TOOELE COUNTY
Resource Management Plan

TOOELE COUNTY

July 2017

TERMS AND ABBREVIATIONS

Areas of Critical Environmental Concern (ACECs)
Animal and Plant Health Inspection Service (APHIS)
animal unit months (AUMs)
Aquatic Invasive Species (AIS)
best management practices (BMPs)
Cooperative Weed Management Area (CWMA)
County Resource Management Plan (CRMP)
Endangered Species Act (ESA)
Federal Emergency Management Agency (FEMA)
Federal Land Policy and Management Act (FLPMA)
National Ambient Air Quality Standards (NAAQS)
National Flood Hazard Layer (NFHL)
National Flood Insurance Program (NFIP)
National Forest Management Act (NFMA)
National Pollutant Discharge Elimination System (NPDES)
Natural Resources Conservation Service (NRCS)
resource management plan (RMP)
right-of-way (ROW)
US Army Corps of Engineers (USACE)
US Bureau of Land Management (BLM)
US Department of Defense (DOD)
US Department of Agriculture (USDA)
US Environmental Protection Agency (EPA)
US Forest Service (Forest Service)
US Geological Survey (USGS)
Utah Automated Geographic Reference Center (AGRC)
Utah Department of Environmental Quality (DEQ)
Utah Department of Natural Resources (DNR)
Utah Division of Air Quality (DAQ)
Utah Division of Oil, Gas, and Mining (DOGM)
Utah Division of Water Quality (DWQ)
Utah Division of Water Rights (DWRi)
Utah Division of Wildlife Resources (DWR)
Utah Geological Survey (UGS)
Utah Forestry, Fire, and State Lands (FFSL)
Utah Pollution Discharge and Elimination System (UPDES)
Utah Renewable Energy Zone (UREZ)
Utah School and Institutional Trust Lands (SITLA)

TABLE OF CONTENTS

INTRODUCTION

This County Resource Management Plan (CRMP) is a planning document used to define policy, goals, and objectives for managing natural resources on public lands (Utah Code §63L-6-102) within Tooele County. Traditionally, federal agencies (US Bureau of Land Management and US Forest Service) are responsible for completing resource management plans for much of the public land within Utah. But Utah State Code was amended in 2015 (and again in 2016) to require every county in Utah to complete a CRMP addressing all public lands within its jurisdiction. Utah Code §17-27a-4 defines 28 core resources that must be considered in the CRMP "to provide for the protection, conservation, development, and managed use of resources that are critical to the health, safety, and welfare of the citizens of the county and of the state".

This CRMP serves two important purposes. First, the planning process allows Tooele County to assess natural resources that play important roles in the local economy, and set goals and objectives for the protection and utilization of those resources. Second, the CRMP provides federal land managers local land use plans that they may consider in their planning processes of public lands.

Elements of the Countywide Resource Management Plan

The resources included in this CRMP are examined and discussed from the same perspectives throughout the document. Each **Section** begins with a definition of the resource, which is followed by an examination of its present condition or status. Legal and administrative background and history are discussed. The section then presents goals and objectives associated with each resource, and the section concludes with recommended strategies and policies to reach desired future conditions.

Subsections included in each section of this document are Context, Findings, Legal Context, Desired Future State, Management Objectives, and Policies and Guidelines. Each of these is explained below.

The **Context** subsection provides an overview of the resource as it pertains to public lands in Tooele County. Many resources occur on public lands and are managed directly by federal land managers, but not in all cases. If a resource does not occur on public lands (such as in the Agriculture Section), this paragraph will explain how policy goals and objectives for the resource apply generally to public lands.

The **Findings** subsection provides specific information about the resources in terms of type, acreage, and location, as well as a map of the resource (if needed). The information provided in this subsection is the most current information available at the time of publication.

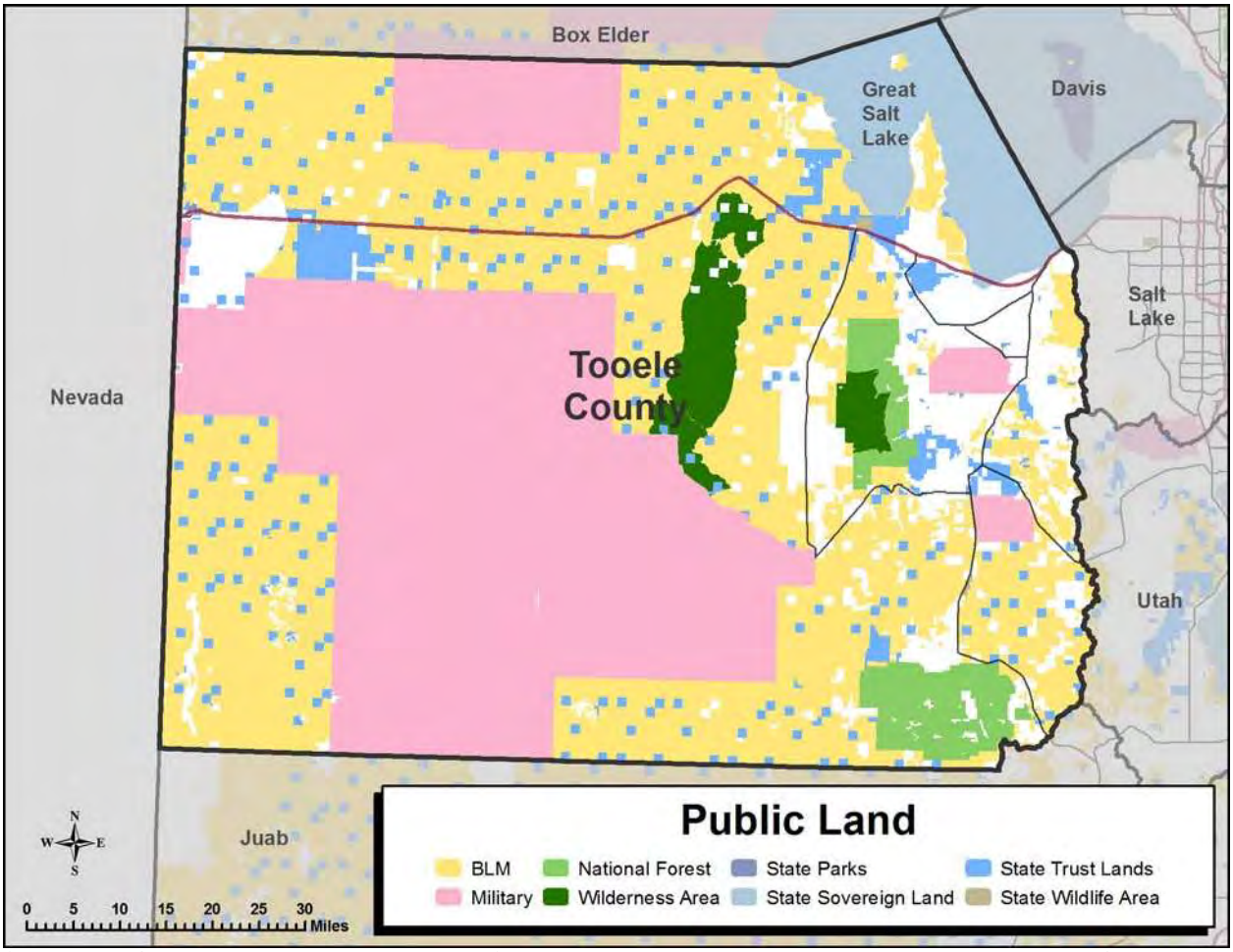
The **Legal Context** subsection provides specific federal and state laws that specifically apply to the resource, along with an overview of their implications for management. Most important in this subsection is the major legislation, which establishes procedures, determines authority, and that specific regulations managers should consider for each resource. Federal laws are presented first, followed by state laws.

The **Desired Future State** subsection functions as an explanation of overall goals for each resource. The statement was first developed by summarizing existing objectives from federal, state, and local plans relevant to the Tooele County. Statements were refined through a series of planning commission public work sessions.

Management Objectives are high-level management goals that will move Tooele County toward the Desired Future State. These objectives are broad policy statements used to organize specific policies and

guidelines. Objectives were selected based on alignment with the Desired Future State and local management plans with input from the planning commission during public work sessions.

Policies and Guidelines are specific actions and best management practices (BMPs) that can be used to achieve Management Objectives and reach the Desired Future State. The policies and guidelines are derived from relevant scientific documents and existing plans.



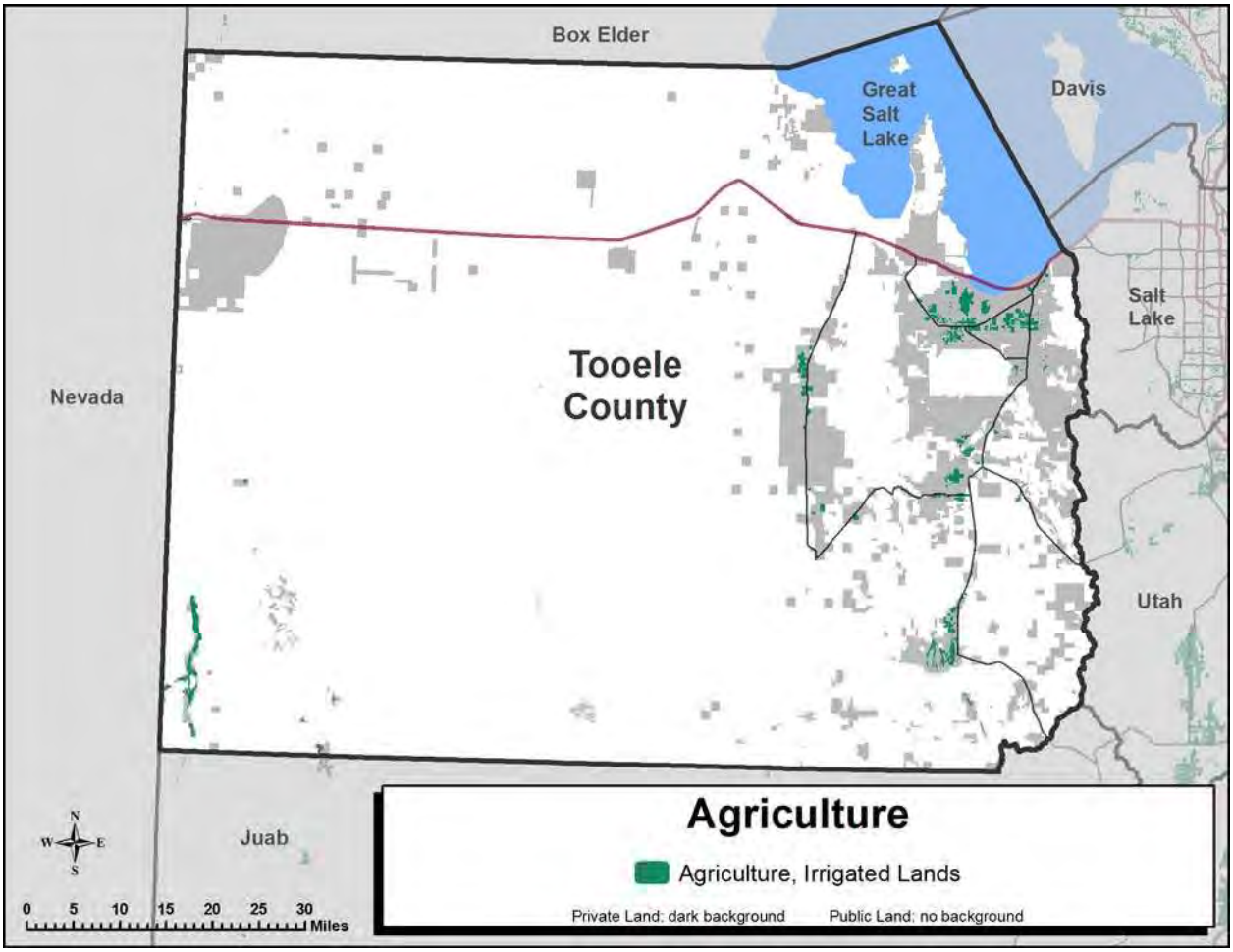
Source: Land Ownership, Updated as needed, Utah School and Institutional Trust Lands, Access via Utah Automated Geographic Reference Center.

1. AGRICULTURE

Agriculture is the activity of converting natural resources into food and material goods in support of both regional and national economic production, and it is an activity fundamental to establishing food security. Agriculture has been an integral endeavor in Tooele County since pioneer settlement in the 1850s. In recent times agricultural lands are being removed from production as they are converted to residential housing and urban uses. The expansion of cities and suburbs often affects agricultural lands through pressures such as (but not limited to): the loss and fragmentation of productive fields and pastures within the service areas of irrigation canal service areas, the redevelopment of roadways and circulation routes needed to transport agricultural products and equipment into city streets, and deliberate or happenstantial interference created by the urban environment that affects irrigation water management, crop and livestock production, and ag-land viability.

Related resources:

- Livestock and Grazing
- Irrigation
- Ditches and Canals



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources, Access via Utah Automated Geographic Reference Center.

1.1 Management Setting

Context

Agricultural activity occurs primarily on privately held land in Tooele County, lands that are not addressed in this plan.

The number of farms in Tooele County increased from 380 in 2002 to 476 in 2012, while total acreage of land in production fell from 415,056 to 347,024 acres over the same time period.[1,2,3] According to the US Department of Agriculture, the county had 18,004 acres of harvested cropland and 22,958 acres of irrigated lands in 2012.[4]

Findings

Table 1.1 shows how the number and size of farms in Tooele County has changed since 2002, based on US Department of Agriculture statistics.

Table 1.1. Number and size of farms in Tooele County from 2002, 2007, and 2012.

FARM DATA	2002	2007	2012
Number of farms	380	379	476
Land In farms	415,056	252,848	347,024

Source: US Department of Agriculture National Agricultural Statistics Service [1,2,3]

Legal Context

Applicable Laws include the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]), the Utah Water Quality Act (Utah Code §19-5), the Clean Air Act (42 USC §7401 et seq. [1970 amended 1990]), and the Utah Air Conservation Act (Utah Code §19-2).

1.2 Desired Future State

Tooele County desires to continue to support agriculture and protect prime agricultural lands as the county grows.

1.3 Management Objectives and Associated Policies and Guidelines

1.3.1 Management Objective

Continue to support agriculture.

Policies and Guidelines

- The county should continue to support agriculture and protect prime agricultural lands as the county grows.[5]

- Support education efforts that encourage good relations between farmers and the rest of the community. This may include highlighting agriculture's contribution to the economy[2] and the use of agricultural practices to reduce impacts to public lands through erosion and pollution. Utah State University provides agricultural Best Management Practices that reduce erosion.[3]

1.3.2 Management Objective

Protect prime agricultural lands.

Policies and Guidelines

- The county should continue to support agriculture and protect prime agricultural lands as the county grows.[5]

- The designation of agricultural protection areas is one tool for ensuring protection of aquifer recharge zones and the preservation of agricultural as a way of life in the county.[5]

1.4 References

[1] USDA: National Agricultural Statistics Services. 2002. County Summary Highlights. https://www.agcensus.usda.gov/Publications/2002/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017)

[2] USDA: National Agricultural Statistics Services. 2007. County Summary Highlights. https://agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017).

[3] USDA: National Agricultural Statistics Services. 2012. County Summary Highlights. https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Utah/st49_2_001_001.pdf (accessed March 23, 2017).

[4] Utah Department of Agriculture and Food. 2015. Utah Agriculture Statistics and Annual Report.

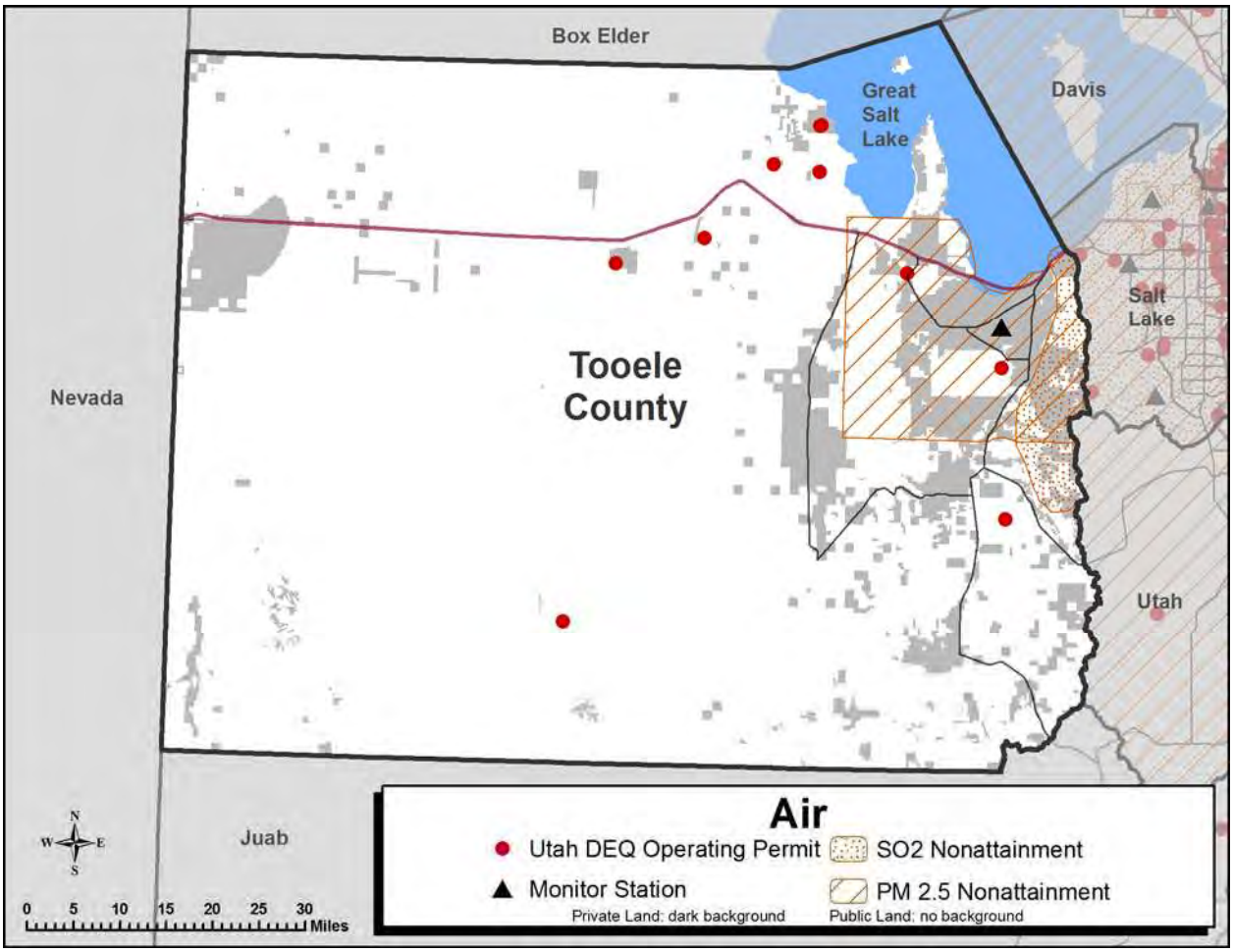
[5] USDA. Natural Resource Conservation Service. Tooele County Resource Assessment. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_032555.pdf (accessed February 18, 2016).

2. AIR

The term “air quality” refers to the degree to which ambient (outdoor) air is free of pollution. Air pollutants are those substances present in ambient air that negatively affect human health and welfare, animal and plant life, property, and the enjoyment of life or use of property. Ambient pollutant concentrations result from interaction between meteorology and pollutant emissions. Because meteorology can’t be controlled, emissions must be managed to control pollutant concentrations.

Related resources:

- Fire Management
- Forest Resources



Source: DAQPermitCompTitleV and DAQAirMonitorByStation, Date unknown, Utah Department of Environmental Quality, Access interactive map https://enviro.deq.utah.gov.

2.1 Management Setting

Context

The Clean Air Act of 1970 and its amendments set the laws and regulations regarding air quality, give authority to the US Environmental Protection Agency (EPA) to set standards, enforce rules, and delegate regulatory authority to individual states with EPA oversight (provided certain criteria are met). The

purpose of air quality conformity regulations, enforced by the EPA and the Utah Division of Air Quality (DAQ) in Utah, is to protect public health and welfare by lowering pollutant concentrations through the reduction in emissions.

The Clean Air Act Amendment of 1990 established three designations for areas based on how ambient air quality conditions compare to the National Ambient Air Quality Standards (NAAQS): (1) nonattainment areas, (2) maintenance areas, and (3) attainment areas. Attainment and nonattainment areas are those with air quality better or worse than the NAAQS (respectively). If an area is designated nonattainment, the relevant air quality management agency must create and implement a plan for emissions and reduce concentrations below the NAAQS. The air quality management agency must maintain the plan used to meet the NAAQS and prepare a maintenance plan to keep the air clean for the next 20 (or more) years. A maintenance area is one that was in nonattainment but reduced emissions sufficiently to meet the NAAQS. It must maintain those rules/actions that reduced emissions for a period of 10 years.

Air quality is influenced by activities on private and public lands. Activities on public lands that impact air quality include:

- Recreation users driving to public lands to visit.
- Recreation users driving on dirt roads within public land boundaries.
- Controlled-burn activities to manage vegetation and wildfires within public land boundaries.
- Permitted extractive activities, such as mining, on public lands.

Some activities that impact air quality are out of the control of land managers. These impacts include particulates from wildfires and dust storms. A segment of the population relies on wood-burning stoves.

Findings

Parts of eastern Tooele County are designated nonattainment for small particulate matter pollution (PM 2.5) and sulphur dioxide.[1]

Legal Context

Applicable Laws

The Clean Air Act of 1970 (42 USC §7401 et seq. amended 1990) places control of local air quality at the state level with federal oversight provided certain criteria are met. The act also requires state and local ambient air quality standards be equal to or lower in concentration than the NAAQS. Utah laws (Utah Air Conservation Act [Utah Code §19-2]) and rules regarding air quality set the state standards equal to the NAAQS. The local air quality management agency for Tooele County is the DAQ. Rules and policies pertaining to air quality activities and plans to achieve NAAQS attainment are set by the Utah Air Quality Board. The DAQ conducts statewide air quality monitoring, air quality research, air emissions permitting, air quality compliance monitoring, air quality compliance planning activities, public education, public outreach, and other support programs. The DAQ also supports the Air Quality Board in fulfilling its purposes.

2.2 Desired Future State

Tooele County desires to improve air quality from nonattainment to maintenance for all NAAQS-monitored pollutants to protect and improve public health, environmental health, and scenic visibility.

Tooele County also desires to limit activity of largest contributors to air pollution in County during peak air quality crises.

2.3 Management Objectives and Associated Policies and Guidelines

2.3.1 Management Objective

Support efforts on public lands that improve air quality from nonattainment to maintenance for all NAAQS-monitored pollutants.

Policies and Guidelines

- Ensure that management activities and proposed projects meet state and federal air quality standards. Similar policies exist in Tooele County on US Bureau of Land Management [1], US Forest Service [2], and state [3] land.

- Support or conduct public awareness campaigns about current air quality conditions, forecasts, and activities/practices individuals can participate in to reduce air pollutant emissions.

- Coordinate with DAQ to evaluate emissions of all criteria pollutants associated with proposed projects and work with DAQ to identify appropriate mitigation strategies to offset point source contributors.

- Limit airborne particulates by mitigating human-made disturbances, such as requiring dust-control measures and revegetation for all ground-disturbing projects.

- Control wildfire to the extent practical through forest management activities, prescribed burning, and other management actions.

- Support the development of multi-modal access to recreation activities.

2.3.2 Management Objective

Tooele County would like to evaluate the enactment of emissions regulations for vehicles and purpose the monies collected for public and mass transit.

Policies and Guidelines

Conduct an evaluation of the enactment of emissions regulations for vehicles and purpose the monies collected for public and mass transit.

2.4 References

[1] Utah DEQ, 2013. Utah Nonattainment Areas (map). Division of Air Quality. https://deq.utah.gov/ProgramsServices/programs/air/aqmodeling/docs/2013/03Mar/NONATTAINMENT_MAP.pdf (accessed April 10, 2017).

[2] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

[3] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (Accessed March 23, 2017).

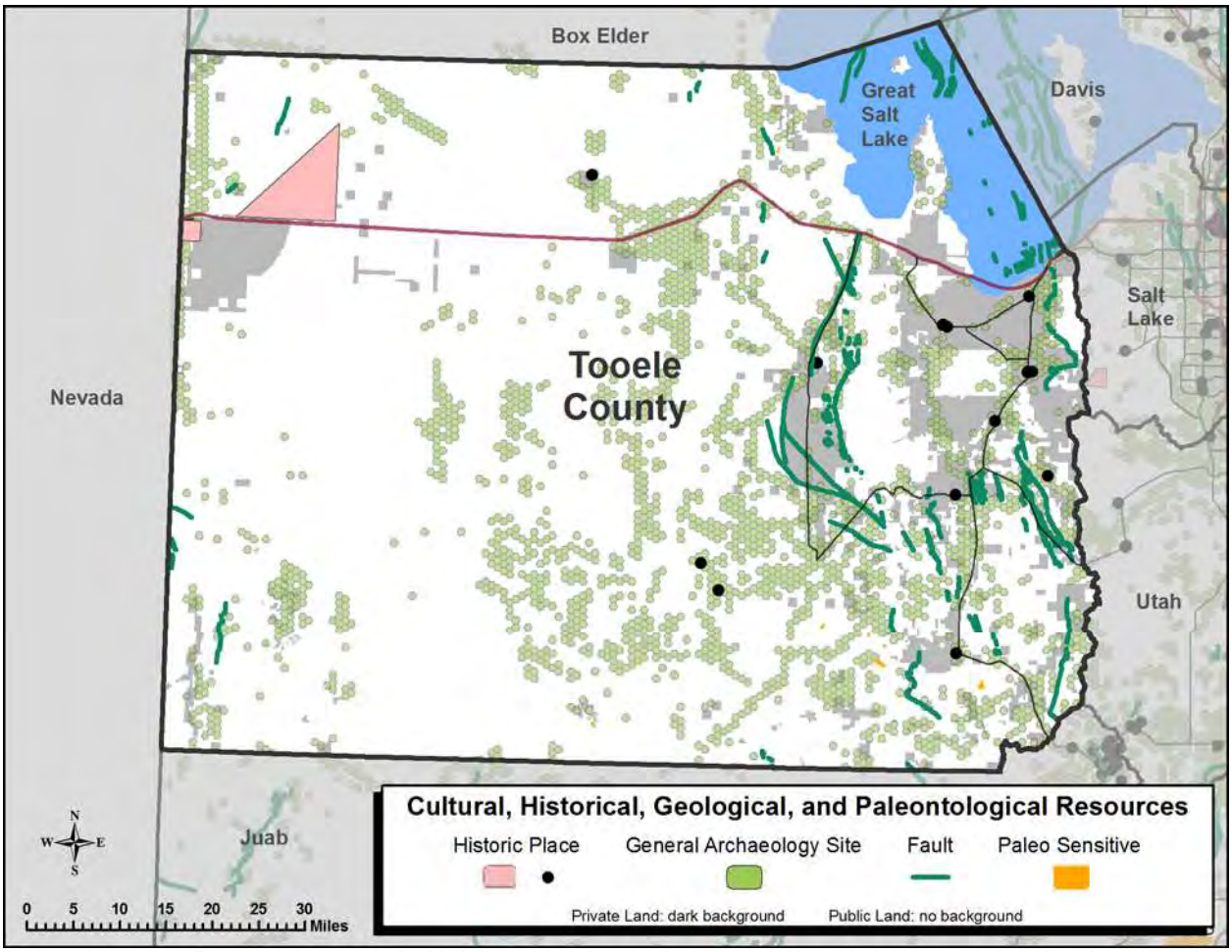
[4] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

3. CULTURAL, HISTORICAL, GEOLOGICAL, AND PALEONTOLOGICAL RESOURCES

These resources have intrinsic value based on their age, heritage, scientific importance, or other intangible significance. However, these resources also highlight the unique character of the local setting and may contribute to attracting business and tourism. Geology is an important planning component within the region because of Tooele County's unique geologic features and sites, as well as potential hazards to development such as faults, landslides, rock falls, and soil liquefaction.

Related resources:

- Recreation and Tourism
- Land Use



Source: Quaternary Faults, 26 January 2017, Utah Geological Survey. Archaeology Sites, Updated as needed, Utah State Historic Preservation Office. UT_SITLA_Mineral_PaleoSensitivityArea, Date unknown, Utah Geological Survey. Access via Utah Automated Geographic Reference Center. Also, nris_public, Current properties listed on National Register of Historic Places, National Park Service.

3.1 Management Setting

Context

Tooele County is Basin and Range country with large expanses of open space. Tooele County is Utah's second-largest county by area. Several indigenous Native American tribes once called this land home and the Confederated Tribes of the Goshute Reservation are still present in the area. The county has a long history of mining; Tooele County has many abandoned mining operations, grist mill operations, and remnant ghost towns. The historic Pony Express route and an active defense industry also contribute to the county's unique history and character.

Cultural and Historical Resources

Cultural resources include archaeological sites, standing structures (e.g., buildings and bridges), and even places of importance that are more than 50 years old. Many historical and cultural resources are very sensitive and protected by law; however, it is important to remember that all cultural sites are not important or significant, and that those not considered as such would not be adversely affected by any planned projects.

Paleontological Resources

These resources are defined as the remains, traces, or imprints of ancient organisms preserved in or on the earth's crust, providing information about the history of life on earth. There are some geologic units in Tooele County that are likely to contain fossils, though these areas are much more abundant in other parts of the state.

Geological Resources

In addition to the rich history of mining in the county, the Bonneville Salt Flats are world-renowned for the numerous land-speed records set at the location. Other geologic resources and sights include the Stockton Bar (a geologic formation created by wave action along the shoreline of pre-historic Lake Bonneville), deposits of wonderstone (a type of rhyolite) in the Vernon Hills, and gypsum sand deposits near the unincorporated community of Knolls.

Findings

Cultural Resources

When considering plans for alterations to the landscape, it is important to remember that archaeological sites, historic sites, and standing structures in those locations may be of importance to many people. This is true despite the fact that the resource may not look interesting, may be in disrepair, or even in ruins. The history and importance of a location cannot always be easily interpreted. Many cultural resources are sensitive and their locations are therefore not released publicly. In general terms, the following cultural resource types can be expected in Tooele County.

Undeveloped Rural (including Desert and Mountain) Settings

Prehistoric sites in undeveloped rural/desert/mountain settings may include:

- Lithic scatters or chipping stations
- Campsites
- Villages
- Rock art
- Processing sites
- Quarry sites (where rock materials were acquired for making tools)

Historic sites in undeveloped rural/desert/mountain settings may include:

- Cabins
- Mines
- Railroads
- Industrial sites
- Roads/trails
- Bridges
- Irrigation infrastructure
- Small, isolated town sites
- Transmission, telephone, and telegraph lines
- Pipelines for water, gas, and petroleum products

Developed Rural Settings

This type of setting includes rural areas where existing and former small towns exist, where subdivisions may be planned, where developed recreation sites may exist, and where orchards or other agricultural activities take place.

Prehistoric sites in rural settings may include:

- Sites similar to those listed above
- Larger village sites if permanent water sources are present and elevation is not high

Historic sites in rural settings may include:

- Sites similar to those listed above
- Town sites
- Agricultural activity sites
- Canals and ditches
- Farmsteads
- Fences
- Orchards and associated buildings and other features

Urban Settings

In these locations a wide variety of sites can be found and may be quite important depending on their age, history, and integrity. In urban settings, buildings, structures, historic landscapes, and urban detail might be expected. Remnants of agricultural elements from earlier time periods might also be present. Linear sites, such as old transmission lines and pipelines, would be reduced in number or not visible.

Prehistoric sites in urban settings may include sites similar to those listed above, though usually highly disturbed, destroyed, or obscured.

Historic sites in urban settings may include:

- Dense occupation with both commercial and multifamily residential structures in downtowns, single-family residential structures in suburban areas (though sometimes remnants remaining in downtown areas)

- Industrial sites, sometimes densely spaced.

- Remnant farmsteads, fences, orchards, other agricultural features

- Railroads

- Considerable infrastructure features including sidewalks, signs, signals, street lights, power lines, fire hydrants, and other visible features

Historical Resources—Tooele County History

The history of Tooele County is rather unique. The isolation of the county, the presence of the defense industry, and its position on the Nevada border have all contributed to this history.

The first non-Native Americans to pass through the region that would become Tooele County were primarily fur trappers and explorers. In 1827 Jedediah Smith crossed the Salt Flats as he traveled east from California to the mountains of Utah. His was the first known European-American incursion into the imme-diate region.[1] Smith would be followed in 1845 by John C. Fremont on his way west and E.G. Beckwith in 1853.[2]

The Tooele Valley was the first area of the county to be occupied by white men when Captain Howard Stansbury ordered the construction of an adobe house built in 1849. The residence was used by Stansbury to shelter his herders caring for US Army mules and livestock. This structure was constructed on E.T. Hill at the north end of the valley. Soon after the arrival of Stansbury, the settlers of the Salt Lake Valley came to Tooele looking for herding and grazing land for their livestock.[3] Thus, the US Army was soon followed by settlers, who arrived in September of the same year. Led by Ezra Taft Benson, they constructed a fort and sawmill at the mouth of Big Creek Canyon. On June 19, 1853, Tooele City was incorporated as a city, which covered an area of 9 square miles.[4]

Tooele Valley almost immediately developed into an important regional agricultural and ranching center. After the discovery of gold and silver ores in the 1860s, the valley became a significant mining center as well.[5] By 1850 Grantsville (west of Tooele City) had been settled by 30 families. Both communities were based on ranching and farming but were also supported by mining in the nearby Oquirrh Mountains.

In 1854 Colonel E.J. Steptoe and his command entered Rush Valley, south of Tooele. Steptoe had been sent by President Franklin Pierce to establish a military road through the territory from Salt Lake City to southern California and to capture the murderers of a Lieutenant Gunnison and his men.[6] The military detachment under Steptoe's command included 85 mounted dragoons, an artillery company, and 136 teamsters. Because of the large number of animals (450 mules, 300 horses, and an unspecified number of cattle) an adequate supply of water and grass was required by Steptoe to maintain this detail. The area around Rush Lake met these needs, and Steptoe order the construction of barracks and other military facilities on the east side of the lake. By 1856 there were tensions between Steptoe's detachment and the local Mormon settlers, and so he relocated his command to Benecia, California.[5]

Upon the abandonment of the post in Rush Valley, Brigham Young ordered the occupation of the post by a company of settlers, and the area was used thereafter by the Mormons to raise cattle. In 1858 a second army under the command of Albert S. Johnston arrived in Cedar Valley (to the east of Rush Valley) and built Camp Floyd. Johnston commanded an army of 3,500 men, which required water and forage for large herds of cattle, mules, and horses. Johnston had the herds spread out over a wide area, including Rush Valley and Skull Valley (located west of Rush Valley). By 1861 the soldiers abandoned Camp Floyd and returned to the east in order to participate in the Civil War.

Johnston's command was replaced in 1862 by a volunteer army from California led by Colonel Patrick

Connor. Connor selected Fort Douglas in Salt Lake City as the site for his post. However, like the commanders before him, he sent a small detachment to Rush Valley to graze and water some of his animals. These men constructed a small post named Camp Relief, at the present site of the town of Stockton.[5]

Many of Connor's men were recruited from the California gold fields, and they were encouraged by Connor to spend time exploring the hills for mineral deposits. They established the first mining districts in the state around Stockton in Rush Valley. On August 6, 1870, the Rush Valley Mining District was filed.[5]. By the end of the Civil War, the military forces were cut back at Fort Douglas and Connor withdrew from Rush Valley and the camp was taken over by civilian settlers and miners.

The continued discovery of rich mineral deposits in the Oquirrh Mountains and the Salt Flats of Tooele County during the late 1800s caused the economic base of the area to shift from one centered around agriculture to one based on mineral exploitation. In 1864 the Rush Valley Mining District was established, and by the 1870s communities such as Ophir and Mercur were boasting of populations of more than 6,000 residents.[7] In 1909 the Tooele Valley Railroad was constructed to serve the mines and smelters of the area.[8] This rail line helped to boost the economy of the valley by providing a faster and more cost-effective means of transporting ore from the mines to the smelters and then on to outside markets.

The Bonneville Salt Flats also attracted the attention of automobile speed racers, when the hard, dry surface of the salt flats was discovered to be an ideal racing surface. In 1914 the flats were already popular with local or regional automobile speed racers[9], but by 1925 the Bonneville Salt Flats became popular with racers from all over the world. In that year, racer Ab Jenkins beat an excursion train by ten minutes in a race across the salt flats.[10] Since then, the salt flats have been the site of numerous land speed records.

In 1918 the Lincoln Memorial Highway, the first coast-to-coast automobile road in the United States, was built through Tooele County. Known as the Wendover Cutoff, the highway headed directly west from Salt Lake City to Wendover.[1]

Mining and ranching continued as the primary economy of Tooele County until the start of World War II. With the advent of hostilities overseas, the federal government established numerous military installations in the Tooele Valley for the purposes of bomber training, supply storage, repair of equipment, and chemical and biological warfare testing.[7] By the close of the war, Wendover Air Base, Dugway Proving Ground, and Tooele Army Depot employed more than 22,000 military personnel and civilians.

In the 1970s a controversy arose regarding the effects of hazardous waste created by chemical testing at Dugway. The issue of this hazardous material is still debated today. In March 1993 the federal Base Realignment and Closure Commission recommended the elimination of the maintenance and supply divisions at the Tooele Army Depot North Area, leaving the main function of the installation as munitions and chemical storage.[11] Following Congressional approval of the recommendation of this action in fall 1993, the realignment began with the reduction or transfer of the depot's maintenance and supply functions. The realignment was officially completed at the close of the federal fiscal year 1995 (September 30, 1995), although small tasks such as the movement of equipment occurred after this.[12] A 1,684 acre parcel of land in the North Area was excessed, although some of the buildings within this area were retained by the Tooele Army Depot or other agencies to support their missions.[11] A local redevelopment authority has established an office in the excessed area to facilitate reuse of the buildings.

These military installations remain as Tooele Valley's largest employers despite the recent cutbacks in defense spending. Ranching, farming, and mining operations still exist in the area, but on a much smaller scale, since most of the land in Tooele County is reserved for military use.[7]

Paleontological Resources

After becoming acquainted with how fossil resources are regulated within the state, it is important to consult with paleontologists at the Utah Geological Survey (UGS). This will help determine whether there is potential for paleontological resources within a proposed project or planning area and to provide information about state laws and regulations regarding paleontological resources and how to proceed. In some cases, it may not be necessary to do further work. However, depending upon the situation and location of a particular project, hiring a professional paleontologist may be required to negotiate the process.

Types of paleontological localities include:

- Invertebrate localities, which are fossil remnants of multi-celled lifeforms without vertebral columns, backbones, vertebrae, or full-length notochord.

- Vertebrate localities, which include fossil remnants of lifeforms with some form of vertebrae. This may include mammals, dinosaurs, fish, birds, and reptiles.

- Floral localities, which are remnants of plants.

- Trace fossils, which may include skin impressions, track sites, and remnants of burrows or borings.

Potential Fossil Yield Classification System [15]

Occurrences of paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Therefore, geologic mapping can be used for assessing the potential for the occurrence of paleontological resources.

Using the Potential Fossil Yield Classification System, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. This classification is applied to the geologic formation, member, or other distinguishable unit, preferably at the most detailed mappable level. It is not intended to be applied to specific paleontological localities or small areas within units. Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher class; instead, the relative abundance of significant localities is intended to be the major determinant for the class assignment.

The Potential Fossil Yield Classification system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. The classification should be considered at an intermediate point in the analysis, and should be used to assist in determining the need for further mitigation assessment or actions.

The descriptions for the classes below are written to serve as guidelines rather than as strict definitions. Knowledge of the geology and the paleontological potential for individual units or preservational conditions should be considered when determining the appropriate class assignment. Assignments are best made by collaboration between land managers and knowledgeable researchers.

Class 1 – Very Low. Geologic units that are not likely to contain recognizable fossil remains.

- Units that are igneous or metamorphic, excluding reworked volcanic ash units.
- Units that are Precambrian in age or older.

1. Management concern for paleontological resources in Class 1 units is usually negligible or not applicable.

2. Assessment or mitigation is usually unnecessary except in very rare or isolated circumstances.

The probability for impacting any fossils is negligible. Assessment or mitigation of paleontological resources is usually unnecessary. The occurrence of significant fossils is non-existent or extremely rare.

Class 2 – Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.

- Vertebrate or significant invertebrate or plant fossils not present or very rare.
- Units that are generally younger than 10,000 years before present.
- Recent aeolian deposits.
- Sediments that exhibit significant physical and chemical changes (i.e., diagenetic alteration).

1. Management concern for paleontological resources is generally low.
2. Assessment or mitigation is usually unnecessary except in rare or isolated circumstances.

The probability for impacting vertebrate fossils or scientifically significant invertebrate or plant fossils is low. Assessment or mitigation of paleontological resources is not likely to be necessary. Localities containing important resources may exist, but would be rare and would not influence the classification. These important localities would be managed on a case-by-case basis.

Class 3 – Moderate or Unknown. Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

- Often marine in origin with sporadic known occurrences of vertebrate fossils.

- Vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low.

  (or)

- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Class 3a – Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant non-vertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

Class 3b – Unknown Potential. Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or

the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

1. Management concern for paleontological resources is moderate; or cannot be determined from existing data.

2. Surface-disturbing activities may require field assessment to determine appropriate course of action.

This classification includes a broad range of paleontological potential. It includes geologic units of unknown potential, as well as units of moderate or infrequent occurrence of significant fossils. Management considerations cover a broad range of options as well, and could include pre-disturbance surveys, monitoring, or avoidance. Surface-disturbing activities will require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action, and whether the action could affect the paleontological resources. These units may contain areas that would be appropriate to designate as hobby collection areas due to the higher occurrence of common fossils and a lower concern about affecting significant paleontological resources.

Class 4 – High. Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface disturbing actions. Illegal collecting activities may impact some areas.

Class 4b – These are areas underlain by geologic units with high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.

- Areas of exposed outcrop are smaller than two contiguous acres.

- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.

- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

    1. Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action.
    2. A field survey by a qualified paleontologist is often needed to assess local conditions.

    3. Management prescriptions for resource preservation and conservation through controlled access or special management designation should be considered.

4. Class 4 and Class 5 units may be combined as Class 5 for broad applications, such as planning efforts or preliminary assessments, when geologic mapping at an appropriate scale is not available. Resource assessment, mitigation, and other management considerations are similar at this level of analysis, and impacts and alternatives can be addressed at a level appropriate to the application.

The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. Mitigation considerations must include assessment of the disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access resulting in greater looting potential. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.

Class 5 – Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions. Unit is frequently the focus of illegal collecting activities.

Class 5b – These are areas underlain by geologic units with very high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has very high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

1. Management concern for paleontological resources in Class 5 areas is high to very high.

2. A field survey by a qualified paleontologist is usually necessary prior to surface disturbing activities or land tenure adjustments. Mitigation will often be necessary before and/or during these actions.

3. Official designation of areas of avoidance, special interest, and concern may be appropriate.

The probability for impacting significant fossils is high. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.

Geologic Hazards

The UGS provides technical information and assistance regarding earthquakes and geologic hazards. Landslide data from UGS indicates 291 historic landslides in Tooele County.

Legal Context

Applicable Laws

Cultural Resources

Because the application of the laws and regulations for cultural resources are complex and can be difficult to understand, it is usually a good idea to consult with a professional archaeologist or architectural historian concerning how to proceed with a particular project.

Federal laws must be considered if project plans include federal land. The same is true if federal licensing or federal funds are involved. In accordance with federal laws and regulations, project undertakings must take into account their effects upon potential historic properties. The following federal legislation is the most pertinent:

- Antiquities Act: 16 USC §431 et seq. (1906)
- Historic Sites Act: 16 USC §461 et seq. (1935)
- National Historic Preservation Act: §16 USC 47 et seq. (1966)
- National Environmental Policy Act: 42 USC §4321 et seq. (1969)
- Executive Order 11593: Protection and Enhancement of the Cultural Environment (1971)
- Executive Order 13007: Indian Sacred Sites (1997)
- Archaeological and Historical Conservation Act: §16 USC 469 et seq. (1974)
- Archaeological Resources Protection Act: 16 USC §470 et seq. (1979)
- American Indian Religious Freedom Act: 42 USC §1996 et seq. (1978)
- Native American Graves and Repatriation Act: 25 USC §3001 et seq. (1990)
- Omnibus Public Land Management Act, Subtitle D – Paleontological Resources Preservation: 16 USC 470aaa (2009)

The State of Utah also has several laws with implementing regulations, which may be applicable to project planning and undertakings including:

- Utah Antiquities Protection Act: Utah Code §9-8-101-806
- Abuse or Desecration of a Dead Human Body: Utah Code §76-9-704

Paleontological Resources

There are no state requirements for paleontological resources on private lands. Should the State Paleontologist identify a particular area as sensitive for such resources located on state lands or federal lands, it will likely be necessary to hire a professional paleontologist to assist in the project. The State of Utah does not maintain a list of qualified paleontologists, but the US Bureau of Land Management does maintain a list of permitted paleontologists. These professionals are not only qualified to work on federal lands, but on most any project undertaken in a Tooele County.

The following laws and regulations apply to protecting significant paleontological resources: Antiquities Act (16 USC §432, 433 et seq. [1906]) and the National Environmental Policy Act (42 USC §4321-4327 [1969]), also known as NEPA. However, the most recent and most important law protecting paleontological resources on federal lands (except Indian Reservations) is the Omnibus Public Land Management Act, Subtitle D – Paleontological Resources Preservation (P.L. 111-011; 123 Stat. 1172; 16

USC 470aaa). In addition, US Bureau of Land Management has developed regulations for the protection of paleontological resources on lands administered by their field offices. Applicable Utah State legislation consists of the Utah Antiquities Protection Act (Utah Code §9-8-101-806).

Geologic Resources

Utah Code §17-27a-401-2-e (County) and 10-9a-401-2-e (Municipal) require general plans to "promote health, safety, and welfare" through the protection of urban development. State statutes allow local jurisdictions to address geologic hazards through zoning districts and ordinance to regulate land used in floodplains and potential geologic hazard areas (Utah Code §17-27a-505-1-c (County) and 10-9a-505-1-c (Municipal). Utah Code §17-27a-703 (County) and 10-9a-703 (Municipal) defines a process for private property owners within counties and municipalities to appeal land use decisions restricting development in areas defined as geologic hazards.

3.2 Desired Future State

Tooele County desires to protect against direct and substantial impacts to nationally and locally recognized cultural resources, both historical and archaeological. Tooele County also desires to manage and protect unique paleontological and geological resources or features (e.g., the Stockton Bar), safeguard their scientific and educational value, and promote public benefit and enjoyment. However, lands within Tooele County considered for any special designation and the effects and implications of the National Historic Preservation Act are an issue of concern for Tooele County.

Tooele County desires to ensure that land use activities on public lands do not increase the risk from geologic hazards.

3.3 Management Objectives and Associated Policies and Guidelines

3.3.1 Management Objective

Implement land use and development strategies that protect against direct and substantial impacts to nationally recognized cultural resources, both historical and archaeological, including prehistoric rock art, three-dimensional structures and other cultural resources artifacts and sites recognized as culturally important and significant by the Utah State Historic Preservation Office. Coordinate early with appropriate agencies and organizations on proposed actions to identify potential cultural and historical resource issues.

Policies and Guidelines

- County strategies include working with federal and state agencies to (1) identify and survey historical and cultural resources, (2) explore alternative historical/cultural site and easement acquisition strategies, (3) develop and coordinate a collaborative process of regular consultation with the Utah State Historic Preservation Office, and (4) support and coordinate with the preservation planning efforts of other entities.

- Establish a historic preservation committee to oversee the preservation related ordinances [13] and to educate, advocate, and provide assistance in historic preservation efforts. Educate residents through the historic preservation committee by holding workshops on rehabilitation, financial incentives, and other information.

- Encourage the conservation, restoration, and preservation of those properties already listed on the National Register of Historic Places. Encourage property owners to conduct cultural resource surveys

on significantly sized projects, or projects that are located in proximity to areas identified as having cultural resources. Work with owners of properties with significant cultural resources to identify alternative funding sources to avoid, reduce, or mitigate impacts on the resources. Seek adaptive uses as an alternative to demolishing or significantly altering historic structures.

- Reasonable mineral development can occur while sensitive sites are protected. Reasonable and effective stipulations and conditions to protect the cultural resources should accompany decisions to issues mineral leases, permit drilling, or permit seismic activities. Such activities should not be disallowed merely because they are in the immediate vicinity to cultural resources if it is shown that such activities will not irreparably damage those resources.

3.3.2 Management Objective

Implement land use and development strategies that preserve locations of scientifically important paleontological resources on public lands.

Policies and Guidelines

- Consult the UGS State Paleontologist to assess potential for paleontological resources with a project or planning area.

- Discourage illegal collection activities through law enforcement and educational activities.

- Support and coordinate with the paleontological protection and education of other entities.

3.3.3 Management Objective

Implement land use and development strategies that protect life and property from geologic hazards.

Policies and Guidelines

- Consult with UGS to identify geologic hazards and risks across Tooele County.

- Identify and evaluate areas of erosion on public land and determine improvements.[14]

- Fit new development to the existing terrain to prevent or reduce all adverse impacts in hazardous areas.

- Require the avoidance or mitigation of environmental hazards such as flooding, landslides, and subsidence or fissure zones as part of the development review process.

3.4 References

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[4] Blanthorn, Ouida. A History of Tooele County. Salt Lake City: Tooele County Commission and Utah State Historical Society, 1998.

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[12] Walden, Malcom. Personal communication. [Conversation on October 18, 1995 between Harold R. Housley of Sagebrush and Malcom Walden, BRAC Director at Tooele Army Depot, regarding the BRAC area.] Notes on file at Sagebrush, Ogden, Utah, 1995.

[13] Tooele County, nd Tooele County Land Use Ordinance, Title 4 Boards and Committees, Section 1-3 Historic Preservation Commission.

[14] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed April 2017).

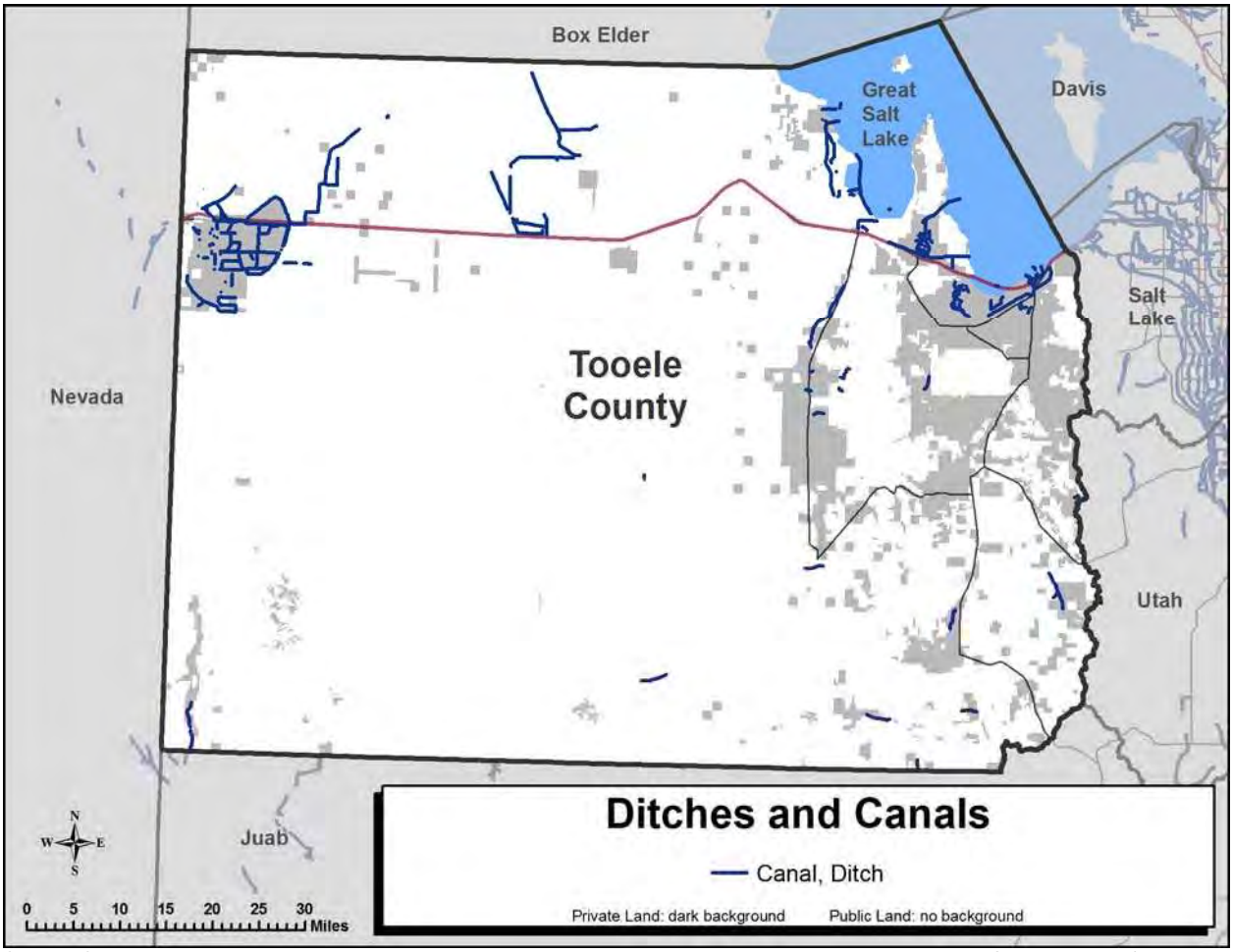
[15] US Department of Interior, Bureau of Land Management. 2016. Potential Fossil Yield Classification System. https://www.blm.gov/sites/blm.gov/files/uploads/IM2016-124_att1.pdf (Accessed May 19, 2017).

4. DITCHES AND CANALS

Ditches, canals, and pipelines are used to convey diverted water from the source to a location where its beneficial use is taken. The term "conveyance" is used to describe the movement of water from source to application. Water pipelines are used to convey water when open channels are not suitable, such as for drinking water. Much of Tooele County's water conveyance network is part of that constructed throughout the region that made agriculture possible despite the dry climate and sustained the influx of pioneer settlers.

Related resources:

- Irrigation
- Water Rights
- Agriculture



Source: Streams NHD HighRes, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

4.1 Management Setting

Context

Tooele County's public lands serve as the water source supplying some of the county's irrigation systems. Irrigation systems are an integral element for agricultural viability in Tooele County. The use, upgrade, and maintenance of the Utah's network of canals, ditches, and dams continues today. Many of the canals and ditches remain open, but over time many have been lined or piped to improve operational efficiency and for safety reasons.

Dams, diversions, canals, and pipelines are constructed to take advantage of the topography of each watershed and redistribute water from rivers and streams outward to lower elevation lands, which are more suitable for crop production. Ditch and canal systems are an integral element for agricultural viability in Tooele County and may also be relied on for urban landscape watering and gardens.

Ditches and canals are also utilized by mineral extraction companies to supply salt-laden brines from the Great Salt Lake to evaporation ponds. These canal systems cross public and private lands.

Findings

According to the National Hydrographic Dataset Tooele County has 290.8 miles of ditches, 126.9 miles or 44 percent are on public lands (Table 4.1).

Table 4.1. Miles and Percentages of Ditches/Canals in Tooele County.

LANDOWNER	MILES OF DITCHES/CANALS	PERCENTAGE
US Bureau of Land Management	71.9	24.4
US Forest Service	2.6	less than >1
US Department of Defense	21.0	7.2
State of Utah	31.4	10.8
Private	162.8	55.9
Native American Tribal	1.1	>1

Source: National Hydrographic Dataset.

Legal Context

Water is appropriated to water users downstream based on state regulations spelled out in Utah Code Title 73, Water and Irrigation. Point of Diversion data, stream alteration data, place of use data, and adjudication areas data can be used by Tooele County to help determine areas of the county that may have complex water rights issues. See CRMP Section 26, Water Rights, for more information regarding water rights in Tooele County.

Other applicable laws include the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) and the Utah Water Quality Act (Utah Code §19-5).

4.2 Desired Future State

Tooele County desires to protect existing water conveyance systems, as long as they do not export water outside the county. Tooele County also desires to eliminate or reduce water loss from evaporation.

4.3 Management Objectives and Associated Policies and Guidelines

4.3.1 Management Objective

Support the protection of existing water conveyance systems that keep water within Tooele County.

Policies and Guidelines

Coordinate with agencies and water companies to protect existing water conveyance systems that keep water within the county.

4.3.2 Management Objective

Support activities which eliminate or reduce water loss from evaporation.

Policies and Guidelines

Encourage covering ditches and canals and the use of pipes to eliminate or reduce water loss from evaporation.

5. ECONOMIC CONSIDERATIONS

Land ownership in Tooele County is more than 75 percent federal, primarily US Bureau of Land Management (BLM) and the US Department of Defense (DOD). Due to the large percentage of federal lands in the county, the economy is highly influenced by decisions made by federal land managers. The overall economy of Tooele County is best served by prioritizing land access and responsible resource development over protective and restrictive management objectives. The close proximity and easy access to public lands in Tooele County is an incredible asset to the residents and visitors alike.

Related resources:

- Recreation and Tourism
- Land Use

5.1 Management Setting

Context

Local socioeconomic impact of agency decisions. Federal planning processes require an assessment of potential impacts to local economies and social environments including historical and cultural elements. It is critical that agency analyses adequately convey the relevance or "linkages" between this information and county public land and resource interests.

Relative impact of agency decisions (local vs. national impact). Tooele County recognizes the obligation of federal land managers to manage public lands in the public's interest according to nationwide perspectives. However, due to the high percentage of public land within Tooele County, the county is more directly affected by agency management decisions.

Tooele County receives an annual Payment in Lieu of Taxes (PILT) from Federal government based on the amount of Federal lands in the county that do not earn property taxes. In 2015 Tooele County received $3,436,141 based on 2,059,548 acres of federal lands.[1]

Findings

Tooele County is the second largest county in Utah with 6,923 square miles of land. Three mountain ranges run through the county including the Oquirrh Mountains, Deep Creek Mountains, Onaqui Mountains, and Stansbury Mountains.[2]

Valued resources include minerals, range lands (which make up 75 percent of the county) and timber. There are a total of 347,024 acres of farmland divided between 476 farms (as of 2012).[3] The market value from sales in 2012 was $40,386,000.[3]

Tooele County also attracts recreation visitors. The county offers pristine land, where visitors may hike, camp, hunt, fish, and ride bicycles and horses, and use Off Highway Vehicles. Further opportunities to ride are available at the Miller Motorsports Park, where guests come to race motorcycles, cars, bikes, and carts. In 2014 the county had 1,537 jobs related to leisure and hospitality.[4]

Legal Context

Applicable Laws

The US Forest Service (Forest Service) manages land use decisions, including recreation by developing land and resource management plans (RMPs), also known as Forest Plans, under the National Forest Management Act (16 USC §1600 et seq. [1976]), also known as NFMA. The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]), also known as FLPMA, mandates the BLM to manage lands, including recreational uses, under multiple-use philosophy. Both of these federal land managers set recreation policy following planning procedures specified by National Environmental Policy Act (42 USC §4321 et seq. [1969]), also known as NEPA.

State laws applicable to recreation and tourism include the Transient Room Tax enabled by Utah Code §59-12-3 et seq., which allows counties to levy a tax up to 4.25 percent on hotel accommodations. The Tourism, Recreation, Cultural, Convention, and Airport Facilities Tax Act, Utah Code: §59-12-6 et seq. (2008) allows counties to levy a tax up to 4 percent on short-term motor vehicle rentals. Funds collected under this law may be used for the development, operation, and maintenance of cultural, recreational, or tourist facilities. Utah Code §17-31-8 requires all counties that levy taxes to form an advisory board to represent industries being taxed. Utah Code §63N-7-1 created the Board of Tourism, which advises the Governor's Office of Economic Development on "planning, policies, and strategies and on trends and opportunities for tourism development."

5.2 Desired Future State

Local socioeconomic impact of agency decisions[5]:

- Agency decisions are based on accurate, comprehensive and relevant data. This information captures and highlights the unique characteristics of Tooele County, particularly its interest in public lands and the associated natural resources.

- Tooele County actively participates in identifying the type of data to be gathered, the interpretation and analysis thereof, and its relevance to the planning process or decision at hand.

- Agency officials acknowledge local socioeconomic factors as an important consideration in agency planning and decision- making processes.

- Tooele County desires the effects of management actions on local and regional socioeconomics receive greater consideration in agency decision-making processes.

Relative impact of agency decisions (local vs. national impact)[5]:

- Agency planning and decision-making processes provide a weighted preference for local interests and input.

- The county maintains a dynamic General Plan and an effective Public Lands Committee.

- The county's General Plan, including this County Resource Management Plan, is recognized by agencies as an "official" local plan and considered as such in all planning and decision-making processes.

5.3 Management Objectives and Associated Policies and Guidelines

5.3.1 Management Objective

Ensure that state and federal agency decisions are based on accurate, comprehensive, and relevant data that captures and highlights the unique characteristics of Tooele County.

Policies and Guidelines

- Maintain (and update as new information is available) Tooele County's economic and demographic profile.[5]

- Ensure agency officials are aware of and familiar with Tooele County's economic and demographic profile including the county's expectation that this information will be utilized by agencies, and supplemented as necessary, in all relevant planning and decision making processes.[5]

5.3.2 Management Objective

Ensure that local and regional socioeconomics receive greater consideration in agency decision-making processes.

Policies and Guidelines

- Incorporate language within county-agency partnership agreements describing the type and detail of information the county feels is important to be analyzed.[5]

- Participate in and monitor agency planning processes to ensure that data is gathered and studies are completed in a manner and in detail sufficient to highlight and protect Tooele County's interests. Review agency studies and conclusions for consistency with county-conducted analyses. As necessary, request formal agency responses for relevant inconsistencies.[5]

5.3.3 Management Objective

Ensure that the county's General Plan is considered an official local plan and considered in all state and federal planning and decision-making processes.

Policies and Guidelines

- Ensure agency officials are aware of and familiar with Tooele County's General Plan, the county's economic and demographic profile, and other relevant studies. Clarify with agency personnel that these adopted county documents are to be considered initial county input and positions in all agency planning and decision-making processes.[5]

5.4 References

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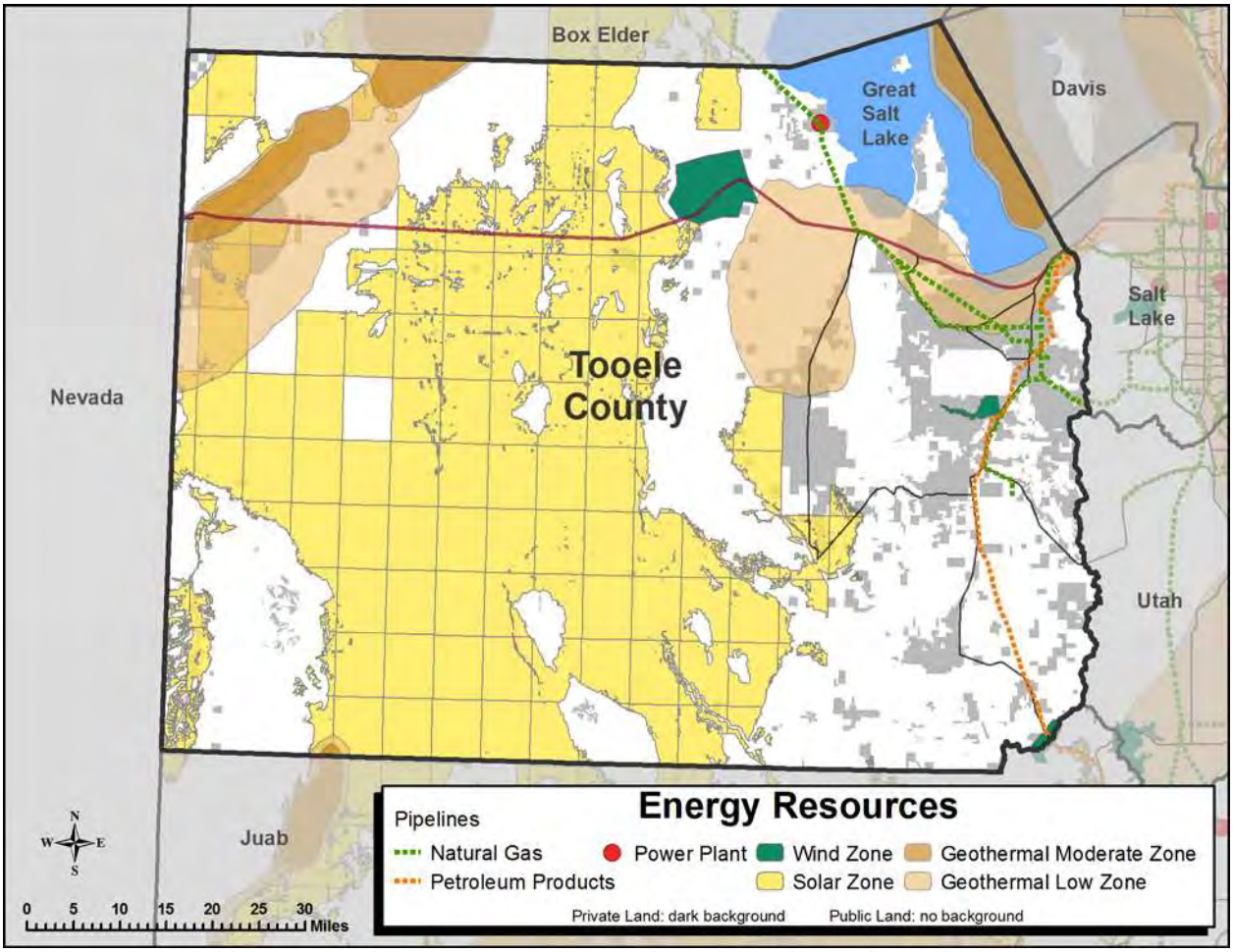
6. ENERGY RESOURCES

Public and private utilities draw on Utah's renewable and nonrenewable resources to provide electricity and fuel (e.g. natural gas, propane, oil, gasoline, coal) energy supplies.

Related resources:

- Utilities
- Air Quality
- Mining
- Mineral Resources



Source: Power Plants CO2, July 2008, Compiled by Utah Automated Geographic Reference Center. Geothermal Power Production Potential and Pipelines, Date unknown, Utah Geological Survey. Utah Renewable Energy Zone. UREZ Phase 1 Wind Zones, Date unknown, Utah Renewable Energy Zone. Access via Utah Automated Geographic Reference Center.

6.1 Management Setting

Context

Energy resources includes the development and production of energy (i.e. fossil fuel and renewable) as well as the transmission of energy across public lands (i.e. powerlines, pipelines, etc.). Energy transmission projects on public lands may affect sensitive wildlife and other resources.

Findings

Existing oil, gas, and coal energy development in very limited in Tooele County. According to the Utah Division of Oil, Gas, and Mining (DOGM), there are no active oil or gas wells in Tooele County, though there are abandoned and dry test wells.[1] Economic sources of coal are not present in Tooele County. One natural gas power plant exists in Tooele County.[2] Energy transmission via pipelines and powerlines occurs, though precise counts and location are not available.

Tooele County has significant potential for the production of solar energy based on a 2009 study by the Utah Renewable Energy Zones (UREZ) Taskforce.[3] This same study identified three locations in Tooele County with potential to generate more than 400 megawatts of wind energy.[3] Geothermal energy potential also exists in Tooele County with one well and one spring producing water in excess of 50 degrees Celsius.[3]

Legal Context

Applicable Laws

The Mineral Leasing Act of 1920 as amended (30 USC §§181 et seq.) is the major federal law governing oil, gas, coal, and other hydrocarbons on public lands. This act instructs the US Department of Interior operating through the US Bureau of Land Management (BLM) to lease extraction rights for energy production on lands managed by the BLM and US Forest Service. The Geothermal Steam Act of 1970 (30 USC §§1001 et seq.) authorizes the US Department of Interior, via the BLM, to lease extraction rights for geothermal resource production on lands managed by the BLM and Forest Service.

Applicable state laws include Utah Code §40-6-1 et seq. (1983) which established the DOGM within the Utah Department of Natural Resources (DNR) with authority to regulate oil and gas mining as well as promote the development and production of oil and gas. In 1982 DOGM obtained primacy from the Environmental Protection Agency (EPA) for regulation of Class II Water Injection Wells; this program regulates disposal of produced water from oil and gas wells, and reinjection of fluids for pressure maintenance and secondary recovery operations in oil and gas fields.

6.2 Desired Future State

Tooele County desires to be a self-sufficient alternative energy producer with capacity scaled to increasing population and encourages the development of renewable energy resources on public lands. Tooele County wishes to develop land unsuitable for other types of land uses into prominent alternative energy (wind, solar, geothermal) sources. Tooele County does not support additional fossil fuel development when it unduly impacts other resources on public lands. However, mineral and energy production and environmental protection are not mutually exclusive, and Tooele County desires that, where technically feasible, appropriate access to mineral and energy resources be permitted on public lands, while preserving non-mineral and non-energy resources.

6.3 Management Objectives and Associated Policies and Guidelines

6.3.1 Management Objective

Tooele County believes alternative energy resources can provide substantial and reliable energy supplies.

Policies and Guidelines

- Support and encourage renewable energy resource development on public lands including wind, solar, and geothermal.

- Investigate opportunities for renewable energy resources such as wind, solar, ground-source heat pumps, etc.

6.3.2 Management Objective

Manage public lands without additional fossil fuel development.

Policies and Guidelines

- Discourage additional fossil fuel development on public lands.

- Coordinate with state and federal agencies in new energy production activities.[4]

6.3.3 Management Objective

Support energy production on public lands that also preserve non-energy resources.

Policies and Guidelines

- Coordinate with state and federal agencies in new energy production activities.[4]

6.4 References

[1] Utah Department of Natural Resources, Oil, Gas, and Mining Division. 2013. Oil and Gas Wells, spatial data. https://gis.utah.gov/data/energy/oil-gas/

[2] Utah Automated Geographic Reference Center. 2008. Power Plants (CO2), spatial data. https://gis.utah.gov/data/energy/energy-generation/

[3] Berry, Jason et.al. 2009. Utah Renewable Energy Zones Task Force Phase I Report, Utah Geological Survey, Department of Natural Resources. https://energy.utah.gov/wp-content/uploads/UREZ-Phase-I.pdf

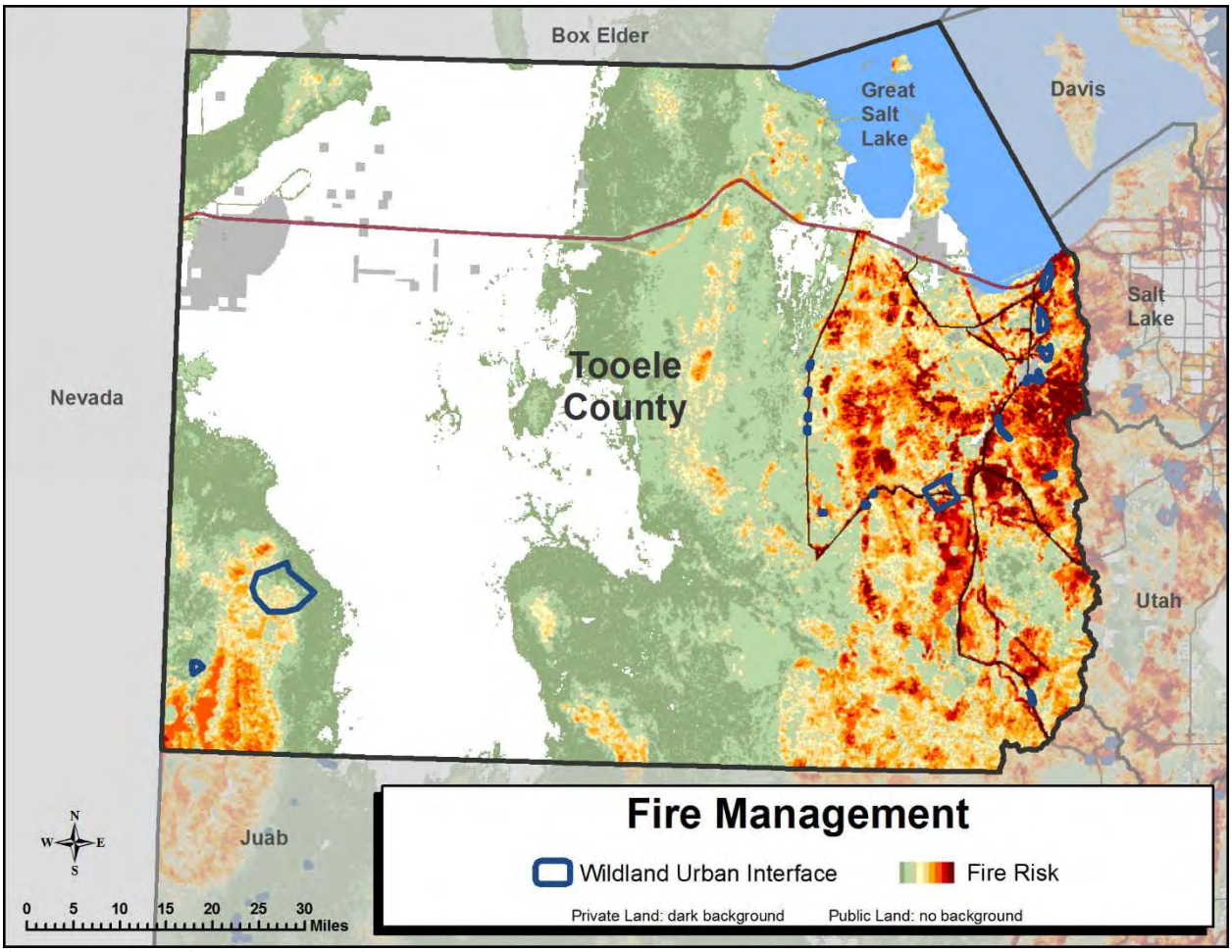
[4] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

7. FIRE MANAGEMENT

Fire management refers to the principles and actions to control, extinguish, use, or influence fire for the protection or enhancement of resources as it pertains to wildlands. It involves a multiple-objective approach strategy including ecosystem restoration, community preparedness, and wildfire response.

Related resources:

- Forest Management
- Noxious Weeds
- Air Quality



Source: Urban Interface Areas, 1999, Compiler unknown, Access via Utah Automated Geographic Reference Center. Utah Fire Risk Index, 2013, West Wide Risk Assessment, Utah Division of Forestry, Fire, and State Lands.

7.1 Management Setting

Context

Wildfire is the most prevalent disturbance to natural resources in the state of Utah. The threat of wildfire in Tooele County is greatest on its public lands. The wildland-urban interface (the residential and developed areas bordering open space and public lands) is the area that contains development and infrastructure most at risk in the event of a wildfire on public lands. The wildland-urban interface requires its own unique fire management considerations because of the following factors:

- High density of structures (both residences and outbuildings)
- Higher density of utilities
- More complex evacuations procedures
- Concentrated air-quality issues and effects

Fire suppression is expensive to taxpayers. With increase in temperatures and drought periods expected in the coming years, fire-suppression costs are projected to rise. Effective fire management includes elements of wildfire prevention, mitigation, and preparedness.

Findings

Wildfire is the most prevalent natural disturbance in the State of Utah, and it affects biotic communities statewide. It is an integral component of our forest, range, and desert lands and affects thousands of acres on an annual basis. Below is a compilation of Tooele County wildland fire statistics since 2010 for wildfires that are included in the national Geospatial Multi-Agency Coordination Group (Table 7.1).[1]

Table 7.1. Nationally reported wildland fires over 100 acres in size and acreage burned in Tooele County since 2010.

YEAR	NUMBER OF FIRES	ACREAGE BURNED
2010	9	3,542
2011	14	18,905
2012	18	76,709
2013	5	32,826
2014	7	6,689
2015	9	742
2016	10	11,772

Source: Geospatial Multi-Agency Coordination Group (GeoMAC) fire perimeter data.

Legal Context

Response to fire incidents relies on proper oversight, guidance, and partnership among a variety of trained professional organizations. Establishing a fire management system is a critical step in protecting communities both urban and rural. Fire management refers to the principles and actions to control, extinguish, use, or influence fire for the protection or enhancement of resources as it pertains to wildlands. It involves a multiple-objective approach strategy including ecosystem restoration, community preparedness, and wildfire response.[2] Wildfires do not respect political boundaries, and cooperation

among different agencies and jurisdictions covering federal, state, county, municipal, and rural/volunteer fire departments is essential for successful fire management response. In Utah the state legislature tasked the Utah Division of Forestry, Fire, and State Lands (FFSL) to devise a Comprehensive Statewide Wildland Fire Prevention, Preparedness, and Suppression policy known as SB-56.[3] Under this plan a master cooperative wildland fire management and Stafford Disaster Relief and Emergency Assistance Act (42 USC §5187 et seq. [1988]) response agreement is signed each year between numerous federal land management agencies and the State of Utah for cooperation during wildland fire incidents that occur throughout the state.[4]

Utah Code §11-7-1(1) requires counties and municipalities to provide fire protection within their boundaries and coordinate with adjacent counties and public land management agencies to conduct fire suppression. Utah Code §65a-8-202(4) requires counties (not municipalities) to be responsible for cost of fire suppression.

Applicable state planning documents include the Utah Forest Action Plan by the Forestry Fire, and State Lands (FFSL).[5]

7.2 Desired Future State

Tooele County supports controlled wildland fire use and prescribed fire on public lands with required coordination with Tooele County to provide for ecosystem maintenance and restoration consistent with land uses and historic fire regimes where it does not threaten adjacent development.

Tooele County supports fire suppression activities for public and firefighter safety and for protection of federal, state and private property and natural resources. The county also desires that a notification protocol be developed and implemented to ensure wildfire mitigation measures are coordinated.

Tooele County supports hazardous fuel (vegetation) management to reduce risk of property damage and uncontrolled fires. These activities should be conducted in a manner that does not cause damage to survey monuments, or results in reestablishment of monuments as directed by County.

7.3 Management Objectives and Associated Policies and Guidelines

7.3.1 Management Objective

Coordinate with public land agencies to use prescribed fire and controlled wildland fire use where and when appropriate for ecosystem maintenance and restoration, and reduction of hazardous fuels.

Policies and Guidelines

With required County notification and coordination, use fire, controlled burns and controlled wildland fire use, when and where appropriate for ecosystem maintenance and restoration, and for the reduction of hazardous fuels.

7.3.2 Management Objective

Coordinate with State and Federal Agencies to develop a notification protocol to coordinate wildfire mitigation efforts.

Policies and Guidelines

Coordinate with State and Federal Agencies to develop a notification protocol to coordinate wildfire mitigation efforts.

7.3.3 Management Objective

Support wildland fire suppression and encourage coordination of efforts between agencies.

Policies and Guidelines

- Continue the contracted County Fire Warden position in connection with FFSL.
- Participate in the State Wildland Fire Suppression Fund.[6]
- Share and coordinate interagency fire suppression efforts including local fire departments, providing necessary resources for such efforts.
- Support community events that spread public education about wildfire and disaster prevention and preparedness.[7]

7.3.4 Management Objective

Support management actions that reduce hazardous fuel loads in a manner that does not damage survey monuments or if damaged results in reestablishment of monuments.

Policies and Guidelines

When management actions result in damaged or destroyed survey monuments require responsible party or agency to see that the survey monuments be appropriately reestablished. The US Bureau of Land Management created a document to guide surveyors in reestablishing lost or obliterated monuments.[8]

7.4 References

[1] National Interagency Fire Center. 2017. Historic Fire Perimeters, spatial data. https://rmgsc.cr.usgs.gov/outgoing/GeoMAC/ (accessed January 8, 2016).

[2] US Forest Service. 2016. Wildland Fire Touches Every Part of the Nation. Managing Wildland Fires. https://www.fs.fed.us/fire/management/index.html (accessed February 6, 2016).

[3] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2015. Utah Wildland Fire Policy. http://le.utah.gov/interim/2015/pdf/00005301.pdf (accessed February 2, 2016).

[4] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2013. Master Cooperative Wildland Fire Management and Stafford Act Response Agreement. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5409791.pdf (accessed February 2, 2016).

[5] Utah Department of Natural Resources, Utah Division of Forestry, Fire, & State Lands. 2016. Utah Forest Action Plan 2016. http://www.ffsl.utah.gov/images/forestry/stateassessment/UtahFAP-2016-HighRes-dnd.pdf (accessed March 24, 2017).

[6] Utah Code R652-121. Wildland Fire Suppression Fund.

[7] Tooele County Sheriff's Office. 2017. Toole County Fire Warden webpage. http://tooelecountysheriff.org/firewarden.htm. (accessed April 2017).

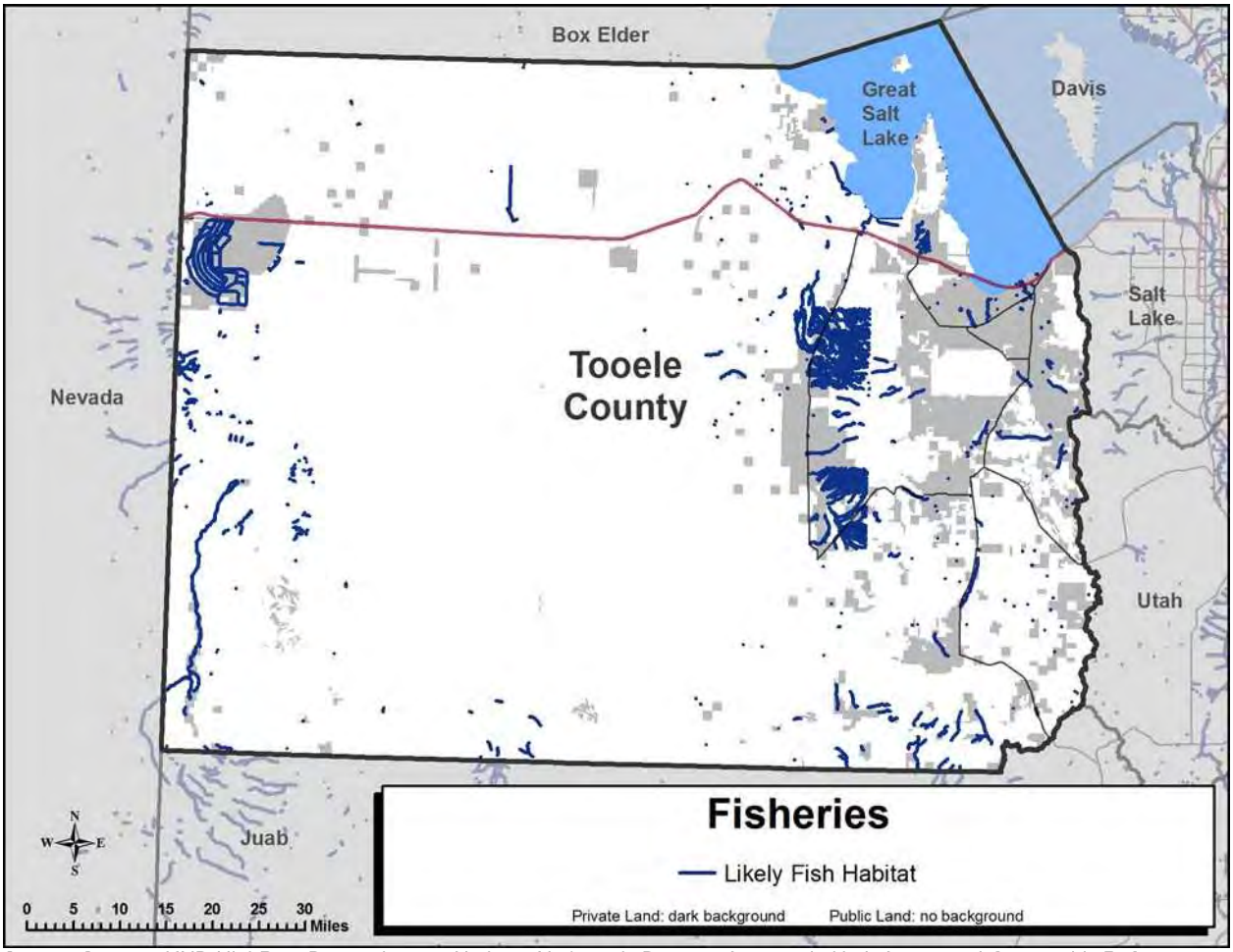
[8] Restoration of Lost or Obliterated Corners & Subdivision of Sections, a guide for surveyors. 1974, BLM. https://www.blm.gov/or/gis/geoscience/files/lost_oblit.pdf.

8. FISHERIES

A fishery is an aquatic system that includes a target organism, the community of species on which that organism depends, the habitat in which they reside, and the humans that affect or utilize the resource within the ecosystem.

Related resources:

- Water Quality and Hydrology
- Threatened, Endangered, and Sensitive Species



Source: Streams NHD HighRes, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

8.1 Management Setting

Context

Fishing and fisheries provide recreation, education, and an introduction to natural resources and their management. Sport fishing has significant, positive economic impact in Utah through retail sales and tourism.

The primary concerns regarding fisheries in Tooele County are:

- Sport fisheries
- Brine shrimp
- Aquatic invasive species

Fishing and fisheries provide education and introduction to natural resources and their management to county residents.

Brine fishing in the Great Salt Lake is a multimillion dollar industry in Utah.

Aquatic invasive species negatively impact fisheries and aquatic environments and are expensive to control.

Findings

The Utah Division of Wildlife Resources (DWR) is responsible for managing fisheries in Utah with a primary resource goal of providing quality recreational fishing opportunities.[1] Assisting the DWR in decision making and establishing management priorities is a Wildlife Board and five Regional Advisory Councils (RACs) who provide local input on fishing related issues. Each RAC consists of a diverse group of interest group representatives that includes agricultural interests, sportsmen, federal land agencies, elected officials, and the general public. Meeting schedules and agendas can be found on the RAC website.

Aquatic invasive species (AIS) or aquatic nuisance species are defined by the DWR as nonnative species of aquatic plants and animals that cause harm to natural systems or human infrastructure. Not all nonnative species are considered AIS, as many nonnative fish species are desirable for sport fishing. These include nonnative rainbow trout, brown trout, bass, and catfish.

The primary AIS threats in Utah are related to *Dreissenid* spp. mussels, such as quagga mussel, zebra mussel, and dark falsemussel. Invasive mussels in Utah waters have no natural competitors, and once they are established, they spread quickly, growing on nearly all underwater surfaces. The prolific mussels often clog water and power infrastructure, harm aquatic recreational equipment, and outcompete native species for nutrients, which can have profound effects on sportfish populations higher in the food chain.

Dreissenid spp. have infested several waterbodies of southern Utah and possibly Deer Creek Reservoir in Wasatch County. On January 15, 2016, the DWR posted notice of the detection of quagga mussel veligers (juvenile mussels) in the Deer Creek Reservoir. While not in Tooele County, Deer Creek Reservoir is close enough to Tooele County to warrant concern about the spread of *Dreissenid* into local waters.

Legal Context

All wildlife, including fish, are the property of the State of Utah and managed by the DWR.

Applicable Laws

Utah Code §23-13-3 provides that wildlife not held by private ownership is considered property of the state. Utah Code §23-15-2 establishes that the state has jurisdiction of all wildlife in the state, including aquatic wildlife, whether on public or private land. Utah Code §4-23-2 declares that preserving the wildlife resources of Utah is important to the economy of the state. Utah Code §23-14-2.6 establishes the organization and function of RACs, which advise the state Wildlife Board regarding wildlife management issues.

8.2 Desired Future State

Tooele County desires to maintain riparian and in-stream habitats and restore them where degraded, to support native fish, sport fishing, recreation, and tourism. Efforts will be conducted to improve water quality and aquatic habitat to benefit native fish, sport fishing, and tourism. Best management practices will be implemented to improve water quality and aquatic habitat on public lands.

Tooele County also desires to improve water quality to support the brine shrimp harvesting industry downstream and in the Great Salt Lake.

Finally, Tooele County desires to prevent AIS from entering its waterways with support from DWR public education efforts about the transmission and impacts of AIS and proper equipment cleaning protocols. Tooele County will work to control and prevent the spread of AIS where they may already be present, including water bodies, rivers, streams, canals and ditches.

8.3 Management Objectives and Associated Policies and Guidelines

8.3.1 Management Objective

Restore riparian and in-stream habitats where degraded to support native fish, sport fishing, and tourism.

Policies and Guidelines

- Support efforts to restore riparian and in-stream habitats where degraded, recognizing the need to mimic natural processes when they can't be restored. These processes include such measures as fish ladders and natural hydrograph characteristics (timing, duration, temperature, etc.).[2]

- Support the maintenance of riparian areas as public to allow access for fishing.

8.3.2 Management Objective

Support water quality Best Management Practices on public lands to improve water quality and aquatic habitat, recognizing the need for sufficient water to maintain functioning aquatic ecosystems. [2]

Policies and Guidelines

- Restore natural water and sediment flow regimes.

- Reduce inappropriate grazing by domestic livestock and wildlife.

- Reduce inappropriate siting of roads in riparian zones.

- Increase cover and extent of native riparian vegetation by restoring beavers on the landscape, where social and environmental factors permit.

- Support the removal of in-stream barriers where practical and the creation of selective fish passage structures around barriers which cannot be removed.[2]

- Support the reduction in artificially channelized or straightened stream miles.

8.3.3 Management Objective

Support water quality BMPs on public lands to improve water quality downstream in Great Salt Lake.

Policies and Guidelines

Support efforts to maintain or improve water quality on public lands, recognizing the importance of water quality and salinity levels to the brine shrimp industry.[3]

8.3.4 Management Objective

Prevent the establishment of AIS from all waterways and waterbodies in Tooele County.

Policies and Guidelines

- Support the Utah Aquatic Invasive Species Management Plan as it increases outreach efforts directed at public education.[4]

- Support public education efforts on the transmission and impacts of AIS and proper equipment cleaning protocols. Support efforts to educate the public on Utah's Decontamination Protocols.[5]

8.4 References

[1] Utah Department of Natural Resources, Division of Wildlife Resources. 2015. "Goals and Objectives". https://wildlife.utah.gov/about/goals.php (accessed February 4, 2016).

[2] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[3] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

[4] Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Aquatic Invasive Species Task Force. 2009. Utah Aquatic Invasive Species Management Plan, Publication No. 08-34.

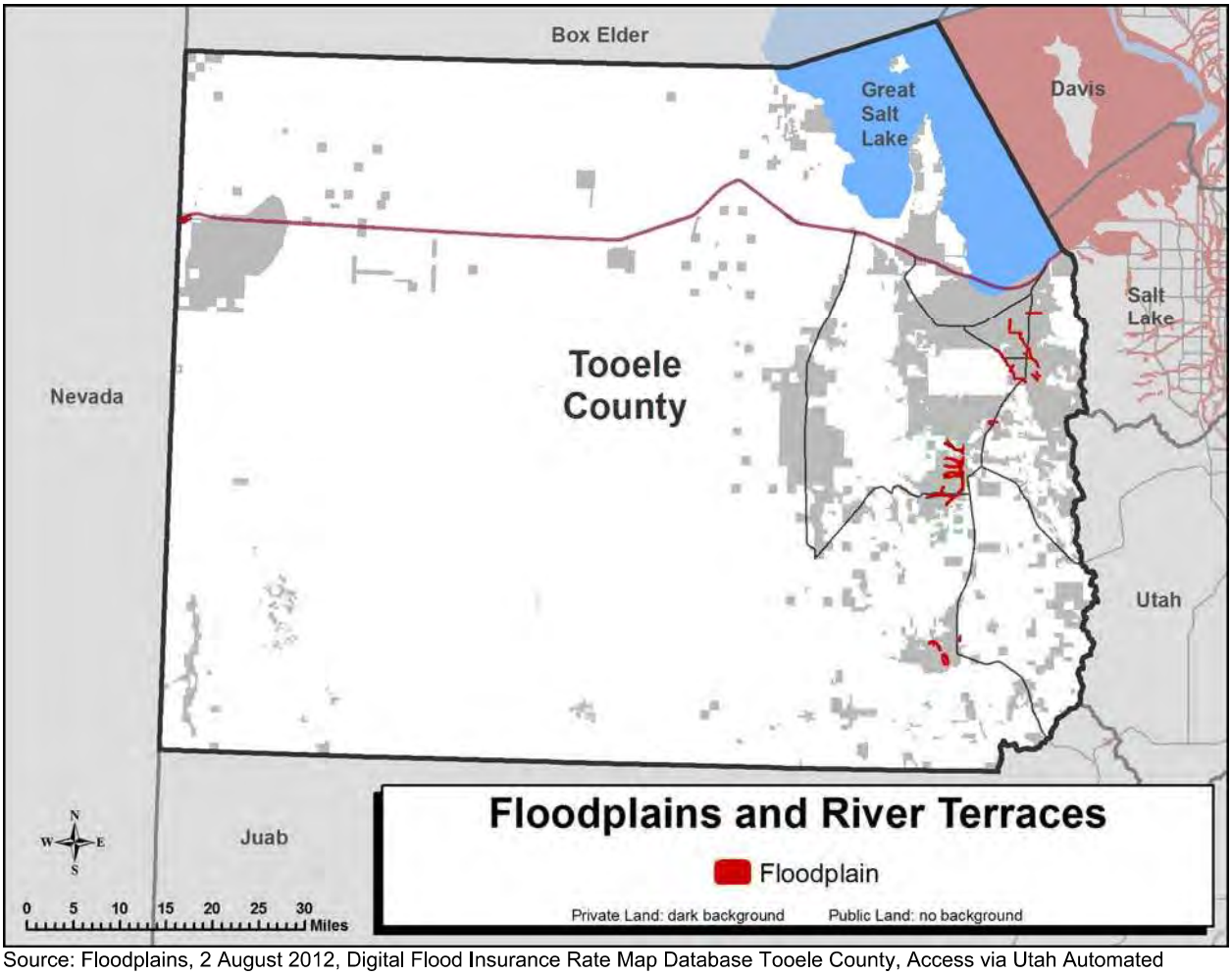
[5] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2012. Utah Decontamination Protocols, Revised 4-18-12. https://wildlife.utah.gov/mussels/PDF/decon_protocol.pdf (accessed April 11, 2017).

9. FLOODPLAINS AND RIVER TERRACES

Floodplains are the low-lying, flood-prone areas adjacent to a river. River terraces are the bench or stepped areas that extend along river valleys. River terraces are former levels and paths of the floodplains of a stream or river. Rivers are dynamic systems and can migrate laterally as a result of bank erosion and deposition, and move vertically as a result of bed aggradation or degradation. Floodplains and terraces are formed during these channel migration processes. Therefore, floodplains and terraces are essentials parts of the river system.

Related resources:

- Riparian Areas
- Wetlands
- Water Quality and Hydrology
- Irrigation



Source: Floodplains, 2 August 2012, Digital Flood Insurance Rate Map Database Tooele County, Access via Utah Automated Geographic Reference Center.

9.1 Management Setting

Floodplains and terraces are an integral part of the hydrologic and ecological system supporting water quality and wildlife habitat.

Findings

Floods occur when a river channel reaches its maximum capacity and water overflows streambanks into nearby areas that would otherwise be dry. Floods are caused by heavy rains or snowmelt delivering water at a rate faster than the soils can absorb it, or when a dam, landslide, or other impoundment gives way and rapidly releases large amounts of water. For the most part, flooding is a natural process that contributes to channel maintenance, ecological processes, and the growth of riparian vegetation. Natural flooding usually occurs during peak flows or periods of high-water discharge.[1] Nevertheless, floods can cause severe impacts to public and private property and therefore must be mitigated.

The Federal Emergency Management Agency (FEMA) provides flood data that classifies areas based on flood hazards mapped through the National Flood Hazard Layer (NFHL). This enables community officials, emergency responders, and the public to be informed and plan accordingly to avoid or reduce impacts from floods. The FEMA and NFHL also guide development and reduce risk by excluding flood hazard areas. The NFHL maps the probability of flooding at specific areas using historical data and prediction models. Floodplains are classified based on the probability of a specific flood event happening in that area. For example, a 100-year floodplain means that a flood event that can inundate the specific area has a probability of happening once in 100 years. This does not mean that the area will be inundated once every 100 years; a 100-year floodplain can be inundated 2 years in a row. Rather, this means that every year there would be a 1 percent probability of a 100-year flood happening in that area. Parts of Tooele County have been mapped by NFHL and 1,862 acres are in the 100-year floodplain.

Legal Context

Applicable Laws

Executive Order 11988 Floodplain Management (1977) as summarized on the FEMA website instructs Federal Agencies to do the following:[2]

- Assert leadership in reducing flood losses and losses to environmental values served by floodplains.
- Avoid actions located in or adversely affecting floodplains unless there is no practicable alternative.
- Take action to mitigate losses if avoidance is not practicable.
- Establish a process for flood hazard evaluation based upon the 100-year base flood standard of the National Flood Insurance Program.

The Executive Order also directs federal agencies to issue implementing procedures, provides a consultation mechanism for developing the implementing procedures, and provides oversight mechanisms.

Utah Code §17-27a-401-2-e (County) and 10-9a-401-2-e (Municipal) require general plans to “promote health, safety, and welfare” through the protection of urban development. State statutes allow local jurisdictions to address geologic hazards through zoning districts and ordinance to regulate land used in floodplains and potential geologic hazard areas (Utah Code §27-27a-505-1-c (County) and 10-9a-505-1-c

(Municipal).

Utah Code §73-3-29-1 requires all state, county, municipal or private landowner to acquire a permit from the state engineer to "relocate any natural stream channel or alter the beds and banks of any natural stream without first obtaining the written approval of the state engineer." Among other purposes, this law is designed to prevent stream alteration which might "unreasonably or unnecessarily diminish the natural channel's ability to conduct high flows."

9.2 Desired Future State

Tooele County desires to promote a healthy hydrological system that encourages efficient flood control, water conveyance, and water retention while providing clean water, wildlife habitat, and recreational uses. Tooele County also supports soil erosion control and its role in controlling floods.

9.3 Management Objectives and Associated Policies and Guidelines

9.3.1 Management Objective

Support management actions that include measures to preserve, protect, and restore natural functions of floodplains, including the retention of water to promote aquifer recharge.

Policies and Guidelines

- Establish protocols for determining appropriate buffers to meet wildlife habitat, target species habitat, and wildlife migration or dispersal functions related to specific landowner wildlife conservation objectives.[3]

- Management actions within floodplains and wetlands will include measures to preserve, protect, and if necessary, restore their natural functions. The Wasatch Front Regional Council[4] and BLM[5] have similar policies.

9.4 References

[1] Jordan River Commission. 2013. Best Practices for Riverfront Communities. http://jordanrivercommission.com/wp-content/uploads/BP-high-res-for-web.pdf (accessed March 23, 2017).

[2] Federal Emergency Management Agency. 1977. Executive Order 11988. https://www.fema.gov/executive-order-11988 (accessed March 23, 2017).

[3] USDA. 2008. Riparian Buffer Design Guidelines, General Technical Report RMRS-GTR-203, January 2008. https://www.fs.fed.us/rm/pubs/rmrs_gtr203.pdf (accessed March 16, 2017).

[4]Wasatch Front Regional Council. 2012. (re)connect, The Wasatch Front Green Infrastructure Plan. http://wfrc.org/new_wfrc/Green_Infrastructure/(Re)Connect%20The%20Wasatch%20Front%20Green%20Infrastructure%20Plan.pdf (accessed April 11, 2017).

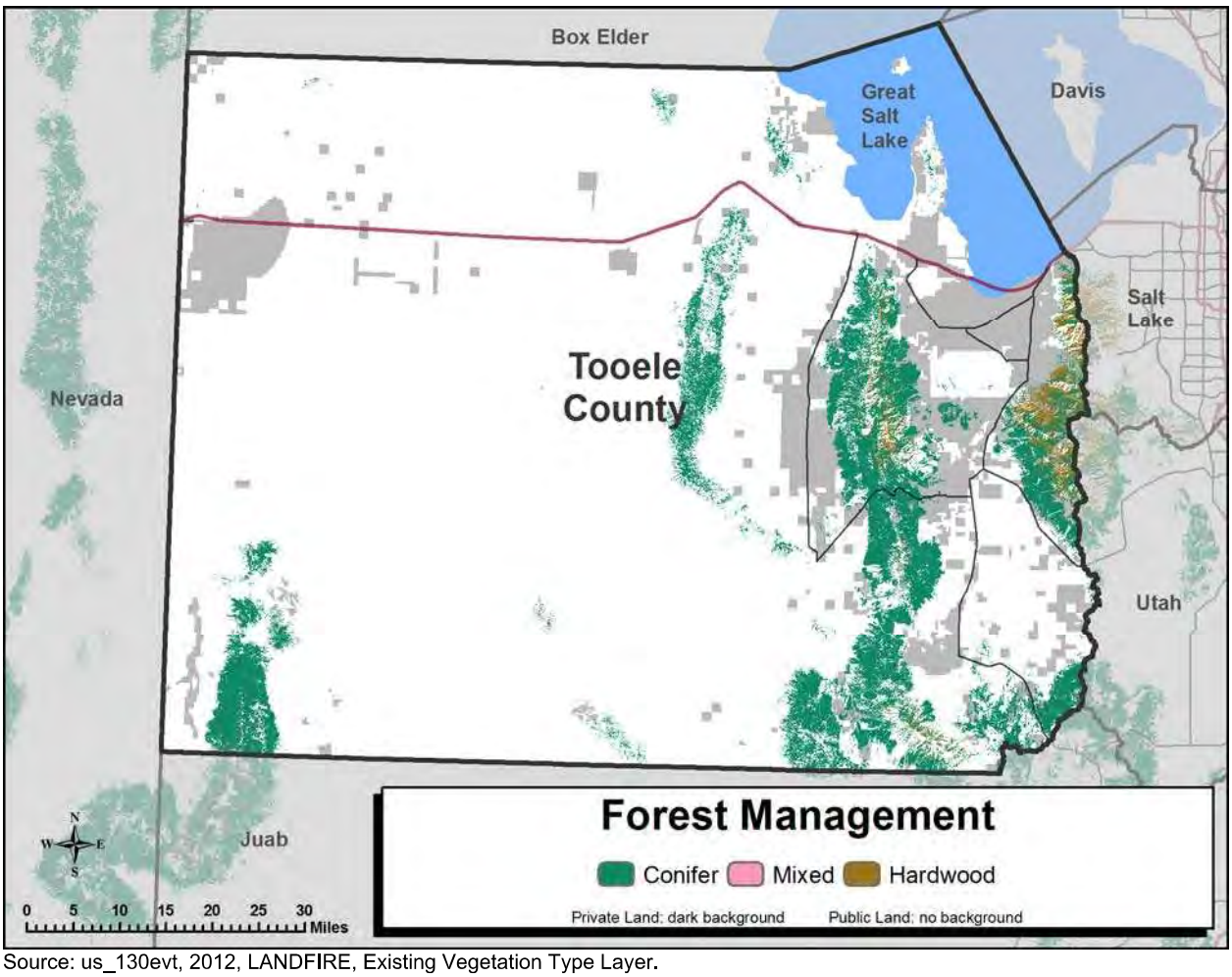
[5] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

10. FOREST MANAGEMENT

Forest management consists of the principles and actions for the regeneration, use, and conservation of forests. Forests, woodlands, and urban forests add to the quality of life.

Related resources:

- Fire Management
- Noxious Weeds



Source: us_130evt, 2012, LANDFIRE, Existing Vegetation Type Layer.

10.1 Management Setting

Context

The US Forest Service (Forest Service) manages the Stansbury Mountains, Deseret Peak Wilderness, and the area surrounding Vernon Reservoir, all of which have forested areas. The US Bureau of Land Management (BLM), US Department of Defense (DOD), and Utah School and Institutional Trust Lands (SITLA) also manage forested lands in Tooele County. Good forest management benefits recreation, aesthetics, water quality, forest products, and wildlife habitat. Changes in temperature and precipitation will alter the composition of forested areas.

Findings

Tooele County is home to over 1,800,000 acres of forests and shrublands, not including those found on private lands. Table 10.1 shows forested types by landowner.

Table 10.1. Acres of forested vegetation type in Tooele County by landowner.

FORESTED VEGETATION TYPE	US FOREST SERVICE (ACRES)	US BUREAU OF LAND MGMT (ACRES)	US DEPARTMENT OF DEFENSE (ACRES)	STATE OF UTAH (ACRES)
Conifer	71,239	226,590	27,128	24,513
Conifer-Hardwood	940	572	173	43
Hardwood	9,271	10,620	1,414	1,851
Shrubland	66,130	925,525	378,193	110,244
Totals	147,580	1,163,307	406,908	136,651

Source: US Geological Survey, Landfire Existing Vegetation Type, 2012.

Legal Context

Management of forest vegetation on Forest Service and BLM lands follows standard land use planning procedures defined in National Forest Management Act (NFMA) (16 USC §1600 et seq. [1976]), National Environmental Policy Act (NEPA) (42 USC §4321 et seq. [1969]), and Federal Land Policy and Management Act (FLPMA) (43 USC §1701 et seq. [1976]). Refer to CRMP Section 13, Land Use, for more information regarding land use decision-making procedures.

10.2 Desired Future State

Tooele County desires to continue maintaining and improving forest health for the benefit of water quality, wildlife habitat, recreation, and the forest's resilience during change.

Tooele County supports hazardous fuel (vegetation) management to reduce risk of property damage and uncontrolled fires, in a manner that does not cause damage to survey monuments, or results in reestablishment of monuments as directed by Tooele County.

Tooele County supports aggressive action to reduce the hazard for unexpected fires and to mitigate the spread of destructive insects using forest management techniques, including activities to thin forests and clear understory. These activities are crucial for maintaining healthy forests, wildlife habitats and livestock forage.

10.3 Management Objectives and Associated Policies and Guidelines

10.3.1 Management Objective

Maintain and improve forest health.

Policies and Guidelines

- Encourage compliance with Utah's Forestry Water Quality Guidelines[1] during any harvesting of forest products to protect soil and water resources.

- Coordinate with other managing agencies to promote forest health and the associated impacts on watershed health.

10.3.2 Management Objective

Support management actions that reduce hazardous fuel loads in a manner that does not damage survey monuments or, results in reestablishment of damaged monuments.

Policies and Guidelines

When management actions result in damaged or destroyed survey monuments, the responsible party or agency will be responsible for appropriately re-establishing them. The BLM has guidelines for surveyors to re-establish lost and obliterated monuments.[2]

10.3.3 Management Objective

Reduce hazardous fuel loads in forested areas to reduce risk and damage from fires on wild lands.

Policies and Guidelines

Implement a variety of management tools to reduce hazardous fuel loads, including prescribed fire, silvicultural practices, and mechanical treatments. The Forest Service has a similar policy.[3]

10.4 References

[1] Department of Natural Resources, Division of Forestry, Fire, and State Lands. 2015. Utah's Forest Water Quality Guidelines, State of Utah.

[2] Restoration of Lost or Obliterated Corners & Subdivision of Sections, a guide for surveyors. 1974, BLM. https://www.blm.gov/or/gis/geoscience/files/lost_oblit.pdf.

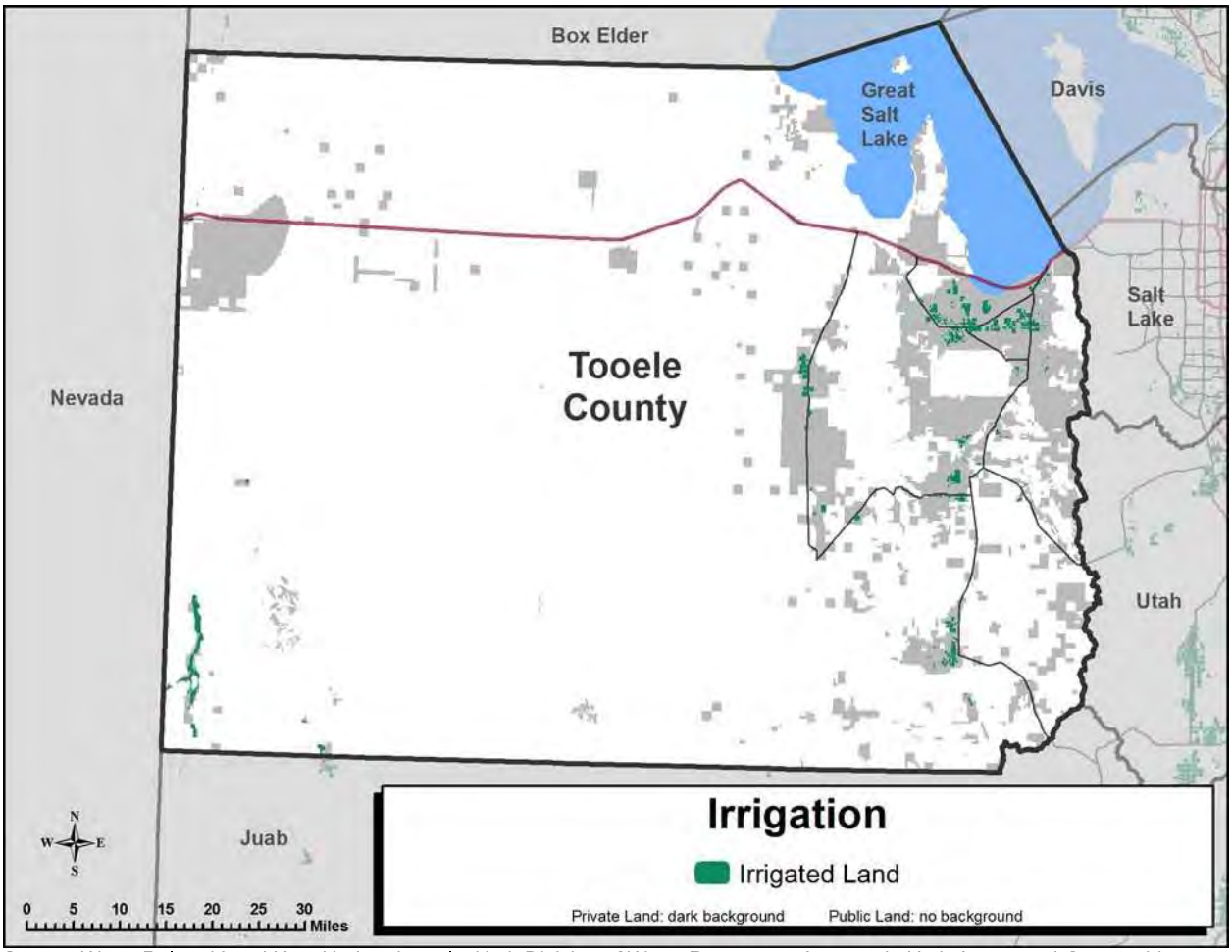
[3] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

11. IRRIGATION

Irrigation is the practice of supplemental application of water to land beyond that directly received from precipitation for the purposes of growing crops. Irrigation expands agricultural output of cropland and sustains additional vegetation growth throughout the landscape. Irrigation, as a resource, is not mentioned in public land plans for Tooele County.

Related resources:

- Agriculture
- Ditches and Canals
- Water Rights



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources, Access via Utah Automated Geographic Reference Center.

11.1 Management Setting

Context

Tooele County's public lands serve as the watershed supplying irrigation systems in the county. The use, upgrade, and maintenance of Utah's network of canals, ditches, and dams continues today. Many of the

canals and ditches remain open, but over time some have been lined or piped to improve operational efficiency and for safety reasons.

Dams, diversions, canals, and pipelines are constructed to take advantage of the topography of each watershed and redistribute water from rivers and streams outward to lower-elevation lands, which are more suitable for crop production.

Findings

Based on analysis of the Water Related Land Use spatial data published by the Division of Water Resources, Tooele County has 22,081 acres of irrigated lands.[1] The vast majority is located on private lands.

Legal Context

Within each watershed, various entities or individuals have legal claims (i.e., water rights) to use the water for "beneficial use" and are permitted to divert waters from streams into reservoirs, canals, and pipelines. The distribution of water is governed by state law and is based largely on geographic proximity, available supply, and ownership of the water rights.

Applicable laws include those found in Utah Code §73 (Water and Irrigation).

11.2 Desired Future State

Tooele County desires to retain water for irrigation, to develop water retention facilities, and to protect its watersheds and water quality for the benefit of irrigation.

11.3 Management Objectives and Associated Policies and Guidelines

11.3.1 Management Objective

Develop water retention facilities for the benefit of irrigation.

Policies and Guidelines

Encourage that irrigation reservoirs be planned and constructed according to the Natural Resource Conservation Service conservation practice standards.[2]

11.3.2 Management Objective

Support water quality and land management Best Management Practices for the benefit of water quality and water supply.

Policies and Guidelines

- Coordinate with federal and state agencies to promote watershed and water quality protection.

- Encourage irrigation methods that reduce or eliminate water loss from evaporation, such as pipes and covered ditches.

11.4 References

[1] Utah Division of Water Resources. 2016. Water Related Land Use, spatial data. Downloaded April 2017.

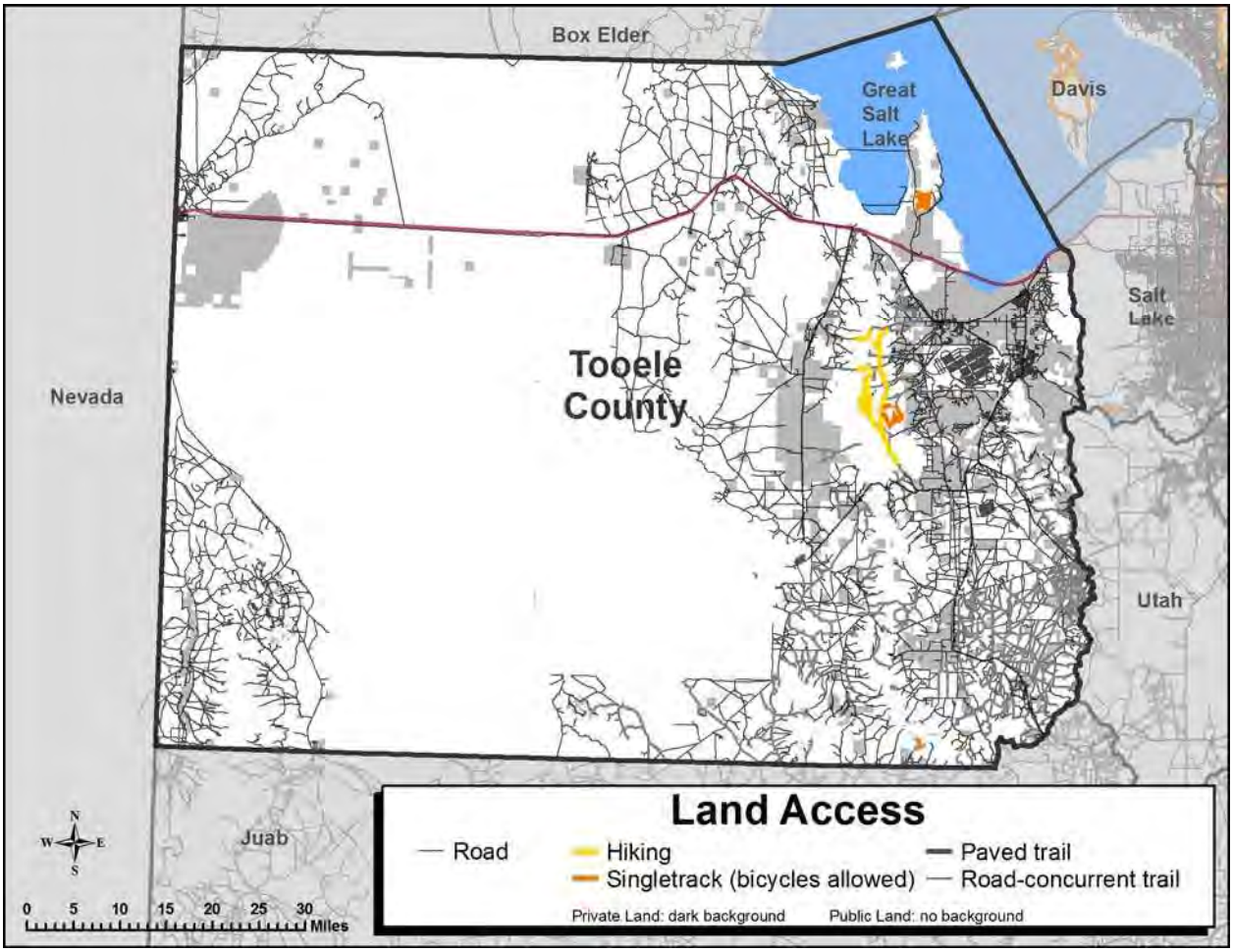
[2] Natural Resources Conservation Service. 2011. Conservation Practice Standard, Irrigation Reservoir, Code 436 https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046883.pdf (accessed April 2017).

12. LAND ACCESS

Land access refers to the ability to physically and legally access a given parcel of land. This typically has to do with roads, rights-of-way (ROWs), and property inholdings. Land access also concerns administrative restrictions on the methods and timing of land access, such as motorized vs. non-motorized access, and access that may be restricted at certain times. Finally, access can also refer to crossing or visiting lands via trails or other non-motorized methods. Common land access issues involve private land surrounded by federal lands, private lands within designated Wilderness areas, state lands within federal lands, and public lands accessed by crossing private property.

Related resources:

- Land Use
- Wilderness



Source: SGID10 RANSPORTATION Roads, 9 March 2017, Utah Department of Transportation and others, Access via Utah Automated Geographic Reference Center.

12.1 Management Setting

Context

Land ownership in Tooele County is complex and varied, and at times it is hard to distinguish public and private property lines. Trespassing, whether deliberate or accidental, causes conflict between the public and private property owners. Tooele County residents and visitors benefit from clear and consistent public land access policies.

Citizens of Tooele County and visitors enjoy many forms of outdoor recreation in the Regions. These include hunting, fishing, hiking, camping and other outdoor gatherings, rock hounding, riding OHVs, geological exploring, pioneering, and road trips. Such activities are important to Tooele County's character.

In 2008 Tooele County amended their General Plan by adopting an access plan as a component of Chapter 19. The access plan focuses on goals for maintaining and improving access to public lands within the county.

Revised Statute 2477 litigation (ROW for construction of roadways over public lands) is still pending within Tooele County.

Findings

Tooele County has a responsibility to facilitate land access regardless of land ownership. This is accomplished by acquiring and maintaining ROWs or easements across properties that are not public. The county can acquire and enforce access to its public lands by properly participating in planning processes that involve federal agencies, state agencies, and other stakeholders. Litigation is sometimes a part of land-access issues.

Legal Context

Gaining or maintaining access to lands is typically accomplished through ROWs or easements across another landowner's property. The process is different for each type of landowner, and each may have specific administrative procedures, management objectives, and historical context.

Applicable Laws

US Forest Service (Forest Service). Rights-of-way on Forest Service lands are managed through planning documents and procedures established by the National Forest Management Act (16 USC §1600 et seq. [1976]) and the NEPA (42 USC §4321 et seq. [1969]) processes.

US Bureau of Land Management (BLM). The BLM manages ROWs through RMPs authorized by FLPMA (43 USC §1701 et seq. [1976]) and NEPA (42 USC §4321 et seq. [1969]) processes.

Revised Statute 2477. Prior to the Federal Land Policy and Management Act, Rights-of-ways on BLM and Forest Service lands were enabled by Revised Statute 2477 (Section 8 of the Mining Act of 1866) and are generally considered to be available for accessing property within and across public lands.[1]

Private Property. Just as access to private inholdings among federal lands is important, so too is providing access to public lands through private property. Tooele County has an obligation to ensure the ROWs with historic access across private lands remain open. Additionally, as urban development continues, Tooele County should facilitate new public access to public lands by purchasing easements across private property.

Tooele County can establish new ROWs through private lands in three ways. First, for developing lands, the county can identify ROWs in the transportation component of the General Plan. With ROWs identified, the county can work with developers to construct and maintain ROWs as the land develops over time. Second, the county can guide willing landowners to negotiate a mutually beneficial solutions to purchase public ROWs or easements across private property. Finally, in cases where landowners do not want a public ROW or easement across their property, counties can use the doctrine of eminent domain to condemn private property. State law enables the right of eminent domain for roadways for public vehicles but not for recreational uses (Utah Code §78B-6-501-3e).

12.2 Desired Future State

Tooele County desires to maintain and improve land access across public lands and provide for a variety of transportation and recreation modes.

Tooele County desires that access to public land take priority over private land operations. Should access to public lands exist before a private landowner requests closure to a particular access to public lands, then the private land operation should be requested to fence the ROW, roadway, or access across the private land. Access to public land should be no less than that of historic access.

12.3 Management Objectives and Associated Policies and Guidelines

12.3.1 Management Objective

Support efforts that maintain or improve land access across public lands for a variety of transportation and recreation modes.

Policies and Guidelines

The Tooele County Resource Management Plan of the General Plan focuses on goals for maintaining and improving access to Public Lands within the county.[2]

12.3.2 Management Objective

- Prioritize and support access to public lands and waterbodies over private land operations.

- Work with private land operators to prevent and reduce trespass issues.

Policies and Guidelines

Pursue the most appropriate and feasible means of securing legal public access to critical recreational opportunities while mitigating conflicts on privately owned lands.

12.3.3 Management Objective

Support efforts to ensure that access to public lands does not fall below the levels of historic access.

Policies and Guidelines

- All roads and trails in the Regions that historically have been open to OHV use, as identified on the County Road Map, should remain open.[2]

- Maintain and promote cooperative relationships with the Forest Service and BLM to facilitate open dialog regarding access issues.

12.4 References

[1] [1] Utah's Public Lands Policy Coordinating Office. ND. R.S. 2477 Roads. http://publiclands.utah.gov/rs-2477-roads/ (accessed March 29, 2017).

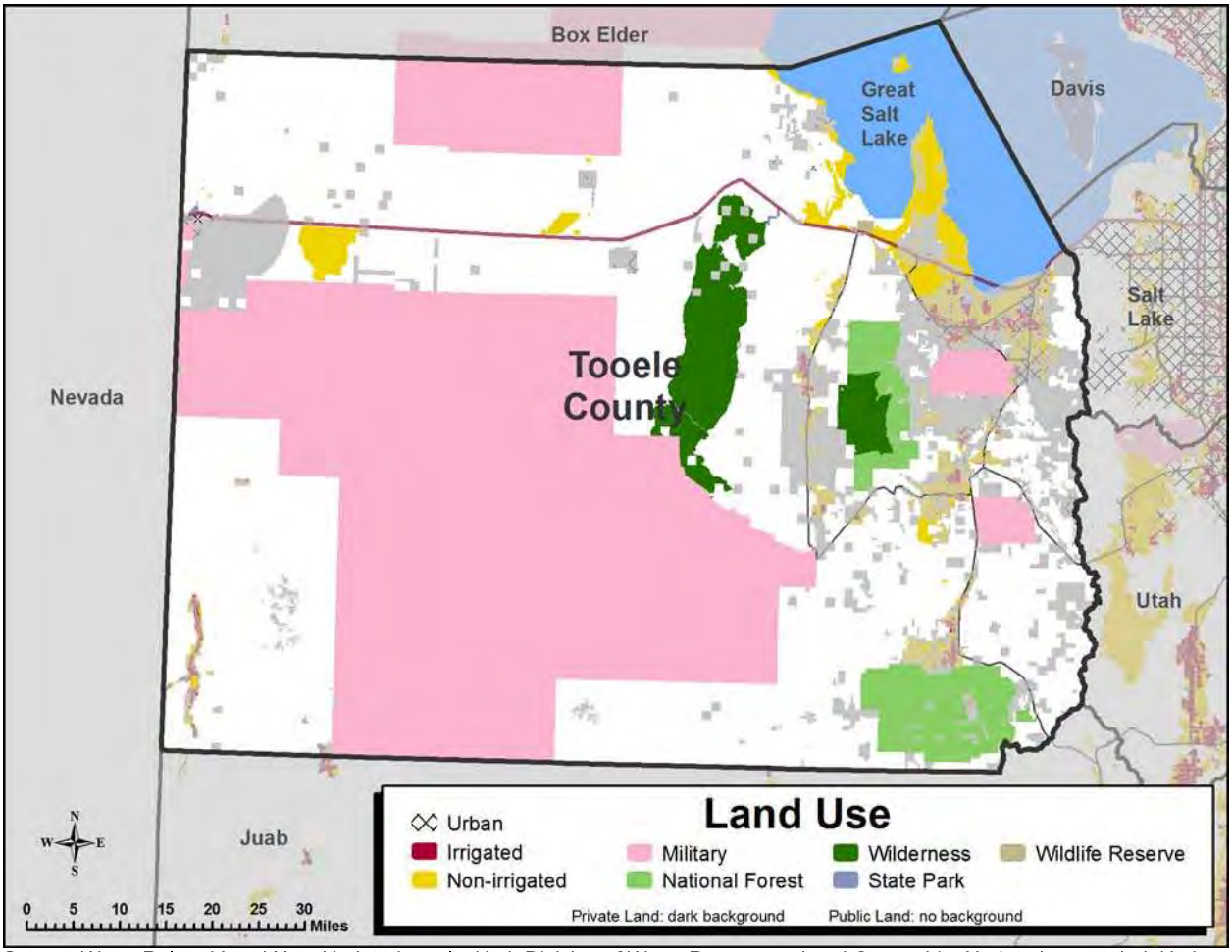
[2] Tooele County. 2008. Tooele County General Plan, Chapter 19: Tooele County Access Plan. http://www.co.tooele.ut.us/PDF/General%20Plan/Chapter%2019.pdf (accessed April 10, 2017).

13. LAND USE

Land use refers to allowable uses for land and resources given many competing demands. Land use decisions are made by land managers to establish priorities for resources among the many competing desires and potential uses for those resources. The best land use decisions are made through planning procedures that consider a range of options and provide opportunities for input from a diverse range of affected stakeholders. Land use decisions are made by federal, state, tribal, and local governments, which have jurisdiction over the lands following planning procedures outlined in federal and state statutes, though this is not the case for some federal and state properties, which are managed for specific purposes, such as for lands owned by the US Department of Defense (DOD) or managed by Utah School and Institutional Trust Lands (SITLA).

Related resources:

- Mining
- Land Access
- Livestock and Grazing
- Wilderness



Source: Water Related Land Use, Updated yearly, Utah Division of Water Resources. Land Ownership, Updated as needed, Utah School and Institutional Trust Lands. Access via Utah Automated Geographic Reference Center.

13.1 Management Setting

Context

Public lands in Tooele County serve as critical drinking water sources, important wildlife habitat, livestock pasture, and highly utilized recreational areas (to name a few). Decisions made regarding the prioritization of land uses are made by those with administrative responsibility to manage the lands.

The county recognizes that federal agencies are mandated to manage public lands according to federal laws, policies, and regulations established within the framework of the US Constitution, including National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Clean Water Act, Federal Land Policy and Management Act (FLPMA), National Forest Management Act (NFMA), the Wilderness Act, the Utah Wilderness Act, and the Wild and Scenic Rivers Act.

The county recognizes that some tracts of public and private land are isolated, and because the county is the expert regarding impacts to the economy, culture, and customs from the transfer of ownership of these lands that are or may be identified for sale or purchase, the participation of Tooele County in such transactions, with local public input, is essential.

Land use designations on public lands range from low-impact (e.g., hiking) to high-impact (e.g., mineral extraction and hazardous waste storage). Achieving productivity of public lands is a priority for Tooele County. This includes grazing, mineral development, motorized recreation, and various other land use designations that must be sensitive to the site-specific resource and landscape context to minimize impacts. Demand is an important component of land use designations; that is, the number of people participating in an activity changes the activity's impacts on the landscape.

Findings

In terms of area, Tooele County is the second largest county in Utah at 4,663,359 acres. Ownership of these lands is a complex pattern comprised of US Bureau of Land Management, US Forest Service, DOD, State, Tribal, and private lands. A complete breakdown of land ownership is provided in table 13.1.

Legal Context

US Bureau of Land Management (BLM)

The FLPMA (43 USC §1701 et seq. [1976]) mandates the BLM to manage lands under multiple-use philosophy. A component of FLPMA is the requirement for an open and public land use planning process, also known as resource management planning, to determine the optimal use of public lands for recreation, conservation, and commercial activities. The BLM is also subject to planning procedures specified in NEPA (42 USC §4321 et seq. [1969]).

Current applicable BLM planning documents include the 1988 Resource Management Plan and Final Environmental Impact Statement.[1]

US Department of Defense (DOD)

The DOD operates the Dugway Proving Grounds, Tooele Army Depot, and Utah Test/Training Range North. These facilities serve critical national security interests and land use decisions are made internally, though usually after consulting appropriate local, state, and federal agencies such as the Utah Department of Wildlife Resources and US Fish and Wildlife Service.

Table 13.1. Land ownership and acreage within Tooele County.

OWNERSHIP CATEGORY	LAND OWNERSHIP TYPE OR ENTITY	ACRES	PERCENTAGE
US Department of Defense	Dugway Proving Grounds US Army	1,376,368	29.5
US Department of Defense	Tooele Army Depot	45,755	1.0
US Department of Defense	Utah Test/Training Range North	154,174	3.3
Federal	US Bureau of Land Management	1,907,536	40.9
Federal	US Forest Service	158,783	3.4
Private	Private	501,076	10.7
State	Other State and County	3,843	0.1
State	State Sovereign Land	240,558	5.2
State	State Trust Lands	255,891	5.5
Tribal	Goshute Tribal Lands	1,767	0.0
Tribal	Skull Valley Tribal Lands	17,607	0.4
Totals		4,663,359	100.0

Source: Spatial analysis of the SITLA Land Ownership GIS Layer.

State Sovereign Lands

The Utah Department of Natural Resources (DNR) manages state sovereign lands around the Great Salt Lake under the Forestry, Fire, & State Lands (FFSL). Under the Public Trust Doctrine, the State of Utah has fee title ownership of the bed of the Great Salt Lake as sovereign land.[2] The state's management jurisdiction is assigned to the FFSL (Utah Administrative Code Title R652-70-100). The previously cited comprehensive management plan for the Great Salt Lake provides management direction to achieve reasonable and beneficial uses of the lake's resources under multiple-use, sustained-yield principles (Utah Code §65A-2-1). The supplemental Mineral Leasing Plan provides specific guidance related to existing and potential future mineral leasing activities on the lake. The waters and wetlands of the Great Salt Lake are under jurisdictional control of the US Army Corps of Engineers under the federal Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) (also see CRMP Section 27, Wetlands).

Current applicable DNR and FFSL planning documents include the 2013 Final Great Salt Lake Comprehensive Management Plan and Record of Decision[3] and the 2013 Final Great Salt Lake Mineral Leasing Plan and Record of Decision.[4]

Utah School and Institutional Trust Lands Administration (SITLA)

At statehood, the US Congress gave Utah over 3.4 million acres of land to support public schools and other public facilities. Rather than manage these lands for natural resources, SITLA is directed by Utah legislature to maximize commercial gain through sale, lease, or exchange (Utah Code §53C et seq. and Utah Administrative Code Title R850). These transactions occur through sales and leases of individual properties but also through large-scale land and mineral right consolidations.

Private Property
Private lands are regulated by land use ordinances and zoning districts approved by local and county governments. Zoning districts, and the regulations established within the zoning districts, are authorized by Utah Code §17-27a-505 for counties and §10-9a-505 for municipalities. Land use ordinance and zoning maps are legislative decisions and established through planning processes open to public discussion and voted on by county and city councils.

US Forest Service (Forest Service)
The Forest Service manages land use decisions by developing Land and Resource Management Plans, also known as Forest Plans, under National Forest Management Act (16 USC §1600 et seq. [1976]). Subsection 1604(a) requires the Forest Service to "coordinate with the land and resource management planning processes of State and local governments and other Federal agencies" during development and revision of Forest Plans. Forest Plans also require consideration of alternatives and public input under NEPA (42 USC §4321 et seq. [1969]). This provides an open planning process to assist land managers in understanding stakeholders' desires for various land uses and identify potential impacts of those uses.

Current applicable Forest Service planning documents include the 2003 Revised Forest Plan and Final Environmental Impact Statement for the Wasatch-Cache National Forest and the 2003 Revised Forest Plan and Final Environmental Impact Statement for the Uinta National Forest.[5,6]

Tribal Lands
Tribal lands in the region include the Skull Valley Band of Goshutes and the Goshute Tribe, which are both in western Tooele County. Tribal lands are sovereign lands not subject to local or state governments. However, tribal governments must be consulted during planning processes involving lands with historical Native American uses.

Other Applicable Laws

- Wilderness Act: 16 USC §1131 (1964)
- Wild and Scenic Rivers Act: 16 USC §1271 et seq. (1968)
- Utah Wilderness Act: Public Law 98-428 (1984)
- Utah Code: §63J-8-103 (State participation in managing public lands)
- Utah Code: §63J-8-104 (State land use planning and management program)

13.2 Desired Future State
Tooele County desires to take an active role in public land management, planning and decision-making processes of public lands in the county.

Tooele County desires resources occurring on public lands be responsibly developed for the benefit of the county. Resource utilization will strike a balance between consumptive and nonconsumptive use. Tooele County desires public access to public lands be maximized, including the protection of public lands access across private lands.

Tooele County wishes to be fully involved as an affected entity in any process to consider the disposal of public lands or the acquisition of private lands to become public within the county's jurisdiction. Federal acquisition of private lands is contrary to policies and plans of Tooele County.

13.3 Management Objectives and Associated Policies and Guidelines

13.3.1 Management Objective

Maintain active and open communication among various federal, state, tribal, and local land use authorities to improve coordination of land use decision and activities.

Policies and Guidelines

- County will actively participate and coordinate with agency managers and decision makers.
- Federal land management agencies must cooperate to the fullest extent possible with County goals and objectives for resource management as spelled out in the NEPA, National Forest Management Act, and FLPMA.
- It is the county's position that local concerns and interests should be acknowledged and addressed by public land management agencies prior to decisions being made and implemented.

13.3.2 Management Objective

Land use activities should be assessed for resource impacts, potential mitigation options, and compliance with federal and state laws, policies and regulations.

Policies and Guidelines

Resource specialists should be consulted during project development to assess impacts, develop mitigation strategies, and ensure compliance with federal laws, policies, and regulations.

13.3.3 Management Objective

Strike a responsible balance between resource development and with resource protection and environmental stewardship.

Policies and Guidelines

Land uses on public lands should balance responsible resource development and use with resource protection and environmental stewardship.

13.3.4 Management Objective

Ensure that adjacent land uses and land use restrictions do not deny private property owners the right of fair use, access to, and enjoyment of their property. Ensure land uses on private property do not deny public access to, and enjoyments of public lands.

Policies and Guidelines

- Oppose additional restrictive land use designations such as Wilderness or Wild and Scenic Rivers.
- Participate and actively engage with agencies during public land planning, especially during land and resource management planning.

13.3.5 Management Objective

Oppose federal acquisition of private lands as contrary to policies and plans of the county.

Policies and Guidelines

Participate and actively engage with agencies during public land planning, especially during land and resource management planning.

13.4 References

[1] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

[2] Slade, D. C. 1990. Putting the Public Trust Doctrine to Work: The Application of the Public Trust Doctrine to the Management of Lands, Waters, and Living Resources of the Coastal States. Hartford, CT: Connecticut Dept. of Environmental Protection, Coastal Resources Management Division.

[3] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Comprehensive Management Plan and Record of Decision.

[4] Utah Department of Natural Resources, Forestry, Fire & State Lands. 2013. Final Great Salt Lake Mineral Leasing Plan and Record of Decision .

[5] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed March 23, 2017).

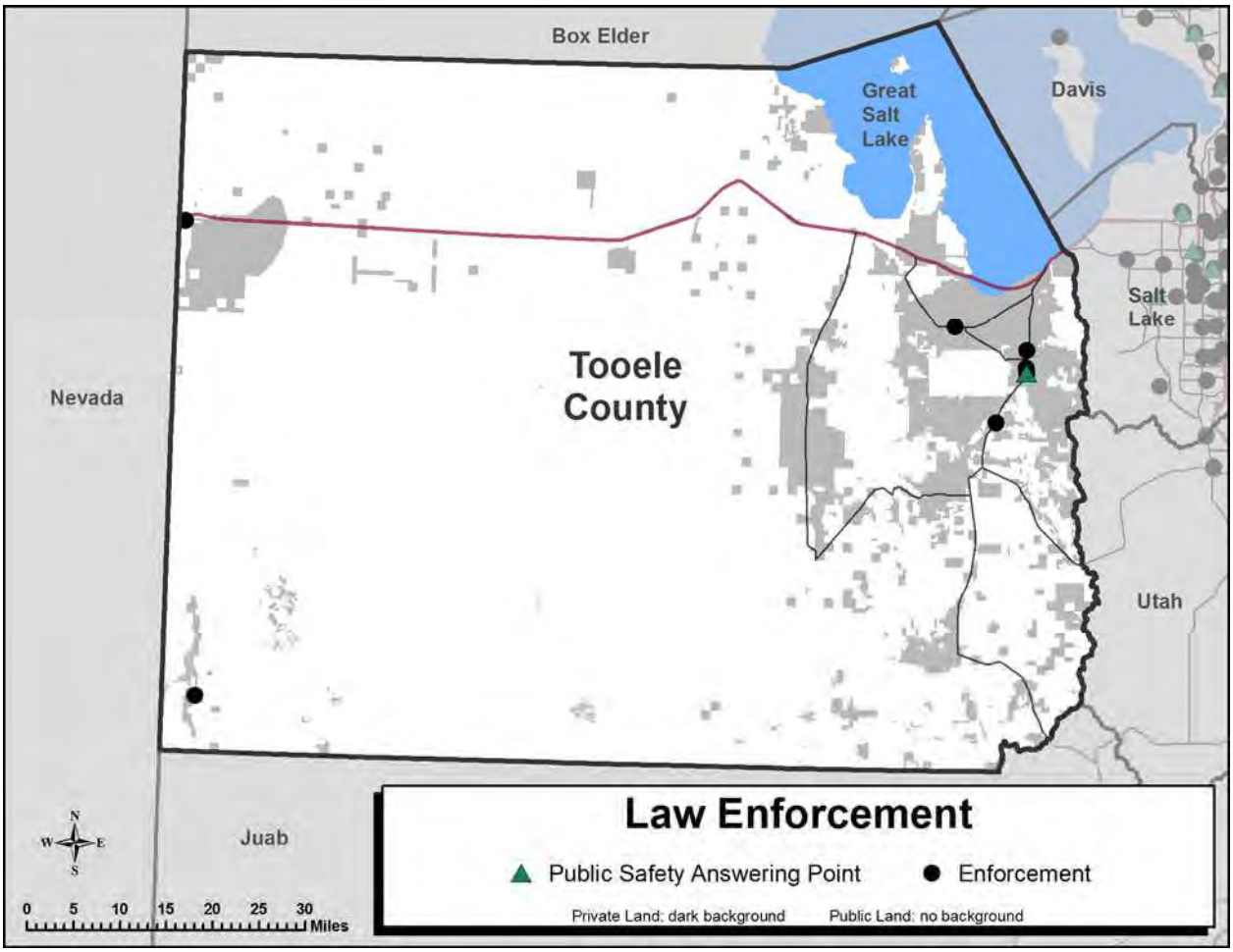
[6] US Forest Service. 2003. Revised Forest Plan for the Uinta National Forest. https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning (accessed April 11, 2017).

14. LAW ENFORCEMENT

Law enforcement is concerned with the specific, and sometimes overlapping, jurisdictions of law enforcement, response personnel, and emergency management across a county. County planning has generally not addressed law enforcement goals or policies. In the context of resource management planning, appropriate goals might address public safety, property protection, and interagency coordination.

Related resources:

- Economic Considerations
- Fire Management



Source: Law Enforcement and PSAP Locations, 6 March 2014, Compiled by Utah Automated Geographic Reference Center.

14.1 Management Setting

Context

Key law enforcement issues related to natural resources management and public lands are coordination among jurisdictions of various law enforcement personnel and funding for things such as search-and-rescue operations. Law enforcement plays a critical role in protecting natural resources from misuse and theft, managing Off Highway Vehicles (OHVs), and in search-and-rescue operations.

Findings
Coordination occurs among several jurisdictions with some form of law enforcement on public lands in Tooele County. This includes US Bureau of Land Management, US Forest Service, Utah Department of Wildlife Resources Resource Conservation Officers, Utah State Park Rangers, Utah Highway Patrol, County Sheriff, and local law enforcement.

Legal Context
Federal and state law enables shared law enforcement duties on public lands.

Applicable Laws
The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) and Utah Public Safety Code (Utah Code: §53-13-106 et seq.) allow county sheriffs to enter into agreements with federal agencies to share law enforcement duties such that all parties can enforce federal, state, and local laws.

14.2 Desired Future State
Tooele County desires law enforcement to continue to play a critical role in rules and regulation enforcement and search-and-rescue operations on public lands. The county also desires to continue and increase law enforcement partnerships across agencies.

14.3 Management Objectives and Associated Policies and Guidelines

14.3.1 Management Objective
Support law enforcement agencies in the enforcement of rules and regulations and search-and-rescue operations on public lands.

Policies and Guidelines
- Share and coordinate interagency law enforcement, providing necessary resources for law enforcement such as emergency communication ability.

- Maintain law and order on public lands, control litter, discourage vandalism, and perform search-and-rescue operations as needed.

- Notify the county sheriff's office immediately when there are life-threatening situations, criminal activity, project structure failure, resource contamination, natural phenomenon (e.g., fire, landslides), cultural resource site(s) disturbance, and/or discovery of human remains.

14.3.2 Management Objective
Effective interagency law enforcement between federal and state agencies and various levels of law enforcement.

Policies and Guidelines
Share and coordinate information, policies, procedures, etc., between federal agencies and state, county, and local law enforcement units.

14.3.3 Management Objective

Cultivate effective public land search-and-rescue operations, public land regulation enforcement, and land-access trespass issues between federal and state agencies, and various levels of law enforcement.

Policies and Guidelines

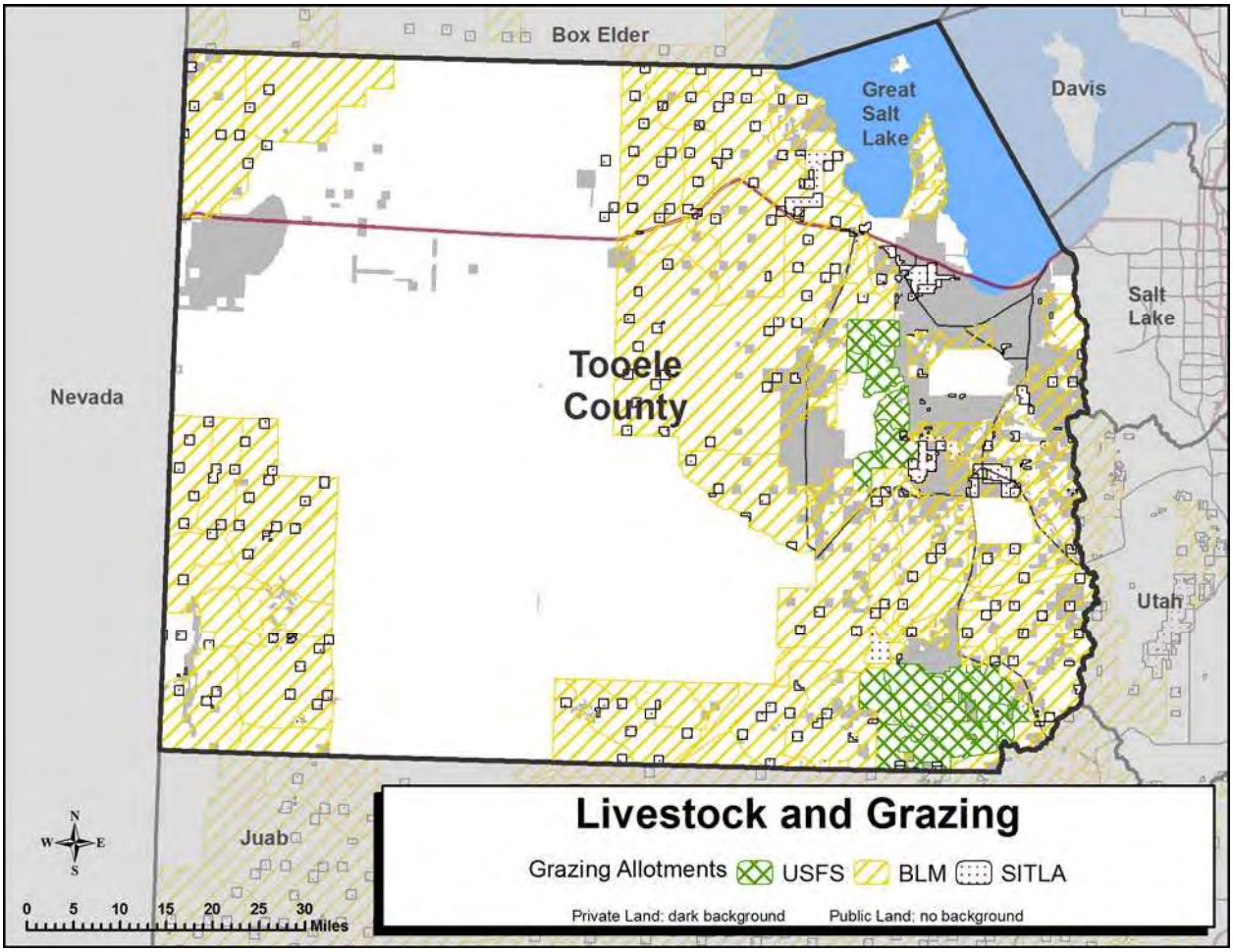
Share and coordinate search-and-rescue operations, regulation enforcement, and trespass issues between federal agencies and state, county, and local law enforcement units.

15. LIVESTOCK AND GRAZING

Livestock includes domestic animals, such as sheep, cattle, and horses that are raised for commercial and private use. Grazing refers to feeding livestock on growing grass, pasturage, or rangeland. Public and private lands in Utah are used for livestock grazing.

Related resources:

- Agriculture
- Irrigation
- Predator Control



Source: Grazing Allotments, 2009, Compiler unknown, Access via Utah Automated Geographic Reference Center.

15.1 Management Setting

Context

Livestock production provides economic benefits to Tooele County. Grazing, when managed appropriately, can improve rangeland health, reduce potential fire danger, and help control noxious weeds.

Findings

Grazing allotments cover a large portion of US Bureau of Land Management (BLM), US Forest Service (Forest Service), and Utah School and Institutional Trust Lands (SITLA) in Tooele County. Table 15.1 provides an overview of acreage by land manager.

Table 15.1. Grazing allotments in Tooele County.

LAND MANAGER	NUMBER ALLOTMENTS	TOTAL ACREAGE
US Bureau of Land Management	122	1,840,040
US Forest Service	277	149,577
Utah School and Institutional Trust Lands	26	175,830

Source: Grazing Allotments, 2009. Utah Automated Geographic Reference Center.

Legal Context

The BLM manages grazing in Tooele County based on guidance specified in the Resource Management Plan, which is developed under the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) and the National Environmental Policy Act (42 USC §4321 et seq. [1969]).

The Forest Service manages grazing in Tooele County based on guidance specified in the Wasatch-Cache Forest Plan as well as the Uinta Forest Plan. Forest Plans must follow procedures established under the National Forest Management Act (16 USC §1600 et seq. [1976]) and National Environmental Policy Act (42 USC §4321 et seq. [1969]).

15.2 Desired Future State

The county desires for its rural communities to have healthy economies that include livestock grazing as an important contributor. Tooele County desires permit holders to (1) be required to implement measures to keep livestock out of streams, lakes, or other waterways; (2) to help maintain healthy, diverse aquatic and wildlife species; and (3) to maintain or improve water quality. Any grazing animal unit months (AUMs) that are placed in a suspended-use category should be scientifically based and returned to active use as soon as range conditions improve.

15.3 Management Objectives and Associated Policies and Guidelines

15.3.1 Management Objective

Achieve and maintain livestock grazing on public lands at the highest, reasonably sustainable levels.

Policies and Guidelines

Tooele County regards the land that comprises the grazing districts and allotments in the region as more valuable for grazing than for any other use that might exclude livestock grazing. Such other uses include, but are not limited to, conversion of AUMs to wildlife or wilderness uses.[1]

15.3.2 Management Objective

Oppose any loss of AUMs without scientific proof of resource degradation. Any AUMs suspended should be returned to active as range conditions improve.

Policies and Guidelines

Tooele County recognizes that from time to time a bona fide livestock permit holders in the region, acting in good faith and not to circumvent the intent of the BLM's grazing regulations, may temporarily cease grazing operations without losing his or her permitted AUMs. However, BLM-imposed suspensions of use or other reductions in domestic livestock AUMs in the region should be temporary and scientifically based on rangeland conditions.[1]

15.3.3 Management Objective

Support efforts that require permit holders to implement measures that keep livestock out of streams, lakes or other waterways.

Policies and Guidelines

- Adjust grazing practices (per the grazing principles of timing, duration, and intensity) to improve conditions of habitat, water, and wildlife.[2]

- Support education efforts and provide technical assistance about managed grazing BMPs in riparian areas. [2,3].

15.4 References

[1] Tooele County, nd Tooele County General Plan, Chapter 19: Resource Management Plan. http://www.co.tooele.ut.us/PDF/General%20Plan/Chapter%2019.pdf (accessed April 10, 2017).

[2] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

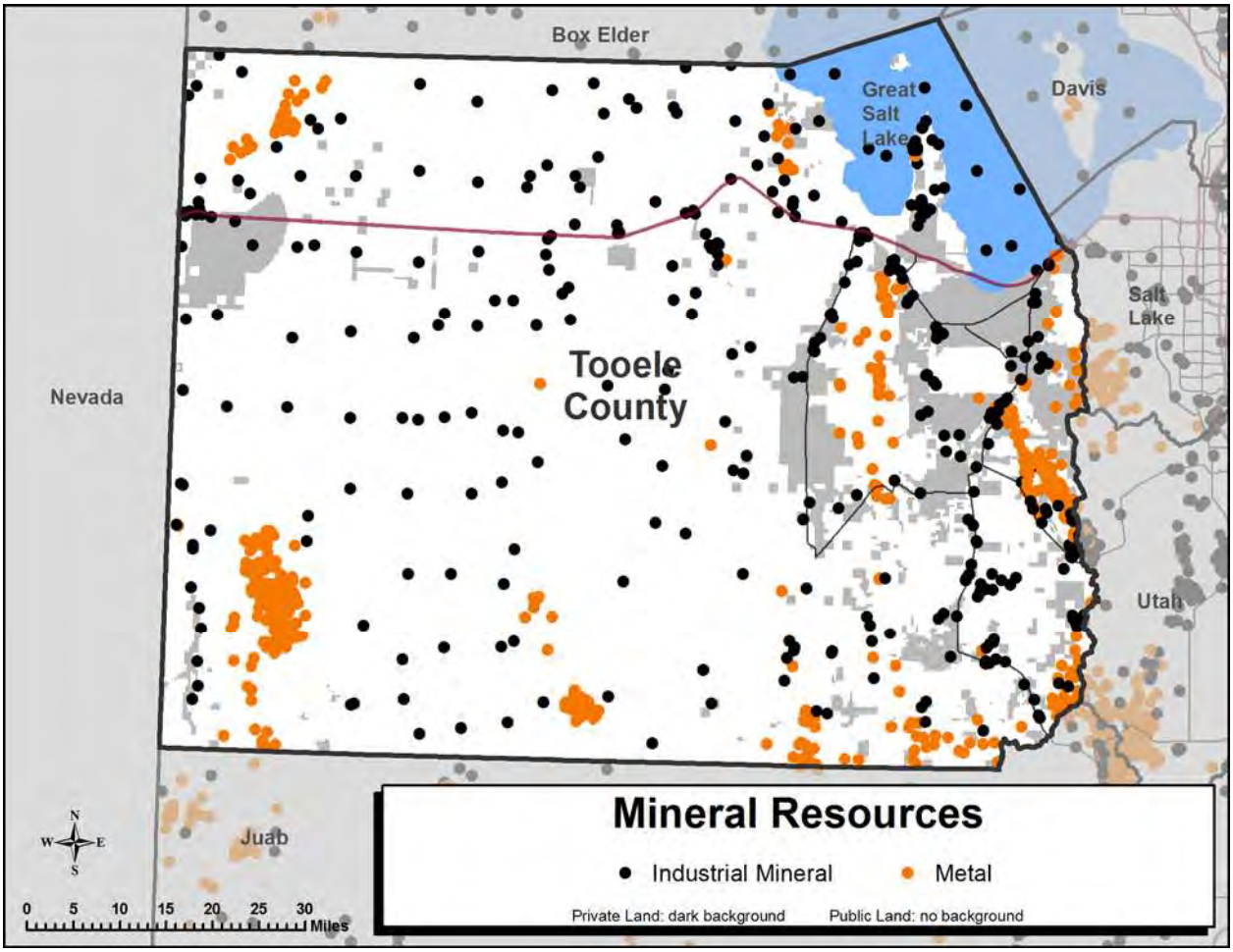
[3] Bellows, Barbara. 2003. Managed Grazing in Riparian Areas. Appropriate Technology Transfer for Rural Areas. https://extension.usu.edu/rangelands/files/uploads/General%20Grazing%20Management/Riparian%20grazing.pdf. Accessed 14 March 2017.

16. MINERAL RESOURCES

Mineral resources include known and potential geologic deposits of materials that are useful in industrial processes. Mineral development (mining) is regulated and managed depending on the extracted resource, and are grouped into three categories: locatable, leasable, and saleable.

Related resources:

- Mining
- Energy Resources



Source: XYUMOS_2016_Apr, 2016 Utah Mineral Occurrence System, Utah Geological Survey.

16.1 Management Setting

Context

Locatable minerals are high-value ores and elements such as gold, silver and copper. The extraction of locatable surface and subsurface mineral deposits on public lands is regulated by both the federal and state governments. More information is available in this document under CRMP Section 17, Mining. Salable minerals include sand, gravel, and other stone, the mining of which is regulated by Tooele County. Leasable minerals include oil, gas, coal, and other extracted energy sources, description and discussion of which are found in this document in CRMP Section 6, Energy Resources.

Findings
A diverse range of minerals are known to occur in Tooele County, including (1) locatable minerals such as gold, copper, silver, iron, lead and zinc; (2) salable minerals such as limestone, sand, gravel, silica, and clay; (3) and non-energy leasable minerals such as phosphate, potash, and sodium.

Legal Context

Applicable Laws
Federal and state laws regulating the development, extraction, and reclamation are presented in CRMP Section 17, Mining, and CRMP Section 6, Energy Resources. CRMP Section 12, Land Use, provides procedural information for land use planning and methods to establish goals and objectives for mineral resources on public lands.

16.2 Desired Future State
Tooele County desires to achieve and maintain continuing production of mineral resources on public lands.

16.3 Management Objectives and Associated Policies and Guidelines

16.3.1 Management Objective
Ensure existing mineral operations continue.

Policies and Guidelines
Continue to support existing mineral operations.

16.3.2 Management Objective
Support mineral exploration and permitting on public lands.

Policies and Guidelines
- Coordinate with the Department of Interior and US Forest Service to encourage and facilitate mineral development on public lands within the county.

- Coordinate with state agencies for new mineral leasing activities on the Great Salt Lake. The Great Salt Lake management plan allows for new leases that are consistent with long-term sustainability, according to Utah Code §65A-10-8(b).[1]

16.3.3 Management Objective
Encourage mitigation for mineral operation effects.

Policies and Guidelines
Encourage mitigation for mineral operation effects.

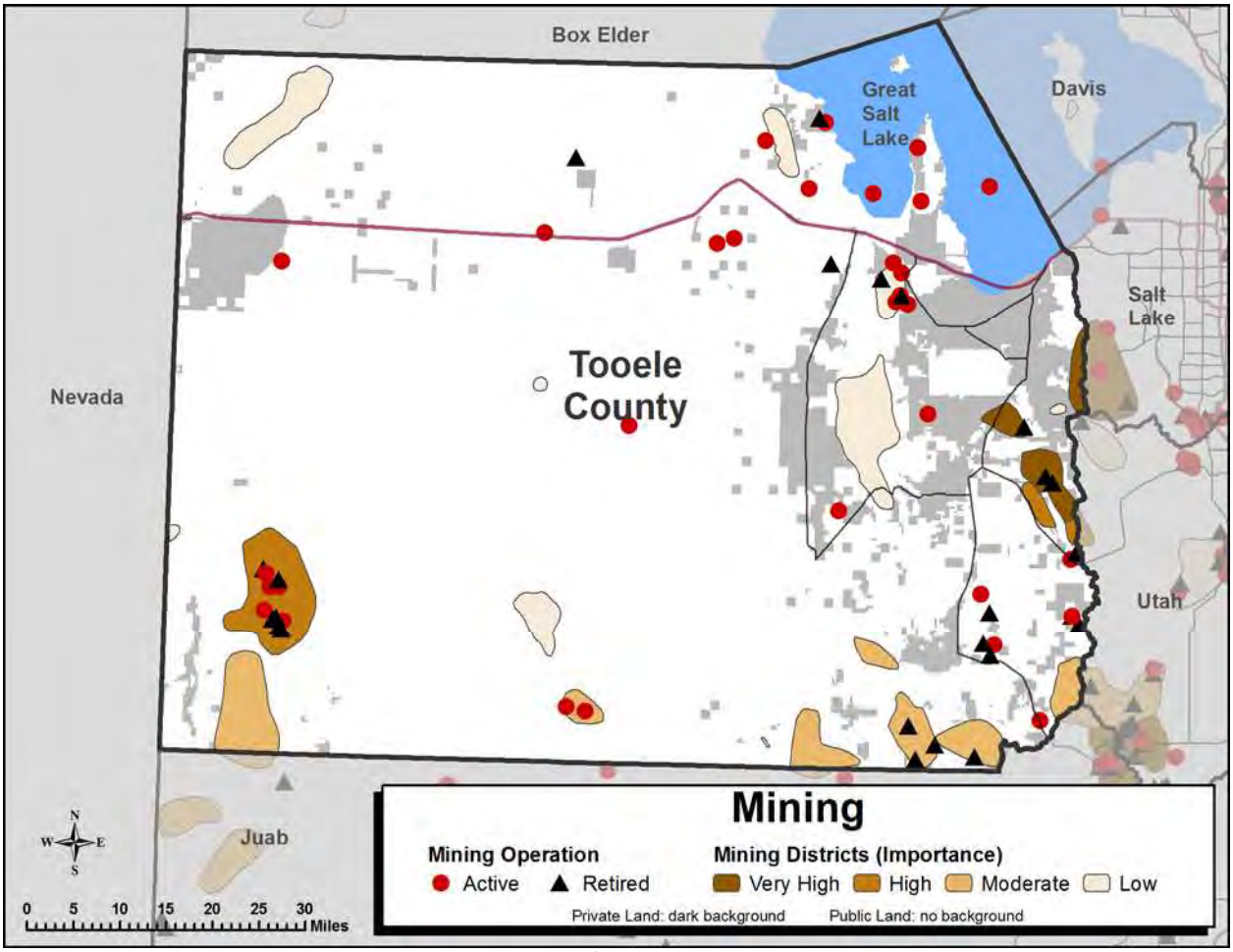
16.4 References
[1] Utah Division of Forestry, Fire, and State Lands. 2013. Final Great Salt Lake Comprehensive Management Plan and Record of Decision. Utah Department of Natural Resources.

17. MINING

Mining refers to the process and industry of obtaining mineral and geothermal resources from a mine, well, or other extractive activity or operation. Mining operations are regulated and managed depending on the extracted resource, and are grouped into three categories: locatable, leasable, and saleable.

Related resources:

- Energy Resources
- Mineral Resources



Source: MineralsDBMarch2015_SMOnly, 2015, Utah Division of Oil, Gas, and Mining. Utah Mining Districts, Date unknown, Utah Geological Survey.

17.1 Management Setting

Context

Tooele County is supportive of existing mining, which provides economic benefits to the county. Tooele County supports mine exploration on public lands within the county to discover and produce valuable commodities for the US economy. Existing mining in Tooele County includes titanium, gold, and silver production from the Gold Hills District in western Tooele County and production of potash, salt, and magnesium chloride from Great Salt Lake brine.

Findings

Locatable minerals are high-value ores and elements such as gold, silver, and copper. The extraction of locatable surface and subsurface mineral deposits on public lands is regulated by both federal and state governments. The extraction of salable minerals, including sand, gravel, and other stone, are regulated under public land use planning procedures. Development of salable minerals of private lands are regulated by the county under zoning ordinances. Non-energy leasable minerals include phosphate, potash, and sodium. Other leasable minerals include oil, gas, coal, and other extracted energy sources, description and discussion of which are found in this document in CRMP Section 6, Energy Resources.

There are more than 1,300 identified mineral occurrences in Tooele County. Many are either actively mined or were mined in the past. Table 17.1 provides an overview of mining in the county.

Table 17.1. Mines currently producing, historically producing, or prospected minerals in Tooele County on public and private land.

MINE STATUS	TOTAL NUMBER
Current Producer	143
Past Producer	688
Prospect	477

Source: mrds-fUS49, Date unknown, Mineral Resource Data System, US Geological Survey.

Legal Context

The General Mining Law of May 10, 1872, as amended (30 USC §22-54 and §611-615) is the major federal law governing locatable minerals on public lands. In addition to defining procedures for discovery and patenting of certain minerals on federal lands, the law allows states to enact legislation regulating mining and reclamation activities. Federal regulations implementing the General Mining Law are found at 43 USC in Groups 3700 and 3800.[1]

In Tooele County the US Forest Service (Forest Service) manages surface mining with guidance from its Forest Plan, which was written under the National Forest Management Act (16 USC §1600 et seq. [1976]), also known as FLPMA, and National Environmental Policy Act (42 USC §4321 et seq. [1969]). The US Bureau of Land Management (BLM) manages surface minerals within its jurisdiction based on guidance from the Resource Management Plan written under FLPMA (43 USC §1701 et seq. [1976]). The BLM also manages subsurface mining on Forest Service lands that are open to new mining claims. Some Forest Service lands are closed to new subsurface mines, including designated Wilderness.

The State of Utah has primacy on regulation and reclamation of mining activities on all lands within the state, and the Utah Legislature has assigned responsibility for administration of mining to the Utah Division of Oil Gas and Mining (DOGM) (Utah Code §40-6-4). The State also reserves salts in navigable waters, including the Great Salt Lake, to be sold for royalty (Utah Code §65A-6-1) with oversight from Forestry Fire and State Lands.

For regulation of mineral ore mining, the DOGM administers permitting, inspection, and enforcement procedures under the Utah Mined Land Reclamation Act (Utah Code §40-7-8). All large mining operations within the state are required to have an approved notice of intention with the Minerals Program prior to beginning operations. Mining operations are broken up into the three categories: (1) large mine, (2) small mine, and (3) exploration under the Minerals Rules. The DOGM maintains a permit database of active and reclaimed mine sites.

17.2 Desired Future State

Tooele County supports Utah's mining heritage and desires to maintain a cooperative relationship with existing mining operations, while requiring environmental stewardship during active mining and reclamation at the close of each operation. Tooele County desires mining entities to have strong reclamation plans and oversight for mining activities, including mitigation. infrastructure upgrade, and maintenance plans for public roadways as approved by the county. Tooele County desires to be consulted prior to the approval of new operations to determine if the operations complement and align with Tooele County's CRMP.

17.3 Management Objectives and Associated Policies and Guidelines

17.3.1 Management Objective

Maintain a cooperative relationship with existing mining operations, while encouraging environmental stewardship during active mining and reclamation at the close of each operation.

Policies and Guidelines

Support existing mining operations and encourage environmental stewardship and reclamation.

17.3.2 Management Objective

Mining entities have strong reclamation plans and oversight for mining activities, including mitigation, infrastructure upgrade, and maintenance plans for public roadways as approved by the county.

Policies and Guidelines

- Require strong reclamation plans and oversight that include infrastructure maintenance for public roadways.

- An engineering study must be commissioned by the mining entity and developed by an independent engineering firm. The engineering study should identify any impacts the proposed mining operation will have on the mining site and adjacent land areas, including but not limited to the following: roads, groundwater, air quality, ecology, and any public or private infrastructure.

- A mitigation agreement may include a bond to address reparations resulting from the above-mentioned impacts and to ensure road repair and site reclamation.

17.3.3 Management Objective

Participate in planning processes and land use decisions related to mining activities on all public lands. Coordinate with federal and state agencies in approval of new operations.

Policies and Guidelines

- The county will coordinate with BLM, DOGM, FFSL, and USFS on all planning activities and should be notified and consulted in new mining operations.

- Key and iconic open spaces and natural features, such as the Stockton Bar, should be preserved from mining and other development.

17.4 References

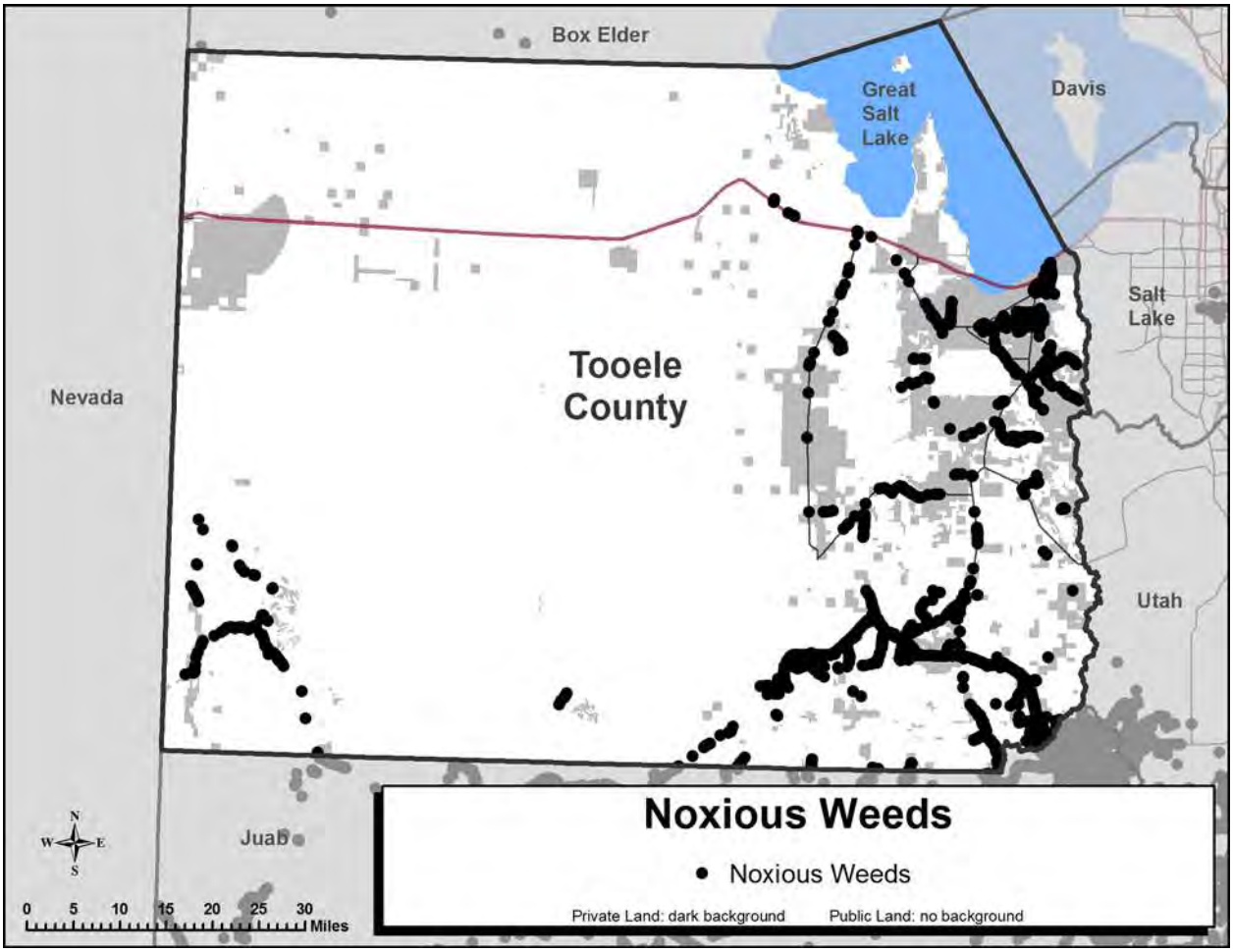
[1] US Department of Interior, Bureau of Land Management. 2011. Mining Claims and Sites on Federal Lands. BLM National Science and Technology Center. P-048.

18. NOXIOUS WEEDS

Noxious and invasive weeds are plants considered harmful to livestock, agriculture, and wildlife, or that otherwise negatively impact the landscape by (e.g., increased wildfire threat, reduced biodiversity). They are typically (but not always) nonnative species that spread rapidly at the expense of native vegetation. Weeds have significant economic considerations through their impacts on rangeland health, increased wildfire, and direct control costs that include weed removal, crop and seed contamination, and equipment cleaning costs.

Related resources:

- Fire Management
- Air Quality
- Livestock and Grazing



Source: Noxious Weeds Point, Date unknown, Several agencies contributed to data, Access via Utah Automated Geographic Reference Center.

18.1 Management Setting

Context

Noxious weeds have significant economic impacts on agriculture industries, reduce the diversity of the landscape, negatively impact forage for wildlife, increase wildfire susceptibility, and can diminish the visual quality of the landscape. Control of noxious weeds is most successful when it is a collaborative effort of both public and private landowners and federal and state land managers. Tooele County supports two Cooperative Weed Management Areas (CWMAs) that provide coordinated weed control across large lands areas without specific consideration of land ownership to more effectively treat weeds. The Bonneville CWMA and Squarrose CWMA are used to coordinate treatment efforts and pool resources. Weed control is most effective when all land managers and landowners act quickly to address infestations when they first begin.

In Tooele County, noxious weed infestations tend to be mostly concentrated near roads, rail, recreational trails, and grazing areas. Weed prevention, particularly with respect to phragmites, will continue to be important on public lands surrounding the Great Salt Lake.

Findings

Weed infestations are common across Tooele County, which is accompanied by serious implications for natural resource managers. The Salt Lake County Weed Control Website has this to say about the problem:

> Outside of their native origins, noxious weeds become oppressors with no known natural competitors to keep their populations in check. These silent invaders quickly begin to out-compete native plants, … forever changing our landscapes. Unlike other ornamental(s), … noxious weeds are nothing short of ecological time bombs.[1]

Local governments, public land managers, and private property owners are responsible for controlling weed species included on the Utah's noxious weeds list and other local weed species of concern. County weed control covers lands under local management (roads, parks, etc.) as well as enforcing weed laws on private lands. State law provides county weed managers the right to treat weeds on private lands (assuming proper notice is provided) if the landowner is unwilling or unable to treat the problem themselves. The state may seek reimbursement or apply liens for the work.

Many species of exotic and invasive weeds exist in Utah. Some species, however, have more potential to be "injurious to public health, crops, livestock, land, or other property."[2] The Utah Noxious Weed Act of 2008 identifies 28 noxious weed species and groups them into three prioritization categories. In December 2015 the official State Noxious Weed list was updated to include 54 and modified prioritization categories.

Class 1A: Early Detection Rapid Response (EDRR) Watch List

This class includes declared noxious weeds and invasive weeds that are not native to the State of Utah and are not known to exist in the state but that pose a serious threat and should be considered a very high priority. The following species are on this list:

- Common crupina (*Crupina vulgaris*)
- Syrian bean caper (*Zygophyllum fabago*)
- African rue (*Peganum harmala*)
- Ventenata (North Africa grass) (*Ventenata dubia*)

- Small bugloss (*Anchusa arvensis*)
- Plumeless thistle (*Carduus acanthoides*)
- Mediterranean sage (*Salvia aethiopis*)
- Malta starthistle (*Centaurea melitensis*)
- Spring millet (*Milium vernale*)

Class 1B: Early Detection Rapid Response (EDRR) Watch List

This class includes declared noxious and invasive weeds that are not native to the State of Utah but are known to exist in the state in very small populations but pose a serious threat to the state and should be considered as a very high priority. The following species are on this list:

- Camelthorn (*Alhagi maurorum*)
- Japanese knotweed (*Polygonum cuspidatum*)
- Garlic mustard (*Alliaria petiolata*)
- Blueweed (Viper's bugloss) (*Echium vulgare*)
- Purple starthistle (*Centaurea calcitrapa*)
- Elongated mustard (*Brassica elongate*)
- Goatsrue (*Galega officinalis*)
- Common St. Johnswort (*Hypericum perforatum*)
- African mustard (*Brassica tournefortii*)
- Oxeye daisy (*Leucanthemum vulgare*)
- Giant reed (*Arundo donax*)
- Cutleaf viper grass (*Scorzonera laciniata*)

Class 2: Control

This class includes declared noxious and invasive weeds that are not native to the State of Utah, pose a threat to the state, and should be considered a high priority for control. Weeds listed in the Class 2: Control list are known to exist in populations of varying size throughout the state. The concentration of these weeds is at a level where control or eradication may be possible. The following species are on this list:

- Leafy spurge (*Euphorbia esula*)
- Dyers woad (*Isatis tinctoria*)
- Medusahead (*Taeniatherum caput-medusae*)
- Yellow starthistle (*Centaurea solstitialis*)
- Rush skeletonweed (*Chondrilla juncea*)
- Yellow toadflax (*Linaria vulgaris*)
- Spotted knapweed (*Centaurea stoebe*)
- Diffuse knapweed (*Centaurea diffusa*)
- Purple loosestrife (*Lythrum salicaria*)
- Black henbane (*Hyoscyamus niger*)
- Squarrose knapweed (*Centaurea virgata*)
- Dalmatian toadflax (*Linaria dalmatica*)

Class 3: Containment

This class includes declared noxious and invasive weeds that are not native to the state of Utah but are widely spread. Weeds listed in the Class 3: Containment class are noxious weeds list that are known to exist in populations of varying size throughout the state. Weed control efforts may be directed at reducing or eliminating new or expanding weed populations. Known and established weed populations, as

determined by the weed-control authority, may be managed by any approved weed-control methodology, as determined by the weed-control authority. These weeds pose a threat to the agricultural industry and agricultural products.

- Russian knapweed (*Acroptilon repens*)
- Musk thistle (*Carduus nutans*)
- Houndstongue (*Cynoglossum officinale*)
- Quackgrass (*Elymus repens*)
- Perennial pepperweed (Tall whitetop) (*Lepidium latifolium*)
- Jointed goatgrass (*Aegilops cylindrica*)
- Phragmites (Common reed) (*Phragmites australis* ssp.)
- Bermudagrass (*Cynodon dactylon*)
- Tamarisk(Saltcedar) (*Tamarix ramosissima*)
- Perennial Sorghum spp. (*Sorghum halepense* and *Sorghum almum*)
- Hoary cress (*Cardaria* spp.)
- Scotch thistle (Cotton thistle) (*Onopordum acanthium*)
- Canada thistle (*Cirsium arvense*)
- Field bindweed (Wild Morning-glory) (*Convolvulus* spp.)
- Poison hemlock (*Conium maculatum*)
- Puncturevine (Goathead) (*Tribulus terrestris*)

Class 4: Prohibited

This class includes declared noxious and invasive weeds that are not native to the State of Utah and that pose a threat to the state through the retail sale or propagation in the nursery and greenhouse industry. Prohibited noxious weeds are annual, biennial, or perennial plants that the Utah Commissioner of Agriculture and Food designates as potentially detrimental or known to be detrimental to human or animal health, the environment, public roads, crops, or other property. The following species are on this list:

- Cogongrass (Japanese blood grass) (*Imperata cylindrical*)
- Scotch broom (*Cytisus scoparius*)
- Myrtle spurge (*Euphorbia myrsinites*)
- Russian olive (*Elaeagnus angustifolia*)
- Dames rocket (*Hesperis matronalis*)

Legal Context

The Utah Noxious Weed Act (Utah Code §4-17[2008, amended 2015]) requires counties to maintain a county Weed Control Board, which is responsible to prevent and control noxious weeds on lands under their control of jurisdiction. The State Weed Committee and the Utah Commissioner of Agriculture and Food together determine the specific weed species that are declared as noxious across Utah (R68-9). Counties may add weeds to this list if other species become locally problematic. Section 7 of the Utah Noxious Weed Act allows counties to compel private landowners to treat weeds on their property. This act does not address weeds on federal lands that are managed by federal land management agencies.

The Plant Protection Act (7 USC§2814 et seq. [2000]) requires federal land managers to control undesirable plants on lands they manage through appropriate funding, staffing, and cooperative agreements and coordination with state and local weed-control efforts. The Forest Service addressed weed management in its Forest Plan. They further clarified weed management in the 2006 Noxious Weed Treatment Program EIS[3], in which the Forest Service targets species from state and local noxious weed

lists. Information on BLM's nationwide strategy for weed management is available on their Invasive and Noxious Weeds website.[4]

18.2 Desired Future State

Tooele County desires to prevent noxious weed infestations on public lands and supports aggressive treatment against established weed populations. This can be accomplished by promoting awareness, education, training, control, and restoration. Preventing small outbreaks of new weeds will continue to be the county's highest priority. Addressing the problem before a larger outbreak occurs will save the county significant time and financial resources.

18.3 Management Objectives and Associated Policies and Guidelines

18.3.1 Management Objective

Pursue weed control efforts on public lands.

Policies and Guidelines

- Appropriately manage existing and invasive weeds in Utah through[5]:

    1. Education and research
    2. Mapping and monitoring
    3. Prevention, early detection, and rapid response
    4. Control (integrated weed management)
    5. Restoration
    6. Regulation and enforcement
    7. Funding

- Coordinate with state and federal agencies in their weed control efforts.

- Provide support, to the extent practical, to the Bonneville CWMA and Squarrose CWMA.

18.3.2 Management Objective

Assist public and private landowners in identifying, preventing, and suppressing noxious weeds.

Policies and Guidelines

- Weed mapping should be kept up to date and include areas in the county that have not yet been included.

- Support the Tooele County Weed Board's annual noxious weed mapping efforts to track existing weed infestations and identify new infestations.

18.3.3 Management Objective

Pursue public education efforts that target weed identification, prevention, and suppression.

Policies and Guidelines

- Coordinate with federal and state educational efforts to increase public awareness of weeds.

- Provide support, to the extent practical, to the Bonneville CWMA and Squarrose CWMA.

- Support outreach efforts from Utah State University extension, Natural Resource Conservation Service, and other programs that address noxious weeds in the county.

18.3.4 Management Objective

Pursue weed control efforts that target prevention and early response to new infestations.

Policies and Guidelines

- Prevent small outbreaks of new noxious weeds from establishing footholds in the county. Prevention should be the county's highest priority, addressing the problem before larger outbreaks occur will save the county significant time and financial resources.

- Clean contaminated machinery and equipment prior to transport.

- Cover seed and feed during transport to prevent spillage.

- Encourage appropriate landscaping techniques and the use of native plants to prevent soil erosion, slippage, and invasive species.

- Treat newly detected weeds before they become prolific.

18.4 References

[1] Salt Lake County. 2017. Weed Control Website. http://slco.org/weeds/ (accessed March 23, 2017).

[2] Utah State Legislature. 2015. Utah Noxious Weed Act – Administrative Rules. Enacted July 2, 2008, Modified December 15, 2015. http://le.utah.gov/xcode/Title4/Chapter17/4-17.html (accessed January 25, 2016.)

[3] USDA Forest Service. 2006. Wasatch Cache National Forest Noxious Weed Treatment Program. Final Environmental Impact Statement. Intermountain Region.

[4] US Department of the Interior, US Bureau of Land Management. 2017. Invasive & Noxious Weeds Website. https://www.blm.gov/wo/st/en/prog/more/weeds.html (accessed March 23, 2017).

[5] Utah Weed Advisory Council and The Utah Weed Control Association. 2004. Utah Strategic Plan for Managing Noxious and Invasive Weeds. http://www.utahweed.org/PDF/strategic_plan.pdf (accessed April 2017).

19. PREDATOR CONTROL

Predator control includes strategies and practices to control the actions of or reduce the number of predator animals. In Utah the focus is on coyotes, as specified in two predator-related bills passed by the Utah State Legislature in 2012. Senate Bill 87 added a $5 fee to big game hunting permits to fund the predator-control programs. Senate Bill 245 provides general funding to administer predator-control programs.

Related resources:

- Livestock and Grazing
- Wildlife

19.1 Management Setting

Context

Predator and prey populations require balance to avoid adverse impacts from either population. Predator control is primarily a function of the Utah Department of Wildlife Resources (DWR) and the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) Wildlife Services. All mountainous areas in Tooele County that are frequented by mule deer are recommended for coyote removal by the DWR. Some native and introduced wildlife thrive in urban environments and have become nuisance species. Insect outbreaks are common in Tooele County, and APHIS is instrumental in the prevention, identification, and control of insects in the county. Additionally, DWR considers predator management needs and goals in management plans for various wildlife species in order to maintain population viability and resilience.

Findings

The APHIS Wildlife Services program and DWR coordinate efforts to resolve wildlife conflicts on public and private lands. Conflicts can occur for many reasons, including the following: (1) predators injuring or killing livestock, (2) wildlife damaging farm crops or raiding livestock feed stocks, and (3) wildlife populations becoming problematic in residential areas. The APHIS program also coordinates with the BLM to control grasshoppers and Mormon crickets.

Legal Context

Applicable Laws

The Animal Damage Control Act (7 USC §426-426c [1931]), as amended, gives the US Secretary of Agriculture authority to control a range of predatory animals to protect livestock, game animals, and wildlife. The Secretary delegated this authority to the APHIS and the Animal Damage Control Program. A 1993 Memorandum of Understanding between the Forest Service and APHIS provides that "APHIS and state agencies are recognized as having the authority and expertise to conduct predator control on National Forest System lands, to determine livestock losses, and to determine methodology for animal damage management. Under the Memorandum of Understanding, APHIS is named the lead agency in preparing environmental documentation for predator control and other animal damage management activities initiated by APHIS on National Forest System lands."[1] A similar Memorandum of Understanding was signed in 2009 between the BLM and APHIS to conduct National Environmental Planning Act analysis and provide guidelines regarding the management and treatment of grasshoppers and Mormon crickets on lands under US Bureau of Land Management stewardship.[2]

At the state level, predator populations are primarily controlled through manipulation of hunting licenses, though individual animals can be removed if they become problematic. When livestock are injured or killed, the Wildlife Damage Compensation Act of 2011 (Utah Code §23-21-1) provides a mechanism for the DWR to reimburse livestock owners for damage caused by bear, mountain lion, wolf, and eagle. The Utah Mule Deer Protection Act of 2012 (Utah Code §23-30-101) adds a $5 fee to big game hunting permits, which funds the predator control programs. Money from this fund is used by the DWR to reimburse coyote hunters and trappers $50 for each coyote lawfully removed. The Wolf Management Act of 2010 (Utah Code §23-29) acknowledges that wolves are currently covered by the Endangered Species Act, but it is the policy of Utah that wolves should actively managed (controlled) and not be allowed to establish anywhere in the state.

19.2 Desired Future State

Tooele County favors aggressive and timely action to control predators that prey on livestock, sensitive wildlife populations, and to mitigate the spread of destructive insects that exploit agricultural resources. The county also desires to maintain healthy, sustainable and mutually beneficial predator and prey populations, recognizing their contributions to a functioning ecosystem in management actions while respecting human safety, economic concerns, and the health of other wildlife populations.

19.3 Management Objectives and Associated Policies and Guidelines

19.3.1 Management Objective

Maintain sustainable and mutually beneficial predator and prey populations.

Policies and Guidelines

- Cooperate with DWR and APHIS to determine management priorities for predators and nuisance species.

- Support predator control programs when native species require relief from predators. Depleted native species whose populations require relief from native predators, receive assistance for as long as they need it, and no longer.[3]

- Keep problematic bird and mammal species in check for cases in which their success has the potential to become problematic to humans as well as sensitive wildlife.[4]

- Coordinate with APHIS Wildlife Services program to conduct wildlife damage management to protect agricultural, industrial and natural resources, property and human health and safety from damage associated with wildlife.

- Support the maintenance of a healthy cougar population within their current distribution while considering human safety, economic concerns, other wildlife species, and maintaining hunting traditions through 2025.[5]

- Discourage the use of lead in control efforts because of its toxicity to humans and wildlife.

19.3.2 Management Objective
Monitor insect populations to determine outbreak risk. Treat insects when necessary.

Policies and Guidelines
Support and coordinate with APHIS and federal land managers in the treatment of insect outbreaks on public lands.

19.3.3 Management Objective
Support public education programs that increase awareness for predator-prey relationships and management practices.

Policies and Guidelines
Support public education programs that increase awareness for predator-prey relationships and management practices.

19.4 References
[1] US Forest Service. 1995. TITLE 2600 - Wildlife, Fish, and Sensitive Plant Habitat Management, Amendment No. 2600-95-5. https://www.fs.fed.us/dirindexhome/fsm/2600/2650.txt (accessed March 25, 2017).

[2] United States Department of Interior, Bureau of Land Management. 2009. Memorandum of Understanding (MOU) Between Bureau of Land Management and the Animal and Plant Health Inspection Service Addressing the Management of Grasshoppers and Mormon Crickets BLM (#WO-220-2009-06). https://www.blm.gov/policy/im-2009-116 (accessed April 12, 2017).

[3] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[4]. Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2017. Utah's Predator Control Program Summary
Program activities and data from July 1, 2014 through June 30, 2015.
https://wildlife.utah.gov/pdf/predator_program_summary_2015.pdf (accessed April 2017).

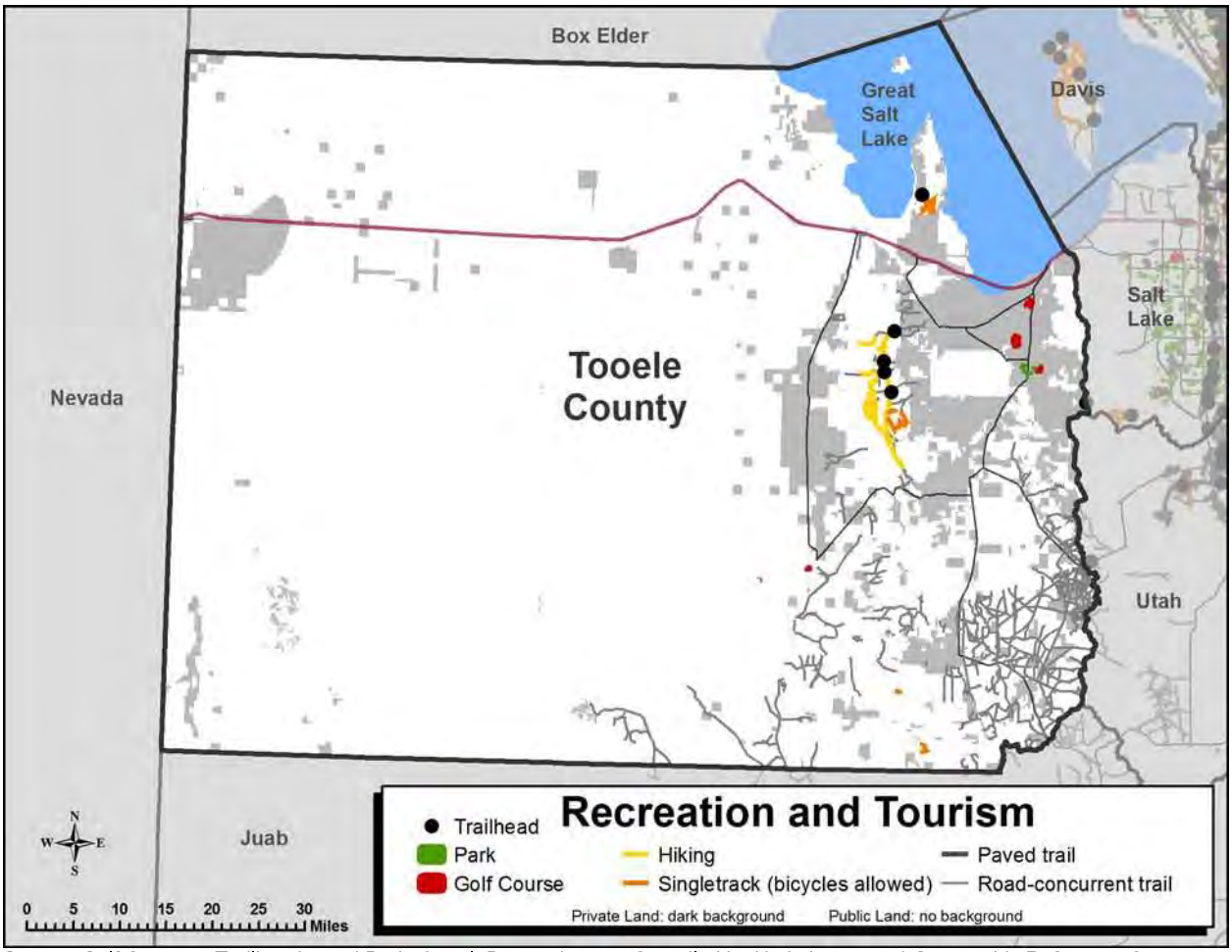
[5] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Cougar Management Plan V.3. https://wildlife.utah.gov/pdf/cmgtplan.pdf (accessed April 2017).

20. RECREATION AND TOURISM

Recreation consists of activities that are pursued for enjoyment. Tourism is the social, cultural, and economic phenomenon of visiting places for pleasure. Outdoor recreation is a significant and growing part of Utah's economy. Tourists and travelers spent a record $8.2 billion in the Utah economy during 2015, and the tourism industry supported an estimated 137,192 jobs.

Related resources:

- Land Access
- Land Use
- Wilderness



Source: Golf Courses, Trailheads, and Parks Local, Date unknown, Compiled by Utah Automated Geographic Reference Center. Trails, Date unknown, Utah Office of Tourism and GOED. Access via Utah Automated Geographic Reference Center.

20.1 Management Setting

Context

Tooele County has a unique, rich, and diverse history and culture and offers a variety of outdoor recreational opportunities and experiences. Most of these activities occur on public lands and are enjoyed by county residents and visitors alike. Popular activities include motorized recreation on the extensive

network of dirt roads and trails. The Bonneville Salt Flats allow motorists push the limits of their vehicles. Non-motorized activities are also popular in the county, including hunting, fishing, camping, horseback riding, hiking, and wildlife viewing. The number of recreationists using public lands in the county will continue to rise as expanded recreation opportunities and improved facilities make the area more attractive for recreational use. Demand is driven by local population growth as well as increased regional population and proximity to the Wasatch Front.

State law allows counties to levy taxes on activities related to leisure and hospitality including hotel stays (transient room tax) and dining (restaurant tax). These taxes allow Tooele County to raise funds for local uses.

Findings

Tourism and the related leisure and hospitality industry is beneficial to Tooele County's economy by generating in nearly $1 million in tax revenue in 2015 from the Transient Room Tax and Restaurant Tax. Leisure and hospitality jobs made up about 14 percent of all jobs in Tooele County.[1]

Legal Context

Applicable Laws

The Forest Service makes land use decisions, including those regarding recreation, by developing Forest Plans, under National Forest Management Act (16 USC §1600 et seq. [1976]). The Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]) mandates the US Bureau of Land Management to manage lands, including recreational uses, under multiple-use philosophy. Both federal land managers set recreation policy following planning procedures specified by the National Environmental Planning Act (42 USC §4321 et seq. [1969]).

State laws applicable to recreation and tourism include the Transient Room Tax enabled by Utah Code (§59-12-3 et seq.), which allows counties to levy a tax up to 4.25 percent on hotel accommodations. The Tourism, Recreation, Cultural, Convention, and Airport Facilities Tax Act, (Utah Code §59-12-6 et seq.) allows counties to levy a tax up to 4 percent on short-term motor vehicle rentals. Funds collected under this law may be used for the development, operation, and maintenance of cultural, recreational, or tourist facilities. Utah Code §17-31-8 requires all counties that levy taxes to form an advisory board to represent the industries being taxed. Utah Code §63N-7-1 created the Board of Tourism, which advises the Utah Governor's Office of Economic Development on "planning, policies, and strategies and on trends and opportunities for tourism development."

20.2 Desired Future State

Tooele County supports existing recreational infrastructure to provide a high degree of user satisfaction, maintain facilities, mitigate user conflict, minimize resource impacts, and reduce trespass to private property. The county also supports the creation, development, and maintenance of new recreation opportunities on public lands to benefit residents as well as attract tourists and visitors. Recreation opportunities should be available to all individuals regardless of age and/or physical ability. These opportunities should occur in a resource- sensitive manner with minimal conflict among uses/users.

Tooele County supports the creation of a recreation corridor, extending from the northern shore of Stansbury Island south to the southern end of the county in the Rush Valley, Skull Valley, and West Desert planning districts, which would support a wide variety of recreation uses and provide the county with tourism benefits.

Tooele County desires to actively participate in agency planning activities related to recreation and tourism.

20.3 Management Objectives and Associated Policies and Guidelines

20.3.1 Management Objective

Support and manage existing recreational infrastructure in order to provide a high degree of user satisfaction, maintain facilities, mitigate user conflict, minimize resource impacts, and reduce trespass to private property.

Policies and Guidelines

- Provide the necessary funding to support existing recreation facilities. The county will not support/promote public-land-based recreation activities unless adequate facilities appropriate to the level of use are in place.

- Support public land management agencies, local governments, businesses, and citizen groups in their efforts to coordinate maintenance of existing recreational facilities.

- Provide recreation systems that accommodate a spectrum of activities, while recognizing that not all are compatible in the same location. When conflicts arise, pursue practical, lasting, win-win solutions in an atmosphere of open communication, broad participation, and respect.[2]

20.3.2 Management Objective

Support the development of new recreational opportunities to support growing demand in the region.

Policies and Guidelines

- Work with public land managers, local governments, and residents to identify appropriate access points to public lands that should be protected or encouraged. Develop strategies for providing and maintaining such access points on a long-term basis, while protecting private property rights.

- Efforts should be made to provide public-land-based recreational opportunities to all individuals regardless of age or physical ability.

- Support public land management agencies, local governments, and citizen groups in their efforts to develop new recreational opportunities.

- Promote Tooele County as a coordinating "umbrella" organization for county recreation and heritage tourism efforts. The county continues to support private, special interest group, and community recreation and tourism efforts.[3]

20.3.3 Management Objective

Support tourism in the region.

Policies and Guidelines

- Develop marketing campaigns and materials to attract people to the county from the Wasatch Front and beyond, including international visitors. A similar policy exists for Antelope State Park.[4]

- Promote Tooele County as a coordinating "umbrella" organization for county recreation and heritage tourism efforts. The county continues to support private, special interest group, and community recreation and tourism efforts.[3]

- Actively participate in regional, state and community public land recreation and tourism promotion and marketing activities. Promote funding and materials coordination among same.[3]

- Increase engagement with local communities and organizations such as user groups, outfitters, tour operators, lodging, restaurants, chambers of commerce, tourism industry associations, retail stores, and other nongovernmental organizations to identify and develop partnerships.[5]

20.3.4 Management Objective

Actively participate in public land planning processes to ensure county goals for recreation and tourism are incorporated in future land use plans.

Policies and Guidelines

Maintain a dynamic public lands element as part of the county's General Plan. This section will be amended as necessary to address emerging resource issues and opportunities.

20.3.5 Management Objective

Develop a recreation corridor extending from the northern shore of Stansbury Island south to the southern end of the county in the Rush Valley, Skull Valley, and West Desert planning districts.

Policies and Guidelines

Tooele County will actively participate in agency planning activities related to recreation and tourism including promotion of local recreation corridors.

20.4 References

[1] Kem C. Gardner Policy Institute, University of Utah. 2016. Utah Travel and Tourism Profile, State and Counties 2014-2015. https://travel.utah.gov/wp-content/uploads/Utah-Tourism-Profiles-2015-1.pdf (accessed April 12, 2017).

[2] Utah Governor's Council on Balanced Resources. 2013. State of Utah Outdoor Recreation Vision. https://www.utah.gov/governor/docs/OutdoorRecreationVision.pdf (accessed April 12, 2017).

[3] Tooele County, nd Tooele County General Plan, Chapter 19: Access Plan. http://www.co.tooele.ut.us/PDF/General%20Plan/Chapter%2019.pdf (accessed April 10, 2017).

[4] Utah Department of Natural Resources, Division of State Parks and Recreation. 2009. Antelope Island State Park Resource Management Plan.

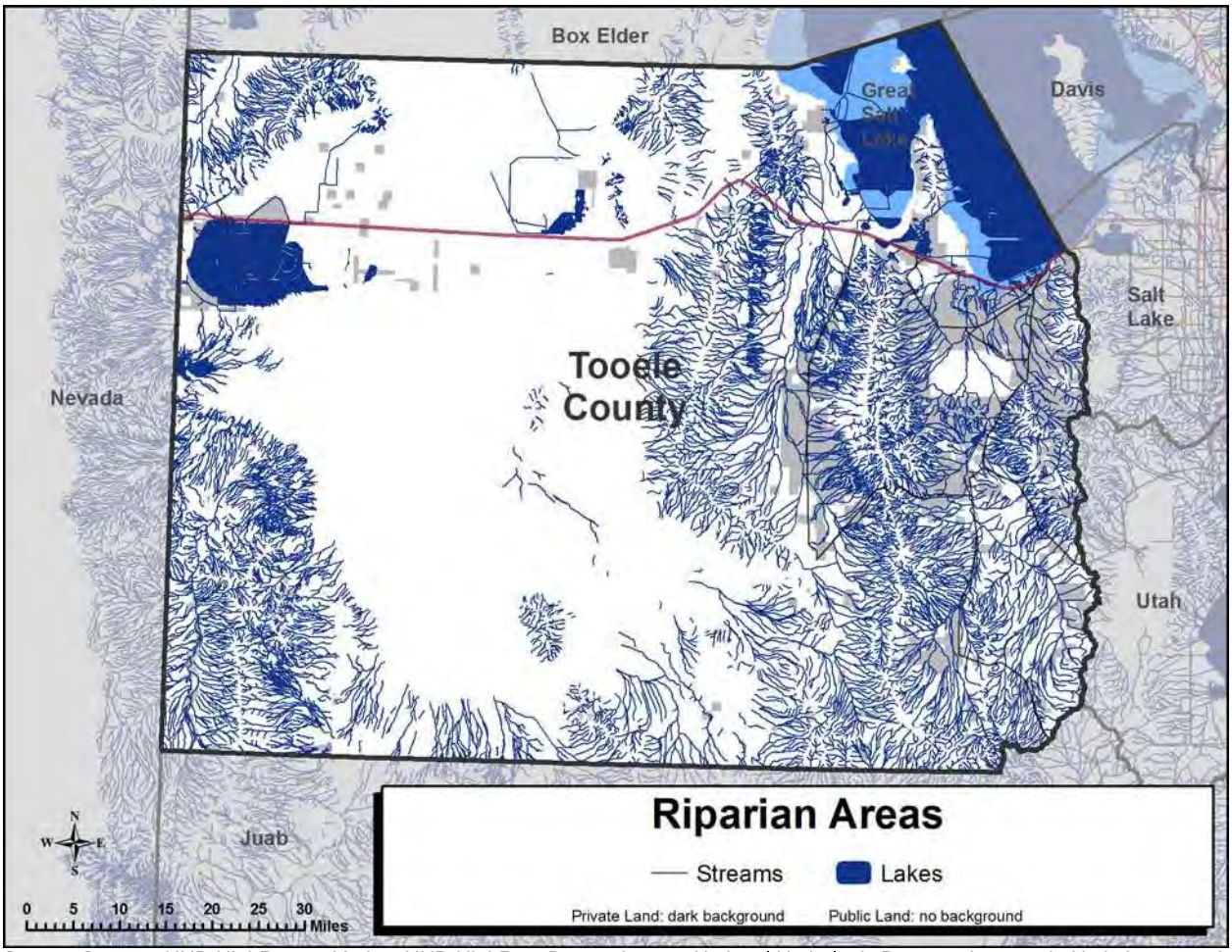
[5] US Bureau of Land Management. 2016. Connecting with Utah Communities: BLM-Utah's Recreation and Visitor Services Strategy, 2016-2020.

21. RIPARIAN AREAS

Riparian areas are zones where terrestrial and aquatic ecosystems directly interact with each other. They occur around numerous types of waterbodies including rivers, lakes, and springs. Similar to wetlands, riparian areas provide numerous benefits to society but a few of the most important of these include wildlife habitat area, hydrologic recharge areas, and water quality improvements.

Related resources:

- Flood Plains and River Terraces
- Wetlands
- Water Quality and Hydrology



Source: Streams NHD HighRes and Lakes NHD HighRes, Date unknown, National Hydrologic Dataset, Access via Utah Automated Geographic Reference Center.

21.1 Management Setting

Context

Riparian areas are important for many reasons. They are a key component of the hydrological system and act as buffers by intercepting or diluting pollutants and sediment before they reach the water. Riparian areas play an important role in erosion processes by slowing water and stabilizing banks. They provide

critical wildlife habitat and are an important component of both terrestrial and aquatic ecosystems. The width of riparian areas is influenced by many factors including human disturbance, hydrology, and climate.

Because riparian areas are highly sensitive to disturbances, it is important to manage them with respect to surrounding areas and their land use.[1] Riparian areas are disturbed by human activities such as livestock grazing, road building, housing and other development as well as recreation activities. Riparian areas are also disturbed by natural forces, including fire and flooding. After disturbances, riparian areas become prime locations for the establishment of invasive and noxious weeds. Climate change also affects riparian areas by altering flow regimes and increasing water temperature thereby threatening cold water fisheries.

Riparian area health on public lands can impact water quality on private lands in Tooele County.

Findings

Riparian vegetation is mapped by the US Geological Survey using remote sensing. Table 21.1 shows riparian acreage in Tooele County by land ownership.

Table 21.1. Total acreage of riparian vegetation in Tooele County and on public lands.

RIPARIAN TYPE	TOOELE COUNTY (ACRES)	US BUREAU OF LAND MANAGEMENT (ACRES)	US FOREST SERVICE (ACRES)	US DEPT OF DEFENSE (ACRES)	STATE OF UTAH (ACRES)
Western Riparian Woodland and Shrubland	2,653	971	789	108	161

Source: US Geological Survey, Landfire Existing Vegetation Type, 2012.

Legal Context

Applicable Laws

Riparian vegetation is not regulated directly by federal or state legislation. There are, however, statutes which cover associated resources and do have implications for riparian areas. Section 404 of the Clean Water Act (33 USC §1344 et seq.) regulates permits for dredged or fill material in Waters of the US. The Endangered Species Act (16 USC §1531 et seq. [1973]), also referred to as the ESA, may sometimes cover riparian areas when projects impact habitat of a listed species.

21.2 Desired Future State

Tooele County desires to protect and restore functioning and connected aquatic and terrestrial habitats, and ecosystems while increasing resiliency and adaptation to change.

21.3 Management Objectives and Associated Policies and Guidelines

21.3.1 Management Objective

Support efforts to protect and restore riparian ecosystems.

Policies and Guidelines

- Support projects and management efforts that protect or restore riparian ecosystems, increasing the riparian area's resiliency and ability to be used for multiple purposes. The US Forest Service [2] and US Bureau of Land Management [3] have similar policies.

- Support education efforts about Best Management Practices in riparian areas including managed grazing [4] and weed control [5] in riparian areas.

21.4 References

[1] Jordan River Commission. 2013. Best Practices for Riverfront Communities. http://jordanrivercommission.com/wp-content/uploads/BP-high-res-for-web.pdf (accessed March 23, 2017).

[2] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed April 2017).

[3] US Bureau of Land Management, Salt Lake District. 1990. Proposed Pony Express Resource Management Plan and Final Environmental Impact Statement. http://www.blm.gov/style/medialib/blm/ut/natural_resources/planning/existing_lups6.Par.40049.File.dat/PONYFEIS.PDF (accessed March 23, 2017)

[4] Bellows, Barbara. 2003. Managed Grazing in Riparian Areas. Appropriate Technology Transfer for Rural Areas. https://extension.usu.edu/rangelands/files/uploads/General%20Grazing%20Management/Riparian%20grazing.pdf. Accessed 14 March 2017.

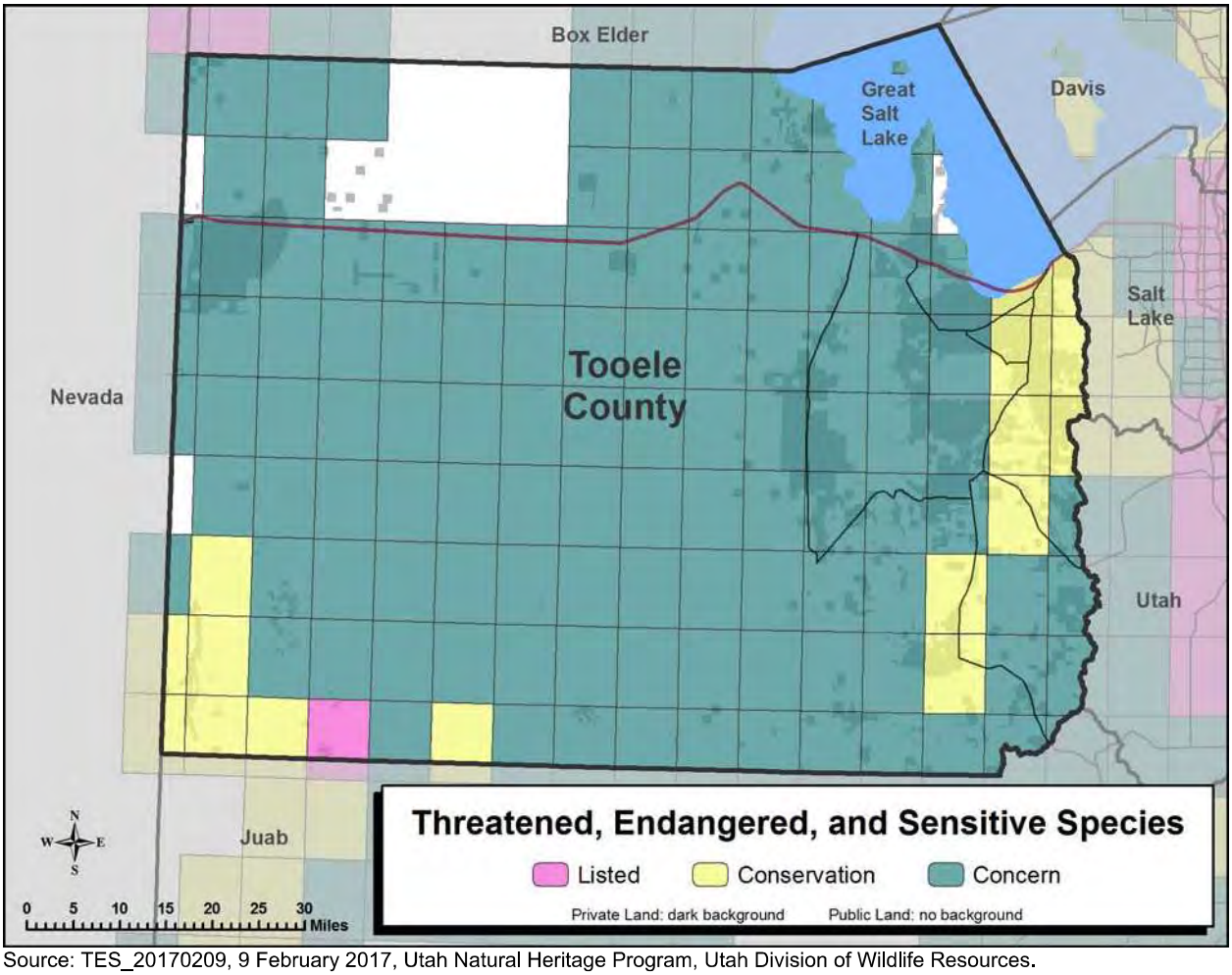
[5] Sheley et.al. 1995. Managing Riparian Weeds. Rangelands 17(2). https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/11260/10533.

22. THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Threatened, endangered, and sensitive species refers to plant, animal, and other living organisms that are, to some level, threatened with extinction. Federal and state governments have management responsibility to protect and restore imperiled species and the critical habitat that supports them.

Related resources:

- Wildlife
- Fisheries



Source: TES_20170209, 9 February 2017, Utah Natural Heritage Program, Utah Division of Wildlife Resources.

22.1 Management Setting

Context

Critically imperiled plant and animal species are federally listed according to the Endangered Species Act (ESA). Under the ESA the US Fish and Wildlife Service (USFWS) is responsible for conservation of terrestrial and freshwater aquatic species that are endangered or threatened with extinction due to loss of habitat, overutilization, disease, predation, inadequate protection, and other factors both human-made and natural.

For sensitive species in Utah that are not protected by the ESA, the Utah Department of Wildlife Resources (DWR) is tasked with conservation. Utah's primary objective for managing sensitive species is to maintain wildlife and wildlife habitat well enough to prevent federal designation.[1] Once a species is federally listed, the state loses primacy for the management of that species. This implies federal regulation of activities on state and private lands that may directly threaten listed species or that species' habitat. From state and local perspectives, federal designation of endangered species means less local control of land use issues, which might cause harm to the designated species.

Utah's 2015 Wildlife Action Plan stated goal is "to manage native wildlife species and their habitats, sufficient to prevent the need for additional listings under the Endangered Species Act".[1] This goal precludes plants.

The DWR Habitat Designation Advisory Committee divides species into three categories following an official Designation Process (DWR Administrative Rule R657-48).[2] This ranking includes plants. The ranking system is summarized in the following list:

- ***S-ESA.*** Federally listed or candidate species under the ESA.
- ***CS.*** Species receiving special management under a Conservation Agreement in order to preclude the need for federal listing.
- ***SPC.*** Species of concern.

Findings

Tooele County has two wildlife species listed as candidates for ESA designation[3]:

- Greater Sage-grouse (*Centrocercus urophasianus)*
- Least Chub (*Iotichthys phlegethontis*)

Tooele County has four wildlife species with Conservation Agreements[2]:

- Bonneville Cutthroat Trout (*Oncorhynchus clarkii utah*)
- Columbia Spotted Frog (*Rana luteiventris*)
- Least Chub (*Iotichthys phlegethontis*)
- Northern Goshawk (*Accipiter gentilis*)

Tooele County has 28 wildlife species, including the four listed above, for which the DWR has identified as wildlife species of concern. The species are [2,4]:

- Allen's Big-eared Bat (*Idionycteris phyllotis*)
- American White Pelican (*Pelecanus erythrorhynchos*)
- Bald Eagle (*Haliaeetus leucocephalus*
- Bobolink (*Dolichonyx oryzivorus*)
- Burrowing Owl (*Athene cunicularia*)
- California Floater (*Anodonta californiensis*)
- Dark Kangaroo Mouse (*Microdipodops megacephalus*)
- Eureka Mountainsnail (*Oreohelix eurekensis*)
- Ferruginous Hawk (*Buteo regalis*)
- Fringed Myotis (*Myotis thysanodes*)
- Grasshopper Sparrow (*Ammodramus savannarum*)
- Kit Fox (*Vulpes macrotis*)
- Lewis's Woodpecker (*Melanerpes lewis*)
- Long-billed Curlew (*Numenius americanus*)
- Lyrate Mountainsnail (*Oreohelix haydeni*)
- Northwest Bonneville (*Pyrg Pyrgulopsis variegata*)
- Preble's Shrew (*Sorex preblei*)
- Pygmy Rabbit (*Brachylagus idahoensis*)
- Short-eared Owl (*Asio flammeus*)
- Southern Bonneville Springsnail *(Pyrgulopsis transversa*)
- Southern (*Tightcoil Ogaridiscus subrupicola*)
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Utah Physa (*Physella utahensis*)

Tooele County has one threatened plant species: [3]

- Ute's Ladies Tresses, *Spiranthes diluvialis*

Legal Context

Applicable Laws

The ESA (16 USC §1531 et seq. [1973]) was established to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species."

Utah code related to threatened and endangered species begins with Utah Code §23-14-1, which created the DWR with authority over wildlife in the state. Under this authority, the DWR works to protect and manage sensitive wildlife species.

The US Department of Interior and Related Agencies Appropriations Act of 2002 created the federal State Wildlife Grants program, which enables Congressional appropriators to consider funding wildlife and habitat conservation on a year-to-year basis. This law requires that each state have a current, approved Wildlife Action Plan to remain eligible for any State Wildlife Grants funding that Congress appropriates to the federal program. States that choose to participate in the State Wildlife Grants program must review and revise their Wildlife Action Plans at least once every 10 years, if they want to maintain their eligibility." Utah's initial Wildlife Action Plan was completed and approved in 2005, and there is currently a 2015 draft available.[1]

In 2009 the state passed the Brine Shrimp Royalty Act (Utah Code §59-23 et seq.), which initiated a royalty on brine shrimp harvest to fund the Endangered Species Mitigation Fund. The Endangered Species Mitigation Fund significantly expanded the funding base for conservation of wildlife species that are designated as Utah Sensitive Species or are ESA listed. The purpose of this fund is to avoid, reduce, and/or mitigate impacts of ESA listings on the people of Utah.[5] Funds are used by the state to study and protect state listed special status species.

22.2 Desired Future State

Tooele County desires to maintain viability of at-risk wildlife and plant species (including endangered, threatened and sensitive species and unique communities) and their habitats.

22.3 Management Objectives and Associated Policies and Guidelines

22.3.1 Management Objective

Restore degraded habitats and connectivity between fragmented habitats where at-risk wildlife and plant species are found.

Policies and Guidelines

- Support efforts that restore degraded habitats and connectivity between fragmented habitats, such as Forest Service efforts to connect large patches of forests [6] and the efforts to improve sage-grouse habitats.[7]

- Limit grazing in sensitive areas, including riparian areas and aquatic habitats.

- Restore or maintain hydrologic functions of water bodies and waterways.[1]

- Promote aquatic habitat protection. Preserve aquatic habitats identified by agencies as used or occupied by special status species in their current state by avoiding any action that would remove water from these areas.[1]

22.3.2 Management Objective

Encourage the protection of open lands that support at-risk wildlife and plant species.

Policies and Guidelines

See that open lands that are crucial to wildlife do not have the potential to be developed for housing and urban growth.[1]

22.3.3 Management Objective

Encourage responsible recreation and effective education and enforcement.

Policies and Guidelines

Encourage responsible recreation and effective education and enforcement.[1,6]

22.4 References

[1] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[2] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah State Listed Species by County. http://dwrcdc.nr.utah.gov/ucdc/viewreports/sscounty.pdf (accessed April 12, 2017).

[3] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2016. County-by-County list of Sensitive Species. Tabular Data. https://wildlife.utah.gov/wap/species_by_county.zip (accessed March 27, 2017).

[4] Utah Department of Natural Resources, Division of Wildlife Resources. 2015. Utah Sensitive Species List. http://dwrcdc.nr.utah.gov/ucdc/viewreports/SSL_Appendices.pdf (accessed March 27, 2017).

[5] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2014. Endangered Species Mitigation Fund. https://naturalresources.utah.gov/wp-content/uploads/ESMFguidelines2014forwebsite.pdf (accessed March 27, 2017).

[6] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (accessed April 2017).

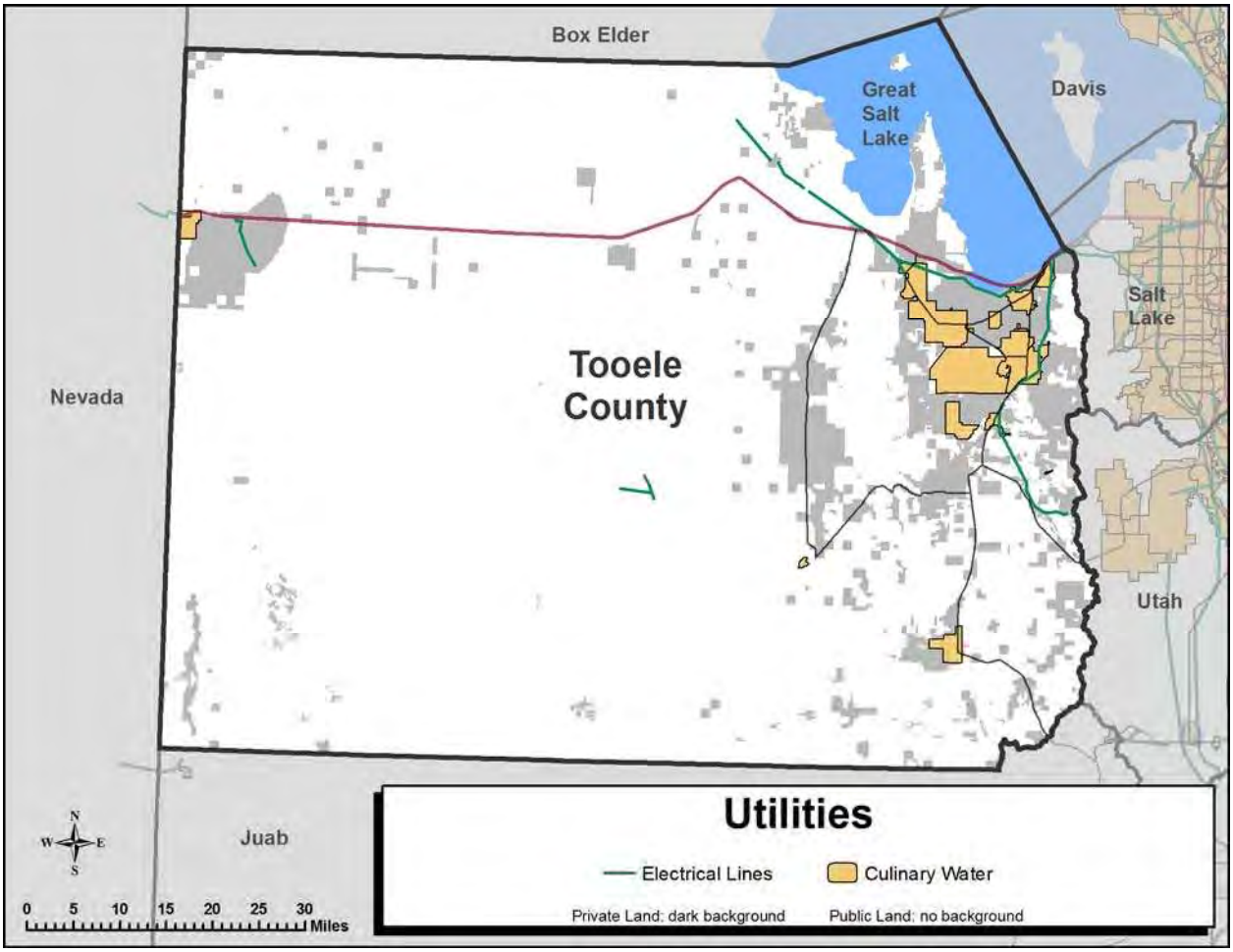
[7] US Fish and Wildlife Service. 2013. Conservation Plan for Greater Sage-grouse in Utah. https://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater_sage_grouse_plan.pdf (accessed April 2017).

23. UTILITIES

Utilities are useful services and commodities provided to the community at a cost. Examples of utilities include electricity, water, and communication services. Utility corridors often cross public lands impacting the land and its ecosystems.

Related resources:

- Energy Resources
- Cultural, Historical, Geological, and Paleontological Resources
- Land Use



Source: Electrical Lines, 1989, State of Utah Comprehensive Emergency Earthquake Preparedness Program. Retail Culinary Water Suppliers, December 2015, Several agencies. Access via Utah Automated Geographic Reference Center.

23.1 Management Setting

Context

Utilities, including reliable transportation of energy and communication services, are important to the people and businesses of Tooele County. Utility corridors crossing public lands have the potential to adversely impact the natural resources, land uses, and visual quality.

Among the federal land management agencies and utility Industry, the definition of a corridor varies. The Western Utility Group defines a corridor as: "A linear strip of land without definite width, but limited by technological, environmental and topographical factors, and containing one or more utility, communication or transportation facilities. A corridor is a land use designation, identified for the purpose of establishing policy direction as to the preferred location of compatible linear facilities and compatible and conflicting land uses. It does not imply entitlement of use. Appropriate environment review and regulatory permitting must precede occupancy on a project-specific basis."

Findings

Energy transmission via pipelines and powerlines occurs throughout Tooele County, though precise counts, quantities, and locations are not available.

Legal Context

Utility corridors on public lands are generally managed during the land and resource planning stages. Forest Plans specifically address transportation and utility corridors.

Applicable Laws

Utility corridors are managed under land use planning procedures specified for the US Forest Service by National Forest Management Act (16 USC §1600 et seq. [1976]) and for the US Bureau of Land Management by the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]). Both federal land management agencies are subject to the National Environmental Planning Act (42 USC §4321 et seq. [1969]) planning process.

23.2 Desired Future State

Tooele County encourages the development of utility corridors to contain transportation/transmission routes (as preferred routes) to minimize the number of separate rights of way and to minimize the overall environmental impacts of utility facilities.

Tooele County desires active and effective participation in the federal land planning process designating corridors that may pass through the county. Tooele County desires to become involved in the process early and to maintain active participation, and supports cooperative partnership with federal agencies and the utility industry wherever possible.

23.3 Management Objectives and Associated Policies and Guidelines

23.3.1 Management Objective

Support utility corridors that minimize the number of separate rights of way and overall environmental impacts.

Policies and Guidelines

Existing and future utility corridors should be incorporated as part of the county open space and trail corridor system, as appropriate, with water and wastewater treatment facility sites located and preserved to meet future needs.[1]

23.3.2 Management Objective

Seek participation with other agencies in planning and designing utility corridors.

Policies and Guidelines

- Encourage regionalization of utilities.

- Coordinate regionally with agencies, private entities, and providers in planning and designing utility corridors.

23.4 References

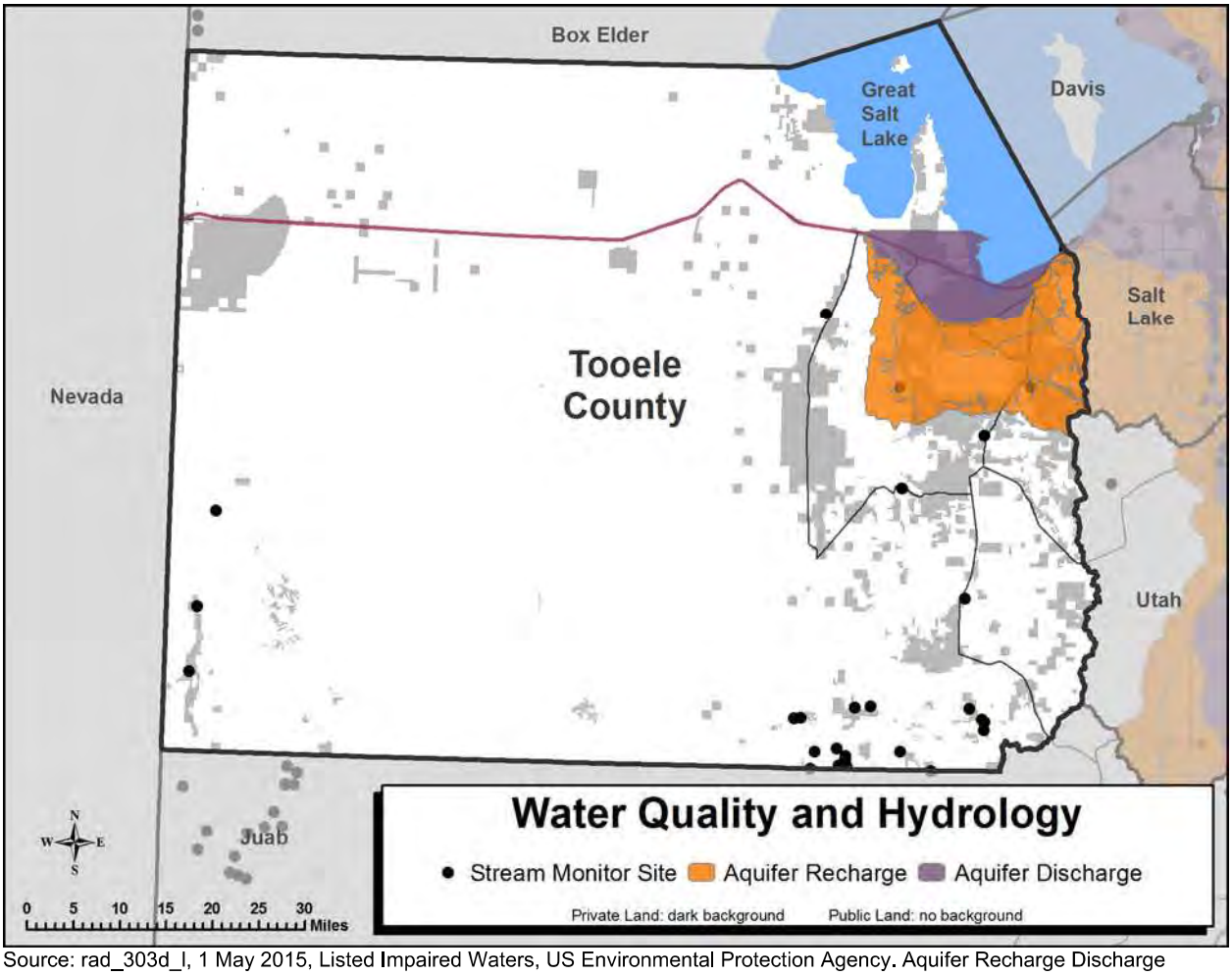
[1] Tooele County. 2016. Tooele County General Plan Update 2016. http://www.co.tooele.ut.us/PDF/General%20Plan/TCFinalGeneralPlan.pdf (accessed April 12, 2017).

24. WATER QUALITY AND HYDROLOGY

Water quality and hydrology are two distinct but inherently related components of water. Water quality describes the condition (physical, chemical, and biological) of water with respect to specific use, such as culinary water supply, aquatic wildlife, or agriculture. Water quality is highly affected by flow and timing (the poorest water quality usually occurs during periods of low flow). Hydrology characterizes the timing (when water is available), distribution, and flow of water across the human and natural landscape. Hydrology also includes the movement of water into and out of aquifers.

Related resources:

- Irrigation
- Water Rights
- Floodplains and River Terraces
- Wetlands



Source: rad_303d_l, 1 May 2015, Listed Impaired Waters, US Environmental Protection Agency. Aquifer Recharge Discharge Areas, 24 May 2016, Utah Geological Survey and Utah Division of Water Quality.

24.1 Management Setting

Context

Surface water is scarce in Tooele County. Residents are highly dependent on groundwater for culinary and agricultural uses.[1] As such, proper management and protection of this resource is important for all water users.

Water quality and hydrology on public lands impact water availability on private lands and groundwater. The local water supply comes from aquifer sources, which makes it imperative for the health of the community to protect the water quality and availability of groundwater.

The Great Salt Lake is a unique and complex ecosystem of regional and hemispherical importance. Sustainable use of Great Salt Lake's natural resources will ensure that the ecological health (e.g., water quality, shoreline condition, salinity, aquatic organisms, wildlife, wetlands), scenic attributes, extractive industries (e.g., minerals, brine shrimp, microorganisms), and recreation opportunities (e.g., bird watching, hunting, sailing) will be maintained into the future. Maintaining responsible stewardship of Great Salt Lake's resources while supporting current industries will provide lasting benefit to the Public Trust.

Findings

Water Quality. In Utah, water quality is regulated by the state based on the source of pollutants entering waterways, defined either as "point source" or "nonpoint source" pollution. Point sources (PS) discharge pollutants directly into a waterbody, usually through pipes or ditches originating from industries or waste treatment plants. Nonpoint sources of pollution are those that do not originate from distinct locations and tend to vary in time and space. Nonpoint source pollution occurs when runoff from rainfall or snowmelt picks up pollutants from the human and natural landscape and transports them indirectly to a waterbody.

Common water quality characteristics include the following:

- ***Conductivity.*** A measure of the ability of water to conduct an electrical current. It is dependent on the amount of dissolved solids in the water.

- ***Dissolved oxygen.*** A measure of the amount of oxygen dissolved in water. Water's capacity to carry dissolved oxygen is inversely related to temperature; as temperature increases, dissolved oxygen decreases. Fish and other aquatic organisms require dissolved oxygen for respiration. If dissolved oxygen levels are too low, aquatic organisms can be severely impacted.

- ***Nutrients.*** Nutrients such as nitrogen and phosphorus are essential for plant and animal growth and nourishment. However, excessive nutrients from human sources become problematic when they over accumulate and can cause adverse effects within waterbodies. For example, nutrient-fed algal blooms can consume oxygen needed by other aquatic organisms, produce toxins that can harm livestock and humans, and contaminate recreational waters.

- ***pH.*** A measure of acidity, pH is used as an indicator of chemical changes in the water. Some streams in Utah tend to have slightly higher pH because of their limestone substrates.

- ***Suspended sediment.*** The amount of sediment moving with along a stream suspended in the water column. This depends partly on water flow; fast-flowing water can move more sediment than slow-flowing water. This measurement also depends on the amount of fine sediments available to transport.

- ***Water temperature.*** Changes in water temperature can impact aquatic organisms, as well as humans (e.g., recreational and industrial uses). Water temperature also affects dissolved oxygen—as temperature increases, water's capacity to dissolve oxygen decreases.

- ***Turbidity.*** A measure of the amount of particulate matter that is suspended in water. Turbidity measures the scattering effect that suspended solids have on light entering the water.

Common point sources of water pollution include the following:

- Livestock feeding operations
- Industrial wastewater
- Municipal wastewater
- Pesticide applications
- Stormwater inputs
- Construction activities
- Industrial activities
- Municipal and transportation sources

Common nonpoint sources pollutants and sources include the following:[2]

- Fertilizers, herbicides, and insecticides from residential and agricultural areas
- Roads
- Oil, grease, and other chemicals on impervious surfaces such as roads and parking lots
- Sediment from construction areas and roadways
- Salts from roadways and agricultural areas
- Acid drainage from abandoned mines
- Bacteria and nutrients from septic systems, pet waste, and livestock

Hydrology

In terms of defining local hydrologic systems, spatial datasets from the USGS like the National Hydrography Dataset (NHD and the Watershed Boundary Dataset (WBD) are used to determine the location of watershed boundaries and surface water (rivers, lakes, and springs) in Tooele County. Tables 25.1 and 25.2 provides information about the type and extent of streams and water bodies in Tooele County.

Melted snow and rain enters the aquifers in recharge areas along the foothills of the Tooele Valley and flows towards the valley center and the Great Salt Lake. Groundwater depth ranges from 700 feet in the south to a few feet in the north.[3] A 1999 report by the US Geological Survey estimated the total water moving through the groundwater system is estimated at 70,000–75,000 acre-feet per year.[1] As water moves through the aquifer it dissolves salts and other minerals affecting water quality. Groundwater contamination from chemicals and nitrates has been an issue in the past; proper land use management is critical to protect groundwater quality.

Aquifer data exists for only a small portion of eastern Tooele County, essentially the Tooele Valley (see Water Quality and Hydrology map). This data (Table 25.3) reveals that public lands in the area are significant in the recharge of aquifers. The groundwater quality classification map commissioned by Tooele County is a useful reference for understanding water quality in the Tooele Valley and shows that groundwater flows through the valley towards Great Salt Lake.[4]

Table 25.1. Miles of streams in Tooele County.

STREAM TYPE	MILES
Perennial Stream/River	568
Intermittent Stream/River	367
Ephemeral Stream/River	8,354
Canal/Ditch, Artificial Path, Connector	1,114
Pipeline (various types)	65

Source: National Hydrography Dataset, Streams.

Table 25.2. Acres of water bodies in Tooele County.

WATERBODY TYPE	ACRES
Perennial Lake/Pond	169,825
Intermittent Lake/Pond	14,314
Playa	222
Reservoir	58,128
Swamp/Marsh	6,917

Source: National Hydrography Dataset, Lakes.

Table 25.3. Total acres aquifer by landowner.

AQUIFER RESOUCE	US FOREST SERVICE (ACRES)	US BUREAU OF LAND MGMT (ACRES)	US DEPT OF DEFENSE (ACRES)	STATE OF UTAH (ACRES)	PRIVATE (ACRES)
Groundwater Recharge Area	25,152	29,583	26,201	7,771	111,920
Groundwater Discharge Area	0	5,749	0	19,386	45,406
Totals	25,152	35,332	26,201	27,157	157,326

Source: Utah Geological Survey and Utah Division of Water Quality, Aquifer Recharge Discharge Areas.

Legal Context

Water quality and hydrology each have specific laws and regulations specific to the resources.

Applicable Laws

Water quality. With respect to water quality, the Utah Department of Environmental Quality (DEQ), Division of Water Quality (DWQ) is responsible for maintaining water quality in Utah. Water quality is regulated by the DWQ based on the source of pollutants entering waterways, defined as either point source or nonpoint source pollution.

Point source pollution. Point source pollution originates from a distinct business, operation, or other specific location. Point source pollutants are highly regulated under the Clean Water Act (Federal Water Pollution Control Act) (33 USC §1251 et seq. [1972]) and Utah Water Quality Act (Utah Code §19-5) through the issuance of permits and possible fines if permit requirements are not met. The EPA issues discharge permits within the National Pollutant Discharge Elimination System (NPDES). In Utah, the State was granted primacy by EPA to manage the NPDES permitting program as the Utah Pollution Discharge and Elimination System (UPDES) and is operated by the DWQ.

The NPDES permits are required for all point sources listed above. The Clean Water Act explicitly excludes agricultural runoff and irrigation return flow as point source pollution and, therefore, do not require NPDES permits.

Nonpoint source pollution. Nonpoint source pollution originates from a variety of dispersed sources, such as parking lots, roads, residential landscaping, agricultural operations, stream bank erosion, and fire scars. Once mobilized, these pollutants enter streams, waterbodies, wetlands, and groundwater. Because of its complex nature, nonpoint source pollution is not regulated through permitting under the Clean Water Act. Instead, nonpoint source pollution is managed in Utah by the DWQ through voluntary and incentivized actions of individual landowners. The Utah Water Quality Act (Utah Code §19-5) requires states to prepare nonpoint source pollution assessment reports and include provisions for federal funding for implementing nonpoint source management.[3] In some cases local governments have established development codes to compel actions to reduce nonpoint source pollution.

Due to the diffuse nature of nonpoint source pollution, the DWQ uses water-quality data in streams and lakes to determine levels of pollution within a watershed. The DEQ collects water quality monitoring data to determine if a waterbody supports its designated beneficial uses and meets water quality standards.

A statewide assessment report, called the Integrated Report, is produced by the DWQ every other year. This report summarizes overall surface water conditions, estimates the importance of key water quality concerns, identifies impaired waterbodies, and helps agencies prioritize resource needs.[3] This report also helps in the development of Total Maximum Daily Loads, which is a calculation of the maximum amount of a pollutant that a waterbody can have while still meeting water quality standards and required for impaired waterbodies. Data for assessed waters in Utah is public and can be found in the Utah Environmental Interactive Map application. Water quality data is divided by waters with no impairments, waters with no evidence of impairment, waters with insufficient data, impaired waters with a Total Maximum Daily Loads, and impaired waters that need a Total Maximum Daily Loads.

Hydrology. Title 73 (Water and Irrigation) of Utah Code provides the majority of legal framework for water use and management in Salt Lake County. The appropriation of water from the rivers, lakes, and wells is regulated by the Utah Division of Water Rights and Utah Code §73-2-1.1. More information on water rights can be found in this document under CRMP Section 26, Water Rights.

24.2 Desired Future State

Tooele County desires to maintain and improve surface and groundwater quality to maintain public water supply. To preserve water quality, Tooele County does not support the location of any heavy industry which runs a risk of polluting groundwater, in particular sites that would be upstream of any aquifers or other groundwater sources.

Tooele County desires to maintain and/or improve surface and groundwater quantity to maintain public water supply. To preserve water quantity, water should be retained in these systems through restriction of

upstream diversions and groundwater withdrawals on public lands. Tooele County does not support export of water out of the county.

Tooele County desires stable and productive riparian and aquatic ecosystems, including wetlands along the Great Salt Lake. Water should be retained in these systems through restriction of upstream diversions and groundwater withdrawals on public lands.

24.3 Management Objectives and Associated Policies and Guidelines

24.3.1 Management Objective

Maintain or improve watersheds and water quality to maintain public water supply and provide stable and productive riparian and aquatic ecosystems and groundwater resources on public lands.

Policies and Guidelines

- Tooele County's strategy and plan for protecting the region watershed is to deter unauthorized cross-country Off Highway Vehicle (OHV) use in the region. The best way to achieve this is to give OHV users a reasonable system of roads and trails in the region on which to legitimately operate OHVs. Closing the region to all OHV use will only spur increased unauthorized cross-country OHV use to the detriment of the region's watershed.

- Coordinate with and support state and federal agencies' water quality projects.

- For new soil-disturbing projects, implement BMPs to manage runoff to reduce its quantity and velocity, stabilize fine soils in place, and trap mobilized particles before they leave the site.

- Manage livestock to preventing overgrazing in riparian and wetland areas.

24.3.2 Management Objective

Support management activities within watersheds that maximize water production.

Policies and Guidelines

- Where water resources in the region have diminished because once-existing grasses have succeeded to pinyon, juniper and other woody vegetation and associated biomass, a vigorous program of mechanical treatments should be applied to promptly remove this woody vegetation and biomass, stimulate the return of the grasses to historic levels, and thereby provide a watershed that maximizes water production and water quality for livestock, wildlife, and human uses.

- Encourage water retention to promote aquifer recharge.

- Manage the watershed in the proposed Wilderness Regions to achieve and maintain water resources at the highest reasonably sustainable levels.

24.3.3 Management Objective

Restrict diversions of waterways feeding the Great Salt Lake to minimize hazards of receding shoreline.

Policies and Guidelines

Support restricting diversions of waterways feeding the Great Salt Lake to minimize hazards of receding shoreline.

24.3.4 Management Objective

Maintain and improve water quality, and prevent heavy industry from polluting aquifers and other groundwater sources.

Policies and Guidelines

Do not support heavy industry in locations that pollute aquifers or other groundwater sources.

24.4 References

[1] US Department of Interior, US Geological Survey. 1999. Ground-water Resources of Tooele Valley, Utah. USGS Fact Sheet 125-99.

[2] Utah Department of Environmental Quality, Utah Division of Water Quality. 2014. Nonpoint Source Management Plan for Abandoned Mines in Utah. https://deq.utah.gov/ProgramsServices/programs/water/nps/docs/2012/02Feb/Abandoned_Mine_NPS_Feb272012.pdf (accessed March 23, 2017).

[3] Bishop, C.E., 1997, Sources of nitrate in ground water in the east Erda area, Tooele County, Utah: Salt Lake City, unpublished Utah Geological Survey report for Tooele County.

[4] Utah Geological Survey, 1997 data. Ground-Water-Quality Classification Map for the Principal Valley-Fill Aquifer Tooele Valley Tooele County Utah. https://deq.utah.gov/ProgramsServices/programs/water/groundwater/images/TooeleClassMap.pdf (accessed April 13, 2017).

[5] Utah Department of Environmental Quality, Utah Division of Water Quality. 2014. Integrated Report: Assessment Methods. https://deq.utah.gov/ProgramsServices/programs/water/wqmanagement/assessment/docs/2014/10Oct/Chapter2AssessmentMethodsv2.pdf (accessed March 23, 2017).

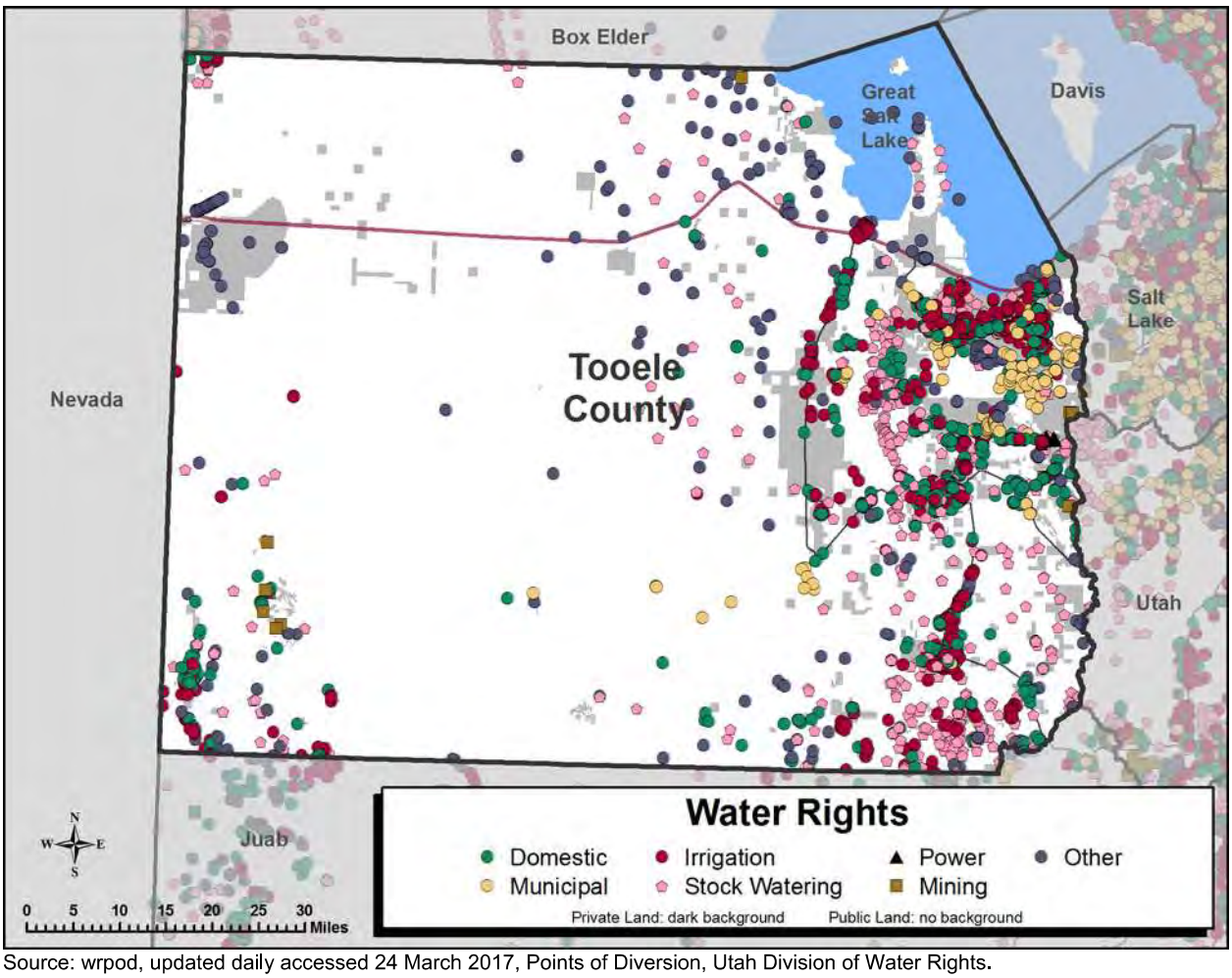
[6] Utah Department of Environmental Quality, Utah Division of Water Quality. 2013. Utah Statewide Nonpoint Source Pollution Management Plan. http://www.deq.utah.gov/ProgramsServices/programs/water/nps/mgmtplan2013/docs/2014/06Jun/2013_Utah_Statewide_NPS_Management_Plan.pdf (accessed March 23, 2017).

25. WATER RIGHTS

Water is a renewable natural resource, available in finite supply, and subject to competition between stakeholders as annual supplies vary. The demand to supply water to Utah's various interests is expected to be a continually complex issue for stakeholders to coordinate. Water resources are a natural system resulting from a fluctuating cycle of precipitation and subsequent absorption into the earth and/or the drainage of water from high elevations to lower elevations. The network of flowing water, both above and below the earth's surface, extends beyond obvious topographic or political boundaries. As a result, management and use of water supplies requires coordination between the various jurisdictions of local, state, and federal entities.

Related resources:

- Ditches and Canals
- Irrigation
- Water Quality and Hydrology



Source: wrpod, updated daily accessed 24 March 2017, Points of Diversion, Utah Division of Water Rights.

25.1 Management Setting

Context

All waters in Utah, excluding rainwater[1], are owned by the State of Utah in trust for its citizens. The right to use water is controlled by the Utah Division of Water Rights (DWRi), within the Utah Utah Department of Natural Resources (DNR) through the legal allocation of water rights. Tooele County supports protection of existing water rights and reasonable development of additional water rights.

Findings

Appropriation, Beneficial Use, and Transfers

The water needs of Utah's extensive arable lands significantly exceed the water supply provided by Utah's arid climate. The disparity in the ratio between available land and available water necessitated the establishment of legal framework through which available water is allocated. The legal identification of who possesses the right to use available water, where it's taken from, where it's used, how much, in what priority, and for which specific purpose(s) is called an "appropriation." Point of Diversion data, Stream Alteration data, Place of Use data, and Adjudication Areas data can be used by the county to help determine areas of the county that may have complex water rights issues. Table 25.1 and 25.2 provide a summary of water right appropriations for Tooele County.

The purpose for which the allotted water is legally intended is called the Beneficial Use. Common beneficial uses include irrigation, stock watering, municipal, industrial, electric power generation, and mining.

Table 25.1. All water points of diversion throughout Tooele County, approved, perfected, terminated, and unapproved by landowner.

WATER POINT DIVERSIONS TYPE	TOOELE COUNTY (TOTAL)	US BUREAU OF LAND MGMT	US FOREST SERVICE	US DEPT OF DEFENSE	STATE
Abandoned Well	199	1	-	23	1
Drain	6	-	-	-	-
Point to Point	418	56	191	4	4
Re-diversion	65	1	1	1	36
Return	68	5	3	14	-
Spring	108	13	9	2	9
Surface	1,233	326	82	19	90
Underground	9,665	412	23	512	191
Totals	11,762	814	309	575	331

Source: Utah Division of Water Rights, Point of Diversion Data.

Table 25.2. List of the ten largest water right holders who divert water from public lands in Tooele County.

OWNER	NUMBER DIVERSIONS	ACRE-FEET	MAIN SOURCE
US Magnesium LLC	46	2,770,559	Great Salt Lake
US Bureau of Reclamation, Provo Area Office	1	190,288	Various Springs and Streams
The Confederated Tribes of the Goshute Reservation	2	100,000	Surface and Underground Water Wells
Utah Division of Wildlife Resources	42	76,118	Big Springs and Faust Creek
Utah School and Institutional Trust Lands Administration	58	75,896	Underground Water Wells
Intrepid Potash, Wendover	29	29,421	Underground Water Wells & Springs
State of Utah Board of Water Resources	18	28,368	Various Creeks
Kennecott Utah Copper, LLC	4	15,065	Underground Water Wells, Tunnels, Springs
Kennecott Land Company	4	14,975	Underground Water Wells, Tunnels, Springs
Beaver Creek Investments, LLC.	4	14,000	Underground Water Wells

Source: Utah Division of Water Rights, Point of Diversion Data.

The ownership of the right to use water identified by appropriation is called a "water right." Utah state law classifies water rights as "real property," which can be held by an entity or individual and may be bought and sold. A water right is tied to a specific source (defined as a "diversion"). Irrigation water rights are tied to a quantified acreage of land and must be continually used for the purpose for which it was appropriated, which is defined as "beneficial" use. With some limitations, water rights may be rented or sold to other users, subject to DWRi approval and provided that the transfer of water rights does not affect other water users. With some limitations, water rights for a certain beneficial use may be held in lieu of a different beneficial use subsequent to the DWRi approval and an appropriate exchange can be accounted for by DWRi. With some limitations, the use of water rights from a specific diversion may be transferred to the use of water from another diversion, subject to DWRi approval and provided an appropriate exchange rate can be accounted for by DWRi.[2]

Water rights are subject to available supply, so ownership of a water right may not necessarily guarantee that the user receives a specific predefined volume of water. Additionally, not all water rights possess an equal standing when annual water allocations are reduced due to availability. The laws in the State of Utah governing the statewide administration of water rights are based on the principles of a legal doctrine

known as “Prior Appropriations.” The Prior Appropriations Doctrine establishes the ranking of a water right’s priority based on the chronologic establishment of the original beneficial use, making older water rights senior to newer water rights. In other words, all water rights are not created equal. As available water supply diminishes at any given diversion, a junior water right holder may have to yield remaining water supply to the holder of a more senior water right.

The source of the water may be a determining factor identifying which beneficial use may be applied. Drinking water often comes from wells where little or no treatment is required, while irrigation water often comes from rivers because irrigation water does not typically need to be treated. Water appropriated for irrigating farmland must be used only for irrigation until (and if) approval to change the use can be obtained from the DWRi. Similarly, irrigating farmland from a culinary well is not legal unless approval has been obtained from DWRi. Additionally, failure to actively maintain beneficial use may result in the forfeiture of the water right.

Depletion

Whether it is used for drinking or irrigating corn, water rights are typically quantified as a gross volume of flow and represent the maximum amount of water a water rights holder is entitled to divert from a common supply. However, it is a common misconception that the water rights holder owns that water, or that all the water diverted is taken out of circulation. Because of the cyclical nature of how finite water supplies become available to users, a water right entitles its owner only to the single annual beneficial use for which the right was appropriated. Water right ownership entitles the holder to divert a given volume of flow (if both available supply and water right seniority allow) and apply that diverted water to the beneficial use. However, after the use of the water has been applied, the water must then be released downstream to the next user. Water rights are quantified at the diversion point because there is no reliable way to accurately measure water returned to the system after all the various beneficial uses.

“Depletion” is the term defining the actual net water volume a user takes from a given diversion point, removing it from the system and rendering it unavailable for reuse by downstream users. A water right is more accurately described as the right to an estimated amount of depletion. The estimated amount of depletion is approximated based on known rates of water that are lost to the system for a particular use, which is why water rights are tied to a specific beneficial use.

As water supplies fluctuate from year to year, any water right is subject to available supply. The State of Utah follows the prior appropriation system, which grants priority water rights to whoever has documented the earliest beneficial use of water.

Diversions can be any drilled or dug well, gate, valve, dam, or pump that takes water from a natural stream channel or groundwater. The DWRi maintains records of all water wells, storage dams, and diversions, as well as places of use, and municipal water suppliers. However, many water rights holders in Utah are entities that function for a collective set of water shareholders. Shareholders own a portion of water right(s) which is administered by the water right holder. This is usually the case within irrigation districts or ditch companies. The DWRi does not necessarily possess records of individual shareholders because those records are held by the entity owning the water right on behalf of the shareholders. Changes to any water rights may be applied for by filing an application to the DWRi. The DWRi and the DNR are both held by appointees of the governor, accountable to the governor, subject to state legislative action, and tasked with administering all state and federal water rights within Utah.

Legal Context

Utah's water, including rivers, lakes, and groundwater is regulated under Utah Code Title 73-1et seq., Water and Irrigation, and is subject to additional legal settlements, rulings, and treaties, which also play significant roles in determining how water is allocated to users in the western United States.[1] Utah Code Utah Code §73-1-1 declares all water, above and below ground, is property the public and shall be governed by the Legislature for "beneficial purposes". Utah Code §73-2-1 creates a state engineer with responsibility "for the general administrative supervision of the waters of the state and the measurement, appropriation, apportionment, and distribution of those waters." Subsection 1.1 created the DWRi within the DNR with authority over water rights in Utah. Utah Code 73-3-1 et seq. addresses the appropriation of water rights, methods for obtaining and defending rights, etc.

Another section of state code applicable to water, and especially to municipalities, includes Utah Code §10-8-15 which provides extraterritorial jurisdictional authority for municipalities to enact ordinances with effects outside of official city boundaries for purposes of "preventing pollution or contamination of the streams or watercourses." Under this law, cities of the first class may enact ordinances covering all lands within watersheds that provide domestic or culinary water. Cities of other classes may enact ordinances effective "15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream." Utah Code §10-8-18 give municipalities the authority to acquire water sources to provide water for the city and its' inhabitants, including the right to purchase land, purchase and lease water sources, and purchase, lease or form water companies.

25.2 Desired Future State

Tooele County desires to maintain existing water rights distributions and desires water usage to be limited to the volume described in water right, regardless of entity holding the water right. As a political subdivision of the State, Tooele County has a legitimate interest in seeing that all reasonable steps are taken to preserve, maintain and, where reasonable, as determined by Tooele County, develop those water resources. The county does not support the export of water resources to regions outside the county.

25.3 Management Objectives and Associated Policies and Guidelines

25.3.1 Management Objective

Maintain existing water rights and support reasonable development of additional water rights that do not transfer water outside of the county.

Policies and Guidelines

- Provide for the protection of water rights and reasonable development of additional water rights.
- Coordinate with water resource management entities, especially water districts and canal companies, to ensure water supplies and water delivery infrastructure will meet growth needs.
- Encourage regionalization and cooperation between public and private entities.

25.3.2 Management Objective

Develop water resources where reasonable as determined by Tooele County.

Policies and Guidelines

As a political subdivision of the State of Utah, Tooele County has a legitimate interest in seeing that all reasonable steps are taken to preserve, maintain and, where reasonable, as determined by Tooele County, develop those water resources.[2]

25.3.3 Management Objective

Ensure that the quantity of water use is within the limits of the water right.

Policies and Guidelines

Support measures that ensure that the quantity of water use is within the limits of the water right.

25.4 References

[1] Utah Division of Water Rights. nd Frequently Asked Questions Website. http://www.waterrights.utah.gov/wrinfo/faq.asp (accessed February 2, 2016).

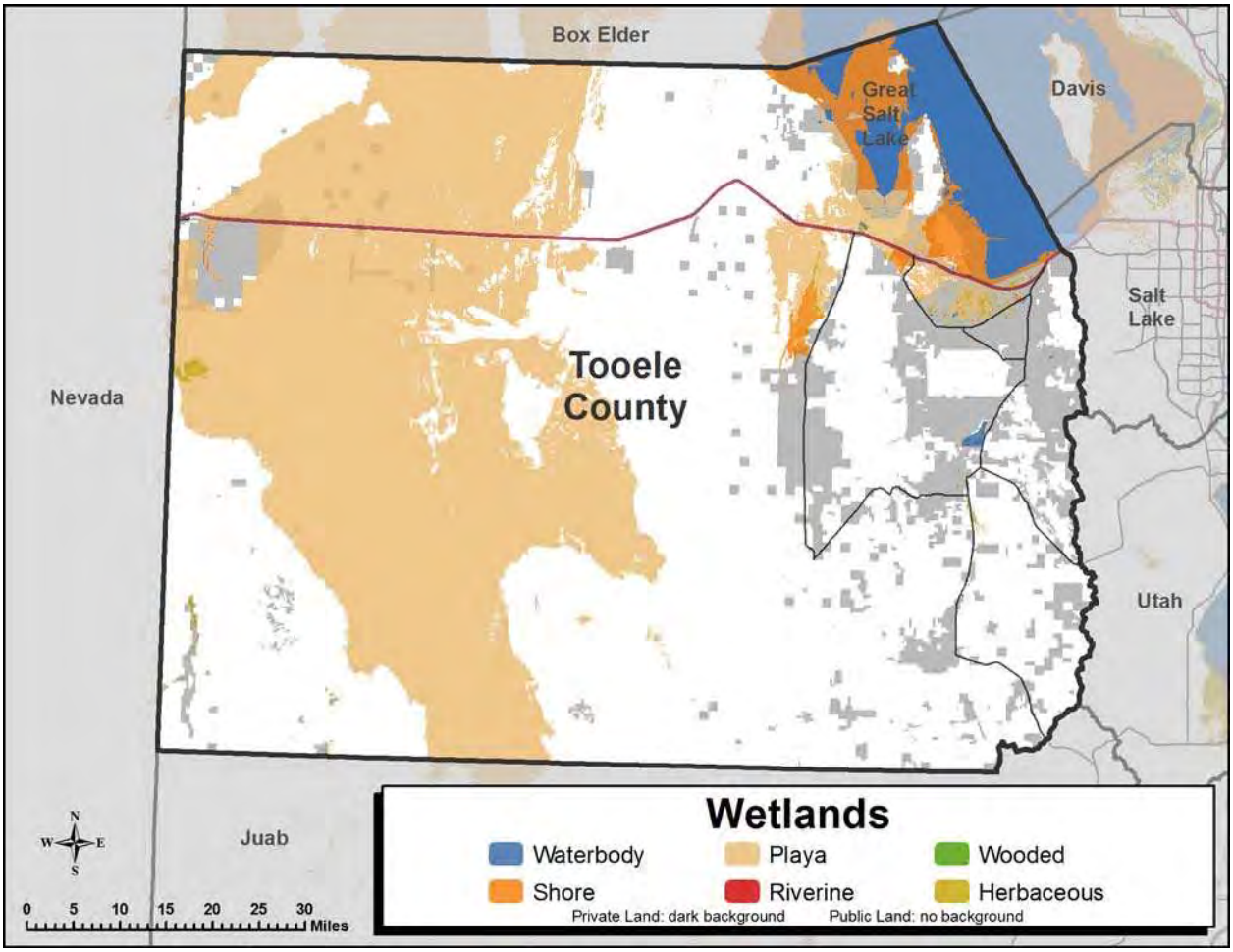
[2] Utah Department of Natural Resources. 2013. Study of Issues Related to State Jurisdiction Over Water Rights. http://www.waterrights.utah.gov/wrinfo/Brochures/state_jurisdiction_over_water_rights.pdf (accessed March 23, 2017).

26. WETLANDS

Wetlands have been defined in different ways by numerous entities and agencies. However, the US Army Corps Engineers (USACE) and the Environmental Protection Agency (EPA) jointly define wetlands as: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that do under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."[1] This definition of wetlands is perhaps the most relevant to local land planners because the USACE and the EPA are the agencies that have legal jurisdiction over wetlands, including wetlands on private property. Wetlands provide numerous benefits to society but a few of the most important of these include wildlife habitat area, hydrologic recharge areas, and water quality improvements.

Related resources:

- Floodplains and River Terraces
- Riparian Areas
- Water Quality and Hydrology



Source: Wetlands, 2017, National Wetland Inventory, Utah Wetland Functional Classification: Version 1, Utah Geological Survey.

26.1 Management Setting

Context

Wetlands are highly productive ecosystems that provide habitat for a wide assortment of wildlife, including sensitive species. Wetlands are also a critical component to a functioning hydrological system because they improve water quality by filtering out pollutants. In addition, wetlands can lessen the effects of flooding by storing water and releasing it slowly, which helps to replenish aquifers.

The wetlands surrounding the Great Salt Lake support bird habitat of international importance. Maintaining responsible stewardship of these resources while also supporting current industries will provide lasting benefits to Tooele County.

Findings

Wetlands are distributed across the entire county but are most prevalent at the salt flats in western Tooele County as well as around the Great Salt Lake. Based on USACE wetland delineations, a large quantity of playa, shoreline, and open water wetlands types occur in the county. Herbaceous wetlands are common at the northern end of the Tooele Valley and include open fresh water and brackish water. According to the UGS, these herbaceous wetlands are highly dependent on groundwater discharge from area aquifers, and are threatened by increasing groundwater pumping for growing urban uses.[2] Primary springs supporting wetlands in this area include Dunne's Pond Springs, Mill Pond, Fishing Creek Springs, and Sixmile Creek Springs. Table 26.1 shows wetland acreage in Tooele County by type and ownership status.

Table 26.1. Wetland acreage by type and ownership status within Tooele County.

WETLAND TYPE	TOOELE COUNTY (ACRES)	US BUREAU OF LAND MGMT (ACRES)	US FOREST SERVICE (ACRES)	US DEPT OF DEFENSE (ACRES)	STATE OF UTAH (ACRES)
Herbaceous	12,791	2,283	29	3580	855
Playa	1,550,987	379,318	-	1,006,872	104,755
Riverine	747	9	-	-	352
Shore	101,219	16,132	1	2	77,694
Waterbody	149,378	1,047	38	68	146,062
Wooded	290	52	25	73	11
Totals	1,815,412	398,841	93	1,010,595	329,729

Source: US Fish and Wildlife Service's National Wetland Inventory with additional data from the Forest Service, Utah Geological Survey, and Utah Automated Geographic Reference Center.

Legal Context

Applicable Laws

All jurisdictional waters and wetlands, regardless of ownership, are regulated by the EPA and USACE under Section 404 (Permits for Dredged or Fill Material) of the Clean Water Act (33 USC §1344 et seq.). Activities that involve excavation or placement of fill in jurisdictional waters or wetlands require a permit issued by the USACE and may be reviewed by EPA. The extent of jurisdiction is determined on a project-by-project basis, in consultation with the USACE.

26.2 Desired Future State

Tooele County desires to maintain and improve wetlands found on public lands for the benefit of its watershed, water quality, water retention, and wildlife habitat.

26.3 Management Objectives and Associated Policies and Guidelines

26.3.1 Management Objective

Maintain and improve wetlands on public lands.

Policies and Guidelines

- Support efforts to protect functionality of existing wetlands, including those arising from (1) urban development, (2) water quality and quantity, (3) invasive plant species, and (4) other disturbances.

- Support efforts to require grazing permit holders to implement measures to keep livestock out of streams, lakes, and other waterways, which will help maintain healthy, diverse aquatic and wildlife species, and maintain or improve water quality.

- Support the restoration of historic wetlands that have been eliminated or degraded. The EPA provides guidelines to wetland restoration[3].

- Support public education programs on the importance of wetlands, property value improvements provided by managed open spaces including wetlands, and develop land management partnerships that include landowners.

26.4 References

[1] US Army Corps of Engineers. nd. Recognizing Wetlands, An Informative Pamphlet. http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/rw_bro.pdf (accessed April 13, 2017).

[2] Burk, N., C. Bishop, and M. Lowe. 2005. Wetlands In Tooele Valley, Utah - An Evaluation of Threats Posed by Ground-Water Development and Drought, Utah Geological Survey Special Study 117.

[3] US Environmental Protection Agency. 2017. Wetlands Protection and Restoration Website. https://www.epa.gov/wetlands (accessed March 23, 2017).

27. WILD AND SCENIC RIVERS

Federal Wild and Scenic Rivers (WSR) designation is reserved for free-flowing waterways that exhibit "outstandingly remarkable" value (scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value). For this purpose, "free-flowing" is defined as a river section that is flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. Rivers with this designation are protected within the WSR system for the enjoyment of present and future generations.[1]

Related resources:

- Wilderness
- Recreation and Tourism
- Land Use

27.1 Management Setting

Context

Tooele County currently does not have any rivers officially designated as wild and scenic. Neither does it have any river or stream segments recommended as eligible for wild and scenic designation.

Findings

Wild and Scenic Rivers are designated by the US Congress after land managers recommend specific river or stream segments for designation. Water courses that are determined to have WSR characteristics are designated as eligible during land use planning procedures. The National Environmental Planning Act (NEPA) process is followed to assess potential impacts of land use decisions, including WSR designation. Plans are adopted after consultation with local governments, residents, Native American Tribes and other interested parties. Proposed WSR are then managed as default WSR until Congress either designates the water course as WSR or returns them to the agency for other management purposes.

Legal Context

Applicable Laws

The Wild and Scenic Rivers Act of 1968 (16 USC §1271 et seq.) provides the legal framework and criteria for designation of streams and rivers segments as WSR. Eligible water courses are recommended for designation by federal land managers after a determination is made through planning procedures included in the NEPA (42 USC §4321 et seq. [1969]) and well as land and resource planning documents. The US Forest Service planning procedures are detailed in National Forest Management Act (16 USC §1600 et seq. [1976]), while the US Bureau of Land Management follows Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]).

27.2 Desired Future State

Tooele County does not desire to have any river or stream segments designated as Wild and Scenic unless they meet the strict interpretation of the Wild and Scenic Rivers Act. The County expects federal agencies to honor, respect and give due consideration to Tooele County's General Plan. Tooele County does not desire river segments not officially designated as wild and scenic be managed in a manner similar to Wild and Scenic designation.

27.3 Management Objectives and Associated Policies and Guidelines

27.3.1 Management Objective

Oppose the designation of any river or stream segments in Tooele County as Wild and Scenic if they are not eligible for designation under a strict interpretation of the Wild and Scenic Rivers Act.

Policies and Guidelines

Oppose the designation of any river or stream segments in Tooele County as Wild and Scenic if they are not eligible for designation under a strict interpretation of the Wild and Scenic Rivers Act.

27.3.2 Management Objective

See that federal agencies give due consideration to Tooele County's General Plan and that they do not manage river segments in a manner similar to Wild and Scenic designation.

Policies and Guidelines

Actively participate in all federal land planning activities to ensure that Tooele County's General Plan [2] is given due consideration and that river segments are not managed similarly to Wild and Scenic designation.

27.4 References

[1] National Wild and Scenic Rivers System. nd About the WSR Act. Accessed: 1/21/16.

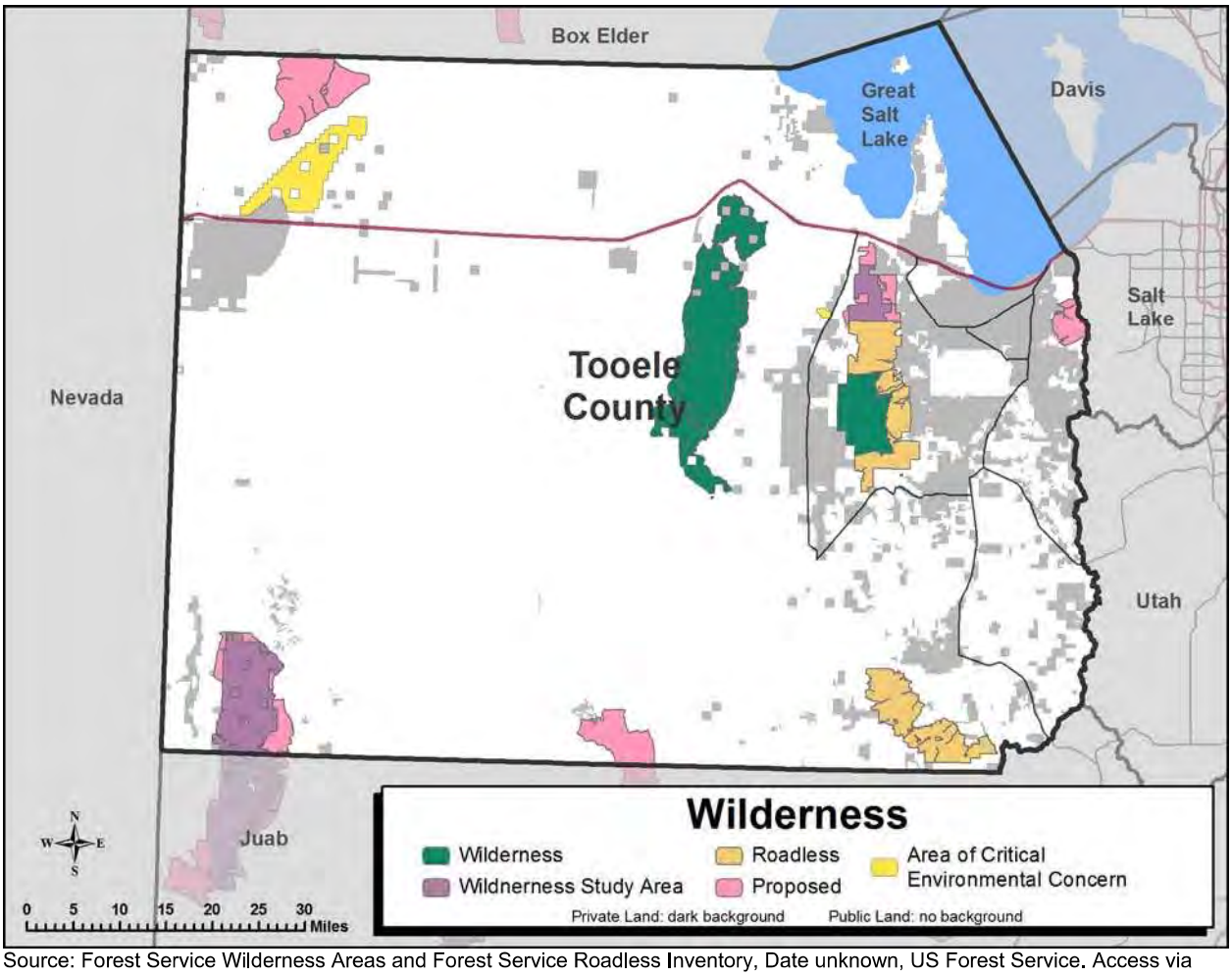
[2] Tooele County. 2016. Tooele County General Plan. http://www.co.tooele.ut.us/Building/tcgeneralplan.htm (accessed April 2017).

28. WILDERNESS

The term "Wilderness" is an administrative designation created under the Wilderness Act of 1964 and is applied to specific parcels of public lands. The Wilderness designation enables preservation and protection of "Federal lands retaining primeval character and influence" and as such severely limits consumptive and motorized uses. A second component of this discussion has to do with lands under special other than the Wilderness designation, which also significantly restrict the types of allowable uses. The US Forest Service (Forest Service) special management classes include Research Natural Areas, Wild and Scenic Rivers, Roadless Areas, and Recommended Wilderness Areas. The US Bureau of Land Management (BLM) special designations include Areas of Critical Environmental Concern (ACECs), Wilderness Study Areas (WSA), and Resource Conservation Areas.

Related resources:

- Wild and Scenic Rivers
- Land Use



Source: Forest Service Wilderness Areas and Forest Service Roadless Inventory, Date unknown, US Forest Service. Access via Utah Automated Geographic Reference Center.Wilderness_BLM98Reinventory, 1998, and Wilderness BLM WSA, 1991, and Areas of Critical Environmental Concern, Date unknown, Bureau of Land Management.

28.1 Management Setting

Context

Wilderness areas are designated by the US Congress based on recommendations of land managers regarding specific areas. Lands that appears to qualify as Wilderness are designated as Recommended Wilderness Areas (Forest Service) through Forest Plan procedures or Wilderness Study Areas (BLM) in Resource Management Plans. In both cases, the National Environmental Planning Act (NEPA) process is followed to assess potential impacts of land use decisions, including Wilderness designation. Plans are adopted after consultation with local governments, residents, Native American tribes, and other interested parties. The proposed Wilderness or Wilderness Study Area is then managed as wilderness until Congress either designates the area as Wilderness or returns the land to the agency for other management purposes. Other protective land use designations, such as Roadless Areas, a Forest Service designation, or Areas of Critical Environmental Concern (ACEC), a US Bureau of Land Management (BLM) designation, are management designations implemented through the Federal Land Policy and Management Act (FLPMA) Resource Management Planning process.

Additional public lands in Tooele County have been proposed for Wilderness designations by various citizen and environmental groups. Tooele County addresses these lands in the county General Plan as "Non-Wilderness Quality Lands Proposed for Wilderness Management Designation."

Findings

Tooele County has 58,561 acres of designated Wilderness under Forest Service management and 98,687 acres of designated Wilderness under BLM management. An additional 54,421 acres of land are within Federal Land Policy and Management Act 603 Wilderness Study Areas on BLM lands, and those areas are managed as Wilderness. Table 28.1 provides details on designated Wilderness areas in Tooele County. Table 28.2 shows BLM Wilderness Study Areas and Table 28.3 shows areas in Tooele County covered under the 2001 Roadless Area Rule and ACECs.

Table 28.1. Designated Wilderness in Tooele County.

WILDERNESS AREA	ACRES
Deseret Peak (US Forest Service)	25,156
Cedar Mountain (US Bureau of Land Management)	98,687

Source: SITLA land ownership spatial database.

Table 28.2. US Bureau of Land Management Wilderness Study Areas in Tooele County. There are no Forest Service Recommended Wilderness areas[1,2].

WILDERNESS STUDY AREAS	ACRES
Deep Creek Mountains	38,883
North Stansbury Mountains	44,512

Source: Utah AGRC Wilderness Study Area GIS data, BLM 1991 Wilderness Study reports.

Table 28.3. Areas covered under the 2001 Roadless Area Rule and US Bureau of Land Management Areas of Critical Environmental Concern within Tooele County.

FOREST SERVICE ROADLESS AREAS	ACRES	BLM ACEC	ACRES
Stansbury Mountains	39,680	Bonneville Salt Flats	52, 824
418022	17,485	Horseshoe Springs	1,318
418031	18,248	-	-
Total	75,413	-	54,142

Source: Forest Service and Bureau of Land Management GIS data.

Tooele County Legal Context

Applicable Laws

The Wilderness Act of 1964 (16 USC §1131 [1964]) provides the legal framework and criteria for Wilderness designation. Wilderness areas are recommended for designation by federal lands managers after a determination is made through planning procedures spelled out in the NEPA (42 USC §4321 et seq. [1969]) as well as land and resource planning documents. The Forest Service planning procedures are spelled out in National Forest Management Act (16 USC §1600 et seq. [1976]), while the BLM follows the Federal Land Policy and Management Act (43 USC §1701 et seq. [1976]). Wilderness designation does not necessarily rule out all use of motorized vehicles and equipment. There are provisions in the Wilderness Act for motorized access during emergencies, to manage fire, insects, and disease, and other considerations.

The state enacted the Utah Wilderness Act of 2014 (Utah Code §63L-7-101 et seq.) to provide a Wilderness designation option for state-owned lands.

28.2 Desired Future State

Tooele County expects federal agencies to honor, respect and give due consideration to Tooele County's General Plan, which states that Tooele County does not desire additional public lands be designated as Wilderness. Existing Wilderness areas should be managed to support environmentally responsible recreation. Tooele County desires to have its Board of Tooele County Commissioners review all current and future proposed Wilderness areas.

Tooele County does not wish to manage lands as Wilderness unless they are officially designated as Wilderness by Congress or they are Wilderness Study Areas inventoried by BLM as part of the FLPMA roadless inventory process. Tooele does not recognize Wilderness proposals from other organizations or groups.

28.3 Management Objectives and Associated Policies and Guidelines

28.3.1 Management Objective

Oppose the designation of any public lands in Tooele County as Wilderness if they are not eligible for designation under a strict interpretation of the Wilderness act or have not been recommended for Wilderness designation by the BLM through the FLMPA process.

Policies and Guidelines
Maintain active County participation in federal and state public land/resource planning processes. Oppose new Wilderness designations.

28.3.2 Management Objective
Actively participate in all public land management planning activities. (See additional details in Section Land Use.)

Policies and Guidelines
Participate in public land management planning by:

- Maintain active County participation in federal and state public land/resource planning processes.
- Maintain working partnerships with public land/resource management agencies.
- Support the policy of multiple-use and sustained yield land management practices.

28.3.3 Management Objective
Manage non-wilderness lands, which are those lands not officially designated as Wilderness (Table 28.1) and BLM Wilderness Study areas (Table 28.2) under multiple use principles.

Policies and Guidelines
Tooele does not recognize Wilderness proposals from other organizations or groups.

28.4 References
[1] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (Accessed March 23, 2017).

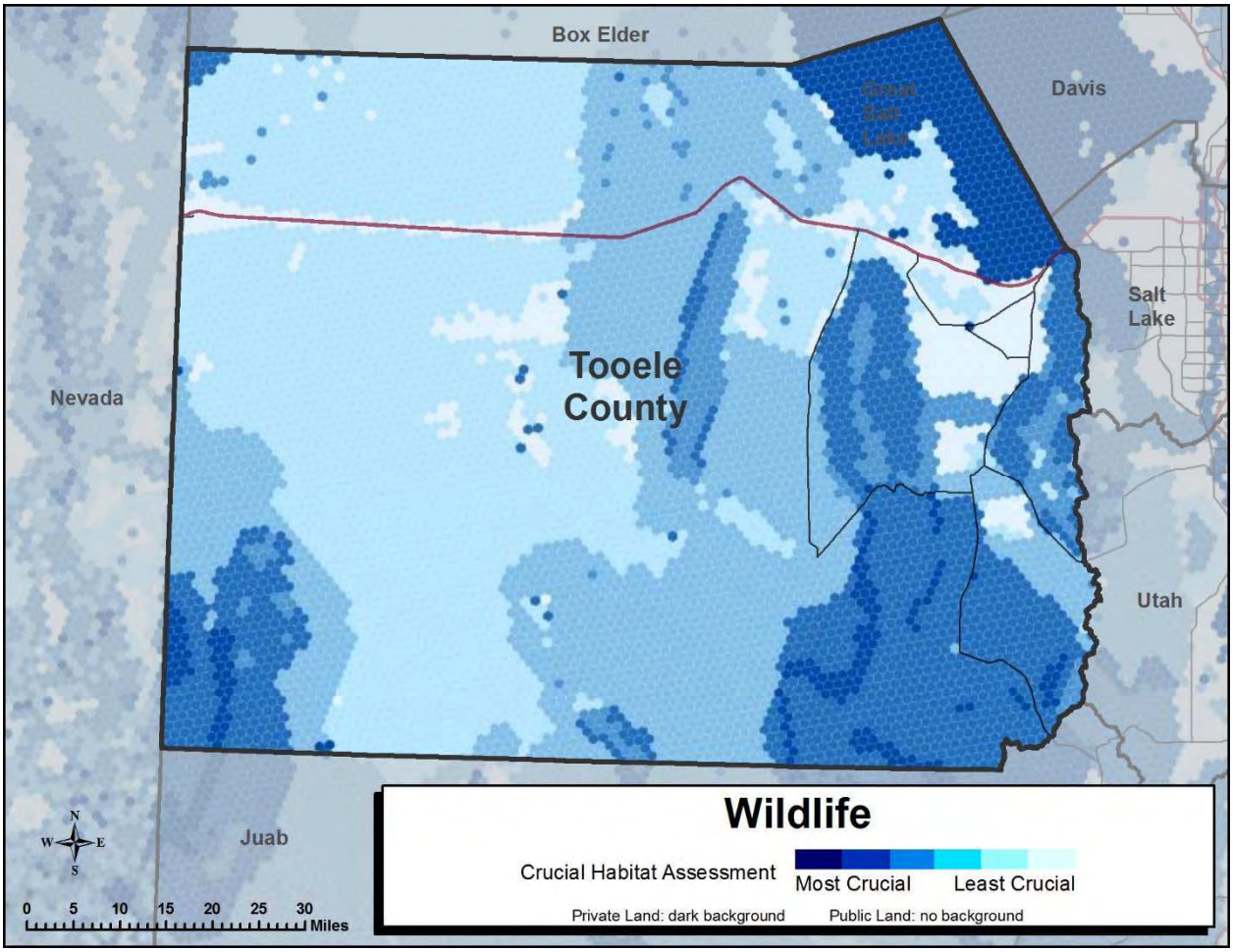
[2] US Forest Service. 2003. Revised Forest Plan for the Uinta National Forest. https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning (accessed April 11, 2017).

29. WILDLIFE

Wildlife is the population of undomesticated animals living in a natural environment, including both game and nongame species. In Utah, "wildlife" includes vertebrate animals (fish, amphibians, reptiles, birds, mammals) as well as brine shrimp, crayfish, and mollusks. This Section does not specifically address sensitive species (see CRMP Section 22, Threatened and Endangered Species) or aquatic wildlife (see CRMP Section 8, Fisheries).

Related resources:

- Threatened and Endangered Species
- Fisheries
- Predator Control



Source: Crucial Habitat Assessment Tool, 2013, Western Association of Fish and Wildlife Agencies.

29.1 Management Setting

Context

Tooele County enjoys a diverse and abundant wildlife population, which contributes to a productive natural environment. Wildlife also provides important social and economic resources including recreation opportunities such as photography, wildlife observation, and hunting. Wild horse populations are found

on public lands in Tooele County. There are two wild horse herd management areas on US Bureau of Land Management (BLM) lands: Cedar Mountain and Onaqui Mountain.

Water is vital for all living organisms, including wildlife. Wetlands and riparian habitats provide critical needs for a number of wildlife species, particularly birds. Water supply, water quality (e.g., temperature, sediment load, nutrient content), and the flow regimes of streams and spring-fed systems greatly influence aquatic habitat for wildlife. [1]

Findings

The Utah Division of Wildlife Resources (DWR) is the wildlife authority for the state and all wildlife found in Utah are considered property of the State (Utah Code 17-13-3). It is the DWR's responsibility to protect, propagate, manage, conserve, and distribute protected wildlife throughout the state regardless of land ownership and jurisdiction. Assisting the DWR in decision making and establishing management priorities is a Wildlife Board and five Regional Advisory Councils (RAC) that provide local input on wildlife related issues. Each RAC consists of a diverse group of interest group representatives, including agriculture, sportsmen, federal land agencies, general public, and elected officials.

The DWR has published management plans for mule deer, elk, moose, bighorn sheep, black bear, beaver, northern river otter, bobcat, wild turkey, and greater sage grouse. Utah's Wildlife Action Plan considers key habitats and provides management strategies to improve the habitat's condition (see pages 73–123). Also, the plan considers threats and provides actions to reduce the threats (see pages 124–216).[1] Habitat for wildlife crosses jurisdictional boundaries and is best managed by cooperative means. Table 30.1 shows the generalized ranking of habitat in the county and its distribution between public (several agencies) and private lands.

Federal land managers must consider wildlife and their habitats in Forest Plans (US Forest Service) and Land and RMPs (BLM) as well as during National Environmental Planning Act (NEPA) analysis.

Table 30.1 Acres and Percentages of Generalized and Ranked Crucial Wildlife Habitat.

GENERALIZED HABITAT		TOOELE COUNTY		PUBLIC LAND		PRIVATE LAND	
Rank		Acres	Percentage	Acres	Percentage	Acres	Percentage
Most Crucial Habitat	1	322,465	7	301,090	6.5	21,374	0.5
	2	775,414	17	634,890	14	140,524	3
	3	215,333	5	162,941	3.5	52,392	1.5
	4	1,257,385	27	1,151,714	25	105,666	2
	5	1,789,683	38	1,693,654	36	96,029	2
Least Crucial Habitat	6	302,835	6	198,388	4	104,447	2

Source: Crucial Habitat Assessment Tool, 2013, Western Association of Fish and Wildlife Agencies.

Legal Context

Applicable Laws

All naturally occurring wildlife in Utah are considered property of the state (Utah Code §23-13-3), and Utah Code §23-14-1 gives the power to manage wildlife to the DWR. Utah Code §23-15-2 establishes that the state has jurisdiction of all wildlife in the state, including aquatic wildlife, whether on public or private land. Utah Code §4-23-2 declares that preserving the wildlife resources of the state is important to the economy of the state. Utah Code §23-14-2.6 establishes RACs who advise the state Wildlife Board regarding wildlife management issues.

Wild horses are protected in the United States by the Wild Free-Roaming Horses and Burros Act (Public Law 92-95 [1971]).

29.2 Desired Future State

Tooele County recognizes the authority of the DWR, Wildlife Board, and RACs in establishing goals and objectives for managing the wildlife in the county. The county intends to actively participate in wildlife management through the RAC process.

Tooele County desires to maintain healthy native wildlife populations as part of a productive, natural environment and for important social and economic values. To support wildlife, Tooele County desires to protect and enhance natural landscapes, ecosystems, and the biodiversity of the county. The county supports the general objective of Utah's Wildlife Action Plan, which is to plan for managing native wildlife species and their habitats to help prevent listings under the Endangered Species Act.

Tooele County desires to protect aquatic habitats, such as wetlands, riparian areas, and springs, which all provide critical needs for wildlife. Water supply, water quality (e.g., temperature, sediment load, nutrient content), and the flow regimes of streams and spring-fed systems greatly influence aquatic habitat for wildlife.[1]

Tooele County desires grazing permit holders to be required to implement measures to keep livestock out of streams, lakes or other waterways to help maintain, healthy, diverse aquatic and wildlife species, and to maintain or improve water quality. Tooele County desires wild horse populations be actively managed to avoid resource damage and impacts to private property.

29.3 Management Objectives and Associated Policies and Guidelines

29.3.1 Management Objective

Protect critical terrestrial and aquatic habitats and habitat characteristics.

Policies and Guidelines

- Provide adequate habitat components for sustainable big game populations coordinated with State wildlife management agencies, private lands and other resource needs and priorities.[2]

- Provide for connectivity of continuous large patches of forested habitat for interior forest-dependent and wide-ranging species (such as lynx, wolverine, and migratory birds). Provide suitable habitat for prey species such as hares, squirrels, and small mammals.[2]

- Provide for sustained diversity of species at the genetic, populations, community and ecosystem levels.[2]

- Maintain communities within their historic ranges of variation that sustains habitats for viable populations of species.[2]

- Reduce potential for uncharacteristic high-intensity wildfires and insect epidemics.[2]

- Continue the use of appropriate methods for reducing the spread and dominance of invasive species.[1]

- Focus on approximating natural disturbances and processes by restoring composition, age class diversity, patch sizes, and patterns for all vegetation types.[2]

- Plan and site new roads in areas where there are limited impacts to wildlife, especially aquatic systems such as riparian areas and wetlands. When existing roads are maintained, barriers to wildlife movement should be altered to allow for movement.[1]

- Exclude fire from habitats in which potential burns would be frequent, large, and destructive to soils and native vegetation. Actively manage habitats to reduce components or factors that promote risk of catastrophic fire, such as cheatgrass, and excessive conifer encroachment.[1]

- Restore or maintain hydrologic functions of aquatic habitats.[1]

- Promote aquatic habitat protection. Preserve aquatic habitats identified by agencies as used or occupied by special status species in their current state by avoiding any action that would remove water from these areas.[2,3]

29.3.2 Management Objective

Manage grazing to reduce impacts to wildlife habitats. Utilize grazing as a management tool to reduce fuel loads and treat weed infestations.

Policies and Guidelines

- Adjust grazing practices (according to grazing principles of timing, duration, and intensity) to improve conditions of habitat, water, and wildlife. Encourage collaborative problem-solving and monitoring among agency staff, permittees, and interested parties.[4]

- Utilize cost-share and technical assistance programs administered by Natural Resource Conservation Service, Utah Association of Conservation Districts, university extensions, and other organizations to improve natural resource management.[1]

- Develop locally and, on public lands, broadly-acceptable strategies for managing grazing in key areas.[1]

- Encourage landowner, permittee, and (on public lands) conservation, Non-Governmental Organizations and citizen science involvement in monitoring efforts.[1]

- Provide technical assistance to grazing permittees to promote agreement and compliance among stakeholders for management changes.[1]

29.3.3 Management Objective
Participate in public land management processes with regard to wild horse management.

Policies and Guidelines
Actively participate in herd management activities and coordinate with the BLM during planning activities.

29.3.4 Management Objective
Discourage automated wildlife control practices such as cyanide bombs.

Policies and Guidelines
Coordinate with Animal and Plant Health Inspection Service (APHIS) and DWR on wildlife control in Tooele County.

29.4 References
[1] Utah Department of Natural Resources, Utah Division of Wildlife Resources. 2015. Utah Wildlife Action Plan, Draft Version 6-4-2015. https://wildlife.utah.gov/wap/wap2015draft.pdf (accessed March 14, 2017).

[2] US Forest Service. 2003. Revised Forest Plan for the Wasatch-Cache National Forest. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5354094.pdf (Accessed March 23, 2017

[3] Bellows, Barbara. 2003. Managed Grazing in Riparian Areas. Appropriate Technology Transfer for Rural Areas. https://extension.usu.edu/rangelands/files/uploads/General%20Grazing%20Management/Riparian%20grazing.pdf (accessed March 14, 2017).

[4] Sheley et.al. 1995. Managing Riparian Weeds. Rangelands 17(2). https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/11260/10533. (Accessed March 14, 2017).