>Long-legged myotis (bat) / <em>Myotis volans</em></td>
</tr>
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<td>Yuma myotis (bat) / <em>Myotis yumanensis</em></td>
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Birds
Northern goshawk  Accipiter gentilis
Band-tailed pigeon  Columba fasciata
Olive-sided flycatcher  Contopus cooperi
Yellow-breasted chat  Icteria virens
Acorn woodpecker  Melanerpes formicivorus
Lewis’ woodpecker  Melanerpes lewis
Mountain quail  Oreortyx pictus
White-headed woodpecker  Picoides albolarvatus
Oregon vesper sparrow  Pooecetes gramineus affinis
Purple martin  Progne subis

Amphibians and Reptiles
Tailed frog  Ascaphus truei
Northwestern pond turtle  Emys marmorata marmorata
Common kingsnake  Lampropeltis getula
California mountain kingsnake  Lampropeltis zonata
Del Norte salamander  Plethodon elongatus
Siskiyou Mountains salamander  Plethodon stormi
Northern red-legged frog  Rana aurora aurora
Foothill yellow-legged frog  Rana boylii
Cascades frog  Rana cascadae

Fishes
Jenny Creek sucker  Catostomus rimiriculus ssp.
Pacific lamprey  Lampetra tridentata
Coastal cutthroat trout (S. OR/CA Coast)  Oncorhynchus clarki clarki

Invertebrates
Denning's agapetus caddisfly  Agapetus denningi
Franklin's bumblebee  Bombus franklini
Siskiyou chloaeltis grasshopper  Chloaeltis aspasma
Green Springs Mountain farulan caddisfly  Farula davisi
Sagehen Creek goeracean caddisfly  Goeracea oregana
Schuh's homoplectran caddisfly  Homoplectra schuhi
caddisfly (no common name)  Moselyana comosa
Siskiyou carabid beetle  Nebria gebleri siskiyouensis

Plants
Henderson’s bentgrass  Agrostis hendersoni
Rogue Canyon rockcress  Arabis modesta
Crater Lake rock cress  Arabis suffrutescens var. horizontalis
Wayside aster  Aster vialis
Crenulate grape-fern  Botrychium crenulatum
Greene's mariposa-lily  Calochortus greenei
Broad-fruit mariposa-lily  Calochortus nitidus
Umpqua mariposa-lily  Calochortus umpquaensis
Howell's camassia  Camassia howellii
Baker’s cypress  Cupressus bakeri
Clustered lady's-slipper  Cypripedium fasciculatum
Siskiyou willow herb  Epilobium siskiyouense
Shaggy horkelia  Horkelia congesta ssp. congesta
Henderson's horkelia  Horkelia hendersoni
Bellinger’s meadowfoam  Limnanthes floccosa ssp. belligeriana
Dwarf wooly meadowfoam  Limnanthes floccosa ssp. pumila
Ashland lupine  Lupinus lepidus var. ashlandensis
White meconella  Meconella oregana
Detling's microseris  
Microseris laciniata spp. detlingii  
Coral seeded allocarya  
Plagiobothrys figuratus var. corallicarpus  
Howell's tauschia  
Tauschia howellii  
Small-flowered death camas  
Zigadenus fontanus

(E) - Listed Endangered  
(T) - Listed Threatened  
(CH) - Critical Habitat has been designated for this species  
(PE) - Proposed Endangered  
(PT) - Proposed Threatened  
(PCH) - Critical Habitat has been proposed for this species

Species of Concern - Taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

* Consultation with NOAA's National Marine Fisheries Service may be required.

2/ Federal Register Vol. 60, No. 133, July 12, 1995, - Final Rule - Bald Eagle  
5/ Federal Register Vol. 64, No. 237, December 10, 1999, Final Rule - Fritillaria gentneri  
8/ Federal Register Vol. 69, No. 86, May 4, 2004, Notice of Review - Candidate or Proposed Animals and Plants  
9/ Federal Register Vol. 69, No. 68, April 8, 2004, 12-Month Finding for a Petition to List the West Coast Distinct Population Segment of the Fisher