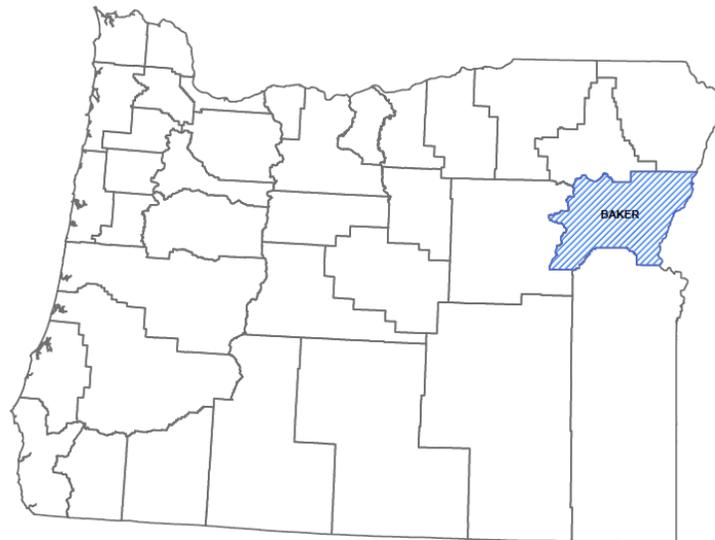


Baker County Long Range Conservation Strategy



December 2010



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Section I: Introduction

This strategic plan is a culmination of resources in Baker County to provide a guiding document to the Natural Resource Conservation Service and its partners. This tool will provide a synopsis of the county and where current conservation activities are taking place and where untreated resource concerns may be identified. The plan will be used in Baker County to analyze funding priorities in the future and continue a broad partnership with the common goal of strategically installing conservation practices on the ground.

Between 1842 and 1847 many immigrants on their way to the Willamette Valley followed the old Oregon Trail across the area. The first settlement in the area, a mining camp at Sumpter, was established in the early 1850's by miners seeking gold in the Blue Mountains. Prospecting in that area began after the first gold rush in California had partly subsided. The discovery of gold at Griffins Gulch, west of Baker City, in 1861 brought a great influx of settlers the following year. A large settlement was made at Auburn. By this time an extensive camp had been established at Sumpter, and smaller settlements had been made near other placer mines.

Baker County was organized in 1862. Two years later Union County was formed from a part of northern Baker County, and in 1887 Malheur County was formed from a part of southern Baker County. Farming began in

1863 to supply produce for the miners, but most other supplies were hauled over the Blue Mountains from Umatilla on the Columbia River. Hauling continued until 1883, when trail traffic was opened by the Oregon-Washington Railroad & Navigation Co., now part of the Union Pacific system. Farming began in Sumpter Valley in 1863 and from there spread to Baker City and other valleys. In early years farming was intermittent because gold mining was of first interest; many settlers divided their time between mining and farming. At first, the farming mainly consisted of raising livestock, but potatoes, other vegetables, grains, and hardy fruits were soon planted to meet the growing demand in the mining camps.

Agricultural development was gradual for the first 20 years after settlement began. The range was stocked with cattle and sheep, irrigation ditches were dug, and the more accessible land was brought under cultivation. Much native grass was cut for hay. Many cattle and horses were driven from the area to replace Texas longhorns on the Montana range. Many finished beef cattle were driven to Winnemucca, Nevada, for shipment to Omaha, Nebraska, and a few were driven to Portland, Oregon. Crops and farm produce were grown mostly for local consumption because adequate transportation to outside markets was lacking. After construction of the railroad in 1883, agricultural development was fairly rapid. Since the Dust Bowl of the 1930's, interest in soil conservation in the area has increased. In 1941, the Keating Soil and Water Conservation District (SWCD) was organized. It is the fifth oldest SWCD in Oregon. This was followed in 1944 by the Eagle Valley SWCD, in 1947 by the Baker Valley SWCD, and in 1949 by the Burnt River SWCD.

The Rocky Mountains partly shield the county from strong arctic winds, so winters there are cold but generally not severe. In summer, the mountains partly block the winds off the Pacific Ocean and the days are hot, but the nights are fairly cool. Precipitation in summer is scant in all but the mountainous areas, but during the cooler parts of the year precipitation is adequate for irrigated small grains and for rangeland. The snowpack at high elevations supplies irrigation water for intensive agriculture in parts of the lowlands. In winter, the average temperature at Baker, Halfway, and Huntington is 30, 27, and 32 degrees F, respectively. The average daily minimum temperature is 21 degrees at Baker, 17 degrees at Halfway, and 24 degrees at Huntington. The lowest temperature on record, -33 degrees, occurred at

Halfway on January 22, 1962. In summer, the average temperature is 75 degrees at Huntington and 65 degrees at Baker and Halfway. The average daily maximum temperature in summer is 82 degrees at Baker, 85 degrees at Halfway, and 91 degrees at Huntington. The highest recorded temperature, which occurred at Huntington on July 19, 1960, is 113 degrees. The total annual precipitation is 12 inches at Baker, 22 inches at Halfway, and 13 inches at Huntington. Of this, 50 percent at Baker and 30 percent at Halfway and Huntington usually fall in April through September, the growing season for most crops. The heaviest 1-day rainfall during the period of record was 7 inches at Baker on March 2, 1957. Thunderstorms occur on about 15 days each year, and most occur in summer. The average seasonal snowfall is 26 inches at Baker, 62 inches at Halfway, and 25 inches at Huntington. The greatest snow depth at any one time during the period of record was 30 inches at Baker, 48 inches at Halfway, and 21 inches at Huntington. On an annual average of 15 days at Baker, 52 days at Halfway, and 71 days at Huntington, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year. The average relative humidity in mid afternoon is about 50 percent. Humidity is higher at night, and the average at dawn is about 70 percent. The sun shines 85 percent of the time in summer and 45 percent in winter. The prevailing wind is from the southeast. Average wind speed is highest, 10 miles per hour, in spring.

The 2009 census data indicates that 16,000 people reside in the county. The major communities are Baker City, Haines, Richland, Halfway, Durkee and Unity. The economy is based on natural resources and agriculture. Tourism makes up a significant part of the economy as many find the area attractive for numerous outdoor activities.

Section II. Natural Resource Inventory:

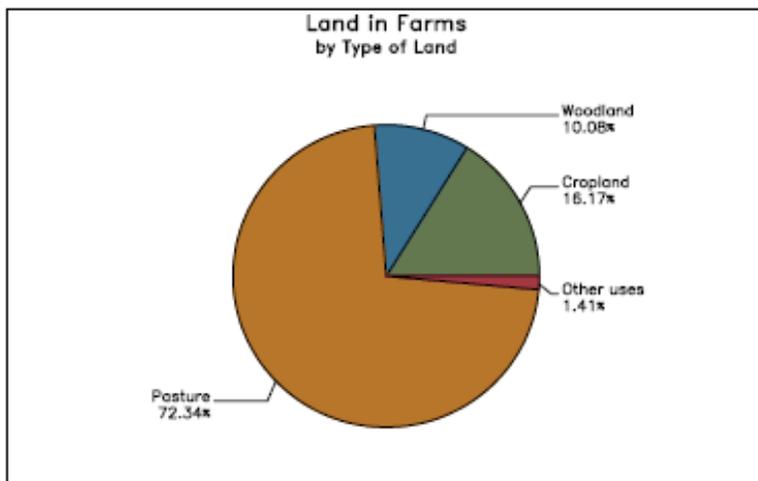
This section of the Baker County Long Range Conservation Strategy looks into the existing natural resources in the county. Resource concerns have been divided into the categories of Soil, Water, Plants, Animals and Human. Demographics for the county are under the human category. Information gathered to compile this portion of the Strategy was obtained from numerous sources. Sources are listed below each chart if further information is needed.

This information can give conservation partners a glimpse into what is going on in Baker County and where potential resource concerns may be identified and treated in the future. Section III of this strategy will focus on what resource concerns have been addressed in the recent past and current resource concerns being addressed.

Resource Concern-Human

Baker County comprises approximately 1,977,012 acres of land. There is 964,003 acres of private land within the county and nearly 74% of the private land is land in farms. Land in farms is further divided in the pie chart below. Note that the pasture heading includes rangeland also. Major crops within the county are corn, potatoes, wheat, mint and forages such as alfalfa and grass.

	2007	2002	% change
Number of Farms	688	703	- 2
Land in Farms	711,809 acres	869,523 acres	- 18
Average Size of Farm	1,035 acres	1,237 acres	- 16



Source: NASS

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The table below characterizes the land types in the county including private and public lands. The county is approximately half private land with the majority of the private land falling into the Shrub/Scrub category or rangeland. (Sagebrush Steppe Habitat)

Row Labels	BLM	Military & COE	Private	State Lands	USFS National Forest	Grand Total
Barren Land	47		382		3,573	4,002
Cultivated Crops	273		109,013	13	16	109,315
Deciduous Forest			3		52	54
Developed, High Intensity			27			27
Developed, Low Intensity	303		4,058		116	4,478
Developed, Medium Intensity	56		938			994
Developed, Open Space	1,985		15,419	0	1,512	18,915
Emergent Herbaceous Wetlands	51		9,349		435	9,835
Evergreen Forest	32,597		127,020	189	498,621	658,427
Hay/Pasture	109		17,566		2	17,676
Herbaceous	28,020		35,530	129	28,583	92,262
Open Water	238		5,092		285	5,616
Shrub/Scrub	302,012	44	637,651	2,865	110,604	1,053,176
Woody Wetlands	269		1,955		10	2,234
Grand Total	365,961	44	964,003	3,196	643,808	1,977,012

Source: NLCD Public Ownership BLM

Below is the census data for Baker County. As of 2009, the county had a population of 16,082 people. The majority of the residents (54%) in the county fall into the age group of 19 to 64 years old. The county is 96% white with the remainder races being Black, American Indian, Asian or Hispanic.

Census and Social Data

Population 2009	16,082
Under 5 years old	4.90%
Under 18 years old	19.50%
Persons 65 years old and over	21.40%
Female persons	50.40%

Source: U.S. Census Bureau

White	96.30%
Black	0.30%
American Indian & Alaska Native	1.30%
Asian	0.50%
Two or more races	1.60%
Hispanic or Latino	3.90%
White, not Hispanic	92.60%

Source: U.S. Census Bureau

Baker county non-farm employment is a mixture of private and government entities. The majority of non-farm employment is categorized as retail and wholesale trade and education and health services. The Baker county economy is dependent of the agricultural occurring in the county.

Forest/Woodland Owners

The county consists of many private non-industrial forest land owners. This group of non-traditional agriculture producers has been very active in conducting pre-commercial thinning to prevent catastrophic wildfire, protect soils and remove disease from their forests. The tables below summarize the number and sizes of forest land producers. Well over half of the private forest land owners own less than 100 acres of land. The county also has a small number of acres that are owned by private industrial forest owners.

NIPF 1998 Summary of Number of Landowners by Acreage Categories

County	1-9	10-99	100-499	>500	Total
Baker	399	458	119	24	1000

1998 Private Industrial Forestland Acreage

County	Industrial
Baker	14,413

Forestland Acreage by Selected Counties and Region in Oregon¹

County	Other public ²	Forest Industry	Other Private ³	All Owners ⁴
Baker	0	18	78	96

¹ Source: Oregon Department of Forestry, 1998. Timberland only, producing 20 cubic feet per acre per year or more.

² Includes BLM in Eastern Oregon.

³ Includes Indian Lands in Eastern Oregon

⁴ Total of categories listed in this table

Resource Concern - Soils

Physiography, Relief, and Drainage of Soils in Baker County

The survey area is made up of six large valleys separated by rangeland and higher mountainous areas. The valleys are Baker, Burnt River, Eagle, Lower Powder, Pine, and Sumpter. The valleys and adjoining terraces and fans cover about 215,216 acres, or 16 percent of the survey area; the intervening rangelands cover about 901,217 acres, or 67 percent; and the higher elevation forestlands cover about 228,667 acres, or 17 percent of the survey area. The Baker, Lower Powder, and Sumpter Valleys are drained by the Powder River or its tributaries. Pine Valley is drained by Pine Creek, which flows east into the Snake River. Eagle Valley is drained by Eagle Creek, which flows into the Powder River and flows southeast into the Snake River near Brownlee Reservoir. The Burnt River drains the Burnt River Valley and flows southeast into the Snake River near Huntington. Most of the valley bottom land is moderately well drained to poorly drained and has a high water table in the spring and early summer. A few areas of Baker Valley and the Lower Powder Valley have salt-affected soils. The accumulations of salt are directly related to the low rainfall in the area, the high rate of evaporation, and the high water table. Baker County is bordered on the west by the Elkhorn Ridge of the Blue Mountains, on the north by the Wallowa Mountains, and on the east by the Snake River Canyon. The higher areas are steep, rugged, and mainly forested. Other mountainous areas in the county include Big Lookout Mountain, Little Lookout Mountain, Dooley Mountain, and Pedro Mountain, all south of Baker City. The geology of the mountains is variable. The Elkhorn Ridge west of Baker City is mainly argillite and other metamorphics, and northwest of Baker City is mainly quartz diorite and related granitic rocks. Dooley Mountain is largely volcanic breccias and rhyolite. Big Lookout Mountain is granite, basalt, and limestone. In the eastern part of the survey area, which is dominantly gently sloping to steep rangeland, the rocks are mainly basalt, argillite, greenstone, and granite. The rock types in the southern part of the survey area are mainly basalt, greenstone, limestone, schist, and lacustrine sediments. Materials from the rocks have been transported by streams and have contributed to the soil material in the valleys.

Irrigation induced erosion continues to be a concern on steep flood irrigated pastures and crop fields in the county. Many irrigators outside of the Baker Valley area are limited to using flood irrigation due to size and shape of the fields. Farmers in Baker Valley have installed many improved irrigation systems such as pivots and can utilize cash crops such as potatoes or mint to offset the cost. Outside of Baker Valley, the agriculture is more livestock based and many of the irrigated acres are for livestock feed. Because of this, the incentive to convert to a improved system is a barrier. This affects soils erosion, water quality and water quantity on many irrigated acres within the county.

Forested soils are very fragile and easily susceptible to erosion due to catastrophic wildfire. An altered fire regime and past forest practices within ponderosa pine stands has resulted in young, dense mixed species stands. These stands now contain a higher percentage of ladder fuels and are very susceptible to wildfire that could destroy the entire forest leaving soils unprotected.

Resource Concern - Water

See attached map for locations of streams within the county. Streams are listed for multiple factors including temperature and sedimentation. There are a total of 540 miles of 303d listed streams in Baker. The table below indicates how many miles of stream are listed for each factor. Note that some of these factors overlap in the same reach of stream. Also, the TMDL's for Chlorophyll a, dissolved oxygen, E. Coli, Fecal Coli form and Mercury do not represent a substantial resource concern within the county. Practices on forest, range and cropland have been addressing temperature and sedimentation in the form of stream buffers, forest stand improvement and improved irrigation efficiencies.

Chlorophyll a	Dissolved Oxygen	E Coli	Fecal Coliform	Mercury	Sedimentation	Temperature	Turbidity	Grand Total
30.4	75.5	45.1	28.8	36.9	21.5	526.3	2.7	767.2

Three watershed profiles have been completed for Baker County. The watersheds include the Brownlee Reservoir, Burnt River and Powder River.

There are seven recognized irrigation districts in Baker County according to OWRD. These districts include Baker Valley Irrigation District, Fish Lake Improvement District, Lower Powder Irrigation District, Phillips Ingle Ditch Improvement District, Powder River Water Control District, Powder Valley Water Control District, and Waterbury Allen Ditch Improvement District. Much of the irrigation within the county is under local ditch companies or private irrigators. The table below indicates the number of acres in Baker County that is currently under irrigation. This number represents approximately 13% of total private land in the county.

	2002	2007
Farms (number)	509	552
Irrigated Land (acres)	120,742	127,077

Source: NASS

Resource Concern – Plants and Animals

There are five Wildlife Conservation Opportunity Areas in Baker. See attached map for locations. These COA's are Baker Valley, Hells Canyon, Eagle Cap-Wallowa Mountains, Burnt River and North Fork Malheur-Monument Rock Area. Much of the COA's occur on federal land. The Burnt River and Baker Valley COA have the most private land associated with them. A portion of the Eagle Cap – Wallowa Mountains COA is located in the Pine Valley region.

ODFW Strategy habitats within the county are listed in the Oregon Conservation Strategy. This guiding document is a resource used to document present and planned future conditions for strategy habitats listed. Of particular concern to Baker County are the following strategy habitats: Sagebrush Steppe and Shrubland Habitats, Ponderosa Pine Woodlands, Aspen Woodlands and Riparian Habitats. For more detailed information please reference the Oregon Conservation Strategy.

Baker County has two federally listed threatened species. This protection was given to Bull Trout and Howell's Spectacular Thelopody. Critical habitat has been designated for Bull Trout. See attached map for locations of critical habitat for Bull Trout. Howell's Spectacular Thelopody is known to be associated with only Silt Loam soils in the Baldock, Umapine, Haines, Hibbard, Wingville and Sanflow-Umapine soil series. The plant is only found within the Baker Valley region of the county. There are two species listed as candidate species, they are the Greater Sage Grouse and the Columbia Spotted Frog. See attached map of the known sage grouse range within the county based on a three mile buffer around known lek sites.

Western Juniper expansion into nearby plant communities is causing increased soil erosion, reduced stream flows, changes in plant communities, reduced forage production and altered wildlife habitat. Over the past 130 years post-settlement altered fire regimes have allowed western juniper to advance into ecosystems that natural fire would have controlled. Expansion of western juniper in Eastern Oregon is estimated at a 10 fold increase in the area it occupies in last 130 years. After colonization of a sagebrush steppe range site, western juniper alters the climatic conditions by being highly competitive for water, utilizing an allelopathic property to control competing vegetation and being a prolific seed producer. These altered site conditions lead to a loss of brush species first and then native bunch grasses. If left untreated the juniper will dominate the entire site and eventually kill all native grasses and shrubs in the understory. Soil erosion increases as the vegetation holding the soil is lost. On severe sites, all of the top soil has been lost. This poses a problem for re-vegetation of the site as the top soil is gone along with the native seed source. Early treatment of the juniper encroachment is critical to the success of the project. This issue also has impacts on sage grouse populations. Juniper encroachment into historic sage grouse habitat has caused a decline in suitable habitat for this species as the native shrubs are lost. This is an issue primarily for landowners due to a loss in production potential on their rangeland acres, however, a loss of this magnitude effects the economics of the entire community.

Other invasive species causing significant threats to native ecosystems include Medusahead rye, cheatgrass, whitetop, and skeleton weed. All of these weeds are a high priority for the weed districts in the county.

The Oregon Department of Fish and Wildlife has identified the following areas as priorities locally for Baker County:

- 1) Lookout Mtn/Keating – priority area for sage-grouse habitat work, also benefit high density big game winter range in the Sparta/Keating area, treatments that are needed are primarily range improvements that promote sage-grouse habitat and invasive weed control. Also a lot of opportunity for riparian improvements. Much of this area is being proposed as designation for a Area of Critical Environmental Concern by the BLM.
- 2) Baker Valley – this area is identified as a conservation priority area in the conservation strategy due to the loss of historic wetland, lots of opportunity for wetland development and protection.

- 3) Burnt River Canyon/Durkee – part of this area is identified as a conservation priority area due to species diversity in the riparian areas, I have expanded the area to include many of the side drainages, bighorn sheep range, and big game winter range. Most important issues that need to be addressed – juniper and riparian conditions.
- 4) North of Hereford – continue work on the Sundry Rooster Rock Project, primarily juniper but also aspen enhancement, target sage-grouse and big game winter range.
- 5) Pine Creek Drainages – Fish screening issues on existing irrigation diversions.

Section III. Natural Resource Analysis:

This section of the strategy is meant to inform conservation partners of the extensive efforts underway in Baker County to address many significant resource concerns. This data is a compilation of NRCS and OWEB data.

Baker County boasts a healthy partnership between all natural resource partners. As such, great strides have been made in tackling priority resource concerns over the past 10 years. NRCS has worked closely with its partners, specifically the local Soil and Water Conservation Districts (SWCD) to leverage funds and treat acres. NRCS funding implementation has been directed by the county Local Work Group (LWG). The LWG is comprised of a director/landowner from each of the county’s four SWCD’s, and representatives from a variety of resource based agencies including, but not limited to, Oregon Dept of Forestry (ODF), Oregon Dept of Fish and Wildlife (ODFW), Baker County Weed Dept, Tri County Weed Management (CWMA), and Oregon Dept of Agriculture (ODA). A number of documents help guide this assembly including the Senate Bill 1010 plans, which guide water quality in each of the basins, as well as the Oregon Conservation Strategy to direct the management of wildlife and habitats. The following is a compilation of the funding priorities and natural resource progress over the last ten.

The tables below provide the number of acres treated under NRCS programs since 2003 in Baker County. The first table (Table 1) indicates practices installed under EQIP and WHIP. The second table (Table 2) includes all programs for selected key practices.

Table 1	
Key Practice	Acres
Brush Management	5683.8
Forest Stand Improvement	1260.9
Irrigation Sprinkler System	495.8
Upland Wildlife Habitat Management	5240.5
Prescribed Grazing	2935.7
Irrigation Water Management	976.2

Table 2	
Key Practice	Acres
Brush Management	5,991.7
Forest Stand Improvement	1,360.6
Irrigation Sprinkler System	1,192.0
Upland Wildlife Habitat Management	94,028.7
Prescribed Grazing	83,857.1
Irrigation Water Management	2,227.0

Crop/Hay/Pasture

NRCS funding in the early part of the time period focused largely on the conversion of flood irrigation systems to higher efficiency mechanisms such as pivots and wheel lines accompanied by buried mainlines and pumps. Ranking was primarily based on increased efficiency; the result was all EQIP money was going to one Basin. Realizing that there are some properties that pivot or wheel line systems do not fit, in 2006 the LWG chose to scale back funding in the irrigation section as well as set geographic priority areas to better serve each area of the county. After FY2011 the priority areas will have covered each area of the county. Since 2003 over 3,667.5 acres of irrigated land have been converted to higher efficiency irrigation systems which treat a variety of resource concerns including Soil Erosion, Water Quantity and Quality, and Plant Condition. In 2010 the Burnt River Irrigation District was targeted.

The Baker Valley Soil and Water Conservation District has received OWEB funding to determine engineering and economic feasibility for the Smith Ditch Improvement Project. This project would pipe an extensive ditch above Baker City and increase water quantity conservation. The SWCD may apply for an AWEPP program to secure funding through EQIP for the project.

The SWCD has also contributed to the improvement of crop, hay and pastureland with the assistance of Oregon Watershed Enhancement Board (OWEB) funds. Over the last five years, the SWCD has replaced or installed 11 irrigation diversions. Replacing or improving these diversions has aided in water delivery, fish passage, and overall stream and watershed health.

While irrigation concerns in the county have been largely treated there is still room for improvement. The Keating, Eagle Valley, and Pine Valley areas have a lower rate of conversion than other areas of the county. Often these areas require lower efficiency systems such as hand lines, wheel lines, or gated pipe, yet still need improved.

Issues outside of irrigation associated with the crop, hay, and pasture land uses have been largely unaffected. There is room for improvement in cropping and harvesting systems in the county.

Rangeland

The Local Workgroup has prioritized invasive species control, specifically western juniper, since 2006. 14,987 acres have been treated and at this time 9,163 acres are planned to be treated. At this time two projects are ongoing within the county that fosters group participation to treat this invasive species at a landscape level. The first is the Conservation Cooperative Partnership Initiative for the Sundry-Rooster Rock area of Baker. This three year project was funded utilizing EQIP and WHIP funds via the Burnt River Conservation District. The second is the Sage Grouse Initiative, a national initiative to treat Juniper within Sage Grouse priority habitats. This initiative is ongoing and projects are funded via EQIP and WHIP.

The Soil and Water Conservation Districts have utilized OWEB grant funding to install conservation practices that improve rangeland condition including watering facilities, fencing, seeding and brush management.

Forestland

Our largest resource concerns for the private forest lands in the county have focused on forest health and fire risk reduction efforts. As a result of past management practices, including a variety of harvesting prescriptions, and exclusion of fire, many of the counties private forestlands are at a high risk of catastrophic fire and/or bark beetle attack.

ODF has provided cost-share from a variety of funding sources (excluding the EQIP projects), to conduct Non-commercial Thinning and Slash Treatment on nearly 5,500 acres (for each practice) of forestland since 2002. Many of these projects have targeted overstocked or otherwise unhealthy forest stands that were at risk of catastrophic fire or bark beetle attack.

ODF has recently (within the last 3 years) tried to build in the removal of biomass as part of their projects – this is a very high priority. However, until local markets develop the use of this practice is somewhat limited.

EQIP funds have been utilized to thin approximately 1,360 acres since 2003. The Forest Service has also treated many acres of National Forest over the past decade.

Wildlife/Riparian

Extensive work has been completed by NRCS and numerous partners to treat identified resource concerns addressing Wildlife and Riparian areas with Baker County. Below is a summary of conservation applied by the Soil and Water Conservation Districts and NRCS since 2003. This data was pulled from the PRS system.

- Improve Conditions for domestic animals including feed and forage, water availability and shelter: 9,347.5 ac
- Improving Fish and Wildlife Habitat including T&E species habitat: 49,242.9 ac
- Improving plant condition and health including T&E plant species as well as reducing wildfire hazard: 67,508.5 ac
- Improving Soil Conditions including organic matter: 5,946.3 ac
- Reducing Soil Erosion including sheet and rill and irrigation induced: 21,531.8 ac
- Improving Water Quality including suspended sediment and organic matter: 10,719.4 ac
- Increasing Water Quantity by reducing inefficient water use on irrigation land: 3,667.5 ac

In 2006, the Baker Valley SWCD began the Powder River Pipeline project. This project provided offstream watering facilities for 13 miles of the Powder River and piped two ditched and installed a fish screen at the diversion. The project involved 18 landowners. NRCS partnered with the project and provided cost share for improved irrigation systems tying into the new diversion. 110 livestock watering

facilities were installed while nine miles of fence was installed to exclude livestock. Fish passage was improved with the installation of eight weirs. This project was continued recently with the Planting the Powder project which has planted two miles of the Powder River with native vegetation.

Baker County has a very active Conservation Reserve Enhancement Program (CREP). The SWCD has a grant to employ a full time conservation planner to assist NRCS with planning and implementing this program. The program has enrolled a total of 33,775 acres of riparian habitat.

Section IV. Natural Resource Problems and Desired Future Outcomes:

Rangeland Health

What is the severity of the problem?

Juniper is encroaching into plant communities in Baker County causing soil erosion, reduced stream flows, changes in plant communities, reduced forage production, and altered wildlife habitat. The pasturelands are struggling to support cattle because of the forage loss to noxious weeds. This problem is a concern for the rangeland owners as there is a potential loss of production, however, a loss this great also affects the economics of the community. Water quality is also at risk as the topsoil is unprotected and erodes downstream.

Particular concern is given to the Keating Soil and Water Conservation District, which is a priority area because information from the Oregon Department of Fish and Wildlife's habitat surveys has shown a threatened sage grouse habitat. Rangeland inputs from the weed districts revealed there is a large invasive species problem, but not necessarily juniper.

Outside of the designated priority area, erosion is posing to be a big problem because of steeper lands.

Who is willing to help with the resource concern?

The county's Soil and Water Conservation Districts, Tri-County Weed Management, Oregon Department of Agriculture, Baker County Weed Department, Oregon Department of Fish and Wildlife, United States Fish and Wildlife Services, Oregon Watershed Enhancement Board, Oregon State University-Extension, Farm Service Agency, private landowners, and the Local Work Group are willing and agencies and organizations to partner with the NRCS to improve rangeland sustainability.

Resource Trends

Juniper has expanded ten-fold in the past 100-150 years in Eastern Oregon, possibly due to historical and ongoing overgrazing of rangeland. Efforts have been successful but the treatment approach has been broad and scattered thus no positive results can be seen for the overall problem. Throughout the watershed the problem may not be decreased but individual landowners are seeing improvement where work has been done, such as water facilities installed, piping, and fencing.

Weed districts have been using GPS and spraying problem areas and the NRCS hopes to learn that great reductions in weeds have been seen. Feedback from the weed districts is needed before any conclusions can be made on the success of the spraying.

What are the goals?

- Improve rangeland sustainability
- Control invasive species expansion

The Keating area is where the NRCS is targeting as a focus area to expend EQIP funds and work to control Juniper, other invasive species, and restore wildlife habitat. For this to happen, there is a need to see a cultural and attitude change towards conservation practices in the people in the Keating area. It has been difficult to get cooperation from landowners in the area, possibly due to the high cost of conservation practices needed. Outreach is needed to educate on the cost-share assistance programs the NRCS funds and the Keating area needs to develop a weed district. The NRCS estimates that 10 percent of the problem can be mitigated in five years in the Keating area due to the high expense of the problem.

For the rest of the county's concerns, the funding pool needs to stay in place in the future and outreach by the NRCS needs to continue to educate the importance of the concern, the most efficient ways to solve the problems, and that the NRCS has funds to offset the costs. Cooperation needs to maintain with partnerships such as the weed districts. Medusahead rye is a major threat to the habitat but is difficult to notice a Medusahead problem and is difficult to document progress.

Juniper in phases I and II needs to be determined in the first step to mitigating the Juniper concern. Another step would be to incorporate the grass bank acres that are not currently being grazed to allow landowners to keep cattle and rest acres in the EQIP program for the required two years and would avoid overstocking of livestock. Grazing management plans will be a key to the sustainability of livestock producers. Range planting within the Sagebrush Steppe Strategy Habitat area will also help improve the rangeland health problem.

How much funding is needed?

To fund the conservation practices, technical assistance, data collection, etc. needed to improve rangeland sustainability, \$230,000 is needed annually and the NRCS will be contributing \$180,000 of that through EQIP.

Forest Health

What is the severity of the problem?

Wildfire is an increasing risk in the forestland in Baker County. Stands are overstocked with unhealthy, inappropriate species. Disease and pests are diminishing plant health and productivity. Overstocked stands also leave less water in streams and interrupt the "catch, store, and safely release" feature of the hydrologic cycle. There is also concern with the public/private land interface. Private land is intermingled within public land that is often poorly managed. Cooperation will be needed with the United States Forest Service to assure that work the NRCS does on private land is not erased by unhealthy public forests.

Depleted wildlife habitat; increased erosion, due to steep and fragile soils; low soil quality; increased sediment in streams, endangering critical habitat for Bull Trout; and risk to human residences are all adverse effects of wildfires. These risks are increasing the demand for forest health to be addressed.

Impacts can be measured in loss of resources such as timber and grazing potential, the cost of controlling a wildfire, and the loss of potential productivity of these sites as soils erode.

Who is willing to help with the resource concern?

The NRCS is planning to partner with the Oregon Department of Forestry, Baker Soil and Water Conservation district, United States Forest Service, private landowners, and the Local Work Group to improve forestland health.

Resource Trends

Fire suppression in the past 100 years has caused stands to become overstocked and allow invasive species to overrun the forests. When timber harvest was an economical practice, contractors would high-grade the stands, taking only top quality trees. This left a young, vulnerable, and densely overstocked population of trees.

In recent years, the attention and efforts for this problem have been up and down, depending on the economy and the market for timber sales.

What are the goals?

- Improve forest health

This is an overwhelming resource concern and may never be completely resolved. The approach is going to be to increase outreach and work with the Oregon Department of Forestry to build onto ongoing projects in the hopes to get a sizeable area treated to feel like the problem is being repaired. Forests will continue to be thinned and the introduction of fire into management plans will be discussed with landowners. The NRCS hopes that 1,200 acres can be treated every five years.

How much funding is needed?

The NRCS plans to treat 33 acres per year per landowner. If participation stays static or partially increases, \$300,000 would be needed annually with \$120,000 of that coming from the NRCS and the rest from partners.

Water Quantity and Quality

What is the severity of the problem?

Baker County has a number of irrigated acres to support multiple agricultural crops and pastureland and a number of these irrigated acres continue to utilize surface irrigation systems or flood irrigation. Irrigation efficiencies on these outdated flood systems are low, ranging from 20-40 percent based on FIRI analysis. These systems cause increased soil erosion as water is transported to the field and applied

by ditches, leading to multiple resource concerns including soil erosion, turbidity of the tail water returning to the river, and sedimentation. As water is returned to streams in many cases, water quality is impacted as non-point source pollution contains fertilizer, pesticides, or oil based pollutants at levels high enough to cause significant detrimental effects to native fish and wildlife.

The Eagle and Pine Creek watersheds are chosen as the target area because of inefficient use water and irrigation. Few systems have been able to be installed in this area. The main target is for flood irrigators to convert to wheel line systems. This should increase stream levels and in turn in improve water quality as low flows are associated with higher water temperatures and higher nutrient concentrations.

Portions of Eagle and Pine Creek have also been designated as 303d listed or Bull Trout Habitat concern areas and between the two creeks have 77 diversions of which 18 are screened for Bull Trout. Flow and hydrology are impacted by irrigation diversions that can reduce flows.

Who is willing to help with the resource concern?

The Irrigation Districts, Oregon Department of Water Resources, Soil and Water Conservation Districts, Oregon Department of Fish and Wildlife, Oregon State University Extension, and the Oregon Watershed Enhancement Board are willing and able agencies to partner with the NRCS to address the water quantity and quality issues in Baker County.

Resource Trends

Landowners have been doing work on their own recently, as it is profitable to them to conserve water and update irrigation systems. This will enable landowners to produce more and diverse crops and have longer water storage periods.

Districts are now using measuring devices to see how much water goes out. This should show areas that need to cut back and allow districts to regulate water use.

What are the goals?

- Improve irrigation efficiency
- Improve water quality
- Increase water quantity

The goals can be achieved if the conversion of inefficient irrigation system to updated ones is successful. Landowners should also be given irrigation water management plans to accompany the new system. The NRCS will outreach to educate on the importance of efficient irrigation and the cost-share assistance programs the NRCS offers. Implementing AWEP to help update the systems in the Pine and Eagle Creek watersheds will increase funds in the EQIP program.

Based on the extent of the resource concern and proposed level of funding, 50 percent of the resource concern can be solved in five years.

How much funding is needed?

Two hundred acres should be able to be updated per year. After the first year the number of acres treated annually may fluctuate depending on participation and progress accomplished the first year. Approximately \$140,000 will be needed annually, which should cover the cost of two projects.

Section V. Prioritization of Natural Resource Problems and Desired Future Outcomes:

The Baker County Local Work Group met over the summer of 2010 at two different times. The group prioritized Baker County Resource Concerns. See attached table "xxxx" for a listing of these prioritized resource concerns.

1. Rangeland Health

Landowners countywide are willing to participate in this effort as invasive species diminish the grazing capability, decrease stream quality, and destroy wildlife habitat.

Partner contribution is as follows:

The county's Soil and Water Conservation Districts, Tri-County Weed Management, Oregon Department of Agriculture, Baker County Weed Department, Oregon Department of Fish and Wildlife, United States Fish and Wildlife Services, Oregon Watershed Enhancement Board, Oregon State University-Extension, Farm Service Agency, private landowners, and the Local Work Group are willing agencies and organizations to partner with the NRCS to improve rangeland sustainability.

Success will be measured from anecdotal evidence from the landowner and the number of applied EQIP contracts for rangeland health.

2. Forest Health

Forestland owners countywide are willing to participate in this effort as the decreased forest conditions create a high risk of catastrophic wildfires.

Partner contribution is as follows:

The NRCS is planning to partner with the Oregon Department of Forestry, Baker Soil and Water Conservation district, United States Forest Service, private landowners, and the Local Work Group to improve forestland health.

Success will be measured by the number of applied EQIP contracts and future feedback from landowners, Oregon Department of Forestry, and NRCS.

3. Water Quantity and Quality

Crop producers and citizens of the county are willing to participate in this effort as water conservation and adequate water quality and quantity is essential to everyone.

Partner contribution is as follows:

The Irrigation Districts, Oregon Department of Water Resources, Soil and Water Conservation Districts, Oregon Department of Fish and Wildlife, Oregon State University Extension, and the Oregon Watershed

Enhancement Board are willing and able agencies to partner with the NRCS to address the water quantity and quality issues in Baker County.

Success will be measured by feedback from the local irrigation districts, water quality assessments, and the number of irrigation systems updated for efficiency.