Chapter 12

NATURAL RESOURCES

ENVIRONMENT

Jerome County's environment has provided the area with its economic livelihood for over a century. Jerome County's flat topography, soil condition, and--most importantly--water resources form the basis of the existing agricultural development. The documentation of these natural resources, as well as possible areas of hazard, provide the groundwork in which informed and environmentally responsible planning decisions can be made.

Geology

The geology of an area is used to describe the natural features that characterize the outdoor setting as well as the physical elements that make up that setting. This section provides a description of the geologic setting as well as the soil attribute.

Jerome County lies within the Snake River Plain, subregion of the Columbia Plateau Province. This region is characterized by a broad, slightly undulating basalt plateau used primarily for agriculture. Basalt outcrops are common in the Jerome County region. In northeastern Jerome County, on Bureau of Land Management (BLM) managed land, the remnants of the ancient basalt lava flow are readily visible throughout the area.

Snake River Canyon

The Snake River Canyon, as the southern boundary of the County, provides the most scenic and dramatic geologic feature of the County. "*The Snake River may have begun cutting its present canyon about 500,000 years ago. Immediately above Milner Dam the Snake's river bed is slightly below the level of the Snake River Plain, but in the 22 mile stretch below the dam, the river has cut a canyon 400 feet deep. At Shoshone Falls, the river drops another 212 feet. Scab-land topography near the falls is associated with the Bonneville Flood. Approximately 15,000 years ago, overflow from the Pleistocene Lake Bonneville scoured the Snake River Canyon. The flood water swept the canyon and adjacent uplands of rock debris, eroding alcoves and scablands, and deposited huge bars of sand and gravel with boulders over 10 feet in diameter. Most rapids in the area are a result of a large number of boulders deposited at or below a slight widening of the canyon during the Bonneville Flood.*"(IDWR, 1993 Comprehensive State Water Plan, Appendix B-1) Area erosion features formed by glacial floodwaters include the Devil's Washbowl, Devil's Corral, and Blue Lakes.

Due to its spectacular beauty and recreation opportunities, the river-canyon corridor provides a unique element that contributes to the County's quality of life. The river canyon provides hiking, fishing, hunting, trapping, wildlife viewing, and cultural resources in a spectacular, rugged environment.

Much of the land along the Snake River is in private ownership--where development along the cliffs and in the canyon itself has occurred. Milner dam is owned and operated by Milner Dam, Inc. whose sole shareholders are the North Side Canal Company (NSCC) and Twin Falls Canal Company. Idaho Power also controls a small area of land along the river corridor. Other public land is managed primarily by the BLM and the State of Idaho, through the Idaho Department of Lands (IDL).

Soils

Soil is the basic building block of our agricultural economy. Different soils are favored by different uses, whether they are silt, sand, clay, or loam and they react differently to those uses. As such, soil needs to be managed and used in an environmentally responsible manner. Without proper care the quality of the soil will diminish and erosion will occur to where this precious commodity will be lost.

United States Department of Agriculture (USDA) including the Natural Resources Conservation Service (NRCS) has created the document "Soil Survey of Jerome County and Part of Twin Falls County, Idaho" that classifies characteristic of each soil type including a map showing the location of the soil types. The following link allows for specific state and county selections on a national map: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Prime Agricultural Land

Agricultural activity occurs throughout Jerome County. With a long growing season, good soils, and a viable water supply, agriculture has flourished--providing a strong economic base for Jerome County. Of the 387,000 acres within the County, approximately 40% is used for agricultural production according to the University of Idaho Jerome County Extension Website. Prime farmland soils, as defined by the USDA, are soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. However, the agricultural use in the soil types found in the County are based on the availability of an adequate and dependable supply of irrigation water. If water were not available for irrigation, the soil types would not be considered prime agricultural land.

Geothermal and Mineral Resources

While several geothermal resources are located along the Snake River, few developed resources exist in Jerome County. Information on geothermal wells may be found on

the Idaho Department of Water Resources website:
https://www.idwr.idaho.gov/wells/geothermal-wells.html

To date, there has been no oil-and-gas production in Jerome County. The lithology, structural, and environmental conditions of deposition are generally unfavorable for finding or producing source rocks or reservoir sites for oil or gas. Sand and gravel resources are readily available along the Snake River and in Jerome County. The primary influencing factors for the location of the pits are ease of access and proximity to market. Jerome County has not permitted any new gravel pits for commercial production for over twenty years. Existing gravel pits will be permitted to continue, and Jerome County has no jurisdiction on gravel pits on state and federal lands. Gold has been mined along the Snake River; however, no major gold mining operations have occurred along the Mid-Snake River reach since the early 1930s.

WATER AVAILABILITY AND QUALITY

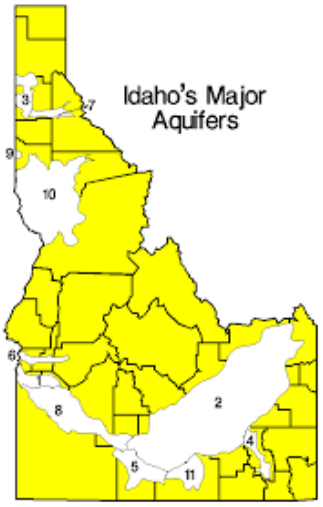
Jerome County is one of five counties making up the Middle Snake Regional Water Resource Commission. The commission was founded in 1992 by Jerome, Gooding, and Lincoln counties and later joined by the counties of Twin Falls and Cassia. The charge to the commission is to create and help implement a regional water resource plan known as the "Coordinated Water Resource Management Plan." The plan authorizes the commission to help in the protection and enhancement of all waters in the region. The plan also gives a local voice when dealing with state and federal regulatory agencies on all water and water-related economic issues in the region. The plan has been adopted by each member county and, as such, it will assist each county when evaluating the risk to the region's water from any proposed or expanded land uses in the county.

The Snake River plays a key role for Jerome County. As the primary source of irrigation water, the historic livelihoods of the residents of Jerome County have relied on this river for over 100 years. The various irrigation entities have delivered water from the Snake River to agricultural fields in Jerome since 1907. The Snake River continues to receive national attention due to concerns related to threatened and endangered species, recreational activities including wild and scenic rivers, and water rights availability and quality. The Snake River and canal water flow also provide power that is generated in hydroelectric plants.

Water Availability

Jerome County relies on the Eastern Snake Plain Aquifer (ESPA) for all drinking and culinary water for residential, commercial, and industrial—as well as some agriculture irrigation. Water from the Snake River is mainly utilized for irrigation and not for domestic consumption. As the second largest groundwater system in the United States, the ESPA underlies Jerome County. The eastern portion of this aquifer extends across southern Idaho and is about 170 miles long, 60 miles wide, and 10,800 square miles in area. Water in storage is estimated to exceed 200 million acre-feet. The aquifer provides the largest inflow of water to the Snake River from Milner Dam to King Hill, discharging

approximately 5,700 cubic feet per second of water. The Environmental Protection Agency (EPA) has designated the ESPA as a Sole Source Aquifer; therefore, stringent groundwater regulations apply. Groundwater from the aquifer is used as sources of domestic, irrigation, and municipal water supplies.



The primary source of recharge to the Snake River Plain groundwater system is from seepage of surface water used for irrigation. Within the last 100 years, the amount of groundwater recharge has varied as agriculture practices have changed. In the early 1900s, with the inception of surface water irrigation, groundwater recharge increased. However, due to increased groundwater pumping and increased efficiencies in surface-water irrigation applications since the mid-1950s, recharge slowly declined.

Aquifer storage has increased in recent years as witnessed by groundwater level increases from 2015 through 2017. Although groundwater levels have declined from a peak in the 1950s/60s, Idaho Department of Water Resources and water users have taken action in recent years to address the problem.

All surface and groundwater resources and uses in the Magic Valley, which includes Jerome County, were examined in a process known as the Snake River Basin General Water Adjudication. The general adjudication is a court case that resulted in a decree deciding all rights to water from the water system. The official decree can be referenced at: http://srba.idaho.gov/finaldecree.htm

The NSCC and other surface water entities entered into a historic Settlement Agreement with groundwater users in 2015. Pursuant to the agreement, groundwater users committed to reduce withdrawals and increase recharge by 240,000 acre-feet per year to meet identified groundwater level goals. The ultimate goal is to return groundwater levels to an average of 1991-2001.

In addition, the State of Idaho, through the Idaho Water Resource Board, is committed to recharging approximately 250,000 acre-feet per year. The Idaho Legislature has committed funding in recent years to the recharge program, including funding for capital improvements on the NSCC and American Falls Reservoir District #2 projects for added recharge capacity. The board has successfully recharged approximately 540,000 acre-feet last year (winter 2017 through summer 2018).

Information related to the settlement and its implementation can be accessed at the following website: http://idwr.idaho.gov/legal-actions/agreements/SWC-IGWA/

The County recognizes the importance of maintaining surface water supplies when land use changes. NSCC supports the requirements set forth in Idaho Code 67-6537.

Water Quality

Per the Idaho Department of Water Resources (IDWR) site, "Overall, the groundwater in Idaho has been found safe for human consumption and other beneficial uses at most of the Statewide Program sites. However, some sites had concentrations of one or more constituents that exceeded the safe levels (known as Maximum Contaminant Levels [MCLs]) that have been established by the U.S. EPA for public water systems. Southern Idaho had a higher percentage of these sites than central and northern Idaho. Nitrate, bacteria, arsenic, fluoride, gross alpha, radon, and uranium are the main constituents found to exceed MCLs." Reports, maps, testing, and other information is available on the IDWR website: https://www.idwr.idaho.gov/water-data/groundwater-quality/results.html

The Mid-Snake River may be described as a "working river" (essentially a river that serves the needs of mankind) because of a subbasin that is a "working subbasin" from the various water-user industries, as well as the citizenry within the subbasin. Those needs include but are not limited to hydropower, navigation/transportation, food source, drinking water, irrigation, waste disposal, and recreation. But rivers also serve the needs of ecological systems and of aquatic plants and animals--both macro and micro species; therefore, they require certain hydrologic and ecologic components in order to serve those needs. The Mid-Snake River has essentially evolved to serve both human and non-human needs, but sometimes those needs are imbalanced and favor one need over the other. However, at the core of this imbalance is flow. Without sufficient flow to satisfy all these needs (or uses), it becomes a critical management issue in balancing these needs toward a win-win scenario for all who utilize the resource.

The surface water is associated with the Mid-Snake River and tributaries--both natural and manmade--while the groundwater is associated with the ESPA and other smaller aquifers, as well as a variety of springs and manmade seeps. The hydrologic system of the Mid-Snake River is affected by precipitation, the river, tributaries, irrigation return flows, ground water flow, and geothermal sites. All of these sources, except precipitation, acquire nutrient inputs from human activities. The Middle Snake River's ability to integrate these nutrient-rich inputs has been compromised due to depleted instream flows.

AIR QUALITY

Air is basic to life. All living things, from humans to animals to plants, need air to survive. Because we rely upon air for our existence, it is very important to keep the air clean by reducing or preventing air pollution.

Idaho is among the states that have been delegated authority by the U.S. Environmental Protection Agency (EPA) to issue air quality permits and enforce air quality regulations. States with this authority are authorized to develop plans demonstrating how they will achieve, maintain, and enforce the standards. Jointly, the state rules and these plans are known as state implementation plans (SIPs).

http://www.deq.idaho.gov/air-quality/.

AIR POLLUTANTS

An air pollutant is any substance in the air that can cause harm to humans or the environment. Pollutants may be natural or human-made and may take the form of solid particles, liquid droplets, or gases. Natural sources of air pollution include smoke from wildfires, dust, and even volcanic ash. Human-made sources of air pollution include emissions from vehicles and factories; dust from unpaved roads, agriculture, or construction sites; and smoke from human-caused fires.

In Idaho, pollutants of concern include particulate emissions from vehicles and industrial sources that get trapped by wintertime inversions, chemicals and particulates from smoke from fires, and ground-level ozone that forms during hot summer days.

Various types of pollutants cited by DEQ include air toxics, criteria pollutants, fugitive dust, greenhouse gases, haze, odors, vehicle emissions, and visible emissions. Additional information on these pollutants is available on the DEQ website: http://www.deq.idaho.gov/air-quality/air-pollutants/.

Fugitive Dust

According to the Idaho Department of Environmental Quality (DEQ) website, "Dust is particulate matter consisting of very small particles. Fugitive dust is particulate matter suspended in the air. Communities experiencing population growth may experience a rise in fugitive dust emissions as parcels of land are cleared of vegetation for development, construction, and excavation activities, and dirt and gravel roads are constructed. These activities expose and disturb soil and create fugitive dust, which can contribute to health problems and affect visibility on local roads."

VEGETATION AND WILDLIFE RESOURCES

As more development occurs along the Snake River, more animal habitat and riparian areas are lost, as well as public access for hiking and wildlife viewing. While some private landholders allow public access, a change in ownership; pressures from developers; or abuse by visitors could change that status. Protection of these areas for wildlife habitat, and gaining or keeping access to the public, will depend on purchases of the land by the County or by close cooperation with other land agencies. A viable alternative to outright purchase by the County would be easements for access or conservation purposes. Easements keep private property private, can ensure traditional land uses--like farming or ranching--continue, and are less expensive than fee title purchase.

Vegetation

Jerome County lies within the Intermountain Shrub Region. Typical plant communities found in Jerome County are composed of sagebrush as well as bunchgrass and forbs.

These vegetation communities provide valuable habitat for numerous species of

mammals, reptiles and birds. The native vegetation that is left is becoming more important as valuable habitat is lost through development and wildfires. Therefore, environmentally responsible development and management are key to maintaining what habitat is left.

Wildlife

Mule deer, elk, and pronghorn are the predominant big game species found in Jerome County. While the County contains year-round resident herds, big game numbers increase during the winter. Depending on weather severity, upwards of a thousand mule deer and pronghorn migrate south from northern-elevation summer ranges to winter range in Jerome County. Migration corridors (located in Appendix B: 12-1) are traditional routes used annually by big game to travel between seasonal ranges. Maintenance of these corridors is important in maintaining viable wildlife populations that rely on them.

A sizable portion of Jerome County is dominated by irrigated agriculture. Grain stubble, fence rows, canal and ditch banks, rock out-crops, and other unfarmable areas often provide ideal habitat for popular upland game birds like ring-necked pheasants and gray partridges. In addition, a number of native wildlife, including species of conservation concern like short-eared owls and long-billed curlews, is often associated with irrigated agriculture. Residual grain and winter wheat provide an important, high energy food source for wintering waterfowl throughout the County.

The Snake River, irrigation canals, and other sources of surface water provide important nesting and brood-rearing habitat, migratory resting areas, and winter habitat for a wide variety of waterfowl, shore birds, and wading birds. Common breeding and nesting birds associated with this type of habitat include Canada geese, mallards, cinnamon teals, and great-blue herons. Surface water habitats in Jerome County also provide important resting areas and winter habitats for large flocks of migratory waterfowl, shore birds, and wading birds. Frequent migrants and winter residents include Canada geese, mallards, ring-necked ducks, redheads, common goldeneyes, and a variety of herons, grebes, and rails.

The Snake River and many of its major tributaries are characterized by deeply incised basalt canyons. These steep and rocky canyons provide ideal breeding and nesting habitats for a number of raptors, migratory song birds, and mammals. Wildlife commonly associated with canyons includes golden eagles, red-tailed hawks, prairie falcons, bobcats, and mountain cottontails.

Natural vegetation along rivers, streams, lakes, and reservoirs (known as riparian areas) are biologically diverse and productive systems. Rivers, small streams, and their associated riparian areas provide valuable nesting habitat for birds, important movement corridors for large and small animals, connectivity between diverse types of habitat, and spawning and rearing habitat for salmonids (rainbow and cutthroat trout) and other native fish species. Riparian areas can also dissipate runoff and reduce the impacts of downstream flooding. Trees and shrubs are an extremely important

component of healthy, productive riparian systems. They provide nest sites and roost sites, cover for a variety of native birds and mammals, improve the complexity of fish habitat by contributing woody debris, stabilize streambanks, and help maintain water temperatures in rivers and streams by providing shade.

The Middle Snake River (from Milner Dam to King Hill) supports a mixed cold- and warm-water fishery. Rainbow trout is the most abundant game fish in the area. Other game fish common to the Mid Snake River include channel catfish, smallmouth bass, largemouth bass, yellow perch, white sturgeon, and mountain whitefish.

Habitat needs of wildlife vary as much as the species themselves. Maintenance of these habitats is important in maintaining viable wildlife populations that rely on them.

MONITORING AND MITIGATION

This section will revisit topics previously discussed in this chapter to define some of the agencies responsible in managing those topics.

Air and Water Quality

The Idaho Department of Environmental Quality (DEQ) is a state department created by the Idaho Environmental Protection and Health Act to ensure clean air, water, and land in the state and protect Idaho citizens from the adverse health impacts of pollution.

As a regulatory agency, DEQ enforces various state environmental regulations and administers a number of federal environmental protection laws including the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act. The agency is committed to working in partnership with local communities, businesses, and citizens to identify and implement cost-effective environmental solutions. http://www.deq.idaho.gov/about-deq/

All Idaho rivers are subject to the water quality standards set forth in the Federal Clean Water Act and administered through DEQ. Section 313 of the Act requires all federal agencies to comply with state water quality standards. Those standards can be found at http://www.deq.idaho.gov/water-quality/surface-water/beneficial-uses/

The Middle Snake Study Group was formed in 1989 by the County Commissioners of Gooding, Jerome, Lincoln, and Twin Falls counties. They created a document called the Coordinated Water Resource Management Plan, the first regional water plan in the state. Adoption of the plan in 1992 by the counties established the group as the Middle Snake Regional Water Resource Commission. The purpose of the commission is to give the region a voice in water quality and quantity issues within the region. More information on the formation and continued efforts of these groups can be found at: http://www.midsnakewater.org/about

Efforts of the Middle Snake Study Group also led to the creation of The Middle Snake Watershed Advisory Group (WAG), created in 1995, to oversee the conditions of the Middle Snake River for water quality. The primary purpose and concern was to provide input to DEQ and EPA in restoring the beneficial uses and water quality standards of the Snake River, Rock Creek, and their major tributaries. The Middle Snake River WAG encompasses one major subbasin: the Upper Snake Rock Subbasin. From this group and in cooperation with DEQ, have come the Middle Snake River Watershed Management Plan (approved 1997), the Upper Snake Rock Watershed Management Plan (2000), and the Upper Snake Rock Total Maximum Daily Load (TMDL) Modification (2005). The WAG has stakeholder industries that represent irrigated agriculture, confined animal feeding operations, food processors, aquaculture, municipalities, grazing, recreation, and forestry. This group has worked with North Side Canal Company to construct and operate several sediment ponds/wetlands that have reduced sediment, phosphorous, and other nutrients from entering the Snake River as it flows through Jerome County over the past 20 years. Another group, the Southern Idaho Water Quality Coalition has also recently formed that is undertaking a comprehensive planning approach to improving water quality in the Snake River and related water bodies. Ground water is also a concern to the WAG and is included in the approved TMDL. http://www.deq.idaho.gov/regional-offices-issues/twin-falls/basin-watershed-advisory-groups/wood-river-wag/

As discussed, groundwater is used throughout the County for domestic and municipal water supply. The protection of the public water supply and its source from contamination has come under close scrutiny of federal EPA. Nationwide, EPA has mandated that each state must prepare a county protection plan for public water supplies. Broadly defined, a public water system provides piped water for 15 connections--or serves 25 or more people--60 days per year. Examples of public supply systems range from trailer parks and campgrounds to city water systems. Individual water supply systems within counties are not required to prepare a plan but are encouraged to do so by DEQ. The City of Jerome has prepared such: the Wellhead Source Protection Plan. The city of Hazelton has adopted a Source Water Protection Plan as well. Jerome County has not adopted any well head or source water protection plans; therefore, the City of Jerome Wellhead and Hazelton Source Water Protection Plan have no authority in areas regulated by Jerome County.

Fugitive Dust

According to the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01, Section 651), "reasonable precautions must be taken to prevent particulate matter from becoming airborne."

Wildlife and Vegetation

All wildlife in Idaho belongs to the citizens of the state. It is held in trust by the state of Idaho for the benefit of its people. As the managers of that Public Trust, it is the Idaho Department of Fish and Game's (IDFG's) statutory responsibility to "preserve, protect and perpetuate," and manage all wildlife for the people of Idaho and to provide

continued supplies for hunting, fishing, trapping, and viewing.

As the wildlife management agency in Idaho, IDFG works with a variety of partners in their efforts to manage wildlife and habitat including NRCS, BLM, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, IDL, city and county governments, and private landowners. Endangered species are under the jurisdiction of the U.S. Fish and Wildlife Service to manage and protect in cooperation with federal, state, and private natural resource managers.

Over the last several years, Jerome County has lost prime agricultural lands and productive sagebrush-grassland habitat to urban encroachment, wildfire, and invasive species. Many opportunities for protection, creation, and enhancement of wildlife habitat exist within the County. The NRCS conservation programs are intended to help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by natural disasters. IDFG routinely partners with NRCS and other federal and state land-management agencies and private landowners to protect, create, and enhance wildlife habitat. State and federal programs can provide financial and technical assistance to agricultural producers to plan and implement conservation practices that benefit wildlife.