

Wasco County Long Range Strategy

2017 - 2022

The Natural Resources Conservation Service (NRCS)
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Section 1: Introduction

This Long Range Strategy lays out a road map for the Natural Resources Conservation Service (NRCS) and its conservation partners to effectively address some of the most important and urgent natural resource problems facing Wasco County, Oregon. The purpose of the strategy is to identify priority resource problems, describe desired future outcomes, and establish measurable objectives so that NRCS and its partners can focus financial and technical assistance to achieve measurable and meaningful outcomes.

This Strategy covers the period from 2017 – 2022, and will serve as the guiding document for NRCS decisions regarding delivery of financial and technical assistance and administration of conservation programs. It is a living document, intended to be updated and modified, as appropriate, to account for emerging issues.

During the winter of 2016, the Wasco County Field Office attended a series of ‘neighborhood meetings’ sponsored by the Wasco County Soil and Water Conservation District and hosted a Local Workgroup meeting to gather input for updating this document from its previous version (2011-2016). During these meetings, NRCS and its partners identified natural resource problems facing Wasco County and prioritized these problems based on the importance of each and the ability to treat them given current knowledge and technology.

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

Mission: To build alliances and strategically invest to effectively solve natural resource concerns in Wasco County

Purpose: The purpose for this document is to provide a strategic approach to on-going and emerging conservation activities in Wasco County, in order to effectively and efficiently address the resource concerns and challenges in the 21st Century.

Time Frame: The time frame covered by the plan is June 2017 through June 22 to coincide with the Wasco County Soil and Water Conservation Districts Long Range Plan revision.

Section 2: Natural Resource Inventory

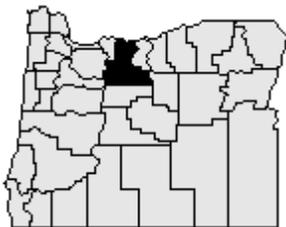
There are 10 primary resource concerns that can be evaluated as part of the NRCS conservation planning process: Soil Erosion, Soil Quality Degradation, Excess or Insufficient Water, Water Quality Degradation, Degraded Plant Condition, Degraded Habitat for Fish & Wildlife, Livestock Production Limitation, Inefficient Energy Use, and Air Quality Impacts. This section provides baseline information about the resources within Wasco County in the context of SWAPA + HE (Soil, Water, Air, Plant, Animal, Humans and Energy) that are the baseline for conservation and development activities in future years.

Many of these resource concerns have been identified in other agency and stakeholder management plans, including but not limited to:

Management Plan	Agency
NRCS Rapid Watershed Assessment Profiles: <ul style="list-style-type: none"> • Lower Deschutes - 17070306 • Lower John Day - 17070204 • Middle Columbia-Hood - 17070105 • Trout – 17070307 	Natural Resource Conservation Service
Soil Surveys: <ul style="list-style-type: none"> • OR673 Wasco County, Northern Part, • OR666 Trout Creek-Shaniko Area, • OR674 Warm Springs Indian Reservation 	Natural Resource Conservation Service
Wasco Field Office Technical Guide	Natural Resource Conservation Service
Lower Deschutes Agriculture Water Quality Management Plan	Wasco Soil & Water Conservation District, Oregon Dept. Agriculture
Wasco Rural Living Handbook	Wasco Soil & Water Conservation District
Mosier Groundwater Project.	Wasco Soil & Water Conservation District. USGS
White River Watershed Assessment, Fifteenmile Watershed Assessment, The Dalles Watershed Assessment, Mosier Watershed Assessment, Bakeoven Watershed Assessment	Respective Watershed Council
Wy'East Resource Conservation & Development Area Plan	Wy'East Resource Conservation & Development Council
Columbia Gorge, Lower Columbia Mainstem, Fifteenmile Creek Subbasin Plans	Northwest Power and Conservation Council
Oregon Department of Fish and Wildlife (ODFW) Conservation Strategy	Oregon Department of Fish and Wildlife

Humans:

Demographics:



Wasco County is located on the east side of the Cascade Mountain Range in north-central Oregon. The county borders the Columbia River and Washington State to the north, Sherman and Wheeler Counties to the east, Jefferson County to the south, and Hood River, Clackamas, and Marion Counties to the west. The population of Wasco County is approximately 26,000 with the largest population center being the county seat, The Dalles (population of 15, 340).

Seven rural communities are also located throughout the county and include: Antelope, Dufur, Maupin, Mosier, Shaniko, Tygh Valley, and Wamic. Additionally, the Confederated Tribes of the Warm Springs Reservation and Off-Reservation Trust Land has a total population of 4,012.

Established: Jan. 11, 1854

Population (2016): 26,115

Area: 2,396 square miles, or 1,533,440 acres

Elevation at The Dalles is 109'; highest point is Olallie Butte at 7,215'

Assessed Value: \$2,131,575,991

Real Market Value: \$3,181,633,210

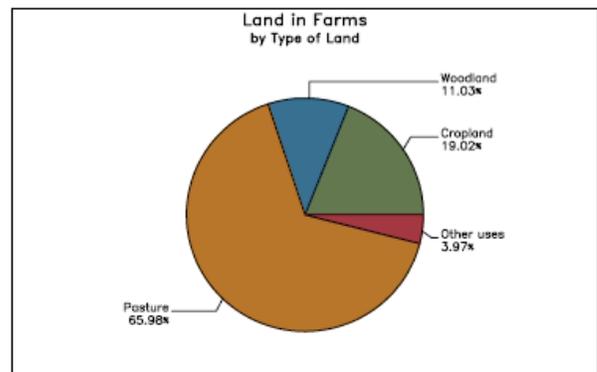
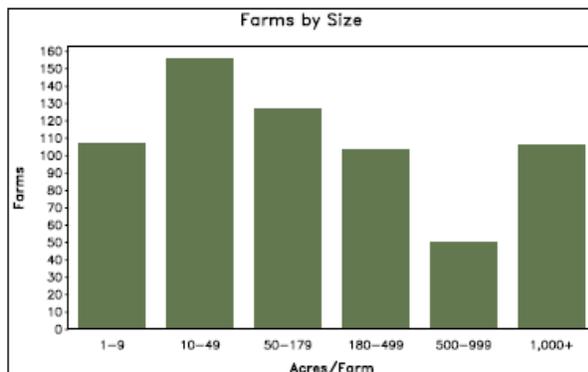
Economy: agriculture, forest products, manufacturing, electric power, transportation, and tourism

Agriculture:

The following is information from the County Profile within the 2012 Census of Agriculture (appendix 1). This information will be updated in 2019 when the 2017 Census is published. The average farm size is 2,130 acres with the median size farm 80 acres. The largest land in farms by land type is pasture, followed by cropland then woodland. The total number of agriculture producers are 649. The primary occupation for 47 percent is agriculture. Male producers represent 83% and females represent 17%. Operators other than white represent 128 producers. All operators of Hispanic, or Latino amount to 17. There are 10 organic operators covering 351 acres. 11,400 acres are under orchard production.

Wasco County Farms				
	2002	2007	2012	% Change (2007-2012)
Number of Farms	538	649	670	+3
Land in Farms	1,086,817 acres	949,462 acres	1,427,324*	+50*
Average Size of Farm	2,020 acres	1,463 acres	2,130	+46

*May be erroneous, as this is approximately 93% of the entire county land mass
 Source: https://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Oregon/cp41065.pdf



Operator Characteristics	Quantity
Principal operators by primary occupation:	
Farming	306
Other	343
Principal operators by sex:	
Male	538
Female	111
Average age of principal operator (years)	57.5
All operators by race ² :	
American Indian or Alaska Native	128
Asian	4
Black or African American	1
Native Hawaiian or Other Pacific Islander	-
White	891
More than one race	4
All operators of Spanish, Hispanic, or Latino Origin ²	17

All Sources Above: http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/Oregon/cp41065.pdf

Land Use

Wasco County covers an area of 2,392 square miles. More than half of the land area is classified as rangeland and is used for grazing. About one-third of the area is forest land. Most of the remaining land is used for dryland farming.

Wasco County Land Use	
CROPLAND - ACRES	180,603
CROPLAND - NUMBER OF OPERATIONS	433
IRRIGATED - ACRES	27,733
IRRIGATED - NUMBER OF OPERATIONS	287
PASTURELAND - ACRES	737,382
PASTURELAND - NUMBER OF OPERATIONS	465
Includes rangeland	
WOODLAND - ACRES	196,377
WOODLAND - NUMBER OF OPERATIONS	141
Includes natural or planted woodlots	
WOODLAND, PASTURED - ACRES	94,830
WOODLAND, PASTURED - NUMBER OF OPERATIONS	99
Includes woodland used for pasture or grazing.	
ORGANIC - ACRES	351
ORGANIC - NUMBER OF OPERATIONS	10

Wasco County Land Use	
Source: NASS Census Of Agriculture 2007.	
http://quickstats.nass.usda.gov/?source_desc=CENSUS	

Tribes & Treaty Rights

For centuries preceding western settlement, Columbia Basin Tenino and Wyam Indians lived, fished, hunted and traded in the region. The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakima Indian Nation are the tribes in the Columbia Basin with 1855 Columbia River Treaty rights to anadromous fish. Wasco County borders the Warm Springs Reservation.

Climate

The City of The Dalles, OR, receives 14 inches of rain per year. The number of days with any measurable precipitation is 94. On average, there are 179 sunny days per year in The Dalles. The July high is around 88 degrees. The January low is 29.

Climate	City of The Dalles, OR
Rainfall (in.)	14.4
Snowfall (in.)	15.8
Precipitation Days	94
Sunny Days	179
Avg. July High	88
Avg. Jan. Low	29.3

Source: http://www.bestplaces.net/climate/city/oregon/city_of_the_dalles

Resource Concern: Soil

The Natural Resources Conservation Service has published three Soil Surveys that cover all or parts of Wasco County. Published Soil Surveys:

- OR673 Wasco County, Northern Part,
- OR666 Trout Creek-Shaniko Area,
- OR674 Warm Springs Indian Reservation

Source: http://www.or.nrcs.usda.gov/pnw_soil/or_data.html

Common Resource Areas

The USDA has developed a method of characterizing geographical areas that share similar natural resource characteristics known as common resource Areas. These area are defined as geographical area where local resource concerns, problems or treatment needs are similar. These areas are considered a

subdivision of an existing Major Land Resource area (MLRA) Landscape conditions, soil climate human considerations, and other natural resource information are used to determine the geographic boundaries of a common Resource Area.

Wasco County diverse topography and natural ecology contain seven major Common Resource Areas.

3.5 - Olympic and Cascade Mountains - Northern Cascade Crest Montane Forest: This unit consists of an undulating plateau punctuated by volcanic buttes and cones that reach a maximum elevation of about 6,500 feet. It is extensively forested with mountain hemlock and Pacific silver fir. The temperature regime is cryic, and the moisture regime is udic. Although this unit has the same moisture and temperature regime as unit 3.3, this unit is noticeably more moist. The break between units 3.3 and 3.5 is transitional.

6.8 - Cascade Mountains, Eastern Slope - Oak-Conifer Eastern Cascades-Columbia Foothills: This unit occurs at the eastern extreme of the Columbia River Gorge. It is characterized by Oregon white oak, ponderosa pine, and Douglas-fir. It is characteristic of the Columbia River Gorge "microclimate." This unit extends about equal distance into Oregon and Washington. The temperature regime is mesic, and the moisture regime is xeric. This unit includes the orchards in Hood River.

6.9 - Cascade Mountains, Eastern Slope - Ponderosa Pine/Bitterbrush Woodland: This unit is characterized by undulating ash-mantled lava flows. The vegetation is dominantly ponderosa pine, antelope bitterbrush, and Idaho fescue. This unit does not have the dominance of lodgepole pine and the coarse pumice fragments that are characteristic of unit 6.1. The temperature regime is frigid, and the moisture regime is xeric.

8.2 - Columbia Plateau - Loess Islands: This unit is the remnant of the once unbroken mantle of wind-deposited loess that covered the entire Columbia Plateau. It is surrounded by eroded Pleistocene flood channels. The mean annual precipitation is 9 to 15 inches, increasing from west to east. The temperature regime is mesic, and the moisture regime is aridic and xeric. The big sagebrush-bluebunch wheatgrass plant association is dominant. Threetip sagebrush and Idaho fescue grow in a band around the northern perimeter. Present-day land use has transformed the loess islands into wheatfields. Because of the low annual precipitation, crop rotations generally include a fallow period.

8.8 - Columbia Plateau - Wapinitia-Simnasho Plateau: This unit is characterized by loess-mantled basalt plateaus. It is west of Deschutes Canyon, on Juniper Flat south to about Lake Billy Chinook. The soils are dominantly those of the Watama, Bakeoven, and Shear series. The temperature regime is mesic, and the moisture regime is aridic and xeric. The mean annual precipitation is 10 to 16 inches.

8.11 - Columbia Plateau - Umatilla Plateau: This is the major unit within the MLRA. It consists of loess-mantled basalt plateaus. The soils are moderately deep silt loam of the Condon and Morrow series. The temperature regime is mesic, and the moisture regime is xeric. The mean annual precipitation is 12 to 15 inches.

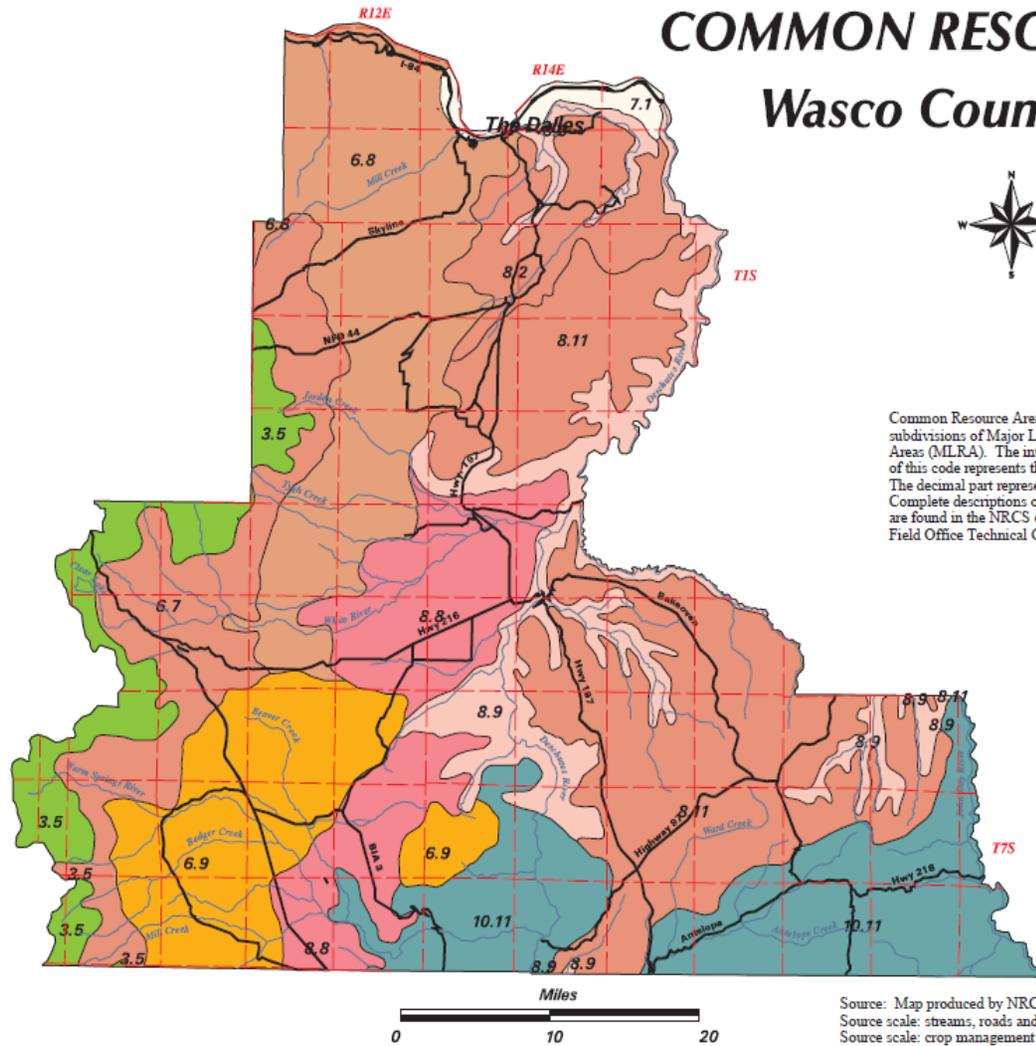
10.11 - Central Rocky and Blue Mountain Foothills - John Day-Clarno Uplands: This unit is characterized by rangeland soils on hills and mountains associated with the John Day/Clarno Formation. The dominant soils are those of the Simas and Tub series. The temperature regime is mesic, and the moisture regime is aridic and xeric.

COMMON RESOURCE AREAS

Wasco County, Oregon

LEGEND

- '10.11'
- '3.5'
- '6.7'
- '6.8'
- '6.9'
- '7.1'
- '8.11'
- '8.2'
- '8.8'
- '8.9'
- Streams
- Roads
- Townships



Common Resource Areas (CRA) are subdivisions of Major Land Resource Areas (MLRA). The integer part of this code represents the MLRA. The decimal part represents the CRA. Complete descriptions of CRAs are found in the NRCS electronic Field Office Technical Guide. (eFOTG)

Source: Map produced by NRCS State Office GIS staff, Portland, Oregon, 2004.
 Source scale: streams, roads and townships, 1:100,000.
 Source scale: crop management zones 1:2,000,000.
 This map is for general planning purposes only.



Water Quality & Quantity

303(d)-Listed Streams

A number of stream segments in Wasco County have been declared water quality limited by Oregon's Department of Environmental Quality (DEQ) under Section 303(d) of the Clean Water Act are listed in the Lower Deschutes Agricultural Water Quality Management Area Plan,(See next page)

Water quality standards exceed standards on some streams for temperature, sedimentation, pH, dissolved oxygen, flow modification, and habitat modification. Of these, temperature, flow, and pH primarily are summer concerns. Dissolved oxygen is primarily a summer/fall concern. Exceeding these standards indicate potential problems for fish.

A copy of these plans and progress reports can be found at:
http://www.oregon.gov/ODA/NRD/water_agplans.shtml#lwrdes

Water Resources

Other water quality and quantity issues covering irrigated lands, water rights and irrigation districts, stream flows, groundwater and drinking water are addressed in the following, 8 - Digit Hydrologic Unit Watershed Profiles:

- Lower Deschutes - 17070306
- Lower John Day - 17070204
- Middle Columbia-Hood - 17070105
- Trout – 17070307

Source: <http://www.or.nrcs.usda.gov/technical/watershed-resources.html>

Water Quality Limited Streams 303d List, 1998.

STREAM SEGMENT	PARAMETER	REASON for LISTING
Lower Deschutes Subbasin		
Bakeoven Creek (mouth to Deep Creek)	Summer Temperature	Salmonid Rearing: >64°F
Buck Hollow Creek	Summer Temperature	Salmonid Rearing: >64°F
Clear Creek	Summer Temperature	Salmonid Rearing: >64°F
Deep Creek (mouth to headwaters)	Summer Temperature	Salmonid Rearing: >64°F
Deschutes River (mouth to White River)	Summer Temperature	Salmonid Rearing: >64°F
	Summer pH	pH >8.5
Deschutes River (White R to reregulating dam)	Dissolved Oxygen	Salmonid Spawning: <11 mg/l
	Summer Temperature	Oregon Bull Trout: >50°F
Ferry Canyon	Summer Temperature	Salmonid Rearing: >64°F
Gate Creek (mouth to headwaters)	Summer Temperature	Salmonid Rearing: >64°F
Gate Creek (mouth to FS Road 4811)	Sedimentation	Excessive surface fines
Macks Canyon	Summer Temperature	Salmonid Rearing: >64°F
Oak Canyon	Summer Temperature	Salmonid Rearing: >64°F
Rock Creek (mouth to headwaters)	Sedimentation	White River Subbasin Watershed Analysis
Rock Creek (mouth to Rock Creek Reservoir)	Summer Temperature	Salmonid Rearing: >64°F
Rock Creek (Reservoir to FS Road 4810)	Summer Temperature	Salmonid Rearing: >64°F
Tenmile Creek	Summer Temperature	Salmonid Rearing: >64°F
Threemile Creek (tributary to White River) (mouth to Threemile Ditch)	Summer Temperature	Salmonid Rearing: >64°F
Wapinitia Creek	Summer Temperature	Salmonid Rearing: >64°F
White River (mouth to Rock Creek)	Summer Temperature	Salmonid Rearing: >64°F
Mid-Columbia / Hood Subbasin		
Eightmile Creek (mouth to Wolf Run Ditch)	Sedimentation	>20% surface fines <6 mm
	Flow Modification	Flows below instream water right at FS boundary
	Habitat Modification	Below desired LWD and channel morphology
Eightmile Creek (mouth to FS Boundary)	Summer Temperature	Salmonid Rearing: >64°F
Eightmile Creek (Wolf Run Ditch to headwaters)	Sedimentation	>20% surface fines <6 mm
	Habitat Modification	Below desired LWD and channel morphology
Fifteenmile Creek (mouth to Orchard Ridge Ditch)	Flow Modification	Portions of creek go dry due to withdrawals
	Habitat Modification	Below desired LWD and channel morphology
	Sedimentation	>20% surface fines <6 mm
	Summer Temperature	Salmonid Rearing: >64°F
Fifteenmile Creek (Orchard Ridge Ditch to headwaters)	Habitat Modification	Below desired channel morphology
	Sedimentation	>20% surface fines <6 mm
Fivemile Creek (mouth to forks)	Habitat Modification	Below desired LWD
	Sedimentation	>20% surface fines <6 mm
Ramsey Creek (mouth to headwaters)	Sedimentation	>20% surface fines <6 mm
Ramsey Creek (mouth to River Mile 5)	Summer Temperature	Salmonid Rearing: >64°F

FS = Forest Service
LWD = large woody debris

Air and Energy

Agriculture Energy Efficiency

Agriculture producers have become more aware of energy as a resource concern. Energy is an issue in terms of fuel costs for agricultural operations and cost and availability of electricity for pumping irrigation water and indirect energy costs for fertilizer and chemicals. Opportunities to produce energy on-farm that did not exist previously include solar, biomass and manure.

Some of the irrigation districts in the Deschutes Basin have been working to put some of their canals into pipes. This provided the opportunity to provide gravity pressurized water to the farms to reduce the pumping needs. The Wy'East Save Water – Save Energy program has assisted irrigators to implement energy conservation measures such as scientific irrigation scheduling and the installation of variable frequency drives for pumps. Irrigators save approximately 10 to 20 percent on energy and water pumped.

Utilities serving Wasco County include Wasco and North Wasco Electric Cooperatives in addition to Pacific Power and Light. These utilities have energy efficiency and conservation program targeted at agriculture energy.

Renewable Energy

Agriculture producers have expressed interest in renewable energy projects. Commercial scale wind farms have been proposed but none have been built. There is growing interest in small scale wind, solar and small hydro.

Air Quality

Air resource concerns are intermittent field burning and forest fire smoke. Agriculture producers can come in conflict with the air quality standards of the Columbia Gorge Scenic Area.

Plants and Animals

Rangeland

A major concern in recent years is the spread of juniper over much of the range. Prior to 1900, juniper was mostly confined to rocky south-facing slopes, ridges, and dry canyons. Since 1934, the area dominated by juniper has increased significantly. Forest maps and landscape photos made since 1900, conversations with old-time residents, and personal observations support this contention. Overgrazing by an extremely large number of livestock from 1890 to 1920, followed by the severe drought of the 1930's, brought about deterioration of the range and provided space for juniper encroachment. During periods of good moisture and lack of fires, reproduction of juniper rapidly increased. According to ring counts made of representative trees from present-day juniper stands are less than 80 years old.

The deteriorated range plant community impacts other resource concerns:

- Reduced connectivity between habitats and wildlife populations.
- Reduced ability of uplands to retain and slowly release runoff and maintain soil stability.
- Loss of riparian and floodplain function reduces habitat complexity and diversity and contributes to extreme seasonal stream flows and temperatures.

Riparian / Buffer

Fish production in most of the lower Deschutes River subbasin is limited by water quality and quantity. Habitat problems identified as limiting threatened and endangered anadromous fish production in the tributary streams. Resource issues include low stream flow, unstable stream banks, inadequate stream shading, shallow pools, elevated water temperature, low amount of pool habitat, and gravel impacted by fine sediment.

Stream channel degradation is common. The cause is due in part to over 100 years of livestock impacts on riparian vegetation in combination with damaging flood events, has resulted in the habitat problems we see today. Wide, shallow channels, lack of pools and lack of healthy riparian plant communities, particularly the shortage of the woody component, all contribute to the water quality and quantity problems. These problems can be solved with riparian buffer systems.

The Conservation Reserve Enhancement Program (CREP) and Conservation Reserve Program (CRP) offer an opportunity to create riparian buffer systems and directly address these water quality and habitat limitations.

Confined Animal Feeding Operations

Only one Confined Animal Feeding Operations (CAFOs) is located in Wasco County.

Threatened and Endangered Species

Threatened and Endangered Species are found in the NRCS Field Office Technical Guide.

Section 3 Natural Resources Progress Analysis

This section looks at where conservation partners are focusing their efforts, what overall conservation progress in the county during from 2006 – 2010 by the conservation partners and NRCS. While resource concerns address the application of conservation applied on the ground, this section addresses future resource concerns. Finally, an analysis as to where NRCS should invest conservation program incentives in future years.

Conservation Practices Applied

NRCS invested through its Environmental Quality Incentives Program (EQIP) in the last 5 years. A large portion of that was used to make improvements to on farm irrigation systems with mainlines, rangeland improvement benefiting sage grouse and riparian areas.

Integrated Data Enterprise Analysis

The NRCS integrated Data Enterprise Analysis (IDEA) provides a summary of practices planned or applied in Wasco County from 2006 through 2005. This data is used for workload planning, progress tracking, trends, management reviews, and quality assurance.

IDEA Wasco County				
Pr. Code	Practice Name	Pr. Unit	Applied Amount	Applied Count
329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	ac	20699.9	266
329A	Residue Management, No-Till/Strip Till	ac	179.6	7
338	Prescribed Burning	ac	300	1
345	Residue and Tillage Management, Mulch Till	ac	2162.9	25
378	Pond	no	8.00	8
391	Riparian Forest Buffer	ac	3,326.30	306
430AA	Irrigation Water Conveyance, Pipeline, Aluminum Tubing	ft	990	1
430DD	Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	ft	43350.4	36
441	Irrigation System, Microirrigation	ac	664.4	75
442	Irrigation System, Sprinkler	ac	354.9	21
443	Irrigation System, Surface and Subsurface	ac	66.2	10
447	Irrigation System, Tailwater Recovery	no	1	1
449	Irrigation Water Management	ac	3784.6	425
	Irrigation Land Leveling	ac	23.8	1
484	Mulching	ac	308.6	30
516	Pipeline	ft	34255	35
528	Prescribed Grazing	ac	19175	147
533	Pumping Plant	no	10	10
550	Range Planting	ac	279.3	8
561	Heavy Use Area Protection	ac	0.4	1
590	Nutrient Management	ac	3721.3	83
595	Integrated Pest Management	ac	12804.3	479
643	Restoration and Management of Rare and Declining Habitats	ac	8	1
777	Residue Management -Direct Seed	ac	13,638.30	184.00

Resource Concern Trend & Need for Additional Work

This section addresses the remaining work needed to address resource concerns.

Resource Concern: Soil Erosion & Soil Quality Degradation

Resource Concerns	Resource Trend & Need For Additional Work
Soil Erosion – Sheet, rill, and wind erosion	Detachment and transportation of soil particles caused by rainfall runoff or splash, irrigation runoff, or wind that degrades soil quality. Over the last 20 years addressing soil erosion from both water and wind has been a priority for NRCS and the Wasco Conservation District. Today, over 90 % of dryland cropland uses Residue and Tillage Management, No-Till/Strip Till/Direct Seed cropping system. Erosion is not longer a critical resource concern on dryland cropland.
Soil Quality Degradation - Organic matter depletion	Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat, and soil biological activity. Because producers have adopted no-till technology that leaves large quantities of crop residue on the surface soil tilth has improved dramatically. Soil quality will continue to improve over time.
Soil Erosion – Excessive bank erosion from streams, shorelines, or water conveyance channels	<p>Sediment from banks or shorelines threatens to degrade water quality and limit use for intended purposes.</p> <p>Stream bank erosion has been addresses through the Conservation Reserve Enhancement Program and Oregon Watershed Enhancement Board. Over 300 miles of riparian buffers have been installed along streams. Additional stream bank protection has been installed in critical areas. While the accomplishments are dramatic further conservation is needed.</p>

Major Resource Concern: Water Supply and Quality

Below are specific resource concerns affecting water supply and quality

Resource Concerns	Resource Trend & Need For Additional Work
Water Quantity – Inefficient Water Use on Irrigated Land	<p>Limited water supplies are not optimally utilized. All or nearly all summer flow is allocated to consumptive use by irrigation pumping from the watershed creeks.</p> <p>The application of intensive irrigation management also addresses energy resource concern by reducing pumping costs.</p>

Resource Concerns	Resource Trend & Need For Additional Work
Water Quantity – Aquifer Overdraft	Water withdrawals are becoming a concern if they exceed the safe yield for the aquifer in the Moisure watershed. The Wasco Soil and Water Conservation District in cooperation with USGS have conducted a ground water study to determine what can be done to correct the problem. With the study completed the application of conservation practices will be a priority in the future.
Water Quality – Harmful Temperatures of Surface Water	Undesired thermal conditions degrade surface water quality. Exceeds state standards for salmonids rearing habitat. >64 F. The irrigation pumping causes dewatering of Fifteenmile Creek. As a result high summer stream temperatures create lethal conditions for threatened steelhead and lamprey. Other streams are similarly impacted. The Wasco Soil and Water Conservation District has addressed the issue using the Conservation Reserve Enhancement Program to establish stream buffers on over 300 miles of streams. Participation in this program has been robust, currently a waiting lists of interested producers are waiting to enroll in this program.

Major Resource Concern: Threatened and Endangered Fish and Wildlife Species

Resource Concerns	Resource Trend & Need For Additional Work
Water Quality – Harmful Temperatures of Surface Water	Undesired thermal conditions degrade surface water quality. Exceeds state standards for salmonids rearing habitat. >64 F. The Conservation Reserve Enhancement Program (CREP) has restored over 300 miles of riparian buffers. This has had a positive affect on stream habitat for salmonids.
Fish and Wildlife – Inadequate Water	The quantity and quality of water is unacceptable for the species or guild of species of concern. In 2009 Fifteenmile Creek was dewatered resulting in a fish kill of endangered salmonids. The Confederated Tribes of Warm Springs have identified lamprey as a species of concern because it is a food of cultural importance to tribal members.
Fish and Wildlife – Threatened and Endangered Fish and Wildlife Species: Species Listed or	The site includes individuals, habitat or potential habitat for one or more fish or wildlife species listed or proposed for listing under the Endangered Species Act. Includes: Winter Steelhead, Pacific Lamprey (species of concern)

Resource Concerns	Resource Trend & Need For Additional Work
Proposed for Listing under the Endangered Species Act	

Major Resource Degraded Plant Condition

Resource Concerns	Resource Trend & Need For Additional Work
Degraded Plant Condition - Inadequate structure and composition	<p>Rangeland in low ecological condition. Over-grazing at the turn of the 20th century has impacted forage production. The degradation of uplands has impacted the ability of the watersheds to capture, store and safely release water.</p> <p>Juniper invasion has reduced forage availability and reduced water availability altering the hydrologic cycle.</p> <p>Unique plant communities like riparian buffers have been fragmented and degraded affecting wetland habitat and unique plant communities.</p>
Degraded Plant Condition - Excessive plant pest pressure	<p>On rangeland the invasion of cheatgrass and medusahead rye and other annual grasses into bunchgrass stands, as well as an increasing number of junipers and sagebrush have reduced the forage production.</p>

Major Resource Concern: Inefficient Energy Use & Air Quality Impacts

Resource Concerns	Resource Trend & Need For Additional Work
Inefficient Energy Use – Farming/ranching practices and field operations	<p>Inefficient use of energy in field operations increases dependence on non-renewable energy sources that can be addressed through improved efficiency and the use of on-farm renewable energy sources. Also, producers have adopted chemical fallow using technology to only spray when weeds are present. Energy is an emerging resource concern. As energy costs continue to increase, global warming additional focus will be placed on energy.</p>
Air Quality Impacts – Emissions of Particulate Matter (PM) and PM Precursors	<p>Direct emissions of particulate matter (dust and smoke), as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions (ammonia, NO_x, and VOCs) cause multiple environmental impacts, such as:</p> <ul style="list-style-type: none"> - The unintended movement of particulate matter (typically dust or smoke) results in safety or nuisance visibility restriction.

- The unintended movement of particulate matter and/or **chemical droplets** results in unwanted deposits on surfaces.
- Increased atmospheric concentrations of particulate matter can impact human and animal health and **degrade regional visibility**.

Partner Conservation Activities

The conservation activity in Wasco County is the result of a cooperative effort by the Natural Resources Conservation Service (NRCS), and its conservation partners. The leadership role of the Wasco County Soil and Water Conservation District and the members of its staff cannot be over-stated in maintaining the relationship with each of the organizations and agencies listed below.

Wasco County Soil and Water Conservation District (SWCD). The Wasco SWCD is the sponsoring organization for the NRCS presence in Wasco County. The SWCD continues to serve as the financial sponsor of numerous state and federal grants and programs including the Buck Hollow PL-566 Small Watershed Program, and the Emergency Watershed Program.

The SWCD staff provides technical assistance for the Conservation Reserve Program, and the Conservation Reserve Enhancement Program and related programs. It oversees the work of the Watershed Coordinator and the watershed councils in Wasco County. The SWCD provides cost-share funding for conservation practices. It continues to provide a leadership role (along with the Sherman SWCD) in the Lower Deschutes River (Senate Bill 1010) Plan. The SWCD has an on-going information program through its bi-monthly newsletter, weekly radio appearances, workshops, and neighborhood meetings.

Watershed Councils. There are four active watershed councils in Wasco County: Bakeoven-Buck Hollow, White River, Fifteenmile, Mosier Area, and The Dalles Area. Each of these watershed councils serve as co-sponsor for on-going projects and related programs within their geographic area.

Wy'East Resource Conservation and Development Area (RC&D). The RC&D is a non-profit organization. It provides assistance with application for grants, and fund administration. The RC&D involvement with the installation of weather stations throughout the county and installation of water meters in The Dalles Irrigation District and the Fifteenmile Watershed have impacted the conservation program in the county.

Oregon Department of Agriculture (ODA). The Department oversees the work of the Soil and Water Conservation Districts throughout the state. It provides state funds for conservation districts. It oversees the work of the State Watershed Specialists who are responsible for the implementation of Senate Bill 1010.

Oregon Department of Fish and Wildlife (ODFW) . The local Fish and Wildlife unit is among the SWCD's earliest conservation partners. Beginning in the mid-1970s, it has worked with the SWCD in addressing

aquatic and wildlife habitat concerns in the Fifteenmile Watershed. It continues to provide assistance with the riparian program and other habitat concerns.

Oregon Department of Forestry (ODF). The local forestry unit plays an important role in assisting the SWCD with its forest related program. Since the start of the Conservation Reserve Enhancement Program, the local unit has provided technical assistance with the development of tree planting specifications.

Oregon Watershed Enhancement Board (OWEB). The Board provides funding for watershed enhancement projects throughout the state. Beginning in the early 1990's, the Board provided a significant portion of the funding for the implementation of ten-year Buck Hollow Watershed Plan. It continues to provide funding for watershed projects in Wasco County.

Oregon State Extension Service (ES). The local Extension Service is among the SWCD's earliest conservation partners. County agents have played an important role in the adoption of conservation practices in the county through workshops and tours. The adoption by 90% of landowners of a Direct Seed system and the use of Precision Agriculture is a direct result of the cooperative efforts of the Extension Service, NRCS, FSA and the SWCD. The Extension Service agent is an active participant in the Neighborhood Meeting.

Confederated Tribes of Warm Springs (CTWS) The Confederated Tribes continue to play an important role in resource issues on ceded land within the county.

USDA Department of Agriculture - Farm Service Agency (FSA). The local office works closely with the NRCS and the Wasco SWCD to ensure that farmers and ranchers receive the best service during their time at the USDA Service. The local office administers the Conservation Reserve Program and the Conservation Reserve Enhancement Program. The County Executive Director is an active participant in the Neighborhood Meeting.

USDA Department of Agriculture - Forest Service (USFS). The Dufur Ranger District has worked with the SWCD over the years on forestry related programs.

Bonneville Power Administration (BPA). The BPA continues to provide funding to the SWCD for technical assistance with the on-going riparian program. BPA funds the Save Water – Save Energy program targeted at agriculture energy efficiency. This program is administered by Wy'East RC&D in the Deschutes Basin in cooperation with local public utilities. A similar program is available from Energy Trust of Oregon with agriculture producers served by private utilities.

Wasco County Road Department. The Road Department provides in-kind technical assistance with projects related to the county infrastructure. The department played a major role with projects following flooding events in 1995 and 1996.

NRCS Future Conservation Program Investment

Historically Wasco NRCS has made funding investments based on funding allocation awarded from NRCS Oregon State Office. The field office has successfully had conservation on the shelf ready to take advantage of additional funding when available. Given the demand for conservation program funding the Wasco Field office will contract all available funding to address resource concerns identified in this strategic plan.

Environmental Quality Incentives Program (EQIP) - Voluntary financial and technical assistance for structural and management conservation practices on working agricultural lands.

EQIP Organic Initiative - Special EQIP funding is available to organic growers that are certified organic, transitioning organic or those who make under \$5,000 of gross organic product farm sales.

EQIP Cooperative Conservation Partnership Initiative (CCPI) - A program that utilizes the Environmental Quality Incentives Program (EQIP) and the Wildlife Habitat Incentives Program (WHIP) through which NRCS may enter into partnership agreements with eligible entities to address resource concerns in a priority area.

Sage-Grouse Initiative - Focuses on making measurable and significant progress toward treating a specific threat to sage-grouse on private lands through strategic use of conservation programs.

Conservation Stewardship Program (CStP) (2008 Farm Bill)- Voluntary program that encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining, and managing existing conservation activities.

Conservation Security Program (2002 Farm Bill) - Voluntary program that provides financial and technical assistance to promote the conservation and improvement of private lands - NOTE: the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) replaces the Conservation Security Program with the new Conservation Stewardship Program for fiscal years 2009 through 2017.

Conservation Reserve Program (CRP) - Administered by the Farms Service Agency (FSA), it is a program that encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to permanent vegetative cover.

Farm and Ranch Lands Protection Program (FRPP) - A program that allows productive farm and ranch lands to remain in agricultural production under private ownership.

Healthy Forests Reserve Program (HFRP) - A program to help landowners manage their land for sustainable, profitable timber harvests while securing long-term protection from regulatory restrictions.

Conservation Planning Assistance - A guide to assist farmers, ranchers and other landowners plan and develop conservation measures to: improve operations, protect water quality and quantity; promote high quality, productive soils; develop healthy plant and animal communities; and more.

Projected future investments for NRCS conservation programs is estimated to be approximately \$300,000 in EQIP funding each year.

Section 4: Natural Resource Problems and Desired Future Outcomes

Resource Concern

The priority resource concerns identified by the 2010 local conservation partnership include:

- Soil Erosion & Soil Quality Degradation
- Water Supply and Quality
- Threatened and Endangered Fish and Wildlife Species
- Degraded Plant Condition
- Inefficient Energy Use & Air Quality Impacts
- Forest Health (added in 2012)

Soil Erosion & Soil Quality Degradation

Desired Future Condition (Goal) Soils are protected against damage by erosion and other forms of degradation:

- Sheet and rill erosion does not exceed the Soil Loss Tolerance “T”.
- Wind erosion does not exceed the Soil Loss Tolerance “T” or, for plant damage, does not exceed Crop Damage Tolerances
- Accelerated stream bank soil loss does not exceed a level commensurate with upstream land use and normal geomorphologic processes on site. The land user’s management activities do not contribute to the stream bank erosion problem.
- The quality of intensively used soils is maintained or enhanced to enable sustained production.

Objective / Outcome

Target Audience: Agriculture producers.

Specific Action : Protect soils against damage by erosion and other forms of degradation.

The specific action producers will maintain resource management systems to address soil erosion and soil health.

Measurable: By 2016 agriculture producers will continue to maintain Residue and Tillage Management, No-Till/Strip Till/Direct Seed (329) on 20,700 acres.

Water Quantity and Quality

Desired Future Condition (Goal) Water resources quality and quantity are acceptable for its intended uses managed in an efficient and sustainable manner. This outcome includes water quality, water quantity/availability, flooding and watershed health.

Objective / Outcome

Target Audience: Agriculture producers

Specific Action:

- Increase the efficiency of water used on irrigated ground by improving irrigation system efficiency and water management with scientific irrigation scheduling or intensive irrigation water management.
- Implement the recommendations of the Mosier Groundwater Study.

Measurable:

- Apply Irrigation Water Management (449) and associated practices on 3,800 acres.
- Active implementation of the Mosier Groundwater Study.
- Apply Riparian Forest Buffer (391) and associated practices on 3,326 acres that helps to reduce water temperatures in streams meets habitat requirements for salmon/steelhead.

Threatened and Endangered Fish and Wildlife Species

Desired Future Condition (Goal): Improve riparian, wetland, and upland habitats that support healthy and diverse fish and wildlife populations that covers threatened and endangered species, wetlands, and riparian areas.

Objective / Outcome

Target Audience: Farmers, ranchers and other landowners.

Specific Action: Working lands and water provide habitat for diverse and healthy wildlife aquatic species and plant communities.

Measurable: By 2016 agriculture producers will apply Riparian Forest Buffers (349) and associated practices on 3,326 acres that helps to reduce water temperatures in streams to meets habitat requirements for salmon and/or steelhead.

Degraded Plant Condition

Desired Future Condition (Goal) The desired future condition are healthy grazing lands capable of sustained use to produce food and fiber, clean water, healthy fish and wildlife populations and social

and economic stability. This condition covers rangeland, pasture land, hay land, forage cropland, and grazed forest land.

Objective / Outcome

Target Audience: Farmers, ranchers and other landowners.

Specific Action :

- Working grasslands are maintained or improve long-term vegetative conditions. Invasive species are treated such as juniper and cheat grass.

Measurable: By 2016 agriculture producers will apply Prescribed Grazing (528) and associated practices on 19,000 acres.

Inefficient Energy Use & Air Quality Impacts

Desired Future Condition: The desired future condition is to expand on-farm energy conservation and renewable energy production and use.

Objective / Outcome:

Target Audience: Farmers, ranchers and other landowners.

Specific Action: Integrate energy concerns into field office planning assistance and programs to take advantage of public and private utility agriculture energy conservation programs. This is accomplished with a Landscape Agricultural Energy Management Plan (Landscape AgEMP) contains the strategy by which the producer will explore and address his/her on-farm energy problems and opportunities on the working land.

Measurable: By 2016, ten agriculture producers will develop an Agriculture Energy Management Plan - Landscape Criteria Practice/Activity Code (124).

Forest Health

Desired Future Condition: The desired future condition is to expand treatment of private forest land to reduce risk of catastrophic wildfire and reduce spread of disease.

Objective / Outcome:

Target Audience: Farmers, ranchers and other landowners.

Specific Action: Develop partnership and CIS to implement forest stand improvement.

Measurable: By 2016, treat 500 acres of forestland with Forest Stand Improvement practices.

Section 5: Prioritization of Natural Resource Problems and Solutions

In Section 4, six resource concerns were identified as the primary focus for conservation work in Wasco County over the next ten years.

In August 2010, NRCS held special Local Work Group meetings called Strategic Conservation Community Meetings to provide a forum for the development of partnerships and identify opportunities to strategic investments to solve natural resource problems in Wasco County. The desired outcome was to identify natural resource problems, set priorities, and determine desired future outcomes. The table below lists the resource concerns identified by the group in 2010.

Priority Resource Concern	Description of Concern
Water Quantity – Inefficient water use on irrigated land	Limited water supplies are not optimally utilized
Water Quantity – Aquifer Overdraft	Water withdrawals exceed the safe yield for the aquifer in Mosier and Tygh Valley.
Water Quantity – Insufficient Flows in Watercourses	Water flows are not consistently available in sufficient quantities to support ecological processes and land use and management
Water Quality – Harmful Levels of Pesticides in Surface Water	Pest control chemicals present in toxic amounts degrade surface water quality.
Water Quality – Harmful Temperatures of Surface Water	Undesired thermal conditions degrade surface water quality.
Air Quality – Chemical Drift	Materials applied to control pests drift downwind and contaminate/injure non-targeted fields, crops, soils, water, animals and humans.
Plant Condition – Noxious and Invasive Plants	The site has noxious or invasive plants present.
Plants not adapted or suited	Plants are not adapted and/or suited to site conditions or client objectives.
Plant Condition – Wildfire Hazard	The kinds and amounts of fuel loadings (plant biomass) pose risks to human safety, structures, and resources, should wildfire occur.
Fish and Wildlife – Threatened and Endangered Fish and Wildlife Species: Fish and Wildlife Species Listed or Proposed for Listing under the Endangered Species Act	The site includes individuals, habitat or potential habitat for one or more fish or wildlife species listed or proposed for listing under the Endangered Species Act.

Fish and Wildlife – Inadequate Water	The quantity and quality of water is unacceptable for the species or guild of species of concern.
Fish and Wildlife – Habitat Fragmentation	Habitat has insufficient structure, extent, and connectivity to provide ecological functions and/or achieve management objectives.
Energy	Energy saving from irrigation water management, efficient irrigation system design

SWCD Priorities:

The SWCD approved this updated list of prioritized resource concerns for Wasco County.

1. Erosion control on cropland, pasture, rangeland
1. Water conservation (quality & quantity)
2. Integrated Pest Management practices including technologies that help direct seed/no-till sustainable and protect water quality
2. Erosion control of stream banks and forest land
2. Riparian enhancement
3. Rangeland condition and resource management
3. Ag Energy Conservation
3. Invasive species
4. Fish and Wildlife Habitat
4. Forest land condition resource management
5. Upstream flood control (including flood hazard mitigation)
5. Wetland preservation
6. Plant materials programs/demonstration nursery
6. Drainage
7. Other agriculture related
8. All other non-agriculture related

** Priorities updated at February 2013 SWCD board meeting

Equal Opportunity:

Civil Rights and Equal Opportunity will be considered in all aspects of the Long Range Plan for Wasco County. Specific outreach plans will be developed for underserved customers in Wasco county including Native American, Hispanic and Women producers.