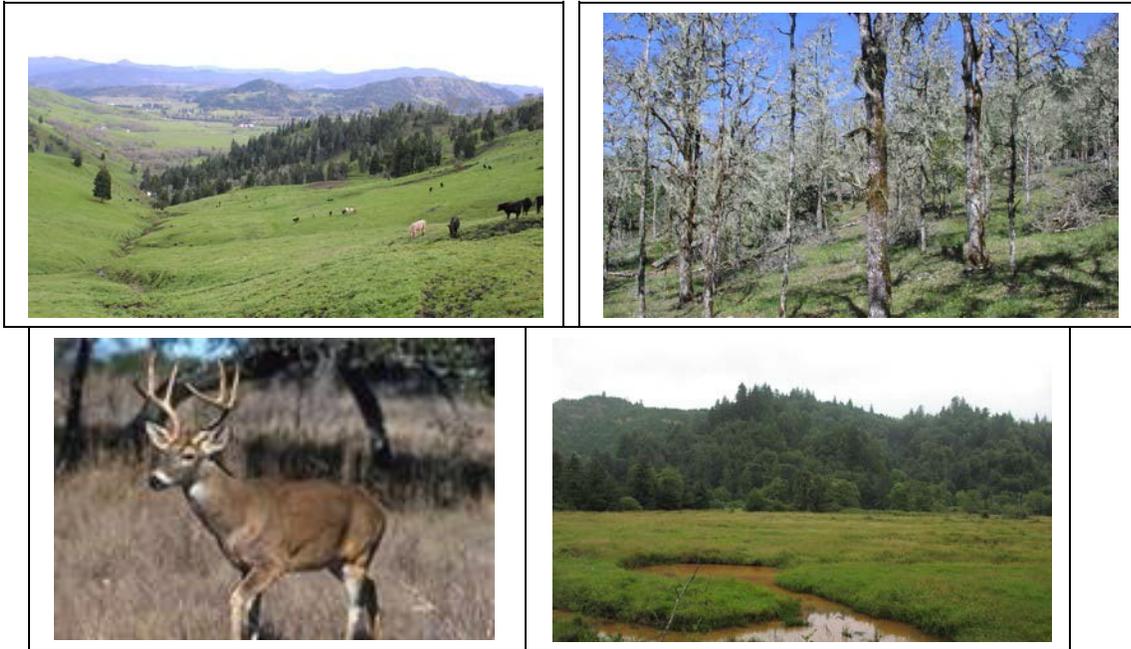


Douglas County NRCS Long Range Plan



Natural Resources Conservation Service

2020

USDA NRCS
Updated April 3, 2020

Ph. (541) 378-3536, 2593 NW Kline St, Roseburg, OR 97471

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EXECUTIVE SUMMARY

The Natural Resources Conservation Service (NRCS) in Douglas County consulted with conservation partners, and with local, state and federal agencies to determine high priority resource concerns and strategies best suited to our agency's resources to address those concerns. The priorities reflect the fact that NRCS works with private landowners in a voluntary capacity.

The highest priority resource concerns identified in Douglas County include:

- ✓ Forest Health. Forests are crowded and densely stocked, increasing fire intensity and danger and increasing vulnerability to insects and disease.
- ✓ Oak Woodland Conservation. Control invasive brush species and reduce wildfire hazards in oak savannas.

With further input and guidance from partners, the following strategies will be strategically focused on concentrated areas where we can coordinate our efforts with those of others and where our impact can be measured.

1. Forest Health

Provide land managers with technical and financial assistance to manage non-industrial privately-owned forests.

- Reduce threat of forest fire through healthy woodland stands and invasive species control

2. Oak Woodland Conservation

Provide land managers with technical and financial assistance to manage oak woodlands to be productive and provide important ecosystem services.

- Provide wildlife habitat through healthy woodland stands and invasive species control
- Reduce threat of forest fire through healthy woodland stands and invasive species control

NRCS PRINCIPLES & BACKGROUND

The Natural Resources Conservation Service

With the mission of “Helping People Help the Land,” the Natural Resources Conservation Service (NRCS) provides products and services that enable people to be good stewards of the Nation’s soil, water, and related natural resources on non-Federal lands. With our help, people are better able to conserve, maintain, or improve their natural resources. As a result of our technical and financial assistance, land managers and communities take a comprehensive approach to the use and protection of natural resources in rural, suburban, urban, and developing areas.

Since 1935, the Natural Resources Conservation Service (originally called the Soil Conservation Service) has provided leadership in a partnership effort to help America's private landowners and managers conserve their soil, water, and other natural resources.

NRCS employees provide technical assistance based on science and suited to a customer's specific needs. We provide financial assistance for many conservation activities. Participation in our programs is voluntary. Our Conservation Technical Assistance (CTA) program provides voluntary conservation technical assistance to land-users, communities, units of state and local government, and other Federal agencies in planning and implementing conservation systems.

We reach out and serve all segments of the agricultural community, including historically underserved (including beginning farmers, limited resource and socially disadvantaged farmers and ranchers), to ensure that our programs and services are accessible to everyone. We also provide technical assistance to foreign governments and participate in international scientific and technical exchanges.

We manage natural resource conservation programs that provide technical and financial benefits. Our science and technology activities provide technical expertise in such areas as forestry, ecology, engineering and other resource sciences.

We also provide expertise in soil science and leadership for soil surveys and for the National Resources Inventory, which assesses natural resource conditions and trends in the United States.



INTRODUCTION

The purpose of this document is to assist in directing the use of technical and financial resources by strengthening partnerships to more effectively address priority natural resource concerns in Douglas County. The goals and objectives identified for the long-range strategy for a five-year timeframe beginning in the 2020 federal fiscal year. This strategic approach involves local, state and federal agency partners as well as local stakeholder participation to provide guidance to identify problems and treatment opportunities important to the sustained use and management of natural resources.

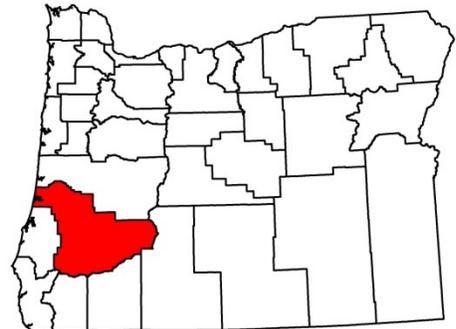
- Analysis of existing conditions of soil, water, air, energy, plants and animals
- Identification of natural resource problems and desired future outcomes
- Prioritization of problems & development of a portfolio of potential projects
- Implementation of actions including technical and financial assistance, and outreach

Vision: *Shared responsibility and commitment to local action achieves effective land stewardship.*

Mission: *To build alliances and strategically invest to effectively solve natural resource problems in Douglas County.*

OVERVIEW OF REGION

Douglas County is the largest county in southwestern Oregon, with 5071 square miles. It extends from sea level at the Pacific Ocean to the 9,182 foot peak of Mount Thielsen in the Cascade Mountains. It has the entire Umpqua River watershed within its boundaries. Over 50% of the land area of the County is owned by the Federal Government. These lands are managed by the U.S. Forest Service and the Bureau of Land management. The 2009 population estimate was 103,205, with 46 % of the population living in the 12 incorporated cities.

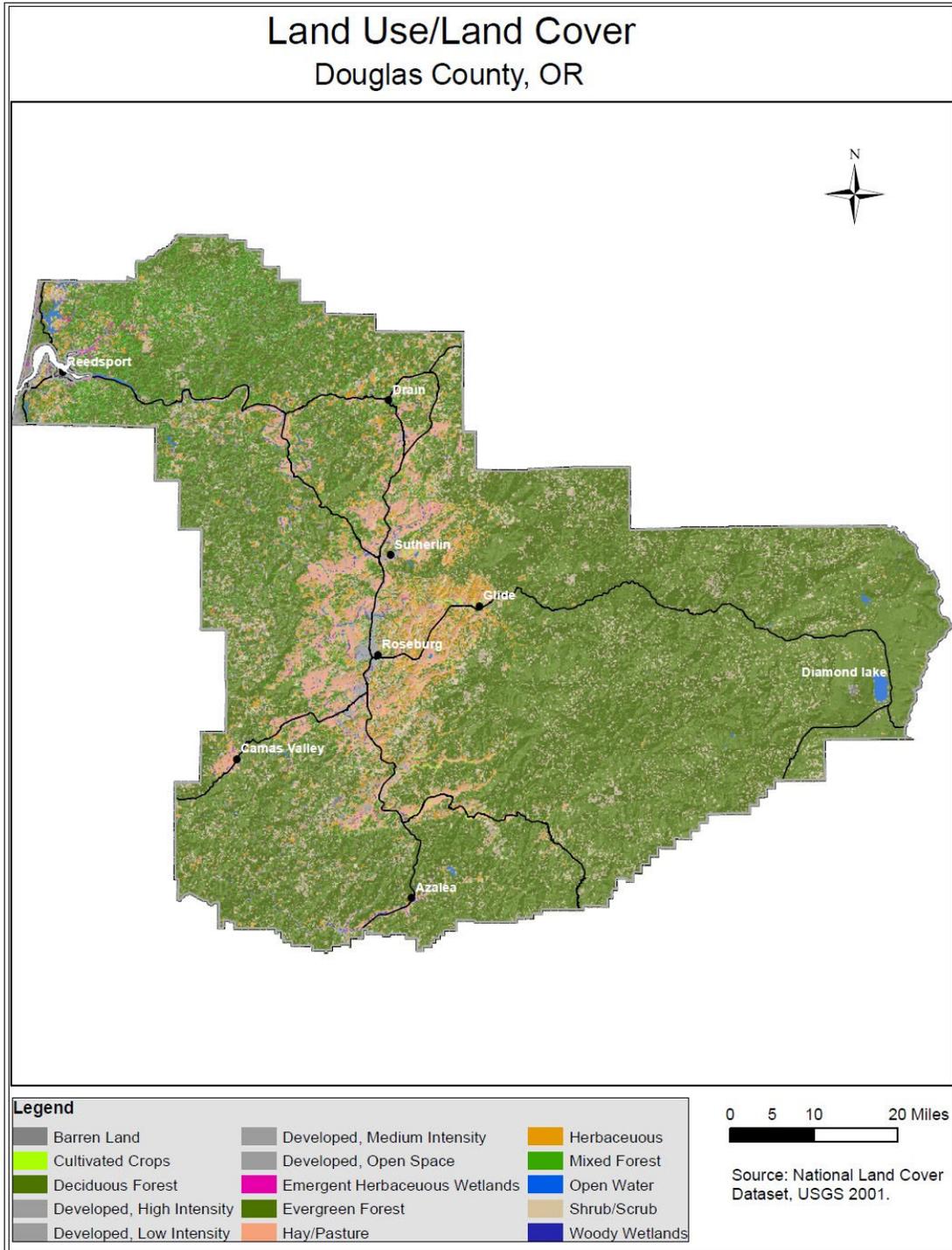


The county contains nearly 2.8 million acres of commercial forestlands. Approximately 25% of the labor force is employed in the forest products industry which includes numerous sawmills and other diverse wood products.

Agriculture is another important factor in the economy with field crops, orchards, and livestock as major products. Douglas County's agricultural production provides a diversity of jobs and income with total annual gross sales of over \$50 million. The mild climate and rich variety of soil types contribute to the successful cultivation of such crops as grapes, berries, nuts, melons, apples, plums and nurseries growing everything from exotic plants to Christmas trees. The area is a major sheep and cattle producer and other diverse forms of animal production from quarter horses to racing pigeons. More than 20 wineries produce award-winning varieties as part of Oregon's burgeoning wine industry.

The county is nearly equally split among three ecoregions: Coast Range, Klamath Mountains and West Cascades. It is well served by major transportation routes, including Interstate 5 and main

highways to the coast and the mountains. Major resource concerns in the region are forest health and noxious weeds. The forest lands are heavily overstocked and choked with brush, reducing vigor. The risk of catastrophic fire is high, endangering people and the ecosystem. Oak woodlands represent an important habitat type that is well represented throughout the county.



NATURAL RESOURCE INVENTORY AND ANALYSIS

This section will evaluate the major resources in the area and identify the best opportunities for strategic investment and improvement. The resources are categorized as humans, soil, water, air/energy, plants and animals to facilitate this discussion.

HUMAN RESOURCES

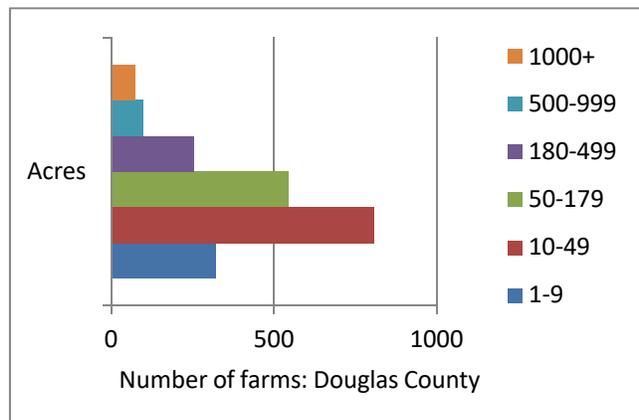
Archaeological evidence indicates that Native American settlement began at least 8,000 years before the arrival of Euro-American settlers. Estimates put native populations at around 3-4,000 in the valley at the time of European settlement. At least four tribal groups historically lived in the Umpqua River Basin: the Southern Molalla, the Lower Umpqua Tribe (also known as the Kalawatset), the Upper Umpqua Tribe and the Cow Creek Band of the Umpqua Tribe of Indians.



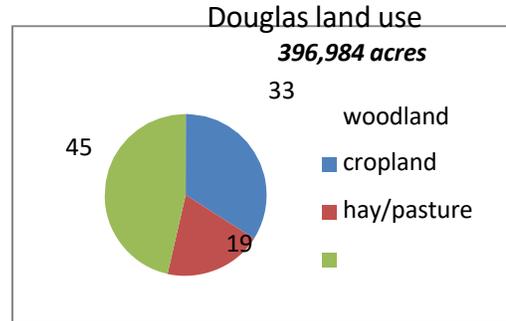
Although there are no speakers of their languages today, the tribes continue to be an essential force in the watershed, contributing to the local economy and caring for their people and their resources. Direct benefits of the tribe to the economy of Douglas County include the provision of 5,328 jobs related to the casino and other tribal activities, which generated \$192.4 million in wages and benefits in 2004. Indirectly, the tribe is associated with an additional 5,640 jobs that account for \$156.5 million in revenues in other sectors of the economy.

Demographics. In present day, Douglas County has 12 incorporated cities and 54% of the 103,205 residents live in rural unincorporated areas of the county. The population is not ethnically diverse with over 95% of the population listed as white, and 4% listing Hispanic or Latino origin. The Cow Creek Band of the Umpqua Indians is the only federally recognized tribe based in the County. The Confederated Tribes of Coos, Lower Umpqua and Siuslaw Tribe are on the lower Umpqua and Smith Rivers. Population increased less than 3% from 2000 to 2009. More than 14% of the population was reported to be living below the poverty level in 2008. Urban growth is localized in Sutherlin and Roseburg and is not as significant a factor as in other southern Oregon counties.

Economy. The County is well connected to the regional transportation system and is bisected by Interstate 5 as well as crisscrossed by two east-west routes connecting the coast and the high mountains. A wide range of natural resource-based recreation and tourism also contributes to the economy and lifestyle, including lakes, sand dunes, fishing and river recreation, and wine production and tasting.



Farm characteristics. There are 2095 farms with an average size of 189 acres. While the 56 listed Century Farms in Douglas County represent a solid long term farming community, there is at the same time an active turnover in ownership of medium to large ranches. A number of farm operators are experienced farm operators moving from another area and others are entering farming as a second career after retirement from other occupations. There is a modest trend toward support for local food production. A considerable number of landowners live on small acreages throughout the county and may or may not be utilizing their lands for commercial crop or livestock production.



Land use. Farm land use is 19% cropland, 33% forestland and 45% pasture. Crops produced in the county with a value in the top one third of Oregon sales include nursery/greenhouse, grapes, cattle and sheep. Forage, Christmas tree and grape acreages are in the top third of Oregon’s productive lands. Nearly half the operators are making their living primarily from farming and 37% of the principal operators are female.

Program participation. Land managers have demonstrated their interest and willingness to participate in government-sponsored programs. The average government payment per farm receiving payments is about \$10,000.

Conservation partners. There are other organizations which work with private landowners and conduct outreach education and volunteer activities in the region. There are two Soil and Water Conservation Districts; the northern-coastal area of the county is served by Umpqua SWCD and Douglas SWCD serves the rest of the county. Watershed councils have also been functioning throughout the region since the 1990’s. The Partnership for the Umpqua Rivers was initially the entity covering the whole watershed, but the Smith River and Elk Creek watersheds have formed their own distinct councils in recent years.

Agriculture Quick Facts: 2010 Ag census	
Total no. farms	2,095
Avg. farm size	189 ac.
Cropland	19%
Woodland	33%
Pasture	45%
Irrigated	16,422 ac.
Net cash income avg. per farm	\$ (450)
Avg. govt. pymt/farm	\$ 9,250
Value of sales in state top 1/3	Nursery/ greenhouse, cut Christmas trees/ woody crops, cattle, hogs, sheep, aquaculture
Crops in state top one third by acreage	Forage/hay, Christmas trees, grapes
Livestock inventory in state top 1/3	Cattle, sheep, layers, horses, goats
Century farms	56

Conservation Partners areas of strength and/or involvement:

Conservation Partners	Project partner	Technical assistance	Project funding	Outreach, tech. transfer	Resource priorities
Federal Agencies, Tribes					
Bureau Land Management	×	×	×		Forest, fuels
Farm Service Agency	×		×	×	All resources
National Marine Fisheries Service	×	×	×		Wildlife
US Fish & Wildlife Service	×	×	×	×	Wildlife
USDA Forest Service	×	×	×		Forest, fuels
Cow Creek Indian Tribe & CTCLUSI Tribe	×	×	×	×	All resources
State Agencies & Organizations					
Department of Agriculture	×		×		Water quality
Department of Energy		×	×		Energy
Department of Environmental Quality	×	×	×		Water, Air
Department of Fish & Wildlife	×	×	×	×	Wildlife
Department of Forestry	×	×	×	×	Forest, fuels
Energy Trust			×	×	Energy
OSU Extension Service	×	×		×	Human resources
Water Resources Department	×	×			Water quantity
Local Agencies & Organizations					
Douglas County Weed Board	×	×		×	Plants; noxious weeds
Douglas & Umpqua Soil & Water Conservation Districts	×	×		×	All resources
Umpqua Oak Partnership	×	×	×	×	Forest, Oak
Douglas County Natural Resources Department	×	×		×	Forest, fuels
The Nature Conservancy	×	×	×	×	All resources
Watershed Councils: Partnership for Umpqua Rivers, Elk Creek, Smith River	×	×	×	×	Water quality, quantity, wildlife

Unique local organizations. In addition to typical state and federal partner agencies, there are a couple of organizations somewhat unique to or particularly active in conservation work in our region:

- Umpqua Bio-Alternatives Cooperative – fostering biofuels development
- Phoenix School – sponsoring a large youth natural resources program
- Wolf Creek Job Corps – regional US Forest Service Job Corps site

Progress to date. Work has been done to educate local residents about natural resources in the area. Organizations such as Watershed councils, OSU Extension, My Southern Oregon Woodlands, and Umpqua oak Partnership reach out to the public to provide more awareness and promote better stewardship.

Future needs. Goals for improving the human element in the natural resources equation will involve continuous outreach and education to remind new and old residents of the importance of

natural resource management. Education efforts need to keep pushing beyond fostering awareness and strive for changing behaviors which support healthy watersheds and ecosystems.

Importance of economics. Another important factor influencing conservation activity and private lands management is economics. In Douglas County, private owners and operators are limited by economic constraints in their ability to implement conservation. Incentives will continue to be used as well as efforts to help make private land management activities more cost effective and economically viable. Continued support for the development of markets and improving the economic viability of food and fiber production, as well as forest management, is needed to support active conservation by private landowners.

Roles and priorities for NRCS.

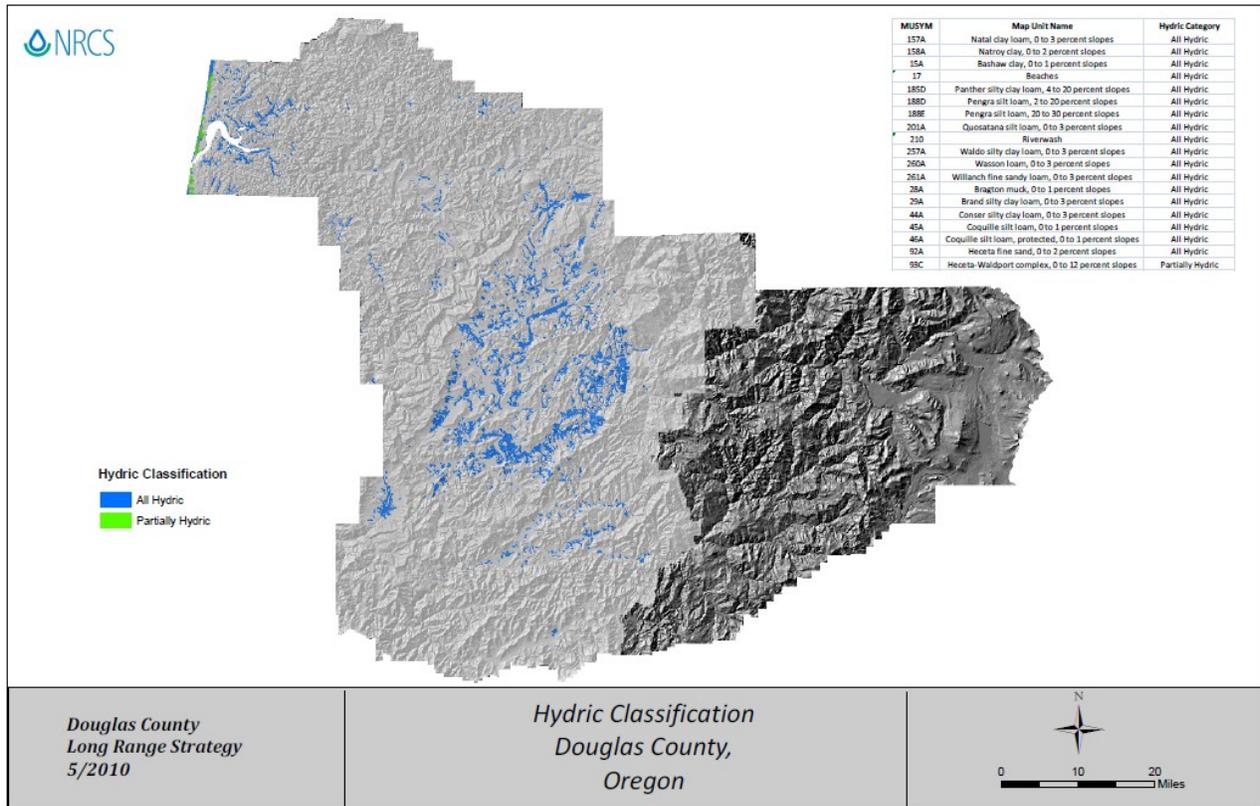
NRCS programs provide an opportunity to work closely with landowners delivering direct technology transfer and financial assistance to implement conservation measures. Staff members are also regular participants in trainings, tours, seminars and workshops organized by partners. Working effectively with partners to provide outreach and education will continue to be a priority for NRCS.

SOIL RESOURCES

Douglas County can be divided into three distinct geographic provinces including: the Klamath Mountains, the Coast Range Mountains and the Western Cascade Mountains. Three additional areas are considered significant subdivisions of the Klamath Mountains and Coast Range Mountains provinces. Each area has unique geologic, climatic, topographic, vegetative, and soil features.

There is generally good soil condition in the county, with good organic matter content and minimal erosion. Some localized areas suffer from erosion, such as Deer Creek, which has steep narrow canyons. Intensive small acreage development directly on the streambanks includes areas with intense livestock use without sufficient cover and damage from overuse by livestock.

Most soil map units either have hydric inclusions or are considered hydric in the private land areas of Douglas County. There is considerable amount of soils that exhibit these characteristics.



Progress to date. The primary accomplishments associated with soil health have been in reducing sedimentation through best management practices in livestock management, forestry, and protection of heavy use areas.

Future needs. Healthy, productive soils will continue to benefit from best management practices that reduce compaction and surface erosion, including maintaining cover, protecting heavy use areas and minimizing runoff. The Farm and Ranch Protection Program may be able to provide assistance to retain ag lands that are at risk of conversion to other land uses.

Role and priorities for NRCS.

NRCS will continue to actively advocate for soil health through a wide variety of assistance to private landowners. Efforts to implement the use of forest management, pasture management, and buffer practices should be focused in areas identified as high priority for water quality improvements. We will work with partners to help plan and implement work that will complement stream restoration work being undertaken by partners.

WATER RESOURCES

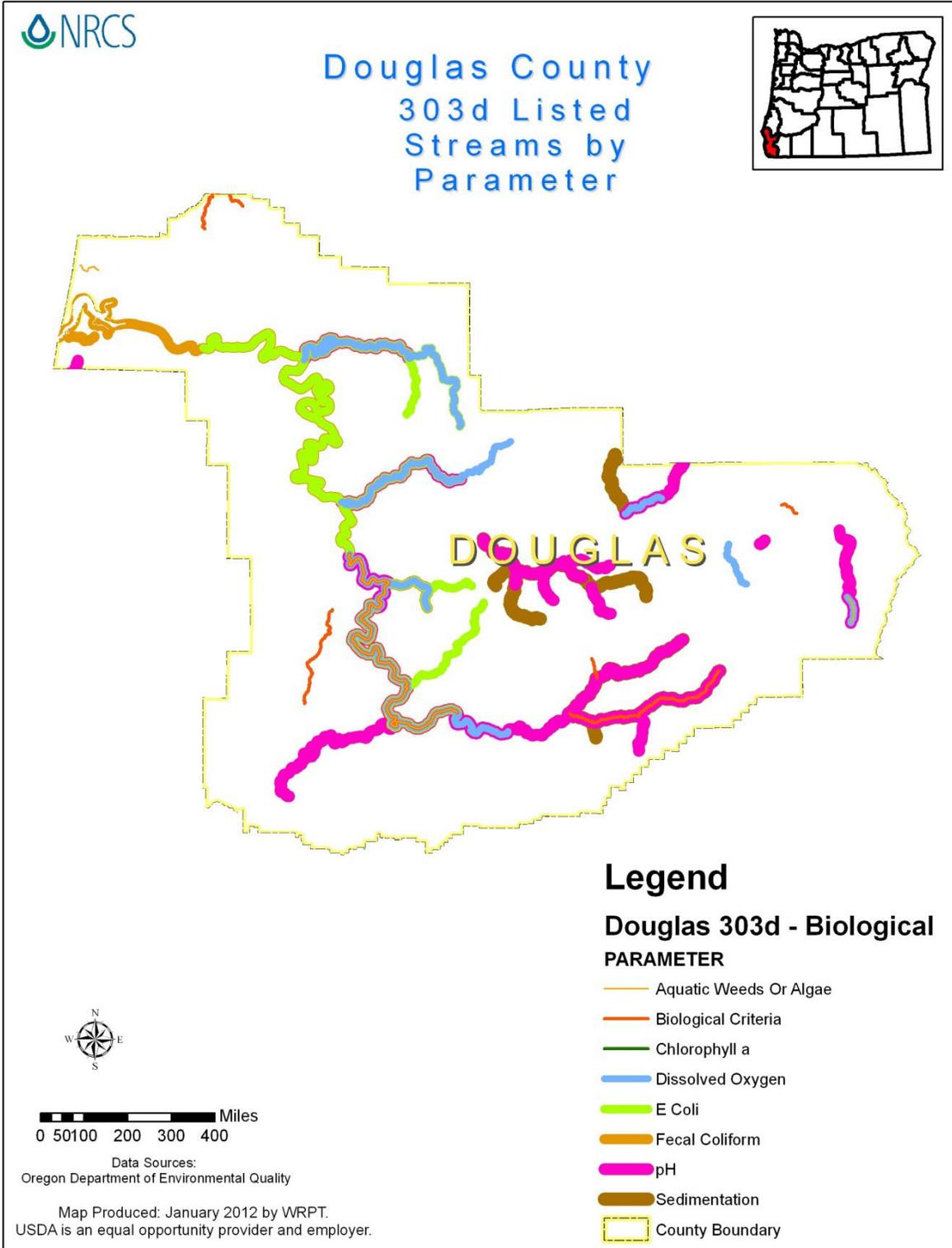
The boundaries of Douglas County are almost identical to the Umpqua River watershed. The Umpqua River is one of only two Oregon rivers having headwaters in the Cascade Mountains and cutting through the Coast Range to the Pacific Ocean. The river enters the Pacific Ocean in the center of Oregon's dune country near Reedsport. The lower reaches of the Umpqua and Smith Rivers provide important estuary and wetland functions. Water quality issues related to high temperature is inhospitable to fish populations.

Water quantity is also an important factor with seasonal changes in water quantity posing significant challenges for fish, wildlife and irrigation. There are two substantial reservoirs that regulate stream flows, providing irrigation and recreation for the adjacent communities. Approximately 16,400 acres are irrigated, mostly by sprinkler systems.



Surface water is the main source for seasonal irrigation throughout the county. Almost all irrigation water withdrawals are from individual sites on streams. There are three small irrigation districts in the county. Municipal and public water supplies are mostly based on surface water sources, but most individual rural households are served by wells.

Water quality issues are important and impact all beneficial water uses. High temperatures are the most commonly cited impairment factor in the county. Other factors are locally important including dissolved oxygen, bacteria pH fecal coliform and naturally occurring toxins such as mercury and arsenic.



Estuaries. This highly complex, productive habitat occurs near the mouth of the Smith River and Umpqua River. It is critical for many game and non-game fish and wildlife species, including salmon, crabs and other shellfish, marine mammals and seabirds. By some estimates, estuaries support up to three-quarters of all harvested fish species, and this is largely due to the high productivity of seagrass beds and a high concentration of phytoplankton. Seagrasses grow underwater in estuaries and have the highest productivity of any plant.

Efforts to maintain and restore estuaries will benefit many wildlife and commercially important species. Estuaries provide wintering habitat for waterfowl, migration stopover feeding areas for shorebirds, mineral sources for band-tailed pigeons, as well as forage for big game populations.

Estuarine habitats have been impacted by human development and uses, such as dredging, hydrologic modifications, and urbanization. Salt-marshes and other tidal wetland types have been diked, drained, and converted to pasture, resulting in substantial habitat loss. Historically there were considerably more wetlands and estuaries on the southern coast. It is estimated more than 50,000 acres of wetlands and estuary in this region have been drained for farm land over the course of European settlement. Much of the farmland today is dependent on tide gates, drainage systems and diking constructed over time.

Wetlands. Wetlands provide important habitat for migrating and breeding waterfowl, shorebirds, waterbirds, songbirds, fisheries, mammals, amphibians and reptiles. In addition to being critical for birds and many kinds of wildlife, floodplain wetlands and backwater sloughs and swamps are important rearing habitats for juvenile salmon. Wetlands have direct value for people because they improve water quality by trapping sediments and toxins, recharge aquifers, store water, and reduce the severity of floods. Restoration and careful management of wet meadow systems and other wetlands can increase sustainable production of forage for livestock and increase late-season stream flows.

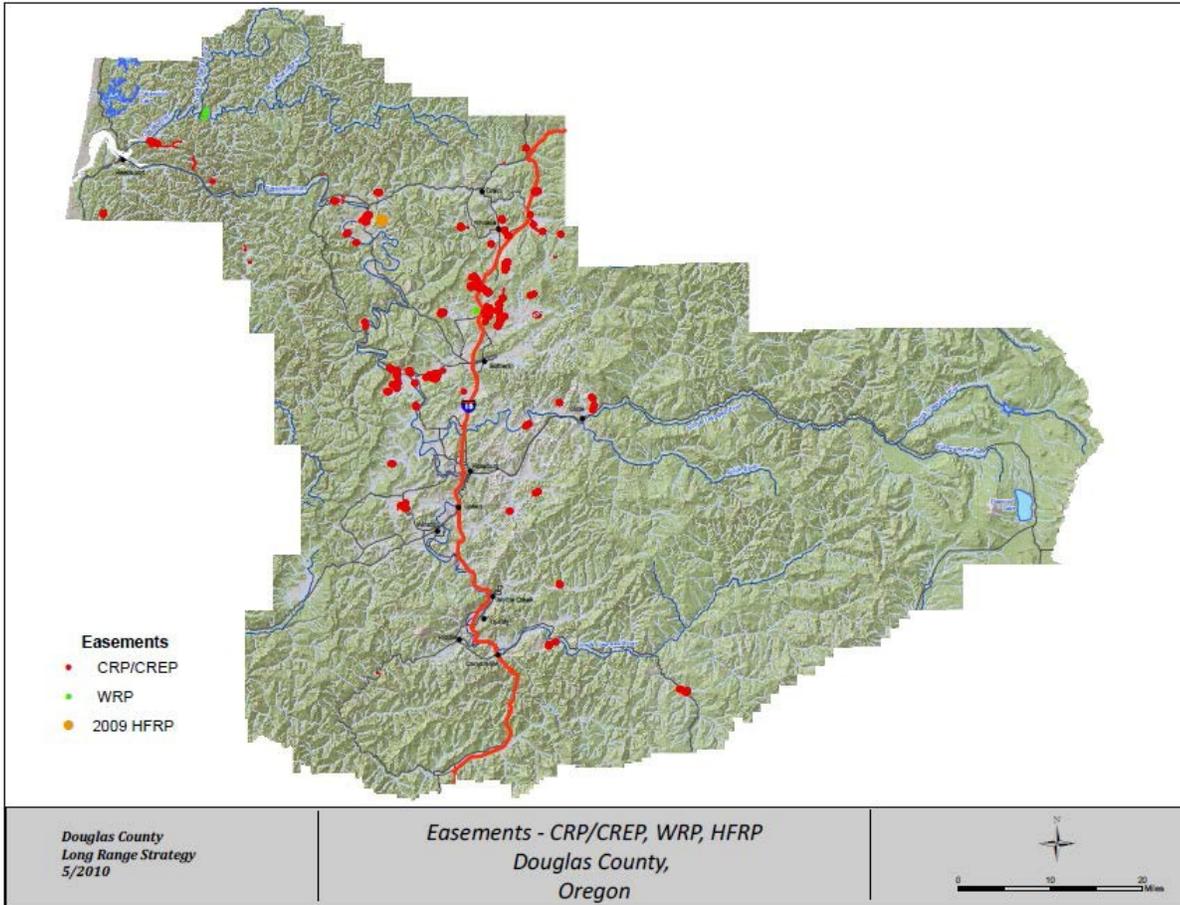
In general, most wetland habitat loss has occurred at lower elevations and valley bottoms. Many of these wetlands have been drained and converted to urban or agricultural use. Coast Range wetlands are vulnerable to development as more people relocate to be near the coast. Although wetland drainage is now discouraged, continuing development is a threat to some remaining wetlands. In addition, the ecological processes that create coastal wetlands (such as landslides, beavers, or logjams blocking streams) often are not compatible with current land uses, especially in more developed areas.

In-Stream Riparian Habitat.

In-stream and associated riparian habitat are critical for the health and recovery of fish species that utilize the streams for their lifecycle. Complexity of available habitat is lacking in many streams, reducing the habitat value for spawning, rearing, and migration of salmonids, lamprey, and other fish populations. Installation of structures that add stream complexity would greatly enhance conditions for the fish species. Stream complexity is lacking many times on lower and mid-elevation streams that provide connectivity and migratory corridors to upper elevation streams and habitat.

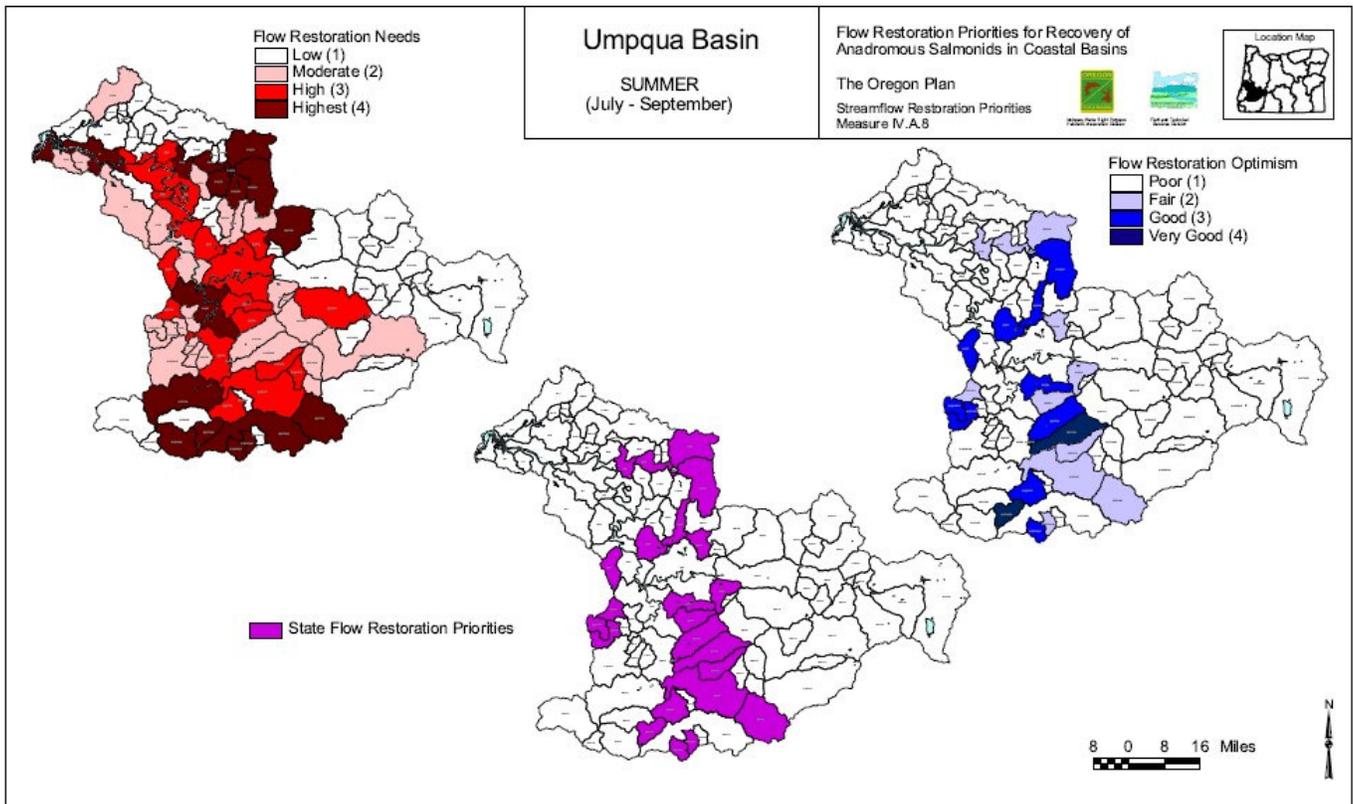
Progress to date.

Extensive work by watershed councils, SWCDs and private landowners has had an impact on water quality, including creating vegetative buffers, hardened crossings, manure storage, pasture management, riparian restoration and erosion control. The Conservation Reserve Enhancement Program (CREP) has 95 ongoing contracts and includes coverage of over 105 miles of riparian area including over 10 miles on Pollack Creek. The Cow Creek Band of Umpqua Tribe of Indians is taking a leadership role also in improving conditions for salmon and lamprey including work in the Tiller area on Elk Creek.



The Partnership for Umpqua Rivers has conducted an extensive assessment process on the 18 fifth-field HUCs in the basin. This provides a resource of prioritized concerns and opportunities from a salmon restoration perspective. The Oregon Water Resources Department and the Oregon Department of Fish and Wildlife have also collaborated on a prioritization of opportunities to address low flows in the region.

The Umpqua SWCD has completed a full inventory of all tide gates in the Umpqua River Estuary. Sixty-three tide gates were identified and conditions noted. Umpqua SWCD and NRCS along with federal and state agency partners and the CTCLUSI tribe are planning some steps in the Umpqua Estuary to restore and improve wetland and riparian habitat for salmonids and other migratory fish and wildlife species. Prioritized actions include improvements and replacements to existing tide gates and associated habitat. There is potential to utilize NRCS programs such as EQIP, Conservation Innovation Grant and the ACEP-Wetland Reserve Easement to assist in improving the function of tide gates for partial fish passage and farming drainage and in some cases, to allow restoration of partial tidal hydrology to associated wetlands. Other grant programs such as the NOAA Coastal Resiliency Grant programs are being explored. Other easement programs administered by other agencies/entities may also provide assistance in addressing this resource concern.



Role and priorities for NRCS.

Water quality and quantity will be a lower priority for NRCS assistance in Douglas County as compared to forestry and oak habitat conservation. Strategies focusing on water quality and quantity are outlined in the strategic approach section of this plan. Livestock management practices can minimize contributions of livestock to water quality problems. Increased installation of stream buffers can also improve water filtering capacity significantly along with improvements to stream health. Improving tide gates for improved fish passage can benefit listed species. These elements will be most effective if implemented in concert with partners and in a focused manner in specific areas. Initial steps will be to develop focus areas and concentrate efforts to maximize the benefit to the resource.

AIR RESOURCES

Air quality in Douglas County is generally good, with few associated risks to human health. There is currently no designated Air Quality nonattainment Area. One noteworthy exception to relative air quality is open burning of forest debris and wildfires. Large-scale wildfire events have been known to pose serious risks to people with breathing-related illnesses, for whom the only recourse is to stay indoors.

Needs and opportunities.

Measures to reduce catastrophic wildfire will serve to promote air quality and reduce risks to human health. Alternatives to open burning of forest residues have the potential to improve air quality and contribute to renewable energy development in the area.

Role and priorities for NRCS.

Forest management improvements and fuels reduction work have the potential to improve summer air quality concerns across the region and minimize human health concerns from wildfire. NRCS will continue to address the issue of air quality through assistance to private landowners to integrate air quality concerns into all conservation activities.

ENERGY RESOURCES

The main energy sources in the agricultural and forestry sectors are gas/diesel fuels and electric power. Other sources of energy include natural gas and biomass-generated electricity. Electricity is provided by Pacific Power & Light in and around the City of Roseburg and by Douglas Electric Cooperative in many rural areas. WP Natural is the natural gas company serving the area.

Wave energy could be pursued through experimentation offshore from Reedsport. The Umpqua Bio Alternatives Cooperative is a small citizen-lead cooperative working to develop renewable and alternative fuel options for local residents. Solar energy is not widely utilized in these sectors locally. Low average wind velocities make most of the county ill-suited to development of wind power generation even for smaller scale alternatives.

Forest biomass. Biomass from forest waste represents an important energy resource which is not being fully utilized due to logistics and costs of handling and transporting the material. Roseburg Lumber has biomass cogeneration facilities and routinely buys biomass generated from milling and forest management activities. Efforts are also being made throughout the five-county area to evaluate the potential to convert more boilers in the region to wood energy sources, creating more local markets for biomass utilization. Extensive community interest has been demonstrated in discussions focused on development of biomass utilization and alternatives which have the potential to improve air quality and provide renewable energy. A demonstration project was sponsored by the county to evaluate opportunities to use mobile facilities to conduct fast pyrolysis to render wood waste into a useable fuel. The South Umpqua Rural Community Partnership has already implemented a Conservation Innovation Grant which demonstrated Bio-Char production and innovation of kiln techniques.

Needs and opportunities.

Due to high and fluctuating prices, most producers are motivated to limit their overall costs and their energy dependence. In the agricultural sector, the biggest opportunities are through reducing demand through energy conservation. Conservation achieved through improved management and systems installations can also provide economic advantages over time. Irrigation and livestock systems represent the largest opportunity to upgrade energy systems in this region. Another indirect opportunity is to decrease transportation of produce through high tunnel systems, which extend local growing seasons and can increase consumption of locally grown foods. Energy conservation will help make the area more self-sustaining and stimulate the viability of agriculture by reducing costs of production.

Role and priorities for NRCS.

NRCS technical and financial assistance are among some of the few resources available to private land managers to design and install upgraded systems in agricultural operations. NRCS technical specifications are designed to provide the energy benefits while maintaining positive effects on other resource concerns. To that end, NRCS efforts to assist with energy conservation can be combined with efforts designed to address other resource concerns at the same time. NRCS will also continue to support biomass removal from forestland through forest stand improvement and fuels reduction projects.

PLANTS

Douglas County is characterized by three different ecoregions: Klamath Mountains, West Cascades and Coast Range. These regions share the characteristics of steep topography and diverse plant populations. The Klamath Mountains ecoregion is renowned for unique native plant populations including numerous endemic, rare and endangered species, and it is one of only seven North American Areas of Global Botanical Significance. Both West Cascades and Coast Range ecoregions are dominated by highly productive coniferous forests, the majority of which are under federal management. Oak Woodlands, which have been identified as a critical declining habitat, are found in fairly large quantity and show good potential for restoration in Douglas County. The predominant use of lower elevation agricultural lands is livestock grazing. These managed lands are

Threatened & Endangered Plant Species
Douglas County

Listed as of December 3, 2011

- Gentner's fritillary *Fritillaria gentneri* E
- Kincaid's lupine *Lupinus sulphureus ssp. kincaidii* CH T
- Rough popcornflower *Plagiobothrys hirtus* E

Candidate

- Whitebark Pine *Pinus albicaulis*
CH: critical habitat
T: threatened
E: endangered

particularly important because of their potential to help buffer and filter water. The discussion in this section is divided into forests, pasture lands and native plant communities to facilitate analysis.

Forestlands.

Forests are of such importance in the county that they deserve individual treatment in this plan. Forests and woodlands constitute more than 73% of the land use in the region. Nearly half of the total land in the county is federally managed forest lands. Private industrial and non-industrial acreage make up a smaller portion of the remaining forest land ownership. Approximately 33% of land is forested in the county, with most farms having some forest land as a component of their total acreage.

Forests are characterized by a diverse range of coniferous and hardwood species. Lower elevation and riparian areas have diverse deciduous vegetation. It is estimated by Oregon Department of Forestry that more than half of the forestlands need treatment. Much of the forest land suffers from over-stocking which increases fire risk, increases vulnerability to insects and disease and reduces stand productivity. Crowded forests do not provide good habitat for fish and wildlife species and do not serve watershed functions as well as healthy stands. Some overstocked and brushy stands call for the removal of up to 25 tons of biomass per acre. Contributing further to these negative aspects are dense stands of brush and invasive species. Hawthorne stands out as a particularly detrimental invasive plant impacting significant acres in the northern part of the county. Scotch broom and Armenian (Himalayan) blackberry is widespread on forest land and its presence is problematic for regeneration of desirable forest species.

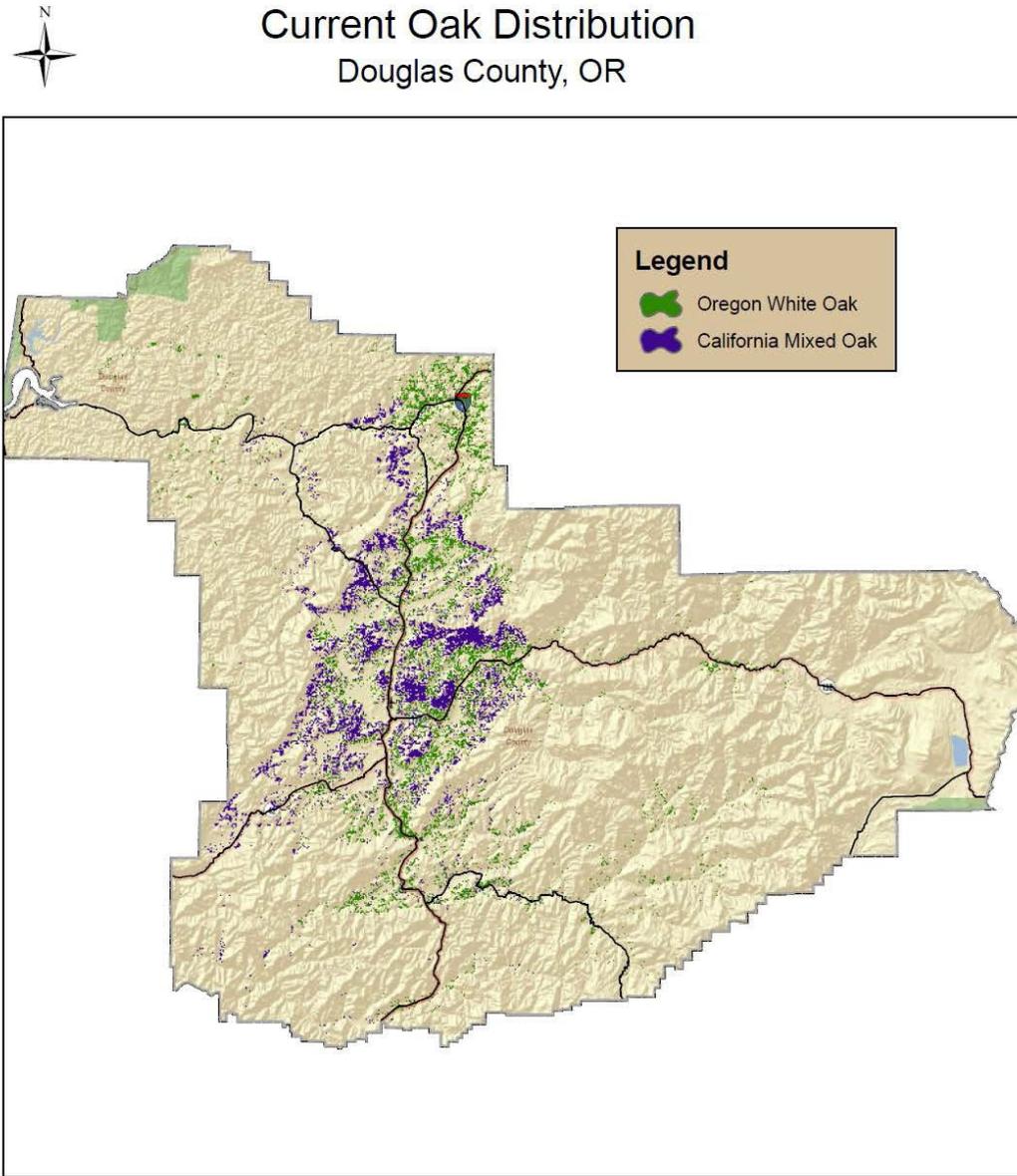
Forestlands provide essential habitat for many bird species. Spotted owl has been a focal species and is currently declining in population. Ongoing efforts to provide appropriate habitat include utilizing easement programs such as the Healthy Forest Reserve Program to improve working forestlands and provide long term habitat conditions and certainty for landowners in improving conditions for the spotted owls in forestlands. Many partners are participating in delivery of this program and its use as a tool to address this resource concern is expected to continue.

Oak woodlands. Oak woodlands are present throughout lower elevations of the Umpqua River Basin. Over the past 100 years, Oregon white oak and California black oak plant associations have significantly declined in abundance and distribution. It is estimated that only 4-7% of historical oak woodlands remain in Oregon. The oak woodlands in Douglas County are seen as some of the best remaining populations of this ecosystem and habitat type in Oregon. The majority of extant oak stands are at risk from various threats or they lack structural diversity characteristic of healthy, functioning habitats.

In California and Oregon, oak woodlands and savannahs are richer in wildlife, than any other terrestrial system. More than 300 vertebrate species are known to use oaks, including dozens of resident and migratory birds. The Columbia White Tail Deer, a now de-listed species of concern in Douglas County, relies upon the Oak habitats for its survival in Douglas County. Oak habitats are important contributors to biodiversity in the Pacific Northwest, supporting communities of plants and animals that are remarkably different from adjacent agricultural fields and conifer forests.

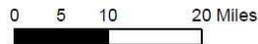
Numerous factors contribute to the loss of oak habitats, including: encroachment of conifers, severe wildfire events/threats, fire suppression and lack of frequent low-intensity fires, and the establishment of dense, young oak stands and invasive plants. Stands typically lack structural

diversity (large cavities, platforms, bunchgrasses, wildflower richness etc.), produce fewer acorns, and are characterized by high fuel loads. As a result, oaks across the landscape are experiencing a decline in health, vigor, and wildlife benefits or are at risk to uncharacteristically severe wildfire.



NAME	OR_WHITE_OAK ac.	CA_MIXED_OAK ac.
DOUGLAS	39935	43889

Source: Oregon Natural Heritage Information Center, 2008.



Progress on forest health. Significant acreages of oak woodland restoration have been completed in the northern county. Upwards of 3,000 acres have been treated in recent years. Significant interest by the livestock and ranching community has been shown in recent years. The HFRP program has a number of enrolled easements providing spotted owl habitat on 483 ac.

Hay and Pasture Lands

Hay and pasture represent more than 45% of the farm land use in Douglas County and livestock is an important source of income and economic support in the region. For livestock inventory rankings in the state, Douglas County is listed first for goats, second for sheep, and eighth for cattle and calves. Livestock management represents an important opportunity for applying best management practices that can benefit natural resources as well as boost livestock health and productivity. Most grazing takes place at lower elevations and close to important riparian areas where the application of best management practices has been shown to have a positive effect on improving and maintaining surface water quality and quantity.

Hay and pasture progress. A number of programs in the region have shown progress addressing livestock management and riparian areas. Many livestock management practices such as rotational grazing have had a positive benefit on the control of invasive species. Another program that has contributed to improved flora are the Conservation Reserve Enhancement Program (CREP) projects which promote planting of native species in the riparian areas and restricting grazing pressure in those sensitive areas.

Native Plants.

The climate and geography of Douglas County create very desirable conditions for native as well as non-native and invasive species. Unique plant communities are seriously threatened by invasive species and by changing land-use practices. The invasive species that are the most detrimental on a landscape scale in this region are Scotch broom, blackberries, English hawthorn and gorse. Scotch broom is also noted for aggravating wildfire risk and damage. Blackberries have overrun riparian areas and degraded that important habitat throughout the county. Other important, but localized species of concern are rough popcorn flower and Kincaid’s lupine which occur in localized small areas.

Known invasive plants of Coast Range, Klamath Mountains & W. Cascades			
American beach grass	Elodea	Knotweeds	Quack grass
Armenian blackberry	English holly	Leafy spurge	Reed canary grass
Black locust	English ivy	Matgrass	Rush skeleton weed
Bull thistle	Eurasian milfoil (aquatic)	Meadow hawkweed	Scotch broom
Butterfly bush	European beachgrass	Meadow knapweed	Silver wattle
Canada thistle	False brome	Mediterranean sage	Spanish Broom
Carolina fanwort	Fennel	Medusa head	Spotted knapweed
Common Cordgrass	Foxglove	Mouse ear hawkweed	St. John’s wort
Common reed	Fragrant water lily	Orange hawkweed	Tansy ragwort
Curly leaf pondweed	German (Cape) ivy	Pampas grass	Tree of heaven
Dalmation toadflax	Giant hogweed	Parrot’s feather	Watercress (aquatic)
Diffuse knapweed	Gorse	Portuguese broom	Wooly distaff thistle
Dogtail	Iberian thistle	Puncture vine	Yellow flag iris
Dyers woad	Japanese eelgrass	Purple loosestrife	Yellow starthistle
<i>From ODFW Oregon Conservation Strategy</i>			Yellow toadflax

Progress related to native plants. Coordination among agencies has been occurring through the county weed board for decades. Douglas SWCD and Umpqua SWCD have taken the lead on securing grant funds and treating noxious weed problems for numerous large landowners and agencies. They currently treat 12 species on up to 14,000 acres yearly. Annual weed days provide education for a wide range of publics and ensure certification and education related to pesticide use and safety. An annual weed tour is also held to introduce people to new weeds and demonstrate best practices.

Riparian restoration projects have helped address invasive species in riparian areas, especially noteworthy are the Conservation Reserve Enhancement Projects (CREP) which have been extensively implemented in the northern county area. There is potential to provide better control of invasive species through a variety of improved management practices in forestry and agriculture. Tree planting and CREP projects have resulted in weed removal and native tree/shrub plantings in riparian areas.

Needs and opportunities for all plant resources.

The unique and special habitats of southern Oregon need restoration and protection. Landowners will have ongoing needs for assistance with Best Management Practices suited to local plant communities and their individual land management goals. Attempts to increase connectivity, maintain larger areas and minimize fragmentation will also benefit unique plant and animal communities. Considerable thinning and control of invasive brush species are needed to improve oak woodland stands.

Forest health and excess fuels are a very high priority in the region, with forest health impacting water quality and quantity, human health and safety, and fish and wildlife habitat. Although expensive and daunting in scope, forest health needs to continue to be addressed. Prioritization of fuels reduction work will be facilitated by maintaining and nurturing partnerships and cooperative efforts. A skilled and affordable workforce is also a priority to accomplish the volume of work needed.

Pasture and oak savanna land have an excess of invasive brush species present which reduce the grazing productivity of these lands. Implementation of rotational grazing can improve the productivity of the pastures and assist in reducing invasive plant pressures. Improvement in pasture conditions benefits many species of mammals and birds. The ranching community has been very interested in participating in improving these lands.

Noxious weeds are a constant threat benefitting from coordination, vigilant early detection; further education and outreach are needed. There is potential to improve control of invasive species through a variety of Best Management Practices for forestry, livestock and crop production.

Role and priorities for NRCS.

Strategies targeting forest health, noxious weeds, and oak woodland/savanna are outlined in the strategic approach section of this plan. NRCS programs provide financial and technical assistance to private landowners to address plant resource concerns primarily in forest and livestock management. Good livestock management is an effective tool to manage many noxious weeds and prevent new infestations. Active forest management reduces fuel loading and overstocking as well as generating a healthier forest condition needed to support clean water, fish and wildlife populations.

ANIMAL RESOURCES

The Klamath Mountain, West Cascades and Coast Range ecoregions provide important habitat for birds and terrestrial wildlife species. Salmon and other fisheries stand out as highly significant. Coho salmon is listed as a Threatened species in Douglas County. The populations tend to fluctuate depending upon a number of factors. Spring Chinook and summer steelhead runs to the North Umpqua River are relatively healthy and support world-famous fisheries. Temperature is the most common water quality factor affecting fish populations throughout the region. In-stream habitat and fish passage are also critical issues on this region. Significant improvements in streamside restoration using the CREP program are improving habitat.



The region also provides

important habitat for birds and terrestrial wildlife species. Douglas County represents some of the healthiest oak woodland habitat in the state, which is particularly important for neo-tropical migrant birds. The county also provides important habitat for spotted owl and Columbia white-tailed deer, which has recovered from previously low numbers

ODFW has completed a thorough statewide analysis of critical habitats and the species that they support. The habitats, limiting factors and suggested approaches to improve the situation concluded by ODFW are summarized here.

Summary of important habitat types

Riparian and freshwater aquatic. Freshwater aquatic systems provide essential habitat to many at-risk species, including important spawning and rearing habitat for salmonids, breeding habitat for amphibians, and habitat for freshwater mussels and other invertebrates

Threatened & Endangered Animal Species Douglas County

Listed as of December 3, 2011

- Marbled murrelet *Brachyramphus marmoratus* CH T
- Western snowy (coastal) plover *Charadrius alexandrinus nivosus* CH T
- Short-tailed albatross *Phoebastria albatrus* E
- Northern spotted owl *Strix occidentalis caurina* CH T
- Loggerhead sea turtle *Caretta caretta* E
- Green sea turtle *Chelonia mydas* T
- Leatherback sea turtle *Dermochelys coriacea* E
- Olive (=Pacific) ridley sea turtle *Lepidochelys olivacea* T

Candidate

- Fisher *Martes pennanti*
- Red tree vole *Arborimus longicaudus*
- North American wolverine *Gulo gulo luscus*

CH: Critical habitat

T: threatened

E: endangered

Barriers and diversions can reduce flow and interfere with hydrology and fish and wildlife migration. Channelization and development can restrict meander, limiting the quality and availability of these habitats, and affecting floodplain function. Limiting factors include water quality, water quantity, water temperature, invasive species, passage barriers, sedimentation, and lack of in-stream habitat complexity and degradation of habitat.

Coastal Dunes. *Coastal dunes include beaches, foredunes, sand spits, and active to stabilizing back dunes. The vegetation varies from sparse to forested, as influenced by sand scour, deposition, movement, and erosion. With plant succession, dunes convert over time to shrublands dominated by salal and evergreen huckleberry and forests. Dunes have been dramatically altered by the introduction of European beach grass. Limiting factors include invasive species, recreational impacts and development.*

Coastal bluffs and montane grasslands. *Habitat for unique plant communities and invertebrates such as butterflies, includes Coastal bluffs and headlands. Limiting factors include encroaching conifers and shrubs and invasive plants*

Late successional mixed conifer forests, oak woodlands. *Late successional forests are defined by plant species composition, over-story tree age and size, and forest structure. They include multi-layered tree canopy, shade-tolerant tree species growing in the understory, large-diameter trees, and a high volume of dead wood such as snags and logs. Historically, fire was the major natural disturbance in all but the wettest climatic areas. Fires were moderate- to high- severity with fire return intervals averaging 100 to more than 400 years. The historic fire regime created a complex mosaic of stand structures. Limiting factors include loss of structural habitat elements, loss of stand size and connectivity and altered fire regimes.*

Freshwater wetlands, estuaries. *Highly complex and productive habitats for many fish and wildlife species. Strategy Species associated with estuaries include black brant and salt-marsh bird's beak. Estuaries also provide wintering habitat for waterfowl, migration stopover feeding areas for shorebirds, and mineral sources for band-tailed pigeons. Wetlands provide important habitat for migrating and breeding waterfowl, shorebirds, waterbirds, songbirds, mammals, amphibians and reptiles. In addition to being critical for birds and many kinds of wildlife, salt-marsh, freshwater tidal marsh, floodplain wetlands and backwater sloughs and swamps are important rearing habitats for multiple life phases of juvenile salmon. Significant interest has been developed in replacement of tidegates to improve fish passage and access to critical rearing habitat for salmonid species.*

Ecosystem approaches recommended by ODFW

- ✓ voluntary easements and financial incentives to preserve and restore key habitats
- ✓ restore ecological function of riparian areas and wetlands and off channel habitats
- ✓ connect key habitats, prevent fragmentation, provide incentives to private owners
- ✓ integrate fuels and fire management
- ✓ maintain flows and reduce runoff
- ✓ maintain open-structured habitats, i.e., with mowing & controlled grazing
- ✓ restore and maintain ecosystem processes; more eco-friendly management
- ✓ early detection, prevention of invasives

ODFW identified a number of Conservation Opportunity areas in the region where it will be most effective for the key species to target preservation and restoration efforts. The Conservation Opportunity Areas and the key species are summarized here in a table.

Strategy Habitats in Douglas County identified by ODFW

Opportunity areas & features	Key species
<u>Umpqua River area:</u> Aquatic, grasslands, oak savanna, pine oak woodlands, riparian	Horned Lark, Purple Martin, Coho Salmon, Pacific Lamprey, Summer Steelhead, Umpqua Oregon Chub, Winter Steelhead, Columbian White-Tailed Deer, Common Kingsnake, Northwestern Pond Turtle
<u>Tenmile area:</u> Diversity of strategy habitats, grasslands and oak savanna, late successional mixed conifer forests, pine oak woodlands	Northern Spotted Owl, Coho Salmon, Winter Steelhead, Red Tree Vole
<u>Umpqua river estuary:</u> Estuary, wetlands, Important shorebird and waterfowl site	Black Oyster Catcher, Shorebirds, Waterfowl, Western Snowy Plover, Coho Salmon, Summer Steelhead, Umpqua Dace, Winter Steelhead
<u>North Fork Smith River:</u> Late successional conifer forest	Marbled Murrelet, Northern Spotted Owl, Coho Salmon, Winter Steelhead
<u>Elliot state forest</u> Late successional conifer forest	Marbled Murrelet, Northern Spotted Owl, Coho Salmon, Winter Steelhead, American Marten
<u>Umpqua River area (of Coastal ecoregion):</u> Late successional conifer forest, oak woodlands and savanna	Northern Goshawk, Northern Spotted Owl, Coho Salmon, Summer Steelhead, Umpqua Dace, Winter Steelhead, Columbian White-Tailed Deer, Northwestern Pond Turtle
<u>Umpqua headwaters:</u> Aquatic, late succession Douglas fir forests	Cascades Frog, Foothill Yellow-Legged Frog, Larch Mountain Salamander, Great Gray Owl, Northern Goshawk, Coastal Cutthroat Trout, Coho Salmon, Summer Steelhead, Umpqua Oregon Chub, Winter Steelhead, American Marten, Fisher, Fringed Bat, Townsend’s Big-Eared Bat, Northwestern Pond Turtle

Progress on wildlife and animals. Extensive riparian and in-stream habitat restoration projects intended to benefit fish populations have already been completed. The Oregon Watershed Enhancement Board made an investment of over \$9 M in Douglas County watershed restoration and watershed council support between 1999 and 2007. Oak woodlands and the habitat they provide for many species have also benefitted from efforts by several agencies and with the cooperation of many private and public land managers. The delisting of the Columbia white-tailed deer in the northern part of the county from Threatened to a Species of Concern is a recent conservation success story. CREP work has also provided significant riparian habitat for a diverse range of species. Fish barriers have been prioritized by the Umpqua Basin Fish Access Team. Extensive watershed analysis has been completed by Partnership for Umpqua Rivers and the results are available online. A strategic planning process has been ongoing in the Umpqua and Smith River estuaries and has developed an inventory of all tidegates and a strategic planning matrix to assist in selecting priority tidegates for replacement. Currently funding is being requested to begin replacement of failing tidegates to improve fish passage and access to critical rearing habitat for salmonid species.

Many of the commonly implemented conservation practices include positive benefits for fish and wildlife including improving water quality, improving habitat and providing forage and food

sources. Additionally, projects are planned with particular care to minimize damage or avoid restricting movement and access to existing populations.

The Cow Creek Band of Umpqua Indians have prioritized and implemented in-stream riparian habitat projects in the Drew area east of Tiller on Elk Creek. Efforts and funding to continue this effort are on-going. A Joint Chiefs project has been awarded to the NRCS and Forest Service to address wildfire risks in the Elk Creek watershed, of which 1/3 was burned by wildfire in 2015.

Some oak woodland restoration, brush reduction and forest management projects have been implemented specifically with wildlife habitat improvement in mind. The formation of the Umpqua Oak Partnership is providing a good foundation for collaborative efforts in oak restoration. NRCS funding is being planned to further implementation.

Future needs and Opportunities. There remains considerable habitat restoration, fish passage and maintenance work to counteract development pressures and other negative impacts to habitat. Easement programs such as the Wetland Reserve Easement Program can be utilized to improve conditions for fish and wildlife. Improvement to the healthy oak woodland habitat could be increased county-wide by extending further south of Roseburg.

Role and priorities for NRCS.

Strategies targeting improving habitat for threatened and endangered species as well as the productivity of domestic livestock are outlined in the strategic approach section of this plan. NRCS plays a critical role in improving pasturelands with planning and incentives to landowners to assist in accelerating the rate of conservation applied and improved. NRCS can play a critical role in supporting habitat improvements for wildlife on private lands by working with willing landowners. Improvements to water quality through the application of BMPs will benefit all populations, especially fish. In-stream habitat improvement projects, including tide gates and estuary improvements where significant numbers of landowners are wanting to improve conditions and are a high priority for NRCS. Easement programs can provide assistance in improving this resource concern. Forest stand improvement practices and fuels reduction on private lands will complement work already being done on federal forest land including the use of the Healthy Forest Reserve Program to address spotted owl habitat needs.

CONSERVATION STRATEGIES AND INVESTMENTS

This section will explore the best strategies to make measurable progress on resource issues and outline the tools, strategies and investments needed to complete priority conservation work.

The major resource priorities for the county are summarized as follows:

Resource	Importance	Priorities, Roles
<i>Human</i>	<i>Medium</i>	<i>Increase awareness; working with partners to provide technical expertise and individual technology transfer</i>
<i>Soil</i>	<i>Low</i>	<i>Reduce sediment through expanding buffers, improving livestock management in areas with water quality concerns</i>
<i>Water</i>	High	<i>Reduce runoff through implementation of BMPs for irrigation, nutrient, residue & livestock management, reduce forest fire risk, reduce bank erosion</i>
<i>Air</i>	<i>Low</i>	<i>Reduce agricultural contributions to air quality problems, reduce fire danger</i>
<i>Energy</i>	<i>Low</i>	<i>Reduce energy use through conservation practices and equipment upgrades</i>
<i>Plants</i>	High	<i>Develop and maintain habitat for sensitive species, reduce risk of fire, restore oak woodlands</i>
<i>Animals</i>	High	<i>Develop and maintain aquatic and terrestrial habitat for sensitive species, reduce risk of fire, restore oak woodlands</i>

The preceding analysis detailed the situation for each resource individually, however, it is widely recognized that the condition of the resources is inter-related and that most conservation measures have the potential to have impacts on multiple resource concerns at one time.

The following table illustrates how types of conservation work have the potential to impact multiple resource concerns. This table is arranged by land-use type and presents a suite of practices that are commonly implemented in concert to achieve the desired resource and management objectives. The key to achieving widespread adoption of voluntary conservation practices is to make them compatible with land uses and land management objectives in the private sector.

Conservation activities by land use types & their potential to impact resource concerns:

		NATURAL RESOURCES & PRIORITIES					
Conservation activities		SOIL Low priority	WATER High priority	AIR/ENERGY Low priority	PLANTS High priority	ANIMALS High priority	HUMANS Low priority
Livestock /pasture	<ul style="list-style-type: none"> •Rotational grazing, •Cross fencing, •Livestock watering, •Invasive species control, •Stream crossings, •Heavy use area treatments •Irrigation water efficiency 	<ul style="list-style-type: none"> •Minimize soil compaction, •Improve infiltration 	<ul style="list-style-type: none"> •Improve water quality and quantity •Increase water for native species 		<ul style="list-style-type: none"> •Reduce invasive species; •Improve productivity of native species 	<ul style="list-style-type: none"> •Improve water quality for fish, •Improve forage & habitat •Improve domestic animal health 	<ul style="list-style-type: none"> •Improve economic viability, •Improve recreation
Crop land	<ul style="list-style-type: none"> •Irrigation water efficiency, •Cover cropping 	<ul style="list-style-type: none"> •Reduce run-off 	<ul style="list-style-type: none"> •Improve water quality and quantity 	<ul style="list-style-type: none"> •Conserve energy 	<ul style="list-style-type: none"> •Improve productivity 	<ul style="list-style-type: none"> •Increase in-stream water availability 	<ul style="list-style-type: none"> •Improve economic viability, •Reduce labor inputs
Wildlife	<ul style="list-style-type: none"> •Wildlife management 					<ul style="list-style-type: none"> •Improve habitat, forage •Improve domestic animal health 	<ul style="list-style-type: none"> •Increase economic viability
Forest land	<ul style="list-style-type: none"> •Forest stand improvement, thinning, •Fuels reduction, •Brush control, •Stream crossings, •Heavy use area treatments, •Roads, water bars, culverts, •Invasive species control 	<ul style="list-style-type: none"> •Minimize soil compaction, •Improve infiltration, •Reduce run off 	<ul style="list-style-type: none"> •Reduce uptake by unwanted species, •Improve water quality, •Increase water available for native species 	<ul style="list-style-type: none"> •Reduce threat of wildfire and smoke 	<ul style="list-style-type: none"> •Reduce threat of catastrophic wildfire, •Improve productivity of native species 	<ul style="list-style-type: none"> •Improve habitat and forage; •Wildlife connectivity corridors, •Improve fish passage, •Open access to habitat, •Improve forage, habitat 	<ul style="list-style-type: none"> •Improve access for management/ recreation, •Reduce threat of wildfire, •Improve economic viability

This table demonstrates how some conservation practices produce multiple benefits to natural resources. Those practices which impact either high priority resource concerns or multiple resource concerns stand out as better resource investments.

In Douglas County, we determined the highest priority resource concerns by convening partners and members of the public to discuss the state of resources in the region. Information regarding the state of the resources was also gleaned from extensive interviews and discussions with many individuals working in natural resources and conservation.

For each resource concern we have reviewed the state of the resource, the progress that has been made to date and the needs and opportunities for improvement. This strategic planning process has helped to inform and clarify what needs to be done and has helped us to focus the programs

and technical assistance available through the Natural Resources Conservation Service to best address natural resources through private lands conservation.

This plan has analyzed the resource needs and the progress of current efforts in order to identify the most strategic opportunities for the involvement of NRCS programs and resources. The following priorities are focused on conservation work most likely to produce results on the specified land uses managed by private landowners in Douglas County.

Select Strategic Priorities

1. Forest Health and Oak Woodland Conservation

Provide land managers with technical and financial assistance to manage oak woodlands to be productive and provide important ecosystem services.

- Provide wildlife habitat through correct stocking levels, healthy stands and invasive species control
- Reduce threat of forest fire through correct stocking levels, invasive species control and biomass removal
- Promote watershed function and clean water through maintaining cover, species diversity and adequate stand densities

This strategy will be focused in areas of declining oak habitat in Douglas County.

Resource Benefits	
Humans	✓
Soil	
Water	✓
Air	
Energy	✓
Plants	✓
Animals	✓

The Natural Resources Conservation Service will target Environmental Quality Incentive Program (EQIP), Regional Conservationist Partnership Program and Joint Chiefs (RCP) funding to support the following conservation practices.

Proposed NRCS conservation practices to be applied

Forest Stand Improvement (666)	Woody Residue Treatment (384)
Tree/Shrub Pruning (660)	Herbaceous Weed Treatment (315)
Brush Management (314)	

Significant funding sources included NRCS EQIP programs.

Other important partners include US Fish and Wildlife, Oregon Department of Forestry, Oregon Department of Fish and Wildlife, Oregon State University, Klamath Bird Observatory, and the Umpqua Oak Partnership.

Other potential funding sources include: Partners for Wildlife, OWEB, invasive species grants, private grants, donations, in-kind assistance and volunteer contributions.

The Healthy Forest Reserve Program was an easement program that was instrumental in improving forestland conditions to benefit spotted owl habitat.

Additional support for these and other complementary activities will be sought from the Oregon Watershed Enhancement Board, DEQ 319 funding, Small grants, other funding sources, donations, in-kind assistance and volunteer contributions.

Key Partners include: Oregon Department of Agriculture, Douglas SWCD, DEQ, OSU Extension, Farm Service Agency, Oregon Department of Fish & Wildlife, and Partnership for the Umpqua Rivers.

2. Wetlands, Estuary Enhancement & In-Stream Habitat

Provide landowners with technical and financial assistance to restore, protect, enhance and manage wetlands, estuaries, in-stream habitat and other contributing lands in ways that improve their ability to provide ecosystem services such as clean water and wildlife habitat

- Restore native wetland and riparian communities through vegetation establishment and hydrology restoration
- Improve and update water control devices (tide gates, dikes, etc) to improve fish passage and beneficial control of water
- Improve in-stream habitat complexity to benefit fish species
- Minimize contaminated runoff and sediment delivery from surrounding agricultural and forestry activities
- Improve habitat and food for wildlife through restoration of healthy, diverse native vegetation

Resource Benefits	
Humans	✓
Soil	
Water	✓
Air	
Energy	✓
Plants	✓
Animals	✓

Estuary and wetland habitat improvement efforts will be targeted to areas where there is an opportunity to effectively partner with other organizations and create a larger impact. Where feasible, alternatives to restore full tidal inundation to estuarine wetland types will be explored. Social considerations, economic impacts, and human infrastructure are oftentimes limiting factors in design of projects that restore all natural hydrologic processes. Thus, alternatives that involve restoration of partial tidal hydrology will also be developed. Umpqua Soil and Water Conservation District has completed an inventory of tide gates in the Umpqua and Smith River estuary. A technical advisory committee has been formed to guide future progress on tide gate and estuary improvements. A prioritization and site selection matrix provides information and has been developed by Umpqua Soil and Water Conservation District and partners in a strategic planning process.

The Natural Resources Conservation Service will utilize the Environmental Quality Incentive Program (EQIP) to support the following conservation practices identified below.

Possible NRCS conservation practices to be applied

- | | |
|---|----------------------------------|
| Tree/Shrub Site Preparation (490) | Tree/Shrub Establishment (612) |
| Brush Management (314) | Critical Area Planting (342) |
| Forage Harvest Management (511) | Heavy Use Area Protection (561) |
| Riparian Forest Buffer (391) | Water control structure (587) |
| Wetland Habitat Management (644) | Stream Habitat Improvement (395) |
| Streambank and Shoreline Protection (580) | |
| Aquatic Organism Passage (396) | |
| Wetland Restoration (657) | |
| Dike (356) | |

The partners we hope to work with include: ODF, ODFW, BLM, NOAA, USF&W, The Nature Conservancy, Trout Unlimited, Ducks Unlimited, Partnership for Umpqua Rivers, Smith River Watershed Council, Umpqua Soil and Water Conservation Districts, Douglas Soil and Water Conservation District, Bureau of Land Management, US Forest Service, Confederated Tribes of Coos, Lower Umpqua and Siuslaw, Cow Creek Band of Umpqua Indian Tribe.

Potential sources of support include: NRCS, OWEB, Cow Creek Band of Umpqua Tribe of Indians, CTCLUSI Tribe, Ducks Unlimited, grants, in-kind assistance and contributions.

National Initiatives and Conservation Opportunities

In addition to local strategic priorities, we will take advantage of national initiatives to address resource concerns as these programs become available. Currently the following initiatives are available.

1. Organic Production

Conservation funding is available to organic producers and those transitioning to organic production. Financial and technical assistance is available through the Organic Initiative under the Environmental Quality Incentives Program (EQIP). The EQIP Organic Initiative signup is a nationwide special initiative to provide financial assistance to National Organic Program (NOP) certified organic producers as well as producers in the process of transitioning to organic production. Organic producers may also apply for assistance under the General EQIP program that is open to both organic and non-organic producers.

Through the EQIP Organic Initiative signup, farmers, ranchers and dairy operators may apply for financial assistance and technical expertise to plan and install conservation measures, such as the following.

NRCS conservation practices to be applied (Organic EOIP)

Buffer Strips	Conservation Crop Rotation
Cover Crops	Field Borders
Mulching	Nutrient Management
Pest Management	Residue Management
And more	

2. Seasonal High Tunnel Initiative

This program is designed to strengthen local and regional food markets and increase the use of sustainable conservation practices that will improve plant and soil quality, reduce nutrient and pesticide transport and reduce energy inputs.

Seasonal high tunnels are structures made of plastic or metal pipe and covered with plastic or other sheeting. Easy to build, maintain, and move, they provide an energy-efficient way to extend the growing season, reduce or avoid use of pesticides and reduce run off and leaching of nitrogen. Unlike greenhouses, they require no energy, relying on natural sunlight to modify the climate inside to create favorable conditions for growing vegetable and other specialty crops. USDA's Natural Resources Conservation Service (NRCS) has provided financial assistance for seasonal high tunnels to assist in conserving water, reducing pesticide use, maintaining vital soil nutrients, and increasing crop yields.

3. Energy Initiative

The intent of the Energy Initiative offered through EQIP is to identify ways to conserve energy on farms by offering financial assistance in developing Agricultural Energy Management Plans, also known as an on-farm energy audit, and to provide assistance to producers who wish to implement various recommended measures identified in the energy audit.

Through the Environmental Quality Incentives Program (EQIP) - Energy Initiative signup, agricultural producers may apply for financial assistance to acquire technical expertise in developing a Landscape or Headquarters Agricultural Energy Management Plan (AgEMP) or to implement certain conservation measures that will reduce energy inputs on farm such as the following.

NRCS conservation practices to be applied

Irrigation Water Management

Agricultural Energy Management Plan - Headquarters
and more

Pumping Plant

Agricultural Energy Management Plan - Landscape

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