

### **3.0 PLANNING OVERVIEW**

Many factors can influence future water demand and availability in WRIA 53. Land use and population are two that can have significant impacts to future demand and water availability. This section presents a summary of the existing information estimating the recent population and the future growth trend, as well as describing land use and ownership in the watershed.

#### **3.1 INTRODUCTION**

Planning data is scarce for the WRIA 53 watershed. The City of Davenport is the only incorporated area in the watershed. Several private developments exist in the northern part of the watershed, which has recently observed an increase in planning and platting activities for developments with views over Lake Roosevelt. Growth within the watershed has been slow, however, the County is expecting some growth to occur in the future, primarily along the Columbia River.

#### **3.2 POPULATION**

Increasing population and changes in the economy may have direct impacts on the future demand for water. As water demands increase with population growth, management of the limited water resource becomes more important and may significantly influence the location and amount of population growth. This section is designed to identify information as it relates to population.

Regionally, the populations of Okanogan, Ferry and Grant Counties have increased 35 to 50 percent since 1970, while the population of Lincoln County has only grown approximately six percent. Table 10 presents a summary of the population data from the 1930-2000 census (US Census Bureau, 2000). Population data for Lincoln County has fluctuated between 10,100 to 10,400 since the 2000 census, with the largest growth in the past two years (Table 10).

For the purpose of watershed planning in WRIA 53, three areas should be evaluated for population growth. These are: 1) growth in incorporated areas, 2) growth in rural areas, and 3) growth in private communities along Lake Roosevelt. Table 11 presents a summary of the estimated number of homes in the WRIA 53 watershed. Figure 26 presents a map showing the generalized population density throughout WRIA 53. Most of the County is rural and typically has less than 50 people per square mile. Several small communities along the Columbia River near Coulee Dam and Seven Bays have population densities of 50-100 people per square mile. The City of Davenport has approximately 100-500 people per square mile.

##### **3.2.1 Incorporated Areas**

The City of Davenport is the only incorporated area in the WRIA 53 watershed. Population trends in the City are closely tied to the economy. During the decade of 1990 to 2000, the population in Davenport increased by 139 persons from 1502 to 1738 for a 16% gain. Population in the City of Davenport has ranged from 987 in 1930 to 1738 in 2000 (US Census, 2000).

<b>TABLE 10: SUMMARY OF U.S. CENSUS DATA</b>				
<b>Census Year</b>	<b>Lincoln County</b>	<b>Grant County</b>	<b>Okanogan County</b>	<b>Ferry County</b>
2000	10,184	74,698	39,564	7,260
1990	8,864	54,758	33,350	6,295
1980	9,604	48,522	30,639	5,811
1970	9,572	41,881	25,867	3,655
1960	10,919	46,477	25,520	3,899
1950	10,970	24,346	29,131	4,096
1940	11,361	14,668	24,546	4,701
1930	11,876	5,666	18,519	4,292

<b>Estimated Annual Census for Lincoln County (2000-2008)</b>								
<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
10,184	10,200	10,200	10,100	10,200	10,100	10,200	10,300	10,400

<b>TABLE 11: HOUSES PER SUBBASIN AND ESTIMATED POPULATION</b> (based on assigned addresses)						
<b>SUBBASIN</b>	<b>Total Houses</b>	<b>Private Subdivision Houses</b>	<b>Municipal Houses</b>	<b>Rural Homes</b>	<b>Estimated Population(1)</b>	
					<b>Municipal/ Subdivision</b>	<b>Rural</b>
Hawk Creek	2301	941	801	559	4379	1358
Brody Creek S	614	476		138	1156	335
Coulee Dam S	389	151		238	367	892
Coulee Dam N	No Data	-----	-----	-----	-----	-----
Brody Creek N	No Data	-----	-----	-----	-----	-----
<b>Total WRIA 53</b>	<b>3304</b>	<b>1568</b>	<b>801</b>	<b>935</b>	<b>5757</b>	<b>2272</b>

(1) Population estimated using 2.43 persons per home

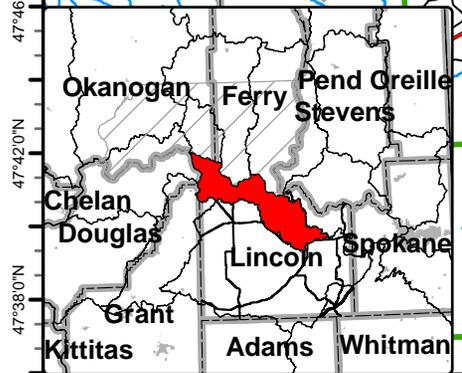
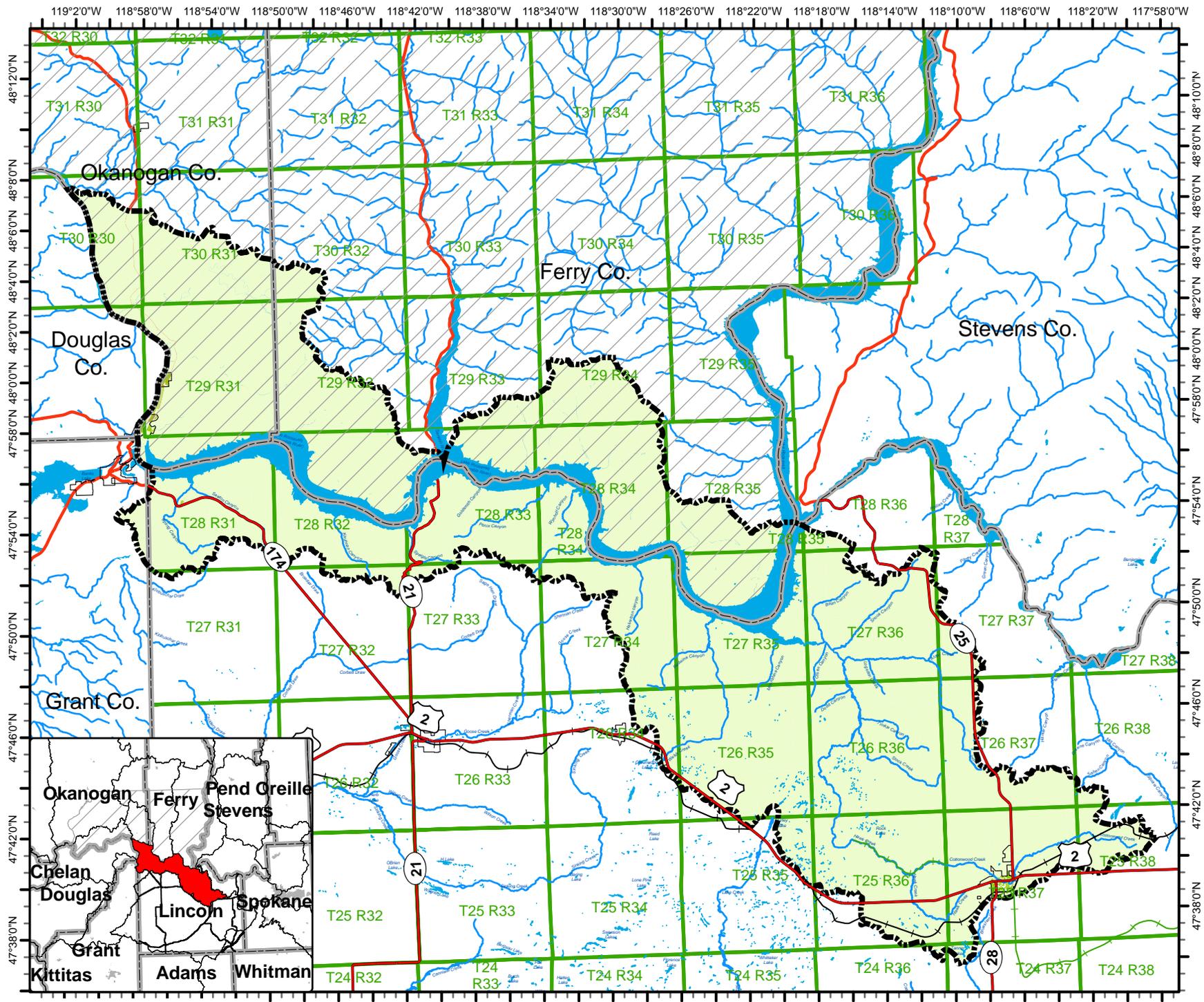
**Figure 26**  
**Population Density**  
**WRIA 53**



**WRIA 53**  
 American Indian Reservation

**People / sq. mile**

- 0.0000 - 500.0000
- 500.0001 - 600.0000
- 600.0001 - 5000.0000



Actual relationships and distances between features may be different from those depicted on this map. Data was compiled from multiple sources. The data sources do not guarantee these data are accurate or complete. This map is for informational purposes only.



In 2000, there were 765 housing units in Davenport, of which 497 are owner-occupied. Average household size for the City is 2.43 persons per home. The growth in population over the next ten years from the City of Davenport is expected to be less than 10-percent. A review of the water system for the City of Davenport for 2008 revealed that there are 801 connections.

### 3.2.2 Rural Areas

The majority of WRIA 53 is a rural housing environment. Estimates of population density in rural areas are difficult to predict. In order to predict rural population, the Lincoln County 911 address database was used to estimate rural housing. For the three subbasins south of the Columbia River, an estimated 935 rural homes are present, of which 24 are small farms. Assuming 2.43 people per home, a rural population of 2,272 is estimated.

### 3.2.3 Private Communities

The rural private communities have been the fastest growing area for the WRIA 53 watershed. Most of these communities are located along the southern banks and valley wall of Lake Roosevelt. There are currently 13 Group A water purveyors for private communities in WRIA 53. Table 12 list the Group A water purveyors and the potential connections allowed from their water rights and system plan.

As shown in Table 12, the Group A water purveyors have a permitted 2,607 connections. However, when crossed referenced with the Lincoln County Land Services E911 database only 1528 homes have been connected to the water systems. Assuming an average of 2.43 people per household, the private communities can have an estimated 3,713 residents. However, many of the planned rural developments are not fully built out at this time. Lincoln County Planning estimates that the planned developments are only built-out to 58% of capacity. Eight Group B wells are also located in the watershed. Assuming an average of 10 homes per Group B system, this would result in an additional 243 residents in water service areas (total = 3956 residents).

The Lincoln County Planning Department has been tracking growth in the rural private communities. These planned developments are the largest population growth areas for the county. Long plats and short plats have increased over the past several years, primarily along the southern banks of Lake Roosevelt. Personal communication with Jim DeGraffenreid, Planning Services Director in Lincoln County provided the following summary of development over the past two years.

#### **2007 Development Report:**

- Land divisions have been at an all-time high with over 300 residential parcels being created in the County within the past 18-24 months. Most land divisions are occurring in the northern portion of the County, with the majority in the Lake Roosevelt corridor. Land use issues, including the availability of drinking water, are increasing with each new construction season. The County is experiencing continuing good growth with individuals and families seeking the quality of life and the many recreational opportunities offered within the County. Also, there are increasing numbers of retirees relocating to the sunny shores of Lake Roosevelt and the surrounding area.

**TABLE 12: SUMMARY OF GROUP A WATER PURVEYORS IN WRIA 53**

Water Right Name	System Name	Permitted Qa	T R S	Sub-Basin	Potential Connections	Actual Connections
Seven Bays Inc	Seven Bays	1386.00	27.0N 35.0E 12	Hawk Creek	369	0
Davenport City	City of Davenport	2887.00	25.0N 37.0E 21/20/16	Hawk Creek	1000	800
Lanway, Orville	Lakeview Heights	452.00	27.0N 36.0E 06	Hawk Creek	58	5
Addink, Ben	Ridgeview	86.66	27.0N 35.0E 13	Hawk Creek	95	0
Behrens, Greg	Columbia Springs	60.00	28.0N 31.0E 18	Coulee S	43	24
HANSON F W	Hanson Harbor	22.50	28.0N 33.0E 13	Brody S	124	40
MACKS FRED	FDR Estates	627.60	28.0N 31.0E 17	Coulee S	23	2
Mattox Raymond	Rocky Top Estates	38.00	27.0N 36.0E 18	Hawk Creek	48	4
PFAFFLE WILLARD E	Lakeview Subdivision	60.00	28.0N 33.0E 17	Coulee S	28	25
Rantz Marine Park	Rantz Marine Park	17.00	28.0N 34.0E 20	Brody S	18	17
Riverside Property LLC	Roosevelt Views	120.00	28.0N 33.0E 20	Coulee S	66	0
SERESUN ANDREW		45.60	28.0N 31.0E 18	Coulee S		
Spencer-Livingston A Partnership	Deer Meadows	1500.00	28.0N 35.0E 36	Hawk Creek	401	110
Roosevelt Lake Ranch Water System Inc	Lincoln		27.0N 35.0E 20	Brody S	334	132

Note: Actual Connections are as of June 15<sup>th</sup>, 2009.

- Building permits are on the increase with structural values exceeding all previous years.

### **2008 and on to 2009 Development Report:**

- The second half of 2008 was definitely slower than the previous year and is expected to continue into 2009. Land divisions are down but not dead. Several short plats are in the works along with 2-3 subdivisions starting or finishing up from the previous year. Land use issues, including the availability of drinking water, are still increasing, even with the slowing economy.
- Building permits are also down, but signs of spring, favorable interest rates and the down-turn of lumber prices are all factors triggering several new housing starts.
- Our Geographical Information System (GIS) division continues to expand with new maps and data services available, including watershed (WRIA 43, 53 & 54) information on the very informative Lincoln County website.

### 3.3 LAND USE

Land use directly influences water quantity and quality. Changes in land cover have an influence on a watershed's response to precipitation both in terms of timing of runoff and volume. Some changes can alter the hydrologic cycle, most notably changing the evapotranspiration, the volume of water entering as infiltration, and the quantity and timing of runoff. During winter months, land use can also increase or decrease the snowpack which acts as storage for water which enters the streams and groundwater in the spring months.

Land use affects water availability by modifying recharge and runoff and by redirecting water from its natural flow path. Land uses also differ significantly in the amount of water required to support native vegetation or crops. Thus, understanding existing land uses and the geographic extent in the WRIA is an essential component in discussing and developing management strategies.

Table 13 presents land use information for the WRIA 53 watershed. Land uses in the watershed range from timbered upland areas to grasslands and scablands on the Columbia Plateau. Within WRIA 53, agriculture comprising farming and rangeland is the primary land use, which comprises approximately 74 percent of the land area south of the Columbia River (Figure 27). The second largest land use is public lands. Graphical presentations for land uses in the Coulee Dam South, Brody Creek South, and Hawk Creek are presented in Figure 28, Figure 29, and Figure 30, respectively. Land uses in each of these subbasins are very similar to the overall average watershed land uses (see Table 13).

**TABLE 13: LAND USE IN WRIA 53**

<i>Land Use</i>	<i>WRIA 53 – South of Columbia River</i>		<i>Coulee Dam South</i>		<i>Brody Creek South</i>		<i>Hawk Creek</i>		<i>Coulee Dam North &amp; Brody Creek North</i>	
	<i>Acres</i>	<i>%</i>	<i>Acres</i>	<i>%</i>	<i>Acres</i>	<i>%</i>	<i>Acres</i>	<i>%</i>	<i>Acres</i>	<i>%</i>
Agriculture – farm/rangeland	153,059	74	28,645	76	37,495	74	86,918	73	-----	-----
Timber/ Open Space	3,772	2	377	1	1,013	2	2,381	2	-----	-----
Mining	0	0	0	0	0	0	0	0	-----	-----
Vacation/Cabin (>5 acres)	9,994	5	1507	4	2,533	5	5,953	5	-----	-----
Rural Resident (<5 acres)	7,483	4	1,884	5	2,027	4	3,572	3	-----	-----
Mobile Home Park/Court	377	<1	377	1	0	0	0	0	-----	-----
Public	31,551	15	4900	13	7,600	15	19,050	16	-----	-----
Industrial	5	<1	0	0	2	<1	4	<1	-----	-----
Incorporated	1,191	1	0	0	0	0	1,190	1	-----	-----
Indian Reservation	0	0	0	0	0	0	0	0	118,730	100
<b>TOTAL</b>	<b>207,432</b>	<b>100</b>	<b>37,692</b>	<b>100</b>	<b>50,669</b>	<b>100</b>	<b>119,065</b>	<b>100</b>	<b>118,730</b>	<b>100</b>



### 3.4 LAND OWNERSHIP

Land cover and use is controlled through land ownership and management. Figure 31 presents data on land ownership in the WRIA 53 watershed. The largest ownership of land in WRIA 53 is the Colville Tribe, owning all 118,730 acres north of the Columbia River. Figure 32 presents the land ownership for the distribution of Federal, State, County and Private ownership for the area south of the Columbia River within WRIA 53. As shown in Figure 32, private owners manage 175,329 acres (84%) in the southern portion of the watershed. The Federal government is the second largest landowner (22,044 acres, 11%), followed by State agencies (9,837 acres, 5%), and Counties (138 acres, <1%).

Understanding the mission and goals of the major land managers provides an indication if, and how, land cover and use might change in the next 20 years. This information needs to be recognized and included in the discussion and recommendations about how to manage the WRIA 53 water resources. Table 14 presents data on landownership in the WRIA 53 watershed. By further delineating the Federal, State and local landowners in the southern portion of the watershed, once again private landowners are by far the largest land managers. The Bureau of Reclamation (BOR) / National Park Service (NPS) are the largest public land owners (14,732 acres, 7%), managing those lands primarily along Lake Roosevelt. The State Department of Natural Resources (DNR) is the second largest public land manager. These lands are primarily the state sections to be managed for natural resources, which are located throughout the watershed. The Washington State DNR manages 9,835 acres (5% of WRIA 53 south). The Bureau of Land Management (BLM) also manages 7,312 acres (3% of WRIA 53 south). This land is mostly located west of the town of Davenport, near the headwaters of Hawk Creek, and north of Hurley Lake across the watershed divide. The BLM also manages various parcels of land along Lake Roosevelt. Lincoln County manages approximately 138 acres in the southern part of the watershed (<1%).

**TABLE 14: LAND OWNERSHIP IN WRIA 53**

<i>Land Ownership</i>	<i>WRIA 53 – South of Columbia River</i>		<i>WRIA 53 – North of Columbia River</i>	
	<i>Acres</i>	<i>%</i>	<i>Acres</i>	<i>%</i>
<i>Private Ownership</i>	175,329	84	-----	-----
<i>Colville Indian Reservation</i>	0	0	118,730	100
<i>Federal–National Park Service</i>	14,732	7	-----	-----
<i>Federal – Bureau of Land Management</i>	7,312	3	-----	-----
<i>WA State Dept Natural Resources</i>	9,835	5	-----	-----
<i>WA State - other</i>	2	<1	-----	-----
<i>Lincoln County</i>	138	<1	-----	-----
<b><i>TOTAL</i></b>	<b><i>207,432</i></b>	<b><i>100</i></b>	<b><i>118,730</i></b>	<b><i>100</i></b>

### Land Use – South of Columbia River

	Acres	%
<b>Agriculture (farm/range)</b>	153,059	74%
<b>Timber/Open Space</b>	3,772	2%
<b>Mining</b>	0	0%
<b>Vacation/Cabin (&gt; 5)</b>	9,994	5%
<b>Rural Residential (&lt; 5)</b>	7,483	4%
<b>Mobile Home Park/Ct</b>	377	0%
<b>Public</b>	31,551	15%
<b>Industrial/Commercial</b>	5	0%
<b>Incorporated</b>	1,191	1%
<b>Total</b>	207,432	100%

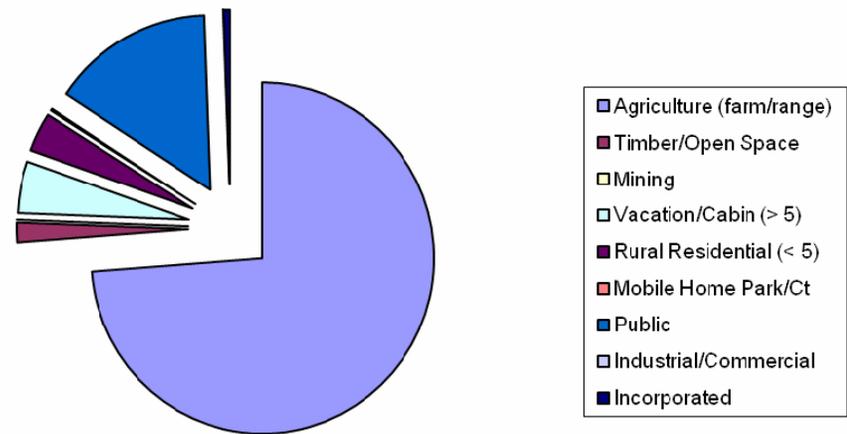
<b>Lakes &amp; Rivers</b>	32,767	
<b>Streams, creeks, etc...</b>	135 miles	

### Land Use – North of Columbia River

	Acres	%
<b>American Indian Reservation</b>	118,730	100.00%

36.4% of total watershed

Land Use



**FIGURE 27**

**Land Use in the Lower Lake Roosevelt Watershed**

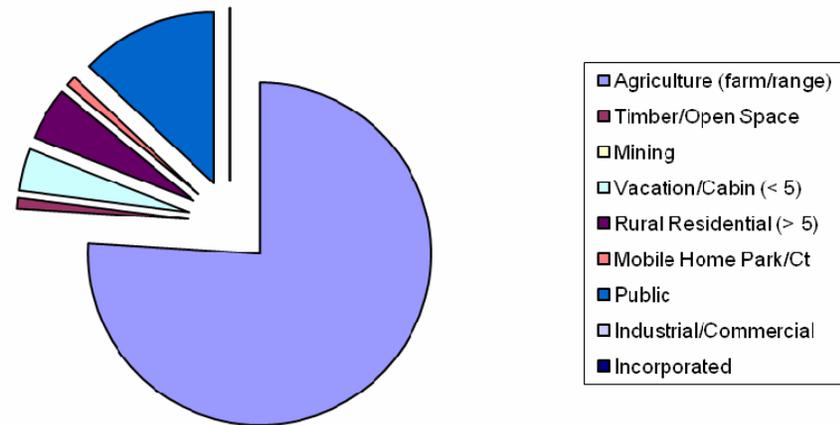
Prepared by: ENJS

May 5, 2009

### Land Use – Coulee Dam South Subbasin

	Acres	%
Agriculture (farm/range)	28,645.78	76.00%
Timber/Open Space	376.92	1.00%
Mining	0.00	0.00%
Vacation/Cabin (< 5)	1,507.67	4.00%
Rural Residential (> 5)	1,884.59	5.00%
Mobile Home Park/Ct	376.92	1.00%
Public	4,899.94	13.00%
Industrial/Commercial	0.00	0.00%
Incorporated	0.00	0.00%
<b>Total</b>	<b>37,691.81</b>	<b>100%</b>

### Land Use - Coulee Dam S



**FIGURE 28**

**Land Use in the Coulee Dam South Subbasin**

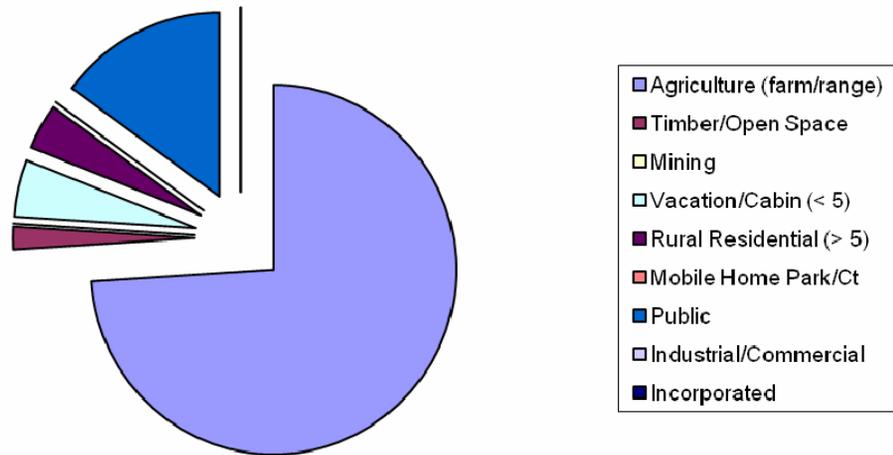
Prepared by: ENJS

May 5, 2009

### Land Use – Brody Creek South Subbasin

	Acres	%
Agriculture (farm/range)	37,495.49	74.00%
Timber/Open Space	1,013.39	2.00%
Mining	0.00	0.00%
Vacation/Cabin (< 5)	2,533.48	5.00%
Rural Residential (> 5)	2,026.78	4.00%
Mobile Home Park/Ct	0.00	0.00%
Public	7,600.44	15.00%
Industrial/Commercial	1.64	0.00%
Incorporated	0.00	0.00%
<b>Total</b>	<b>50,669.58</b>	<b>100.00%</b>

### Land Use - Brody Creek S



**FIGURE 29**

### Land Use in the Brody Creek South Subbasin

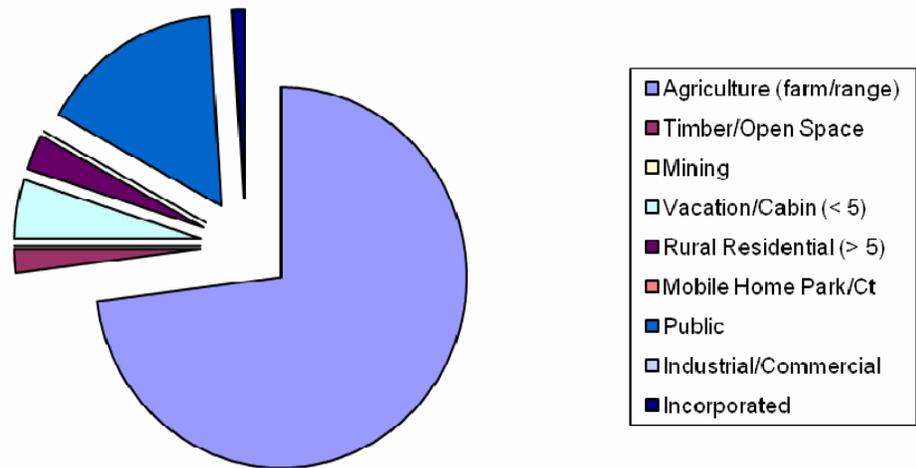
Prepared by: ENJS

May 5, 2009

### Land Use – Hawk Creek Subbasin

	Acres	%
Agriculture (farm/range)	86,917.55	73.00%
Timber/Open Space	2,381.30	2.00%
Mining	0.00	0.00%
Vacation/Cabin (< 5)	5,953.26	5.00%
Rural Residential (> 5)	3,571.95	3.00%
Mobile Home Park/Ct	0.00	0.00%
Public	19,050.42	16.00%
Industrial/Commercial	3.85	0.00%
Incorporated	1,190.65	1.00%
<b>Total</b>	<b>119,065.14</b>	<b>100.00%</b>

### Land Use - Hawk Creek



**FIGURE 30**

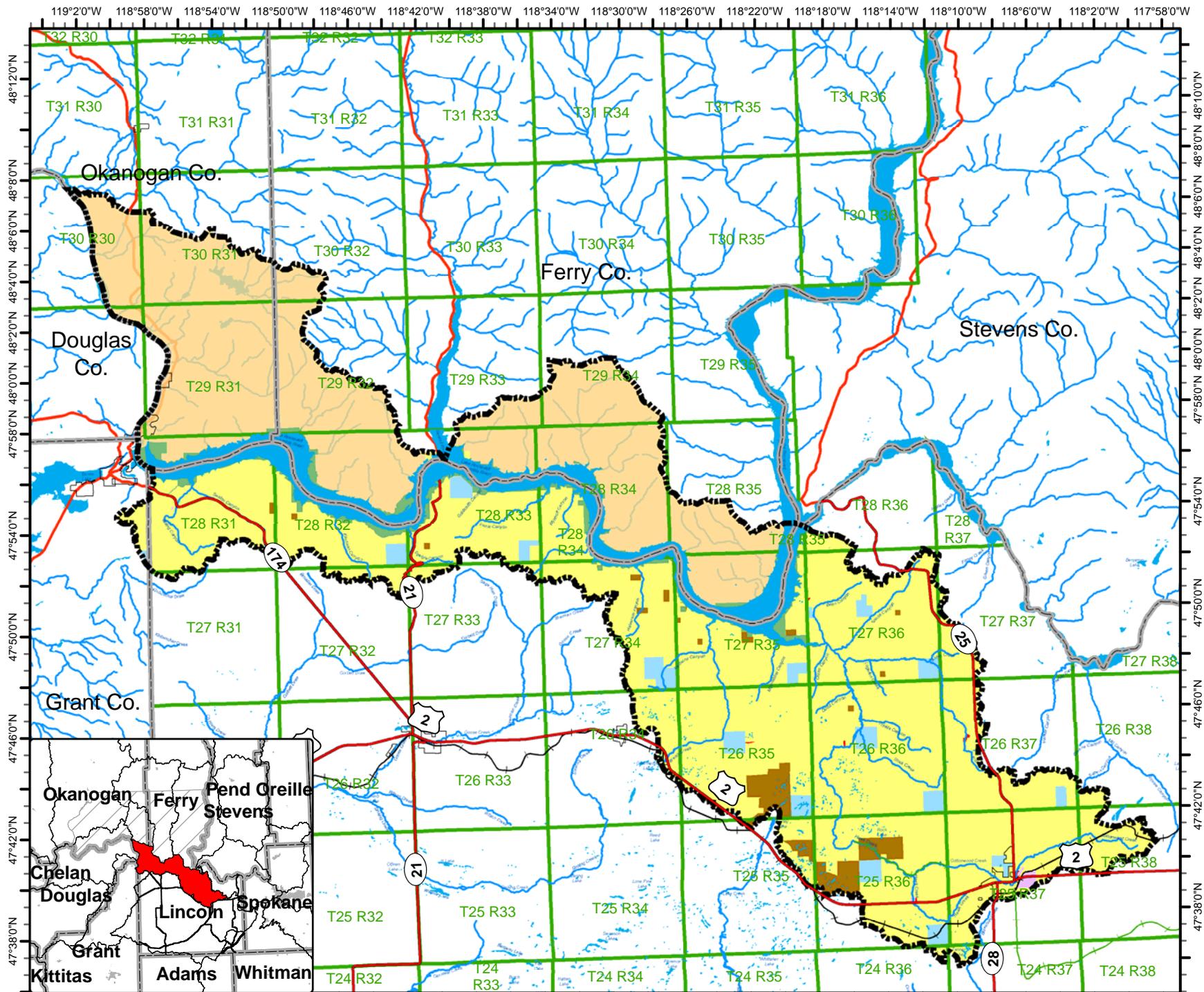
**Land Use in the Hawk Creek Subbasin**

Figure 31

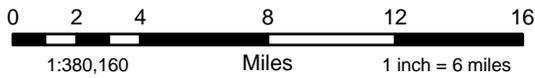
Land  
Ownership  
WRIA 53



- WRIA 53
- Dept. Natural Resources
- National Park Service
- Bureau of Land Manage.
- Private
- Lincoln County
- Other WA State
- Tribal



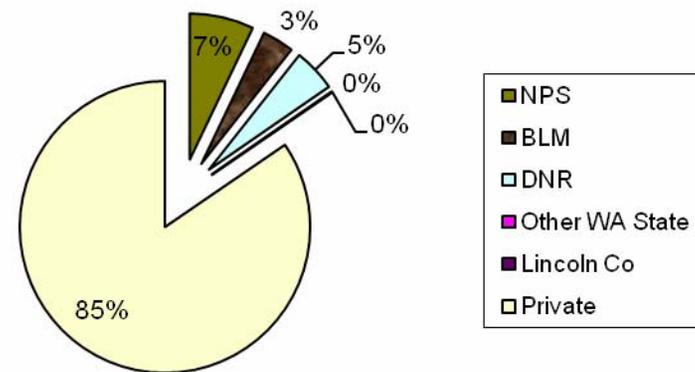
Actual relationships and distances between features may be different from those depicted on this map. Data was compiled from multiple sources. The data sources do not guarantee these data are accurate or complete. This map is for informational purposes only.



**Land Ownership – WRIA 53 - South**

WRIA 53 - South	Acres
<b>Total</b>	<b>207,348</b>
NPS	14,732
BLM	7,312
DNR	9,835
Other WA State	2
Lincoln Co	138
Private	175,329

**Southern WRIA 53 Ownership  
Graph B**



**FIGURE 32**

GRAPHICAL PRESENTATION OF LAND OWNERSHIP WITHIN THE WRIA 53 – SOUTHERN PORTION OF WATERSHED