

NATURAL RESOURCE PROFILE - YAMHILL COUNTY, OREGON

In the mid 1800's, numerous settlers traveled the Oregon Trail to reach the rich farm and forest lands of Oregon's Willamette Valley. In 1860, the present-day boundaries of Yamhill County were used to form one of Oregon's original four districts. Yamhill County today covers 781 square miles (Table 1). Although one of the smallest counties in Oregon, Yamhill ranks tenth in population, fourteenth in taxable property value, and eighth in annual worker salary. Unemployment levels are generally lower than the rest of Oregon. County population has doubled since 1970 with current population at 83,100 and growth averaging 2.7 percent per year since 1960 (Table 2). Yamhill County also receives population pressures from urban areas to the northeast and southeast. Portland, Oregon's largest city is less than 40 miles to the northeast with a population over 500,000. To the southeast is Salem, Oregon's third largest city and state capital, with a population over 125,000. Many people live in rural Yamhill County on small acreages and commute to Portland and Salem for work. These small acreages are classified as farmland.

Land Ownership and Use

Less than 10% of Yamhill County is state or federally owned compared to over 50% for the rest of Oregon (Figure 1). In many Oregon counties, the federal government plays the largest role in land management. In Yamhill County, private land owners must make land use decisions that provide personal income and conserve natural resources while also meeting state and federal land use laws such as endangered species, water quality, and forest land. Voluntary programs through Yamhill SWCD assist private landowners in making good land use decisions.

Rich soil, good climate, and refined production techniques combine in Yamhill County to produce high quality crops and timber. Agriculture and lumber production are the leading industries in Yamhill County, with agricultural income ranking seventh among Oregon counties at 532 million annually. Since 1980, there has been a 12% reduction in cropland under production (Table 3) and also significant changes in the crops grown. Since 1980, small grain acres have declined 69%. Acres have increased for intensive crops such as: grass and legume seed (102%), tree fruits, grapes, and nut crops (26%), small fruits and berries (106%), and vegetable crops (28%). Container grown nursery plant production has also increased in Yamhill County. Animal agriculture has also undergone major changes in the past 20 years. Cattle numbers have remained steady but production is now consolidated into fewer, but larger, operations. Production has declined for sheep (24%), hogs (43%), and poultry (57%) (Table 4).

Water Resources

Most of Yamhill County lies in the Yamhill Basin Watershed. Close to 31,000 acres extends to the south into Polk County. Dozens of small creeks supply three sub-basins; North Yamhill, South Yamhill, and the Yamhill River main stem. Beneficial water uses include: fishing, swimming, boating, wildlife habitat, native species enhancement, agriculture, and domestic and industrial development. Water supply varies seasonally with high winter stream flows and low summer flows. Oregon Water Resources Department has appropriated water rights for 8,300 acre-feet of water in the Yamhill Basin, with 6,423 acre-feet being for irrigation and the rest primarily for urban uses (OWRD, 1998). In some communities municipal water use is in direct competition with agricultural uses. Irrigation withdrawals occur primarily during summer months when stream flows are low and this can negatively influence water quality. When stream flows are very low, temperature, nutrient and bacteria concentrations increase, which can negatively impact wildlife.

Eleven stream segments in Yamhill County do not meet state water quality standards and have been placed on Oregon Department of Environmental Quality's (DEQ) "303(d) List" (Table 5). This list is named after Section 303(d) of the Federal Clean Water Act that requires states to monitor water quality and develop programs and regulations to improve it. More stream segments are expected to be placed on Yamhill Basin's 303(d) list as more data is collected. A stream can be "listed" for one or more parameters such as: bacteria levels, temperature, flow modification, dissolved oxygen, pH, or for presence of toxic materials such as pesticides.

Pollutants Causing Water Quality Impairment in Yamhill County Streams

Temperature. Several factors contribute to high water temperatures in Yamhill Basin water bodies. Since the Yamhill Basin receives runoff from the coast mountain range, there is no snow pack. This results in large seasonal variations in water flows, with summer flows being so low that temperature standards are hard to achieve. In addition, the watershed has been altered greatly by road construction, tile drainage of agricultural land, and urbanization. These factors accentuate the removal of water from the watershed during the fall through spring rainy period. Irrigation and domestic water withdrawals also remove water from the system during the summer months when stream flows are lowest. Three additional factors are important: 1) riparian conditions have been altered by the removal of large trees along waterways which provided shade (Table 6); 2) runoff from roadways during brief summer storms and from agricultural irrigation runoff contribute warm water to streams which raises summer temperatures; and, 3) runoff from urban areas.

Bacteria (Esterichia coli). Contributions occur from livestock, which graze in riparian areas and from confined animal feeding operations. Domestic septic systems from many rural home sites are also contributors. Soil types in the basin are not ideal for septic systems. Wildlife such as waterfowl, deer, and elk are also suspected to be contributing to bacteria problems.

Sediment. Runoff from agricultural land and from forestry activities is a major sediment contributor. Fifty eight percent of the soils in the basin are classed as highly erosive by USDA-NRCS, suggesting that special consideration needs to be taken by agriculture and forestry to prevent sediment loss. With over 1,200 miles of public road in the basin, road construction and maintenance throughout the watershed has been identified as a major sediment contributor. Poor riparian conditions contribute sediment to most of the streams in the basin. Nearly every stream has some bank damage and washout areas that could be restored. One-third of stream miles have no tree cover to provide shade (Table 6).

Biological Resources

Diversity and acreage of natural wildlife habitats in Yamhill County have been reduced as land was converted from natural forest and grassland to managed forests, cropland, homesteads, and urban areas. An estimated 40% of Willamette Valley wetlands have been lost. As a result, ecological functions of wetlands and riparian areas has been reduced such as: filtering sediment, providing wildlife habitat, regulating high water flows, replenishing groundwater, and providing greater in-stream water flows during summer months.

Yamhill County is home to many different native plants and animals. Several bird, fish, and plant species are currently in decline and have received Federal Endangered or Threatened Species designation under the Endangered Species Act. Other species are listed as Species of Concern and may require ESA listing for protection.

Table 1. Statistics for Yamhill County, Oregon

Yamhill County Profile	Rank Among Counties (36 total)	Oregon	Value
Land Area	31 st		718 sq. miles
Population (1999)	10 th		83,100
Value of Taxable Property	14 th		3.3 billion
Average Payroll Per Worker	8 th		\$ 24,372
Unemployment (5 Year Avg.)	5.7		4.5
Agricultural Income	7 th		\$176 million / year

Table 2. Yamhill County and Oregon Population (Source: U.S. Census Bureau & Portland State University)

Year	Oregon (million)	Yamhill County
1960	1.8	32,500
1970	2.1	40,200
1980	2.6	55,300
1990	2.8	65,500
1999	3.2	83,100
2040	Est.4.6	Est. 125,000

Table 3. Crop Agriculture in Yamhill County, Oregon (Source: OSU Extension Service)

Crop Category	Acres in 1980	Acres in 1997	Change
Grain	57,500	17,800	↓ 69 %
Hay / Forage	22,000	25,000	↑ 14 %
Grass & Seed Crops	17,360	35,040	↑ 102 %
Field Crops	160	1,120	↑ 800 %
Tree Fruit / Nuts	8,560	10,825	↑ 26 %
Small Fruits / Berries	485	1,000	↑ 106 %
Vegetable Crops	5490	7,031	↑ 28 %
Other	Not reported	250	-
TOTALS	111,555 acres	98,066acres	↓ 12 %

Table 4. Animal Agriculture in Yamhill County, Oregon (Source: OSU Extension Service)

Livestock Type	Animals in 1982	Animals in 1997	Change
Cattle and Calves Inventory	26,000	26,680	↑ 2.6%
Beef Cows	6,000	4,920	↓ 18%
Milk Cows	5,100	5,650	↑ 10%
Sheep and Lambs	12,500	9,520	↓ 24%
Hogs and Pigs	14,000	8,000	↓ 43%
Chickens and Turkey	90,000	38,900	↓ 57%
Horses, Mules, Donkeys, Llamas	No data	1029	x

Table 5. Water Quality Limited Stream Segments 303(d) List for the Yamhill Basin Watershed, 1998

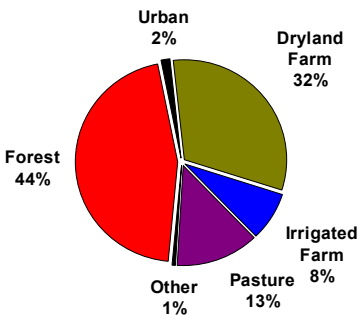
Waterbody Name & Waterbody Segment	303(d) List Parameter Causing Listing
Deer Creek Mouth to headwaters	Bacteria
Mouth to Little Deer Creek	Temperature
Mill Creek Mouth to headwaters	Bacteria, Temperature
Salt Creek Mouth to headwaters	Bacteria, Chlorophyll a Dissolved Oxygen, Temperature
Turner Creek Mouth to Severt Creek	Temperature
Willamina Creek Mouth to above East Creek, RM 10	Bacteria
Yamhill River Main Stem Mouth to above East Creek Above East Creek RM 10 to headwaters	Bacteria, Temperature
Yamhill River – North Fork Mouth to Turner Creek	Bacteria, Flow modification, Temperature
Yamhill River - North Fork Turner Creek to headwaters	Temperature
Yamhill River - South Fork Mouth to Salt Creek	Bacteria, Temperature
Yamhill River - South Fork Salt Creek to Willamina Creek Willamina Creek to headwaters	Bacteria, Flow modification, Temperature Bacteria

Table 6. Condition of Riparian Vegetation Along Yamhill Basin Streams

(Based on Watershed Assessments conducted by the Yamhill Basin Council using overhead aerial photography techniques, 1999–2001)

Condition of Riparian Vegetation Based on Aerial Photos	Percentage of Land Along Streams
No Vegetation	6.3%
Brush and Grass Only	28.6%
Conifers	10.0 %
Hardwoods < 50 ft. tall	22.0 %
Hardwoods > 50 ft. tall	22.5 %
Mixed Conifers and Hardwoods	10.6 %

Figure 1. Land Use and Ownership in Yamhill County, Oregon



Land Ownership	Oregon	Yamhill County
Federal	50.0 %	8.9 %
State	2.5 %	0.5 %
Tribal	1.3 %	2.0%
Private	46.2 %	89.6 %