

5

Natural Resources





Opportunities, Challenges, and Considerations

Natural resources in Deschutes County are abundant. Wildlife, scenic views of forests and peaks, and open spaces to preserve habitat and native vegetation are among the County's top assets.

Oregon Statewide Planning Goal 5 governs Natural Resources, Scenic and Historic Areas, and Open Spaces. Through this goal, the County maintains inventories and regulatory protections to preserve these many resources. These regulations are created by weighing Economic, Social, Environmental, and Energy (ESEE) consequences associated with protection of a resources.

Topics covered in this chapter include:

- Protected Wildlife Resources
- Open Space and Scenic Views
- Water Resources

PROTECTED WILDLIFE RESOURCES

Deschutes County has some of the broadest and most robust wildlife protections in the state, covering a variety of species. The County has development protections within and surrounding numerous wildlife habitats. Some of these habitats have mapped geographic boundaries such as Deer Winter Range, Deer Migration Range, Antelope Habitat, Golden Eagle – Sensitive Bird Habitat, and Elk Habitat.

Other species are commonly found in protected riparian areas, such as wetlands and floodplains. Deschutes County contains general habitats for fish, fur-bearing animals, waterfowl, and upland game birds.

A continued challenge to wildlife resources is rural development and impacts on habitat. Mule deer are seeing steady declines, approximately 10% each year per Oregon Department of

Fish and Wildlife biologists. These declines in population are due to a variety of factors, including but not limited to loss of habitat, predation, and disease.

SCENIC VIEWS AND OPEN SPACE

The 2010 Greenprint for Deschutes County listed protection of scenic viewsheds as one of the top five community priorities for conservation in the rural County, and the protection of open space has been one of the key topics of discussion during the most recent update of this Comprehensive Plan. The County has several designated scenic corridors, including several scenic bikeways, highways, and wild and scenic river sections.

With close to 80% of the County under public ownership, many community members enjoy access to natural resources on public lands. A perennial issue among community members is

preserving scenic views and open spaces closer to home on undeveloped private properties.

WATER RESOURCES

The high desert climate of Central Oregon poses many challenges with water supply and allocation.

A 2021 report by the Oregon Department of Water Resources found that groundwater levels through Deschutes County are declining, by as much as 50 feet of total decline in the central part of the basin. This decline is considered “excessively declined” per state statute and is attributed toward a shift in overall drier conditions since the late 1990s, a warming trend in the basin, and decreased snowpack. To address these issues, irrigation districts and other entities are engaged in ongoing efforts to pipe canals and modernize irrigation systems to increase their efficiency. Due to water transmission losses in irrigation canals from seepage into groundwater and evaporation, piped canals typically require only half the amount of water to be diverted from the river or stream to deliver the same volume of water to the end user compared to open canals. Community members have expressed concern that piping canals contribute to aquifer declines.

Deschutes County plays a coordination role along with the Oregon Department of Water Resources, irrigation districts, water users, and owners of private wells to address these water resource issues.

Context

Protected Wildlife Resources

Wildlife diversity is a major attraction of Deschutes County. The key to protecting wildlife is protecting the habitats each species needs for food, water, shelter, and reproduction. Also important is retaining or enhancing connectivity between habitats to protect migration routes and avoid isolated populations.

Statewide Planning Goal 5

Oregon land use planning protects wildlife with Statewide Planning Goal 5 and the associated Oregon Administrative Rule (OAR) 660-023. Goal 5 includes a list of resources which each local government must inventory, including wildlife habitat.

The Goal 5 process requires local governments to inventory wildlife habitat and determine which items on the inventory are significant. For sites identified as significant, an Economic, Social, Environmental and Energy (ESEE) analysis is required. The analysis leads to one of three choices: preserve the resource, allow proposed uses that conflict with the resource or strike a balance between the resource and the conflicting uses. A program must be provided to protect the resources as determined by the ESEE analysis.

Appendix A of the Comprehensive Plan contains the full ESEE ordinances for the County’s protected Goal 5 resources.



In considering wildlife habitat, counties rely on the expertise of the Oregon Department of Fish and Wildlife (ODFW) and U.S. Fish and Wildlife Service (USFWS). Those agencies provide information for the required wildlife inventory and recommendations on how to protect wildlife habitat on private lands.

A summary of Deschutes County's wildlife protection programs follows:

MULE DEER

Migration corridors and winter range are essential habitats needed to support mule deer in Deschutes County. The Bend/La Pine migration corridor is approximately 56 miles long and 3 to 4 miles wide and parallels the Deschutes and Little Deschutes Rivers. The corridor is used by deer migrating from summer range in the forest along the east slope of the Cascades to the North Paulina deer winter range. Deschutes County adopted a "Deer Migration Priority Area" based on a 1999 ODFW map submitted to the South County Regional Problem Solving Group. This specific sub-area is precluded from destination resorts.

From 2021-2023, Deschutes County explored an update to the county's mule deer inventory, which included extensive community participation including through the public record. Ultimately, the decision was made not to update.

A snapshot of Deschutes County's wildlife protection program is included below. Extensive information is included in Appendix E, the County's Goal 5 inventory.

SENSITIVE BIRDS

Nest sites for the bald eagle, osprey, golden eagle, prairie falcon, great grey owl, greater sage-grouse, and great blue heron rookeries are inventoried by the County. The area required for each nest site varies between species. The minimum area required for protection of nest sites has been identified by the ODFW in their management guidelines for protecting colony

nesting birds, osprey, eagles, and raptor nests. The USFWS works closely with ODFW on eagle-related issues and enforces federal guidelines to ensure protection of bald and golden eagles.

ELK

The Land and Resource Management Plan for the Deschutes National Forest identifies 6 key elk habitat areas in Deschutes County. The ODFW also recognizes these areas as critical elk habitat for calving, winter or summer range. The following areas are mapped on the Big Game Habitat Area map and in the Deschutes National Forest Land and Resource Management Plan:

- Tumalo Mountain
- Kiwa
- Ryan
- Crane Prairie
- Fall River
- Clover Meadow

ANTELOPE

The Bend and Ochoco District offices of the ODFW provided maps of the antelope range and winter range. The available information is adequate to indicate that the resource is significant. The antelope habitat is mapped on Deschutes County's Big Game Habitat-Wildlife Area Combining Zone Map.



Credit: Andrew Walch/ODFW

Scenic Views and Open Space

Deschutes County has a rich abundance of open space. Open spaces are generally undeveloped areas that are being maintained for some other purpose, such as farms, parks, forests, or wildlife habitat. Besides the value that stems from the primary use of the land, open spaces provide aesthetically pleasing undeveloped landscapes. Because these areas are undeveloped, they also provide additional benefits such as water recharge, buffers from habitat, and safety zones from natural hazards such as flooding.

Open spaces and scenic views are an important draw for visitors and are often mentioned as important to the area's quality of life. The backdrop of the Cascade Mountains, with its vast forest and sagebrush landscapes and riparian and wetland habitats, all provide an inspirational setting for visitors and residents alike. Statewide Planning Goal 5 recommends, but does not require, creating an inventory and protections for open spaces, scenic views and sites. Oregon Administrative Rule (OAR) 660-023 defines open space designations as parks, forests, wildlife preserves, nature sanctuaries, and golf courses.

Open spaces are protected through an Open Space and Conservation map designation and zoning district. Scenic view protection is implemented through the Landscape Management Combining Zone regulations.

Water Resources

Deschutes County's Role in Water Management is described below.

REGULATORY AGENCIES

The primary state regulator of water availability is the Oregon Water Resources Department (OWRD). The Oregon Department of Environmental Quality (DEQ) leads the monitoring and enforcement of water quality standards. The Oregon DEQ is required to comply with the Federal Environmental Protection Agency. Numerous sections of the

Deschutes River in Deschutes County hold a special status as a federal wild and scenic river, as well as a state scenic waterway. These areas carry additional regulations through the 1996 Upper Deschutes Wild and Scenic River and State Scenic Waterway Comprehensive Plan, requiring additional agency coordination with the Oregon Parks and Recreation Department and the US Forest Service on development impacting these sections.

STATEWIDE PLANNING GOALS

There are two Statewide Planning Goals relating to the protection of water resources. Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces) requires an inventory and protection of the following water resources. In Deschutes County, these inventories have been completed and acknowledged by the Land Conservation and Development Commission (See Appendix A for Goal 5 Inventories). Goal 6 (Air, Land, and Water Resources Quality) requires comprehensive plans to be consistent with state and federal pollution regulations. Accordingly, it is imperative that local land use policies align with Federal and State laws governing the community's water resources.



The policies in this section relating to water provide the framework for evaluating land use actions and define the responsibility of the County to work in partnership with cities, agencies, non-profits and others to achieve efficient use of water resources and effective management of water quality in the Upper Deschutes Basin.

It is important to underscore that the primary water resource management process occurs outside of the state land use planning system. Oregon land use and water management are not integrated; there are no overarching administrative rules that consider statewide water management in conjunction with land use planning.

WATER USE

The Deschutes aquifer has a recharge rate of roughly 3 million acre feet per year. The current water usage comes to roughly 720 thousand acre feet per year. Roughly 40 to 50 thousand acre feet of that water goes toward municipal and non-agricultural use, while the remaining goes toward crop and pasture irrigation. The majority of that municipal water use goes towards outdoor watering (gardens, sports fields, etc.). As an example: the City of Bend uses 5 times as much water in the summer as in the winter.

SNOWPACK

Although there is expected to be a slight increase in winter precipitation by the middle of the century, snowpack is expected to decline throughout the Cascades. The decline in snowpack (which has already been observed, see figure below)¹ is due largely to increasing temperatures causing some precipitation to fall as rain rather than snow. This has the double effect of decreasing snowfall and melting the previously fallen snow. At the Mt Bachelor Ski Resort, April snowpack is expected to decline between 11% and 18% by the middle of the

century and between 18% and 43% by the end of the century.

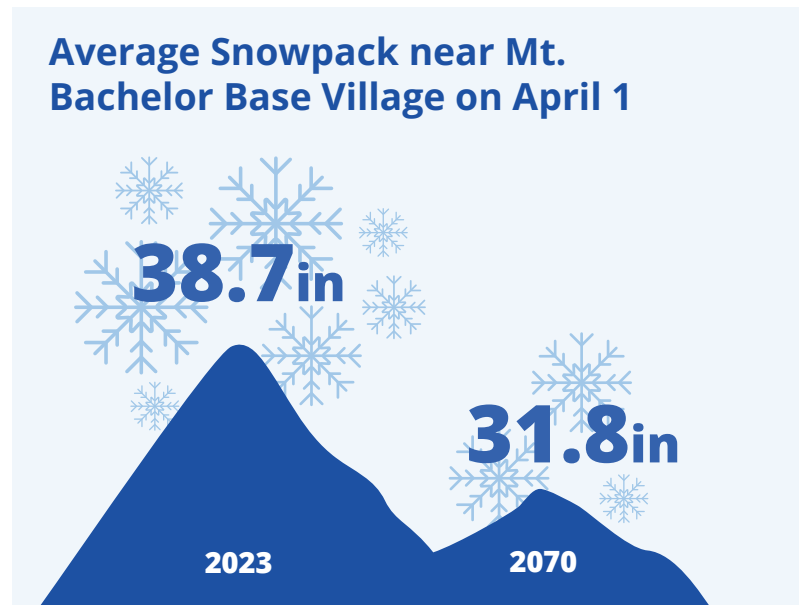
LAVA SPONGE

Deschutes county is fortunate to be underlain on the Western side by relatively young volcanic lava sponge. This sponge is highly porous and is able to absorb large quantities of water during the wet season and gradually release it via abundant springs along the eastern slope. The great advantage this provides is that the resulting summer flows into the Deschutes basin are not as dependent on overground flow of snowmelt, and therefore are expected to maintain a relatively stable water supply even as snowpack decreases into the next century.

GROUNDWATER

The groundwater aquifer is roughly 1000 feet thick and is replenished yearly by the Cascades' precipitation. Recent years of "exceptional drought" have lowered the aquifer level by roughly 30 feet, resulting in a small percentage of wells running dry, and raising concerns about available groundwater for new developments. Although it is likely that some wells will need to be deepened to cope with increasing temperatures and drought frequency, there is likely to remain ample sustainable groundwater supply.

Average Snowpack near Mt. Bachelor Base Village on April 1



¹ Adapted from Mote, P.W., Li, S., Lettenmaier, D.P. et al. Dramatic declines in snowpack in the western US. *npj Clim Atmos Sci* 1, 2 (2018). <https://doi.org/10.1038/s41612-018-0012-1>

Because the groundwater in the Deschutes Basin is directly connected to the flow of the Deschutes River, all additional groundwater use must be mitigated by decreased use of groundwater elsewhere through the Oregon Water Resources Department's Deschutes Groundwater Mitigation program. This can include retiring of other water rights, or the release of water into the waterway. A mitigation permit must be obtained before a new groundwater right can be accessed.²

Generally, groundwater quality in Deschutes County is generally classified as being 'good,' providing high quality drinking water to most of its residents. However, several productive aquifers lie in shallow alluvial sediments that are vulnerable to contamination from human activities and development.

The Department of Environmental Quality (DEQ) Laboratory and Water Quality Divisions' Groundwater Quality Report for the Deschutes Basin (March 2006) identifies areas of concern for groundwater contamination based on various sources of data and groundwater quality studies. Based on collected data, development patterns and the geology of the underlying aquifer, the report makes recommendations for a couple of areas in the County. The report notes the groundwater aquifer in the Redmond area is vulnerable to contamination from human activities and recommends further study by the DEQ. The La Pine aquifer in the southern portion of the county from the Sunriver area to the Klamath County line between Newberry Caldera and the Cascades is an area of particular concern because of data collected through several studies and the high level of development in the area. The report also identifies underground injection systems that could contaminate the aquifer with pollutants from stormwater drywells or sewage drillholes.

In South Deschutes County, the concern for groundwater quality arises from nitrate

² Information from the Oregon Water Resources Board Mitigation Program.

Deschutes Basin Hydrogeology

The Deschutes River Basin, from its headwaters to the Columbia River, encompasses 10,400 square miles of the north central part of the State. Nearly 91% of Deschutes County lies within the Deschutes Basin. The upper Deschutes River Basin is characterized by recent volcanic activity and strong and rapid groundwater flows. The geologic conditions lead to a strong connection between surface and ground water (see also Section 3.10).

Groundwater flows eastward from the Cascade Range through permeable volcanic rocks out into the basin and then generally northward. Groundwater recharge comes from precipitation in the Cascade Range, inter-basin flow and leaking irrigation canals. No long-term water-level declines attributable to groundwater pumping were found in the upper Deschutes Basin. Approximately one-half of the ground water flowing from the Cascade Range discharges to spring-fed streams along the margins of the range. The remaining groundwater flows through the subsurface, and eventually discharges to streams near the confluence of the Deschutes, Crooked, and Metolius Rivers.

The large amount of groundwater discharge in the confluence area is primarily caused by geologic factors. The Deschutes River flows north through permeable rock until it hits a region of low-permeable rock near the confluence area. There the permeable rock strata terminates, forcing water to the surface. Virtually all of the regional groundwater in the upper Deschutes Basin discharges to streams south of the area where the Deschutes River enters this low-permeability terrain, at roughly the location of Pelton Dam.

contamination associated with on-site wastewater treatment (septic) systems discharging to the shallow unconfined aquifer. The issue is small lots with highly permeable rapidly draining soils and a high groundwater table with relatively cold water temperatures. Combined with the fact that the majority of lots are served by on-site wastewater treatment systems and individual wells, concern arose that nitrates from the septic systems could contaminate local wells and the river system.

Considerable work has gone into studying the groundwater in South County. In 1999 Deschutes County and the Department of Environmental Quality (DEQ) identified the need for a better understanding of the processes that affect the movement and chemistry of nitrogen in the aquifer underlying the La Pine area. In response, the U.S. Geological Service (USGS), in cooperation with Deschutes County and DEQ, began a study to examine the hydrologic and chemical processes that affect the movement and chemical transformation of nitrogen within the aquifer. A primary objective was to provide tools for evaluating the effects of existing and future residential development on water quality and to develop strategies for managing groundwater quality.

Field research from the USGS study shows that in a 250-square-mile study area near La Pine the groundwater underlying the La Pine sub-basin is highly vulnerable and being polluted by continued reliance on traditional onsite systems. Environmental impacts from residential development include higher nitrate concentrations in groundwater that is tapped for domestic water supply and discharges to rivers. Nitrates are regulated by the federal Environmental Protection Agency and DEQ as a human health concern. Vulnerability of the shallow aquifer to contamination led to concern that wastewater from septic systems poses a threat to the primary drinking water supply and local river systems. The Upper Deschutes and

Little Deschutes Sub-basins have abundant, natural sources of phosphorus from volcanic soils and rocks so the rivers are naturally nitrogen limited. Nitrogen-limited rivers are sensitive to low concentrations of available nitrogen until some other component becomes limiting, and that may lead to ecological impacts.

In 2008 the County used the research on nitrates to adopt a 'local rule' that required South County residents to convert their septic systems over a period of 14 years to alternative sewage system technology designed to reduce nitrates. New septic systems were also required to use alternative technologies. The County created a process to assist residents in funding the conversions.

Many South County residents expressed concern over the costs involved with converting their septic systems and disputed the science behind the rule. Placed on the ballot by petition, the local rule was rescinded by voters in March 2009.

As of 2010 the DEQ is leading the effort to address nitrates in South County, with the full cooperation of the County. One solution being considered is creating a sewer system or extending Sunriver's to serve some of the nearby areas. Sewer systems are tightly restricted on rural lands by Statewide Planning Goal 11 and OAR 660-11, so the Department of Land Conservation and Development is also involved in these efforts.

RESERVOIRS

The majority of the irrigation in Deschutes County comes from reservoirs. These reservoirs are primarily spring fed from the Cascades. Reservoirs serve the dual purpose of supplying water for irrigation and ensuring sufficient streamflow in the lower Deschutes River. Regional droughts in recent years have resulted in lower water levels in these reservoirs.

ALGAL BLOOMS

Algal blooms have been a problem for recreational lakes in the cascade mountains in recent years. Since 2007, the Wickiup Reservoir, Crane Prairie Reservoir, and Paulina Lake have experienced algal or bacteria blooms that required a health advisory.³

Although not all algal blooms are toxic, they interfere with recreation and aesthetic enjoyment. In general, algal blooms are caused by elevated nutrients, elevated temperature, and still water. Algal blooms in other parts of the state have led to drinking water concerns, but Deschutes County cities are supplied by groundwater and so the risk in algal blooms is mainly to recreation.

Key Community Considerations

Natural resources for recreation, passive enjoyment, habitat protection, and economic production are a fundamental part of life in Deschutes County, and as such were a key part of the community conversation in this Comprehensive Plan update. Highlights of this conversation include:

- Concern about the ability of the County's water supply to accommodate more residents, visitors, and water-intensive jobs in the future
- Interest in a re-evaluation of water rights for urban, agricultural, and "hobby farm" uses.
- A robust discussion around wildlife inventories, habitat conservation, open space regulations, and impacts on private property owners.

The topic of habitat conservation and water availability came up frequently, with most participants saying that further protections are needed. However, there was also recognition of the burden these protections may put on property owners. Deschutes County does not have the authority or expertise to reevaluate water rights as part of its land use planning efforts, leading the County to instead work with the Oregon Department of Water Resources, irrigation districts, and holders of water rights to increase the efficiency of water distribution throughout the community.



³ <https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAE/BLIOMS/Pages/archive.aspx>

Goals and Policies

Water Goals and Policies

Goal 5.1: Support regional, comprehensive water management solutions that balance the diverse needs of water users and recognize Oregon water law.

Policy 5.1.1. Participate in Statewide and regional water planning including, but not limited to:

- a. Work cooperatively with appropriate federal, state, tribal and local agency resource managers, such as The Confederated Tribes of the Warm Springs Reservation of Oregon, the Oregon Water Resources Department (OWRD), irrigation districts, and other stakeholders and nonprofit water organizations, such as the Deschutes Basin Water Collaborative, the County Soil and Water Conservation District;
- b. Support the development and implementation of Upper Deschutes Basin Study, Habitat Conservation Plan, and Biological Opinion from National Marine Fisheries Service for the middle and lower Deschutes Rivers.

Policy 5.1.2. Support grants for water system infrastructure improvements, upgrades, or expansions.

Policy 5.1.3. Develop better understanding of The Confederated Tribes of the Warm Springs Reservation of Oregon’s treaty-protected rights to co-manage the water resources of the Deschutes Basin.

Policy 5.1.4. Encourage state agencies to identify local areas of concern for water availability and explore additional regulations or requirements to ensure water capacity is not negatively impacted by development.

Goal 5.2: Increase water conservation efforts.

Policy 5.2.1. Support efficient water use through targeted conservation, educational and, as needed, regulatory or incentive programs.

- a. Encourage new development incorporates efficient water use practices for all water uses.
- b. Encourage the reuse of grey water for landscaping.
- c. Encourage and educate the community about the relative impacts of thinning or reduction of plant species that adversely impact forest health, water availability, and soil quality.
- d. Encourage and educate the community about on-farm efficiency measures, including upgrades to equipment.
- e. Encourage and educate the community about use of voluntary metering of water use to monitor seasonal impacts on water use.
- f. Provide access to educational materials and tools related to water conservation including publications, information about grant opportunities, and/or partner with organizations on educational events.
- g. Encourage and educate community members on stewardship of wetlands and waterways.
- h. Provide access to educational materials about water-wise gardening and xeriscaping.

Policy 5.2.2. Promote coordinated regional water conservation efforts and implementation by regional, tribal, and local organizations and agencies, including increasing public awareness of and implementing water conservation tools, incentives, and best practices.

Policy 5.2.3. Support conservation efforts by irrigation districts, property owners and other water users, including programs to provide incentives for water conservation, such as piping of canals and laterals, water banking, exchanges of water rights, voluntary transfers of in-stream flows, onsite efficiency measures, and other means.

Goal 5.3: Maintain and enhance a healthy ecosystem in the Deschutes River Basin.

Policy 5.3.1. Notify the Oregon Department of State Lands, The Confederated Tribes of the Warm Springs Reservation of Oregon, and other state and federal agencies as appropriate of any development applications for land within a wetland identified on the statewide wetland inventory maps.

Policy 5.3.2. Work with The Confederated Tribes of Warm Springs Reservation of Oregon and other federal, state, and local agency resource managers to restore, maintain and/or enhance healthy river and riparian ecosystems and wetlands, including the following:

- a. Cooperate to improve surface waters, especially those designated water quality impaired under the federal Clean Water Act;
- b. Support research on methods to restore, maintain and enhance river and riparian ecosystems and wetlands;
- c. Support restoration efforts for river and riparian ecosystems and wetlands;
- d. Inventory and consider protections for cold water springs;
- e. Evaluate waterways in coordination with OPRD for possible designation under the Scenic Waterways program;

- f. In collaboration with appropriate federal, state, tribal and local agency resource managers stakeholders, map channel migration zones and identify effective protections;
- g. Develop comprehensive riparian management or mitigation practices that enhance ecosystems, such as criteria for removal of vegetation that adversely impacts water availability and soil health.

Policy 5.3.3. Support studies of the Deschutes River ecosystem and incorporate strategies from current watershed studies that provide new scientific information and indigenous knowledge about the Deschutes River ecosystem.

Policy 5.3.4. Support educational efforts and identify areas where the County could provide information on the Deschutes River ecosystem, including rivers, riparian areas, floodplains and wetlands.

- a. Support efforts to educate property owners to understand regulations pertaining to rivers, riparian areas, floodplains and wetlands.

Policy 5.3.5. Revisit recommendations of 1996 Upper Deschutes Wild and Scenic River and State Scenic Waterway Comprehensive Plan, or its successor, and consider implementation of voluntary recommendations into the county code

Goal 5.4: Maintain and enhance fish and riparian-dependent wildlife habitat.

Policy 5.4.1. Coordinate with The Confederated Tribes of Warm Springs Reservation of Oregon and other federal, state, and local agency resource managers and stakeholders to protect and enhance fish and wildlife habitat in river and riparian habitats and wetlands.

Policy 5.4.2. Promote healthy fish populations through incentives and education.

Policy 5.4.3. Support healthy native salmonid fish populations through coordination with stakeholders, including, but not limited to, The Confederated Tribes of the Warm Springs Reservation of Oregon and other federal, state, and local agency resource managers who provide fish habitat management and restoration.

- a. Review, and apply where appropriate, strategies for protecting fish and fish habitat for native salmonid species.
- b. Promote native salmonid species recovery through voluntary incentives and encouraging appropriate species management and associated habitat conservation and restoration.

Policy 5.4.4. Update and implement policies to support federally approved Habitat Conservation Plans for species listed under the Endangered Species Act

- a. Spawning and rearing areas for salmonid species should be considered significant habitat and should be protected in rivers and streams.
- b. Cooperate with covered parties in restoring or enhancing spawning and rearing areas for salmonid species, where feasible.
- c. Support efforts to address riparian restoration associated with streamflow management under approved plans.

Policy 5.4.5. Use a combination of incentives and/or regulations to avoid, minimize, and mitigate development impacts on river and riparian ecosystems and wetlands.

Policy 5.4.6. Support plans, cooperative agreements, education, water quality monitoring and other tools that protect watersheds, reduce erosion and runoff, enhance riparian vegetation, and protect other natural or engineered water systems/ processes that filter and/or clean water and improve and/or and preserve water quality.

Policy 5.4.7. Coordinate with the Oregon Department of Environmental Quality and other stakeholders on regional water quality maintenance and improvement efforts such as identifying and abating point (single-source) and non-point (unidentified or multiple-source) pollution or developing and implementing Total Maximum Daily Load and Water Quality Management Plans.

Policy 5.4.8. Coordinate with The Confederated Tribes of Warm Springs Reservation of Oregon and other federal, state, and local agency resource managers to address water-related public health issues.

- a. Support amendments to State regulations to permit centralized sewer systems in areas with high levels of existing or potential development or identified water quality concerns.
- b. If a public health hazard is declared in rural Deschutes County, expedite actions such as legislative amendments allowing sewers or similar infrastructure.

Policy 5.4.9. Continue to evaluate and/or implement regulations, such as a wellhead protection ordinance for public water systems, in accordance with applicable Federal and/or State requirements.

Policy 5.4.10. Coordinate and work with the Oregon Department of Agriculture, agricultural uses, and available voluntary programs to support and implement proven new technologies and best practices to maintain and enhance water quality,

such as minimizing nitrate contamination, maintaining streamside vegetation, reducing streambank soil erosion and runoff, reducing fish passage barriers, managing return flows, limiting livestock access to riparian areas, and minimizing weeds and bare patches in grazing areas.

Policy 5.4.11. Support regulations, education programs, and cleaning procedures at public and private boat landings.

Goal 5.5: Coordinate land use and water policies to address management and allocation of water in Deschutes County.

Policy 5.5.1. Coordinate with other affected agencies when a land use or development application may impact rivers or riparian ecosystems or wetlands.

Policy 5.5.2. Regulate land use patterns and promote best practices to preserve the integrity of the natural hydrologic system, recognize the relationship between ground and surface water, recognize basin-wide impacts, and address water impacts of new land uses and developments, including water-intensive uses.

Policy 5.5.3. Support OWRD's efforts to update and modernize Oregon's groundwater allocation rules and policies to protect existing surface water and groundwater users and to maintain sustainable groundwater resources.

Policy 5.5.4. Support efforts by the OWRD in collaboration with Central Oregon Cities Organization, The Confederated Tribes of the Warm Springs Reservation of Oregon, and non-governmental organizations to revisit the Deschutes Basin Groundwater Mitigation Program.

Policy 5.5.5. Coordinate with the irrigation districts to ensure irrigated land partitions and lot line adjustments are not approved without notice to the affected district.

Policy 5.5.6. Utilize Central Oregon Stormwater Manual to apply appropriate stormwater management practices land use decisions.

Policy 5.5.7. Allow for development of wastewater facilities and improvements where needed or required to address water quality issues and maintain water quality, consistent with state and local wastewater system requirements.

Open Space and Scenic Views Goals & Policies

Goal 5.6: Coordinate with property owners to protect open spaces, scenic views, and scenic areas and corridors through a combination of incentives and/or educational programs.

Policy 5.6.1. Work with stakeholders to create and maintain a system of connected open spaces while balancing private property rights with community benefits.

Policy 5.6.2. Work to maintain the visual character and rural appearance of open spaces such as the area along Highway 97 that separates the communities of Bend and Redmond or lands that are visually prominent.

Policy 5.6.3. Work to maintain and protect the visual character and rural appearance of visually prominent open spaces within the County, particularly those that are identified in the Goal 5 inventory.

Policy 5.6.4. Seek to protect the cultural identity of rural communities, such as the Highway 97 area/corridor between Bend and Redmond, and others.

Policy 5.6.5. Protect significant open spaces, scenic views, and scenic sites by encouraging new development to be sensitive to these resources.

Policy 5.6.6. Incentivize the placement of structures in a way that is sensitive of view corridors to maintain the visual character of the area.

Wildlife Goals and Policies

Goal 5.7: Maintain and enhance a diversity of wildlife and habitats.

Policy 5.7.1. Promote stewardship of wildlife habitats through incentives, public education, and development regulations.

Policy 5.7.2. Ensure Goal 5 wildlife inventories and habitat protection programs are up-to-date through public processes, expert sources, and current or recently adopted plans and studies.

Policy 5.7.3. Provide incentives for new development to be compatible with and to enhance wildlife habitat.

Policy 5.7.4. Require, incentivize, or encourage clustering of development in inventoried wildlife areas to reduce impacts to wildlife populations.

Policy 5.7.5. Develop better understanding of The Confederated Tribes of the Warm Springs Reservation of Oregon's treaty-protected rights to co-manage the wildlife resources of the Deschutes Basin.

Goal 5.8: Balance protection of wildlife and habitat with the economic and recreational benefits of wildlife and habitat.

Policy 5.8.1. Encourage responsible and sustainable wildlife related tourism and recreation.

Policy 5.8.2. Coordinate with stakeholders to ensure access to appropriate recreational opportunities within significant wildlife and riparian habitat through public or non-profit ownership.

Policy 5.8.3. Coordinate with Confederated Tribes of the Warm Springs Reservation of Oregon and State agencies to develop strategies to support sound wildlife management science and principals for the benefit of the wildlife resource.

Goal 5.9: Comply with federal and state regulations related to sensitive, threatened, and endangered species, including the Endangered Species Act, the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and others as applicable.

Policy 5.9.1. Coordinate with Federal and State agencies to develop strategies to protect Federal or State Threatened or Endangered Species, or Species of Concern.

Policy 5.9.2. Mitigate conflicts between large-scale development and sage grouse habitat.

Policy 5.9.3. Consider adopting recommendations from Oregon Department of Fish and Wildlife, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Deschutes River Mitigation and Enhancement Program in dock construction.

Environmental Quality Goals and Policies

Goal 5.10: Maintain and improve upon the quality of air and land in Deschutes County.

Policy 5.10.1. Use building techniques, materials, and technologies in existing and future County operations and capital facilities that help maintain and improve environmental quality.

Policy 5.10.2. Implement a dark skies educational and or incentive program and periodically update the Dark Skies ordinance to reduce the impacts of light pollution and reduce lighting impacts on adjacent properties.

Policy 5.10.3. Coordinate with agency partners to educate residents about controlled burning projects and air quality concerns.

Policy 5.10.4. Use public education, education for County departments, and regulations to control noxious weeds and invasive species.

Goal 5.11: Promote sustainable building practices that minimize the impacts of development on the natural environment.

Policy 5.11.1. Use the County Code and educational materials to promote the use of resource-efficient building and landscaping techniques, materials, and technologies that minimize impacts to environmental quality.

Policy 5.11.2. Encourage and support reuse and recycling of consumer goods, green waste, construction waste, hazardous waste, and e-waste through education and enhanced recycling opportunities through the Recycling Program.

Policy 5.11.3. Support the process for siting new County solid waste management facilities in rural Deschutes County, consistent with facility needs and County standards for the location and approval of such facilities.

Policy 5.11.4. Implement best practices in solid waste management throughout the County.

Policy 5.11.5. Develop and implement a Climate Action Plan to address the potential future impacts of climate change on Deschutes County through incentives and/or regulations.

Policy 5.11.6. Promote and incentivize green infrastructure in new development to improve stormwater management.