4.0 Fish and Wildlife Resources

This chapter addresses the following resources within Clark County and the cities:

- Fish and wildlife habitats, including riparian habitats (streams), priority upland habitats, and state priority species;
- Federally listed threatened and endangered species;
- Migratory species; and
- Wetlands.

The status of these resources has not likely changed substantially since the 2007 FEIS, with the exception of additional federal species listings.

4.1 Fish and Wildlife Habitats

4.1.1 What has changed since 2007?

Osprey nest

Photo courtesy Rod Orlando

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). These regulations typically cover activities affecting streams and adjacent riparian areas; lakes and naturally occurring ponds; priority habitats and species designated by WDFW; and habitat for federally listed species. Some jurisdictions in Clark County also specifically protect stands of Oregon white oak, locally significant waterfowl or shorebird areas, and significant stands of camas lily. The updated ordinances incorporate best available science for fish and wildlife habitats as required by GMA. This typically results in additional protections for fish and wildlife habitats, such as updated mapping and stream classification, detailed habitat assessment requirements, wider buffers, and more specific requirements for mitigation.

In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013, and FEMA updated the areas of special flood hazard and these were adopted into Clark County code. The shorelines and floodplains are discussed further in Chapter 3, Water.

4.1.2 Riparian Habitats (Streams)

As shown on Figure 4-1, Clark County contains many streams, rivers, and lakes forming a network of drainages and riparian habitats across the county. The county is bordered by two large rivers: the Columbia to the south and the Lewis to the north. Other major drainages in the county include the East Fork Lewis River, Salmon Creek, Cedar Creek, Lacamas Creek, and Washougal River.

Streams and adjacent upland buffers (riparian habitat) are regulated under local critical areas codes. The codes assign a regulatory buffer width depending on whether the stream supports fish and other factors. In-water work also requires compliance with the state Hydraulic Code and the federal Clean Water Act. Larger streams and lakes are also regulated under the state Shoreline Management Act (see Chapter 3).

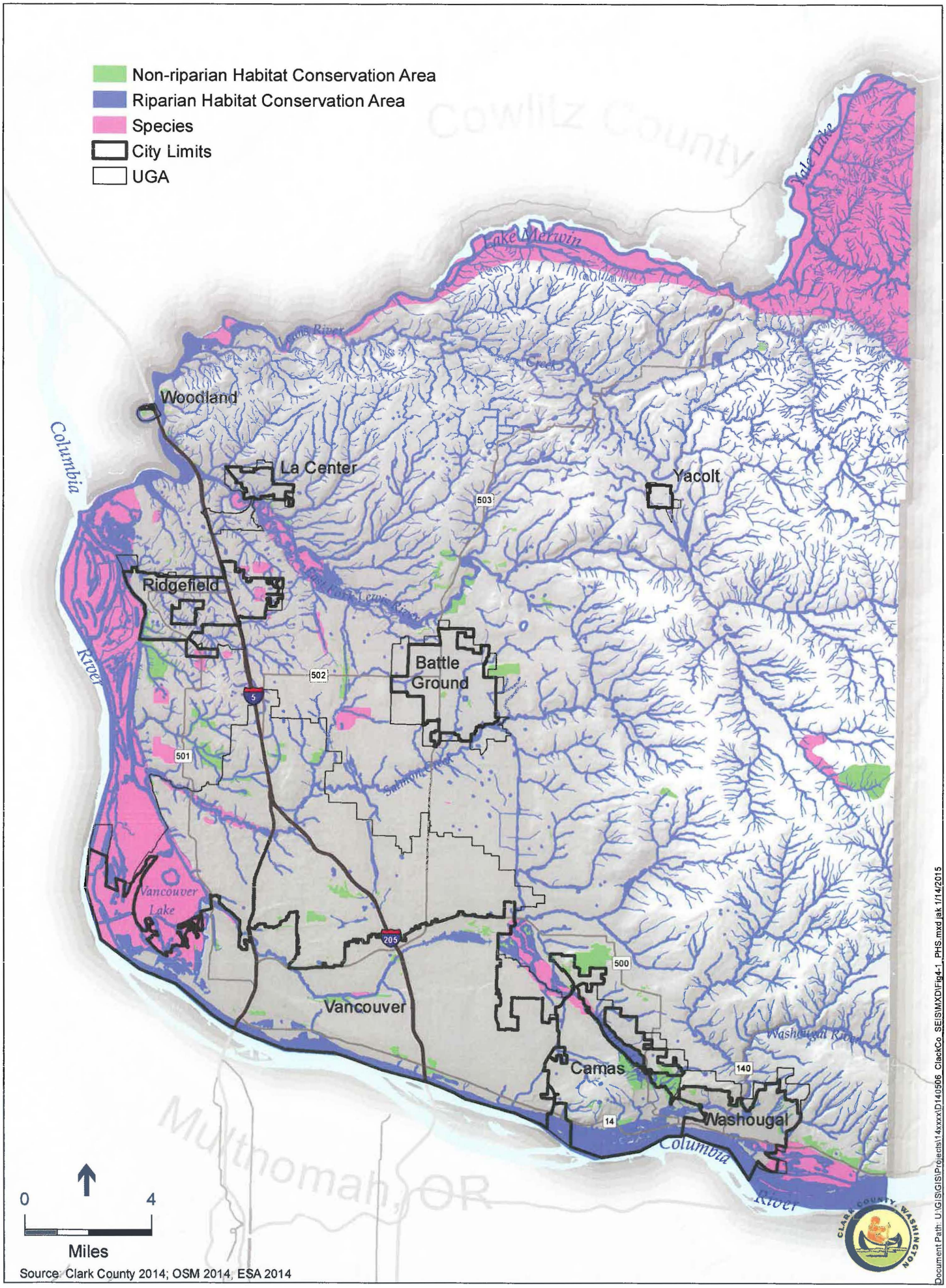

Figure 4-1: Priority Habitats and Species

4.1.3 Priority Upland Habitats

According to WDFW PHS mapping, Clark County supports the following types of priority upland habitats (descriptions are provided in Appendix B):

- Aspen stands
- Herbaceous balds
- Oregon white oak woodlands
- Caves
- Snags and logs
- Biodiversity areas and corridors
- Old-growth/mature forests
- West side prairies
- Cliffs
- Talus

The county also supports several high-quality vegetation communities including prairies, wetlands, balds and bluffs, Douglas fir forests dominated by native understory species, native willow stands, and Oregon white oak communities (WNHP, 2014b).

As shown on Figure 4-1, mapped upland priority habitats are generally sparse but scattered throughout the county. Priority upland habitats are regulated by local critical areas codes. Federal regulations also apply to habitats supporting federally listed species, bald eagles, and migratory birds (see Sections 4.3 and 4.4).

4.1.4 State Priority Species

Clark County supports numerous state priority species including rare plants, fish, and wildlife (Appendix B provides a species list). These species require protective measures for their survival due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations (e.g., heron colonies, bat colonies) considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable (WDFW, 2013). The priority species list for Clark County also includes several species that are federally listed under the Endangered Species Act (ESA); these are discussed in Section 4.3.

Sensitive species are typically found in less developed areas, such as within forest lands in the northeastern part of the county, and in larger parks and wildlife refuges. However, these species also use river corridors, lakes, and larger wetlands even in more developed settings. State priority species are regulated by local critical areas codes. Federal regulations also apply to federally listed species, bald eagles, and migratory birds (see Sections 4.3 and 4.4).

A number of marine mammals occur in the Columbia River portion of Clark County, including harbor seals, California sea lions, and Stellar sea lions. Marine mammal species are protected under the federal Marine Mammal Protection Act.

4.1.5 Environmental Impacts

What methodology was used to analyze impacts to habitat from each of the alternatives?

Impacts to fish and wildlife habitat are related to the spatial distribution of growth. Generally, growth patterns that convert land to urban uses are more likely to result in the loss and fragmentation of fish and wildlife habitat. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on terrestrial and aquatic

habitat within urban areas as the level and intensity of development increase. To assess impacts to fish and wildlife habitat, the project team used GIS mapping to identify priority habitats and species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses. In December 2014 they consulted the following readily available mapping sources to ensure the most current information is used for this analysis:

- Clark County GIS online mapping including wetlands, riparian and non-riparian priority habitats, and priority species;
- Priority habitats and species (PHS) mapping from the Washington Department of Fish and Wildlife (WDFW);
- SalmonScape mapping from WDFW;
- Washington Natural Heritage Program data on rare plant species and plant associations;
- Listed species occurrence and critical habitat data from the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries.

No fieldwork has been conducted for this analysis to ground truth the mapping data.

What are the impacts to habitat from each alternative?

Alternative 1 – No Action

Alternative 1 plans no expansion of UGAs. The impacts to fish and wildlife would be the same as those identified in the 2007 FEIS. Growth over the next 20 years would primarily occur within existing cities and UGAs. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Forest and rural lands often provide important habitat for fish and wildlife, in addition to their other environmental functions and services. Impacts to habitat for terrestrial listed species would be the same as identified in the 2007 FEIS.

All of the existing UGAs contain mapped priority habitats and streams except for Woodland which has no mapped streams (Tables 4-1 and 4-2). The most common priority habitats within UGAs are biodiversity areas/corridors and oak woodlands. Bald eagles are known to use most of the UGAs.

Riparian areas (streams), priority upland habitats, and priority species could be affected by ongoing development within existing UGAs. Impacts would be minimized by local ordinances requiring stormwater management, buffers for streams and wetlands, and consideration of priority wildlife species during project-specific review.

Table 4-1. Alternative 1 No Action - Priority Habitats and Species Acreage within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
UGA Size (acres)	6,820	11,850	1,774	6,021	67,397	5,385	449
Priority Spec. Hab.	0	259	28	389	14,437	429	0
Non-riparian HCA*	57	1,192	28	244	1,659	152	0
Riparian HCA*	759	5,583	456	2,012	18,609	2,224	113
Total	**816**	**7,034**	**512**	**2,645**	**34,705**	**2,805**	**113**
% of UGA w/Priority Habitat and HCAs*	12%	59%	29%	44%	51%	52%	25%

*Habitat Conservation Area (HCA)

Table 4-2. Alternative 1 No Action - Stream Miles within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
Fish-Bearing	14.1	30.0	4.9	20.6	75.7	13.0	1.4
Non-Fish-Bearing	1.8	12.5	6.0	24.2	8.6	4.6	0.1
Total	**15.9**	**42.5**	**10.9**	**44.8**	**84.3**	**17.6**	**1.5**

Alternative 2 –Countywide Modifications

Changes in Zoning and Land Use Designations

Rural Areas

Reducing minimum lot sizes may allow for increased density of development, potentially leading to loss or fragmentation of habitat. Clark County's Legacy Lands Program managers have expressed concern about the conversion of agricultural and forest lands to development, particularly on smaller parcels near urban areas (Clark County, 2014a).

Some of the areas affected by this alternative are already at or below the minimum lot sizes that would be allowed under this alternative. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development. As discussed in Chapter 6 Land Use, many of the lots in areas that would be affected by Alternative 2 are already at the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional habitat impacts with the proposed change in zoning. However, Alternative 2 could result in the creation of approximately 8,220 new developable lots, potentially affecting over 34,000 acres (Table 4-3). Developing these new lots could fragment remaining wildlife habitats and make them less useable for species that are sensitive to human disturbance. More common species that currently use rural, agricultural and forest resource areas are likely already accustomed to some level of human disturbance and may continue to use these areas. Construction of new houses, roads, and other facilities allowed by

zoning would likely increase impervious surface area, leading to an increase in stormwater runoff that could impact stream habitat. See Chapter 3, Water, for further discussion of the potential cumulative effects of development on aquatic resources.

Table 4-3. Number of Parcels Potentially Affected by Changes in Zoning – Alternative 2

Proposed Zoning Change	Potential New Parcels	Potential Acreage Affected
R20 to R10	5,823	5,823 parcels @ 10 acres each = 58,230 acres
Ag20 to Ag10	1,937	1,937 parcels @ 10 acres each = 19,370 acres
Fr40 to Fr20	460	460 parcels @ 20 acres each = 9,200 acres
Total	8,220	34,393 acres

Urban Growth Areas

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes to increase the UGA by approximately 156 acres. This would bring an additional 0.5 mile of stream and 28 acres of riparian habitats into the UGA (Tables 4-4 and 4-5). This includes short stream segments within the golf course and crossing under I-5. The riparian habitat that would be affected consists of buffer areas surrounding water features and streams on the Tri-Mountain Golf Course. The percentage of UGA lands occupied by mapped habitat areas would decrease slightly (44% to 43%). The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and increased activities, potentially making the area unsuitable for species such as waterfowl that may current use the golf course as a foraging or resting area. Impacts are localized and would be addressed during project review.

Table 4-4. Alternative 2 - Ridgefield UGA Priority Habitats and Species

	Ridgefield UGA		
	Existing	**Alt 2**	**Change**
Size of UGA (acres)	6,021	6,177	+156
Priority Habitat for Species	389	389	0
Non-riparian Habitat Conservation Areas	244	244	0
Riparian Habitat Conservation Areas	2,012	2,040	+28
Total	**2,645**	**2,673**	**+28**
% of UGA with priority habitat and HCAs	44%	43%	-1%

Table 4-5. Alternative 2 - Ridgefield UGA Stream Miles

	Ridgefield UGA		
	Existing	**Alt 2**	**Change**
Fish-Bearing	20.6	20.7	0.1
Non-Fish-Bearing	24.2	24.6	0.4
Total	44.8	45.3	0.5

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes are site specific and could add increased impervious surface (affecting streams) and more intensive land uses (affecting local wildlife). Impacts are localized and would be addressed during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City UGA Expansion

City of Battle Ground

Alternative 3 proposes expansion of the City of Battle Ground UGA by approximately 82 acres. This would bring an additional 18 acres of riparian habitats into the UGA (Table 4-6). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (12%).

This alternative would add 0.4 miles of stream to the Battle Ground UGA (Table 4-7). Most of this stream length is along Mill Creek, a fish-bearing stream. While portions of the affected area are already developed with rural land uses, fish and wildlife may experience negative effects from more intensive development within the UGA expansion area, such as habitat fragmentation, loss of native vegetation,

increased noise and lights, and increased stormwater runoff. These impacts would represent a small portion of the available wildlife habitat in the county but could be important for local wildlife populations. Impacts would be localized and addressed during project review.

Table 4-6. Alternative 3 Battle Ground UGA - Priority Habitats and Species Acreage

	Battle Ground UGA		
	Existing	**Alt. 3**	**Change**
Size of UGA (acres)	6,820	6,902	+81
Priority Habitat for Species	0	0	0
Non-riparian HCA	57	57	0
Riparian HCA	759	777	+18
Total	**816**	**835**	**+18**
% of UGA with Priority Habitat and HCAs	12%	12%	0

Table 4-7. Alternative 3 Battle Ground UGA Stream Miles

	Battle Ground UGA		
	Existing	**Alt. 3**	**Change**
Fish-Bearing Streams	14.1	14.5	0.4
Non-Fish-Bearing Streams	1.8	1.8	0
Total	15.9	16.3	0.4

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres. This would bring an additional 17 acres of riparian habitats into the UGA (Table 4-8). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (29%).

An additional 0.6 miles of stream would be included in the expanded UGA (Table 4-9). While part of the UGA expansion area is currently developed, most of the land consists of pasture and forested areas. Bringing this area into the UGA would allow more intensive development, with potential impacts similar to those for the Battle Ground UGA discussed above. Impacts would be localized and addressed during project review.

Table 4-8. Alternative 3 - La Center UGA Priority Habitats and Species Acreage

	La Center UGA		
	Existing	**Alt. 3**	**Change**
Size of UGA (acres)	1,774	1,853	+79
Priority Habitat for Species	28	28	0
Non-riparian Habitat Conservation Areas	28	28	0
Riparian Habitat Conservation Areas	456	473	+17
Total	**512**	**529**	**+17**
% of UGA with Priority Habitat and HCAs	29%	29%	0

Table 4-9. Alternative 3 - La Center UGA Stream Miles

	La Center UGA		
	Existing	**Alt. 3**	**Change**
Fish-Bearing Streams	4.9	5.0	0.1
Non-Fish-Bearing Streams	6.0	6.5	0.5
Total	10.9	11.5	0.6

City of Ridgefield

Alternative 3 proposes expansion of the City of Ridgefield UGA by 111 acres. This would bring an additional 21 acres of riparian habitats into the UGA (Table 4-10). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (44%).

Alternative 3 would bring 1 mile of additional fish-bearing stream (tributary to Allen Creek) into the UGA (Table 4-11).

Table 4-10. Alternative 3 – Ridgefield UGA Priority Habitats and Species Acreage

	Ridgefield UGA		
	Existing	**Alt. 3**	**Change**
Size of UGA (acres)	6,024	6,133	+107
Priority Habitat for Species	390	**390**	0
Non-riparian Habitat Conservation Areas	244	249	+5
Riparian Habitat Conservation Areas	2,016	2,037	+21
Total	**2,650**	**2,676**	**+26**
% of UGA with Priority Habitat and HCAs	44%	44%	0

Table 4-11. Alternative 3 – Ridgefield UGA Stream Miles

	Ridgefield UGA		
	Existing	**Alt. 3**	**Change**
Fish-Bearing Streams	16	17	+1
Non-Fish-Bearing Streams	24	24	0
Total	40	41	+1

City of Washougal

Alternative 3 proposes expansion of the City of Washougal UGA by 41 acres. Approximately 16 acres of riparian habitat area would be added to the UGA (Table 4-12). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (51-52%).

Alternative 3 would add approximately 0.2 miles of stream to the UGA (Table 4-13).

Table 4-12. Alternative 3 – Washougal UGA Priority Habitats and Species Acreage

	Washougal UGA		
	Existing	**Alt. 3**	**Change**
Size of UGA (acres)	5,362	5,420	+58
Priority Habitat for Species	426	426	0
Non-riparian Habitat Conservation Areas	152	153	+1
Riparian Habitat Conservation Areas	2,198	2,214	+16
Total	**2,776**	**2,793**	**+17**
% of UGA with Priority Habitat and HCAs	52%	51%	-1%

Table 4-13. Alternative 3 – Washougal UGA Stream Miles

	Washougal UGA		
	Existing	**Alt. 3**	**Change**
Fish-Bearing Streams	7	7	0
Non-Fish-Bearing Streams	5	5.2	+0.2
Total	12	12.2	+0.2

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to the other alternatives, Alternative 4 would allow the highest density of development outside of the UGAs in the county.

Reducing minimum lot sizes could allow for increased density of development, potentially leading to impacts on wildlife habitat. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6).

Table 4-14. Number of Parcels Potentially Affected by Changes in Zoning – Alternative 4

Proposed Zoning Change	Number of Potential New Parcels	Potential Acreage Affected
Agriculture		
Ag20 to Ag10	1,780	1,780 parcels @ 10 acres each = 17,800 acres
Ag20 to Ag5	178	178 parcels @ 5 acres each = 890 acres
Subtotal Agriculture	**1,958**	**18,690 acres**
Rural		
R20/R10/R5 to R1	739	739 parcels @ 1 acre each = 739 acres
R20/R10/R5 to R2.5	3,019	3,019 parcels @2.5 acres each = 7,548 acres
R20/R10 to R5	6,122	6,122 parcels @ 5 acres each = 30,610 acres
Subtotal Rural	**9,880**	**38,897**
Forest Resource		
FR80	7	7 parcels @ 80 acres each = 560 acres
Fr80 to Fr40	30	30 parcels @ 40 acres each = 1,200 acres
Fr80/FR40 to Fr20	93	93 parcels @ 20 acres each = 1,860 acres
Fr80/FR40 to Fr10	433	433 parcels @ 10 acres each = 4,330 acres
Subtotal Forest	**590**	**7,950**
TOTAL	**5,277**	**65,537 acres**

Development of new lots under Alternative 4 would be subject to project-specific review and regulations intended to avoid and minimize impacts on wildlife. Nevertheless, some level of cumulative impact may occur. Developing these new lots could fragment remaining wildlife habitats and make them less useable for species that are sensitive to human disturbance. More common species that currently use rural, agricultural and forest resource areas are likely already accustomed to some level of human disturbance and may continue to use these areas. Construction of new houses, roads, and other facilities allowed by zoning would likely increase impervious surface area, leading to an increase in stormwater runoff that could impact stream habitat. See Chapter 3, Water, for further discussion of the potential cumulative effects of development on aquatic resources.

Overall, Alternative 4 could have a high level of impact on wildlife habitat if the parcels are built out to their full potential under the proposed zoning changes.

How do the potential impacts to habitat between the alternatives compare?

Table 4-15 provides a summary and comparison of the fish and wildlife habitat impacts of all the alternatives.

Table 4-15. Summary of Fish and Wildlife Habitat Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential for impacts. More intensive development allowed under current zoning could cumulatively affect fish and wildlife.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential impacts. Potential localized impacts to habitat with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could have cumulative impacts on wildlife habitat.

Are there adverse impacts to habitat that cannot be avoided?

Development projects that propose to impact fish and wildlife habitats are regulated by local critical areas codes. Impacts to streams also require approval under the state Hydraulic Code and federal Clean Water Act. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat by development of new structures and roads.

4.1.6 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to habitat?

In addition to mitigation measures required by regulation for individual projects, the jurisdictions could provide incentive programs, education, and taxation policies that encourage the conservation and restoration of fish and wildlife habitats.

Clark County has incentive programs to protect wildlife habitat, such as current use taxation, along with acquisition programs such as Conservation Futures. The County's 2014 Conservation Areas Acquisition Plan provides a vision for preserving and enhancing a countywide system of conservation lands, including greenways, habitat, farmland, and forest resource lands. The plan identifies specific project opportunities to pursue over the next six years, identifies high-value conservation lands, and highlights a variety of funding mechanisms (Clark County, 2014a).

Cities could establish a regional program to identify and protect priority habitat areas. This program could include transfer of development rights (TDR) for those cities that do not have such programs, purchase of the land using funds earmarked for that purpose, and property taxation that recognizes the restrictions on development.

The shoreline master programs adopted by Clark County and the cities in 2012 include a voluntary restoration program. Implementation of restoration projects identified in this plan could help to further restore fish and wildlife habitats, potentially at a larger scale by forming partnerships among jurisdictions, nonprofit organizations, and other entities.

Provisions for clustering under Alternatives 2 and 4 could help minimize the amount of habitat loss. Zoning code changes to allow lower minimum lot sizes under either Alternatives 2 or 4 could include requirements for cluster development when considering applications for subdivision. This mitigation measure could help reduce the effects of increased development on fish and wildlife habitat.

4.2 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides the primary framework within which Clark County and its cities must work to address the conservation of federally listed threatened and endangered species. The County must comply with the ESA by ensuring that its policies, programs, and regulations do not result in harm to listed species, including harm to designated critical habitat. The following species listed by the federal government as threatened or endangered are known to occur in Clark County:

Plants

- Bradshaw's desert parsley
- Golden paintbrush
- Water howellia

Fish

- Chum salmon
- Coho salmon
- Chinook salmon
- Steelhead
- Sockeye salmon
- Pacific eulachon
- Green sturgeon
- Bull trout

Wildlife

- Oregon spotted frog
- Northern spotted owl
- Streaked horned lark
- Yellow billed cuckoo
- Columbian white-tailed deer
- Gray wolf
- Fisher

Photo courtesy S. Graham

Appendix B provides information about the status and habitat associations of these species.

Fish species are the most widely distributed of the listed species in Clark County (Figure 4-2). The Columbia River is a major migratory route for listed salmon and steelhead, both as adults and as smolts. The East Fork Lewis, North Fork Lewis, and Washougal Rivers support populations of listed species and have been specifically identified as key watersheds to support recovery in the *Lower Columbia River Salmon Recovery Fish and Wildlife Subbasin Plan*. Salmon Creek, Whipple Creek, Flume Creek, and other smaller tributaries all support populations of federally listed salmon, and these streams are important for

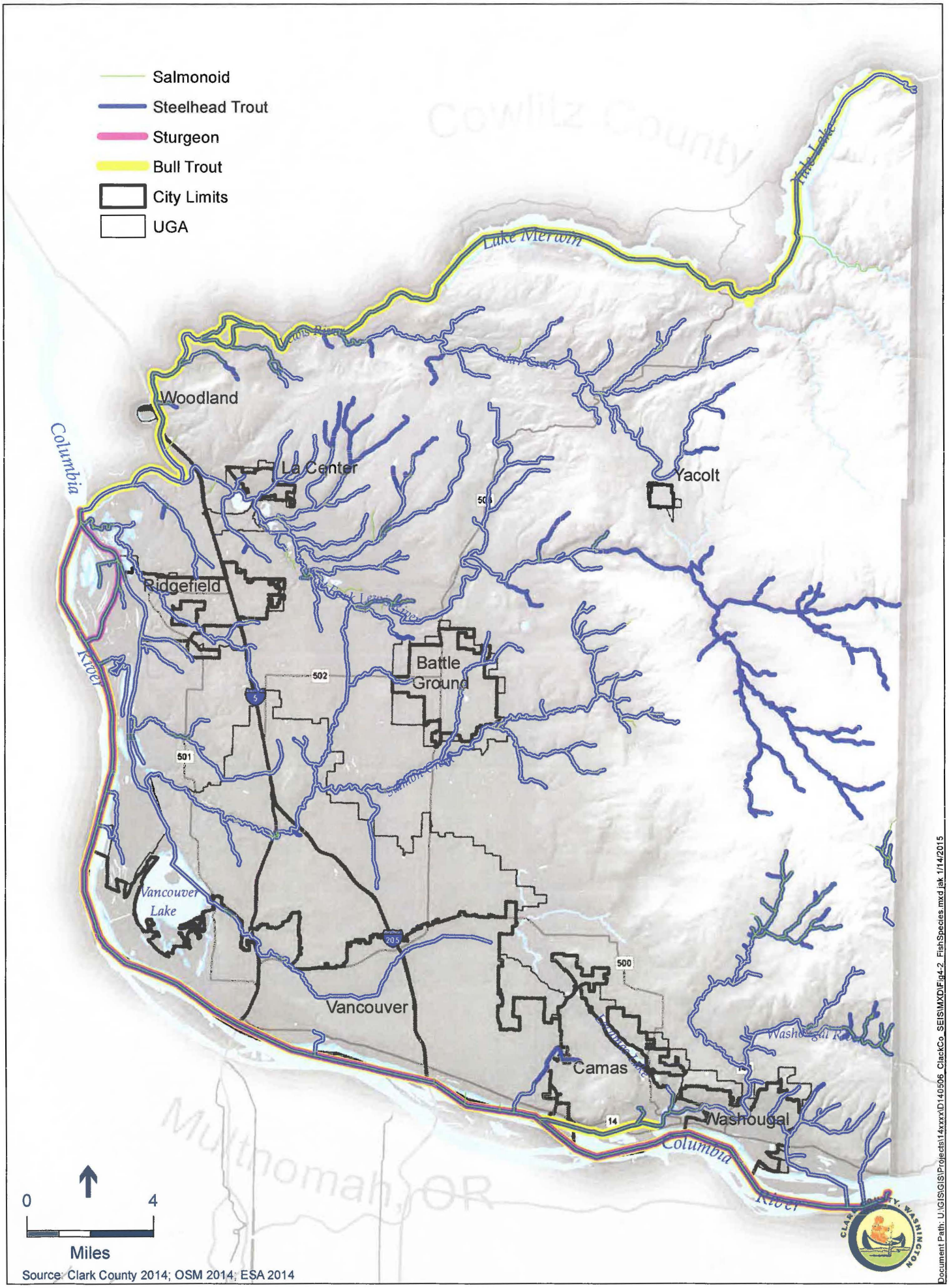

Figure 4-2: Threatened and Endangered Fish Species

stabilizing existing fish populations (Clark County, 2014a). The Columbia River and numerous streams in the county are designated as critical habitat for these species.

No critical habitat has been designated for federally listed plant or terrestrial wildlife species in Clark County. These species may still occur where suitable habitat is present (see Appendix B for habitat requirements). In addition, numerous species that may be found in Clark County have been designated by the federal government as Species of Concern; these are listed in Appendix B. Species of Concern are those that are in decline and potentially eligible as candidates for listing.

4.2.1 What has changed since 2007?

Since 2007 the federal government has listed or proposed to list several additional species under the Endangered Species Act: Pacific eulachon, Oregon spotted frog, streaked horned lark, yellow billed cuckoo, and fisher.

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal, and Yacolt). The updated ordinances provide additional review of activities affecting fish and wildlife habitats including habitats used by threatened and endangered species.

In addition, Clark County and most of its cities adopted updated SMPs in 2012 and 2013, and updated FEMA flood hazard areas were adopted into county code. Shorelines and floodplains are discussed further in Chapter 3, Water. Both shorelines and floodplain areas provide important habitat for listed species including salmonids.

4.2.2 Environmental Impacts

What methodology was used to analyze impacts to threatened and endangered species from each of the alternatives?

Potential impacts to threatened and endangered species are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the loss and fragmentation of habitat for these species. Growth patterns that promote more compact development within existing UGAs are more likely to preserve habitat, although more stress may be placed on terrestrial and aquatic habitat within urban areas as the level and intensity of development increase. To assess impacts to listed species, the project team used GIS mapping to identify known species locations and critical habitats located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to threatened and endangered species from each alternative?

Alternative 1 – No Action Alternative

Alternative 1 would not expand UGAs or increase zoning densities. Growth and development over the next 20 years would primarily be accommodated within existing UGAs. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Impacts to habitat for terrestrial listed species would be the same as identified in the 2007 FEIS.

Alternative 2 –Countywide Modifications

Rural Areas

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for listed species. Some of the areas affected by this alternative are already at or below the minimum lot sizes that would be allowed under this alternative. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development.

As discussed earlier in Section 4.2.2, Alternative 2 could allow the creation of approximately 8,200 lots, potentially affecting over 34,000 acres. As discussed in Chapter 3, Water, the parcels affected by this alternative are scattered across several drainage basins, all of which include streams that support listed fish species. Listed plant and wildlife species may also occur in the areas proposed for changes in zoning, although their occurrence is likely to be limited to specific types of habitat (e.g., prairies) and in rural areas that provide specific habitat structures (e.g., mature forest). Numerous regulations are in place to protect federally listed species. However, cumulative impacts to habitat are possible given the amount of land that could be affected with more intensive development in currently rural areas. Over time, development on individual lots could fragment habitats and make them less suitable for sensitive species.

Urban Growth Areas

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: The stream segments affected by the proposed UGA expansion are not known to support listed fish species (WDFW, 2014b). The UGA expansion area is occupied by a golf course and I-5, and it is unlikely to provide habitat for listed terrestrial species. The proposal could have site-specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Listed fish species could be indirectly affected by increased surface runoff; these changes would be localized and addressed during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City UGA Expansion

City of Battle Ground

The proposed expansion of the City of Battle Ground UGA by approximately 82 acres would add 0.4 miles of stream to the city limits, including Mill Creek which is known to support listed fish species (WDFW, 2014b). More intensive development of the UGA expansion area could have negative impacts if there is an increase in stormwater runoff that adds pollutants or changes the flow regime in the stream, or if riparian vegetation is removed. Proposed projects would be reviewed and impacts addressed through the permitting process.

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres, adding 0.6 miles of stream to the city limits including McCormick Creek which supports listed fish species (WDFW, 2014b). Potential impacts would be similar to those for the City of Battle Ground UGA expansion under this alternative.

City of Ridgefield

Alternative 3 would add 1 mile of stream to the city limits with the proposed addition of 111 acres to the UGA. The stream is a fish-bearing tributary to Allen Creek that is mapped as supporting listed fish species (WDFW, 2014b). Potential impacts would be similar to those for the City of Battle Ground UGA expansion under this alternative.

City of Washougal

Alternative 3 would add 0.2 miles of stream with the proposed 41-acre Washougal UGA addition. This stream (a tributary of the Washougal River) supports listed fish species immediately downstream of the UGA expansion area (WDFW, 2014b).

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for listed species. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6). Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive

development. As discussed in Chapter 3, Water, the parcels affected by this alternative are scattered across several drainage basins, all of which include streams that support listed fish species. Listed plant and wildlife species may also occur in the areas proposed for changes in zoning, although their occurrence is likely to be limited to specific types of habitat (e.g., prairies) and in rural areas that provide specific habitat structures (e.g., mature forest). Numerous regulations are in place to protect federally listed species. However, cumulative impacts to habitat are possible given the amount of land that could be affected with more intensive development in currently rural areas. Over time, development on individual lots could fragment habitats and make them less suitable for sensitive species.

How do the potential impacts to threatened and endangered species between the alternatives compare?

Table 4-16 provides a summary and comparison of the potential impacts of the alternatives on listed species.

Table 4-16. Summary of Listed Species Impacts by Alternative

Alternative 1 -No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential impacts. More intensive development throughout the county could affect listed fish.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential impacts. Potential localized impacts to listed fish species with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts such as habitat fragmentation.

Are there adverse impacts to threatened and endangered species that cannot be avoided?

Habitats for listed species are protected by both local critical areas regulations and the federal Endangered Species Act. Activities affecting habitat for listed fish species are also regulated by the state Hydraulic Code and the federal Clean Water Act. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when individual projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat by development of new structures and roads.

4.2.3 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to threatened and endangered species?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit listed species.

Restoration projects identified by the Lower Columbia Fish Recovery Board could also serve as a template for mitigating cumulative impacts to listed fish species. The Recovery Board includes Clark County and four neighboring counties. They have emphasized the need to acquire, restore, and enhance aquatic, riparian and associated uplands habitat as part of region-wide efforts to recover federally listed salmon populations. Several government agencies, non-profits, and tribes have been working together to implement projects on the East Fork Lewis, Washougal, and North Fork Lewis Rivers (Clark County, 2014a).

4.3 Migratory Species

Clark County and the Lower Columbia River are located within an extensive bird migration route known as the Pacific Flyway that extends from the Bering Sea in Alaska along the Pacific Seaboard to South America. In addition, the wetlands and floodplains associated with the Columbia River, lower East Fork Lewis, and other tributaries are a key part of an area known as the Lower Columbia region, which extends downstream from Bonneville Dam to the Pacific Ocean. The Lower Columbia's floodplain and wetland areas are highly important for migrating and wintering waterfowl, neotropical migrant birds, and shorebirds. The USFWS has compiled a list of migratory bird species of concern in Clark County (Appendix B). This provides a sampling of the many bird species that pass through the county each year.

The county provides locally important migration corridors for terrestrial wildlife. These migration routes may include areas that are necessary for long-term shifts in wildlife species distributions, or that are used to facilitate movement to and from breeding habitats or summer and winter ranges. Examples include travel corridors that are used by frogs and salamanders moving to and from seasonal wetlands for breeding, as well as habitats used by elk moving between their summer and winter ranges. It is important to maintain interconnected systems of habitat and open space lands, particularly river and stream corridors, in order to enhance seasonal migrations and the general movement of wildlife populations.

Migratory fish species (salmon and steelhead) are discussed in Section 4.1. The following section focuses on migratory birds and other wildlife.

Habitats for some migratory species are protected by local critical areas regulations; for example, locally important waterfowl or shorebird concentration areas, or elk winter range. Migratory birds are specifically protected under the federal Migratory Bird Treaty Act. The Endangered Species Act regulates activities affecting migratory fish and wildlife species that are federally listed. Finally, the federal Bald and Golden Eagle Protection Act covers bald eagles.

What has changed since 2007?

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013. These updates provide for additional review of activities affecting habitats that may be used by migratory species,

particularly those associated with rivers, streams, wetlands, and floodplains. Shorelines and floodplains are discussed further in Chapter 3, Water.

4.3.1 Environmental Impacts

What methodology was used to analyze impacts to migratory species from each of the alternatives?

Potential impacts to migratory species are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the loss and fragmentation of habitat for these species. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on terrestrial and aquatic habitat within urban areas as the level and intensity of development increase. To assess impacts, the project team used GIS mapping to identify habitats for migratory species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to migratory species from each alternative?

Alternative 1 – No Action Alternative

Alternative 1 would not expand UGAs or increase zoning densities. Concentrating growth and development within existing UGAs would preserve agricultural and open space lands that may provide migratory habitat for birds and other wildlife. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Wildlife species that use connected riparian corridors or greenways as part of migration routes could be indirectly affected by more intensive development; for example through increased noise, light, and disturbance. Impacts to migratory species from Alternative 1 would be the same as described in the 2007 FEIS.

Alternative 2 –Rural Urban Adjustments

Proposed Rural Lands Changes

Reducing minimum lot sizes may allow for increased density of development in rural areas. Important large migratory areas such as those in the national wildlife refuges would not be affected. However, rural areas that are used by migratory species for foraging or resting could have increased human disturbance and may become less suitable over time.

Proposed UGA Modifications

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts to habitat are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes a UGA expansion of approximately 156 acres to encompass the Tri-Mountain golf course and a narrow strip along I-5. While this area is not mapped as priority

habitat, the golf course may be used to a limited extent by migratory species such as waterfowl and neo-tropical songbirds, particularly on and near golf course ponds and streams. The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would increase land use intensity and could remove habitat that these species use as part of larger foraging or resting areas.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes are site specific and could have localized effects on habitat for migratory species.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City Expansion

Alternative 3 proposes expansion of the UGAs for Battle Ground, La Center, Ridgefield, and Washougal. While portions of the affected areas are already developed, remaining undeveloped areas such as pastures and riparian forest may be used by migratory species such as waterfowl and neotropical songbirds. Development of these areas would represent an incremental loss of foraging and resting habitat for these species.

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for migratory species. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see in Chapter 6).

Reducing minimum lot sizes may allow for increased density of development in rural areas. Important large migratory areas such as those in the national wildlife refuges would not be affected. However, rural, agricultural, and forest areas that are used by migratory species for foraging or resting could have increased human disturbance and may become less suitable over time.

How do the potential impacts to migratory species between the alternatives compare?

Table 4-17 summarizes the impacts of the alternatives on habitat for migratory wildlife species.

Table 4-17. Summary of Migratory Wildlife Habitat Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential impacts of all alternatives. More intensive development could have localized effects on migratory corridors such as greenbelts. Regulations and mitigation requirements would minimize impacts.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts to migratory habitat with UGA changes.	Moderate potential impacts. Potential localized impacts to migratory species habitat with UGA changes.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts on habitat for migratory species.

Are there adverse impacts to migratory species that cannot be avoided?

Development projects that propose to impact fish and wildlife habitats are regulated by local critical areas codes. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat and increased human disturbance. In addition, migratory species may seasonally use areas that are not specifically regulated by code and are therefore more likely subject to development pressures.

4.3.2 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to migratory species?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit migratory species.

Horseshoe Lake

photo courtesy T. Noland

4.4 Wetlands

Figure 4-3 shows mapped wetlands throughout the county. Activities that alter wetlands are subject to regulation by local jurisdictions, the state Department of Ecology, and the U.S. Army Corps of Engineers. Wetland buffers are required under local critical areas codes.

What has changed since 2007?

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). The updated ordinances

incorporate best available science for wetlands as required by GMA, for example by adopting the Washington Department of Ecology wetland rating system and buffer widths that reflect both wetland functions and the intensity of proposed land uses.

In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013. The SMPs include policies and regulations to protect the functions of wetlands within shoreline jurisdiction, as well as voluntary restoration plans to improve degraded ecosystem functions. Also, FEMA updated the areas of special flood hazard and these were adopted into Clark County code. The shorelines and floodplains are discussed further in Chapter 3, Water.

4.4.1 Environmental Impacts

What methodology was used to analyze impacts to wetlands from each of the alternatives?

Impacts to wetlands are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the filling or draining of wetlands, or removal of vegetation from wetland buffers. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on wetlands within urban areas as the level and intensity of development increase. To assess impacts to wetlands, the project team used GIS mapping to identify priority habitats and species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to wetlands from each alternative?

Alternative 1 – No Action

Alternative 1 would not expand UGAs or increase zoning densities. Confining growth and development within existing UGAs would protect rural wetlands but may increase development pressure on wetlands inside of urban areas. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. All of the existing UGAs contain wetlands (Table 4-18), and there are wetlands throughout the rural county areas. More intensive development could increase stormwater runoff, disturb wetland wildlife, and alter buffer vegetation around urban wetlands.

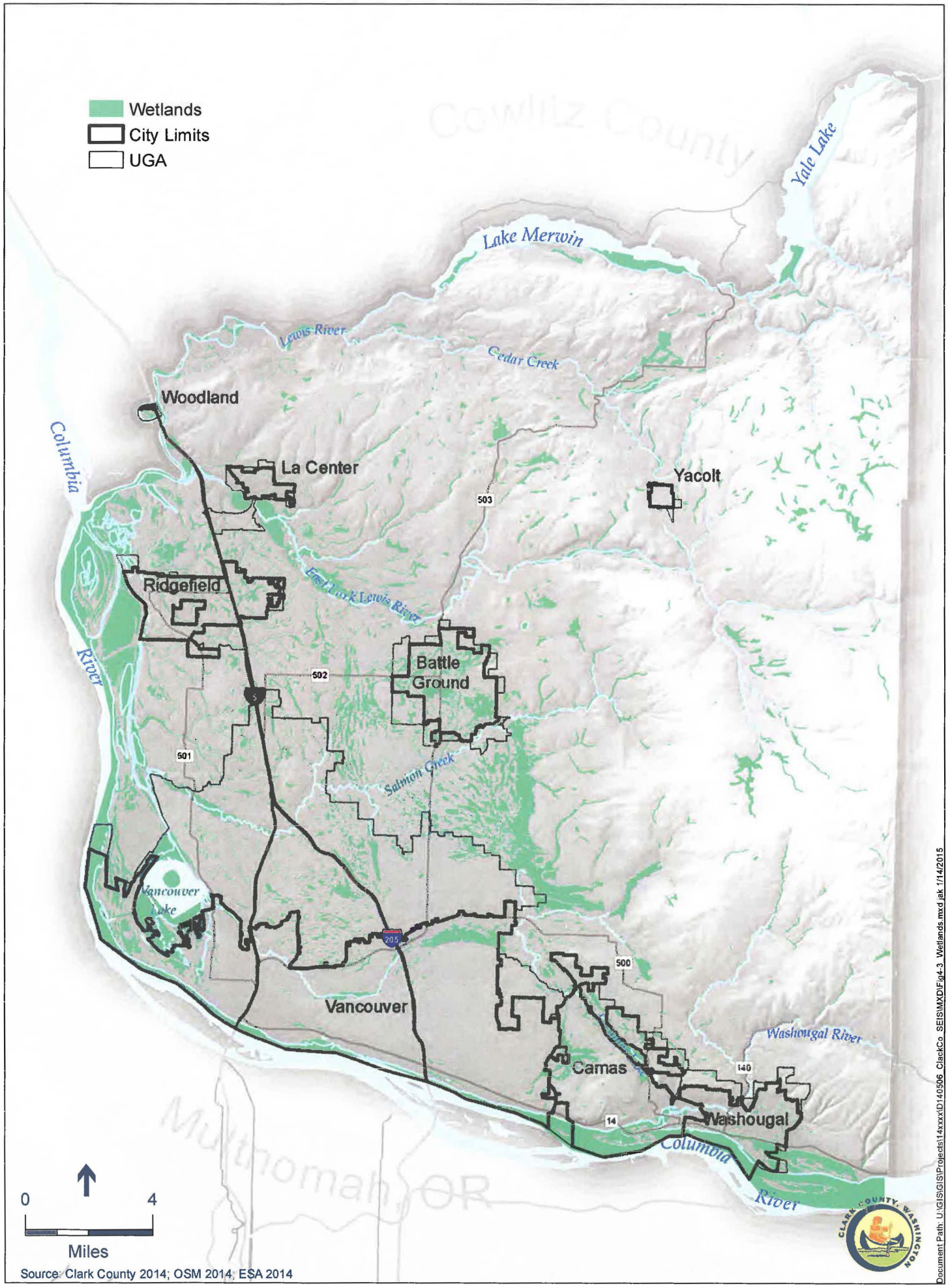

Figure 4-3: Clark County Mapped Wetlands

Table 4-18. Alternative 1 - Wetland Acreage within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
UGA Size (acres)	6,820	11,850	1,774	6,021	67,397	5,385	449
Mapped Wetlands	1,616	2,946	69	673	9,510	1,054	10
% of UGA with Mapped Wetlands	24%	25%	4%	11%	14%	20%	2%

Alternative 2 –Countywide Modifications

Proposed Rural Lands Changes

As discussed in Section 4.2.2, many of the lots in areas that would be affected by Alternative 2 are already at the minimum size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional wetland impacts with the proposed change in zoning. However, Alternative 2 would allow the creation of approximately 8,200 new lots with the potential for additional development, potentially affecting over 34,000 acres.

Activities affecting wetlands and wetland buffers are regulated, but impacts could still occur with development on these parcels. For example, County code provides exemptions for certain small-scale alterations such as placement of fences and utilities in buffers. Exempt activities, while individually small, can contribute to cumulative impacts on wetland functions over time. With conversion of vegetated areas to impervious surfaces such as roads and buildings, increased stormwater runoff can affect wetland hydrology.

Proposed UGA Modifications

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes a UGA expansion of approximately 156 acres. This would bring an additional 45 acres of wetlands located within the Tri-Mountain Golf Course into the City's UGA (Table 4-19). The percentage of UGA lands occupied by mapped wetlands would increase by approximately 1%. The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes

are site specific and could add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Table 4-19. Alternative 2 Countywide Modifications - Wetland Acreage in Ridgefield UGA

	Ridgefield UGA		
	Existing	**Alt. 2**	**Change**
Size of UGA (acres)	6,021	6,177	+156
Mapped Wetlands	673	718	+45
% of UGA with Mapped Wetlands	11%	12%	+1%

Alternative 3 – City UGA Expansion

City of Battle Ground

Alternative 3 proposes expansion of the City of Battle Ground UGA by approximately 82 acres. This would bring an additional 29 acres of wetlands into the City's UGA (Table 4-20). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (24%). More intensive development could increase stormwater runoff, disturb wetland wildlife, and alter buffer vegetation around these wetlands. While they represent a small percentage of the overall wetland area in Clark County, the mapped wetlands in the UGA expansion area may still be important for local water quality improvement, flood control, and wildlife habitat. Impacts would be addressed during permit review.

Table 4-20. Alternative 3 - Wetland Acreage in Battle Ground UGA

	Battle Ground UGA		
	Existing	**Alt. 3**	**Change**
Size of UGA (acres)	6,820	6,902	+81
Mapped Wetlands	1,616	1,645	+29
% of UGA with Mapped Wetlands	24%	24%	0

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres. This would bring an additional 4 acres of wetlands into the City's UGA (Table 4-21). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (4%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-21. Alternative 3 - Wetland Acreage in La Center UGA,

	La Center UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	1,774	1853	+79
Mapped Wetlands	69	73	+4
% of UGA with Mapped Wetlands	4%	4%	0

City of Ridgefield

Alternative 3 proposes expansion of the City of Ridgefield UGA by approximately 111 acres. This would bring an additional 2 acres of wetlands into the City's UGA (Table 4-22). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (11%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-22. Wetland Acreage in Ridgefield UGA

	Ridgefield UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	6,024	6,133	109
Mapped Wetlands	677	679	+2
% of UGA with Mapped Wetlands	11%	11%	0

City of Washougal

Alternative 3 proposes expansion of the City of Washougal UGA by approximately 41 acres. This would bring an additional 17 acres of wetlands into the City's UGA (Table 4-23). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (19%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-23. Wetland Acreage in Washougal UGA

	Washougal UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	5,362	5,420	+58
Mapped Wetlands	1,033	1,050	+17
% of UGA with Mapped Wetlands	19%	19%	0

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture

uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of wetlands. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6).

Activities affecting wetlands and wetland buffers are regulated, but impacts could still occur with development on these parcels. For example, County code provides exemptions for certain small-scale alterations such as placement of fences and utilities in buffers. Exempt activities, while individually small, can contribute to cumulative impacts on wetland functions over time. With conversion of vegetated areas to impervious surfaces such as roads and buildings, increased stormwater runoff can affect wetland hydrology.

How do the potential impacts to wetlands between the alternatives compare?

Table 4-24 summarizes the wetland impacts of the alternatives.

Table 4-24. Summary of Wetland Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential impacts. More intensive development under current zoning could affect wetlands, but regulations and mitigation requirements would minimize impacts.	Second highest potential for impacts of all alternatives due to potential for more intensive development of over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts to wetlands and buffers. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential impacts. Potential localized impacts to wetlands with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts on wetlands and buffers.

Are there adverse impacts to wetlands that cannot be avoided?

Development projects that propose to impact wetlands or wetland buffers are regulated by local critical areas codes. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of wetland functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of wetland functions at a larger scale; for example, changes in

stormwater runoff that alter wetland hydrology. Even when protected in native growth areas, wetlands and their buffers are often subject to increased disturbance, illicit dumping, and other effects of adjacent developments.

4.4.2 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to wetlands?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit wetlands.