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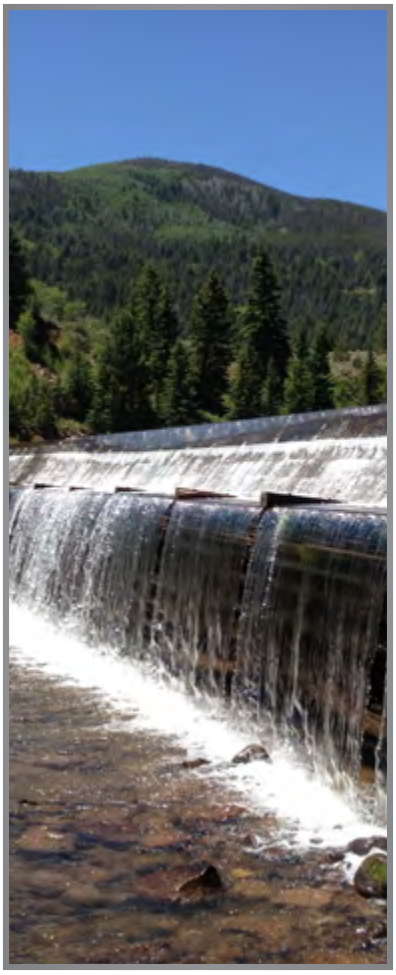

RESOURCE MANAGEMENT PLAN

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RESOURCE MANAGEMENT PLAN

ACKNOWLEDGEMENTS

Recognizing the need for local and state planning documents that would provide guidance for the management of natural resources, Representative Stratton and Senator Okerlund sponsored **House Bill 323** (2015), and **House Bill 219** (2016), that required the completion of Resource Management Plans by each county and the State of Utah.

The preparation of the State Resource Management Plan was preceded by the completion of 29 unique County Resource Management Plans, a first-of-its-kind effort not only in Utah, but nationwide. Without the guidance, data collection, and trailblazing efforts of each County and Association of County Governments, the State RMP would not exist.

The State Resource Management plan was prepared and edited by **Brianne Emery** and **Redge Johnson** with the help of those listed below.

Commission for the Stewardship of Public Lands

Senator **David P. Hinkins**, *Chair*
Representative **Keven J. Stratton**, *Co-Chair*
Representative **Carl R. Albrecht**
Representative **Joel K. Briscoe**
Representative **Ken Ivory**
Senator **Jani Iwamoto**
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State Agencies

Office of Tourism
Division of Air Quality
Utah Geological Survey
Division of Water Rights
Division of State History
Division of Water Quality
Division of Water Resources
Office of Outdoor Recreation
Division of Wildlife Resources
Forestry, Fire, and State Lands
Division of Oil, Gas, and Mining
Department of Agriculture and Food
Governor's Office of Energy Development
Governor's Office of Economic Development

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INTRODUCTION

Some sixty-three percent of Utah's land mass is under the ownership and administration of the federal government, and most of these *"public lands"* fall within the jurisdictions of the Bureau of Land Management (BLM) and the US Forest service (USFS). Since before statehood, this federal presence has greatly impacted the lives and livelihoods of Utah's citizens and the local cultures that form the tapestry of rural Utah. At times federal land management has failed to meet the needs and planning interests of local communities. State and county influence on the use and enjoyment of the public lands has waxed and waned with political changes and an evolving federal land management philosophy. With the advent the federal *"preservation"* policies, and the corresponding environmental movement, tensions between federal land managers and State and local governments have heightened. It is this troublesome disconnect between local land use needs and desires and federal land use planning that this State of Utah Resource Management Plan (SRMP) seeks to address and remedy. History reveals both the need for and the significance of this planning initiative.

From the outset of the settlement of Utah, the public lands have been the lifeblood of those hearty souls who sought new beginnings and, in most cases, sanctuary from persecution. The land was arid and forbidding, but it was also magnificent in its varied majesty and beauty. Through great hardship and an indomitable spirit and determination, these early settlers harnessed the scarce waters and cultivated the parched soil to create homesteads, farms, ranches and the local communities that remain today. This community development was not by chance or haphazard. Rather it was planned and orchestrated by the territorial government, which at the time was dominated by Mormon authorities. Land use planning was a hallmark in the early settlement of rural Utah, and by the time of statehood in 1896 most of today's rural communities were already established.

Not only did the public lands provide the proving grounds for early homesteading, agriculture and community development, they proved over time to contain vast mineral resources. While Mormon settlers were initially dissuaded from prospecting and mining for precious metals and metallic ores, it wasn't long before non-Mormon soldiers and speculators began to untap these resources. Silver, gold, iron and copper ores found on the public lands were soon being commercially developed. With the development of rail transport, coal from central Utah replaced wood as the primary source of heat and steam combustion. The turn of the century saw the discovery of oil and gas in eastern Utah, uranium in the southeast, and gilsonite in central Utah. Timber also played an important role in early Utah, as a heat source and the primary ingredient of construction. When recreation and tourism was thrown into the mix, the public lands virtually dominated the settlement and growth of all of rural Utah.

The combination of domestic industry and commercial use and development of the public lands provided the economic stimulus that allowed rural Utah towns to mature into healthy, stable, and growing communities. This growth called for planning by federal, state, and local governments.

Over the course of the decades following Utah's statehood in 1896, federal land use policy gradually shifted from one of disposal to one of reservation and conservation. Forests were reserved, national parks were created, and the range was placed under strict regulation. While all of these changes served the public interest, each step in this process was accompanied by a corresponding diminishment in local authority over land use determinations. State and county governments were often relegated to simply responding to federal land use decisions over which they had no control and minimal input. Increasing limitations upon access to and use of the public lands began to undermine the economies and stability of rural Utah and the cultural identities of communities. Frustration mounted and the inevitable tensions between federal land management and rural communities worsened. This lack of cooperation and coordination wasn't felt only by state and local government; federal land management agencies were also under pressures. In 1964, the United States Congress took notice.

Congress recognized that federal land laws and regulations had developed somewhat haphazardly over the prior one hundred years. There was no comprehensive cohesion and little coordination between land laws, land management agencies, or the many implementing regulations. Accordingly, Congress created The Public Land Law Review Commission (PLLRC) to review all federal land laws and regulations and to make recommendations to Congress as to how they should be reformed. This report, appropriately entitled One Third of the Nation's Land, recommended *"such modifications in existing laws, regulations, policies, and practices as will, in the judgment of the [PLLRC], best serve … to provide the maximum benefit for the general public."* Of particular emphasis in the PLLRC Report was the need for future planning of land uses, and of the need to cooperate and to coordinate with state and local governments in that planning process, *"because the effects of public land programs are felt most strongly there and it is at those levels that the [PLLCRCC] noted the greatest public concern with the manner in which public land programs are being implemented."* Accordingly, the PLLRC recommended that state and local governments be given an *"effective role"* in the federal land use planning process.[1]

It wasn't until 1976 that the recommendations of the PLLRC were enacted into law. In that year, Congress enacted the Federal Land Policy and Management Act (FLPMA) and the National Forest Management Act (NFMA), which remain the organic acts of BLM and the USFS. Both of these acts included the PLLRC's emphasis on planning and the requirement that state and local governments be meaningfully included in these planning processes. FLPMA and the NFMA, to a lesser degree, and as both are supplemented by the National Environmental Policy Act (NEPA), require that federal land use planning involve state and local governments, and that federal plans be "consistent" with state and local land use plans unless they violate federal law. This consistency requirement presupposes that there are such state and local land use plans. Unfortunately, the State of Utah and most of its counties have not had comprehensive land use plans.

State land use planning in Utah has had a checkered history. In 1973, the Utah Legislature enacted a land use planning statute that would have created a state commission to work with counties to craft local land use plans pursuant to state guidelines. The law met with strenuous opposition from real estate developers and property-rights activists who successfully mobilized a referendum petition drive and, ultimately, handily over-road the law in a referendum election. Upon leaving office in 1977, Governor Rampton declared that the failure of state land use planning was his greatest regret. The defeat of state land use planning was so contentious and resounding that the Utah Legislature did not revisit the issue until 2015 when it passed the law that has led to this State of Utah Resource Manage Plan. H.B. 323, sponsored by Rep. Stratton and Sen. Okerlund and signed into law by Governor Herbert on March 30, 2015, provides the following: (1) requires each county to develop a resource management plan as part of the county's general plan; (2) establishes content requirements for the county resource management plans; (3) requires the state to provide information and technical assistance to counties; (4) requires a county planning commission to coordinate with other counties; (5) establishes that a county's general plan as a basis for coordinating with the federal government; and (6) establishes administrative duties of the Governor's Public Lands Coordinating Office (PLPCO) to oversee and assist in the preparation of county resource management plans.

The county resource management plans have now been completed. This State Plan is an aggregation of the land use decisions and directives that emerge from the county plans. It is PLPCO's firm belief that this resource planning initiative will give the State and its counties greater and more meaningful input and direction to federal land use planning for Utah's public lands.

[1] https://collections.lib.utah.edu/details?id=1136278

Local governments and citizens are often the "closest to the ground" and have the best understanding of how land use practices and resource management will affect local communities.

LEGAL BASIS FOR STATE RESOURCE MANAGEMENT PLANNING

The State of Utah supports the wise use, conservation, and protection of public lands and their resources, including well-planned management prescriptions. It is the State's position that public lands be managed for multiple uses, sustained yields, prevention of waste of natural resources, and to protect the health, safety and welfare of the public.[2] It is important to the State economy that public lands be properly managed for fish, wildlife, livestock production, timber harvest, recreation, energy production, mineral extraction, water resources, and the preservation of natural, scenic, scientific, and historical values.

The cornerstone of this management is the coordination and cooperation between the State and Federal land management agencies. The State recognizes that federal agencies are mandated to manage public lands according to federal laws, policies, and regulations established within the framework of the U. S. Constitution, including the Federal Land Policy and Management Act (FLPMA), the National Forest Management Act (NFMA), and the National Environmental Policy Act (NEPA).

FLPMA

FLPMA (43 USC 1712(c)(9)) requires the BLM to coordinate Plans with the land use planning and management programs of the States and Local Governments within which the lands are located. The BLM Land Use Plans *"shall be consistent with State and local plans to the maximum extent [the Agency] finds consistent with Federal law and the purposes of this Act."*[3]

The BLM has the responsibility to assure that consideration is given to those State, local, and tribal plans that are germane in the development of land use plans for public lands and to resolve, to the extent practical, inconsistencies between Federal and non-Federal Government plans.

NFMA

NFMA (16 U.S.C. §1604(a)) requires that the USFS Forest Plans be *"coordinated with the land and resource management planning processes of State and local governments and other Federal agencies."*[4]

NEPA

Under NEPA (42 U.S.C. § 4321), federal agencies are required to identify possible conflicts with state, local, and tribal plans during the environmental review process and determine the significance of the conflict. Where an inconsistency exists, the review should describe the extent to which the federal agency would reconcile its proposed action with the plan or law.[5]

[2] Utah Code Ann. § 63J-8-104(a) (West) [3] https://www.blm.gov/or/regulations/files/FLPMA.pdf [4] https://www.fs.fed.us/emc/nfma/includes/range74.pdf
[5] https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol34/pdf/CFR-2012-title40-vol34-sec1502-16.pdf

COOPERATION

Under NEPA, all Federal Agencies must complete a NEPA analysis for proposed actions that are likely to have an impact on the natural or human environment. Federal Agencies can designate State and Local Governments to become formal partners in the NEPA process, as Cooperating Agencies. A State or Local Government can be a Cooperating Agency when it has special expertise with respect to any environmental impact involved in the project proposal. Cooperating Agency status gives the State or Local Government early input into NEPA analyses and some ability to shape the goals and framework of the Federal proposal.

Federal agencies should request participation of Cooperating Agencies in the NEPA process at the earliest possible time, using the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible consistent with its responsibility as lead agency.

COORDINATION

When creating Land Use Plans or Resource Management Plans, BLM and USFS are required to coordinate their Plans with State and Local Government plans. Coordination is a separate process from Cooperation, and must occur regardless of whether State or Local Governments were designated Cooperating Agencies. Agencies must make efforts to draft Federal Plans that coordinate with State and Local Plans.

FLPMA provides a detailed baseline for the coordination process and identifies specific BLM actions:

- Remain informed of local land use plans;
- Guarantee that local land use plans are given proper consideration;
- Attempt to resolve inconsistencies between local and BLM land use plans; and
- Provide meaningful involvement for local entities early and throughout the decision making process.

NFMA requires the USFS to coordinate with local governments but does not specify how the process of coordination is to be accomplished. Forest Service regulations require:

- Responsible officials coordinate with local governments.
- Responsible officials shall review local plans and policies that are relevant to the federal plan. The review will consider the objectives of local plans, the compatibility and interrelated impacts between local and federal plans, opportunities to address impacts and contribute to joint objectives, and opportunities to resolve or reduce conflicts. This review must be included in the NEPA document.
- The responsible official will not direct or control management of lands outside of the planning boundary.

CONSISTENCY

Consistency between federal, state, local, and tribal plans is the desired outcome for the coordination and cooperation processes required of federal agencies. The importance of coordination and cooperation between state, local, and Federal agencies during planning processes cannot be overstated. Early involvement and equal consideration in environmental reviews, as Interdisciplinary Team members, stakeholders, and Cooperating Agencies is the State's main objective and motivation for creation of the State Resource Management Plan.

The SRMP and subsequent implementation plans shall be followed unless inconsistent with any statute or duly promulgated regulation. Should any part of this policy document or implementation plan be found inconsistent with such statute or regulation, or found by a court with competent jurisdiction to be void, unenforceable, or invalid, the remaining provision or parts shall nevertheless remain in full force and effect.

STATE CODE

§ 63J-8-104 State Land Use Planning and Management Program

The BLM and Forest Service land use plans should produce planning documents consistent with state and local land use plans to the maximum extent consistent with federal law and FLPMA's purposes, by incorporating the state's land use planning and management program for the subject lands that preserve traditional multiple use and sustained yield management on the subject lands to:

a. Achieve and maintain in perpetuity a high-level annual or regular periodic output of agricultural, mineral, and various other resources from the subject lands;

b. Support valid existing transportation, mineral, and grazing privileges in the subject lands at the highest reasonably sustainable levels;

c. Produce and maintain the desired vegetation for watersheds, timber, food, fiber, livestock forage, wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community expansion in each county where the subject lands are situated without permanent impairment of the productivity of the land;

d. Meet the recreational needs and the personal and business-related transportation needs of the citizens of each county where the subject lands are situated by providing access throughout each such county;

e. Meet the needs of wildlife, provided that the respective forage needs of wildlife and livestock are balanced according to the provisions of Subsection 63J-4-401(6)(m);

f. Protect against adverse effects to historic properties, as defined by 36 C.F.R. Sec. 800;

g. Meet the needs of community economic growth and development;

h. Provide for the protection of existing water rights and the reasonable development of additional water rights; and

i. Provide for reasonable and responsible development of electrical transmission and energy pipeline infrastructure on the subject lands.

§ 63J-8-103 State Participation in Managing Public Lands

In view of the requirement in FLPMA, 43 U.S.C. Sec. 1712, that BLM must work through a planning process that is coordinated with other federal, state, and local planning efforts before making decisions about the present and future uses of public lands, the requirement in FLPMA, 43 U.S.C. Sec. 1714 that BLM may not withdraw or otherwise designate BLM lands for specific purposes without congressional approval, and the requirement in the Forest Service Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. Sec. 528, that lands within the national forests be managed according to the principles of multiple use, and in view of the right which FLPMA, the National Environmental Policy Act, 42 U.S.C. Sec. 4321 et seq. and the Federal Advisory Committee Act, 5 U.S.C. Appendix 2, give to state and local governments to participate in all BLM and Forest Service efforts to plan for the responsible use of BLM and Forest Service lands and the requirement that BLM and the Forest Service coordinate planning efforts with those of state and local government, the state adopts the following policy for the management of the subject lands:

(1) Pursuant to the proper allocation of governmental authority between the several states and the federal government, the implementation of congressional acts concerning the subject lands must recognize the concurrent jurisdiction of the states and accord full recognition to state interpretation of congressional acts, as reflected in state law, plans, programs, and policies, insofar as the interpretation does not violate the Supremacy Clause, U.S. Constitution, Article VI, Clause 2.

(2) Differences of opinion between the state's plans and policies on use of the subject lands and any proposed decision concerning the subject lands pursuant to federal planning or other federal decision making processes should be mutually resolved between the authorized federal official, including federal officials from other federal agencies advising the authorized federal official in any capacity, and the governor of Utah.

(3) The subject lands managed by the BLM are to be managed to the basic standard of the prevention of undue and unnecessary degradation of the lands, as required by FLPMA. A more restrictive management standard should not apply except through duly adopted statutory or regulatory processes wherein each specific area is evaluated pursuant to the provisions of the BLM's planning process and those of the National Environmental Policy Act.

(4) The subject lands should not be segregated into separate geographical areas for management that resembles the management of wilderness, wilderness study areas, wildlands, lands with wilderness characteristics, or the like.

RELATED RESOURCES

ALL

Utah is a state rich in land resources, most of which are owned and managed by federal agencies. Like many other western states, land ownership in Utah is characterized by a high level of federally controlled land intermingled with state and privately owned lands.

Natural resources contribute significantly to the State's economy.

Of Utah's 52.7 million acres, federal agencies manage 63 percent, or 33.2 million acres. Most of this land is administered by two federal agencies: the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS). Other federal agencies with much smaller shares include the National Park Service, the Department of Defense, the U.S. Fish and Wildlife Service, the Department of Energy, and the Bureau of Reclamation. Twenty-four percent of lands are in private ownership, which includes county and municipal land. Tribal lands account for 4.5 percent of the total. Utah state government agencies own and manage the remaining 10 percent of the land in the state.

Natural resources contribute significantly to the State's economy. Federal land management policies have dramatic impacts on the industries reliant on federal land. With 63 percent of the state under federal land management, the coordination and cooperation discussed in the preceding section are imperative to the continued economic success of the state.

Federal agencies must consider the socioeconomic impacts of their actions and are required to evaluate these impacts through the NEPA process. Additionally, FLPMA requires that the agency *"use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences."*[1]

[1] https://www.blm.gov/or/regulations/files/FLPMA.pdf

A project, particularly in a rural county dependent on resources on federal lands, may have far-reaching impacts on the local area's economy and must be evaluated to identify and mitigate potential impacts. The BLM's *"Socioeconomics Strategic Plan (2012-2022)"* outlines the importance of analyzing socioeconomic impacts not only to meet the legal requirements of NEPA and FLPMA but also to better plan, manage, and coordinate with local communities.

The Plan highlights the need to integrate the economic impacts into management decisions and the social values important to local communities, such as the traditional uses of timber and grazing and how those industries remain an essential part of community identification.[2]

Because federal land is inextricably tied to the economy of Utah and to the livelihood of many rural communities, close coordination with federal land management agencies in regard to socioeconomic impacts is a key objective tied to each of the resources covered in this document.

FINDINGS

Federal land and environmental policies provide broad land management guidelines. The interpretation and implementation of these policies are subject to the interpretation and principles of Cabinet secretaries and agency directors. The inconsistency in guidance as these positions change has a direct impact on how the resources in the state are managed and thus, on the economy of the state.

Federal actions require NEPA. Any delay in the NEPA process can have an economic impact. According to the U.S. Government Accountability Office, the average environmental impact statement takes over 4 years to complete.[3] A loss of potential revenue due to inefficient NEPA analyses and completion can be significant, particularly to communities reliant on public lands.

Public Land Revenues

Revenues produced on public lands are significant. In 2013, a total of $331.7 million was generated on lands managed by the BLM and Forest Service in Utah.

The BLM and Forest Service also collect land based revenues and receipts. These include, among other things, recreation fees, rights-of-way rents, grazing fees, and receipts from timber sales. In 2013, these totaled almost $24 million.

Of the $331.7 million in revenue generated on public lands in 2013, Utah and counties in Utah received $149.8 million, or 45.2 percent of the total. Typically, Utah receives 50 percent of the mineral lease royalties, less a small processing fee paid to the Office of Natural Resources Revenue, an office within the U.S. Department of the Interior that collects all mineral lease monies generated on federal lands.[4] In addition to the payments noted above, counties received a total of $39.5 million in Payments in Lieu of Taxes (PILT) in 2017. PILT payments help local governments carry out such vital services as firefighting and police protection, construction of public schools and roads, and search-and-rescue operations. Counties receive payments annually for tax-exempt Federal lands administered by the BLM, the National Park Service, the Fish and Wildlife Service (all bureaus of the Interior Department), the Forest Service (part of the U.S. Department of Agriculture), and for Federal water projects, and some military installations.[5]

The BLM makes other payments to the states that are based on a share of the revenues generated on its lands in those states. In Utah these are composed of revenues from oil and gas pipeline rights-of-way rentals, grazing district fees per the Taylor Grazing Act, and sales of public lands and materials (e.g., timber and other forest products). The state receives 50 percent of proceeds from oil and gas pipeline rights-of-way rentals, 12.5 percent from grazing, and 4 percent of proceeds from sales of land and materials. The funds from oil and gas pipeline rights-of-way rentals are processed by the Department of Workforce Services and distributed in the same manner as mineral lease royalties. Receipts from the Taylor Grazing Act go to the state

[2] https://www.blm.gov/sites/blm.gov/files/BLMSocioeconomicStrategicPlan2012-2022.pdf [3] http://www.gao.gov/assets/670/662543.pdf
[4] http://publiclands.utah.gov/wp-content/uploads/2014/11/1.%20Land%20Transfer%20Analysis%20Final%20Report.pdf http://publiclands.utah.gov/wpcontent/uploads/2014/11/1.%20Land%20Transfer%20Analysis%20Final%20Report.pdf [5] https://www.nbc.gov/pilt/counties.cfm?term=county&state_code=UT&fiscal_yr=2017&Search.x=38&Search.y=13&Search=Search

Department of Agriculture and Food (UDAF). UDAF then pays $22,500 to the Utah Cattlemen's Association for the grazing regions' Public Lands Council dues, and distributes the remainder to the six regions to be used for range improvements. Proceeds from land and material sales are deposited into the School Permanent Fund by SITLA.[6]

Economic Impacts of Activities on Public Lands

Public lands are used for many purposes and accessed by tens of millions of people each year. In addition to mineral and energy extraction, public lands are used for recreation *(including hunting, fishing and wildlife watching)*, forage grazing, and timber production. These activities contribute to Utah's economic well-being by supporting jobs, generating earnings for Utah residents, and providing tax revenue for the state. In 2013, activities on federal lands supported almost 29,000 jobs in Utah, generated $1.49 billion in earnings, and contributed $7.1 billion to Utah's gross state product.[7]

Economic Growth and Public Lands

While public lands are highly valued from a qualitative perspective, the degree to which they contribute to economic growth at the county level is not well understood. A study by Utah State University and Weber State University show that modest amounts of land owned by the federal government and managed for general use *(also referred to as "multiple use")* are associated with faster economic growth in counties, while large amounts of federal land managed for general use are associated with a *"drag"* on economic growth. The turning point at which the drag begins is county-specific, but overall it occurs when 40 to 45 percent of the county's land is owned and managed for general use by federal agencies. This relationship is strongest for income growth and migration and weakest for employment growth. Twenty of Utah's 29 counties exceed this threshold.

The amount of state-owned land managed for general use does not aid economic growth until state-owned land has reached a critical mass of about 15 percent of the county area. After that point, state management is associated with faster economic growth. Four of Utah's counties have state-owned land at a level above 15 percent.

Counties with well-developed mining sectors had faster income growth than counties without a dominant mining sector, all else equal. Counties with relatively well-developed recreation sectors have greater migration, employment, and income growth than counties without well-developed recreation sectors, all else equal. However, it is important to note that these activities are not mutually exclusive. The dataset used in the model includes counties that have both large recreation and mining sectors, so that framing economic development choices as *"resource use vs. recreation"* is a false dichotomy.[9]

[6] https://trustlands.utah.gov/our-agency/what-are-trust-lands/ [7] http://publiclands.utah.gov/wpcontent/uploads/2014/11/1-%20Land%20Transfer%20Analysis%20Final%20Report.pdf
[9] http://publiclands.utah.gov/wp-content/uploads/2014/11/1-%20Land%20Transfer%20Analysis%20Final%20Report.pdf

Broadband Internet

As high-speed internet connections become an increasingly critical asset for economic development, education, healthcare, public safety, and general quality of life, it is essential that management plans address the development of broadband infrastructure throughout the state. The need for reliable and redundant broadband is growing as rapidly as the tech industry, and governments must work with broadband providers collaboratively to prepare for the growing need. Broadband infrastructure needs to be deployed with the capacity to adapt for evolving technologies.

The Utah Broadband Outreach Center in the Governor's Office of Economic Development is a state program focused on mapping available broadband services and promoting the development of additional infrastructure in Utah. Communities can work with the Utah Broadband Outreach Center as a resource for planning assistance. The Center can provide supporting informational data and resources to implement favorable policies into practice and can assist with planning activities. The Outreach Center maintains two interactive broadband maps that show the current state of broadband availability. The Broadband Outreach Center also maintains an Economic Development Map that allows users to explore the state in detail. Businesses can use this map to scout for locations using interactive data on:

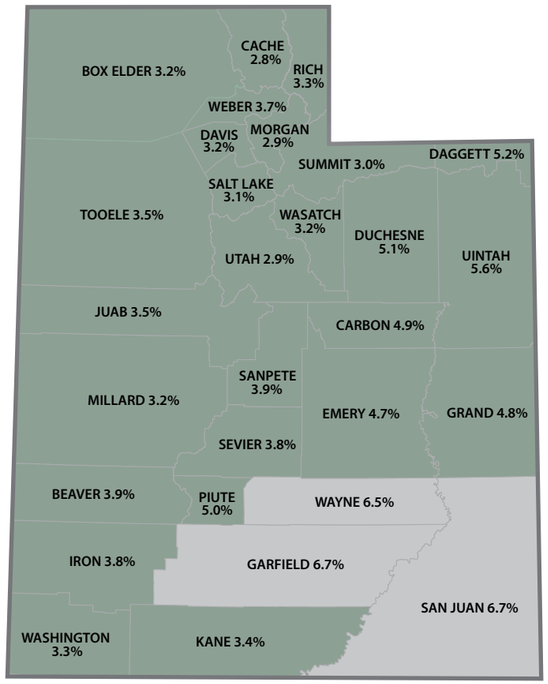
- Broadband availability
- Utility information *(natural gas, electricity, culinary water)*
- Transportation *(rail lines, airports, major roads)*
- Workforce *(higher education institutions)*
- Recreation *(state and national parks, ski areas, golf courses)*
- Health Care Facilities

Federal land management agencies also play a critical role in successful broadband deployment. It is important for these agencies to approach planning in a methodical and efficient way so that underserved county residents gain access to broadband, public lands are minimally disturbed, and service providers can engage in deploying services that benefit the county. In considering future resource management planning, we recommend the following priorities to further the growth of broadband services.

- Make federal data relevant to broadband planning projects readily available to states, counties, local governments and broadband providers.
  - Maintain an online inventory and map of federal assets that communities can utilize in broadband planning efforts.
  - Corridors that have undergone NEPA evaluation and have received approval for proposed utility infrastructure projects are likely to be targeted for future broadband deployment. This data would help providers target areas for development that are likely to pass environmental review, and limit the burden on public lands.
  - GIS shapefiles of areas that have undergone NEPA environmental review and previously disturbed areas should be made available online to state, county, and local GIS departments so they can use this information in planning efforts.
  - In recreation areas that track visitation based on fees or permits, we recommend visitation rates be used in conjunction with broadband coverage data to prioritize high user areas. Areas where visitors cannot be tracked but are known to have high usage should also be included. These areas may include locations where agriculture, grazing, fishing, hunting, hiking, rock climbing, cycling, ATV use, industry exploration and other activities are known to occur.
- Encourage utilization of and access to federally designated communications sites and work with providers to designate new sites.
- Streamline permitting to encourage broadband deployment.
- Increase Agency capacity in order to prioritize telecommunications and broadband permitting.

Unemployment rates by County

As of November 2017



SOURCE: Utah Department of Workforce Services

Legend

- Below 6.5%
- 6.5% or higher

OBJECTIVES

The State has the following six objectives to enhance quality of life by increasing Utah's revenue base and improving employment opportunities:

1. Monitor, improve and promote the economic health of both urban and rural communities.
2. Attract new investors and companies while supporting the expansion of existing Utah businesses.
3. Assist entrepreneurs and engage under-represented populations in starting new companies and growing existing businesses.
4. Expand tourism and the infrastructure to support it.
5. Encourage film production in the state.
6. Support and leverage both partner agencies and community leaders to create proactive, unique economic development solutions statewide.

The State has identified the need for areas with large public lands' natural resources to diversify to balance out cyclical or seasonal commodity and industry cycles. The State's priority goals for remote, rural county economies include increasing existing companies' export capacity, leveraging broadband resources for remote and/or freelance work, and growing the local business sector through increased support of entrepreneurism, and unprecedented collaboration between counties *(urban and rural)*, regions, the state, federal and private sector.

Employment growth was strong throughout 2017 at 2.7 percent for the year. The statewide unemployment rate was 3.13 percent[9] though many rural counties have higher unemployment and experienced job losses from 2007-2016:[10]

- Emery County, 21.9 percent
- Daggett County, 19.4 percent
- Piute County, 34.6 percent

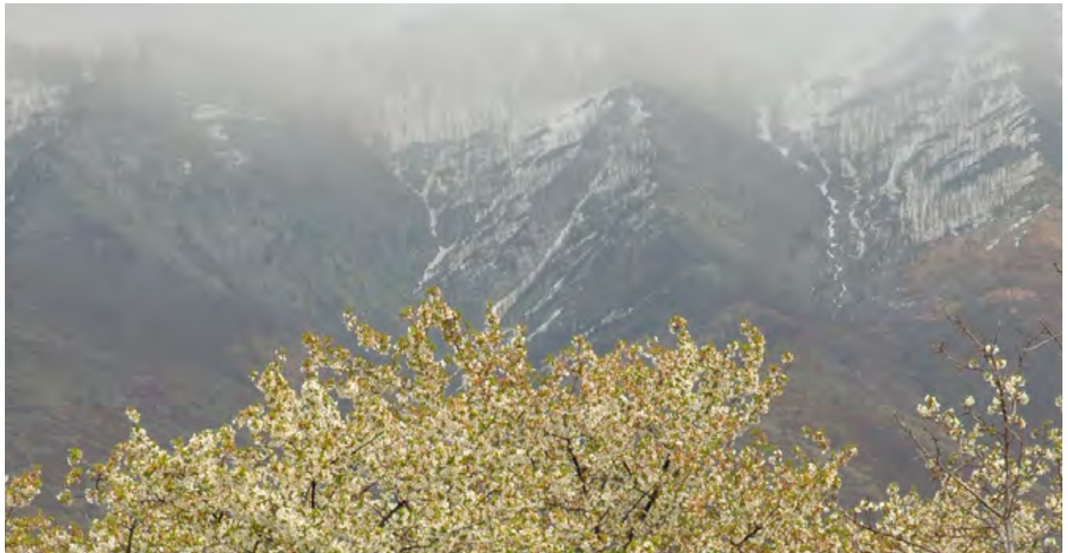
These losses are the driver behind the State's diversification and priority goals.

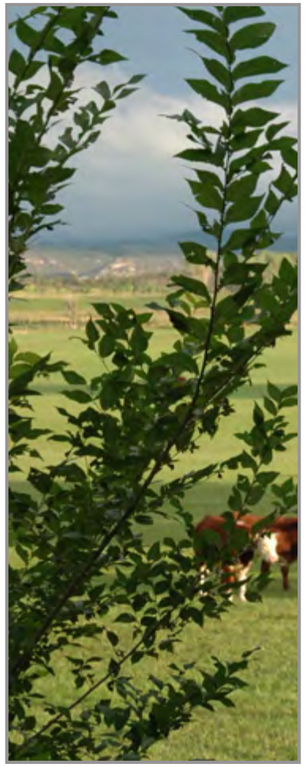
[9] http://gardner.utah.edu/wp-content/uploads/November-Economic-Summary-2.pdf [10] https://www.deseretnews.com/article/865686085/Herbert-Time-for-action-time-for-doing-regarding-rural-job-growth.html

POLICIES AND GUIDELINES

- The State supports the use of a streamlined NEPA process and the utilization of more timely environmental assessments (EAs) and categorical exclusions (CEs) instead of time-consuming environmental impact statements where possible.
- The State supports the continuation and full funding of the PILT program.
- The State supports the full funding of the Secure Rural Schools program.
- The State supports increasing exports from rural Utah.
- The State encourages federal agencies to equally consider social and biological issues on lands they manage. Every federal management decision should ask:
  - What are the possible impacts on people?
  - How can we measure them?
  - What is the desired social and economic condition?
- The State encourages federal agencies to evaluate their actions from a social and economic perspective, including both tangible and intangible factors (spiritual, traditional, cultural values).
- The State encourages federal agencies to consider the economic impacts of their management decisions to determine:
  - Effects on both traditional and new industries
  - Effects on both the regional and local economy
  - Effects on both local and non-local businesses
- The State encourages federal agencies to consider:
  - Intertwined cultural and social effects linked to certain industries and businesses.
  - Long-term sustainability, certainty, and diversification of industries and businesses.
- The State supports the coordination of economic development efforts between federal agencies and local communities.
- The State encourages federal agencies to hire and promote staff locally
  - Retention of local resource knowledge and best management practices are important for local relationships and resource management
- The State encourages federal agencies to collaborate with local universities to create internships and opportunities for students to gain a better understanding of local resources.

The State encourages federal agencies to equally consider social and biological issues on lands they manage.





RELATED RESOURCES

Economic Considerations

Land Use, Land Access,

Water Quality & Hydrology,

Water Rights, Predator

Control, Noxious Weeds,

Wildlife, Fisheries,

Threatened, Endangered &

Sensitive Species,

Agriculture is of prime importance to the state of Utah. A variety of agricultural operations can be found in any county of the state. Native American groups started agriculture in Utah at least 1300 years ago, with focus on maize, squash, and beans. These groups, known as the Ancestral Puebloan and Fremont peoples, created vibrant and diverse cultures that spread across the entire state. A second wave of agriculturalists arrived with members of the Church of Jesus Christ of Latter-day Saints in 1847. Within two decades, dozens of agrarian communities formed along the Wasatch Front and expanded to fill the entire state. Canals and ditches helped communities expand into ever-increasing areas and support major population increases. With growing urbanization along the Wasatch Front, some agricultural lands are being replaced with housing and other developments.

Within two decades, dozens of agrarian communities formed along the Wasatch Front and expanded to fill the entire state.

FINDINGS

In Utah, over 18,000 farms encompass nearly 11 million privately-owned acres of land, for an average farm size of 609 acres. Of that land, about 1.65 million acres are cropland (15 percent) and 8.6 million acres are permanent pasture and rangeland (78 percent).[1] A substantial variety of farms exist, ranging in size from over 10,000 small operations to 260 operations worth more than $1 million.[2]

Of the nearly 11 million acres of farmland, about 1.1 million acres are irrigated. Of that irrigated portion, approximately 77 percent is harvested cropland and 23 percent is pasture.[3] Most of the unirrigated farmland is rangeland, though some parts of the state are able to support dryland cultivation of small grains.

BLM and the Forest Service primarily administer the rangelands in Utah. Currently 45 million acres of grazing land is in Utah of which 73 percent is federally owned, 9 percent is state owned, and 18 percent is privately owned. Of the federal land that permits grazing, 67 percent is managed by the BLM.[4]

[1] https://headwaterseconomics.org/tools/economic-profile-system/#landuse-report-section
[2] https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=UTAH
[3] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/
[4] http://www.ag.utah.gov/pesticides.html?id=283

While most livestock grazing in Utah occurs on federal lands, grazing has declined on BLM lands by more than 66 percent and on Forest Service lands about 50 percent.[5] Most of the decline in public land grazing has occurred in the sheep industry, which has seen dramatic reductions within Utah. In 1930, Utah's sheep and lamb population reached almost 3,000,000, compared to only 285,000 today. The total amount of public lands grazing on BLM land during this same period decreased from 2,749,000 Animal Unit Months (AUMs) to less than 675,000 AUMs including both cattle and sheep[6] while grazing on Forest Service land decreased from 2,700,000 AUMs to 614,000 AUMs.[7]

3,412 cattle and calf operations are in the State. Of the total cattle and calf operations, 2,838 are considered beef cow operations. An estimated 830,000 head of cattle and calves are in Utah, which is the largest number of cattle in the past five years. Beef cows make up 325,000 head while milk and dairy cows make up 95,000 head.[8]

Utah is ranked fifth in the nation for the largest sheep industry, with 1,196 sheep or lamb operations. All sheep and lambs within Utah are estimated at 285,000 head. Ewes make up 215,000 head while rams make up 8,000 head.[9]

Agriculture within the state of Utah is important for the natural, cultural, social, and economic benefits that it provides. Agriculture successfully balances multiple needs between different stakeholders while providing a valuable source of local jobs and income. Within the state of Utah, agriculture provides jobs, local tax bases, multiple environmental benefits, maintains scenic beauty, produces food and fiber for human consumption, and fuels active land management.

"Utahns envision feeding their families with healthy, high-quality food grown in Utah. They see an abundance of locally grown products as part of a healthy lifestyle that will improve the quality of life for them and future generations. Utahns also envision being more self-reliant and less dependent on other states and countries to provide their food. They also want a future in which Utah's food industry provides jobs across the state".[10]

"Many of the best soils and climates for growing fruits and vegetables are located along the Wasatch Front, where urban growth is pressuring the conversion of farmlands into housing, businesses, and communities. As a result, the acreage of fruit production was cut in half between 1987 and 2006, and the trend is continuing at a rate that will eliminate almost all of Utah's orchards by 2050".[11]

To maintain Utah's high quality agricultural production, there are many resources that must be managed to balance needs between development and agricultural needs. "Significant water resources have historically been devoted to agricultural production. However, in the face of competing demands for water from Utah's current urbanization trends and land use transitions, the multiple social values supported by water allocated to agriculture are too often overlooked. These values include security of local food production, sustaining rural Utah economies and communities, open space in increasingly urbanized areas, improved capacity for both drought management and flood control, and other ecosystem services such as providing wildlife habitat and buffering wetlands and other critical lands from impacts of urban development".[12]

[5] http://publiclands.utah.gov/wp-content/uploads/2013/08/LivestockGrazinginUtahHistoryStatus.pdf
[6] https://extension.usu.edu/rangelands/ou-files/Review_livestock_utah.pdf [7] http://www.ag.utah.gov/pesticides.html?id=283
[8] http://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [9] http://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf
[10] http://yourutahyourfuture.org/images/Vision_PDFs/Agriculture_YUYF_Vision.pdf [11] http://yourutahyourfuture.org/images/Vision_PDFs/Agriculture_YUYF_Vision.pdf
[12] http://envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf

ECONOMIC CONSIDERATIONS

In 2015, Utah's agricultural sector production had a value of over $2.3 billion, an increase of 52 percent from 2010. In the same time period, net farm income rose to $583 million, an increase of 162 percent.[13]

Utah's animal industry is the largest industry in agriculture, bringing in more than $1.6 billion in cash receipts. The livestock and cattle industry is the largest contributor to the animal industry followed closely by the pork industry.[14]

In 2015, crop production brought in over $449 million in cash receipts. Feed crops and hay were the two largest contributors to the crop production industry.[15]

A 2016 report published by Utah State University details the significant contributions of agriculture to the state economy. The combined agricultural processing and production sectors account for 15 percent of the state's total economic output, or $21.2 billion, after adjusting for multiplier effects.[16]

The estimated $2.3 billion value of agriculture is concentrated in Utah's rural counties due to the availability of affordable farmland and the high percentage of federally owned land used for grazing within these counties. The economic value that agriculture brings to Utah's rural counties is vital because residents have a much lower median household income in comparison to the more populated areas of the state.[17]

As of 2015, Utah's level of agricultural employment is at the same levels as 1970, showing a relatively stable amount of jobs within the industry. Currently, farm employment constitutes 1.1 percent of Utah's total employment, contributing 20,550 jobs to Utah's economy. Of the total agricultural employment, 16,177, or 0.9 percent of total employment, are farm proprietors.[18] The majority of individuals employed in agriculture are small business owners who create jobs and generate revenue for the more rural and generally less affluent areas of the state.

In 2015, agriculture generated a total of 78,000 jobs within the state through production and processing.[19]

Animal production jobs average an annual salary of $31,573 while crop production jobs average $26,162, for an overall average of $28,792. From 1990 to 2015, wages increased by 17.5 percent in animal production and 32.8 percent in crop production.[20]

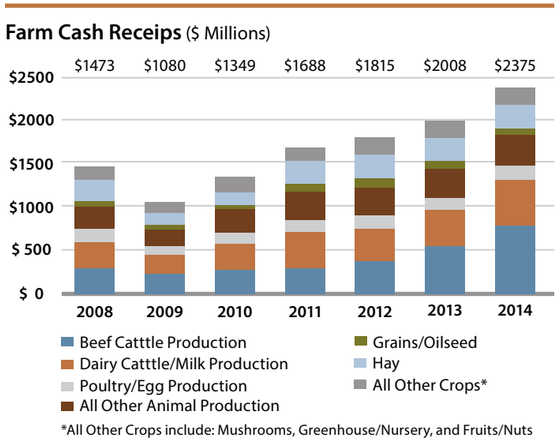


Figure 1: Cash Receipts by Primary Agricultural Product, 2008-2014
Source: 2015 Utah Agriculture Statistics

[13] http://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [14] https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=UTAH
[15] https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=UTAH
[16] http://www.ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf
[17] https://jobs.utah.gov/wi/data/wagesincome/annualprofilewages.html [18] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section
[19] https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=UTAH [20] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section

OBJECTIVES

- Continue to allow, and increase, access to public lands for agricultural use in a manner that 1) satisfies local needs and provides for economical and environmentally sound agricultural practices, and 2) is consistent with, and complementary to, Utah's lifestyle, character, and economy.
- Expand the potential use of federal lands for the production of all food and fiber products including crop production in cases where such uses are acceptable to the public and are feasible.
- Ensure proper and active management of public land watersheds, which supply most of Utah's agricultural water.
- Improve vegetative health on public and private lands through active management of invasive plants and noxious weeds.
- Ensure that Utah's water use planning and management considers agriculture's role within the entire social, economic, and natural systems landscape.
- Promote and retain agricultural land and water for local food production, self-sufficiency, and food security.
- Support local efforts to protect agricultural land and water from development. Such efforts should focus on 1) making and keeping agriculture economically and socially viable, and 2) encouraging development patterns and implementing measures that protect agricultural land and water.
- Oppose efforts by federal agencies, especially USFS and BLM, to obtain control or ownership of water rights used on, or which originate on, public lands, where the water has been put to beneficial use by farmers and ranchers.
- All federal agency resource management planning on public lands must involve active participation from state agencies, local government, and grazing permittees. All federal policies and management plans acknowledge and consider the cultural, economic, and environmental importance of agriculture to the state and its inhabitants.
- Public land AUMs within the state remain at or above current levels.
- Grazing within the state of Utah is performed according to best grazing practices and sound scientific management of local environments. Livestock operators are afforded maximum flexibility concerning seasons of use, stocking rates, and rangeland improvement decisions.
- Crop production in the state of Utah follows best management practices using efficient irrigation systems, proper fertilization, and proper use of pesticides. All best management practices should be employed as economically feasible.

POLICIES AND GUIDELINES

Support the Recommended State Water Strategy's recommendation 3.1 to assess Utah's agriculture industry. The purposes of the assessment would be to:

- understand changes in agriculture's presence and location in Utah landscapes;
- identify connections and compatibilities between agriculture and adjoining land uses;
- assess the water allocation and distribution systems needed to ensure productive systems of land uses for agriculture in relation to neighboring lands;
- support an appropriate level and variety of local, sustainable, secure, water-efficient food production for Utah, with a focus on *"local farming"* that helps ensure food security;
- evaluate water-related incentives farmers need to ensure that food production remains part of Utah's future;
- inventory agricultural areas that have the highest value for food production and the degree to which the state can work to protect both the lands and waters that sustain them;
- balance the social and economic benefits of rural agricultural water use by facilitating industry clusters or other means of focusing on the comparative advantages of rural food production while leaving urban water supplies available to meet municipal and industrial demands;

- understand the best, most sustainable markets for agricultural production suited to Utah's people, climate, conditions, and comparative advantages; and
- recommend water-related policies that support and retain a sustainable, economically viable agricultural industry.[21]
- Management and resource-use decisions by federal land management and regulatory agencies concerning Utah's vegetative resources should reflect serious consideration of the proper optimization of the yield of water within the state's watersheds.
- The state supports locally-driven strategies to protect and preserve agricultural lands, such as the Utah County Agriculture Toolbox *(http://www.utahagriculture.org/)*.
- Because 63 percent of the State of Utah is made up of federal lands, the state's livelihood is substantially affected by the policies of land management agencies. As such, it is vital that the land management agencies work closely and cooperatively with the state ensure access to public lands.
- The State of Utah supports the concept of multiple-use and sustained yields on public lands. Livestock grazing is an integral part of the multiple-use concept, but public lands should also be used for the production of food and fiber where feasible.
- The State supports and values the farming and ranching industries as integral parts of its history, culture, and heritage. Agriculture is recognized as a cultural resource within the state of Utah.
- The State of Utah adopts a no-net-loss stance concerning grazing AUMs on federal lands.
- AUMs within the state remain at or above current levels unless a scientific need for temporary reduction is demonstrated to the satisfaction of state officials.
- In the case that AUMs are temporarily reduced, these reductions are reinstated at the earliest possible moment once vegetative health has been restored to its previous levels.
- Livestock trailing rights and easements must be protected to ensure viability of ranching operations. Such trails are critical for moving livestock across rangelands and to markets.
- The State supports a viable and competitive aquaculture industry.

The State supports active management of wildlife populations to appropriate levels that balance the interests of all public land users, including agriculture and grazing.

- Large ungulates need to be managed to target population levels to improve vegetative health on public lands, maintain adequate forage, and ensure proper water quality.
- Managing predators to appropriate levels is vital to ensure that ranchers do not face losses through predation of livestock. Predators that repeatedly prey on livestock should be relocated or be eliminated and ranchers compensated for their losses.

The State supports private ownership of water rights and opposes any attempt by federal agencies to obtain water rights within the state.

- The State of Utah recognizes and supports the use of public lands grazing as a tool to manage wildfire risk. Through grazing, fuel loads are reduced, resulting in decreased risk for catastrophic wildfires.
- The State supports the use of targeted grazing alongside other forms of treatment to suppress, manage, and eradicate noxious weeds. Invasive and noxious weeds reduce rangeland health and available forage for livestock and wildlife.
- Management and resource-use decisions by federal land management and regulatory agencies concerning Utah's vegetative resources should reflect serious consideration of the proper optimization of the yield of water within the state's watersheds.
- Adequate private water rights for livestock and agricultural uses is supported and protected by the state.
- Grazing permit renewals shall not be withheld by federal agencies as a means to acquire water rights within the state.

[21] http://envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (8)(g) the resources of the forests and rangelands of the state should be integrated as part of viable, robust, and sustainable state and local economies, and available forage should be evaluated for the full complement of herbivores the rangelands can support in a sustainable manner, and forests should contain a diversity of timber species, and disease or insect infestations in forests should be controlled using logging or other best management practices
- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    - (A) achieve and maintain in perpetuity a high-level annual or regular periodic output of mineral and various renewable resources from public lands;
    - (B) support valid existing transportation, mineral, and grazing privileges at the highest reasonably sustainable levels;
    - (C) support the specific plans, programs, processes, and policies of state agencies and local governments;
    - (D) are designed to produce and provide the desired vegetation for the watersheds, timber, food, fiber, livestock forage, and wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community expansion without permanent impairment of the productivity of the land;
    - (E) meet the recreational needs and the personal and business-related transportation needs of the citizens of the state by providing access throughout the state;
    - (F) meet the recreational needs of the citizens of the state;
    - (G) meet the needs of wildlife;
    - (H) provide for the preservation of cultural resources, both historical and archaeological;
    - (I) meet the needs of economic development;
    - (J) meet the needs of community development; and
    - (K) provide for the protection of water rights;
  - (k) forests, rangelands, timber, and other vegetative resources:
    - (i) provide forage for livestock;

Utah Public Lands Management Act

§ 63L-8-104. Declaration of policy--Sales and exchanges

- The Legislature declares that it is the policy of the state that:
  - (c) goals and objectives be established by law as guidelines for public land use planning, and that management be on the basis of multiple use and sustained yield, unless otherwise provided by statute; and
  - (d) the public land be managed in a manner that will:

- (i) recognize the state's need for domestic sources of minerals, food, timber, and fiber;
- (ii) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;

Uniform Agriculture Cooperative Association Act

§ 3-1-1. Declaration of policy

- "It is the declared policy of this state, as one means of improving the economic position of agriculture, to encourage the organization of producers of agricultural products into effective associations under the control of such producers, and to that end this act1 shall be liberally construed."
- This law encourages agricultural cooperative activity.

Department of Agriculture

§ 4-2-102. Department created

- (**1**)There is created within state government the Department of Agriculture and Food.
- (**2**) The department created in Subsection (1) is responsible for the administration and enforcement of all laws, services, functions, and consumer programs related to agriculture in this state as assigned to the department by the Legislature.

Livestock Dealers' Act

§ 4-7-102. Purpose declaration

- The Legislature finds that the public interest requires regulation of the sale of livestock between the producer and a person who purchases livestock for resale to protect the producer from unwarranted hazard and loss in the sale of livestock.

§ 4-7-104. Unlawful to act as an agent or dealer without license—Exception

- Except as exempted by Section 4-7-105, no person may act as an agent or dealer in this state without being licensed under this chapter.

Agriculture Fair Trade Act

§ 4-8-102. Purpose declaration

- "The Legislature finds and declares that in order to preserve the agricultural industry of this state it is necessary to protect and improve the economic status of persons engaged in the production of products of agriculture. To carry out the policy described in Subsection (1), the Legislature determines it necessary to regulate the production and marketing of such products and to prohibit unfair and injurious trade practices.

Conservation Commission Act

§ 4-18-102. Purpose declaration

- (1) The Legislature finds and declares that:
  - (a) the soil and water resources of this state constitute one of the state's basic assets; and
  - (b) the preservation of soil and water resources requires planning and programs to ensure:
    - (i) the development and utilization of soil and water resources; and
    - (ii) soil and water resources' protection from the adverse effects of wind and water erosion, sediment, and sediment related pollutants.
- (2) The Legislature finds that local production of food is essential for:
  - (a) the security of the state's food supply; and
  - (b) the self-sufficiency of the state's citizens.
- (3) The Legislature finds that sustainable agriculture is critical to:
  - (a) the success of rural communities;
  - (b) the historical culture of the state;
  - (c) maintaining healthy farmland;
  - (d) maintaining high water quality;
  - (e) maintaining abundant wildlife;
  - (f) high-quality recreation for citizens of the state; and
  - (g) helping to stabilize the state economy.
- (4) The Legislature finds that livestock grazing on public lands is important for the proper management, maintenance, and health of public lands in the state.
- (5) The Legislature encourages each agricultural producer in the state to operate in a reasonable and responsible manner to maintain the integrity of land, soil, water, and air.
- (6) The department shall administer the Utah Agriculture Certificate of Environmental Stewardship Program, created in Section 4-18-107, to encourage each agricultural producer in this state to operate in a reasonable and responsible manner to maintain the integrity of the state's resources.

"Insect infestation Emergency Control Act"

§ 4-35-103. Decision and Action Committee created--Members--How appointed--Duties of committee--Per diem and expenses allowed

Aquaculture Act

§ 4-37-102. Purpose statement--Aquaculture considered a branch of agriculture

- (1) The Legislature declares that it is in the interest of the people of the state to encourage the practice of aquaculture, while protecting the public fishery resource, in order to augment food production, expand employment, promote economic development, and protect and better utilize the land and water resources of the state.
- (2) The Legislature further declares that aquaculture is considered a branch of the agricultural industry of the state for purposes of any laws that apply to or provide for the advancement, benefit, or protection of the agricultural industry within the state.

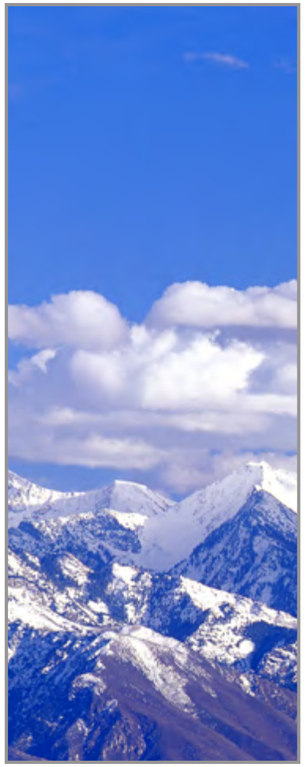
Agriculture and Industrial Protection Areas

§ 17-41-201. Agriculture protection area or industrial protection area advisory board

- (**1**)(a)(i) Each county legislative body shall appoint no more than five members from the county's conservation district board of supervisors to serve as the Agriculture Protection Area Advisory Board.

§ 17-41-301. Proposal for creation of agriculture protection area or industrial protection area

- (1)(a) A proposal to create an agriculture protection area or an industrial protection area may be filed with:
  - (i) the legislative body of the county in which the area is located, if the area is within the unincorporated part of a county; or
  - (ii) the legislative body of the city or town in which the area is located, if the area is within a city or town.



RELATED RESOURCES

Economic Considerations

Minerals and Mining

Energy Resources

Forest Management

Fire Management

Air in Utah is monitored by the Division of Air Quality (DAQ), within the Department of Environmental Quality. The mission of the DAQ is to protect public health and the environment from the harmful effects of air pollution. It is the responsibility of the DAQ to ensure that the air in Utah meets health and visibility standards established under the federal Clean Air Act (CAA). To fulfill this responsibility, the DAQ is required by the federal government to ensure compliance with the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards (NAAQS) statewide and visibility standards at national parks. The DAQ enacts rules pertaining to air quality standards, develops plans to meet the federal standards when necessary, issues preconstruction and operating permits to stationary sources, and ensures compliance with state and federal air quality rules.

The Utah Air Conservation Act empowers the Utah Air Quality Board to adopt rules pertaining to air quality issues.

The DAQ allocates a large portion of its resources to implementing the CAA. The Utah Air Conservation Act empowers the Utah Air Quality Board (Board) to adopt rules pertaining to air quality issues. The DAQ staff supports the Board in its policy-making role. Board membership provides representation from industry, local government, environmental groups, the public, and includes the Executive Director of the Department of Environmental Quality. The Board members have diverse interests, are knowledgeable in air pollution matters, and are appointed by the Governor with consent of the Senate. The Director of the DAQ is the Board's Executive Secretary.

The Utah air quality rules define the Utah air quality program. Implementation of the rules requires the DAQs interaction with industry, other government agencies and the public. The state air quality program is responsible for the implementation of the federal standards under the CAA, as well as state rules for pollution sources not regulated by the CAA.[1]

[1] https://documents.deq.utah.gov/air-quality/annual-reports/DAQ-2017-001541.pdf

Mission / Goals

The mission of the Department of Environmental Quality (DEQ) is: Safeguarding and improving Utah's air, land, and water through balanced regulation.

Vision / Objectives

The vision of DEQ is: clean air, land, and water for a healthy and prosperous Utah.

Structure

The Division of Air Quality is divided into three separate branches.

Permitting Branch

The Permitting Branch is responsible for issuing two kinds of permits, construction and operating permits. Construction permits are issued to new or modified sources of air pollution through the New Source Review program. Operating permits are issued, on an ongoing basis, through Title V of the CAA.

Planning Branch

The Planning Branch is responsible for developing comprehensive plans (State Implementation Plans) to reduce air pollution in areas violating the NAAQS. Emissions inventories are routinely compiled in order to understand the origins of the various contaminants detected in the air. Computer models (Technical Analysis) are used to evaluate the impacts of new and existing sources of air pollution, and to understand the relationship between the emissions, meteorology, and pollutant concentrations measured in the air. The branch is also involved in identifying the air quality impacts of transportation issues (Mobile Sources) which include vehicle inspection and maintenance, clean fuels, and highway construction. This information must be considered in the development of State Implementation Plans (SIPs) in order to ensure that Utah's ambient air remains in compliance with the federal health standards, even as our population and our economy continue to grow. The Air Monitoring Center operates a network of air quality monitors throughout the state.

Compliance Branch

The Compliance Branch is responsible for ensuring that industries and residents are complying with all Utah Air Quality requirements. The branch also monitors mitigation activities associated with asbestos and lead-based paint (Hazardous Air Pollutants). The Small Business Assistance Program has been set up within the Compliance Branch to help small businesses deal with the many requirements surrounding air quality, including the various permitting requirements.

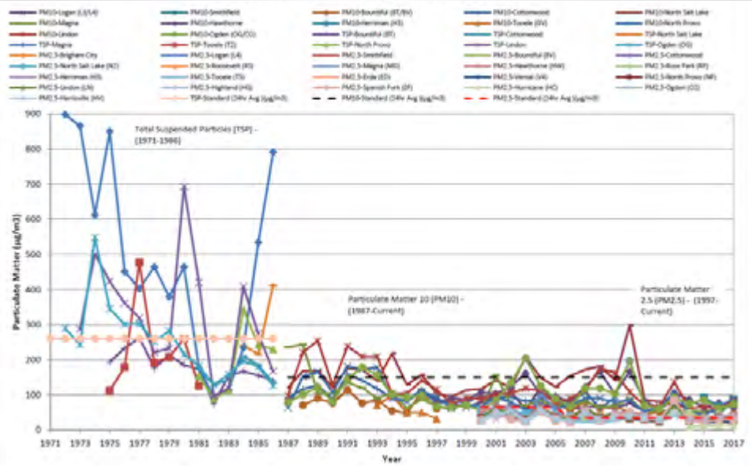
FINDINGS

The passage of the Clean Air Act in 1963, amended in 1970 and 1990 created a framework for reducing air pollution. The following graphs, starting in 1971 and 1979, respectively, reflect the ongoing efforts and the success of DAQ in reducing air pollution.

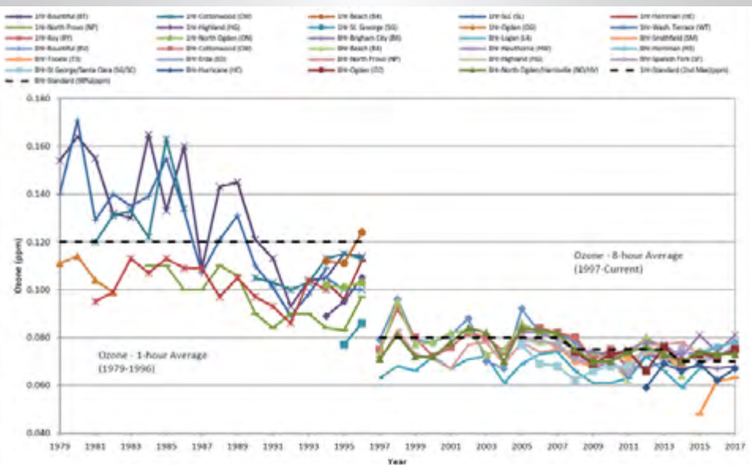
As the State's population continues to increase, particularly along the Wasatch Front, the policies of DAQ will be critical in achieving air quality standards. Challenges still exist during winter inversion and wildfire events.

The passage of the Clean Air Act in 1963, amended in 1970 and 1990 created a framework for reducing air pollution.

Particulate Matter (PM) Standards - 24-Hour



Ozone (O3) Standards



Air Pollutants

The Clean Air Act identifies six common air pollutants that are found all over the United States and can injure health, harm the environment or cause property damage. *These pollutants are shown in Table 1.*

Table 1

Name	Sources	Health Effects	Welfare Effects
Carbon Monoxide (CO); a clear, colorless, odorless gas.	Burning of gasoline, wood, natural gas, coal, oil, etc.	Reduces the ability of blood to transport oxygen to body cells and tissues. May be particularly hazardous to people who have heart or circulatory (blood vessel) problems and people who have damaged lungs or breathing passages.	
Nitrogen Dioxide (NO_2) (one component of NO_x); smog-forming chemical.	Burning of gasoline, natural gas, coal, oil, and other fuels; Cars are also an important source of NO_2.	Can cause lung damage, illnesses of breathing passages and lungs (respiratory system).	Ingredient of acid rain (acid aerosols), which can damage trees, lakes, flora and fauna. Acid aerosols can also reduce visibility.
Ozone (O_3) (ground-level ozone is the principal component of smog).	Chemical reaction of pollutants; Volatile Organic Compounds (VOCs) and NO_x.	Can cause breathing problems, reduced lung function, asthma, irritated eyes, stuffy nose, and reduced resistance to colds and other infections. It may also speed up aging of lung tissue.	Can damage plants and trees; smog can cause reduced visibility.
Particulate Matter (PM_{10}, $PM_{2.5}$); dust, smoke, soot.	Burning of gasoline, natural gas, coal, oil and other fuels; industrial plants; agriculture (plowing or burning fields); unpaved roads, mining, construction activities. Particles are also formed from the reaction of VOCs, NO_x, SO_x and other pollutants in the air.	Can cause nose and throat irritation, lung damage, bronchitis, and early death.	Main source of haze that reduces visibility.
Sulfur Dioxide (SO_2)	Burning of coal and oil (including diesel and gasoline); industrial processes.	Can cause breathing problems and may cause permanent damage to lungs.	Ingredient in acid rain (acid aerosols), which can damage trees, lakes, flora and fauna. Acid aerosols can also reduce visibility.
Lead (Pb)	Paint (houses, cars), smelters (metal refineries); manufacture of lead storage batteries; note: burning leaded gasoline was the primary source of lead pollution in the U.S. until the federal government mandated unleaded gasoline.	Damages nervous systems, including the brain, and causes digestive system damage. Children are at special risk. Some lead-containing chemicals cause cancer in animals.	Can harm wildlife.

The DAQ publishes an Annual Report that provides an overview of Utah's air quality.[2]

[2] https://documents.deq.utah.gov/air-quality/annual-reports/DAQ-2017-001541.pdf

2016 Synopsis

Generally speaking, emissions for criteria air pollutants either stayed the same or continued their downward trends in 2016. The DAQ accomplished much in 2016 towards fulfilling our mission to safeguard human health and quality of life through improving the air quality throughout the state. With an increasing population, industrial base, and more stringent federal air quality standards, it has been a challenge to meet air quality objectives; however, 2016 proved to be a year in which we made great strides to ensure cleaner air in the years to come.

The following is a brief list of notable air quality achievements from 2016:

- The Board adopted amendments to the Moderate Area PM2.5 SIP. EPA's pending approval of the amendments to Part H of the SIP will allow the DAQ to issue operating permits under Title V of the CAA to several sources that have never had operating permits before.
- The DAQ's Lawn Mower Discount and Exchange event helped reduce emissions equivalent to removing 424 passenger cars from Utah roads. The event provided 944 electric lawn mowers and 707 electric trimmers at discounted prices. If the participant turned in a gasoline mower to scrap, they received an additional discount. The Legislature did not fund the program during the 2016 legislative session.
- The Governor submitted a geographic recommendation for the Uinta Basin and Wasatch Front nonattainment areas for the 2015 Ozone NAAQS to the EPA. The DAQ provided the technical analysis for the recommendation so that the boundaries of the proposed areas would be based on the best available science.

Air Quality Standards

The CAA requires the EPA to set NAAQS for pollutants considered harmful to public health and the environment. The CAA establishes two types of air quality standards: primary and secondary. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Standards are composed of a numerical value and a form (see Table 2). The form may be a statistical value, such as the 98th percentile calculation or a rolling average over a designated period of time that is then compared against the numerical value.

The EPA has established health-based NAAQS for six pollutants known as criteria pollutants. These are carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Each of these pollutants is addressed in greater detail later in this chapter. Table 1 provides a brief description of each criteria pollutant and Table 2 provides a brief description of each pollutant's primary and secondary NAAQS. The EPA establishes the primary health standards after considering both the concentration level and the duration of exposure that can cause adverse health effects. Pollutant concentrations that exceed the NAAQS are considered unhealthy for some portion of the population. At concentrations between 1.0 and 1.5 times the standard, while the general public is not expected to be affected by the pollutant, the most sensitive portion of the population may be adversely affected. However, at levels above 1.5 times the standard, even healthy people will see adverse effects.

If the air quality in a geographic area meets the NAAQS, it is called an attainment area; areas that do not meet the NAAQS are called nonattainment areas and must develop comprehensive state plans to reduce pollutant concentrations to a safe level.

The DAQ monitors each of these criteria pollutants, as well as several non-criteria pollutants for special studies at various monitoring sites throughout the state.

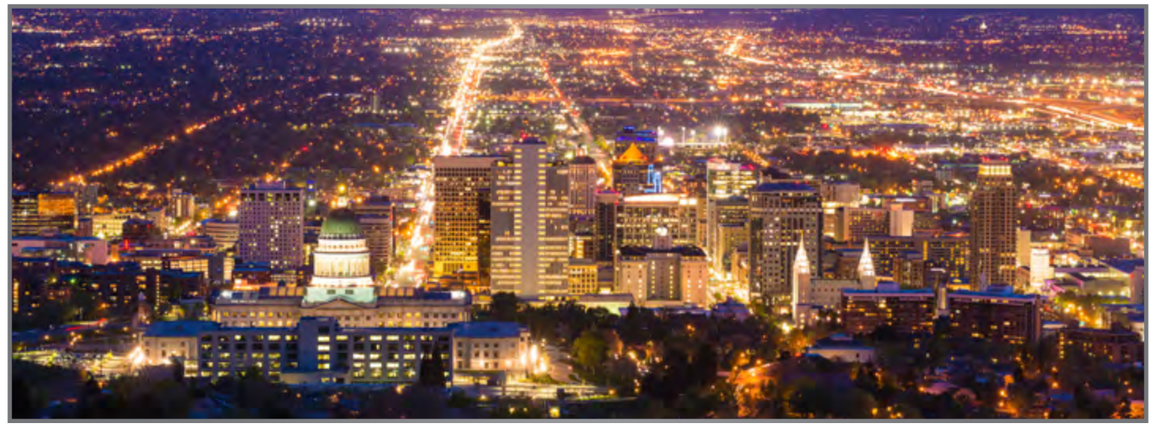


Table 2

Ambient Air Quality Standards

Pollutant	Averaging Time	Primary/ Secondary	Standard	Form
Ozone (O_3)	8 Hour	Primary and Secondary	0.070 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over three years
Respirable Particulate Matter (PM_{10})	24 Hour	Primary and Secondary	150 µg/m^3	Not to be exceeded more than once per year on average over three years
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	Primary and Secondary	35 µg/m^3	98th percentile, averaged over three years
	Annual	Primary	12 µg/m^3	Annual mean, averaged over three years
		Secondary	15 µg/m^3	Annual mean, averaged over three years
Carbon Monoxide (CO)	1 Hour	Primary	35 ppm	Not to be exceeded more than once per year
	8 Hour	Primary	9 ppm	Not to be exceeded more than once per year
Nitrogen Dioxide (NO_2)	1 Hour	Primary and Secondary	0.1 ppm	98th percentile of 1-hour daily maximum concentrations, averaged over three years
	Annual	Primary and Secondary	0.053 ppm	Annual Mean
Sulfur Dioxide (SO_2)	1 Hour	Primary	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over three years
	3 Hour	Secondary	0.5 ppm	Not to be exceeded more than once per year
Lead (Pb)	Rolling 3 month average	Primary and Secondary	0.15 µg/m^3	Not to be exceeded

The EPA establishes the primary health standards after considering both the concentration level and the duration of exposure that can cause adverse health effects.

Utah's Air Monitoring Network

The Air Monitoring Section (AMS) operates a network of monitoring stations throughout Utah. The monitors are situated to measure air quality in both neighborhoods and industrial areas. Table 3 shows the monitoring station and monitored constituents for stations operated in 2016.

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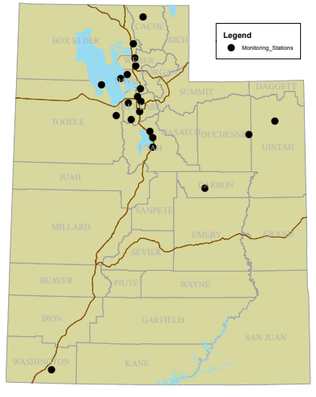


Air Monitoring Stations

Table 3

Station	City	Address	CO	NO_2	Hg	O_3	PM_{10}	$PM_{2.5}$	SO_2	Pb	Met.
Air Monitoring Center	SLC	2861 W. Parkway Blvd.			X						X
Antelope Island	None	North end of island									X
Badger Island	None	On Island									X
Bountiful	Bountiful	200 W. 1380 N.		X		X	X	X			X
Brigham City	Brigham City	140 W. Fishburn				X		X			X
Harrisville	Harrisville	425 W. 2250 N.				X					X
Hawthorne	SLC	1675 S. 600 E.	X	X		X	X	X	X	X	X
Herriman	Riverton	14058 Mirabella Dr.		X		X	X	X			X
Hurricane	Hurricane	150 N. 870 W.		X		X	X	X			X
Lindon	Lindon	30 N. Main St.					X	X			X
Magna	Magna	2935 S. 8560 W.					X	X		X	X
North Provo	Provo	1355 N. 200 W.	X	X		X	X	X			X
Ogden #2	Ogden	228 E. 32nd St.	X	X		X	X	X			X
Price #2	Price	351 S. Weasel Run Rd.		X		X					X
Roosevelt	Roosevelt	290 S. 1000 W.		X		X		X			X
Rose Park	SLC	1354 W. Goodwin Ave.						X			
Saltaire	None	6640 W. 1680 N.									X
Smithfield	Smithfield	675 W. 220 N.		X		X		X			X
Spanish Fork	Spanish Fork	312 W. 2050 N.				X		X			X
Syracuse	Syracuse	4700 W. 1700 S.									X
Erda	Tooele	2163 West Erda Way		X		X		X			X
Vernal	Vernal	6200 S. 4500 W.		X		X		X			X

ECONOMIC CONSIDERATIONS

The adverse health effects of both ozone and PM2.5 are well documented, and the high levels measured during winter temperature inversions may be affecting the populations in non-attainment areas. During the summer when regional ozone levels are high, large rural areas may also be affected. People with respiratory disease, the elderly, and children are at most risk for impacts from both of these pollutants. The current monitoring and modeling efforts will improve our understanding of the extent of the problem.

The State will be required to establish an emission budget for vehicle emissions, and all future transportation plans in non-attainment areas must conform to that budget. Other measures, such as vehicle inspection and maintenance programs may also be required. The permitting program in the area would also be affected. New sources in nonattainment areas are required to obtain an offset from existing sources to ensure that overall emissions do not increase in the area. New sources in nonattainment areas must also meet the highest standard of control. These restrictions could affect economic development in the area.[3]

Policies and Guidelines

- Utilize the Utah State Implementation Plan (SIP)[4] to limit the maximum level of pollutants in the outdoor air and protect public health.
- Amend the Utah SIP as necessary in order to protect public health and comply with the Clean Air Act (42 U.S.C. Section 7401).
- Develop and amend air quality rules to implement and enforce the SIP.
- Coordinate with federal partners to achieve attainment of federal and state air quality standards.
- Work with local governments and private industries to attain federal and state air quality standards while mitigating damage to Utah's economy.
- Continue to refine the SIP, Utah Air Quality Rules, and policies to achieve attainment of federal and state air quality standards in existing Nonattainment Areas.
- The State encourages the development and implementation of innovative technologies and policy to achieve attainment.

Title 19, Chapter 2 of the Utah Code empowers the Utah Air Quality Board to enact rules pertaining to Air Quality activities. *http://le.utah.gov/UtahCode/section.jsp?code=19-2*

Air Quality Rules

The Utah Air Quality Rules implement the policies and regulations contained in the Utah SIP. Utah Air Quality Rules are enacted by the Utah Air Quality Board and organized by the Office of Administrative Rules. The official Air Quality Rules are contained in Utah Administrative Code Title R307.[5] An unofficial copy of the Utah Air Quality Rules is also produced by the Utah Division of Air Quality.[6]

Background of Utah State Implementation Plans

To protect public health, the Clean Air Act (42 U.S.C Section 7401) requires that federal standards be set to limit the maximum levels of pollutants in the outdoor air. Each state is responsible for developing plans to demonstrate how those standards will be achieved, maintained, and enforced. These plans make up the state implementation plan. The plans and rules associated with them are enforced by the State, and, after federal approval, they are also federally enforceable. These plans are the framework for each state's program to protect the air.

In areas where the air quality has improved to the point that the National Ambient Air Quality Standards are no longer exceeded, the implementation plan remains in effect and a maintenance plan is prepared to demonstrate how the air will be kept clean for the next twenty years or longer. These maintenance plans also become part of the SIP.

[3] http://www.deq.utah.gov/Topics/FactSheets/docs/June2010_Air_Issues.pdf [4] https://deq.utah.gov/Laws_Rules/daq/sip/
[5] https://rules.utah.gov/publicat/code/r307/r307.htm [6] https://documents.deq.utah.gov/air-quality/planning/air-quality-policy/DAQ-2017-006637.pdf

In simple terms, a SIP is a framework that explains how the State is going to make an area return to good air quality (attainment). Each SIP is designed to control a specific non-attainment problem. There is a separate SIP for: PM2.5, SO2, CO, ozone, PM10, etc.

Technically, the State of Utah has written the majority of these SIPs as separate chapters of one larger *"umbrella"* SIP, but it is much easier to view them individually as separate documents. Thus, one could refer to the PM2.5 SIP, the ozone SIP, or the CO SIP, etc., rather than stating "**Section IX, Part H, Subsections 11-13 of the SIP**" *(This would refer to the Emission Limits and Operating Practices requirements for PM2.5 of the Utah SIP).*

Each specific SIP controls its specific non-attainment problem through three general areas – each of those areas dealing with a different group of sources:

1. **Transportation controls:** This group includes things like broadly mandated fuel changes (oxygenated gasoline, Tier III fuels), I/M programs, implementation of dedicated HOV lanes, fleet turnovers, and other similar programs. These are the rules that apply to the first group of sources – what are known as mobile sources. Basically, vehicles – cars, trucks, etc.
2. **Rule changes and other changes at what we call *"area sources"*:** This group includes most of the generally applicable rules, and most of the source category rules – such as no wintertime solid fuel burning, changes in the VOC content of surface coatings, opacity requirements on haul roads, rules for boilers and ovens (including bakery ovens for example), etc. For purposes of the SIP, the definition of an area source is any nonmobile source that isn't *"Major"*.
3. **Specific requirements on *"Major Sources"*:** Major Sources, also known as SIP-listed sources, are traditionally those sources that are large enough that individually their emissions could be distinguished on the monitoring filters, or whose emissions' impact could individually change the outcome of the attainment demonstration. More recently, the definition of *"Major"* is more precisely defined by their emission level. Major sources are likely affected by the area source requirements listed in #2 above, but also have a whole separate set of individually targeted requirements that apply specifically to that individual facility. And each facility is listed individually in the SIP, along with each requirement. So, for example, while petroleum liquid storage tanks may have generally applied requirements that affect all such tanks, each of the four major source refineries is also listed by name, along with a host of specific requirements that apply only to that individual refinery.[7]

[7] http://deq.utah.gov/Divisions/daq/docs/SeriousSIPExplanatoryDocument10-28-16.pdf

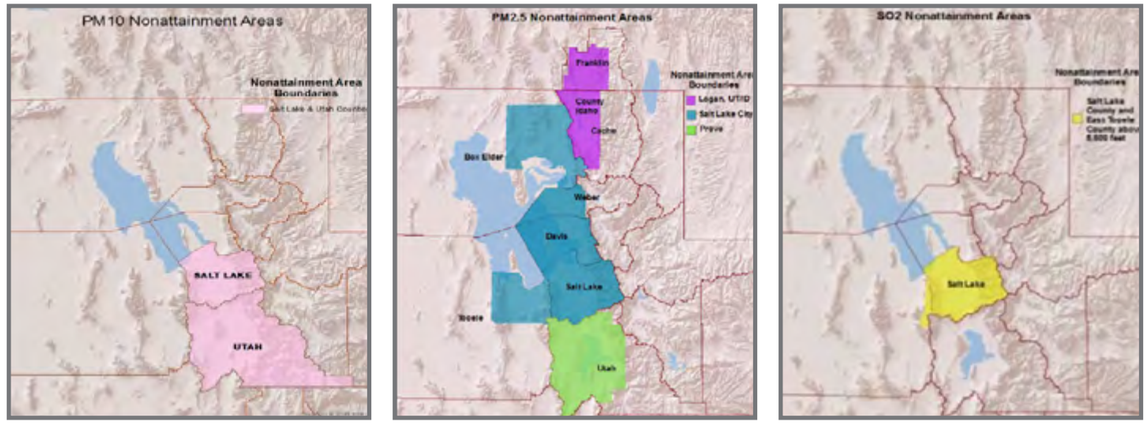
Smoke management plan: The purpose of this Utah Smoke Management Plan (SMP) is to identify the responsibilities of DAQ and Federal, and State land managers to coordinate procedures that mitigate the impacts of prescribed fire and wildland fire use on public health, visibility, and public safety, in terms of smoke or visibility impacts. *https://smokemgt.utah.gov/*

Regional Haze: The Clean Act Act (CAA) (section 169A) establishes as a national goal the *"prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas,"* i.e., our national parks and wilderness areas. *https://www.epa.gov/ut/proposed-rule-and-fact-sheet-utah-regional-haze-implementation-plan.* See Fire Management chapter for more information.

Oil and Gas: DAQ coordinates with Utah Division of Oil, Gas and Mining to locate and identify sources that may require air quality permits.

This page provides links to oil and gas related pages. *https://deq.utah.gov/Pollutants/P/petroleum/OilGas/oilgas.htm*

Utah Nonattainment Areas



RELATED RESOURCES

Economic Considerations

Recreation and Tourism,

Land Access,

Floodplains & River Terraces,

Livestock & Grazing,

Agriculture,

Minerals & Mining

Each county in the State of Utah features concentrations of historic and archaeological resources. These resources are located in towns, cities, and main streets, as individual sites or grouped in historic districts. Other resources are scattered throughout counties in the form of rock art, archaeological structures, archaeological sites of scientific importance, and historic landscapes or settings.

These resources are a result of Utah's significant and diverse pre-history and history.

These resources are a result of Utah's significant and diverse pre-history and history; a rough cultural chronology of Utah includes the first arrival of humans hunting big game such as mammoths and wooly rhinoceros about 12,000 to 9,000 years ago. The Archaic Period, ranging roughly from 9,000 to 2,000 years ago, saw humans engaging in a variety of hunting and gathering lifestyles even after the disappearance of those large game animals. During the Late Prehistoric Period most humans in modern-day Utah moved from a hunting and gathering lifestyle to at least a partial reliance on farming and domesticated animals. About 1,300 to 1,500 years ago, the appearance of what archaeologists call the Fremont Culture, who are somewhat unique to nearly every corner of Utah's modern borders, although they extended into Idaho and Nevada occurs. After a change in climate, these early farming communities collapsed and the groups went back to a more nomadic, hunter-gather lifestyle. From that point until the arrival of European and Euro-American explorers and settlers in the late 1700s, Utah was the sole territories of the Shoshone, Ute, Navajo, Paiute, Gosiute, and other native peoples.

As we know from experience, any great community (or county) is enhanced by looking to its future and new development, but also by keeping a steady hand on its past. History can become an enhancer for our quality of life and a stimulator for economic development. Businesses in some industries often look for historic settings in historic buildings in order to provide character, the sense of stability, and a unique marketing angle for their products and services. History is not just a buzzword; it is a foundation for the current political and economic institutions in Utah, a fabric from which our communities are woven, and a two-way mirror of our own lives to where we have been and where we are going. Preservation of tangible aspects of this history is paramount to retaining a patina of place, as an empty parking lot where once stood a woolen mill instills no true sense of place or history.

Preservation and growth require a balance and a careful planning approach. All too often, we find ourselves in a situation where we tear down the old in the name of progress, only to realize too late that the old could have been a better economic stimulus than the new. Or we find ourselves so encumbered by the past and that new is not entertained. If we create a balance and dialogue between old and new, we can take advantage of the benefits of both. The new can be given broader character by referring to heritage and tradition, while the old can be reinvigorated by new development.

Utah Code 9-8-401 states, *"The Legislature determines and declares that the public has a vital interest in all antiquities, historic and prehistoric ruins, and historic sites, buildings, and objects which, when neglected, desecrated, destroyed or diminished in aesthetic value, result in an irreplaceable loss to the people of this state."*

FINDINGS

A vast number of cultural resources in Utah have been researched and documented. The Utah Division of State History (UDSH) holds the records of approximately 92,000 individual archaeological sites, most the direct result of agency compliance with federal and state cultural resource law. Additionally, many of these sites are revisited as part of an undertaking after the initial documentation, creating an additional 18,000 site addendums (this makes up less than 9 percent of the state's 54 million acres being surveyed for archaeological sites). Currently, the UDSH database contains individual records for 61,434 historic buildings and structures spread across 397 Utah communities. Some of these structures have multiple lines of entry for additional major properties at the same address, updates and additions, increasing the number of entries to 105,501. The majority of the historic architectural surveys have been completed as a result of environmental compliance requirements or city and county-wide surveys for preservation planning-related projects.[1] The UDSH maintains maps relating to history and archeologyy at *https://heritage.utah.gov/history/history-maps*.

Currently, the UDSH database contains individual records for 61,434 historic buildings and structures spread across 397 Utah communities.

[1]The terms Cultural Resource(s) and Historic Property(ies) include both archaeology and buildings. A historic property is defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes archaeological artifacts, records, and remains that are related to and located within such properties. The term also includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria.

ECONOMIC CONSIDERATIONS

Population growth leads to many pressures on cultural resources, especially historic buildings in core neighborhoods, and archaeological sites in the way of new development. Donovan Rypkema's 2013 Economic Study in Utah, notes that historic preservation in Utah is not about putting a fence around monuments; that the historic resources of Utah are part of the daily lives of its citizens. However, the historic resources of Utah are also providing a broad, significant contribution to the economic health of this state.

Whether it be through jobs—rehabilitating a building in Utah reclaims assets as the labor intensity for these types of projects provide many jobs and high wages for workers; heritage tourism provides Utah with heavy visitation and direct expenditures; property values show higher rates of appreciation; downtowns and local businesses are revitalized.

Because of the importance of historic resources, the Legislature has established economic incentives for their preservation and re-use. The State of Utah, through Utah Code Annotated 59-7-609, has implemented a tax credit for the rehabilitation expenditures associated with qualifying residential historic buildings. Further, the United States Tax Code has provided a similar investment tax credit for the rehabilitation of historic commercial and residential rental properties.

OBJECTIVES

As well-stated in Utah's first Statewide Historic Preservation Plan in 1973, a purpose of historic preservation, *"is the acculturation of a citizenry so that the values of the past, the qualities of progenitors, and a reverence for a heritage become ingrained into the lives of people today".* More critical is that the goals for historic preservation not only engage and enliven current practitioners within Utah, but also democratize preservation efforts and engage as diverse an audience as possible in our collective goals. A diverse audience is the framework that Utah uses when formulating the overall goals for this historic resources. Some audiences identified include the public, agencies and preservation partners, legislature and elected officials, students and educators, historic property owners, tourists, and under-represented communities. Over the next five years, Utah will engage in four goals: increasing awareness and appreciation for Utah's diverse heritage, helping shape understanding of preservation standards and techniques, improving collaboration and strengthening existing partnerships and building new ones, and advancing preservation as economic development.

To accomplish these goals there are many potential actions that could be undertaken:

- Establishment of preservation commissions and certified local government programs (CLG).
- Creation of heritage areas and scenic byways to identify, protect, plan, and market.
- Local zoning and policies to protect property owner's interests while supporting preservation efforts.
- Preservation education conferences and workshops.
- Creation of historic signage guidelines.
- Tax assistance and grants to assist rehabilitation.
- Main Street organization creation.
- Programmatic agreements with federal agencies and state agencies to address federal and state compliance needs.
- Develop new historic contexts for various property types and themes.
- Partner with federal agencies on programs for archaeological site protections and clearances.
- Creation of a statewide archaeological site stewardship program to promote volunteerism, civic engagement, and cooperation.
- Partnerships with non-profit organizations to establish voluntary protective easements.
- Promote retaining archaeological materials recovered in Utah within the state boundaries and close to the point of discovery for display and interpretation.
- Creation of a federally-certified state repository for historic-period archaeological materials.
- Recognition of the significant role that various historic industries and activities such agriculture, grazing, mining, recreation, and timber played in the development of the State, and its current effect on Utah's cultural heritage.
- Participation on Interdisciplinary Teams as part of the environmental review process.

POLICIES AND GUIDELINES

It is a policy of the State of Utah to encourage the preservation of cultural and historic sites and landscapes as part of developing a vibrant quality of life and economic development future for the state. The state uses economic incentives, compliance consultation, tax credits, grants, and technical assistance to encourage preservation. In accordance with 9-8-502, *"The Legislature finds and declares that preservation and restoration of historically significant real property and structures as identified by the State Register of Historic Sites are in the public interest of the people of the state of Utah and should be promoted by the laws of this state."*

Number of cultural resource compliance cases received by UT-SHPO since 2008, broken into the challenge categories described in the 2008 Statewide Preservation Plan.

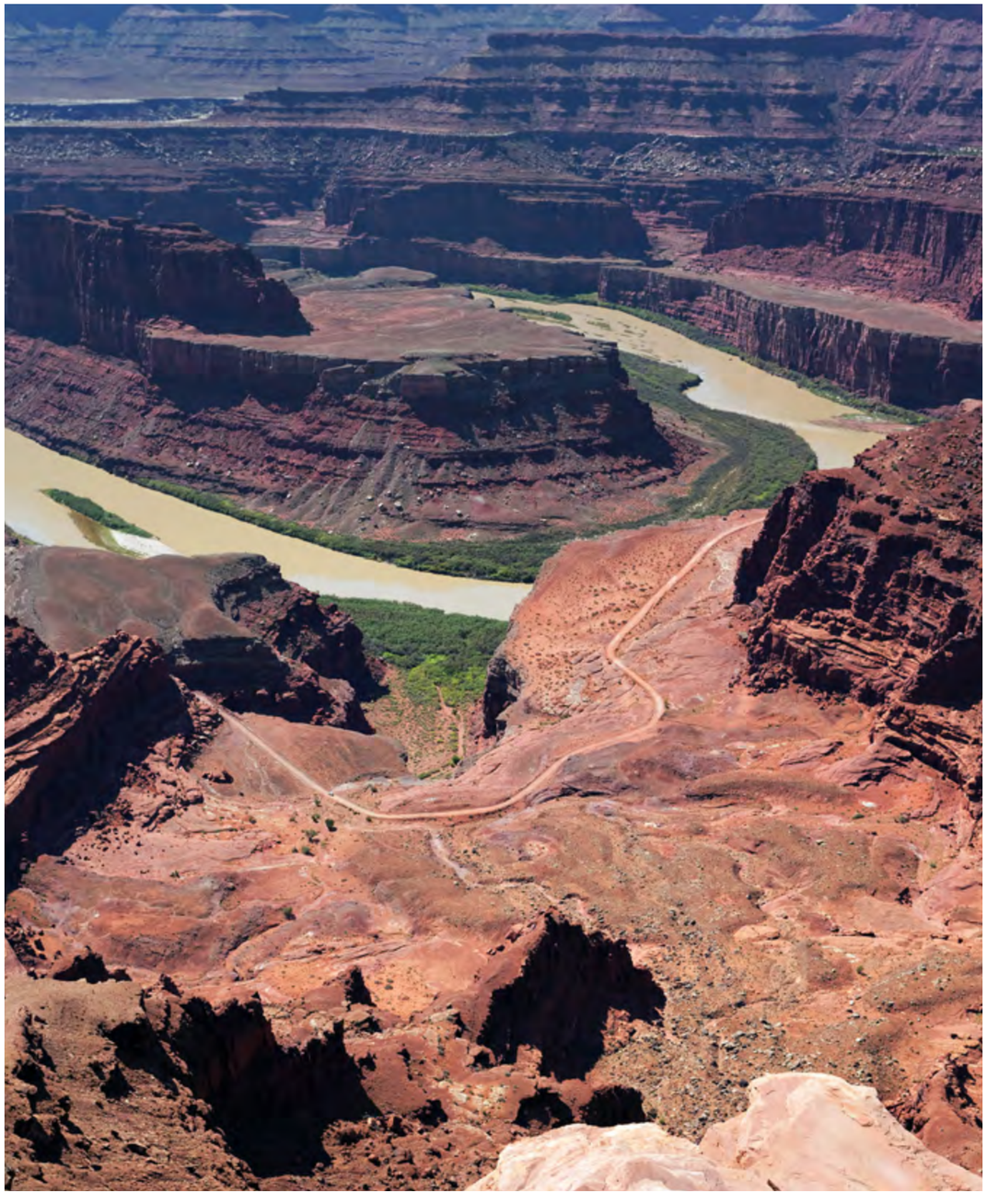
2008 Plan Challenge	2008	2009	2010	2011	2012	2013	2014	2015
1. Urban Growth								
a. UDOT*	115	65	77	83	78	97	83	81
b. FCC*	97	63	64	19	71	53	94	114
c. HUD/EDA/WA*	106	154	353	682	409	436	348	504
2. Recreation	104	125	132	127	134	102	112	105
3. Oil & Gas	578	435	508	526	493	475	439	321
Total of All Cases	2,184	1,788	2,067	2,735	2,180	1,575	1,789	1,668

Where possible, the State will promote the curation and display of archaeological materials near their point of collection. Only a handful of federal archaeological repositories exist in Utah, and the majority are far from rural communities and the areas of collection. It is understood that archaeological collections and materials from federal lands, and their curation, is subject to 36CFR79, whereas the regulations were created to *"establish definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains".* While the regulations require that a facility meet high standards for long-term curatorial storage as defined in 36CFR79.9, the regulations require the federal agency shall ensure the collection is available for *"scientific, educational and religious uses"* per 36CFR79.10(a). Local communities, museums, and others may request a loan of federal archaeological materials per 36CFR79.10(e) following a template agreement included as Appendix B of those regulations. Federally-accredited institutions in Utah include the Natural History Museum of Utah (Salt Lake City), Prehistoric Museum at Utah State University Eastern (Price), Edge of the Cedars State Park & Museum (Blanding), and the Fort Douglas Military Museum (Salt Lake City).

The State will:

- Support local communities' efforts to create displays and museums that meet federal standards for the display, and possible curation, of archaeological materials as close to their point of origin as possible.
- Promote local efforts for traveling exhibits and display of State-owned archaeological materials for educational and local economic opportunities.
- Coordinate with local Federal offices to engage local communities and tourists with the rich archaeological heritage of Utah.

* Agencies identified by UT-SHPO staff to contribute most to undertakings that would fall under the Urban Growth and Development Challenge. Utah Department of Transportation (UDOT), Federal Communications Commission (FCC), Housing and Urban Development (HUD), Economic Development Agency (EDA), Weather Authorization (WA).



Utah is widely recognized for the diversity of its geological and paleontological resources. Straddling three physiographic provinces—the Basin and Range Province, Middle Rocky Mountains, and Colorado Plateau—Utah's geology and topographic variety are foundational to the state's economic prosperity and quality of life, providing opportunities for mineral and energy resource development as well as recreation and tourism.

Mineral and energy resources are as far ranging as metallic mineral concentrations that led to creation of one of the world's largest open-pit mines; oil and natural gas accumulations that represent a significant contribution to the nation's fossil fuel resource; geothermal resources that contribute to a diverse renewable-energy portfolio; and a variety of salts and other industrial minerals and substances from Great Salt Lake (see Mineral and Mining and Energy Resources). Utah's geology has produced world-class fossil localities, including dinosaurs, as well as world-class scenic and recreational resources that are the basis for the state's five national parks and dozens of national monuments, national recreation areas, and state parks.

Along with the benefits that Utah's geologic resources bring, ongoing geologic processes also present challenges for, and hazards to, Utah's citizens. For example, hazardous faults can generate large earthquakes, potentially with devastating effects; slopes underlain by weak rock or soil are prone to landsliding; clayey bedrock and soils are locally prone to expansion or collapse; and uranium-bearing rocks and soil produce potentially deadly radon gas. Also, Utah's status as the second driest state in the nation brings a related set of challenges and hazards for development: water-supply resources are limited, and water quality is vulnerable to degradation from development activity; subsidence and earth fissuring occur locally over aquifers depleted by consumptive use; and the precipitation that does fall often triggers flooding and debris flows, typically as the result of rapid spring snowmelt and intense cloudburst storms. Proactive mitigation of geologic hazards is key to sustaining the health, safety, and welfare of Utah's citizens and visitors.

FINDINGS

Statewide geology and geologic resource maps have been compiled by the Utah Geological Survey (UGS). The maps are available through the UGS website *(geology.utah.gov)* and include the following:

- Geologic Map of Utah – *https://ugspub.nr.utah.gov/publications/geologicmaps/m-179.pdf*
- Geologic Maps of Utah *(interactive map)* – *https://geology.utah.gov/apps/intgeomap/*
- Energy Resources Map of Utah – *https://ugspub.nr.utah.gov/publications/maps/m-68.pdf*
- Oil and Gas Fields Map of Utah – *https://ugspub.nr.utah.gov/publications/circular/c-119.pdf*
- Coal Resources Map of Utah – *https://ugspub.nr.utah.gov/publications/maps/m-226.pdf*
- Non-metallic Mineral Resources of Utah – *https://ugspub.nr.utah.gov/publications/maps/m-71.pdf*
- Uranium and Vanadium Map of Utah – *https://ugspub.nr.utah.gov/publications/maps/m-215.pdf*
- Utah Mining Districts *(interactive map)* – *https://geology.utah.gov/resources/data-databases/utah-mining-districts/*
- Geothermal Resources of Utah – *https://ugspub.nr.utah.gov/publications/open_file_reports/ofr-431/ofr-431_geothermal-geology-utah-2009-map.pdf*
- Utah Core Research Center Inventory *(interactive map)* – *https://geology.utah.gov/resources/data-databases/ucrc-inventory/*

Statewide geologic hazard maps are also available on the UGS website, and include the following:

- Utah Earthquakes (1850–2016) and Quaternary Faults – *https://ugspub.nr.utah.gov/publications/maps/m-277.pdf*
- Utah Quaternary Fault and Fold Database *(interactive map)* – *https://geology.utah.gov/resources/data-databases/qfaults/*
- Landslide Susceptibility Map of Utah – *http://ugspub.nr.utah.gov/publications/maps/m-228/m-228.pdf*
- Radon-hazard-potential Map of Utah – *http://ugspub.nr.utah.gov/publications/hazards_maps/M-149.pdf*
- Soil and Rock Causing Engineering Geologic Problems in Utah – *http://ugspub.nr.utah.gov/publications/special_studies/SS-80.pdf*

- Flood Hazard from Lakes and Failure of Dams in Utah – *http://ugspub.nr.utah.gov/publications/hazards_maps/m-111.pdf*

Many of Utah's most interesting geologic sites coincide with popular recreation destinations, in particular its national parks, national monuments, and national recreation areas as well as many state parks. However, numerous other sites exist in addition to these high-profile locales, and the UGS features these sites on its interactive GeoSights map *(https://geology.utah.gov/apps/geosights/index.htm)*.

Utah is famous for its dinosaur fossils. The Mesozoic Era is known as the "Age of Dinosaurs," and Utah has perhaps the best Mesozoic rock record in the world. Well-known dinosaur localities include Dinosaur National Monument in northeastern Utah, the Cleveland-Lloyd Dinosaur Quarry in the northern San Rafael Swell, and the St. George Dinosaur Discovery Site at Johnson Farm. Utah is also famous for its trilobite fossils. Trilobites are a class of extinct marine invertebrate popular with collectors; Utah specimens can be seen in museums throughout the world.

Utah's 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.

ECONOMIC CONSIDERATIONS

Cultural, historical, geological, and paleontological resources are often connected with tourism and recreation. For example, the Utah Geological Survey has created a GeoSites online interactive map to help people explore Utah's geological sites.

Please refer to the 2017 Economic Report to the Governor *(https://gomb.utah.gov/wp-content/uploads/sites/7/2017/02/2017ERGfullreport.pdf)* for economic considerations related to mineral and energy resources. Additional data can be found in UGS Circular 121, Utah's Energy Landscape *(http://ugspub.nr.utah.gov/publications/circular/c-121.pdf)*.

OBJECTIVES

State of Utah objectives related to geological and paleontological resources are encapsulated in Utah State Code, under *"Powers and duties of [the Utah Geological] survey"* (§ 79–3–202). In summary, the State's objectives are to investigate, research, and analyze geological and paleontological resources *"in order to facilitate their economic use,"* to *"contribute to the most effective and beneficial administration"* of lands administered by the state, and *"to serve the needs of the state and to support the development of natural resources and utilization of lands within the state."* Additionally, State Code tasks the Utah Geological Survey with determining and investigating *"areas of geologic and topographic hazards that could affect the safety of, or cause economic loss to, the citizens of the state."*

POLICIES AND GUIDELINES

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.

Utah Code §79–3–202 defines the powers and duties of the Utah Geological Survey with regard to investigation and research of geological and paleontological resources and geologic hazards, as well as collection, preservation, and distribution of data.

Additional information on Utah's geologic hazards, as well as guidelines for conducting geologic-hazard investigations, can be found in UGS Circular 122, Guidelines for Investigating Geologic Hazards and Preparing Engineering-geology Reports, with a Suggested Approach to Geologic-hazard Ordinances in Utah *(http://ugspub.nr.utah.gov/publications/circular/c-122.pdf)*.

There are no state requirements for paleontological resources on private lands. Should the State Paleontologist identify a particular area as sensitive for such resources that lie 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 maintains a list of paleontologists with permits for state lands in Utah, and the U.S. Bureau of Land Management (BLM) maintains a list of paleontologists with permits for BLM lands.

There are federal and state laws and regulations protecting significant paleontological resources, including the Antiquities Act (16 USC §432, 433 et seq. [1906]) and NEPA (42 USC §4321-4327 [1969]). 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, the BLM has developed regulations for the protection of paleontological resources on lands administered by their field offices.

Utah Code §79–3–501 through 510 addresses permits required to excavate critical paleontological resources on lands administered by the state, ownership of collections and resources, designation of paleontological landmarks, requirement for report of discovery on state or private lands, establishment of a state paleontological register, and protection of School and Institutional Trust Lands Administration interests relating to paleontological resources.

Where possible, the State will promote the curation and display of paleontological materials near their point of collection. Only a handful of federal paleontological repositories exist in Utah, and most are far from rural communities and the areas of collection. Federally approved repositories from throughout the United States may curate paleontological materials in their own collections from federal lands in Utah. It is understood that paleontological collections and materials from federal lands, and their curation, are subject to the Paleontological Resources Preservation Act of 2009, whereas the regulations were created to *"establish definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains."* While the regulations require that a facility meet high standards for long-term curatorial storage as defined by U.S. Department of the Interior (DOI) Museum Property Directive 4—Required Standards for Managing and Preserving Museum Property, and Directive 14—Facility Checklist for Spaces Housing DOI Museum Property, the regulations require that the federal agency shall ensure the collection is available for *"scientific and educational uses."* Local communities, museums, and others may request a loan of federal paleontological materials from the approved curation facility housing the specimens. Federally accredited institutions in Utah for the repository of paleontological materials include the Natural History Museum of Utah (NHMU; Salt Lake City), Prehistoric Museum at Utah State University Eastern (Price), BYU Paleontological Museum (Provo), and Vernal Field House of Natural History State Park & Museum (Vernal). Additionally, the St. George Dinosaur Discovery Site at Johnson Farm and The Museum of Moab may curate limited paleontological materials, but are still seeking full federal repository status.

Paleontological collections from State and private lands have more flexibility in their availability for display, and the State should promote loan and display of these types of collections for the benefit of local communities. Utah Code §53B-17-601 designates the NHMU as the State-mandated museum, and indicates the NHMU shall *"make available to people throughout the state, through traveling exhibits and outreach programs, archeological and paleontological objects retrieved from the state of Utah"* and *"shall provide professional expertise and assistance in the proper care of the archeological and paleontological collections from state lands as they are housed throughout the state."* The NHMU must approve repository of paleontological collections on an annual basis for other institutions within Utah and for curation out of state. The State shall ensure all of Utah's communities have access to these resources and collections, and will:

- support efforts of local communities to create displays and museums that meet federal standards for the display, and possible curation, of paleontological materials as close to their point of origin as possible,
- promote local efforts for traveling exhibits and display of State-owned paleontological materials for educational and local economic opportunities, and
- collaborate with local federal offices to engage local communities and tourists in awareness and appreciation of Utah's rich paleontological legacy.

SUMMARY OF THE POTENTIAL FOSSIL YIELD CLASSIFICATION (PFYC) SYSTEM

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

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 PFYC 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 descriptions for the classes below are intended 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 nonvertebrate 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.
- 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 nonvertebrate 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.

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    - (H) provide for the preservation of cultural resources, both historical and archaeological;
    - (J) meet the needs of community development; and

§ 63J-4-401. Planning duties of the planning coordinator and office

- (c) the state's support for designation of an Area of Critical Environmental Concern (ACEC), as defined in 43 U.S.C. Sec. 1702, within federal land management plans will be withheld until:
  - (iv) it is clearly demonstrated that the proposed area contains relevant and important historic, cultural or scenic values, fish or wildlife resources, or natural processes which are unique or substantially significant on a regional basis, or contain natural hazards which significantly threaten human life or safety;

Utah Public Land Management Act

§ 63L-8-104. Declaration of policy--Sales and exchanges

- The Legislature declares that it is the policy of the state that:
  - (d) the public land be managed in a manner that will:
    - (ii) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;
    - (iii) where appropriate, preserve and protect certain public land in its natural condition;

State of Utah Resource Management Plan for Federal Lands

§ 63J-8-104. State land use planning and management program

- Manage the subject lands so as to protect prehistoric rock art, three dimensional structures, and other artifacts and sites recognized as historically and culturally important and significant by National Register standards, by implementing reasonable and effective stipulations and conditions reached by agreement between the federal agency and the State Historic Preservation Office pursuant to the authority granted by the National Historic Preservation Act, 54 U.S.C. § 300101 et seq. A state compliance equivalent for state agencies can be found in Utah Code, Section 9-8-404[2].

Department of Heritage and Arts

§ 9-1-201. Department of Heritage and Arts--Creation--Powers and duties

There is created the Utah Arts Council.

Division of Art History

§ 9-8-201. Division of State History--Creation—Purpose

Antiquities

§ 9-8-301. Purpose

- (1) The Legislature declares that the general public and the beneficiaries of the school and institutional land grants have an interest in the preservation and protection of the state's archaeological and anthropological resources and a right to the knowledge derived and gained from scientific study of those resources.
- (2)(a) The Legislature finds that policies and procedures for the survey and excavation of archaeological resources from school and institutional trust lands are consistent with the school and institutional land grants, if these policies and procedures insure that primary consideration is given, on a site or project specific basis, to the purpose of support for the beneficiaries of the school and institutional land grants.
  - (b) The Legislature finds that the preservation, placement in a repository, curation, and exhibition of specimens found on school or institutional trust lands for scientific and educational purposes is consistent with the school and institutional land grants.
  - (c) The Legislature finds that the preservation and development of sites found on school or institutional trust lands for scientific or educational purposes, or the disposition of sites found on school or institutional trust lands, after consultation between the division and the School and Institutional Trust Lands Administration to determine the appropriate level of data recovery or implementation of other appropriate preservation measures, for preservation, development, or economic purposes, is consistent with the school and institutional land grants.
  - (d) The Legislature declares that specimens found on lands owned or controlled by the state or its subdivisions may not be sold.
- (3) The Legislature declares that the historical preservation purposes of this chapter must be kept in balance with the other uses of land and natural resources which benefit the health and welfare of the state's citizens.
- (4) It is the purpose of this part and Part 4, Historic Sites, to provide that the survey, excavation, curation, study, and exhibition of the state's archaeological and anthropological resources be undertaken in a coordinated, professional, and organized manner for the general welfare of the public and beneficiaries alike.

Historic Sites

§ 9-8-401. Purpose

- The Legislature determines and declares that the public has a vital interest in all antiquities, historic and prehistoric ruins, and historic sites, buildings, and objects which, when neglected, desecrated, destroyed or diminished in aesthetic value, result in an irreplaceable loss to the people of this state.
- The state and national registries are also addressed in this chapter.

Historical Preservation Act

§ 9-8-502. Legislative finding

- The Legislature finds and declares that preservation and restoration of historically significant real property and structures as identified by the State Register of Historic Sites are in the public interest of the people of the state of Utah and should be promoted by the laws of this state.

Cultural Resource Management

§ 9-8-404. Legislative finding

- Before expending any state funds or approving any undertaking, each agency shall take into account the effect of the expenditure or undertaking on any historic property; and…provide the state historic preservation officer with a written evaluation of the expenditure's or undertaking's effect on the historic property.

[2] UCA 9-8-404 was passed, in part, to create a mechanism to expedite the transfer of federal public lands into state ownership by having an equivalent cultural resources law to the National Historic Preservation Act. The presence of 9-8-404 avoids the determination of 'adverse effect' for transfer of archaeological and historic resources out of federal ownership to state ownership with controls and protection.

Sites of significance or sites with exceptional fossils may be recommended to and approved by the board as state paleontological landmarks.

Utah Division of Indian Affairs Act

§ 9-9-103. **Purpose**

- The division shall:
  - develop programs that will allow Indian citizens residing on or off reservations an opportunity to share in the progress of Utah;
- **§ 9-9-201.** Assumption by state of criminal and civil jurisdiction over Indians and Indian territory
- **§ 9-9-403.** Ownership and disposition of Native American remains

Utah State Railroad Authority

- **§ 63H-5-102**. Creation--Members--Chair--Powers--Quorum--Per diem and expenses
  - (1) There is created an independent body politic and corporate known as the *"Utah State Railroad Museum Authority,"* hereafter referred to in this chapter as *"the authority."*

Paleontology

- **§ 79–3–501.** Permit Required to Excavate Critical Paleontological Resources on State Lands—Removal of Specimen or Site
- **§ 79–3–502.** Permit Required to Excavate Critical Paleontological Resources on School and Institutional Trust Lands—Removal of Specimen or Site
- **§ 79–3–503.** Ownership of Collections and Resources **§ 79–3–503**. Ownership of Collections and Resources
- § 79-3-505. **Paleontological landmarks**
  - (1)(a) Sites of significance or sites with exceptional fossils may be recommended to and approved by the board as state paleontological landmarks.
    - **(b)** No privately owned site or site on school or institutional trust lands may be so designated without the written consent of the owner or the trust.
  - (2) A person may not excavate on a privately owned designated landmark without a permit from the survey.
  - (3) Before an alteration is commenced on a designated landmark, three months notice of intent to alter the site shall be given the survey.

RELATED RESOURCES

Economic Considerations

Irrigation

Water Quality & Hydrology

Agriculture

Cultural and Historical

Water Rights

Land Use

Ditches are natural or constructed watercourses that can be open, covered, or tiled and are typically used for the purpose of irrigation or drainage of agricultural land.

Canals are artificial waterways constructed to convey water for irrigation or drainage of agricultural land.

More than 70 percent of Utah's diverted water is carried in canals.

From about 400 to about 1400 A.D. irrigated farms fed early residents of present day Utah as the Fremont people raised corn irrigated from Clear Creek and the Ancestral Puebloans *(sometimes referred to as "Anasazi")* raised and stored corn and other irrigated crops. Later tribes also relied on water to sustain the plants and animals on which they depended, whether through hunting and gathering, fishing, or irrigating crops.[1]

The day after arriving in the Salt Lake Valley, Mormon pioneers *"…immediately rigged three plows and went to plowing a little northeast of the camp; another party went with spades, etc., to make a dam on one of the creeks so as to throw the water at pleasure on the field, designing to irrigate the land in case rain should not come sufficiently"*.[2] To sustain the influx of pioneer settlers, canals and ditches were constructed throughout the state, making agriculture possible despite the dry climate.

Often, the term conveyance is used to describe the movement of water from source to application. Ditches and canals are used to convey diverted water from the source to the location where beneficial use is taken. More than 70 percent of Utah's diverted water is carried in canals which are managed and maintained by nonprofit, shareholder-owned irrigation companies. There are over 1,000 of these irrigation companies, most of which are over 100 years old and administered by volunteer directors.[3] Every irrigation company in existence today has largely adapted to the multitude of challenges imposed by urbanization. The longevity of these companies suggests that mutual irrigation companies can continue to adapt to serve the needs of all their shareholders, whether the shareholders want to grow crops, water lawns, put the water to industrial use, or use the companies' ditches to transport stormwater.[4]

Canals and ditches lay on land with various ownership statuses. Any given canal may cross land that is owned by the canal company outright, or else it may utilize an easement or right-of-way, to cross lands owned by a municipality or another third party. Other canals have *"prescriptive easements"*, which, though lacking formal consent or written agreement, allows water to cross another's property for delivery purposes. These easements come with no entitlement except the ability to convey water through the site and to maintain that conveyance. These prescriptive easements are not designed or intended to accept more water than would naturally be received by runoff while in agricultural use. Often, prescriptive easements are found on the furthest most downstream end of ditch systems where the channels are the smallest, meaning these ditches have only been designed for agricultural runoff and may thus suffer the greatest impacts from their use for stormwater conveyance. Upstream development resulting in increased surface runoff may negatively affect downstream landowner property rights.

The Utah Division of Water Rights (UDWRi) between 2014-2017 inventoried all open canals in the state that have a minimum design capacity of 5 cubic feet per second. The UDWRi's Canal Safety Program and Canal Inventory website provides a listing of Utah canal companies, a statewide map of canals, and a Conservation District directory, among other resources.

Canals and ditches present important public safety concerns; the State Engineer has authority to examine and inspect any ditch or other diverting works and may order additions or alterations to assure public safety.

FINDINGS

Agriculture within the state is important for the natural, cultural, social, and economic benefits that it provides. Agriculture successfully balances multiple needs between different stakeholders while providing a valuable source of local jobs and income. Within the state of Utah, agriculture provides jobs, local tax bases, multiple environmental benefits, maintains scenic beauty, produces food and fiber for human consumption, and fuels active land management.

Approximately 82 percent of water diverted from natural sources goes to agriculture, making the agricultural industry heavily reliant on the effective irrigation and transportation of water.

Over 9,800 miles of ditches and canals exist in Utah which carry more than 5 cubic feet per second of water, and perhaps twice that many more in smaller canals. This figure does not include the thousands of miles of drainage ditches, which make land farmable and carry return flows back to streams.

These thousands of miles of canals irrigate a majority of the 1.1 million acres of irrigated agricultural land in Utah, of which about three-quarters is harvested cropland and the remaining one-quarter is irrigated pasture used for livestock grazing.[5]

Canals and ditches in urban settings also serve municipal and industrial interests. They supply water for industrial processes; deliver secondary water to suburban lawns; move stormwater away from threatened homes, businesses, and institutions; and support wetlands and other riparian environments that would otherwise be lost.[6]

The majority of ditches and canals in the state of Utah rely on prescriptive easements.

[1] http://envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf
[2] http://scholarsarchive.byu.edu/cgi/viewcontent.cgi?article=5763&context=etd

[3] http://envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf [4] http://envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf [5] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/st49_1_011_011.pdf
[6] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/st49_1_011_011.pdf

ECONOMIC CONSIDERATIONS

These thousands of miles of canals irrigate a majority of the 1.1 million acres of irrigated agricultural land in Utah, of which about three-quarters is harvested cropland with a 2012 value of $458 million.[7]

A 2016 report published by Utah State University details the significant contributions of agriculture to the state economy. The combined agricultural processing and production sectors account for 15 percent of the state's total economic output, or $21.2 billion, after adjusting for multiplier effects.[8]

From 1970 to 2015, direct cash receipts from livestock and products increased from $1.28 billion to $1.57 billion, a 17.5 percent increase. Cash receipts from livestock and products constituted 73 percent of all farm business cash receipts, making livestock the driver behind most of Utah's agricultural economic growth.[9] These direct cash receipts do not reflect the full amount of economic growth provided by livestock and its products due to the multiplier effect that cash receipts have once they are spent within the community.

As of 2015, Utah's level of agricultural employment is at the same levels as 1970, showing a relatively stable amount of jobs within the industry. Currently, farm employment constitutes 1.1 percent of Utah's total employment, contributing 20,550 jobs to Utah's economy. Of the total agricultural employment, 16,177, or 0.9 percent of total employment, are farm proprietors.[10] The majority of individuals employed in agriculture are small business owners who create jobs and generate revenue for the more rural and generally poorer areas of the state.

Canals and ditches also provide tremendous economic benefits to municipalities and industry by providing pre-existing, low-cost options for water delivery and stormwater removal. While no study has been conducted to quantify the value of these services, it would be tremendously expensive if each municipality or industry currently served by Utah's existing network of canals and ditches had to devise their own, independent water delivery and removal systems.

OBJECTIVES

Support county plans for ditches and canals as well as irrigation.

Preserve the integrity and functionality of Utah's existing canals and ditches.

Preserve the integrity and functionality of Utah's irrigation companies, which manage and maintain the vast majority of the canals and ditches.

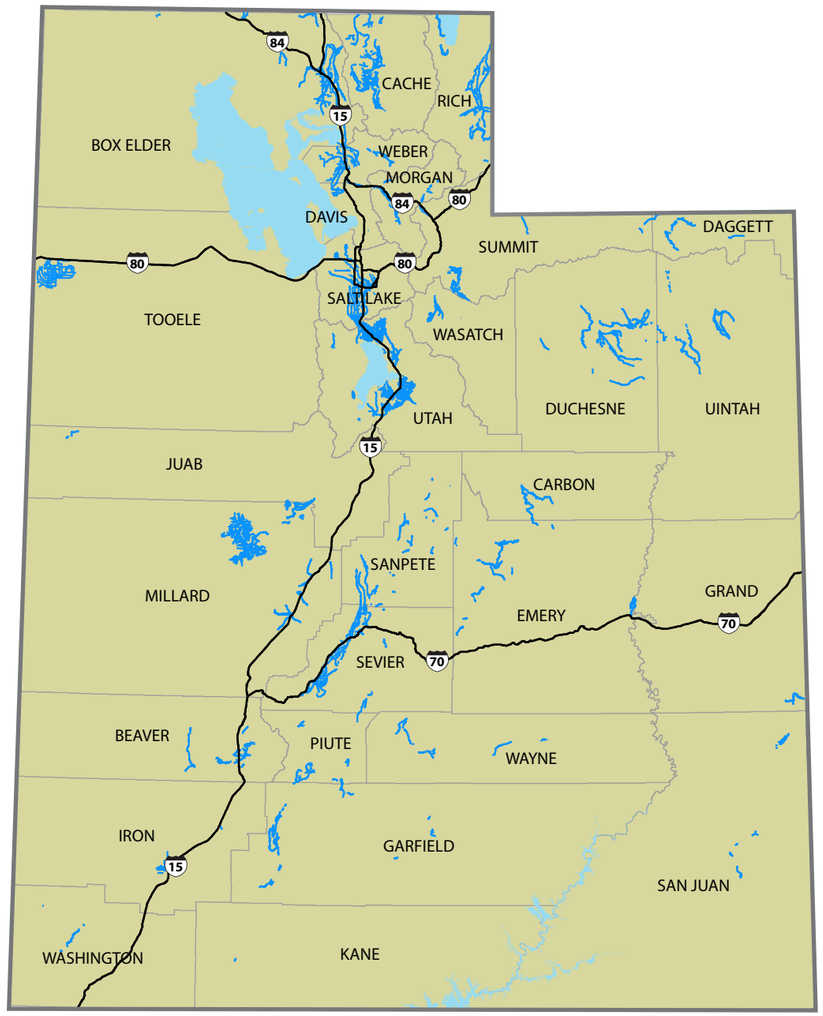
Ensure adequate funding for canal infrastructure maintenance and replacement. Continue and improve mapping of existing canals through the Canal Inventory being conducted by the Division of Water Rights.

Continue to allow access, and increase access to public lands, for canals and ditches and agricultural development in a manner that 1) satisfies local needs and provides for economical and environmentally sound water conveyance practices; and 2) is consistent with, and complementary to, Utah's lifestyle, culture, and economy.

Support irrigation companies and special service districts in obtaining and maintaining access through public lands for water conveyance needs including current easements, deeded easements, prescriptive easements, ditch bill easements, and all other easements held.

[7] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/st49_1_011_011.pdf [8] http://www.ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf [9] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section
[10] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section

Canals



Legend

- Canals
- Major Lakes
- Interstate

POLICIES AND GUIDELINES

- Encourage indemnity agreements for irrigation companies where their canals are relied upon for flood or stormwater management. Cities and counties must work closely with irrigation companies to assure canals used for such purposes are properly maintained and have adequate capacity.
- Support cities and counties in preventing the externalization of land development costs to irrigation companies while still achieving the benefits of land development.
- Encourage contractual agreements between irrigation companies, cities, and counties for increased maintenance costs, liability, and other expenses when ditches and canals are used for stormwater.
- Encourage legislation protecting ditch and canal companies from encroachment and liability suits.
- Encourage efficient water transport through proper lining and piping of ditches and canals as appropriate.
- Ensure the full funding of revolving loan funds managed by the Division of Water Resources and maintain irrigation companies' access to these funds for canal and ditch infrastructure improvement and replacement.
- Encourage canal companies to provide updated mapping and contact information to the state Canal Inventory and support the Division of Water Rights in its mapping efforts.
- Support reasonable maintenance of conveyance corridors that balances operational needs with the concerns of property owners.
- Support the Recommended State Water Strategy's recommendation 3.2 to create a task force combining irrigation companies and state agency planning to assure ongoing agricultural water management. This task force should:
  - identify the portion of Utah's total water supply managed by irrigation companies;
  - establish ongoing evaluation and reporting to the Governor's office, DNR, UDAF, and the Water Development Commission on the value to the Utah economy, Utah culture, and the natural environment sustained by irrigation companies;
  - recommend future management of irrigation companies and their water assets in areas where canal and ditch systems are or will be significantly affected by urban development;
  - evaluate the best means to balance the equities, including costs, when urban development creates additional costs to irrigation systems users; and
  - educate the public and policymakers on the purposes, value, and integrity of these companies.
- Evaluate existing requirements when ditches and canals are abandoned as required by the State Historic Preservation Office (SHPO) to determine who is responsible for maintenance, liability, and weed control.
- Protect the use, maintenance, and development of all water diversion and conveyance systems, rights-of-ways, and easements that cross public lands.

Funding is available to assist canal companies to develop and implement a safety management plan, as described in **Utah Code Section 73-10-33**. The Division of Water Rights maintains an inventory of all canals in the state. The following attributes of all open flow conveyances with a minimum design capacity of 5 CFS are to be captured:

- Canal alignment
- Contact information for the canal owner
- Maximum flow capacity
- Is the canal used for flood or stormwater management
- Date of adoption of a safety management plan, if one has been completed

Utah Code Ann §73-5-7
http://www.rules.utah.gov/publicat/code/r317/r317-002.htm

RELATED RESOURCES

Economic Considerations

Mining and Mineral Resources

Water Quality & Hydrology

Air

Water Rights

Land Access

Affordable and reliable energy has been a key component contributing to Utah's economic success. Recognizing the central role that energy plays, and to plan for the future of Utah's energy needs, in 2011, Governor Gary R. Herbert and energy leaders launched a 10-Year Strategic Energy Plan. Under this plan, the State has worked to meet energy demands through a balanced use of Utah's abundant energy resources. Since the launch of the plan, the State has implemented programs and policies that demonstrate a commitment to these resources. Specifically, state energy leaders have worked to:

Low energy costs have helped bring world-renowned employers to the State including companies such as Adobe, EBay, Proctor & Gamble, and the National Security Administration's data center.

1. **Drive Utah's position as an economic leader.** Low energy costs have helped bring world-renowned employers to the State including companies such as Adobe, EBay, Proctor & Gamble and the National Security Administration's data center.
2. **Prepare Utah to meet future energy and resource demands.** By 2040, the State expects a population growth rate of 67 percent, which will impact energy demand. Planning in the near term will help the state meet future needs at the least possible cost.
3. **Deliver substantial benefits to the residents of the State.** Energy, minerals and infrastructure programs come with economic and environmental benefits such as monetary savings, increased competitiveness in business and industry, reduced water use and support for air quality improvements. This also supports Utah's Energy Policy goal to provide adequate, reliable, affordable, sustainable and clean energyresources.
4. **Continue to support Utah's unparalleled quality of life.** Carefully consider the impacts of energy development on human health, environmental impacts and impacts on wildlife habitat. Develop approaches that avoid, minimize, or mitigate these impacts in order to continue to support the State's high-quality of life for its citizens.

[1] http://energy.utah.gov/download/reports/10%20Year%20Strategy_2.0_03042014.pdf

Energy is a $20.9 billion industry in Utah, generating $656 million in state and local revenues *(including $77 million directly for education through the Utah School and Institutional Trust Lands Administration in 2013).* There are more than 10,000 direct energy jobs in the state, a total that expands to almost 40,000 when indirect and induced employment is included. Employment data are shown below.[2] Employment directly related to energy has produced earnings at a rate almost twice that of other jobs in the state.

Producing crude oil, natural gas, and coal, the State of Utah is a net energy supplier to the nation. The state's diversified energy portfolio also includes: geothermal, solar, oil shale, oil sands and wind resources along with hydropower.[3]

Of the 50 states, Utah has the fourth highest number of producing mineral leases on federal lands.[4] Over 98 percent of the energy produced in Utah is derived from oil, gas, and coal, but unconventional and renewable energy resources have significant growth potential.[5]

Direct, Indirect, and Induced Employment	
Oil and Gas Production	6,976
Refineries	9,522
Coal Production	3,548
Electricity Production	10,493
Electricity Dist. & Trans.	6,311
Solar Panel Installation	277
Other	2,592
Total	**39,719**

[2] https://energy.utah.gov/resource-areas/energy-information/ [3] https://www.eia.gov/state/analysis.php?sid=UT [4] https://www.eia.gov/state/print.php?sid=UT#13
[5] http://business.utah.gov/publications/energy/

STATE AGENCIES

UTAH ENERGY RESOURCES ARE MANAGED BY MULTIPLE AGENCIES, EACH WITH SPECIFIC ROLES AND DUTIES: THE GOVERNOR'S OFFICE OF ENERGY DEVELOPMENT, THE DIVISION OF OIL, GAS, AND MINING, AND THE UTAH GEOLOGICAL SURVEY. (UTAH CODE ANN. 63A-5-701).

Utah Governor's Office of Energy Development (OED)

OED is dedicated to advancing all forms of responsible energy and minerals, including conventional, unconventional and renewable, as well as fostering innovation in the areas of efficiency, conservation, and alternative transportation. OED is responsible for implementing the state energy policy (63M-4-301) by facilitating the development of the Utah's diverse energy and minerals sector. The OED provides industry assistance through the administration of state and federal tax incentives, fosters education and technological innovation, and collaborates with a variety of stakeholders in government, nonprofit and the private sector. The office is also dedicated to promoting responsible energy policies, and regularly handles public lands and environmental issues.

Mission

The office mission is to advance Utah's diverse energy sector through planning, policy, and direct engagement with the private sector; and thereby to foster economic growth through energy development and conservation activities and through the provision of affordable, reliable energy. Those diverse forms of energy and minerals include:

- Conventional,
- Unconventional,
- Renewable,
- Energy Efficiency,
- Infrastructure, and
- Non-Fuel Minerals.

Division of Oil, Gas, and Mining (DOGM), Department of Natural Resources

Originally established in 1955 as the Oil and Gas Conservation Commission, the Division was assigned responsibility for preventing the waste of oil and gas, encouraging conservation and protecting the correlative rights of oil and gas owners.[6]

While demand, technology and pricing have changed dramatically over the past 60 years, the Division's role still focuses on industry regulation to protect the public and Utah's environment. The Division is committed to the future of oil, gas and mining in Utah. As resource demands have increased, DOGM has continued its support of responsible resource development, public safety protection, and environmental preservation that supports the goal of ensuring access to affordable and reliable energy sources for future generations.

Mission

DOGM's mission is to promote the exploration, development and conservation of oil and natural gas resources in Utah, to foster a fair economic return to the general public for such resources, and to maintain sound regulatory practices to ensure environmentally acceptable activities.[7]

The Division manages four programs:

Minerals

The minerals program regulates all non-coal mining operations in the state with a few exceptions. DOGM staff works to ensure mining operation procedures are followed. This includes verifying operators work within permit boundaries, that mining operations pose no threat to public safety or the environment and assuring appropriate fees/bonds are collected for reclamation.

Coal

The Coal Program is responsible for providing permits to coal companies, completing site inspections to confirm compliance and overseeing the reclamation and bond release process. Ensuring provisions of the coal rules are followed allows for continued extraction of coal to occur in a way that reduces and/or eliminates long-term impacts to the environment.

[6] Utah Code Ann. §40-6-15 [7] Utah Code Ann. §40-6-1

ENERGY RESOURCES

Abandoned Mine Reclamation

The Abandoned Mine Reclamation Program works to protect the public from dangers of old mines by sealing off access to openings and cleaning up waste. Old mining sites can be intriguing to unsuspecting explorers but can contain dangerous gases, unstable structures and explosives.

Oil and Gas

The Oil and Gas Program of the Utah Division of Oil, Gas and Mining was established in 1955 to prevent the waste of oil and natural gas, encourage conservation and protect correlative rights of oil and natural gas owners. By legislative mandate, the Oil and Gas Program of the Utah Division of Oil, Gas and Mining has oversite responsibility for the following:

- All operations for and related to the production of oil or natural gas including: drilling, testing, equipping, completing, operating, producing, and plugging of wells, and reclamation of sites.
- Spacing and location of wells.
- Operations to increase ultimate recovery, such as: cycling of natural gas, the maintenance of pressure, and the introduction of natural gas, water, or other substances into a reservoir.
- The disposal of salt water and oil-field wastes.
- The underground and surface storage of oil, natural gas, or products.
- The flaring of natural gas from an oil well.

Utah Geological Survey (UGS), Department of Natural Resources

The Utah Geological Survey is tasked with providing timely scientific information about Utah's geologic environment, resources, and hazards.[8] The UGS manages five programs:

Energy & Minerals Program

The Energy & Minerals Program provides geologic information to government, industry, and individuals to encourage and aid in the prudent development of the state's mineral and energy resources. The UGS also inventories, documents, and researches Utah's abundant mineral and energy resources and maintains the Utah Core Research Center. Detailed energy resource maps can be found at *https://ugspub.nr.utah.gov/publications/circular/c-121.pdf*

Geologic Hazards Program

The Geologic Hazards Program helps protect Utah's public health and safety by investigating geologic hazards and environmental concerns involving geology; provides state and local governments and the public with information and technical services; compiles small- and large-scale geologic-hazard maps; and performs detailed studies on geologic hazards and water resources.

Geologic Information & Outreach Program

The Geologic Information & Outreach Program answers questions and provides information on Utah's geology to the public, educators, industry, and decision makers; produces non-technical flyers and colorful brochures on a variety of geologic topics; provides geologic resources to teachers; and maintains the Natural Resources Map & Bookstore.

Geologic Mapping Program

The Geologic Mapping Program maps Utah's geology at scales of 1:24,000 (7.5 minute quadrangle maps) to 1:100,000 (regional maps). These maps and accompanying booklets describe stratigraphy, structure, Quaternary geology, geologic hazards, economic geology, ground-water resources, and scenic geologic resources. UGS maps are used by geologists, government officials, industry representatives, and the public to better understand Utah's geology, delineate the economic value and potential of property, and assess geologic hazards.

Groundwater & Paleontology Program

The Groundwater & Paleontology Program maintains and publishes records of Utah's fossil resources, provides paleontological and archaeological recovery services to state and local governments, conducts studies of environmental change to aid resource management, evaluates the quantity and quality of Utah's groundwater resources.

[8] Utah Code Ann. §79-3-202

ENERGY SPECIFICS

Quick Facts

- Utah accounted for 1.6 percent of U.S. coal production in 2015 and shipped about one-fifth of its production to other states and countries.
- Coal and natural gas produced more than 90 percent of Utah's net electricity generation in 2016, but coal's share declined from 94 percent in 2005 to 69 percent in 2016, while the share from natural gas rose from 3 percent to 23 percent.
- About one-third of Utah's renewable electricity generation came from solar resources, more than from any other renewable resource.
- Utah has a voluntary goal of obtaining 20 percent of the state's 2025 adjusted retail electric sales from renewable energy resources; in 2016, 8 percent of Utah's utility-scale net electricity generation came from renewable resources.[9]

Petroleum

Utah's rich history as a major oil producer dates back to 1955, with the discovery of the Bluebell field in Duchesne County. More than six decades later, the state still ranks as a major oil producer in the United States. The majority of Utah's oil production is concentrated in Duchesne, Uintah and San Juan counties. The oil is commonly referred to as "waxy crude" because of its relatively high paraffin content.[10]

Findings

Utah's two types, black and yellow, flow like a liquid at high-temperature, but thicken at room temperature, creating long-distance transportation challenges. However, Utah waxy crude has low levels of acid, sulfur and metals, which makes it desirable in the refining process.[11]

Utah accounts for 1 of every 8 barrels of crude oil produced in the Rocky Mountain states. Oil drilling operations and wells are concentrated in the Uinta Basin in northeastern Utah and the Paradox Basin in southeastern Utah. Oil production nearly tripled from 2004 to 2014 but has since declined as crude oil prices and the number of new wells drilled have decreased.[12]

Located in the Salt Lake City area, Utah's refineries process crude oil brought in by truck or pipeline from Utah, Wyoming, Colorado, and Canada into a variety of products. The refineries produce motor gasoline, diesel fuel, jet fuel, other fuel oils, and wax. Refined petroleum products are delivered by pipeline into the Salt Lake City area from refineries in Wyoming and Montana. Other pipelines flow out of Salt Lake City refining centers to markets in Idaho, eastern Oregon, and eastern Washington. In December 2011, a pipeline was opened between the Salt Lake City refineries and Las Vegas, providing Nevada with an alternative to California refineries for petroleum products supply.[13]

Utah's proven crude oil reserves account for between 1 percent and 2 percent of the U.S. total. The Uinta Basin of eastern Utah overlays part of the Green River oil shale, a kerogen-rich formation that represents one of the world's largest oil resources. Kerogen is a fossilized organic material, found in sedimentary rock, which can be heated to extract crude oil. Pilot oil shale projects have been undertaken in the area. Eastern Utah also hosts the largest U.S. resources of bitumen in oil sands.[14]

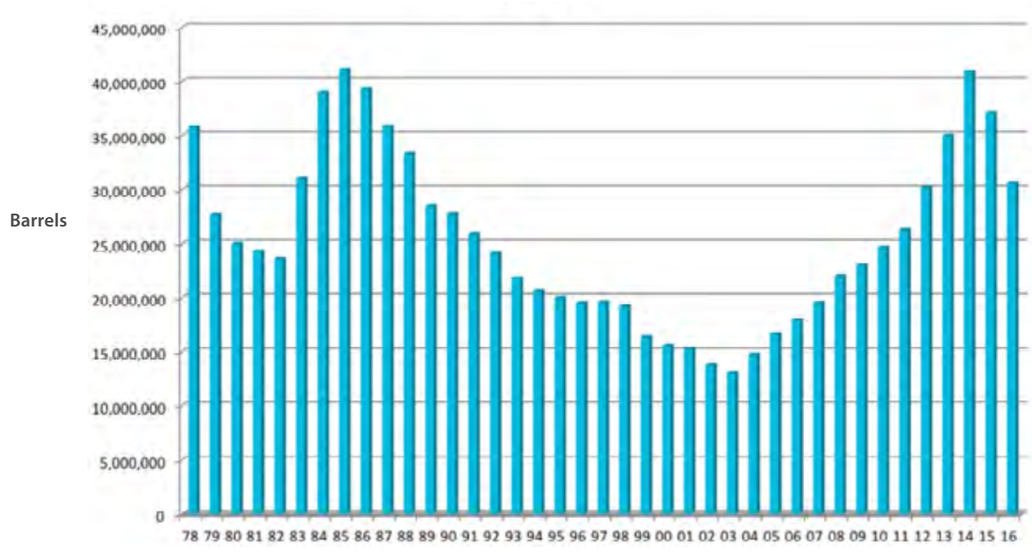
Economic Considerations

The state of Utah ranked 11th in the country in crude oil production during 2015 and 12th in natural gas gross production during 2015.[15] Utah's oil industry has played a significant role in the state's economic prosperity. Utah School and Institutional Trust Lands Administration revenues come primarily from natural gas, coal, oil, real estate development and other surface uses such as grazing.

Those revenues have grown 270 percent since 2001.[16] From high-paying jobs, to tax revenues to federal, state and local governments, and royalty revenue to Utah citizens and its Permanent School Trust Fund, Utah's petroleum industry has helped support the state's continued financial stability. Utah petroleum fuels a wide-range of vehicles and provides the petrochemical building blocks that go into the production of clothes, cell phones, computers, recreational equipment and thousands of other everyday items that society consumes. The state's oil production over almost four decades is shown below.[17]

[9] https://www.eia.gov/state/print.php?sid=UT [10] http://energy.utah.gov/category/conventional-energy/ [11] http://energy.utah.gov/category/conventional-energy/
[12] https://www.eia.gov/state/print.php?sid=UT [13] https://www.eia.gov/state/print.php?sid=UT [14] https://www.eia.gov/state/print.php?sid=UT [15] https://www.eia.gov/state/?sid=UT
[16] http://dev.utahbusiness.com/articles/view/energy_development_in_the_uintah_basin/?pg=2 [17] http://www.utahpetroleum.org/industry/statistics/oil_production/

Utah Oil Production 1978 - 2016



(1 Barrel = 42 U.S Gallons)

Objectives

It is an objective of the State to ensure Utah's continued economic development through access to our own clean and low-cost energy resources. This will allow the state to meet projected energy growth demands over the next decade by making balanced use of fossil fuels and alternatives and renewable resources in a market-driven, cost effective, and environmentally-responsible way.

Policies and Guidelines

Support for continued traditional energy development from oil and gas is essential to the state's energy plan. That plan calls on the state to:

- Facilitate the expansion of responsible development of Utah's energy resources, including traditional, alternative and renewable sources.
- Pursue opportunities for Utah to export fuels, electricity and technologies to regional and global markets.

[18] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf

Natural gas

In Utah, natural gas is mostly used for home heating (residential, 25 percent), but starting in mid-2004, 2,151 MW of new natural gas-fired electric generating capacity came online, greatly increasing the amount used by the electric utility sector (from 8 percent in 2005 to 24 percent in 2015). Despite this, consumption of natural gas in the state has decreased from the high reached in 2013 of 247 billion cubic feet down to 231 billion cubic feet in 2015.[18]

Findings

Utah's natural gas production is concentrated in the Uinta Basin and accounted for about 1 percent of U.S. output in 2015. Coalbed methane—natural gas produced from coal seams—has provided as much as one-third of Utah's natural gas output but has been gradually declining from its 2002 peak.

It is estimated that about 2 percent of U.S. proved natural gas reserves are located in Utah. Utah only consumes about half of the natural gas it produces. The industrial sector is Utah's largest consumer of natural gas followed by the residential sector. Six in seven households in the state use natural gas for home heating. Natural gas is an essential raw material for many products, such as: paints, fertilizer, plastics, antifreeze, dyes, photographic film, medicines, and explosives.[19]

Utah is crossed by a major transportation corridor for shipping natural gas from the Opal Hub in Wyoming and the Piceance Basin in western Colorado to markets in Nevada, Wyoming, Idaho, and beyond. The Clay Basin facility, on the Utah-Wyoming border near Colorado, is one of the region's largest underground storage facilities.[20]

Economic Considerations

Natural gas prices, as with other energy commodities, are driven by supply and demand fundamentals and closely linked to the volatility associated with the price of crude oil and/or petroleum products. Price and value of natural gas produced in Utah in the past ten years have fluctuated dramatically, peaking in 2005 (due to high prices related to Hurricane Katrina) and again in 2008, before settling down to $2.47 per thousand cubic feet in 2015, translating to a value of $1.2 billion.[21] Natural gas prices in early 2016 continued to slide down below $1.50 per thousand cubic feet but have rebounded slightly in 2017.[22]

Objectives

Energy development is of particular importance to the state because of the associated capital investment, job creation and revenue. A strong natural gas industry contributes to Utah's historically low energy costs and provides a foundation for success across all industrial sectors statewide.

Policies and Guidelines

Support for continued natural gas development within the State of Utah is a major component of the state's energy plan. The benefits of developing this abundant and clean resource will continue to play a key role in Utah's economic future and the nation's energy independence. Technologies continue to emerge that are allowing energy producers to access significant and growing supplies of domestic natural gas from shale formations and other unconventional reservoirs.

Coal

Mined throughout Utah for more than 100 years, the majority of Utah coal is consumed in-state for electric power generation. Valued at over $800 million, Utah's coal economy is especially important to rural Utah, providing roughly 2,000 high-paying jobs and a significant portion of county tax bases. Due largely to coal's contribution, the State has benefited from some of the most affordable electricity prices in the nation.

Findings

Declining Utah coal production started during the 2008 recession, but unlike other fossil fuel resources in the state, demand did not rebound. Approximately 12 million short tons of coal were consumed in Utah in 2016, 95 percent of which was burned at electric utilities. The production decline in recent years included a dramatic 22 percent reduction between 2015 and 2016, as power demand fell flat across the nation.

[18] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [19] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [20] https://www.eia.gov/state/print.php?sid=UT
[21] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [22] https://www.eia.gov/state/print.php?sid=UT

Economic Considerations

Coal extraction is important to Utah. In 2014, Utah coal operators produced 17.9 million short tons of coal valued at $600 million. Many communities continue to rely on the coal industry to provide jobs and stimulate their local economies.

Coke consumption in Utah ended in 2002 when Geneva Steel closed operations. Coke is a fuel that can be made from coal and is used throughout the world in blast furnaces to make iron. While coal sales for industrial use (mostly cement and lime companies) have averaged roughly 630,000 tons over the past 5 years, this represents only half of peak demand of 1.3 million tons reached in 1998. In the past, Utah was a net exporter of coal, but as production declined and out-of-state demand dropped, Utah imports have roughly equaled domestic and foreign exports in 2015 and 2016.[23]

Objectives

The state of Utah continues to support the development of its coal resources. The recently released report: Advancing Utah Coal: Technology, Policy, and a Path Forward provides a framework and recommendations for the advancement of strategic coal technologies and a sustainable coal economy in Utah. The Advanced Coal Resource group (ACRG), which is a state-based working group comprised of members from coal communities, local government, industry and academia, meets regularly. The ACRG focuses on the development and deployment of advanced coal technology and identification of opportunities for responsible coal development and coal industry growth.

Utah, with its forward-thinking research universities and entrepreneurial spirit, is well-positioned to provide world leadership in advanced coal technology. University groups and technology companies within the State continue to innovate through research and development. Since 2015, R&D groups in the State have received over $14 million in coal technology grants. The University of Utah's Industrial Combustion and Gasification Research Facility, located in Salt Lake City, houses some of the most advanced combustion test equipment found in the United States.

Policies and Guidelines

The Utah Legislature approved the Sustainable Transportation and Energy Plan (STEP) in 2016. This legislation established a five-year pilot program, under which regulators authorized Rocky Mountain Power to spend an average of $1 million per year on clean coal technologies.

Geothermal

Most of the potential for geothermal electric power generation in the United States lies in the western part of the country. Relying on earth's constant temperature, geothermal energy is a continuously available renewable resource. Since it is a continual resource, geothermal energy is the only renewable resource that offers base-load electricity generation in the absence of energy storage.

The State of Utah is located in an active geothermal zone. There are four known geothermal resource areas in Utah as classified by the Utah Geological Survey and the Bureau of Land Management. Geological studies and well data indicate that several other areas in the state have potential. The areas with the greatest geothermal resource assets are located within the Basin and Range province of western Utah and the Transition Zone of central Utah. *(g1)*

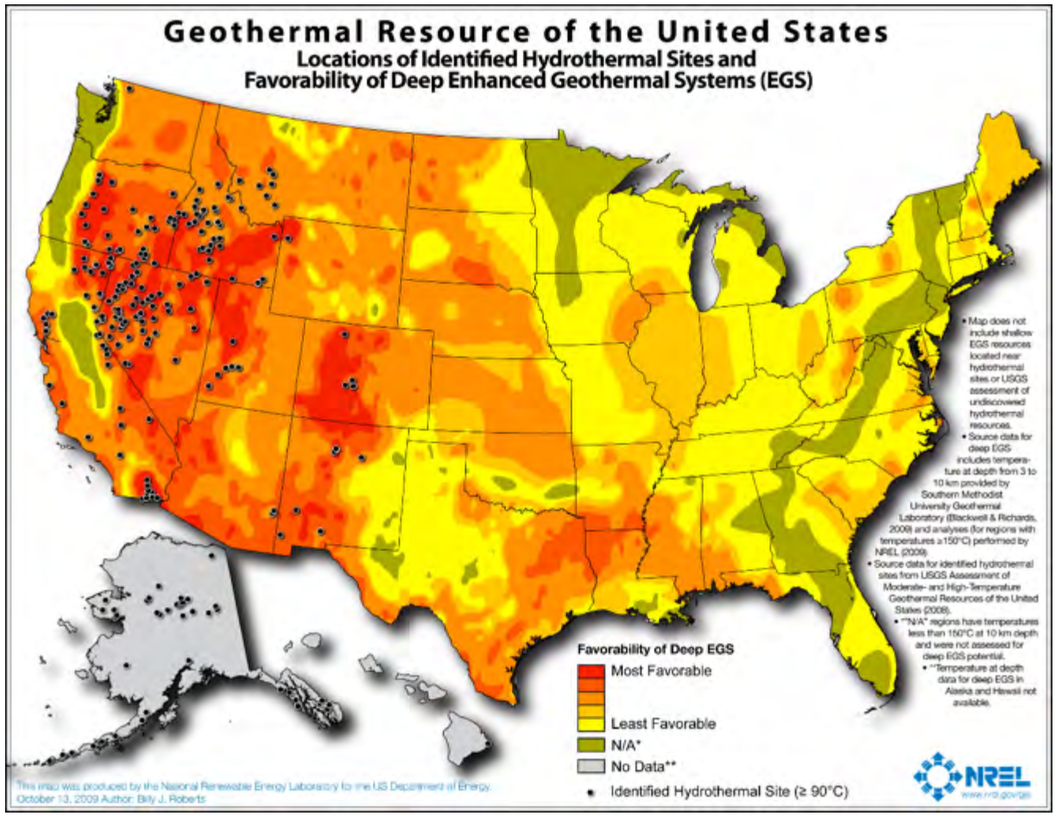
In northern Utah, geothermal resources are associated with the Wasatch fault zone, which defines the eastern edge of the Basin and Range province, separating it from the middle Rocky Mountains (Wasatch Range). These resources have similar characteristics to geothermal resources in Nevada, which has similar geology and is also part of the Basin and Range province.

Findings

Utah is one of only a few states to produce electricity from geothermal sources. Purchased by Enel in 2007, the Cove Fort geothermal operation located in Millard County underwent a significant efficiency conversion. Enel reopened Cove Fort in 2013, and since then the 25MW plant has powered approximately 13,000 homes.

Blundell is a geothermal facility located near Milford, Utah. The plant was completed in 1984 and became the first geothermal electric plant to operate outside of California.

[23] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf



PacifiCorp is the sole owner of the 38-megawatt geothermal plant which consists of two different generating units. The 26.1-megawatt Unit 1 uses "flash" technology and was commissioned in 1984. In 2007, they expanded the plant's capacity by 12 megawatts by adding an innovative "binary" heat-recovery process to extract more energy from the hot geothermal brine left over from the steam separation cycle.

Economic Considerations

While new plant construction requires significant capital investment, geothermal power offers, over time, a lower cost energy source that diversifies the fuel supply and supports the stability of the power grid. It does not require purchase of fuel, and because it is a baseload resource, geothermal power is reliable, helping to stabilize prices. It is also dispatchable, meaning that it can be ramped up or down quickly to make up for intermittency caused by other renewable energy sources. The average cost of geothermal plant over its lifetime is dramatically lower than that of many traditional sources of power.

Because geothermal energy is locally produced it can help to reduce foreign oil dependence and boost rural economies through royalties and tax payments. A geothermal power project development will involve hundreds of individuals, employing local people full time as well as stimulating induced jobs.

Since enactment of the 2005 Geothermal Steam Act Amendments, 25 percent of federal geothermal revenues from leasing and production on federal lands are allotted to state and local governments. In 2008, Nevada received $7.5 million, which was put in a state fund that supports K-12 schools throughout the state. The same year, California received $9.9 million.

Objectives

Utah was recently selected as one of two candidate sites that the U.S. Department of Energy (DOE) Geothermal Technologies Office is considering for a national advanced geothermal research facility. Referred to as UtahFORGE, the site is located 10 miles north of Milford, Utah. The University of Utah's Energy & Geoscience Institute and the Utah Geological Survey are working with the DOE to investigate enhanced geothermal systems (EGS). These systems will be designed to generate geothermal electricity without the need for natural convective hydrothermal resources.

Also called engineered geothermal systems, this approach offers great potential to dramatically expand the use of geothermal energy. Present geothermal power generation rely on hydrothermal reservoirs, and is somewhat limited in geographic application to specific ideal places in the western U.S. EGS offers the chance to extend use of geothermal resources more broadly.

Policies and Guidelines

Geothermal energy is a renewable source of electricity that offers important baseload qualities. To expand options for the development of this resource, Federal and state policies are needed that address a range of near, mid- and longer term challenges faced by the industry. These include:

- Incentive programs,
- Lease opportunities on government-controlled lands, and
- Expansion of access to transmission infrastructure.

Policy makers should prioritize efforts that address risks and obstacles to development, particularly reduction of resource risk. Development of strategic goals and support for long-term Federal programs will help to characterize and identify the overall available geothermal resource base.

Solar

Solar power is the term most often used to describe the conversion of energy from natural sunlight into electricity, either directly using photovoltaics (PV), indirectly using concentrated solar power, or a combination. Concentrated solar power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. Photovoltaic systems use solar panels, either on rooftops or in ground-mounted solar farms to convert sunlight directly into electric power.

Findings

Utah is rated as one of seven US states with the best potential for solar power.(s4) As of April 2016, 166 megawatts of utility-scale solar generating capacity were operating and some 600 megawatts were under construction. In 2015, nearly 3,000 residential customers in Utah had solar facilities and seven-tenths of all the state's solar generation came from distributed (customer-sited small-scale) facilities.[24] [25]

Economic Considerations

Since 2010, the average cost of solar PV panels has dropped more than 60 percent and the cost of a solar electric system has dropped by about 50 percent. In the past the state has obtained little net electricity generation from solar energy.[26] Utah has recently experienced an exponential increase in both utility-scale and residential photovoltaic (PV) solar capacity.[27] In 2015, solar provided more electricity than the state's biomass resources for the first time.[28] The 3 MW Buckhorn Solar Plant in Paragonah is among the largest solar installations in Utah. This project has enough electric capacity to power almost 600 homes.[29]

Objectives

Utah has a voluntary goal of obtaining 20 percent of the state's 2025 adjusted retail electric sales from cost-effective renewable energy resources. In 2015, 4.3 percent of utility-scale net electricity generation came from renewable resources.[30]

[24] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [25] https://energy.gov/eere/solarpoweringamerica/solar-energy-united-states [26] https://energy.gov/eere/solarpoweringamerica/solar-energy-united-states [27] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [28] https://energy.gov/eere/solarpoweringamerica/solar-energy-united-states [29] https://www.seia.org/state-solar-policy/utah-solar [30] http://www.eia.gov/state/?sid=UT

Policies and Guidelines

It is the policy of the state that Utah have adequate, reliable, affordable, sustainable, and clean energy resources. Under the state's energy policy development of renewable energy resources including solar, is supported. Utah allows net metering for residential systems and provides tax credit incentives. Recently state regulators and Rocky Mountain Power agreed to a settlement in the utility's case to change the way solar customers pay for their power.

Wind

Wind, like water, has been used for centuries to pump water, grind grain and power sail boats. According to the Department of Energy, wind generation could provide 20 percent of the nation's electricity needs by 2030 (ref). Wind turbines are modeled after traditional windmills and use propeller-like blades to harness the wind's energy. Usually three, evenly-weighted blades are mounted on a tower over 100 feet high. The turning blades are used to spin a low-speed shaft (30-60 rpm). This low speed shaft is connected to a high-speed shaft in the gear box to increase the rpm's to about 1000–1800 rpm, which is required for the generator to produce electricity.[31]

Findings

The potential for wind power generation in Utah is varied due to a wide range in the landscape. The Utah Renewable Energy Zones Phase I report found that at the 51 wind sites tested, there is a potential of 9,145 MW. Eleven of the sites have an estimated prospective capacity of at least 250 MW each, totaling 2,750 MW.

In mid-2016, Utah had five wind farms operating with nearly 400 megawatts of capacity.(140) The state's largest wind farm sends its power to California. (141) The Spanish Fork Wind Farm was the first utility-scale wind project in Utah. Located at the mouth of Spanish Fork Canyon, its 65-acres house turbines with a capacity of 19 MW.

The Milford Wind, purchased by SunEdison and its power plant subsidiary TerraForm, is the largest wind farm in Utah. The project is located in Beaver and Millard counties. Phase 1 consisted of 97 operational wind turbines for a total capacity of 204 MW. Phase 2 added 68 turbines and a 102 MW capacity. SunEdison recently filed for bankruptcy protection and as part of its restructuring is expected to exit from ownership in its wind interests.

Economic Considerations

The price of American wind power has declined more than 90 percent since 1980. The cost of energy from the wind is mostly a function of the wind resource – how fast it blows, how often, and when. Higher-speed winds are more easily and inexpensively captured. The more the wind blows, the more power will be produced by wind turbines. The term used to describe this is "average capacity," which is the percentage of power a turbine produces compared to what it could produce if it were always spinning. Overall, wind turbines capture between 20 percent and 40 percent of the energy in the wind. So at a site with average wind speeds of 7 m/s, a typical turbine will produce about 1,100 kWh per square meter of area per year. If the turbine's blades are 35 meters long, for a total swept area of 1,000 square meters, the power output will be about 1.1 million kWh for the year.[32]

Objectives

In order to realize the potential of Utah's wind resources, the following actions should be undertaken:

- Explore the potential pathways for wind power to contribute to the future electricity needs of the nation, including objectives such as reduced carbon emissions, improved air quality, and reduced water use;
- Quantify costs, benefits, and other impacts associated with continued deployment; and
- Identify actions and future achievements that could support continued growth in the use of wind energy.

Policies and Guidelines

Wind energy is recognized by State energy policy which supports its development. While studies have identified commercial wind power potential in the Wasatch and Uinta Mountain ranges in Utah's north-central region and on the mesas of the western region, most wind investment approved for Utah utilities to date has involved Wyoming projects.

[31] http://energy.utah.gov/resource-areas/renewable-energy/resource-profile-wind-energy-utah/ [32] http://windenergyfoundation.org/about-wind-energy/economics

Hydropower

Water has been a resource used for centuries; from the water wheel used to grind wheat into flour to today's sophisticated power plants. Utah is home to more than 800 dams. Less than 8 percent have associated hydroelectric power generation.[33] The U.S. Bureau of Reclamation operates two hydro plants in the State.

Findings

Hydroelectric generators typically supply between one-third and two-thirds of Utah's net renewable electricity generation, with the annual amount depending on water availability. The state's hydroelectric facilities are more than 60 years old on average; the oldest one dates from 1896.[34] In Utah hydropower is somewhat less significant than in other states as a percentage of net electricity generation. Hydroelectric power accounts for just under 2 percent of the state's generation.

The U.S. Bureau of Reclamation operates two hydro plants in the State, including the small facility at Deer Creek Reservoir, and the much larger 150 MW plant at the Flaming Gorge Reservoir. PacifiCorp operates 10 hydroelectric plants in the State of Utah, 9 of which range in size from 0.16-10.3 MWs in nameplate capacity, and one of which – the Cutler Plant in Box Elder County – is an appreciably larger 30 MWs. Most of the plants were constructed between the very early 1900s and 1930. However, the oldest are Granite (Big Cottonwood Creek) and Pioneer (Ogden River), which went into operation in 1896 and 1897, respectively. Local municipal utilities and irrigation companies operate a few dozen additional smaller facilities throughout the State, the majority of which are 0.5-3 MWs in size.[35]

Economic Considerations

Hydroelectric power offers clean and efficient energy production due to low greenhouse gas emissions and some of the lowest electricity prices in the country. However, other environmental concerns that exist for this energy source exist and have limited its development. These include the costs associated with heavy construction of dams and potential disruptions of plant and animal life.

Objectives

Although most energy in the United States is produced by fossil-fuel and nuclear power plants, hydroelectricity is still plays an important national role. Utah's all-of-the-above energy policy supports continued utilization of the state's hydro-power facilities.

[33] https://ugspub.nr.utah.gov/publications/circular/c-121.pdf [34] https://www.eia.gov/state/analysis.php?sid=UT#135
[35] https://energy.utah.gov/resource-areas/renewable-energy/resource-profile-hydro-energy-utah/

Policies and Guidelines

The future of hydroelectric power in the United States is expected to involve increased capacity at current dams and new run-of-the-river projects rather than construction of new, large hydro-electric projects.

Broad Energy Resource Considerations: Policies, Guidelines, Economics

Policies and Guidelines

Title 63M Chapter 4—Section 301 defines Utah's energy policy. This policy was passed into law in 2007 and is updated as necessary to support the State's energy objectives. The energy policy is succinct and comprehensive, and asserts the State's responsibility to promote energy resource development, including conventional, unconventional, and renewable energy, as well as energy efficiency, in support of a diverse energy portfolio. To ensure Utah has the ability to responsibly develop its energy resources, the policy defines a proactive role for the state in maintaining pressure on federal land management and regulatory agencies to ensure development proceeds at a reasonable pace that does not stifle investment and expansion.[36]

Specific to energy use, the policy addresses the state's role in maintaining reliable power supplies for Utah homes and businesses, while keeping the cost of power stable and low. It further articulates the State's role in promoting the associated infrastructure required to deliver resources to points in the market for refinement or consumption. Finally, the policy provides a clear position on the need for energy initiatives to advance in concert environmental and energy conservation objectives. As such, the policy recognizes that balanced, diverse energy development can be achieved to retain and enhance the quality of life enjoyed by Utah's residents.

Rules

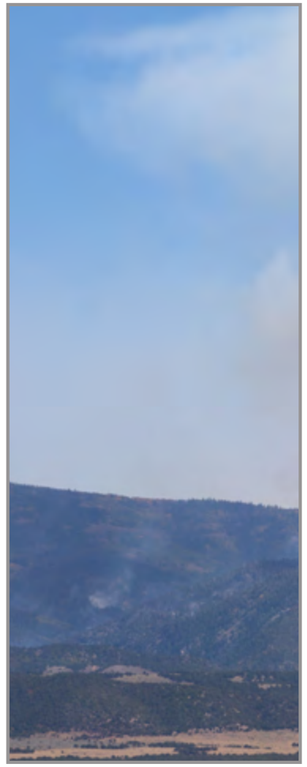
The Utah Oil and Gas Conservation General Rules can be found here:
https://oilgas.ogm.utah.gov/Rules/Rules.htm

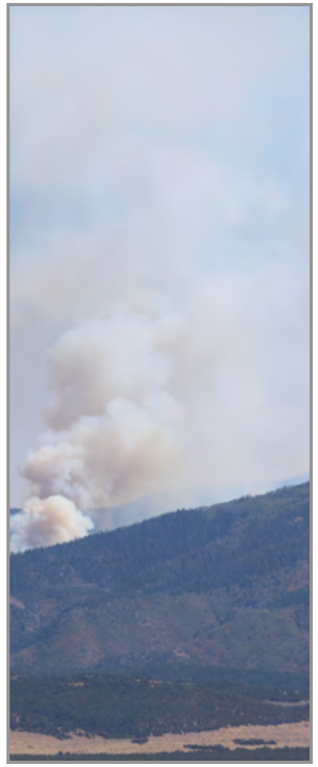
The Utah Oil and Gas Conservation Act can be found here:
https://oilgas.ogm.utah.gov/Rules/Conservation_act.htm

"It is declared to be in the public interest to foster, encourage, and promote the development, production, and utilization of natural resources of oil and gas in the state of Utah in such a manner as will prevent waste; to authorize and to provide for the operation and development of oil and gas properties in such a manner that a greater ultimate recovery of oil and gas may be obtained and that the correlative rights of all owners may be fully protected; to provide exclusive state authority over oil and gas exploration and development as regulated under the provisions of this chapter; to encourage, authorize, and provide for voluntary agreements for cycling, recycling, pressure maintenance, and secondary recovery operations in order that the greatest possible economic recovery of oil and gas may be obtained within the state to the end that the land owners, the royalty owners, the producers, and the general public may realize and enjoy the greatest possible good from these vital natural resources."[37]

General Energy Policies and Guidelines

- The state supports the responsible development of renewable and nonrenewable energy resources on public lands managed by the Bureau of Land Management and the U.S. Forest Service.
- The State will engage with federal land management agencies on all federal projects related to the development of renewable and nonrenewable energy resources on federal lands in order to promote the responsible development of these resources.
- The State opposes the withdrawal of public federal lands from energy development unless the withdrawal of such lands has been fully coordinated with the state and the counties within which the lands are located.
- The State particularly supports the development of renewable and nonrenewable energy resources located on public lands inside the state's duly adopted "energy zones," described in Utah State Code Title 63J-8-105.2, the San Juan County Energy Zone; 63J-8-105.5, the Uintah Basin Energy Zone; and 63J-8-105.7, the Green River Energy Zone.





RELATED RESOURCES

Economic Considerations

Air

Water Quality

Land Access

Livestock and Grazing

Forest Management

Wilderness

Noxious Weeds

[36] https://energy.utah.gov/wp-content/uploads/Energy-Primer-low-rez.pdf [37]http://le.utah.gov/xcode/Title40/Chapter6/C40-6_1800010118000101.pdf

Wildfire has always existed throughout history and is nature's way of cleaning landscapes and recycling resources. Wildfire has improved vegetative species abundance and diversity from the sage steppe of the western deserts to the high alpine peaks of the Rocky Mountains. Utah's landscapes have become dependent upon wildfire to maintain the health and vigor of the many ecosystems within the state.

Catastrophic wildfires significantly impact our landscapes, economy, air quality, and infrastructure and are considered the most preventable natural disaster facing Utah.

With the increase in the 1900s of fire suppression efforts and fire management objectives to keep all wildfires small, many of the ecosystems have departed from historic conditions. Fire has not been allowed to perform its natural role on the landscape and consequently, fuels have not been routinely consumed. As a result, fuel loads are high and when wildfires occur, they are often more damaging with catastrophic consequences to ecosystems and have a greater negative impact on communities.[1]

Every year, hundreds of wildfires burn on private, state and federal land in Utah. Fires occurring on federal and tribal lands are managed by the US Forest Service, Bureau of Land Management, National Park Service, US Fish & Wildlife Service and the Bureau of Indian Affairs.

Wildfires that occur on state and private lands are managed by the Division of Forestry, Fire & State Lands (FFSL) and are coordinated through County Fire Wardens. County Fire Wardens work with federal agencies and local fire departments to coordinate the suppression effort. More than 95 percent of all wildfires in Utah are extinguished before they exceed 10 acres.

[1] http://www.ffsl.utah.gov/images/forestry/stateassessment/UtahFAP-2016-HighRes-dnd.pdf

FFSL's Lone Peak Fire Center employs Hotshot Crews, Initial Attack Crews, Fuel Crews and Engine Crews. These crews are dispatched all over the state to put fires out in difficult terrain. When in-state fire activity is reduced, the crews are dispatched to help in other states. When Utah needs help, the same types of resources are dispatched from outside the state. This national resource sharing allows national fire managers to allocate firefighting resources where they are needed most.

The first priority for firefighters is protecting human life, then preserving property and valuable natural resources. Somewhere around half of all fires in the state are preventable, human-caused events .

Catastrophic Wildfire Reduction Strategy

Catastrophic wildfires significantly impact our landscapes, economy, air quality, and infrastructure and are considered the most preventable natural disaster facing Utah. Reducing large fires in Utah will protect life, property, communities, economies, and the environment.

In 2013, the State of Utah developed the Catastrophic Wildfire Reduction Strategy (CatFire) in response to the severe 2012 fire season. Reducing the catastrophic wildfire requires attention to three interdependent goals identified in the National Cohesive Wildfire Management Strategy -- Restore and Maintain Landscapes, Fire Adapted Communities, and Wildfire Response. These goals have been embraced throughout the development of the state's Catfire strategy.

Mitigation of hazardous fuels can change fire behavior making it easier to suppress. The effects of the mitigation, however, are not limited to life and property safety but will also affect forest health, water quality, vegetative species abundance, etc. As we continue to implement projects across the landscapes in Utah, the only way to truly be successful is to integrate existing programs, utilize local and federal partners and continue to educate the general public to create the desired shift towards more resilient communities and ecosystems.

The goals of the Catastrophic Wildfire Reduction Strategy are:

1. Resilient Landscapes

2. Fire Adapted Communities and

3. Strong & Effective Local Wildfire Response

The Objectives and Strategies of the Catfire are:

Reassess the existing education program to meet current and future needs

- Make sure literature is updated as necessary to incorporate current research information.
- Identify gaps in research and pursue funding to address research needs.
- Distribute materials to community members, individual landowners, public officials, interagentcy partners and media for further dissemination and outreach.
- Maintain collaborative efforts with interagency partners to deliver and update information.
- Increase participation in state and national programs including Utah Living With Fire, Ready, Set, Go!, Firewise USA and Fire-Adaptive Communities.

Resources required: State and Area WUI Coordinators, Catfire Prevention & Education Coordinator

[2] http://www.ffsl.utah.gov/index.php/fire

FINDINGS

Utah's varied vegetation is a function of precipitation and elevation. The landscapes of Utah can be categorized into three general types: forest, shrub, and grass. Each of these types can be further broken down into several sub-categories.[3]

Forest

For purposes of fuel typing, forests can be subdivided into the following: sub-alpine, aspen, ponderosa, pinyon-juniper, and hardwoods.

Sub-alpine forests are currently showing an expansion in Utah, especially into once pure stands of aspen. The sub-alpine type is prone to high severity and high intensity wildfires otherwise known as stand replacing wildfires. Due to the elevation, wildfire occurrence can range from 300 to 700 years. These stands will more likely succumb to insect and disease infestations than wildfire.

Aspen is on a steady decline statewide for a variety of reasons, including the wildfire exclusion paradigm. Low intensity wildfires are common in this forest type and act primarily to thin and regenerate stands.

The ponderosa forest type is typically characterized by open growth with wide spaces between the trees and an understory of shrub patches and continuous mixed grasses. Due to the wildfire exclusion paradigm, most of the ponderosa forest type is overstocked with multiple layers of understory. The wildfire return interval is five to ten years and is generally of low severity and intensity. Many stands are as much as six times removed from this interval. When wildfire does occur in these stands they are of high intensity and severity.

Pinyon-juniper forests in Utah are constantly fluctuating because of their natural tendency to encroach on sage-steppe and their resiliency to drought. The pinyon-juniper forests have increased across the state primarily due to fire suppression. Pinyon-juniper forests are now found in areas that they have not historically occupied. Because of this expansion the sage-steppe has decreased significantly across much of Utah creating negative impacts to plants, wildlife, and watersheds. The frequency of wildfires in the stage-steppe range from 5 to 35 years and in truly homogenous stands of pinyon-juniper can be 50 to 100 years. Severity and intensity of these wildfires is considered to be high in both cases. Most sage steppe has been encroached on by pinyon-juniper and is becoming decadent with little recruitment.

Hardwood forests in Utah are very rare and occur primarily in riparian zones composed of species that are fast growing and tend to decay before there are any appreciable effects from wildfire.

Shrubs

Shrub forests are predominantly composed of Gambel oak. Gambel oak is clonal, though if it is undisturbed, will expand as even aged stands covering large expanses. The fire return interval is disrupted from its standard of 5 to 20 years and tends to produce wildfire that is of high intensity and severity.

Grass

Grass fuel types are found throughout Utah and are primarily perennial. Of great concern is the nonnative annual grass, Bromus tectorum or cheatgrass. Cheatgrass invades newly burned areas especially in the pinyon-juniper and shrub fuel types. The ability of cheatgrass to adapt to varying soil and moisture conditions has created a vast monoculture across many low elevation, wildfire scarred landscapes. Because cheatgrass cures earlier in the year than other grasses it is available to burn earlier in the wildfire season, changing the fire return interval in many areas from 5 to 35 years to annually. Due to the proliferation of cheatgrass there has been a significant decrease in the abundance of native grasses across Utah.

Air Quality Considerations

Summer air quality can be impacted by levels of particulate matter generated by wildfires. Wildfire smoke is composed of a complex mixture of gases, fine particles, and water vapor that form when organic matter burns.

[3] http://www.ffsl.utah.gov/images/forestry/stateassessment/UtahFAP-2016-HighRes-dnd.pdf

Particulates from smoke are a mixture of solid particles—pieces of wood and other burning solids—and liquid droplets. They tend to be quite small, generally less than 2.5 micrometers in diameter, or approximately 1/70th the size of a human hair.

The biggest health threat from smoke comes from fine particles. Because they lodge more deeply in the lungs, they are a greater health concern than larger particles. Fine particulates get into the eyes and respiratory system, where they can cause health problems such as burning eyes, runny nose, and illnesses such as bronchitis. They can also aggravate chronic heart and lung diseases.

Finally, the incomplete burning of wood or other organic materials produces carbon monoxide, the gas in smoke. Its levels are highest during the smoldering stages of a fire.[4]

Other Considerations

In recent years, Utah has seen a new kind of flood risk emerge that includes flooding and debris flows related to watersheds damaged by wildfire. This type of flooding is distinctly different from the floods normally seen. Post fire related flooding results from enhanced runoff from fire damaged watershed, having significant impacts on water quality. As fires burn, they destroy vegetation and often leave soils in a hydrophobic state, altering the hydrology of the watershed and producing greater peak flows. It takes a human built environment to turn a natural event into a natural disaster.[5] This serious problem of debris flows and the elevated risk of debris flow following a wildfire is discussed further in the Landslide Section of the Utah Hazard Mitigation Plan.[6]

ECONOMIC CONSIDERATIONS

Many wildland fires are multi-jurisdictional and may involve State, private, and federal land.[7] In these cases, each entity pays a proportionate amount for suppression based upon an agreement that is established at the time of the fire. In most cases, the costs are apportioned based upon ownership of acres burned. The State, local government and federal agencies all participate in a coordinated wildfire suppression program.

Counties and municipalities may participate by agreement with FFSL to provide wildland fire protection on all unincorporated and nonfederal lands.[8] Counties may establish budgets with the division to participate in State assistance for wildland fire protection.

Counties and municipalities in a cooperative agreement pay for their own initial attack suppression costs out of their fire department budgets and if a fire goes beyond initial attack, they have the option to delegate financial and management responsibility to FFSL.

The legislature provides a firefighting budget to FFSL each year, which is used to create the necessary firefighting capacity, and some suppression costs. If costs for any particular year exceed this appropriation, the FFSL requests a supplemental appropriation to cover the additional costs. The fires must be paid for as the bills come in, so each supplemental appropriation covers the previous fire season costs.

On occasion, the FFSL receives financial relief through the Federal Emergency Management Agency for State and private costs on fires that threaten structures. These are called Fire Management Assistance Grants.[9] These grants pay up to 75 percent of suppression costs.[10] FFSL has received five such grants for the year 2012, up from the previous high of three in one year, 2007.[11]

Within Utah, the total cost of 2017 wildfire suppression in Utah is around $50 million.

Based on current ownership, Utah's portion of those costs will be about $20 million.

[4] https://deq.utah.gov/Topics/Air/wildfires/smoke.htm [5] https://docs.google.com/viewer?a=v&pid=sites&srcid=dXRhaC5nb3Z8dXRhaHxneDo0OTdiNTlhMmI1MzMyNGE [6] https://docs.google.com/viewer?a=v&pid=sites&srcid=dXRhaC5nb3Z8dXRhaHxneDo3OWIyZmY5ZTdlZTU0OGU0 [7] "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy". June 20, 2003, as modified, http://www.nwcg.gov/branches/ppm/fpc/archives/fire_policy/pdf/strategy.pdf [8] Utah Code Ann. §65A-8-101; 65A-8-202 and 203 [9] https://www.fema.gov/fire-management-assistance-grant-program [10] 7 OMB Circular A - 87, Title 44, Code of Federal Regulations (CFR), Part 206, Subpart L, Fire Suppression Assistance, Title 44, CFR Parts 2, 9, 10, 204 and 206 Disaster Assistance; Fire Management Assistance Grant Program. [11] http://archive.sltrib.com/article.php?id=54424345&itype=CMSID

As an example, the Forest Service estimates that the cost of fire suppression since 2002 has numerically averaged $15.8 million a year.[12] In addition, the Forest Service expends funds for treatment of the lands after a fire. These costs numerically average $3.5 million per year over the last 10 years, ranging from a low of $1.6 million, to a high of $48.6 million for the region. The Intermountain Region of the Forest Service estimates that 25 percent of these costs are attributable to Utah, or about $875,000 per year.

The millions of dollars spent to extinguish large wildfires are widely reported and used to underscore the severity of these events. Extinguishing a large wildfire, however, accounts for only a fraction of the total costs associated with the event. Residents in the wildland-urban interface (WUI) are generally seen as the most vulnerable to fire, but a fuller accounting of the costs of fire also reveals impacts to all Utah residents and gives a better picture of the losses incurred when our lands burn.

A full accounting considers long-term and complex costs, including impacts to watersheds, ecosystems, wildlife habitat, infrastructure, businesses, individuals, and the local and state economy. Specifically, these costs include property losses *(insured and uninsured)*, post-fire impacts *(such as flooding and erosion)*, air and water quality damages, healthcare costs, injuries and fatalities, lost revenues, infrastructure shutdowns *(such as highways, airports, and railroads)*, post-fire rehabilitation, and a host of ecosystem service costs that may extend into the distant future.

A study completed in 2017, "Wildfire in Utah, The Physical and Economic Consequences of Wildfire" as required by H.B 464, assesses the economic impacts of wildfire and provides a quantifiable analysis of the impact of wildfire on livestock and grazing, water quality, recreation and tourism, and air quality. *https://ag.utah.gov/home/blog/706-usu-wildfire-study.html*

OBJECTIVES

Wildland Fire Suppression

Because of land ownership patterns in Utah, large wildland fires seldom involve a single jurisdiction. The vast majority of large incidents involve multiple ownerships and agencies. FFSL works with federal land management agencies to suppress wildfires aggressively providing for safety first. However, in certain areas, federal agencies put more emphasis on fire's natural role in ecosystem health. In those instances, the State and Federal fire managers should work together to ensure that to the extent possible, both resource benefit and protection of private land are both accomplished.

The State should also work with private land owners and state agencies to identify areas where allowing fire activity may reduce overall risk of catastrophic fire and promote forest health. The decision to follow a less aggressive fire suppression strategy should be made with an emphasis on safety of human life and in areas where escape and spread to homes and infrastructure are negligible.

FFSL maintains cooperative agreements with all federal land management agencies and all 29 counties and more than 100 municipalities in the state.[13] Through cooperative agreements, Utah counties and municipalities can have catastrophic wildfire costs covered by the state. As long as these local governments perform their own initial attack, adopt a wildland urban interface ordinance, meet minimum wildland firefighting qualifications and perform prevention, preparedness and fuel mitigation work at their expense.

FFSL's fire management program is responsible for protecting life and property (in that order) by preventing the origin and spread of wildfire on 15 million acres of State and private lands. FFSL has limited resources to carry out a very large task. Through cooperative agreements FFSL provides a Fire Warden in each county. Wardens coordinate with

[12] http://publiclands.utah.gov/wp-content/uploads/2013/08/Report-on-Utahs-Transfer-of-Public-Lands-Act-H.B.-148.pdf [13] Utah Code Ann. § 65A-8-203 (West)

local fire departments to support their individual wildland firefighting programs. There is heavy reliance on local fire departments, especially for initial attack. This successful arrangement results in the overwhelming majority (95 percent plus) of wildfires being fully suppressed before reaching 10 acres in size. In the rare instance when wildfire does grow beyond initial attack, fire managers supplement the effort by calling upon hand crews and aerial firefighting resources through state programs and federal agencies.

The fire management program assists local fire departments by providing training and coordination through entities like the Utah Fire and Rescue Academy. The State oversees national (NWCG) certification (red card) to more than 1,500 fire department members every year in wildland fire. FFSL also administers several federal and one non-federal source of funding for fire departments to assist with the purchase of personal protective equipment, suppression equipment, communications and apparatus. Additional equipment is made available to fire departments through the Federal Excess Personal Property program administered by the fire management program. This program has placed more than 1,200 pieces of fire equipment with departments statewide.

Wildland Fire Prevention

Wildland fire prevention includes activities directed at reducing human caused ignitions. The Division's prevention efforts are guided by the National Cohesive Strategy and CatFire Strategy.

The State promotes wildfire prevention by using initiatives like the National Smokey Bear Campaign and the "One Less Spark" Campaign. These efforts are carried our through a multi-agency committee involving fire prevention staff from the US Forest Service, Bureau of Land Management, National Park Service and Bureau of Indian Affairs. Currently, FFSL's Area fire staff lead the committees' prevention projects.

Wildland Fire Preparedness

Utah has identified more than 650 communities at risk (CARS) to wildfire. Governor Gary R. Herbert's CatFire is the guiding document that directs the State's efforts in reducing that risk. Homeowners and property managers should receive education and technical guidance from FFSL and their local leaders in reducing their individual risk. Local governments that provide this outreach and technical assistance are given incentives to do so through their cooperative agreements.

Federal land management agencies receive direction from the National Cohesive Strategy (NCS). The NCS and CatFire both contain the following three pillars:

- Fire Adapted Communities
- Resilient Landscapes
- Safe, Effective Initial Attack

FFSL and local leaders assist these CARs through community engagement, planning and hazardous fuels management. Area WUI coordinators deliver educational programs and work with community leaders and planners to develop Community Wildfire Preparedness Plans (CWPP). These plans identify hazards and outline the mitigation strategies to address them. More than 190 CWPPs have been completed. FFSL supports national preparedness initiatives like Firewise USA Communities, Ready, Set, Go! and Fire Adapted Communities.

Wildland Fire Fuel Management

Fuel Management refers to the practice of modifying vegetation through mechanical, chemical, biological, or manual treatments, or by using fire. FFSL area WUI and fuels coordinators that assist communities with the development of CWPP's aid with implementing mitigation strategies. Local governments are given incentive to carry out fuel reduction work through their cooperative agreements. The State promotes fuel breaks, thinning, chaining, prescribed fire and the selection of fire-resistant vegetation in green-stripping and burned areas.

FFSL administers federal and state grants for fuel mitigation. These funds can be requested by local governments and private parties.

Expand Planning Opportunities

- Utilize existing tools to effectively and efficiently expand planning opportunities to the 625 identified Communities at Risk within the State of Utah.
- Train urban and volunteer fire departments to deliver the National Cohesive Strategy objectives and strategies to more efficiently reach those in the Wildland Urban Interface.

- Update and modify as needed the planning documents to meet the needs of the State of Utah and intent of the Healthy Forest Restoration Act.

Resources required: State and Area WUI coordinators, CatFire Program Coordinator CatFire Fire Risk Assessment.

Organizational Development

- Standardize program delivery to improve consistency across the state.
- Provide cross discipline training to meet needs of individuals and other programs.
- Expand cross ownership contract sharing to reduce mitigation costs.

Resources required: CatFire Program Coordinator and Regional planning process.

Wildland Fire Legislation

- Update statutes and codes to align more closely with current suppression management decision tools.
- Establish a reward system through tax relief for preparing for wildland fire.
- Provide increased funding to help communities prepare for wildfire.

Resources required: Salt Lake City staff and Area office fire staff.

Program Integration

- Increase communication and cooperation among programs within the Department of Natural Resources and other State and Federal agencies.
- Utilize when appropriate other programs to meet the intent of CatFire and the NCS.
- Help to identify areas of potential integration through the Landscape Scale Restoration process.
- Increase participation from municipalities entering into cooperative agreements with FFSL.

Resources required: CatFire Program Coordinator, CatFire Communications and Prevention Coordinator, and CatFire Fire Risk Assessment.

Project Identification and Implementation

- Identify both federal and non-federal mitigation projects identified in the priority areas of the Forest Action Plan, through the Interagency Fuels Committees and/or through the CatFire strategy process.
- Plan and complete projects that meet the needs of entire communities that focus on resilient landscapes and fire adapted communities.
- Incorporate a maintenance schedule for communities that are achievable and effective.

Resources required: CatFire Program Coordinator, CatFire Fire Risk Assessment, CatFire funding, and State and Area WUI Coordinators

Utah's Watershed Restoration Initiative

Utah's Watershed Restoration Initiative[14] (WRI) provides a balancing influence that promotes wildlife values and supports agricultural needs. Significant investments have been made through WRI to improve rangeland health and watershed conditions. In fiscal year 2014, the Utah Legislature contributed $3.95 million to WRI. Ninety-one participating partners completed restoration of 112,987 acres of uplands and 55 miles of stream and riparian areas, leveraging the legislative funds by a factor of 7-to-1. Sportsman-generated funding plays an important role in the WRI. Counties in general appreciate the benefits which are enabled through WRI habitat restoration projects. The long-term results of the WRI will be measured in reduced wildfire acreage and suppression costs, reduced soil loss from erosion, reduced sedimentation and storage loss in reservoirs, improved water quality and yield, improved wildlife populations, reduced risk of additional federal listing of species under the Endangered Species Act, improved agricultural production, and resistance to invasive plant species. To participate effectively, counties need their staff to attend meetings of the WRI regional teams, expressing their views and advocating for the kinds of watershed restoration efforts they feel are most important.

[14] WRI is a diverse partnership of state and federal agencies working together with private organizations, industry, local elected officials and stakeholders, coordinated by the Utah Department of Natural Resources.

POLICIES AND GUIDELINES

Burn Permits

Utah State Law (65A-8-211) and DEQ Rule specifies the times, places and conditions during which the public may carry out burning operations on private land. The closed fire season from June to November has one set of rules, while the rest of the year has another set of rules. Depending on the type of burning and where it takes place, a permit is not always needed. Several types of fire are exempt from some laws and rules; however, notification to your local fire department is always required.

Wildland-Urban Interface Code

The division uses the International Wildland-Urban Interface Code as a basis for establishing the minimum standards discussed the *2006 Utah Wildland-Urban Interface Code*. A county ordinance that at least meets the minimum standards were required to be in place by September 2006. The Division incorporates by reference the 2003 International Code Council Wildland-Urban Interface Code as the minimum standard for wildland fire ordinance in conjunction with Utah requirements.[15]

Utah Wildfire Risk Assessment Portal (UWRAP)

The *Utah Wildfire Risk Assessment Portal* (UWRAP) is the primary mechanism for the Division of Forestry, Fire and State Lands to convey wildfire risk information. It is comprised of a suite of applications tailored to reflect wildfire risk. The application is available for the public, local community groups, private landowners, government officials, hazard-mitigation planners, and wildland fire managers. It provides the data needed to support mitigation and prevention efforts across the state. UWRAP provides access to wildland fire risk assessments completed as part of the West Wide Wildfire Risk Assessment which includes three primary outputs: the Fire Risk Index, the Fire Threat Index and the Fire Effects Index. Risk is defined as *"the possibility of suffering harm or loss."* Within the WWA, the data layer that defines wildland fire risk is the Fire Risk Index (FRI), while the *"possibility of suffering harm or loss"* is represented by the Fire Threat Index (possibility) and the Fire Effects Index (harm or loss). The Fire Risk Index is calculated from the Fire Threat Index (FTI) and the Fire Effects Index (FEI).

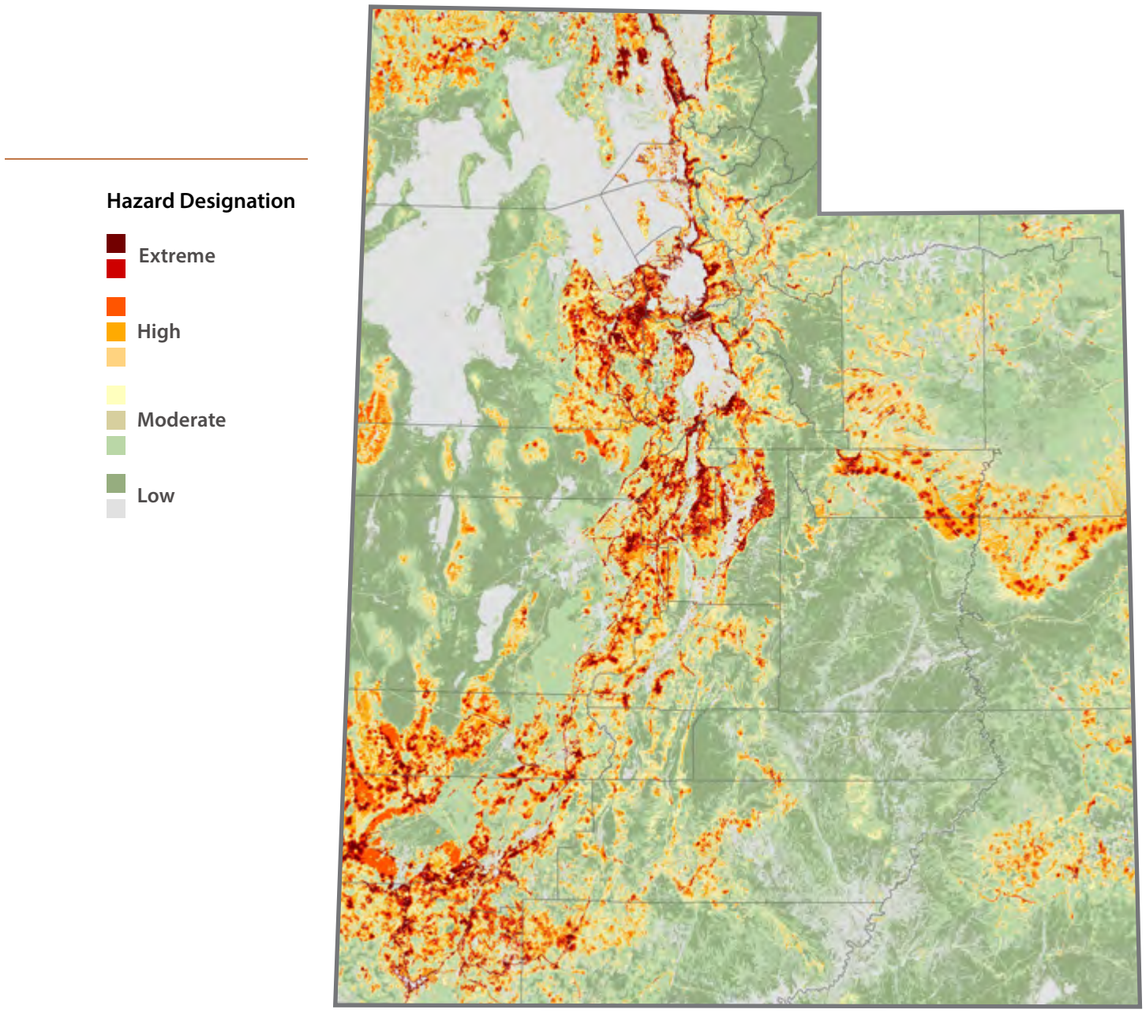
Detailed information about the WWA risk assessment model and source data is found in the following reports:

WWA Detailed Process Description

WWA Final Report (Full Report)

[15] http://www.ffsl.utah.gov/images/Fire/06_Utah_Wildland_5thdnd.pdf

Utah Wildfire Risk Assessement



FIRE MANAGEMENT

- The primary goal of all fire management decisions will be firefighter and public safety. At no time will the preservation of property or natural resources take higher priority than human life safety.
- The State will provide initial attack assistance to all lands where cooperative agreements are in place.
- The State will manage and pay for wildfires delegated to it by local jurisdictions that have cooperative agreements.
- The State will make available, firefighting resources including hand crews and fire engines for assignment to initial and extended attack wildfires.
- The State will pursue outreach and education efforts aimed at preventing wildfires and preparing homeowners/ landowners in the eventuality of wildfire..
- The State advocates that local jurisdictions uphold the wildland-urban interface code
- The State supports the Catastrophic Wildfire Reduction Strategy and the National Cohesive Strategy.
- The State will pursue opportunities to conduct and assist other partners with fuel reduction work including mechanical treatments and prescribed fire.
- The State supports the efforts of the Utah Watershed Restoration Initiative and other rehabilitative efforts throughout the state.
- The State will advocate for forest management practices that promote species diversity and overall ecosystem health.
- The State encourages local jurisdictions to prevent wildfires, prepare their residents for wildfire and reduce their fuel load by entering into cooperative agreements that give incentive for those actions.
- The State will participate with federal wildfire agencies to leverage and combine resources and strengths wherever possible.
- The State supports the Watershed Restoration Initiative to encourage reduced wildfire acreage and suppression costs, reduced soil loss from erosion, reduced sedimentation and storage loss in reservoirs, improved water quality and yield, improved wildlife populations, increased forage, reduced risk of additional federal listing of species under the Endangered Species Act, improved agricultural production, and resistance to invasive plant species.

STATE CODE

Utah Fire Prevention and Safety Act

§ 53-7-104. **Enforcement of state fire code and rules--Division of authority and responsibility**

- Cities and Counties are required to enforce the state fire code and rules of the state fire marshal in their respective areas. The state fire marshal enforcement duties are also outlined.

§ 53-7-203. **Utah Fire Prevention Board--Creation--Members--Terms--Selection of chair and officers--Quorum--Meetings--Compensation--Division's duty to implement board rules**

§ 53-7-204. **Duties of Utah Fire Prevention Board--Unified Code Analysis Council--Local administrative duties**

- The legislature created the Utah Fire Prevention Board who are unpaid members appointed by the Governor tasked with holding semiannual meetings and to administer the state fire code and to rules in accordance with the Utah Administrative Rulemaking Act. They are also tasked with creating other safety and fire prevention strategies.

Management of Forest Lands and Fire Control

65A-8-101 through **105** and **65A-8-201** through **212** (West)

- These statutory provisions outline the following:
  - Fire Management Authority
  - Cooperative Fire Agreements
  - City and Town Responsibilities

§ 65A-3-2. **Wildland fire prevention--Prohibited acts**

  - This is a wildland fire prevention statute. It outlines prohibited acts and associated misdemeanors.

§ 65A-3-4. **Liability for causing wildland fires**

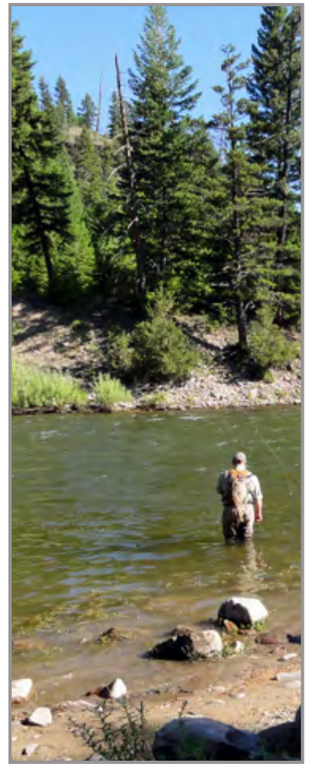
  - Liability for causing wildland fires

Catastrophic Public Nuisance Act

§ **11-51a-101** through **104**

§ 11-51a-103. **Declaration of catastrophic public nuisance--Authority to declare and demand abatement**

- This Act gives Counties the power to declare forests with heavy fuel loads a public nuisance if they meet certain criteria.



RELATED RESOURCES

Economic Considerations

Fire Management

Water Quality

Riparian

Recreation and Tourism

The term fisheries generally implies resource use and management actions, such as harvest and/or stocking, to meet specific management objectives for a given waterbody. Fisheries are an important resource and contribute significantly to the state's economy. Around 1.1 million pounds of fish are stocked into Utah annually and there are approximately 700,000 anglers within the state. There are 53 waters in the state that are classified as Blue Ribbon fisheries. These waters are recognized as being among the best waters in the state to fish. It was estimated that these fisheries alone contribute $328 million annually to Utah's economy and generate 3,976 jobs within the state.[1]

Fisheries within Utah are managed by the Utah Division of Wildlife Resources (UDWR).

Important fisheries exist for a variety of sportfish species, usually grouped into (a) coldwater species, which typically include the whitefish, trout, char, and salmon, and (b) warmwater/coolwater species, which include sportfish such as bass, walleye, perch, catfish, bluegill, crappie, and a number of others. The Great Salt Lake is a brine shrimp-focused fishery. Rare fish species and those subject to federal listing under the Endangered Species Act are referenced more fully in the chapter entitled "Threatened, Endangered, and Sensitive Species." For the most part, there is no fishery for imperiled species. Utah also supports a diverse assemblage of native non-game fish, such as suckers, chubs, and minnows. These fishes are generally not targeted by anglers but represent important aspects of Utah's natural resources and heritage. Maintaining Utah's natural diversity in fish species is also economically advantageous because recovery of critically imperiled populations is costly. Fisheries management decisions in Utah are made keeping in mind both the needs of anglers and native non-game species.

Fisheries within Utah are managed by the Utah Division of Wildlife Resources (UDWR). The UDWR has divided the state into 5 management units with each unit lead by a regional aquatics biologist. There are at least two additional fisheries biologists within each region.

The state promotes fishing through the creation of community fisheries and various outreach activities.

FINDINGS

Blue Ribbon Fishery (BRF) status is awarded to rivers and lakes or reservoirs that provide exceptional angling experiences.[2] An advisory council was created to:

- Identify Blue Ribbon Fisheries
- Recommend enhancements to Blue Ribbon waters
- Recommend protections for Blue Ribbon Fisheries
- Promote Blue Ribbon Fisheries

Criteria for BRF include waterbodies capacity to support recreational fishing pressure *(high fish catch rates, opportunity to catch large fish)*, sufficient water quality and quantity to support viable fisheries, and sufficient/legal angler access. BRF designation is conferred by the State Blue Ribbon Fisheries Advisory Council.

"To identify, enhance, and protect those Utah waters and their watersheds that provide, or have the potential to provide, Blue Ribbon quality public angling experiences for the purpose of preserving and enhancing these economically valuable natural resources."

Mission Statement, *Blue Ribbon Fisheries Advisory Council*

BRF status is a designation the local communities can work towards by improving accessibility to local waterbodies as well as taking steps to improve habitat for fish. Both of these steps can be accomplished through land use ordinance and by working with state and federal partners to improve habitat and water quality. Designated BRF waterbodies include:

- 27 flat waters with 251,549 total surface acres
- 26 streams with over 300 miles designated

Economic impacts or contributions have been estimated based on anglers' expenditures associated with the fishing trips.

[1] Man-Keun Kim and Paul M. Jakus. 2013. Final Report: The Economic Contribution and Benefits of Utah's Blue Ribbon Fisheries. Department of Applied Economics; Utah State University. 50 ppg.

[2] Blue Ribbon Fisheries Advisory Council. 2009. *Blue Ribbon Fisheries Advisory Council Handbook*

ECONOMIC CONSIDERATIONS

From high-mountain streams and lakes, to larger reservoirs, to small community ponds, Utah offers many places to fish. Recreational fishing provides a significant economic benefit to the Utah economy and particularly benefits anglers.[3] Economic impacts or contributions have been estimated based on anglers' expenditures associated with the fishing trips. Estimates by the Department of Applied Economics at Utah State University indicate that in 2011 a typical angler spent $90 per fishing trip to identified Blue Ribbon waters in Utah. This resulted in $184 million in direct expenditures made by anglers for Utah goods and services, which generated an additional $143 million in economic output, resulting in a total economic output of nearly $327 million. Approximately 3,976 jobs were associated with this expenditure related to Blue Ribbon waters. Tax revenue generated by this increased level of output, labor income and value added was estimated to be $35 million for state/local government. The variety of angling experiences available to Utahns is important, and it helps to sustain recreational activity in a number of state parks associated with reservoirs.

Brine Shrimp Commercial Fishery

Brine shrimp are a prolific aquatic species that inhabit the hyper-saline waters of the Great Salt Lake. The brine shrimp play an important role in the region'ss fisheries for several reasons. First, abundant supplies of brine shrimp and cysts (eggs) support millions of migrating and breeding shorebirds, waterfowl, and other avian species.[4] Second, brine shrimp cysts are harvested by commercial fishermen by more than a dozen local companies *(the economic impact of this industry is discussed below)*. Over 1 million kg of cysts are harvested annually to be used worldwide as food for farmed shrimp, fish, and shellfish in the aquaculture industry. Management of harvest quotas is completed by the UDWR in order to prevent overexploitation.

The brine shrimp industry produces $30–35 million annually and supports more than a dozen companies.[5] In 2010 Utah Department of Workforce Services reported 60–118 full-time employees and almost 300 during harvest season.[6]

The *Utah Brine Shrimp Royalty Act* requires harvesters pay a tax for brine shrimp eggs collected from the Great Salt Lake. Monies generated in this way are added to a special state fund *(Species Protection Account)* used for conservation projects which help plants and animals from being added to the Endangered Species Act.

[3] Man-Keun Kim and Paul M. Jakus. 2013. Final Report: The Economic Contribution and Benefits of Utah's Blue Ribbon Fisheries. Department of Applied Economics; Utah State University. 50 ppg. [4] Conover, M.R., and J.N. Caudell. 2009. Energy budgets for eared grebes on the Great Salt Lake and implications for harvest of brine shrimp. Journal of Wildlife Management 73(7):1134–1139. [5] https://www.ksl.com/?nid=148&sid=33078188 [6] 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, March

OBJECTIVES

The Utah Division of Wildlife Resources (UDWR) is the trustee and custodian of protected wildlife and is required to protect, propagate, manage, conserve, and distribute protected wildlife throughout the state. UDWR's mission is to protect, conserve aquatic species and their habitats, providing healthy aquatic ecosystems and satisfying recreational opportunities to benefit the citizens of Utah. Fish are considered protected wildlife and fall under the authority of the UDWR. The UDWR manages fisheries in Utah with two primary goals: **1**) providing quality recreational fishing opportunities and **2**) conservation of native aquatic species, including fish, amphibians, and mollusks. Assisting the UDWR in decision making and establishing management priorities is the Wildlife Board, which receives local input from the five Regional Advisory Councils (RACs). The Wildlife Board and each RAC consists of a diverse group of interest group representatives, including agriculture, sportsmen, federal land agencies, general public, and elected officials.

Aquatic Invasive Species

Aquatic Invasive Species (AIS) or Aquatic Nuisance Species are defined by the UDWR as nonnative species of aquatic plants and animals which cause harm to natural systems and/or human infrastructure. Not all nonnative species are considered AIS, as many nonnative fish species are desirable for sport fishing. These may include nonnative rainbow trout, largemouth 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 have no natural competitors. Once established the mussels spread quickly, growing on nearly all underwater surfaces. The prolific mussels often clog water and power infrastructure, harm water-based recreational equipment, and outcompete native species for nutrients which can have profound effects on sportfish populations high 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 UDWR posted notice of the detection of quagga mussel veligers *(juvenile mussels)* in the reservoir.

Other AIS include the New Zealand mudsnail and Eurasian watermilfoil. Several parasites and diseases are also considered invasive due to their effects on local fisheries. Each malady has unique lifecycles which have management implications, including transmission from hatcheries, sportsman, and natural sources. These include *whirling disease* and *Spawning Syndrome* which affect *trout species found in Utah.*

Once established, mussels are currently impossible to remove from contaminated waterbodies and are easily spread to nearby waterbodies via rivers and boaters. Preventing the spread of AIS are the most effective management actions. The DWR has a statewide system of boat cleaning/decontamination stations *(see the Quagga Decontamination Stations data)*, inspection check-points, and angler education efforts.

POLICIES AND GUIDELINES

- The State will seek to protect, conserve, and improve Utah's fish and aquatic wildlife and the habitats upon which they depend.
- The State will seek to provide for the varied demands of fish and aquatic wildlife recreationists.
- The State will seek constituent support and participation in fish and aquatic wildlife management programs.
- The State supports ensuring the persistence of the diversity of native fish and aquatic wildlife in Utah while at the same time providing excellent opportunities for anglers and other recreationists.

Fish Stocking

Fish stocking takes place at many waters around the state. A regularly updated list of stocking waters with dates and details of fish species stocked can be accessed whenever a person is interested. We are fortunate to have an extensive and well-managed system of state fish hatcheries which makes it possible to supply more people with a better quality fishing experience, involving higher catch rates and/or larger fish specimens than would otherwise be possible given the capacity of our waters to produce fish, compared with our increasing human population.

Utah's Community Fisheries Program

The DWR is committed to developing more community fisheries — places one can walk, bike or bus to, and catch a fish or two. Community fisheries provide a fun, easy way to spend quality time with family and friends outdoors, near home. They offer a setting for parents and kids to talk, enhance family interaction, and keep busy Utahns in touch with the natural world surrounding them. Fishing provides families with opportunities to get away from their day-to-day problems and share time together.

Youth Fishing Clubs

Kids benefit immensely from fishing. It's a sport that builds self-esteem and confidence while enhancing problem-solving and decision-making skills. DWR's Community Fishing Program includes an educational component for urban children *(ages six to 13)* who have never fished, or haven't fished as much as they'd like. Youth fishing clubs form each spring in various communities to introduce young people to the joys of responsible sport fishing. The clubs are led by adult mentors who teach interested youth about fish, the places they live, and how to catch them. Those interested in volunteering or enrolling children in a youth fishing club can visit DWR's website to view a list of these clubs.

The Wildlife Board establishes seasons, limits, and other wildlife regulations

The process for determining the balance among competing uses and establishing the best fishery and wildlife management policies is described in state law. This process is founded on an open, public dialogue concerning these issues. Five regional advisory councils (RACs) are active across the state, each consisting of a dozen or more individuals nominated by various interest groups. Council members can include citizens, local elected officials, sportsmen, agriculturists, federal land managers, and members of the public at large. The duty of each RAC is to hear input and recommendations, to gather data and evaluate expert testimony, and then to make informed policy recommendations to the Wildlife Board.

The Wildlife Board uses public input, the recommendations of the RACs, and the assembled facts to make determinations and establish policies best designed to accomplish the purposes and fulfill the intent of the wildlife laws. The Wildlife Board generates wildlife management policy, and exercises its powers by promulgating administrative rules and issuing proclamations and orders under Utah Code.

Sportfish Management

Within the last decade, the UDWR has begun focusing its sportfish management direction more on: 1) protection and enhancement of conservation sportfish species (*i.e., cutthroat trout*), 2) quality and trophy fishing opportunities, 3) recruiting and retaining new anglers through development of community fisheries, and 4) biological control of undesirable species through the stocking of predators like "wipers" *(white bass/striped bass hybrids)* and tiger muskie, and management of multi-story fisheries.[7]

The increased emphasis on the above-mentioned concepts provides new opportunities for fisheries management. It also increases the challenges of selecting the appropriate stocking plan for waters of the state. Compounding the biological challenges has been an increased diversity in the fishing public and their expectations on what constitutes a successful fishery. In 1984, anglers in Utah preferred catching rainbow trout, and angler satisfaction was tied to the ability to harvest a limit of 10-12 inch fish. Consequently, virtually all hatchery production was devoted to the culture of rainbow trout. Over the last 30 years, however, angler interest in warm and coolwater fisheries has grown. UDWR is working to meet this increased demand for warm/coolwater angling opportunities into the future.

The UDWR actively manages for the following warm and coolwater species: bluegill, channel catfish, black crappie, largemouth bass, smallmouth bass, tiger muskie, walleye, hybrid striped bass and yellow perch. There are a number of other species of warm and coolwater game fish that exist in Utah waters and provide angling opportunities such as: Sacramento perch, green sunfish, white bass, black bullhead and northern pike. For the most part, these other species are not being actively managed.

Trout are still dominant in smaller coldwater systems throughout the state such as the waters along the Mirror Lake Highway or elsewhere in the Uinta Mountains, Boulder Mountains, Wasatch Mountains, the Manti Mountains, and the LaSal Mountains.

Regardless of the management concept or species selected, the protection of native aquatic species is a principal concern for fisheries managers. Stocking and management practices that would be detrimental or cause the decline of native species are typically avoided. UDWR is developing sterile variants of certain species (e.g., Walleye) to provide angling opportunities while minimizing impact to sensitive species downstream of stocking locations.

Species stocked in lakes and ponds

The following species are typically stocked in flatwater environments: rainbow trout, tiger trout, brown trout, cutthroat trout, kokanee salmon, splake, lake trout, brook trout, largemouth bass, bluegill, channel catfish, tiger muskie, striped bass / white bass hybrids *(wipers)*, yellow perch, walleye, and black crappie. Future development of sterile variants of certain species may increase demand for them.

Stream Fisheries

Managing for self-sustaining fisheries in Utah streams should be a priority. The species which are typically stocked in streams are *(sterile)* brook trout, brown trout, or tiger trout. Tiger trout can be used in stream and river systems primarily in conjunction with cutthroat trout restoration projects. Tiger trout also have advantages in waters that present significant water quality challenges, making the use of rainbow trout impractical.

Planning

Management plans are developed for certain high-profile waters. These plans are developed in cooperation with the public through internet-based surveys, as well as committee-based approaches involving interested members of the public. When completed, these plans are presented to the Regional Advisory Councils for additional public review and input.

[7] Two-Story Reservoirs: a class of reservoirs characterized by distinct strata of warm and cold water caused by temperature-induced density differences. The warm stratum and corresponding littoral zone are dominated by black bass, yellow perch, black crappie and sunfishes. The cold stratum is generally dominated by trout, such as stocked rainbow trout. Fish of the warm stratum naturally reproduce while the trout are dependent upon stocking. Some naturally reproducing populations of brown trout and cutthroat trout exist in these reservoirs, but they never make up much of the observed angler harvest.

Utah Public Land Management Act

§ 63L-8-104. Declaration of policy--Sales and exchanges

- The Legislature declares that it is the policy of the state that:
  - (c) goals and objectives be established by law as guidelines for public land use planning, and that management be on the basis of multiple use and sustained yield, unless otherwise provided by statute; and
  - (d) the public land be managed in a manner that will:
    - (i) recognize the state's need for domestic sources of minerals, food, timber, and fiber;
    - (ii) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;
    - (iv) provide food and habitat for fish, wildlife, and domestic animals; and
    - (v) provide for hunting, fishing, trapping, outdoor recreation, human occupancy, and other human use, including the general enjoyment of nature and solitude.

Wildlife Resources Code of Utah

§ 23-15-2. Jurisdiction of division over public or private land and waters

- All wildlife within this state, including wildlife on public or private land or in public or private waters within this state, shall fall within the jurisdiction of the Division of Wildlife Resources."

§ 23-15-4. Screens or other devices required--Failure to install after notice a misdemeanor

- It is unlawful for any person, company or corporation to take any water from the state streams, lakes or reservoirs for power purposes, or for waterworks, without first furnishing and maintaining suitable screens or other devices to prevent fish from entering such power plants, millraces or waterworks system; said screen or other devices to be built and maintained under the direction of the board and at the expense of said owner or operators. The failure of any person, firm or corporation to install a screen or device within 30 days after notice in writing so to do has been given by the board shall constitute a misdemeanor.

§ 23-15-5. Notice of intention to drain or divert waterway

- day notice required to divert water from water ways containing protected aquatic life.

§ 23-15-3. Diversion of water prohibited--Exception for flood control

- Prohibits diversion or retention of water containing protected aquatic life

§ 23-15-7. Taking protected aquatic wildlife or eggs unlawful except as authorized

§ 23-15-9. Possession or transportation of live aquatic wildlife unlawful except as authorized—

Aquatic Invasive Species Interdiction Act

§ 23-27-201. Invasive species prohibited--Administrative inspection authorized

RELATED RESOURCES

Economic Considerations

Water Quality & Hydrology

Wildlife

Recreation and Tourism

A floodplain is land which is susceptible to be inundated by water of any source.[1] A Floodway is the stream channel and that portion of the adjacent floodplain that must remain open to permit the passage of the base flood. A One Hundred Year Flood is the flood elevation that has a one-percent chance of being equaled or exceeded in any given year, also known as the “base flood”.

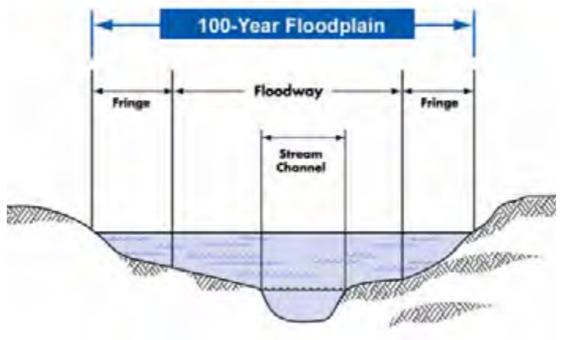
These resources are a result of Utah’s significant and diverse pre-history and history.

Flooding is defined as a temporary overflow of water onto lands not normally inundated by water, producing measurable property damage or forcing the evacuation of people and vital resources. Floods frequently cause loss of life, property damage and destruction, damage and disruption of communications, transportation, electric service, and community services, crop and livestock damage and loss, and interruption of business. Floods also increase the likelihood of hazard such as transportation accidents, contamination of water supplies, and health risk.

Several factors determine the severity of floods including rainfall intensity, duration and rapid snowmelt. A large amount of rainfall over a short time span can result in flash flood conditions. Small amounts of rain can also result in flooding at locations where the soil has been previously saturated or if rain concentrates in an area having impermeable surfaces such as a large parking lot, paved roadways, or burned areas with hydrophobic soils. Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

[1] Utah Code Ann. §10-9-103

Frequency of inundation depends on the climate, soil, and channel slope. In regions where substantial precipitation occurs during a particular season, or in regions where annual flooding is due to spring melting of winter snow pack, areas at risk may be inundated nearly every year.[2]



FINDINGS

As settlements and communities formed in the state, little regard was given to the purpose and function of floodplains. Homes, businesses, and even whole communities have been built in floodplain areas. The development of these floodplains has resulted in continual and oftentimes severe social and economic loss.

Traditionally, planning for flood control has focused on protecting existing development(s) through structural works such as dams, diversions, or levees, and providing emergency relief and recovery assistance to flood victims following a disaster.

These approaches are expensive, and have not been totally effective in reducing flood damages. Despite considerable expenditure on flood control works, annual damages due to flooding continue to rise. It is apparent that another alternative is needed, one that gets to the root of the problem: man’s insistence to use and occupy flood hazard areas.

The Utah Division of Emergency Management has expertise in the National Flood Insurance Program, Risk MAP (Risk Mapping Assessment and Planning), and mitigation planning.

The National Flood Insurance Program (NFIP) provides that alternative. This law recognizes and encourages the need to control development in floodplains and to protect people from harm by relocating people and not floodwaters. It does not prohibit, but guide development in floodplain areas, balancing nature’s needs to convey floodwaters, and a community’s land use needs. Congress created NFIP in 1968, offering nonstructural approaches to reduce flood damage. The program makes flood insurance available to property owners in flood – prone communities. In return each community agrees to guide future floodplain development. It requires local governments to adopt and enforce floodplain regulations, meeting federal requirements, before flood insurance can be obtained in their community.

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include zoning, subdivision, or building requirements, and special – purpose floodplain ordinances.

Prior to the creation of the NFIP, floodplain management as a practice was not well established, only a few states and several hundred communities actually regulated floodplain development. For many communities, the NFIP was the community’s initial exposure to land use planning and community regulations.

A community’s agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction is an important element in making flood insurance available to home and business owners. Currently over 216 communities in Utah (view the Community Status List) voluntarily adopt and enforce local floodplain management ordinances that provide flood loss reduction building standards for new and existing development. There are 600-plus flood map panels for Utah.

[2] https://docs.google.com/viewer?a=v&pid=sites&srcid=dXRhaC5nb3Z8dXRhaHxneDo0OTdiNTIhMmI1MzMyNGE

The Risk MAP Program, standing for Risk Mapping Assessment and Planning, is the Federal Emergency Management Agency (FEMA) program that provides communities with flood information and tools they can use to enhance their mitigation planning efforts and take action to better prepare their citizens. Through more precise flood mapping products, risk assessment tools, and planning and outreach support, Risk MAP strengthens local ability to make informed decisions about reducing risk.

The 2014 State Hazard Mitigation Plan (SHMP) is the result of a collaborative effort between state, federal, and local groups and individuals, including FEMA, the Utah Department of Public Safety, the seven Associations of Government, and the State Hazard Mitigation Team (SHMT), which continues to meet quarterly to discuss and incorporate new information and ongoing mitigation efforts.[3]

The State Hazard Mitigation Plan is designed to evaluate the risks that currently pose the greatest threats to Utah, and includes an assessment of natural hazards such as earthquakes, wildfires, and floods; naturally occurring phenomena such as radon gas and problem soils; and man-made threats including hazardous materials spills and possible terrorist activity. The plan then goes one step further in prioritizing how and when the threats will be addressed and suggests mitigation activities that will have the greatest chance of success.

The Utah Division of Water Rights administers the Dam Safety Program that assesses existing dam condition to prevent dam failure or uncontrolled release of water. The Dam Safety program was established to protect the public against the possibilities and consequences of dam failures. There are nearly 300 “high hazard” dams statewide, with almost 100 along the Wasatch Front.[4]

The Federal Emergency Management Agency (FEMA) has mapped for flood hazards in most of the state. The mapping program identifies flood hazards, assesses flood risks, and partners with states and communities to provide accurate flood hazard and risk data to guide them to mitigation actions.

FEMA also leads the Nation Dam Safety Program. According to the FEMA National Dam Safety Program Fact Sheet, the area downstream of a dam that would be impacted in the event of a failure or uncontrolled release of water is called the dam failure inundation zone. Before buying a home or business, it is the buyer’s responsibility to determine whether it is in an inundation zone.

High hazard dams are not always large reservoirs. Some detention ponds or debris basins are also classified as high hazard because their failure would put downstream homeowner property and lives at risk.

[3] https://sites.google.com/a/utah.gov/utah/ [4] https://www.utah.gov/beready/family/documents/FloodsWhatYouShouldKnow.pdf

ECONOMIC CONSIDERATIONS

Table 2E-7County Flood Losses 1980-2012

	County Flood Losses (Adjusted for Inflation) 1980 - 2012					
Rank	County	Injuries	Fatalities	Property Loss	Crop Loss	Total Loss
1	Washington	18	5	$410,161,691	$5,539,209	$415,700,900
2	Salt Lake	3	2	$46,076,935	$5,489,774	$51,566,709
3	Weber	0	0	$17,386,024	$5,518,790	$22,904,814
4	Utah	0	0	$11,857,966	$5,616,101	$17,474,067
5	Summit	0	0	$11,086,535	$5,488,478	$16,575,013
6	Iron	0	0	$9,444,930	$5,504,038	$14,948,968
7	Cache	0	0	$8,454,341	$5,509,748	$13,964,089
8	San Juan	1	1	$8,384,004	$5,542,083	$13,926,087
9	Sanpete	1	0	$7,489,103	$6,228,653	$13,717,756
10	Garfield	2	2	$7,040,895	$5,556,339	$12,597,234
11	Davis	2	0	$6,305,366	$5,525,415	$11,830,781
12	Carbon	1	3	$6,301,149	$5,488,478	$11,789,627
13	Tooele	0	1	$6,243,524	$5,512,116	$11,755,640
14	Uintah	2	0	$6,220,035	$5,531,285	$11,751,320
15	Duchesne	2	1	$6,023,733	$5,494,051	$11,517,784
16	Sevier	0	0	$5,911,216	$5,489,724	$11,400,940
17	Morgan	0	0	$5,860,354	$5,495,144	$11,355,498
18	Millard	1	0	$5,840,551	$5,489,724	$11,330,275
19	Juab	3	0	$5,612,306	$5,489,724	$11,102,030
20	Beaver	0	0	$5,573,604	$5,489,724	$11,063,328
21	Rich	0	0	$5,488,477	$5,488,477	$10,976,954
22	Wayne	1	0	$9,555,582	$10,954	$9,566,536
23	Grand	0	0	$3,700,371	$0	$3,700,371
24	Box Elder	8	0	$2,100,004	$22,338	$2,122,342
25	Kane	0	1	$1,148,564	$17,936	$1,166,500
26	Daggett	0	0	$290,492	$10,664	$301,156
27	Emery	2	0	$198,142	$9,545	$207,687
28	Piute	0	1	$141,057	$29,856	$170,913
29	Wasatch	0	0	$157,836	$0	$157,836
Total				$620,054,787	$116,588,368	$736,643,155

SOURCE: SHELDUS 2013

County flood losses from 1980-2012 were gathered from SHELDUS database and arranged from the highest total loss to the least by county in the Table 2E-7. Washington, Salt Lake, Weber, and Utah, some of the most populated counties, also have the highest total losses from flooding.

OBJECTIVES

The Division of Emergency Management works with communities (counties, cities, tribes) to produce Flood Insurance Rate Maps, create floodplain management ordinances, provides mitigation planning, and facilitates recovery response. The Utah Hazard Mitigation Plan identifies ways in which the State can prepare and plan for flood events. It includes:

- Determining the probability of floods (different types) occurring in Utah. There may need to be different thresholds of probability. Such as events of a certain size, etc. There can be several probabilities.
- Providing a brief summary of changes in recent development that have occurred or are projected to occur in flood hazard prone areas. This includes changes in land use and built environments and population demographics.
- A list of past significant flood events in Utah.
    - Knowledge of any new relevant maps, data, tools, reports, and studies that can be used in the plan. Current statistics to include as graphs or figures in the plan. Ways to present risk/vulnerability of floods in Utah.
    - A list and very brief description describing any Utah laws/regulations dealing with floods and mitigation.
    - A list of past/current/future flood mitigation efforts you are aware of that any agency/jurisdiction has accomplished or intends to accomplish. *(eg. planning efforts, zoning laws, development codes, outreach programs, retrofitting projects, etc).*

POLICIES AND GUIDELINES

- It is the policy of the State to continue its efforts to coordinate the National Flood Insurance Program and have flood zones mapped so that property owners can be more aware of flood hazards and be eligible to obtain flood insurance at reasonable rates.
- Restore floodplain connectivity for threatened and endangered species that rely on these locations in areas outside human habitation while preserving the health and safety of residents.
- Educate citizens regarding measures they may implement to help protect their property from flood damage
- Encourage the use of flood structures, dams, catch basins, gully plugs, and reseeding of grass ways to help reduce erosion during and after storm events.
- The State supports analysis and approval processes for floodplain restoration as categorical exclusions under NEPA.
- The State supports implementing active management and restoration projects on federal lands to restore sinuosity, vegetation, and floodplain function which mimic the natural hydrologic system in suitable areas
- Long term hydrologic function should be prioritized over short term ground disturbance however allowing disturbance for assisting natural function or for natural disturbance modeling.
- Encourage Federal agencies to re-seed/revegetate burn areas as soon as possible post-fire to mitigate sedimentation in streams and riparian areas.
- The State supports proper management of forest health to decrease the risk of catastrophic wildfire and subsequent flooding damage.

RELATED RESOURCES

Economic Considerations

Fire Management

Water Quality & Hydrology

Wildlife

Recreation and Tourism

With nearly 17.5 million acres of forested land, Utah's forests are an important natural resource. Significant contributions from Utah's forests provide for numerous social and economic benefits, including recreation, wildlife habitat, livestock grazing, open space, and forest products.

These resources are a result of Utah's significant and diverse pre-history and history.

Across Utah's landscape, approximately 2.7 million acres or 19 percent of Utah's forests are held in private ownership. Many of these private forests were originally acquired for cattle grazing, agriculture, or mining development and are typically located near larger tracts of public forest where critical watershed areas exist. Although relatively small in acreage, these private forestlands overlay many of the state's most valuable watershed, wildlife and recreation areas and form critical fringe and connectivity zones throughout larger tracts of public forests *(Utah Forest Legacy Program, Assessment of Need)*. Because of their location, these lands are capable of providing benefits as well as posing risks for nearby communities if not properly managed. Utah's private forest landowners are a diverse group, consisting of corporate owners and private individuals, owners of large and small acreages, multi-generation owners and those who have only recently acquired forestland. Utah's non-industrial private forest (NIPF) landowners are distributed throughout all twenty-nine counties and own land for a variety of reasons.

An estimated 3,500 landowners control the management and land use activities on private forestlands greater than 10 acres in size. A recent national survey suggests there are about 11,000 forest landowners in Utah who own parcels smaller than 10 acres. Surveys conducted by the FFSL and Utah State University identified wood products, livestock, and recreation as the three primary reasons for forestland ownership in Utah. Utah owners of commercial high elevation forestlands own an average of 6,300 acres.

The average forest landowner holds 600 acres of forestland, ranging anywhere between 40 to 15,000 acres.

Utah has over 13,000 farms and ranches spread throughout the state. Rural forest landowners, ranchers and farmers can, through use of conservation plantings and other management practices, improve forest health and productivity, reduce soil erosion, improve riparian areas, improve crop and livestock productivity and improve wildlife habitat.

Most of the forested lands in the state are held by private landowners or by the US Forest Service.

Utah's Division of Forestry, Fire, and State Lands (FFSL) is responsible for forest health, responding to wildfires, and managing sovereign lands in the State. Each of FFSL's six area offices employs a forester who works with landowners and lessees to provide assistance to those wishing to utilize, improve or conserve their forested lands.

The state also promotes urban and community forestry through programs like Tree City USA and the Arbor Day poster contest.

FINDINGS

Approximately 25 percent of Utah's forests are in non-federal ownership. The vegetation communities which characterize Utah's forests and woodlands vary widely according to soil, climate and topography, with availability of water being the primary determining factor. Utah woodlands generally begin at elevations of 4,500 feet where pinyon-juniper combinations join mountain mahogany, Gambel oak and sagebrush. As elevation and precipitation increase, the highly valued timber species of lodgepole and ponderosa pines begin to appear along the Uinta Mountains and in select areas of southern Utah, respectively.

The State's greatest variety of traditional forest species flourishes in the Montane Zone which includes all landscapes from 7,500 to 9,500 feet and receives annual precipitation of 18 to 40 inches. Nearly pure stands of Douglas-fir dominate the cool north-facing slopes and canyon walls of this region with Engelmann spruce, blue spruce and subalpine fir coming in at elevations generally above 9,000 feet. Other coniferous species found in Utah's subalpine zone include modest stands of limber and bristlecone pine and a concentrated band of white fir running south through the central portion of the state. Clustered stands of quaking aspen, second only to Douglas-fir in state-wide distribution, add deciduous texture and golden fall color to Utah's forest lands lying between 6,000 and 10,000 feet.

Private landowners maintain stewardship over approximately 2.7 million acres and account for 17 percent of the timber harvested in the state.[1] Although relatively small in acreage, these private forest lands overlay many of the state's most valuable watershed, wildlife and recreation areas and form critical fringe and connectivity zones throughout larger tracts of public forest.

[1] http://stateforesters.org/sites/default/files/publication-documents/Utah%20Forest%20Action%20Plan%202016.pdf

Forest Health

A healthy forest is one that provides a multitude of benefits including, but not limited to; increased oxygen production and cleaner air, watershed protection, wildlife habitat, wood and other forest products, livestock grazing, recreation opportunities, and beauty. When too many trees and plants are competing for space, sunlight, water, and minerals in the soil, the trees can become stressed. Stressed trees are more susceptible to insect and disease outbreaks. Much like plants in a garden, some trees occasionally need to be removed (thinned) to provide for the health of those that remain. Fire is nature's way of thinning the forest. With an ever-increasing number of people building homes in the forest, as well as an emphasis on fire suppression, natural fire regimes have largely been removed from the system.

Some forests have too few trees or too few species of trees to provide the full range of ecological and economic benefits. This may be a result of fire, insect or disease outbreak, or human activities such as excessive visitation, motorized vehicle use, excessive logging, or overgrazing.

Accumulation of large amounts of woody debris and increased fuel loads coupled with mortality-causing disturbance regimes *(e.g. fire, insects and pathogens)* exacerbate the potential for catastrophic wildfire. Research shows these conditions are often inconsistent with historical patterns of forest development. Some far-reaching impacts include changes in hydrologic function, nutrient cycling, and introduction of noxious and invasive species.

According to data from 2014, the average net annual growth of trees in Utah is -4,556 thousand cubic feet per year. This shows that trees are dying faster than they are growing.

Significant issues impacting the timber resources in Utah include declining forest health, productive capacity of forest ecosystems, fragmentation, and socio-economic concerns. Due to a lack of active vegetation management, forests in Utah have become more susceptible to intense wildfire, insects, and diseases. By ensuring that forests are managed and kept healthy, they will continue to provide benefit to the public.

Utah's landscape is comprised of many forest types, each with unique concerns:

Mixed conifer primarily consists of Engelmann spruce, sub-alpine fire, white fir and some blue spruce. These are high elevation forests found throughout the state. These are critical for watershed values. The major threat to these forests is the spruce bark beetle (Dendroctinus rufipennis) which has, in many cases run its course. In stands with remaining spruce, it is critical to monitor for the presence of these beetles and remove infested trees before the adults fly and colonize new trees in the area.

Douglas-fir is a relatively high value timber tree. It often occurs in pure stands or mixed with white and subalpine fir. Overcrowded stands with large trees are susceptible to Douglas-fir bark beetle (Dendroctinus pseudotsugae). This species is somewhat less aggressive than the spruce beetle but can cause considerable damage if left unchecked. Maintaining appropriate stocking levels of all age classes is important to reduce damage and the application of anti-aggregation pheromones in high value areas can be very effective at preventing attacks.

Aspen stands are some of the most ecologically diverse forest types in the state. As such they are critical wildlife habitat. Aspen depends upon disturbance such as fire or cutting to stimulate new trees growing from the roots. In the absence of disturbance, many stands are in decline across the state. When young trees spring up they are often eaten and destroyed by wildlife and livestock before they can grow tall enough to be out of reach. In order to preserve these ecological treasures, active management is required to create and protect new young stands.

Ponderosa pine is a valuable timber species more common in central and southern Utah. Healthy ponderosa forests are typically open and park-like with a few large trees and mixed shrubs and grasses in the understory. These large trees have thick bark that is resistant to fire damage under natural conditions which include frequent small fires that help keep the understory open. Without these frequent small fires or forest management, the stands become overgrown and these majestic and valuable trees are at risk from the dual threats of mountain pine beetle (Dendroctinus ponderosae) and catastrophic wildfires.

Lodgepole pine is also a valuable timber species that is seen in higher elevations in northern Utah. Some lodgepole forests consist purely of lodgepole pine established following a fire. Others can be mixed. At higher elevations they are mixed with species such as subalpine fir, Engelmann spruce and aspen. At lower elevations the mix includes aspen, Douglas-fir, and ponderosa pine. The ecology of each type of lodgepole forest is unique. In all 3 types lodgepole is susceptible to mountain pine beetle.

Pinon-juniper forests are very drought resilient. So much that they often encroach on other vegetation types. Due to the dense shade created when these stands get thick, little can grow underneath. This creates vegetation problems for wildlife and invites severe wildfires that can cause long term damage. Many opportunities are being researched to utilize the relatively small diameter wood that comes from these abundant forests.

Gambel oak is classified as a key terrestrial habitat in the State Wildlife Action Plan. Oak supplies "mast" to a variety of wildlife species. Oak readily resprouts after disturbance such as fire so other types of vegetation generally do not replace it following a burn. Currently, there is a surplus of young saplings and a deficit of older, more mature trees. This is largely due to the inappropriate fire frequency and intensity. Other threats to this forest type include invasive plant species such as cheat grass, and urban development/ cabin communities.

Riparian forests consist of the widest variety of trees and shrubs including, but not limited to, mountain maple, bigtooth maple, Fremont cottonwood, narrowleaf cottonwood, boxelder, peachleaf willow, coyote willow, hawthorn, chokecherry, and river birch. These forests act to filter sediment and pollutants from rivers and streams, reduce erosion, and provide immense value to domestic livestock and many of the wildlife species that reside in the state. One of the main threats to this forest type is invasive tree species, particularly, Russian-olive and tamarisk. Continued education of loggers in Utah's Water Quality Guidelines is necessary to protect and preserve these riparian areas.

Urban forests provide economic and environmental benefits. When properly planted they reduce heating and cooling costs and increase property values for individual homes. In larger cities trees reduce the "heat island" effect, they reduce pollutants, help reduce stormwater.

Forest Stewardship

FFSL provides assistance to private landowners with forested acreage or land capable of growing trees. There are two programs designed to inform and assist forest landowners.

The Forest Stewardship Program is designed to assist private landowners in using sound principles of forested land management. A forester located in each of the Division's administrative areas can provide advice and guidance that can not only ensure the long-term productivity of your private forest resources, it can also guard against the pitfalls encountered by private forestry operations.

Money is available to state forestry agencies through the USDA in the form of Landscape Scale Restoration Grants, above-base funding grants, and State Fire Assistance grants from the US Forest Service and the Environmental Quality Incentives Program (EQIP) from the Natural Resource Conservation Service. The EQIP program is only available on private land or public land being leased by a private individual.

In many cases, statutory, administrative, and physical constraints limit the ability to implement restoration treatments within the context of historical functions and conditions. There are legal authorities to provide legal justification for these types of activities. These mechanisms include the National Forest Management Act, the Multiple Use Sustained Yield Act, the Federal Land Policy and Management Act, the National Fire Plan, the Healthy Forests Restoration Act, the Organic Administration Act, and the Clean Water Act.

Managing forests encompasses a high degree of conflict. It is important to reach a balanced and agreeable approach to conservation and sustainably managed forests. The National Forest Management Act requires that the Forest Service coordinate their land management planning with the related planning efforts of state, local and tribal governments. The USFS publication "Understanding Your Opportunities for Participating in the Forest Service Planning Process" details how coordination helps ensure that landscape management has consistency across ecosystems and political boundaries so that mutual goals can be achieved where possible. The 2012 Forest Planning Rule requires that the Forest Service review and consider state, local and tribal land use plans and policies during the forest plan process and assess the interrelated impacts of these local plans when developing forest plans.

Forest Legacy

FFSL's Forest Legacy Program is designed to protect and manage, for future generations, environmentally important forested areas that are threatened by conversion to non-forest uses. Conservation easements are used to achieve this goal with priority given to lands which:

- are threatened by future conversion to non-forest uses
- maintain forest sustainability
- protect and enhance water quality and water supplies
- protect wildlife habitat and maintain habitat connectivity for biodiversity
- maintain and restore riparian areas, and
- assist in maintaining the cultural and economic vitality of rural communities

Urban Forestry

Urban Forestry means the planning, establishment, protection, and management of trees and associated plants, individually, in small groups, or under forest conditions within cities, their suburbs, and towns as defined by the (Cooperative Forestry Act of 1978).

Because this definition of Urban Forestry stretches beyond large metropolitan, "urban" areas, a more descriptive title is "*Urban and Community Forestry*."

Another term that is often used when talking about Urban and Community Forestry (U&CF) is "Arboriculture". Arboriculture is the science of tree planting and maintenance and is a major component of U&CF. Professional tree trimmers are labeled "arborists" and can become certified through the International Society of Aboriculture.

The State of Utah runs an Urban and Community Forestry program within FFSL. The state offers technical assistance and grant opportunities to cities and towns seeking to improve their community forests. The state also works with partners to provide training opportunities, volunteer tree planting events, and conservation education programs.

Arbor Day Grants

FFSL, USDA Forest Service and Utah Community Forestry Council provides annual Arbor Day celebration grant assistance. The range for this grant is between $200 to $600 and provides funds for communities to meet one of the four criteria for Tree City USA, which is to proclaim and observe Arbor Day. Utah cities, towns, and communities interested in developing or improving a sustainable community forestry program and are not currently a Tree City USA may apply.

Community Forestry Partnership Grants

FFSL, in partnership with the US Forest Service provides the opportunity for any Tree City USA community to apply for this grant. The range is between $1,000 to $8,000 and is intended to encourage the planting and maintenance of trees within communities and meet the following objectives:

- Promote urban forestry planning and tree management plans.
- Connect urban forestry benefits to diverse environmental issues.
- Cultivate an appreciation and understanding for the social, economic, environmental and aesthetic values of trees, forests and related resources in cities and towns.
- Develop and encourage the profession of urban forestry through technology transfer, education and training.
- Seek support from all levels of government and citizens for Urban and Community Forestry Programs.

A major priority of the State Urban and Community Forestry Program is to assist communities in moving from a "developing" stage of their urban forestry program to the "managing" stage. The USDA Forest Service defines a "managing" forestry community as having all four of the following benchmarks *("developing" communities have at least one component)*:

- Tree ordinance
- Professional forestry/arboriculture staff
- Tree board/commission
- Tree management plan based on inventory data

ECONOMIC CONSIDERATIONS

Utah's commercial timber harvest in 2012 was 19.4 million board feet. Lodgepole pine was the leading species harvested at 41 percent. Spruce accounted for 31 precent, Douglas-fir 11 precent, and aspen and cottonwood 10 percent. In 2012 there were 18 primary forest products manufacturers. This included 8 sawmills, 7 house log and log home manufacturers, and 3 other forest products facilities. Only 58 percent of the wood was processed in-state. The remainder was processed in Colorado, Wyoming and Idaho.

Utah and other western states are seeing a steady decline in the amount of timber harvested. In 2012 there was a 36 percent decline since 2007 and 53 precent less than 2002. Utah's sawmill sector has been in decline for decades. Most of the production loss was among the state's large mills. Sales value from Utah's log home sector has decreased over the last 5 years. There are three fewer facilities than there were in 2007.

Research is needed to find new markets for wood utilization. Biochar is showing some potential as a soil amendment. Essential oils have also become a small but somewhat viable market for juniper trees. Though the landowners are not paid for juniper removal, many want it removed for management purposes. This allows essential oil producers to make money and contribute to the State's economy while private landowners receive the benefit of more healthy fire resistant properties at little to no cost.

A consistent supply of project work, and associated timber or woody biomass, is key to fostering a workforce of skilled and capable forest- and wood.

A consistent supply of project work, and associated timber or woody biomass, is key to fostering a workforce of skilled and capable forest- and wood-workers. And this skilled workforce is the critical element. These forest- and wood-workers are the individuals and companies that have the knowledge, skills, abilities, and equipment to help private landowners as well as Federal, State, and local agencies get the necessary management work done on the ground. Land management agencies do not have the necessary capacity for forest health and wildfire risk reduction. The private sector--both people power and capital—is required to get the work accomplished.

In addition to timber management, domestic livestock grazing is a vital management tool in Utah's forests to manage fuel loads, reduce wildfire risk, and provide economic benefits to local communities. Grazing in Utah's national forests has declined by roughly 50 percent since the early 1900s.[2] Currently, there are an estimated 614,000 active AUMs on Utah's national forests, which contribute over $61.4 million to local economies. In addition to the economic benefits, domestic livestock grazing reduces the cost of vegetation management.

OBJECTIVES

- Assist private landowners with forested acreage.
- Ensure a healthy forest that displays resilience to disturbance by maintaining a diverse set of structures, compositions, and functions across the landscape.
- Encourage maximum sustainable logging and grazing to reduce wildfire risk, stimulate new growth, and to provide economic benefits and jobs to Utah's rural counties.
- Foster urban forestry through the planning, establishment, protection, and management of trees and associated plants, individually, in small groups, or under forest conditions within cities, their suburbs, and towns.
- Assist the forest product industry achieve viable and sustainable operations.
- Utilize the Forest Action Plan as a guidance document.

Forest Action Plan (FAP)

The Utah Forest Action Plan was developed by FFSL implementing direction contained in the Forestry Title of the 2008 Farm Bill (P.L. 110-234). Each State was required to complete a State Assessment and Resource Strategy within two years after enactment of the 2008 Farm Bill (June 18, 2008) in order to continue receiving funds under Cooperative Forestry Assistance Act (CFAA). CFAA provides resources to states for the management of state and private forests.

The Plan is an integral part of the new State and Private Forestry Redesign Program and is intended to provide a comprehensive analysis of the forest related conditions, trends, threats, and opportunities within the state. Ultimately, this analysis delineates the priority forest landscape areas in Utah. These priority areas are intended to:

- Enable the efficient, strategic, and focused use of limited program resources.
- Address current state and national management priorities.
- Produce the most benefit in terms of critical resource values and public benefits.

Delineating these priority areas will ensure that state and partner resources are focused on important landscape areas with the greatest opportunity to address shared management priorities and achieve meaningful outcomes. Additionally, these shared management opportunities also include identifying multi-state priority areas with neighboring states.

Finally, the Plan is consistent with the State and Private Forestry national themes:

- Conserve working forest landscapes;
- Protect forests from harm;
- Enhance public benefits.

There are three components to the Plan that identify priority forest landscape areas and highlight work needed to address national, regional, and state forest management priorities:

- Statewide Assessment of Forest Resources —provides an analysis of forest conditions and trends in the state and delineates priority rural and urban forest landscape areas.
- Statewide Forest Resource Strategy —provides long-term strategies for investing state, federal, and other resources to manage priority landscapes identified in the assessment, focusing where federal investment can most effectively stimulate or leverage desired action and engage multiple partners.
- Annual Report on Use of Funds —describes how S&PF funds were used to address the assessment and strategy, including the leveraging of funding and resources through partnerships, for any given fiscal year.

In 2010, FFSL developed the Utah Statewide Forest Resource Assessment. The assessment:

- provides an analysis of the forest conditions and trends in the state;
- addresses current state and national resource management priorities;
- spatially delineates priority rural and urban forest landscape areas;
- ensures that state and federal resources are being focused on important landscape areas with the greatest opportunity for shared management priorities and achieve meaningful outcomes; and
- enables the efficient, strategic and focused use of limited program resources.[3]

Utah's Forest Health Program contributes to a strategic FFSL goal to *"provide for long term sustainability of natural resources on non-federal forest, range, and watershed lands."* The purpose of the Forest Health Program is to provide FFSL service foresters, community foresters, private landowners, and other partners with information, education, technical assistance, and appropriate management strategies to prevent pest epidemics and achieve healthy forest stand conditions.

[3] http://www.ffsl.utah.gov/index.php/forestry/state-assessment

POLICIES AND GUIDELINES

The Utah Forest Practices Act (FPA) is a state law which requires the registration of operators and notification by operators of intent to conduct forest practices. The Forest Practices Act law is available on the Utah State Legislature page.

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The Purpose of the FPA is to:

Ensure the protection of forest, soil, and water resources by:

- preserving water quality and soil stability
- preventing fire hazard and insect infestation
- minimizing waste of timber resources
- protecting forest regeneration and production

Additional policies and guidelines:

- Support the sustainable removal of conifers to promote the establishment of aspen and attendant grass, forbs and shrubs where appropriate.
- Encourage timber harvesting to prevent fuel load and biomass buildup.
- The State encourages Agencies to adopt policies that promote and facilitate early detection and control of insect and disease outbreaks using biological, cultural, and chemical methods.
- Encourage prompt removal and salvage of drought, fire, and beetle killed timber and reseed or replant as appropriate to maintain healthy forests and watersheds.
- Support the use of all appropriate silvicultural methods to reduce the risk of damage due to insects, disease and fire.
- Use trees of the best genetic quality when replanting a site.
- Monitor and control invasive species, particularly in riparian corridors.
- The State encourages Agencies to adopt and maintain scientifically sound forest management policies based on current, high quality data to pursue multiple use of public forest resources to provide sustainable yield of timber, forage, firewood, wildlife, fisheries, recreation, and water.
- Identify and target private forest landowners located in important forest resource areas for assistance with planning.
- Develop Forest Stewardship Plans in accordance to Division standards for private forest landowners who demonstrate their commitment to proactive management.
- Encourage and promote cooperation by other land management agencies (State, private and federal,) employing ecosystem management, forest health and stewardship principles.
- Develop partnerships and cooperative relationships with organizations that share goals of forest management.
- Develop and present workshops for private landowners.
- Design and implement demonstration areas.
- Promote job related training and educational opportunities.
- Educate loggers and other contractors on the Forest Water Quality Guidelines.
- Support the management of timberlands suitable for commercial harvest for timber or wood fiber production.
- Support the management of forestlands not suitable for commercial harvest to maintain forest cover species with emphasis on production of other forest resources and uses.
- Support the management of non-commercial aspen stands in mixed age groups to provide forage.
- Support the use of commercial sales of timber and forest products and thinning to control stocking where the opportunity exists.
- Support harvest of forest products when the activity would improve water production and/or does not adversely affect water quality.
- Encourage where feasible, the harvest of forest products in areas of proposed or existing vegetation treatments to offset costs of treatments and reduce the need for additional site entries.
- Support planting new trees to provide desired cover where natural regeneration is insufficient.

- Support the use of mechanical or chemical means or fire to alter or perpetuate forests and increase herbaceous yield where timber harvest is impractical or demand does not exist.
- Understand current and emerging enabling technologies for wood processing.
- Develop an inventory of possible large, medium and small business possibilities that could utilize small diameter wood.
- Conduct an initial industry viability assessment based on analyzing a variety of business configuration scenarios.
- Provide an initial assessment report and presentation.
- Support Federal partnerships with industry to create scalable projects to provide certainty in the supply of timber.
- Support the re-establishment of a viable wood-fiber industry.
- Support the use of the timber industry to sequester carbon through the harvest of wood products.

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    - (A) achieve and maintain in perpetuity a high-level annual or regular periodic output of mineral and various renewable resources from public lands;
    - (B) support valid existing transportation, mineral, and grazing privileges at the highest reasonably sustainable levels;
    - (C) support the specific plans, programs, processes, and policies of state agencies and local governments;
    - (D) are designed to produce and provide the desired vegetation for the watersheds, timber, food, fiber, livestock forage, and wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community expansion without permanent impairment of the productivity of the land;
- (6)(k) forests, rangelands, timber, and other vegetative resources:
  - (i) provide forage for livestock;
  - (ii) provide forage and habitat for wildlife;
  - (iii) provide resources for the state's timber and logging industries;
  - (iv) contribute to the state's economic stability and growth; and
  - (v) are important for a wide variety of recreational pursuits;
  - (l) management programs and initiatives that improve watersheds, forests, and increase forage for the mutual benefit of wildlife species and livestock, logging, and other agricultural industries by utilizing proven techniques and tools are vital to the state's economy and the quality of life in Utah; and
- (m)(i) land management plans, programs, and initiatives should provide that the amount of domestic livestock forage, expressed in animal unit months, for permitted, active use as well as the wildlife forage included in that amount, be no less than the maximum number of animal

unit months sustainable by range conditions in grazing allotments and districts, based on an on-the-ground and scientific analysis;

- (ii) the state opposes the relinquishment or retirement of grazing animal unit months in favor of conservation, wildlife, and other uses;

- (iii)(A) the state favors the best management practices that are jointly sponsored by cattlemen's, sportsmen's, and wildlife management groups such as chaining, logging, seeding, burning, and other direct soil and vegetation prescriptions that are demonstrated to restore forest and rangeland health, increase forage, and improve watersheds in grazing districts and allotments for the mutual benefit of domestic livestock and wildlife; (h) the state opposes any additional evaluation of national forest service lands as "roadless" or "unroaded" beyond the forest service's second roadless area review evaluation and opposes efforts by agencies to specially manage those areas in a way that:
  - (i) closes or declassifies existing roads unless multiple side by side roads exist running to the same destination and state and local governments consent to close or declassify the extra roads;
  - (ii) permanently bars travel on existing roads;
  - (iii) excludes or diminishes traditional multiple-use activities, including grazing and proper forest harvesting;
  - (iv) interferes with the enjoyment and use of valid, existing rights, including water rights, local transportation plan rights, R.S. 2477 rights, grazing allotment rights, and mineral leasing rights; or
  - (v) prohibits development of additional roads reasonably necessary to pursue traditional multiple-use activities;
- (i) the state's support for any forest plan revision or amendment will be withheld until the appropriate plan revision or plan amendment clearly demonstrates that:
  - (i) established roads are not referred to as unclassified roads or a similar classification;
  - (ii) lands in the vicinity of established roads are managed under the multiple-use, sustained-yield management standard; and
  - (iii) no roadless or unroaded evaluations or inventories are recognized or upheld beyond those that were recognized or upheld in the forest service's second roadless area review evaluation;
- (j) the state's support for any recommendations made under the statutory requirement to examine the wilderness option during the revision of land and resource management plans by the U.S. Forest Service will be withheld until it is clearly demonstrated that:
  - (i) the duly adopted transportation plans of the state and county or counties within the planning area are fully and completely incorporated into the baseline inventory of information from which plan provisions are derived;
  - (ii) valid state or local roads and rights-of-way are recognized and not impaired in any way by the recommendations;
  - (iii) the development of mineral resources by underground mining is not affected by the recommendations;
  - (iv) the need for additional administrative or public roads necessary for the full use of the various multiple-uses, including recreation, mineral exploration and development, forest health activities, and grazing operations is not unduly affected by the recommendations;
  - (v) analysis and full disclosure is made concerning the balance of multiple-use management in the proposed areas, and that the analysis compares the full benefit of multiple-use management to the recreational, forest health, and economic needs of the state and the counties to the benefits of the requirements of wilderness management; and
  - (vi) the conclusions of all studies related to the requirement to examine the wilderness option are submitted to the state for review and action by the Legislature and governor, and the results, in support of or in opposition to, are included in any planning documents or other proposals that are forwarded to the United States Congress;

- (8)(g)(g) the resources of the forests and rangelands of the state should be integrated as part of viable, robust, and sustainable state and local economies, and available forage should be evaluated for the full complement of herbivores the rangelands can support in a sustainable manner, and forests should contain a diversity of timber species, and disease or insect infestations in forests should be controlled using logging or other best management practices;

Utah Public Land Management Act

§ 63L-8-103. Principal or major use

- Each parcel of public land in this state shall be managed, as much as possible, to promote the following principal or major uses of the land, consistent with the principles of multiple use and sustained yield:
  - (6) timber production;

§ 63L-8-104. Declaration of policy--Sales and exchanges

- (1) The Legislature declares that it is the policy of the state that:
  - (d) the public land be managed in a manner that will:
  - (i) recognize the state's need for domestic sources of minerals, food, timber, and fiber;
  - (ii) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;
  - (iii) where appropriate, preserve and protect certain public land in its natural condition;
  - (iv) provide food and habitat for fish, wildlife, and domestic animals; and
  - (v) provide for hunting, fishing, trapping, outdoor recreation, human occupancy, and other human use, including the general enjoyment of nature and solitude.
- (2) All rules made to effectuate the purposes of this chapter shall be made in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act.

State of Utah Resource Management Plan for Federal Lands

§ 63J-8-104. State land use planning and management program

- The BLM and Forest Service land use plans should produce planning documents consistent with state and local land use plans to the maximum extent consistent with federal law and FLPMA's purposes, by incorporating the state's land use planning and management program for the subject lands that is as follows:
  - (a) preserve traditional multiple use and sustained yield management on the subject lands to:
    - (i) achieve and maintain in perpetuity a high-level annual or regular periodic output of agricultural, mineral, and various other resources from the subject lands;
    - (ii) support valid existing transportation, mineral, and grazing privileges in the subject lands at the highest reasonably sustainable levels;
    - (iii) produce and maintain the desired vegetation for watersheds, timber, food, fiber, livestock forage, wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community expansion in each county where the subject lands are situated without permanent impairment of the productivity of the land;
    - (vii) meet the needs of community economic growth and development;

§ 63J-8-105.9. Utah Timber Agricultural Commodity Zones established--Findings--Management and land use priorities**

Forestry, Fire, and State Lands

§ 65A-8-105. Urban and Community Forestry Program

- Creates an Urban Forestry Program
- Encourage planting and maintenance of trees in cities and towns
- Division advises and assists public entities and encourages urban forestry
- Receive federal funds and provide grants for urban forestry
- Develop public education program for tree care professionals and citizens
- Develop a public awareness program for the benefits of trees

§ 65A-8-301. Legislative finding and purpose

- The legislature created a tree conservation program aimed at protecting "heritage trees" throughout the State. A list of "heritage tree" criteria is provided along with other details regarding the execution of the tree program.

Utah Forest Practices Act

§ 65A-8a-101. Title

- This Act requires the timber operators to register and notify the state of operations on all land that is not federally owned or located within an incorporated municipality. It also outlines water quality standards guidelines before, during, and after timber harvest operations.

Uniform Agriculture Cooperative Association Act

§ 3-1-1. Declaration of policy

- This law encouraged agricultural cooperative activity.
- "It is the declared policy of this state, as one means of improving the economic position of agriculture, to encourage the organization of producers of agricultural products into effective associations under the control of such producers, and to that end this act1 shall be liberally construed."

Insect infestation Emergency Control Act

§ 4-35-103. Decision and Action Committee created--Members--How appointed--Duties of committee--Per diem and expenses allowed

RELATED RESOURCES

Economic Considerations

Agriculture

Water Rights

Livestock and Grazing

Irrigation is the practice of supplemental application of water to land (beyond that water which is directly received by the land from naturally occurring precipitation) for the purpose of increasing the agricultural output of cropland and sustaining additional vegetation growth throughout the landscape.

Activities that promote the economy are generally considered to be beneficial uses.

Much of Utah's agriculture would not be possible if not for irrigation. Utah's arid climate provides limited and frequently unreliable annual rainfalls. Traditionally, irrigation water has been distributed via a network of canals and ditches from rivers and streams; but with time and circumstances dictating, many have been converted to pipelines. Additionally, because of the extensive conversion of agricultural lands into more urban uses, some irrigation water is now distributed through secondary irrigation supply lines that parallel the municipal culinary water supply allowing people to irrigate using water previously allotted to farmland.[1] The owner of a ditch, canal, flume or other watercourse is supposed to maintain the ditch in order to prevent damage to property of others and maintain an open route of travel wherever a road crosses the ditch.[2]

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 the storage dams, canals, and pipelines. Beneficial use is *"the basis, the measure, and the limit of all rights to the use of water"* in the state of Utah.[3] Activities that promote the economy are generally considered to be beneficial uses. The use of water for beneficial purposes has been declared to be a public use.[4] The distribution of water is governed by state law and is based largely on geographic proximity, available supply, and ownership of the water rights.[5]

[1] http://www.wfrc.org/new_wfrc/crmp/ditches-canals/ [2] Utah Code Ann §73-1-8
[3] Utah Code Ann. §73-1-3 [4] Utah Code Ann. § 73-1-5 [5] http://www.wfrc.org/new_wfrc/crmp/irrigation/#ref

FINDINGS

According to the Utah Division of Water Resources, approximately 82 precent of water diverted from natural sources goes to agriculture. Nearly all of this water is used for irrigation. By some estimates, more than 70 percent of Utah's diverted water is carried in canals which are managed and maintained by nonprofit, shareholder-owned irrigation companies. There are over 1,000 of these irrigation companies, most of which are over 100 years old and administered by volunteer directors.[6]

There are over 5,000 miles of canals in Utah which carry more than five cubic feet per second of water, and perhaps twice that many more in smaller canals. This figure does not include the thousands of miles of drainage ditches that make land farmable and carry return flows back to streams. These thousands of miles of canals transport the surface water used to irrigate a majority of the 1.1 million acres of irrigated agricultural land in Utah; the balance is irrigated with groundwater. Approximately 77 percent of the irrigated land is harvested cropland, with the remaining 23 percent in irrigated pasture.[7]

Though they were built to carry irrigation water to farms, canal systems in urban settings also serve municipal and industrial interests. They supply water for industrial processes; deliver irrigation water to suburban lawns through so-called "secondary water systems"; move stormwater away from threatened homes, businesses, and institutions; and support wetlands and other riparian environments that would otherwise be lost.[8]

"Significant water resources have historically been devoted to agricultural production. However, in the face of competing demands for water from Utah's current urbanization trends and land use transitions, the multiple social values supported by water allocated to agriculture are too often overlooked. These values include security of local food production, sustaining rural Utah economies and communities, open space in increasingly urbanized areas, improved capacity for both drought management and flood control, and other ecosystem services, such as providing wildlife habitat and buffering wetlands and other critical lands from impacts of urban development."

Increasing the efficiency of this key resource has been a top priority of local, state, and federal efforts. Through USDA funded programs, such as the Environmental Quality Incentives Program (EQIP) managed by the Natural Resource Conservation Service (NRCS), along with the Agricultural Resource Development Loan (ARDL) program from the Utah Department of Agriculture and Food (UDAF), many improvements have been made to farm irrigation systems. Such improvements have included enclosing ditches and conveyances to reduce water loss to seepage, replacing less efficient systems with higher efficiency sprinkler, pivot systems, precision laser leveling of flood irrigated fields, and converting orchards to ultra-efficient micro-irrigation/drip systems. These improvements will continue to be a priority in years to come, but must be undertaken with care due to the effects such changes may have on river basin hydrology, downstream water users, and local ecosystems.

A more glaring, yet largely unaddressed issue is the aging of irrigation delivery systems. Canals and ditches continue to age and fall further into disrepair. This is largely due to the overwhelming cost of piping and other improvements, and the lack of grant resources available to address these issues. The required technology is readily available. The reality is that there are two things that need to happen. Meaningful grant resources need to be made available, and there must be a conceptual shift in the minds of irrigation companies and their shareholders. While it is understood that agriculture generally has a small profit margin, the public has reaffirmed through the recent Envision Utah effort that maintaining the agriculture industry is of high value. This, along with other considerations validates the use of public funds to address aging infrastructure so vital to agricultural profitability. At the same time, water shareholders and users need to change their mentality as to the cost of their water shares. They must be willing to accept an increased water assessment, with foresight equal to irrigation forbearers, and take advantage of low and no-interest loan programs that are available. Some companies have been able to do this but the majority continue to merely 'make it through one more year.'

[6] http://www.envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf [7] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/ [8] http://www.envisionutah.org/images/FINAL_Recommended_State_Water_Strategy_7.14.17_5b15d.pdf

ECONOMIC CONSIDERATIONS

In 2012, there were 1.05 million acres of harvested cropland in Utah—of which over 80 percent was irrigated—with a value of $574 million.[9]

Irrigation adds tremendous value to agriculture. In 2012, irrigated farms accounted for roughly half of the total value of crop sales on 28 percent of U.S. harvested cropland,[10] a number that is likely significantly higher in Utah due to extremely low precipitation rates found across most of the state.

In 2008, small farms (annual sales under $250,000) made up 62 percent of the total irrigated farmland in Utah.[11]

A 2016 report published by Utah State University details the significant contributions of agriculture to the state economy. The combined agricultural processing and production sectors account for 15 percent of the state's total economic output, or $21.2 billion, after adjusting for multiplier effects.[12]

There are over 250,000 acres of irrigated pasture, most of which are grazed by livestock.[13] From 1970 to 2015, direct cash receipts from livestock and products increased from $1.28 billion to $1.57 billion, a 17.5 percent increase.[14] Cash receipts from livestock and products constituted 73 percent of all farm business cash receipts, making livestock the driver behind most of Utah's agricultural economic growth.[15] These direct cash receipts do not reflect the full amount of economic growth provided by livestock and its products due to the multiplier effect that cash receipts have once they are spent within the community.

Irrigation infrastructure also provides tremendous economic benefits to municipalities and industry by providing pre-existing, low-cost options for water delivery and stormwater removal. While no study has been conducted to quantify the value of these services, it would be tremendously expensive if each municipality or industry currently served by Utah's existing network of canals and ditches had to devise their own, independent water delivery and removal.

[9] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/ [10] https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use/background/ [11] https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use/background/ [12] https://ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf [13] https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Utah/ [14] https://ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf
[15] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section

OBJECTIVES

- Help water rights holder maintain beneficial use and avoid forfeiture of water rights.
- Create opportunities and incentives for irrigators to make efficiency improvements which protect both the environment and water rights on the river basin level.
- Ensure proper management of public land watersheds, which supply most of Utah's agricultural water.
- Preserve the integrity and functionality of Utah's existing canals and ditches, which water much of Utah's irrigated land.
- Preserve the integrity and functionality of irrigation companies, which manage and maintain the vast majority of Utah's canals and ditches.
- Ensure adequate funding for canal infrastructure maintenance and replacement.
- Provide public safety by limiting access to dangerous structures, as well as training and encouraging operators and the public to be practice safety and identify safety concerns.
- Preserve access and system efficiency with regular maintenance of right-of-ways and easements. When possible, coordinate efforts between canal operators and government entities as a means of encouraging cooperative relationships between organizations while facilitating public interests.

Establish long-term plans for:

- Preservation of high-value farmland that still allows the orderly, planned transition of other agricultural land and water resources to municipal use.
- Preservation of historical significance and public access where desirable.
- Modernization of shared operations and equipment that facilitate the use of appropriate irrigation technologies.

Encourage agricultural irrigators to:

- Where appropriate, modernize and provide resources to assist with upgrades such as pressurized pipe systems that reduce traditional flood irrigation and favor transitioning to sprinkler and drip irrigation.
- Explore and develop alternative irrigation water management strategies, such as deficit irrigation, split-season leases, water banking, and other practices that can augment municipal supplies or provide environmental benefits such as improved water quality and instream flows for fish habitat.
- Coordinate irrigation scheduling between water users—cooperate with crop irrigators' operational needs when systems are shared with secondary irrigation users.
- Encourage residential and commercial landscape irrigation efficiency and water quality protection practices that emphasize native plant choices, xeriscaping techniques, reduction of impermeable surfaces, reduction in chemical use, proper stormwater handling, etc.
- Utilize stormwater treatment methods that prevent stormwater runoff from entering canals and ditches.

Proper watershed management ensures adequate water quantity and quality to meet present and future needs.

POLICIES AND GUIDELINES

- Support the Recommended State Water Strategy's recommendation 3.4 to create basin-level councils to create benefits for farmers who help optimize regional water supplies, conserve in-stream flows, or enhance water quality.
- Management and resource-use decisions by federal land management and regulatory agencies concerning Utah's vegetative resources should reflect serious consideration of the proper optimization of the yield of water within the state's watersheds.
- Encourage indemnity agreements for irrigation companies where their canals are relied upon for flood or stormwater management. Cities and counties must work closely with irrigation companies to assure canals used for such purposes are properly maintained and have adequate capacity.
- Support cities and counties in preventing the externalization of land development costs to irrigation companies while still achieving the benefits of land development.
- Ensure the full funding of revolving loan funds managed by the Division of Water Resources and maintain irrigation companies' access to these funds for canal and ditch infrastructure improvement and replacement.
- The State encourages Federal agencies to implement proper watershed management to minimize the impacts on diversions, headboxes, canals, and ditches due to heavy flooding and debris flow as a result of catastrophic wildfire.
- The State encourages Federal agencies to implement proper watershed management to provide adequate water quantity and quality to meet present and future needs.

RELATED RESOURCES

Economic Considerations
Agriculture
Cultural, Historical, Geological, and Paleontological Resources
Ditches and Canals
Energy Resources
Fire Management, Fisheries
Forest Management
Irrigation, Land Use
Law Enforcement
Livestock and Grazing
Mining and Mineral Resources, Noxious Weeds
Recreation and Tourism
Water Rights

Approximately 75 percent of Utah consists of public lands managed by federal or state agencies. These lands and their resources cannot be separated from the culture, quality of life, and economic well-being of the State of Utah. The oil and gas, agriculture, recreation and tourism, and timber industries are vital to the State and each requires access to public lands.

Land Access is critical to the health, safety, and economic viability of the State.

R.S. 2477 Roads are roads created prior to October 21, 1976 across non-reserved federal lands. Rights-of-way for these roads were granted in accordance with the Mining Act of 1866 after the roads were used for 10 years by the public. Roads are a vital part of the infrastructure of the state, providing access to public lands for towns, mines, ranches, natural resources, grazing allotments, water systems, lands held in trust for the benefit of Utah's schoolchildren, family camping and picnic areas, and unbelievable vistas. Some roads provide access for school buses, emergency vehicles, and mail delivery. Land access contributes to the preservation of the state's culture and heritage. R.S. 2477 rights-of-way may include, but not limited to, horse paths, cattle trails, maintenance routes for waterways, pipelines or other means of water transmission and their attendant access for maintenance, wagon roads, jeep trails, logging roads, homestead roads, mine to market roads, and all other ways established and held consistent with Section 72-5-104 of the Utah Code.

FINDINGS

The State has undertaken efforts over the past several years to identify and plot the location of all Class B and Class D roads crossing BLM land that are legitimately part of the State's transportation system.

There are over 35,700 miles of roads in the State that have been identified, reviewed, documented period and inventoried for inclusion in the state road system as qualifying for R.S. 2477 right-of-way claim status. Many additional roads exist in the State road system that may, or may not qualify, pursuant to further review and evaluation.

The State has prepared a map of its current transportation system in areas within the stewardship of the Bureau of Land Management, setting forth all roads claimed by the State and Counties as part of their transportation system. The map includes but is not limited to all roads claimed by the State and Counties pursuant to R.S. 2477. It is expected that the Bureau of Land Management will conform the transportation provisions of Resource Management Plans to be consistent with this map, as required by FLPMA Section 1712(c)(9).

Thousands of miles or roads also exist on land managed by the U.S. Forest Service. These roads provide also provide critical access for recreation, hunting and fishing, livestock ranching, timber harvesting, and other activities. Roads within National Forests have largely not been identified or documented as qualifying for R.S. 2477 right-of-way claims due to the early establishment of Utah's National Forests and the resulting federal withdrawal from claims under R.S. 2477. Nevertheless, roads within the National Forests continue to provide much needed access to public lands and private lands within the boundaries of the State's national forests.

ECONOMIC CONSIDERATIONS

The State defends the historic right to access federal lands in the pursuit of mining, energy development, ranching, farming, logging, recreational activities, motorized vehicle use, hunting and other historic uses. Roads are also used by law enforcement and emergency medical services in the protection of residents and visitors. Land Access is critical to the health, safety and economic viability of the State.

OBJECTIVE

Protecting access to all publicly owned areas of the State, including lands managed by the Bureau of Land Management, the U.S. Forest Service, the National Park Service, the U.S. Fish and Wildlife Service, and other publically owned areas of the State.

POLICIES AND GUIDELINES

- Public rights-of-way established under R.S. 2477 are not negotiable and cannot be subjugated or taken by any state or federal agency. They are vested property rights, held jointly by the State and Counties, duly recognized in federal and state law.
- Title V grants to local county governments or the State are in perpetuity. Nothing in Title V gives the Secretary of the Interior authority to arbitrarily close a road or a corridor once it is granted except by cooperation and coordination with the government entity holding the grant. In applying for a right-of-way, or other use of lands under Title V of FLPMA, consistent with Utah Code **§ 72-3-108**, the State or Counties do not relinquish their rights to the land, its use or property ownership under R.S. 2477 or any other law, regulation or Act.
- Transportation and access routes to and across federal lands, including all rights-of-way vested under R.S. 2477, are vital to the economy and to the quality of life in the State and must provide, at a minimum, a network of roads that provides for:
  - Movement of people, goods, and services across public lands;
  - Reasonable access to a broad range of resources and opportunities throughout the resource planning area, including:
    - Livestock operations, trailing, and range improvements;
    - Solid, fluid, and gaseous mineral operations;
    - Recreational opportunities and operations, including motorized and non-motorized recreation;
    - Search and rescue needs;
    - Public safety needs (including firefighting and EMS);
    - Access for transportation of wood products to market;
    - Access to federal lands for people with disabilities and the elderly; and
    - Access to state lands and school and institutional trust lands to accomplish the purposes of those lands.
- Access to and across public lands, including R.S. 2477 roads and rights-of-way shall remain open. The right of the public to have unrestricted access to all roads granted under R.S. 2477 or FLPMA Title V shall be held inviolate.
- Roads that provide access to and across public lands managed by the U.S. Forest Service shall remain open, subject to cooperation and coordination with the State and the Counties within which the roads are located.
- Access to lands managed by the State shall remain open.
- The State supports the recognition by the federal government of the public use of R.S. 2477 rights-of-way and urges the federal government to fully recognize the rights-of-way and their use by the public as expeditiously as possible.
- All necessary action will be taken to protect access. It is the policy of the State to use reasonable administrative and legal measures to protect and preserve valid existing rights-of-way granted by Congress under R.S. 2477 and to support and work in conjunction with counties to redress cases where R.S. 2477 rights-of-way are not recognized or are impaired.
- The State will assist in identifying and inventorying roads and participate with federal land management agencies in decision-making.
- Access and transportation needs shall be considered, evaluated and analyzed in the land use planning process. No roads, trails, rights-of-way, easements or other traditional access for the transportation of people, products, recreation, energy or livestock may be closed, abandoned, withdrawn, or have a change of use without full public disclosure, analysis, and coordination with State and County plans.
- Access to all water related facilities such as dams, reservoirs, delivery systems, monitoring facilities, livestock water and handling facilities, etc., must be maintained. This access must be economically feasible with respect to the method and timing of such access.

RELATED RESOURCES

ALL

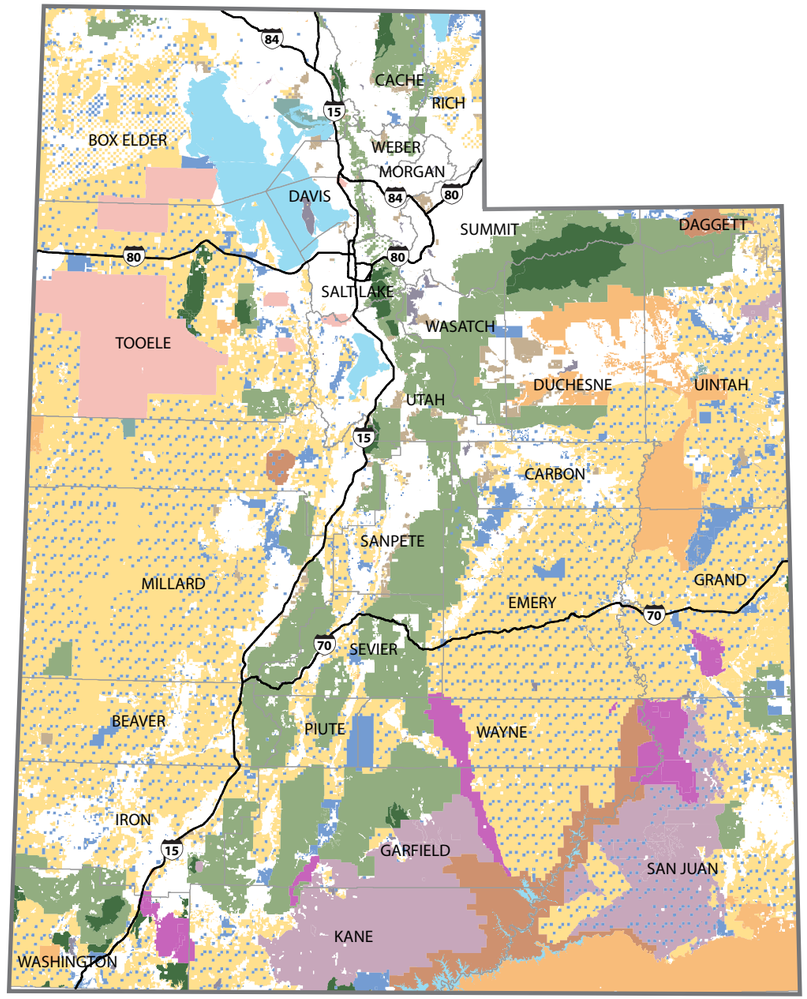
Land Use in Utah falls under the jurisdiction of federal, state, tribal, and local government entities. Land use on federal lands (U.S. Forest Service [USFS], Bureau of Land Management [BLM], and National Park Service [NPS]) is guided by federal land management plans. Land use on state lands is determined by the managing state agency. Land use on tribal lands is determined by the tribal government or by the Bureau of Indian Affairs for trust lands. Land use on private lands is determined by the county, or in incorporated municipalities, it is determined by the municipality through land use and zoning ordinances.

Coordination of planning efforts in a proactive, cooperative manner helps ensure that land use decisions complement rather than contradict each other.

"Land Use" is not a resource in the same sense as most other resources to be considered. Land use depends heavily on the preferences and policies of the managing entity. Consequently, due to the substantial amount of Utah's lands that are federally owned, federal land management policies significantly impact Utah's economic development. Rural counties throughout the state are reliant on federal land for resources that spur economic growth and stability including, but not limited to, minerals, recreation, oil and gas, timber, water, agriculture, fisheries, and wildlife.

FINDINGS

Approximately 75 percent of Utah consists of public lands managed by federal or state agencies. These lands and their resources cannot be separated from the culture, quality of life, and economic well-being of the State of Utah.



Land Ownership

Utah contains a patchwork of land use authorities. Land use decisions made by each of these authorities affect the other authorities. Coordination of planning efforts in a proactive, cooperative manner helps ensure that land use decisions complement rather than contradict each other.

Public land management is dictated by law and regulation. These laws and regulations require public land management agencies to prepare land and resource management plans. These land and resource management plans include land use allocations that specify locations that are available or not for certain uses. These include decisions such as what lands are available for livestock grazing, mineral material use, oil and gas leasing, and locatable mineral development; what lands may be available for disposal via exchange and/or sale; and what lands are open, closed, or limited to motorized travel. The laws and regulations also require the federal land management agencies to involve local governments in the planning and decision-making processes. Further, federal land managers are required to ensure that land use plans and management decisions are consistent with local governments' approved plans, ordinances, and policies to the fullest extent possible while maintaining consistency with federal law.

The Utah Legislature established commodity zones creating management zones with specific findings and land use priorities.[1] The management of these lands should be in accordance with these land use prescriptions to the maximum extent allowable by federal law.

ECONOMIC CONSIDERATIONS

Land use related to agriculture, livestock and grazing, mineral extraction, and recreation and tourism has resulted in economic benefits for the state of Utah.

The federal government makes payments in lieu of taxes (PILT) directly to county governments to help offset foregone property tax revenues due to nontaxable federal lands within their boundaries. The payments are made annually in June for tax-exempt federal lands administered by the BLM, the National Park Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service, and for federal water projects and some military installations. The formula used to compute the payments is based on the amount of federal land within an affected county; population, with less populous counties paid at a higher per-capita rate than more populous counties; prior-year payments from other federal land-payment programs, such as Secure Rural Schools, mineral lease revenues and grazing receipts; the existence of state laws directing county payments from federal land agencies to a particular purpose (pass-through requirements); and the Consumer Price Index Local governments may use their PILT payment for any governmental purpose. All 29 counties in Utah receive PILT payments from the federal government. In 2017, Utah received $39,500,105 in PILT payments, for 32,925,321 acres of federal land.[2]

[1] U.C.A. 1953 § 63J-8-105.8 [2] https://www.nbc.gov/pilt/counties.cfm?term=county&state_code=UT&fiscal_yr=2017&Search.x=38&Search.y=13&Search=Search

OBJECTIVES

- All federal agency resource management planning on public lands must involve active participation from state agencies, local government, and affected private individuals as contributing members. When possible, state and local government must be included as members of the interdisciplinary teams for each project. State and local governments should also be designated as cooperating agencies to the maximum extent possible. All federal policies and management plans acknowledge and consider the cultural, economic, and environmental importance of agriculture to the state and its inhabitants.
- Federal agencies work with state and local governments to increase flexibility and reduce the time required to implement projects affecting federal lands. The environmental impact statement and environmental assessment processes need to be expedited to reduce repetition and lengthy delays.
- Promote land uses on federal lands consistent with the principles of multiple use and sustained yield as directed by the FLPMA and the Multiple Use and Sustained Yield Act of 1960.
- Foster trusting relationships with local BLM Range Conservationists and Forest Rangers to improve management of federal lands within the state. Return the majority of decision-making authority to local BLM and Forest Service personnel for site specific projects.
- Federal land agencies consider allowing for the production of food and fiber where feasible on federal lands including planting crops and using the ground for animal forage.
- Foster working relationships between the agricultural community, community leaders in areas where urban expansion is conflicting with agricultural land use, and commercial interests. Although Utah is trending toward urban expansion, it is vital that agricultural interests are seriously considered and compromises that satisfy all parties are reached through collaborative processes.
- Improve education and increase applications for Agricultural Protection Areas, Conservation Easements, and both Grassland and Wetland Reserves from local producers.
- Avoid loss of private lands within the county boundaries as measured by acreage and fair market value.
- Improve communication and coordination among various federal, state, tribal, and local land use authorities.
- Minimize impacts of development and land use changes on local governments, infrastructure, and community services.
- 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.
- Discourage or eliminate land use restrictions or special designations that restrict economic growth and activity, especially on federal lands.
- Promote land uses on federal lands consistent with the principles of multiple use and sustained yield as directed by the FLPMA and the Multiple Use and Sustained Yield Act of 1960.
- Better coordinate local community and federal agency planning, both on paper, in-person, and on the ground. Incorporate planning processes of other agencies to help streamline the efforts. Develop joint plans that carry actions across management borders. Plans and management objectives to coordinate include (but are not limited to):
  - Fire prevention and management plans
  - Transportation and access plans
  - Water resource management
  - Development standards in the wildland-urban interface
  - Utility plans

POLICIES AND GUIDELINES

- The State supports maximized land use for its citizens, industries, and government purposes. Land use should be determined by those who are most affected by management decisions. Local voices should carry the greatest weight when deciding on land use approaches.
- All federal agency resource management planning on public lands must involve active participation from state agencies, local government, and affected private citizens as contributing members.
- Because approximately sixty-three percent of the State of Utah is made up of federal lands, the state's livelihood is substantially affected by the policies of land management agencies. As such, it is vital that the federal land management agencies work closely and cooperatively with the state to ensure access to public lands. Federal land management agencies should:
  - Include state agency personnel as members of interdisciplinary teams when developing land use plans.
  - Provide the State a constructive role in drafting land use plans.
- The State of Utah supports the concept of multiple-use and sustained yields on public lands. Federal lands should be managed to produce the maximum yield of timber, forage, recreation, and minerals at sustainable levels. Agriculture is an integral part of the multiple-use concept.
- BLM and Forest Service should not participate in sue and settle agreements with non-governmental organizations when such settlements concern land use within the State without first properly consulting the State.
  - Utah opposes the culture of sue and settle as a means to limit access to public lands, slow down range improvement projects, and drain limited resources from land management agencies.
- Grazing allotment AUMs within the state should remain at or above current levels unless a scientific need for temporary reduction is demonstrated to the satisfaction of State officials.
  - In the case that AUMs are temporarily reduced, these reductions are reinstated at the earliest possible moment once vegetative health has been restored to its previous levels.
- The State of Utah opposes passive land management practices that negatively impact forage production, the maintenance of natural habitat, and native ecosystems. The State also opposes passive management that leads to greater risk of catastrophic wildfires.
- The State supports the designation of official roads, trails, and paths that allow access for all public land users.
- The State protects access across federal land to all State Institutional Trust Lands Administration parcels.

State Land Use Authority

Utah Code Title 10 Chapter 09a, "*Municipal Land Use, Development, and Management Act*" is the source of Land Use Authority for the State.

Utah State Code Section 63J-8-104 (j) states, federal land agencies shall manage lands under their jurisdiction so as to not interfere with the property rights of private landowners as follows:

a. The State recognizes that there are parcels of private fee land located near or surrounded by federal lands.

b. Federal land management policies and standards shall not interfere with the property rights of any private landowner to enjoy and engage in uses and activities on an individual's private property consistent with controlling county zoning and land use laws.

c. A private landowner or a guest or client of a private landowner should not be denied the right of motorized access to the private landowner's property consistent with past uses of the private property.

Utah State Code 63L-8-102 states: Each parcel of public land in this state shall be managed, as much as possible, to promote the following principal or major uses of the land, consistent with the principles of multiple use and sustained yield:

(**1**) domestic livestock grazing;

(**2**) fish and wildlife development and utilization;

(**3**) mineral exploration and production;

(**4**) rights-of-way;

(**5**) outdoor recreation;

(**6**) timber production; and

(**7**) wilderness conservation.[3]

State of Utah Resource Management Plan for Federal Lands

Utah State Code § 63J-8-105.8 establishes certain areas of the state as Grazing Agricultural Commodity Zones where livestock grazing forms the highest land use priority for the management of public lands within the zone.

Utah State Code § 63J-8-105.9- Utah Timber Agricultural Commodity Zones establishes certain areas of the state as Timber Agricultural Commodity Zones where timber harvesting the highest land use priority for the management of public lands within the zone.

State of Utah Resource Development Act

In Utah State Code § 63M-5-102 the Utah State Legislature declares that the policy of this state is:

- (a) to encourage industrial development and the development and utilization of the natural resources in this state in order to promote the economic development of this state and to provide benefits to the citizens of this state and other states; and
- (b) to encourage co-operation between the state and its agencies and political subdivisions with individuals, firms, and business organizations to provide for industrial development and the development and utilization of the natural resources of this state.
- (2) The Legislature recognizes that:
  - (a) industrial development and the development and utilization of the natural resources in this state, particularly in rural areas, may have a significant financial impact on state agencies and units of local government…
  - (c) these necessary public works and improvements may in part be of benefit primarily to the industrial developer or the person developing or utilizing the natural resources in this state.

[3] http://le.utah.gov/xcode/Title63L/Chapter8/63L-8-S103.html?v=C63L-8-S103_2016051020160510

RELATED RESOURCES

Economic Considerations

Cultural, Historical, Geological, and Paleontological Resources

Fire Management

Land Access

Recreation and Tourism

The federal government owns and administers certain lands within the State of Utah under the auspices of the Bureau of Land Management (BLM), the US Forest Service (USFS), the National Parks Service (NPS), U. S. Bureau of Reclamation (BOR), and the U.S. Fish and Wildlife Service (FWS). These *"public lands"* are held by the federal government in a proprietorial interest only. Accordingly, federal law enforcement authority on these public lands is limited to that authority delegated to it by the U. S. Constitution, and specifically by Article IV, Section 3, Clause 2 *(the Property Clause)*. Federal law enforcement is, therefore, limited to the enforcement of rules and regulations which are "needful" for the protection of the public lands. The State of Utah, as sovereign within its borders, retains full police powers on the public lands to enforce its civil and criminal laws and ordinances in the protection of the public's health, safety, and welfare.

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OBJECTIVES

Questions have arisen with respect to the respective authorities of federal law enforcement agents, rangers, officers, and county sheriffs to enforce state and federal laws on the public lands which have led to a breakdown in coordination and cooperation between federal and county law enforcement agencies. Much of the needed coordination and cooperation can be obtained if state laws and county ordinances are enforced as state and county law rather than as federal law adopted through federal regulations. This change in approach could be implemented through deputization of federal agents, rangers and officers by County Sheriffs pursuant to Utah Code Annotated Section 53-13-106.9 & 10.

POLICIES AND GUIDELINES

It is the desire of the State of Utah to restore proper coordination and cooperation, and to better serve the public, by implementing a system of county-specific law enforcement agreements between county officials and each of the federal agencies that have management authority within a county, i.e. BLM, USFS, NPS, BOR, and FWS, whereby respective duties and responsibilities are established, clearly defined and clarified. Such law enforcement agreements will be facilitated and directed through law enforcement agreements between the State of Utah and each of BLM, USFS and NPS. The negotiation of the terms and conditions of county-specific law enforcement agreements will be left to each county and the applicable local or regional federal agency. However, the following basic principles shall govern:

1. The County Sheriff is the chief law enforcement officer throughout the county, including on the public lands and is charged with the duty to protect the lives, property and rights of all people, and to maintain order and enforce all state laws and county ordinances.
2. To the maximum extent feasible, law enforcement on the public lands shall rely upon the County Sheriff.
3. Enforcement of all state laws and county ordinances, including arrest, investigation and prosecution, shall be under state law and in state courts.
4. State laws and county ordinances shall not be enforced on the public lands by federal agents, rangers or officers unless such agents have been deputized by the County Sheriff, which would eliminate the need to adopt State laws and county ordinances as federal law through regulation.
5. Any deputized federal agent, ranger or officer making an arrest under state law or county ordinance shall, as soon as practicable, notify the County Sheriff of the arrest, and will in all cases turn the investigation and prosecution of the offense over to the county.
6. Should the federal agency determine that assistance is necessary in enforcing federal laws on the public lands the federal agency may offer such enforcement to the County Sheriff who may choose whether to accept such an offer as well as the terms under which the offer is accepted.

RELATED RESOURCES

Economic Considerations

Land Use, Land Access,

Agriculture, Water

Quality & Hydrology,

Wilderness, Water Rights,

Forest Management,

Predator Control, Noxious

Weeds, Wildlife, Fisheries,

Threatened Endangered &

Sensitive Species,

Livestock are generally defined as domesticated animals raised in an agricultural setting to create food, fiber, labor, or other products. State code elaborates; "Livestock" means cattle, swine, equines, sheep, camelidae, ratites, bison, goats, and domesticated elk.[1] Grazing is defined as a method of feeding whereby domestic livestock consume plant material and convert it into meat, milk, and other products. The practice of raising livestock and grazing animals is considered part of agriculture.

Livestock and grazing in Utah is important for the natural, cultural, social, and economic benefits it provides.

Livestock and grazing in Utah is important for the natural, cultural, social, and economic benefits it provides. Since the mid nineteenth century, Utahns (of the then-territory) have been raising a variety of livestock including cattle, sheep, and horses, which continue to be mainstay of the State's agricultural economy. Many "Century Farms" have been designated throughout Utah. The state considers agriculture to be a large part of its history, custom, and culture.

The Livestock Grazing in Utah: History and Status (2008) report states, *"Livestock have been commercially grazed on lands in Utah for more than 150 years. The earliest record of grazing was by a herd of cattle owned by Miles Goodyear in the early 1840s. Native Americans probably grazed sheep and horses before that time. Grazing of lands by cattle and sheep in Utah increased rapidly after 1847, following the arrival of the pioneers in the Salt Lake Valley."*

Throughout the early settlement period of Utah, as well as the western frontier in general, livestock grazing on federal or *"public"* land was undertaken without restriction. Cattle and sheep flourished on the verdant mountain grasses and livestock numbers soared. However, with the unregulated grazing came problems. Overgrazing, particularly by large sheep herds, denuded the land in many areas, causing erosion and watershed disasters. There were constant conflicts between livestock owners over the use of the land and who owned the rights to graze where and when. In response to these problems, Congress passed the Taylor Grazing Act in 1934. This led to the creation of grazing districts, through preference rights, in which grazing use was apportioned and regulated. The Division of Grazing was created within the Interior Department to administer the grazing districts. This division later became the U.S. Grazing Service and was headquartered in Salt Lake City. In 1946, the Grazing Service was merged with the General Land Office to become the BLM. Similar legislation was later passed under the name Granger-Thye Act (1950) to regulate grazing on the National Forest System lands.

After the passage of the Taylor Grazing Act, the Grazing Service, through advisory boards, created an adjudication process to determine where, when and what type of livestock grazing could occur on public rangelands. To receive an allotment through this process, the stockman had to have

(**1**) *"commensurate base property"* on which he could graze his livestock when they were not using federal lands,

(**2**) have an economically viable livestock operation and

(**3**) be members of the local community and support the local economic stability of the community.

With the passage of the Taylor Grazing Act came new management structure for regulating grazing and protecting natural resources. To control animal movement and enhance grazing activity, fencing and water developments were put in place. Forage surveys were implemented to balance resource demands with range productivity and carrying capacity. The ranchers who utilized the land had a greater vested interest in their stewardship of those lands as grazing rights were created.

By the 1960's, regulation of public lands began to tighten as ever more restrictive federal policies were enacted and management goals began to change. New laws such as the NEPA, the ESA, NFMA, and FLPMA diverted management attention away from grazing and forage production to *"environmental protection"* concerns raised by special interests groups. The result has been endless environmental studies, a backlog of litigation, ongoing bureaucratic delays, heavily prioritized management of riparian areas, sensitive species and special land status designations, and far less emphasis on range improvement activities and forage production.

Today, federal agencies regulate livestock grazing in a manner aimed at achieving and maintaining the health of the land and sustaining resources. To achieve desired conditions, the agencies use forest and rangeland health standards as a guide. Standards describe specific conditions needed for long term sustainability, such as the presence of streambank vegetation and adequate canopy cover. Guidelines are developed to direct management strategies that achieve or maintain healthy lands and ecosystems as defined by the standards. Grazing management strategies designed to attain these standards may include periodic rest, rotation or deferment from specific allotment usage, water developments, and vegetation treatments that increase forage production.

Current authorized grazing levels were established from 1940 to 1965, during which time the BLM completed livestock forage inventories to establish estimated grazing capacity. These levels have been adjusted over the years to accommodate fluctuations in production capabilities and use by other species. Livestock grazing is regulated by the use of AUMs. This terminology refers to the amount of forage needed to sustain one cow or five sheep for one month. 100 AUM's would equate to 100 cows for one month or 10 cows grazing for 10 months. Since 1940, data from the BLM indicates that grazing AUM's for livestock have been reduced by more than two-thirds, from 2,749,000 down to only 675,000 AUM's in 2009. Almost as dramatic, AUM loss on Forest Service lands over the same time period has been reduced by half. These reductions in AUM's from the federal agencies are a result of burgeoning regulatory restrictions, modified terms and conditions on grazing permits, inflexibility within federal policies and numerous rangeland factors including: uncontrolled pinyon/juniper expansion, noxious weed invasion, altered fire regimes, reduction in the sheep industry, expansion of wildlife populations and the

[1] https://le.utah.gov/xcode/Title4/Chapter7/4-7-S103.html

over-population of wild horses, etc. A new modern threat is the effort of special interest groups to eliminate grazing on public lands through aggressive marketing, lobbying, and litigation.

During the 2006 Utah legislative session, in response to these declines in grazing, the Rangeland Improvement Act was passed (HB 145). The bill provided for the establishment of a State Grazing Advisory Board and six regional advisory boards to improve the grassroots voice of both private and public land grazers. A new division was then established within the Utah Department of Agriculture and Food, known as the Utah Grazing Improvement Program ("GIP"). The mission of GIP is to "*improve the productivity, health and sustainability of our rangelands and watersheds.*" The GIP program operates under the basic belief that "well planned and managed livestock grazing is the most important landscape scale tool for maintaining healthy rangelands, watersheds, and wildlife habitats" and that "healthy rangelands contribute to a healthy livestock industry and productive rural economies."

Grazing is one of the earliest and most important uses of public lands in Utah.

Grazing is one of the earliest and most important uses of public lands in Utah. This activity continues to be an important use on those same lands today. *"Livestock Grazing in Utah: History and Status"*, a 2008 study of grazing in the state of Utah by the governors Public Lands Policy Coordinating Office showed that livestock and livestock products accounted for 75 percent of the total agricultural cash receipts in the State.[2] This study gave clear evidence of the importance of public land grazing to individual livestock producers and the industry as whole, by showing 1) the number of animals raised by permit holders was much larger than those without permits, 2) ranching operations having permits were more dependent on livestock production that those without, 3) permittee operations commonly involved more than one family while non-permittee operations were single-family businesses, 4) most livestock operations were multi-generational family businesses, especially permittee based operations, 5) livestock producers buy and sell locally, impacting local economies more directly than other business, 6) grazing public lands reduced producers' dependency on hay as a source of feed, 7) livestock grazing has a positive influence on fire suppression, 8) the cattle industry has become the dominant sector in Utah agriculture.

Utah's rangeland has historically been highly utilized for livestock grazing and remains an important resource for the ranching industry today. Cattle and sheep ranchers typically graze during the spring and summer months in upland ranges administered by the U.S. Forest Service (USFS), Bureau of Land Management (BLM), and the State Institutional Trust Lands Administration (SITLA). In fall months, cattle and sheep are generally moved to lower rangeland to graze crop aftermath in irrigated, private fields and are fed hay in the winter months. Other ranchers utilize private rangelands year long. Ranchers are challenged with limited water and watering facilities, invasive and noxious weeds, and yearly changes to grazing permit numbers and durations.

[2] http://publiclands.utah.gov/wp-content/uploads/2013/08/LivestockGrazinginUtahHistoryStatus.pdf

FINDINGS

The Livestock Grazing in Utah: History and Status report states, *"Rangelands in Utah are primarily administered by the Bureau of Land Management (BLM) and Forest Service (FS).[3] Data from the BLM indicate that use by domestic livestock has declined more than two-thirds over time. Most of this decline has been associated with the reduction of the sheep industry. Similar data for the FS indicate that declines in the use of FS lands have not been as dramatic as on BLM lands, but usage of FS lands today is about half what it was 60 years ago."*

The report also states, "Every Utah livestock producer identified by the Utah office of the National Agricultural Statistics Service (NASS), as well as out-of-state operators with permits to graze public lands in Utah, were sent a survey that was designed to obtain information not available elsewhere. Analyses of this data indicate the following:

The number of animals owned by permittees is much larger than those owned by non-permittees. Permittee operations are generally more dependent on livestock production than are non-permittees.

Most livestock operations have been owned by the same family for many years *(commonly more than 50 years)*, and a large portion plan to have a family member operate the ranch in the future. This is especially true of permittee ranches.

A large portion of livestock producer sales are made to local firms, but an even larger percentage of their purchases are from local firms. As a result, firms in communities where livestock production is a large portion of the area's economic activity are intimately concerned with the health of the livestock industry.

Pasture is the primary source of feed for non-permittee livestock operators when they are not being fed hay (winter), while forage from public lands is the most important source of feed for permittee operators. Pasturelands are an important source of feed for all operators, but use of federal lands allows permittees to reduce their dependency on hay, or more expensive feed sources. Without the use of federal lands, many ranching operations in Utah could not be sustained as economically viable. The most critical period of use of public lands for most permittees was during the summer.

The amount of federally permitted animal unit months (AUMs) in Utah declined four-fold between 1940 and 2005. On BLM land, 2,749,000 AUMs were available in 1940 but were reduced to fewer than 675,000 AUMs in 2009. On U.S. Forest Service land, the AUMs available decreased from 2.7 million in 1940 to 614,000 in 2008. In response to these declines, the Utah legislature passed the Rangeland Improvement Act establishing the Utah Grazing Improvement Program.[4] The goals of the act are to strengthen Utah's livestock industry, improve rural economies, enhance the environment, and to promote efficient multiple-use management of rangeland resources.

Animal agriculture in Utah represents the single largest sector of farm income in Utah. At a value of more than $1 billion, 25 of the state's 29 counties report livestock as the dominant agricultural sector.[5]

[3] http://publiclands.utah.gov/wp-content/uploads/2013/08/LivestockGrazinginUtahHistoryStatus.pdf [4] Utah Code Ann. § 4-20-101 (West)
[5] http://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf

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Utah ranchers are challenged with limited water and watering facilities on rangelands, especially in grazing areas in the lower elevations with little precipitation. The same problem exists for wildlife. Many existing watering facilities are runoff catchment facilities or unlined ponds. Water in these facilities is usually lower in quality and has a higher concentration of dissolved solids, specifically soluble salts. Historically, cattle have also watered out of open canals used for water distribution. However, the ongoing transition from open canals and ditches to sprinkler irrigation has eliminated many open canals, leaving ranchers with few options for watering livestock and reducing watering facilities for wildlife. Partnerships need to be developed between ranchers, wildlife managers and land managers to create more watering facilities for livestock as well as wildlife. The Carbon Canal Winter Water project serves as an example of successful partnering in order to improve watering facilities. Such partnerships will result in greater distribution of wildlife and livestock, which will also result in improved utilization of rangeland vegetation and fewer impacts to private cropland.

Rangeland is infested with cheat-grass, annual mustard weed, and sage brush. The higher elevations are covered with pinion and juniper trees. Range condition inventories suggest they are producing approximately 50 percent of their potential. The main resource concerns consist of degradation and removal of native plant species, introduction of invasive species (weeds), juniper encroachment, and sheet and rill erosion.

ECONOMIC CONSIDERATIONS

A 2016 report published by Utah State University details the significant contributions of agriculture to the state economy. The combined agricultural processing and production sectors account for 15 percent of the state's total economic output, or $21.2 billion, after adjusting for multiplier effects.[6]

From 1970 to 2015, direct cash receipts from livestock and products increased from $1.28 billion to $1.57 billion, a 17.5 percent increase. Cash receipts from livestock and products constituted 73 percent of all farm business cash receipts, making livestock the driver behind most of Utah's agricultural economic growth. These direct cash receipts do not reflect the full amount of economic growth provided by livestock and its products due to the multiplier effect that cash receipts have once they are spent within the community.[7]

In total, Utah has an estimated 1,289,000 AUMs between BLM and FS land. The total economic impact of an AUM is roughly $100. Using these conservative estimates, the economic impact of federal AUMs is more than $128 million in Utah. Consequently, federal agencies' land management policies directly affect a substantial portion of Utah's economic growth. For example, BLM's reductions in AUMs from historic levels constitutes an annual economic loss of roughly $207 million. Forest Service AUM reductions from historic levels have resulted in an annual economic loss of more than $208 million. Overall, land management decisions by federal agencies have resulted in a total annual economic loss of $415 million.

The estimated $128 million in annual economic value, as well as the estimated annual economic loss of $415 million, of federal AUMs are concentrated in Utah's rural counties. Rural counties have the highest percentage of federally owned land within the state. The economic value that AUMs and livestock bring to Utah's rural counties is vital because residents have a much lower median household income in comparison to the more populated areas of the state.[8] The decline in federal AUMs has financially impacted Utah's rural counties. Agriculture and livestock grazing contribute substantially to these rural economies through local buying and selling as well as employment. In addition, other industries that have traditionally spurred economic growth in rural Utah (*i.e. logging and mining*) vary substantially, leaving rural communities with economic uncertainty. Agriculture and grazing has provided a stable, year-round industry upon which rural economies can rely without significant booms and busts.

Utah Department of Agriculture and Food receives a small share of Taylor Grazing funds from AUM fees to be used for range improvements.

From 2012 to 2017, the State has received the following amounts from the Taylor Grazing funds:

2012 - $132,520
2013 – $142,478
2014 - $110,159
2015 - $130,142
2016 - $160,417
2017 - $198,223

Grazing Improvement Areas

Operators in animal production average the highest pay within the farming and agricultural industry. Animal producers average $31,573 annually while the overall farm average is only $28,792. From 1990 to 2015, the average annual wages of animal producers in Utah has increased by 17.5 percent from $26,867 to $31,573.[9]

As of 2015, Utah's level of agricultural employment is at the same levels as 1970, showing a relatively stable amount of jobs within the industry. Currently, farm employment constitutes 1.1 percent of Utah's total employment, contributing 20,550 jobs to Utah's economy. Of the total agricultural employment, 16,177, or 0.9 percent of total employment, are farm proprietors.[10] The majority of individuals employed in agriculture are small business owners who create jobs and generate revenue for the more rural and generally poorer areas of the state.

[6] Alevy, J., Fadali, E., and Harris, T. R. 2007. Analysis of Impacts of Public Land Grazing on the Elko County Economy: Part VII: Economic Impacts of Federal Grazing in Elko County, Jarbridge and Mountain City Range Area Districts. University of Nevada Reno. http://www.ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf [7] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section [8] https://jobs.utah.gov/wi/data/wagesincome/annualprofilewages.html

[9] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-section
[10] https://headwaterseconomics.org/tools/economic-profile-system/#agriculture-report-sectio

OBJECTIVES

- All federal agency resource management planning on public lands must involve active participation from state agencies, local government, and grazing permittees as contributing members. When possible, state and local government must be included as members of the interdisciplinary teams for each project. All federal policies and management plans acknowledge and consider the cultural, economic, and environmental importance of the livestock industry to the state and its inhabitants.
- AUMs within the state remain at or above current levels.
- Grazing within the state of Utah is performed according to best grazing practices and sound scientific management of local environments. Livestock operators are given maximum flexibility concerning seasons of use, stocking rates, and rangeland improvement decisions.
- Federal agencies reduce the time required to implement range improvements, grazing permit renewals, and adjustments to stocking rates and seasons of use. The environmental impact statement and environmental assessment processes need to be expedited to give livestock operators more certainty and flexibility in their operations.
- National Environmental Policy Act processes establish a reasonable set of desired conditions for grazing allotments and allow permittees maximum flexibility in stocking rates, range improvements, and seasons of use in managing to those standards.
- Improve vegetative health on public and private lands through range improvements, prescribed fire, vegetation treatments, and active management of invasive plants and noxious weeds.
- Actively remove pinyon-juniper encroachment in other ecological sites due to its substantial consumption of water and its detrimental effect on sagebrush, other vegetation, and wildlife.
- Foster trusting relationships with local BLM range cons and Forest Rangers to improve management of federal lands within the state. Return the majority of decision-making authority to local BLM and Forest Service personnel.
- Protect historic trailing rights, as these rights are critical for ingress and egress in many operations.

Utah's Watershed Restoration Initiative

Utah's Watershed Restoration Initiative[11] (WRI) provides a balancing influence that promotes wildlife values and supports agricultural needs. Significant investments have been made through WRI to improve rangeland health and watershed conditions. In fiscal year 2014, the Utah Legislature contributed $3.95 million to WRI. Ninety-one participating partners completed restoration of 112,987 acres of uplands and 55 miles of stream and riparian areas, leveraging the legislative funds by a factor of 7-to-1. Grazing fees paid by allotment owners and sportsmen-generated Sportsman-generated funding plays an important role in the WRI. Counties in general appreciate the benefits which are enabled through WRI habitat restoration projects. The long-term results of the WRI will be measured in reduced wildfire acreage and suppression costs, reduced soil loss from erosion, reduced sedimentation and storage loss in reservoirs, improved water quality and yield, improved wildlife populations, reduced risk of additional federal listing of species under the Endangered Species Act, improved agricultural production, and resistance to invasive plant species. To participate effectively, counties need their staff to attend meetings of the WRI regional teams, expressing their views and advocating for the kinds of watershed restoration efforts they feel are most important.

[11] WRI is a diverse partnership of state and federal agencies working together with private organizations, industry, local elected officials and stakeholders, coordinated by the Utah Department of Natural Resources.

POLICIES AND GUIDELINES

- Because sixty-three percent of the state of Utah is made up of federal lands, the state's livelihood is substantially affected by the policies of land management agencies. As such, it is the State of Utah's policy that federal land management agencies work closely and cooperatively with the state ensure access to public lands.
  - Include state agency personnel as members of interdisciplinary teams when developing land use plans.
  - Allow the state more of a constructive role in drafting land use plans, rather than a reactionary role.
- The State of Utah supports the concept of multiple-use and sustained yields on public lands. Livestock grazing is an integral part of the multiple-use concept. Reductions of livestock numbers through frivolous lawsuits and barriers to infrastructure improvements and maintenance necessary for effective grazing management are unacceptable. It is the State's policy:
  - That BLM and Forest Service do not participate in sue and settle agreements with other organizations without properly consulting the state.
  - To opposes the culture of sue and settle as a means to limit access to public lands, slow down range improvement projects, and drain limited resources from land management agencies.
- The state supports and values the ranching industry as an integral part of its history, culture, and heritage. Ranching and agriculture are recognized as a cultural resource within the state of Utah.
- The state of Utah adopts a no-net-loss stance concerning grazing AUMs on federal lands.
  - AUMs within the state remain at or above current levels unless a scientific need for temporary reduction is demonstrated to the satisfaction of state officials.
  - In the case that AUMs are temporarily reduced, these reductions are reinstated at the earliest possible moment once vegetative health has been restored to its previous levels.
- The state of Utah supports the use of the best available science to establish grazing AUM levels.
  - In the case of increased forage availability and upward stable vegetative trends, the state supports a subsequent increase in domestic livestock AUMs.
  - Effective monitoring must occur to achieve healthy rangelands and a vibrant diversified economy in Utah.
- The state encourages upward and stable trends in vegetation and soil condition on public lands.
  - This is best achieved through active management by federal agencies and public land users of all federal lands including national forests, national parks, areas of critical environmental concern, and wilderness areas.
  - The state supports rapid removal of all invasive plant species and noxious weeds on both public and private lands.
  - The state supports the active removal of pinyon-juniper encroachment on other ecosystem, such as sagebrush, due to its consumption of water, detrimental effects on vegetation and available forage, and its negative effects on wildlife habitat.
- The state supports prompt approval by land management agencies of all range improvements, increased water infrastructure, and vegetation treatments to benefit domestic livestock, wildlife, and consequently the health of federal lands.
  - Livestock operators are encouraged to employ sustainable best management practices in managing their livestock to improve the health of public lands in the state of Utah.
  - Livestock operators are also encouraged to monitor and keep records of forage yield, utilization rates, the class of livestock being run, exact dates of use, and additional information concerning land health to help facilitate continued and increased livestock grazing on public lands.

- The state supports active management *(including euthanasia)* of wild horse and burro populations to remove excessive populations from rangelands and/or in holding facilities.
    - The current population of wild horses and burros within the state is unacceptable and needs to be managed to appropriate management levels (AML).
- The state supports active management of wildlife habitat and domestic livestock allotments that balances the interests of all public land users, including agriculture and grazing.
    - Wildlife habitat needs to be managed in a manner that improves vegetative health, maintains adequate forage for domestic livestock, and ensures proper water quality.
    - Managing predators to appropriate levels is vital to ensure that ranchers do not face losses through predation of livestock. Predators that repeatedly prey on livestock should be relocated or be eliminated and ranchers compensated for their losses.
- The designation of endangered species or critical habitat must be proven through sound scientific evidence. This research should be done in collaboration and partnership with the state of Utah.
    - All industries must be considered and collaborated with when considering the designation of an endangered, sensitive, or any other type of at risk species.
    - Collaboration should include consideration of the economic and social costs in making any endangered, threatened, or sensitive species determinations.
    - Proven unoccupied critical habitat for endangered, threatened, or sensitive species does not need to be managed as if the species are present.
- The state supports private ownership of water rights.
    - Adequate private water rights for livestock and agricultural uses is supported and protected by the state.
    - Grazing permit renewals shall not be withheld by federal agencies as a means to acquire water rights within the state.
    - Water Rights held by Federal Agencies where beneficial use is maintained by grazing domestic livestock shall be expressly reserved and used for domestic livestock grazing on allotments and subject to forfeiture if grazing is reduced or eliminated.
- The state of Utah recognizes and supports the use of public lands grazing as a tool to manage wildfire risk. Through grazing, fuel loads are reduced, resulting in decreased risk for catastrophic wildfires.
- The state supports the use of targeted grazing alongside other forms of treatment to suppress, manage, and eradicate noxious weeds. Invasive and noxious weeds reduce rangeland health and available forage for livestock and wildlife.
- The State supports the use of the 'Good Neighbor' program to partner with Federal Agencies to better manage forage, fiber, and water on Federal Lands in Utah.
- When range monitoring data is collected from "key areas" or important ecological sites chosen to represent the effects of grazing, the information cannot be extrapolated to represent the area as a whole and shall not be used for establishing range trends or influencing management actions.
- Resolve R.S. 2477 claims in Utah's counties as expeditiously as possible.
- Monitoring systems shall be developed to separate resource use by species *(e.g., wild horses, wildlife, or livestock)* to inform management decisions. If a resource problem is occurring, the source of the problem must be positively identified in order to tailor a proper management response.
- The State does not support the permanent retirement of any grazing allotment.
- Vacant grazing allotments should be assigned to permittees affected by fire, large energy developments, or other resource disrupting activities that will cause economic disruption to permittees.
- Livestock trailing rights and easements must be protected to ensure viability of ranching operations. Such trails are critical for moving livestock across rangelands and to markets.

Wild Horses and Burros

The native horse species of North America became extirpated at the end of the Pleistocene epoch, between 7,500 to 12,000 years ago. Evidence suggests that a global cooling event led to the extinction of many large mammal species including wooly mammoths, American camels, dire wolves, saber tooth cats, and wooly rhinos. This event may have been the demise of the horse species without the mitigating factor of the Bering Land Bridge that once connected Alaska and Siberia allowing the horses to migrate to Europe and Asia.

The Spanish word for "*stray*" is Mustengo, early Spanish explorers and settlers lost livestock on the vast rangelands of North America, particularly horses; they would later become known as Mustangs. Mustangs are descendants of Spanish or Iberian horses that were brought to the Americas by Spanish explorers in the 16th century.

During the Mid 1800's the west was explored, settled and powered by 'horse power'. As commerce and transportation of goods and people expanded, breeding of horses and burros became essential for the success of businesses, families, communities and States. Thus, the horse became a highly valued commodity. Demand for 'horse power' created a very strong commodity market for horses and burros, they were often the most profitable domestic anima, during the 1870's range cattle averaged 20.00 per head, a work horse would command 150.00 and a saddle horse 200.00 or more. Hence, demand for horse power created a population boom in North America, from 0 in the early 1600's to over 21,000,000 by 1920 in America alone. Currently there are approximately 3 million horses in America.

In Western States, the 'free-range' policy of the late 1800's and early 1900's prompted large range herds of horses. Settlers and Ranchers would release domestic animals out on the range, then collect animals to train and sell as demand and opportunity dictated. Selected Breeds were released onto the range to create animals that would meet specific requirements like the Cavalry Remount program, freight animals, Ranch Horses, Pony Express mounts, Pack animals, etc. Thus, these 'managed' herds grew by the millions to meet the demands of a growing nation. What are now referred to as "Wild Horses" *(a construct of the Wild Horse and Burro Act)* are actually the remnants of these range herds of domestic horses and burros, bred and managed by local ranchers to meet specific commodity markets.

Today, large numbers of unbranded and unclaimed feral horses are on public lands administered by the United States Secretary of Interior through the Bureau of Land Management (BLM), the United States Secretary of Agriculture through the Forest Service (USFS) and State owned trust lands administered by the Utah School and Institutional Trust Lands Administration (SITLA). Wild horses, as they are now perceived, are not native to America's rangelands; they are feral animals, but for purposes of this plan are referred to as wild free-roaming horses and burros to be consistent with 16 United States Code ("U.S.C.") 1331(b).

The BLM and Forest Service, under the authority of the Wild Free-Roaming Horse and Burro Act (Public Law 92-195) of 1971, is responsible for the protection, management, and control of wild horses and burros on public lands in the State of Utah. The federal agencies are responsible for data collection about the animals and their habitat to prescribe management to ensure that free-roaming populations are in balance with other uses and resources.

Following the passage of the Wild Free-Roaming Horse and Burro Act (WFRHB) (1971), the BLM inventoried wild horse populations in the State of Utah from 1971 to 1974. These inventories found wild horses in 19 areas, which were subsequently designated as Herd Areas. These original Herd Area designations remain in place. Through the land use planning process, 19 wild horse Herd Management Areas (HMAs) were established in the designated Herd Areas. Each HMA shares the name of the Herd Area in which it is located. The BLM and Forest Service do not manage portions of the original Herd Area outside the HMA boundaries for wild horses. Some of the Herd Area/HMA boundaries coincide with man-made (fences) or natural *(e.g., cliffs and canyons)* boundaries, although most do not match any restrictive boundary and therefore allow horses unrestricted movement in and out of the areas.

Herd population management is critical in balancing herd numbers with forage resources.

Current Conditions

As of March 2017, the population of wild horses in Utah is approximately 5,500 animals, the Appropriate Management Level (AML) is 1,956 animals.[12] HMAs are showing signs of over utilization of forage and water, which indicate an inability to support current populations of wild horses. In some areas the wild horses have moved outside the HMA and impact private or other federal land property, especially riparian areas and vegetation treatment areas through grazing and trampling.

Herd population management is critical in balancing herd numbers with forage resources. Studies have demonstrated that growth rates of wild horses approach 20 percent or more in many horse populations. This rapid increase in population is affecting the condition of the range in the HMAs, and leading to greater competition for resources between wild horses, cattle, and wildlife (particularly elk) due to forage requirements.

The BLM and Forest Service are required by WFRHBA to manage populations in each of the HMAs within the appropriate management levels through wild horse gathers and removals. Ideally, these gathers would take place every 3 to 4 years on each HMA to meet population objectives. Excess horses are put up for adoption, but the majority are placed in pastures or permanent holding facilities and fed costing the federal government in excess of $45 million per year. Euthanasia was allowed prior to 1980, but since this time, Congress has prohibited use of federal funds to euthanize excess horse other than those that are sick or lame.

During wild-horse management or gathers, the BLM also collects data regarding herd health and characteristics. These data include genetic tests, collection of phenotypic characteristics, body condition, age, recruitment rates, and other herd-specific information.

More information on the BLM Wild Horse Program and specific HMA's can be found at: *https://www.blm.gov/programs/wild-horse-and-burro/herd-management/herd-management-areas/utah*

[12] https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-data

Trends

Population trends for wild-horse herds in the planning area continue to move upward because annual reproduction and recruitment considerably outnumber mortality and animals removed during gathers. The BLM and Forest Service have not been able to keep the animals at AML due to restraints placed on them from Congress and Washington DC leadership. Only young animals (2 years old and younger) are adopted by the public with few exceptions. The rest of the excess wild horses are placed in contract holding corrals or large pastures costing the federal government over $45 million per year. These facilities are now overflowing, causing the BLM to seek more places to put excess horses, and has created a vicious cycle that does an injustice to the wild horses.

As herd population numbers have increased, the condition of grazed vegetation and water resources in HMAs have decreased due to the non-selective feeding nature of wild horses which has negatively impacted the fragile ecosystem. Domestic livestock producers are required to adhere to strict grazing management plans that outline time timing and rotation of animals. These principles are strictly adhered to as they are the basis of sound range management. Unfortunately, Wild Horses and Burros are not managed with the same principles. Thus, the largest ungulate on the range is causing a disproportionate amount of damage. During drought years grazing permittees are requested to reduce AUMs due to shortage of forage, and to compensate for the overpopulation of wild horses. Horses are known to drive away competing livestock and wildlife from springs during drought years. This trend will only escalate as wild horses are allowed to increase without proper management.

Forecast

Based on existing trends, wild horses will continue to encroach in areas outside the designated HMAs. The continued growth and expansion of resident herds managed in the planning area will create increased stress on rangeland vegetation conditions, and impact overall herd health through reductions in viable forage areas. Persistent drought conditions will reduce water, forage availability, and habitat for wild horses, depleting the already stressed range.

Long-term wild horse management objectives are designed to maintain wild horse populations within appropriate management levels, while providing for the health of the wild horses and a healthy ecological balance with other resources. However, as long as Congress prohibits the federal agencies from using federal funds to euthanize excess horses that cannot be adopted, places to keep excess horses will be limited and the wild horse population will continue to grow unchecked. Under current conditions wild horses are dying on the range from thirst and starvation. Permitted livestock will continue to be removed to make room for more wild horses, while the range is destroyed.

Long-term wild horse management objectives are designed to maintain wild horse populations within appropriate management levels, while providing for the health of the wild horses and a healthy ecological balance with other resources.

ECONOMIC CONSIDERATIONS

The overall goal is to bring the wild horses in each Horse Management Area to appropriate management levels as identified for each HMA. It is evident that current management policies are failing and wild horse populations have escalated out of control. Until Congress allows funds to be spent to euthanize excess animals that are unadoptable, wild horse populations will continue to increase at 20 percent per year and the range depleted to the point where it will take years and millions of dollars to restore.

The environmental impacts of the excess horses are serious and increasing over time. These impacts include but are not limited to: decreased biodiversity in both plants and animals found within the management areas; decreased water yield and water quality of the watersheds; increase encroachment of woody and non-edible plants such as pinyon and juniper; increased erosion from both wind and water; decreased air quality through dust particles in the air; scarce water supplies will be made unavailable for other wildlife due to excess horses.

Direct monetary cost of excess horses include but are not limited to: restoration costs of rangeland treatments and re-seeding under arid and semi-arid conditions; ranchers with grazing permits in these areas are in jeopardy of AUMs reduced or suspended to give more forage to the excess wild horses causing their ranching operations to be less sustainable; communities are affected because of reduced incomes to ranchers and those they do business with. *(please see the Economics Considerations chapter for more detail)*

OBJECTIVES

The State of Utah supports BLM adopting the BLM Wild Horse and Burro Advisory Board Recommendations from October 19, 2017 as follows:

- Phase out long-term holding over the next three years and apply the existing budget to on-range management and adoptions
- Create funding mechanisms to maximize adoptions and/or sales, including international adoptions and/or sales.
- Increase WH&B funding for reversible fertility control by $3M in FY2019
- BLM will immediately *(within the next 3 years)* follow the WH&B Act and remove excess animals from the range the achieve AML. Further, BLM will use the help and assistance of all state and local agencies, organizations, and individuals in achieving AML.
- Maintain AML by using fertility control to slow population growth at levels where removals equal the adoption demand.
- Adjust AMLs where appropriate.

POLICIES AND GUIDELINES

- The State of Utah is supportive of having wild horses in existing Herd Management Areas at the appropriate management level that was decided for each HMA per the Wild and Free Roaming Horse and Burro Act.
- The State of Utah supports efforts to remove the Congressional language prohibiting the use of federal funds to euthanize Wild Horses and Burros as allowed and mandated by the WH&B Act as amended.
- Wild Horses and Burros should be managed for viable, healthy herds that will result in the thriving natural ecological balance (including standards and guidelines for rangeland health) and multiple-use, sustained yield as required by the WH&B Act as amended, existing land use plans, resource management plans, or environmental assents completed for HMA's.
- Immediately remove wild horses from private lands when notified of their presence as defined throughout the WFRHB Act. Immediate removal should be conducted in such a manner so that the animals will not return to the private land or placed within State boundaries as long as the BLM is out of compliance with the AML of associated HMA.
- Immediate removal of Wild Horses and Burros shall coincide with the same time frame granted allotment owners or wildlife that is in trespass, 72 hours.
- The State of Utah supports the use of long-term fertility control as a means to reduce growth rate. However, this will only be effective and supported, once AML is achieved.
- The State of Utah supports restoring AUMs to domestic livestock as Wild Horse populations and brought back to AML and rangeland conditions improve.
- Any equine animal released from private lands, individuals, tribes or neighboring lands onto public lands after 1971 is considered an estuary as defined by **Utah Code, Title 4 chapter 25** and should be dealt with accordingly.
- The State of Utah supports the adoption of WH&Bs, gifting of animals to NGOs or other countries should adoptions fail, transfer to States or Federal Agencies and finally euthanize animals that are not adopted or sell without restriction.

STATE CODE

Utah Code 63J-4-401 (s)(i) forests, rangelands, and watersheds, in a healthy condition, are necessary and beneficial for wildlife, livestock grazing, and other multiple-uses;

- (ii) management programs and initiatives that are implemented to increase forage for the mutual benefit of the agricultural industry, livestock operations, and wildlife species should utilize all proven techniques and tools;
- (iii) the continued viability of livestock operations and the livestock industry should be supported on the federal lands within the state by management of the lands and forage resources, by the proper optimization of animal unit months for livestock, in accordance with the multiple-use provisions of the Federal Land Policy and Management Act of 1976, **43 U.S.C. 1701 et seq.**, the provisions of the Taylor Grazing Act of 1934, **43 U.S.C. 315 et seq.**, and the provisions of the Public Rangelands Improvement Act of 1978, **43 U.S.C. 1901 et seq.**;
- (iv) provisions for predator control initiatives or programs under the direction of state and local authorities should be implemented; and
- (v) resource-use and management decisions by federal land management and regulatory agencies should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically demonstrated decline in those populations; and

- (**8**)(h) the state opposes any additional evaluation of national forest service lands as "roadless" or "unroaded" beyond the forest service's second roadless area review evaluation and opposes efforts by agencies to specially manage those areas in a way that:
  - (i) closes or declassifies existing roads unless multiple side by side roads exist running to the same destination and state and local governments consent to close or declassify the extra roads;
  - (iii) excludes or diminishes traditional multiple-use activities, including grazing and proper forest harvesting;
  - (iv) interferes with the enjoyment and use of valid, existing rights, including water rights, local transportation plan rights, R.S. 2477 rights, grazing allotment rights, and mineral leasing rights; or

Utah Public Land Management Act

§ 63L-8-103. **Principal or major use**
(Utah Public Land Management Act)

- Each parcel of public land in this state shall be managed, as much as possible, to promote the following principal or major uses of the land, consistent with the principles of multiple use and sustained yield:
  - (1) domestic livestock grazing;

§ 63L-8-104. **Declaration of policy--Sales and exchanges**

- (1) The Legislature declares that it is the policy of the state that:
  - (c) goals and objectives be established by law as guidelines for public land use planning, and that management be on the basis of multiple use and sustained yield, unless otherwise provided by statute; and
  - (d) the public land be managed in a manner that will:
  - (i) recognize the state's need for domestic sources of minerals, food, timber, and fiber;
  - (iii) where appropriate, preserve and protect certain public land in its natural condition;
  - (iv) provide food and habitat for fish, wildlife, and domestic animals; and

§ 63J-8-104(1)(e). **State land use planning and management program**

- (e) achieve and maintain livestock grazing in the subject lands at the highest reasonably sustainable levels by adhering to the policies, goals, and management practices set forth in Subsection 63J-4-401(6)(m);

Utah Agricultural Code

§ 4-20-103. **State Grazing Advisory Board—Duties**

§ 4-20-104. **Regional grazing advisory boards—Duties**

§ 4-21-1. **Purpose declaration**

- The Legislature recognizes that production of beef is important to the economy of the state, and that its promotion is both necessary and desirable. The purpose of this chapter is to further the production and promotion of beef.

§ 4-22-103. **Utah Dairy Commission created--Composition--Elected members--Terms of elected members--Qualifications for election**

§ 4-23-102. **Purpose declaration**

- The Legislature finds and declares that it is important to the economy of the state to maintain agricultural production at the highest possible level and at the same time, to promote, to protect, and preserve the wildlife resources of the state.

§ 4-25-303. **Feral swine detrimental to state's interests--Seizure, capture, or destruction of feral swine**

§ 4-30-103. **Livestock Market Committee created--Composition--Terms--Removal--Compensation—Duties**

§ 4-31-105. **Outbreak of contagious or infectious disease--Assistance of federal authorities**

§ 4-25-103. **County responsibility for estrays--Contracts with other local governments authorized**

RELATED RESOURCES

Economic Considerations

Energy

Water Quality

Air

Land Access

Finding and exploiting mineral resources requires the application of the principles of geology and involves mining. Some minerals are used as they are found in the ground, *i.e. they require no further processing or very little processing.* For example - gemstones, sand, gravel, and salt (halite). Most minerals must be processed before they are used.

The expanded role of renewable energy worldwide has increased demand for mined metals and minerals.

Minerals obtained from mines are the source of materials that are used to construct buildings, build roads, make cars, develop technology through electronics, generate electricity, and provide countless consumer goods. The expanded role of renewable energy worldwide has increased demand for mined metals and minerals. Solar panels manufacturing requires arsenic, bauxite, boron, cadmium, coal, copper, gallium, indium, iron ore, molybdenum, lead, phosphate, selenium, silica, tellurium, and titanium dioxide. Wind turbines use concrete, bauxite, cobalt, copper, iron ore, molybdenum and rare earth elements. The rare earth elements (REE), also known as rare earth metals, are particularly important in wind turbines as they reduce the weight and size needed for magnets in wind turbines.

Early Utah mineral development started around 1861-1863. Completion of the transcontinental railroad at Promontory Summit in 1869 linked Utah to the rest of the nation, allowing easier and more economical shipping of ore. As a result, mines were no longer dependent on local mills, smelters, and markets. Rail transport allowed small mines to grow into large operations by the early 1870s, and world-class endeavors by the 20th century. Mining also increased the demographic diversity of Utah during the historic period with thousands of Italian, Greek, Irish, and Japanese immigrants arriving in the region.[1] Utah's State Mineral, copper, was enacted by the Utah State Legislature in 1994.

[1] http://utahdnr.maps.arcgis.com/apps/MapTour/index.html?appid=e9f627369824484bab5a6399a5149c9a&webmap=5b3cff7c878642b99971a7a10491a04a

MINING AND MINERAL RESOURCES

Regulation and development of Utah's minerals resources are managed by various state and federal agencies that including: the Utah Division of Oil Gas & Mining, the Bureau of Land Management's Utah State Office , the Governor's Office of Energy Development, and the State Institutional Trust Land Administration. Mining in Utah is regulated by the Utah Division of Oil, Gas & Mining. The mission of the Utah Division of Oil, Gas and Mining is to regulate the exploration and development of coal and non-coal minerals in a manner which:

- encourages responsible reclamation and development;
- protects correlative rights;
- prevents waste; and
- protects human health and safety, the environment, and the interests of the state and its citizens.[2]

In 1975, the Utah Legislature assigned the Division the responsibility for administration of the Mined Land Reclamation Act. The Act's primary function was to "prevent conditions detrimental to the general safety and welfare of the citizens of the state of Utah" that could occur from activities of the mining industry in the state. Permitting and inspection/enforcement procedures ensure proper mine operation and the reclamation of affected lands.

Implementation of the Mined Land Reclamation Act was initially funded totally with general state funds. A specific law to address the reclamation of coal mines, the Utah Coal Mining and Reclamation Act was passed in 1979, and in 1981 Utah received primacy for regulation of coal mining and reclamation under the federal Surface Mining Control and Reclamation Act of 1977 (SMCRA). In March 1987, the Division assumed sole responsibility under a Cooperative Agreement for permitting, inspection and enforcement on federal lands. Federal monies are provided for regulation of coal mining and reclamation on federal and nonfederal lands. The current cost split for the Coal Regulatory Program is 86 percent federal funds and 14 percent general funds. Monies for the regulation of non-coal minerals exploration and development continue to come primarily from the general fund with supplement from a modest permit fee program implemented in 1998.

The Division also conducts reclamation of abandoned mine sites under Title IV of SMCRA. Funds for this program come from appropriations of federal fees paid by the coal industry, based on a per-ton produced rate. Modest funding agreements with private and federal partners also supplement some of the work in the Abandoned Mine Reclamation Program.

Minerals Mining

The Minerals Program within the Division of Oil, Gas, and Mining regulates all non-coal mining operations in the state with a few exceptions. From Kennecott Copper, the largest open-mined pit in the state to small operations mining for trilobite fossils, staff works to ensure mining operation procedures are followed. This includes verifying operators work within permit boundaries, mining operations pose no threat to public safety or the environment and assuring appropriate fees/bonds are collected for reclamation. The mission of the Minerals Program is to regulate exploration for, and development and reclamation of, non-coal mineral resources of the state in conformance with the Utah Mined Land Reclamation Act, UCA 40-8 in a manner which:

- supports the existence of a viable minerals mining industry to preserve the economic and physical well-being of the state and the nation
- safeguards the environment while protecting public health and safety, and
- achieves the successful reclamation of lands affected by mineral mining activities.

[2] https://www.ogm.utah.gov/about.php#mission

FINDINGS

A remarkable variety of nonfuel mineral resources can be found in Utah, including base and precious metals, as well as industrial minerals. In 2014, Utah ranked fifth in the U.S. for nonfuel mineral production, accounting for approximately 5.4 percent of the country's total supply.[3]

In 2014, copper was the largest contributor to the value of non-fuel minerals in Utah, having an estimated value of $1.5-billion and mostly produced from Kennecott Utah Copper (KUC) Corporation's Bingham Canyon Mine.

There are approximately 200 different minerals mined in Utah including copper, gold, silver and beryllium. Currently there are more than 600 permitted mineral operations statewide.[4]

Minerals on Federal lands are divided into three categories, each subject to different laws and regulations.

Locatable minerals include both metallic minerals (gold, silver, lead, copper, zinc, nickel, etc.), nonmetallic minerals (fluorspar, mica, certain limestones and gypsum, tantalum, heavy minerals in placer form, and gemstones) and certain uncommon variety minerals. Utah has a rich history in locatable minerals and in silver, gold, copper and fluorine production. Utah has more than 34,000 records of mining claims on public land managed by the Bureau of Land Management and almost 700 records of mineral deposits listed by the United States Geological Service.

Leasable minerals that are subject to lease include oil and gas, oil shale, geothermal resources, potash, sodium, potassium, sulfur, native asphalt, solid and semisolid bitumen, bituminous rock, phosphate, and coal. In addition, some hardrock minerals, depending on their location, may be considered leasable. Federal agencies may also lease these minerals on certain private lands, provided the mineral rights are owned by the federal government. Most of the minerals leased under this program are used to make fertilizer or feed stock (mineral supplement for livestock) or have other industrial processes. Non-Energy solid leasable minerals are included in this section. Fluid Leasable minerals: petroleum, gas, and geothermal resources are discussed in the Energy Resources section.

Saleable minerals or mineral materials are the largest group of mineral resources and are often termed industrial minerals. Salable minerals include sand and gravel, stone, and clay. The rights to industrial minerals on federal lands can be acquired by claim, lease or purchase from the federal agency. Manufacturing processes that consume these minerals, produce items that are sold to consumers, usually located within a reasonable transportation distance of the mine site.

Minerals

Copper

Copper is the largest contributor to Utah's nonfuel mineral makeup. The Bingham Canyon mine located 20 miles southwest of Salt Lake City is the primary producer of copper in Utah, and was responsible for producing 225,000 tons in 2014. Utah copper is used to create various alloys for numerous products including electrical wiring, electronic components, and pipe for plumbing, refrigeration, and heating systems.

Magnesium

Utah is home to U.S. Magnesium in Tooele County, which is the only facility producing magnesium from a primary source within the United States. Magnesium chloride rich brine is derived from the Great Salt Lake, and through evaporation is converted to magnesium metal by an electrolytic process. Approximately 70,000 tons of magnesium is produced each year ($300 million). This metal is used as a constituent of aluminum-based alloys, desulfurization of iron and steel, and other practical industrial applications.

[3] https://energy.utah.gov/category/non-fuel-minerals/ [4] http://linux3.ogm.utah.gov/WebStuff/wwwroot/minerals/default.html

MINING AND MINERAL RESOURCES

Beryllium

Utah currently remains the sole producer of beryllium ore (from the mineral bertrandite) in the United States. Materion Natural Resources, Inc., extracts bertrandite from the Spor Mountain area in Juab County, and then produces beryllium concentrate at their mill in Millard County. Approximately 273 tons of beryllium is produced each year ($23.3 million). Utah beryllium is used as specialty metal in numerous telecommunications and consumer electronics, automotive electronics, medical devices, commercial aerospace applications, among other uses.

Gold & Silver

In Utah, gold accounts for 84 percent ($332 million) of the value of precious metal production, while silver accounts for the other 16 percent ($56 million). The majority of gold and silver produced in 2014 was recovered from the KUC Bingham Canyon mine. Practically all 261,200 troy ounces of gold and 2,935,000 troy ounces of silver in 2014 was extracted as a byproduct from copper ore.

Industrial Minerals

Industrial minerals in Utah during 2014 accounted for 35 percent ($1.41 billion) of nonfuel mineral production, with major contributors being potash and gilsonite. Industrial mineral production increased 13 percent from 2013 to 2014, and is predicted to continue increasing into the future as the housing and construction markets continue to improve.

Potash

In 2014, approximately 470,000 tons of potash was produced in Utah ($423 million), making it the largest contributor to the value of brine derived commodities. In recent years, the demand for sulfate potash has steadily increased due to its superior quality, causing overall potash production to rise by seven percent between 2013 and 2014.

Potassium sulfate, known as SOP (sulfate of potash) is used as a superior potassium based fertilizer for crops worldwide, and is produced for the U.S. by Compass Minerals Ogden, Inc. at the Intrepid mine in Wendover. As an effective fertilizer, SOP is in high demand due to its abilities to improve crop yield and quality, making plants more resistant to extreme environments, diseases, and insects.

Potassium chloride, known as MOP (muriate of potash) is used as a fertilizer for crops worldwide, and is highly effective at improving crop yield and quality in soils that contain low levels of chloride. Utah's MOP is primarily produced by Compass Minerals Ogden, Inc. at the Intrepid Potash-Moab mine, just west of Moab.

Gilsonite

Gilsonite is a shiny, black, solidified hydrocarbon that occurs in an array of lateral and vertical veins in the Uinta Basin. With annual production between 60,000-85,000 tons per year, Utah remains the only place in the world that contains large enough deposits of gilsonite for commercial production. This mineral has a variety of applications, including uses in oil and gas well drilling additives, asphalt paving mixes, inks, paints, and coatings. American Gilsonite Company is the primary producer, mining and processor of gilsonite at their facilities in southeastern Uintah County.

Sand and Gravel

Areas of high sand and gravel occurrence potential are primarily found along larger alluvial valleys.

Building Stone

Building stone is used for riprap, building, and for the support and ornamentation of buildings. This includes stone used for facades, counter tops and other decorative uses.

Clay

The term clay is both a particle size term and a group of crystalline minerals. As a rock type it is a very fine grained sedimentary rock where most of the grains are composed of the crystalline minerals also called clays and other detrital grains less than 4 microns in size. Clay behaves plastically when wet and has an amazing variety of uses. The most common types are two-layer clay minerals called the kaolin group and three-layer type called the montmorillonite group. These clays have swelling characteristics when wet, and are used to line water impoundments, and in oil well drilling muds.

Salt

Sodium chloride, or common salt, is one of the most useful and sought-after substances on eart. It has long been used to flavor otherwise bland foods and to preserve perishables in the absence of refrigeration. Utah has significant salt resources that include a variety of salts beyond sodium chloride. Real Salt, a Utah-based company sells an all-natural sea salt that comes from and underground salt deposit in Central Utah.

There are three methods used to produce salt: solar, evaporation and rock mining. Utah's Great Salt Lake contributes an estimated $1.3 billion annually to Utah's economy of which $1.1 billion is from industry (primarily mineral extraction), Solar evaporation ponds at the edges of the lake produce salts and brine (water with high salt quantity). Minerals extracted from the lake include: sodium chloride (common salt), used in water softeners, salt lick blocks for livestock, and to melt ice on local roadways; potassium sulfate, used as a commercial fertilizer; and magnesium-chloride brine, used in the production of magnesium metal, chlorine gas, and as a dust suppressant. Mineral-extraction companies operating on the lake pay royalties on their products to the State of Utah.

Coal Mining

(See Energy Resources Section)

Mine Reclamation

The Division of Oil Gas & Mining's Abandoned Mine Reclamation Program (AMRP) works to protect the public from dangers of old mines by sealing off access to openings and cleaning up waste. Old mining sites can be intriguing to unsuspecting explorers but can contain dangerous gases, unstable structures and explosives.[5]

At one time, when mines were no longer productive, they were simply abandoned leaving equipment, open shafts, tunnels and piles of waste rock. Today there are an estimated 17,000 mine openings scattered across Utah. In 1975, the Utah Mined Reclamation Act was passed making it illegal for mines to be abandoned.

[5] https://ffsl.utah.gov/images/Fire/UWRAP/WWA-FinalReport.pdf

ECONOMIC CONSIDERATIONS

Mining and minerals are large contributors to the State's economy. Utah ranks 5th in the U.S. for value of nonfuel mineral production. Copper, molybdenum, magnesium, iron, and beryllium, account for an estimated 65 percent ($2.2 billion) of the state's nonfuel mineral resources. Precious metal production is predominantly supported by gold and silver, which accounts for approximately 10 percent ($388 million) of the state's nonfuel resources.[6]

Utah's leading export industry is primary metal products dominated by gold. This sector accounted for 42 percent of the State's total merchandise exports in 2015, valuing $5.6 billion. Nonmetallic minerals exports valued $43 million in 2015.[7]

Utah ranks 5th in the U.S. for value of nonfuel mineral production.

OBJECTIVES

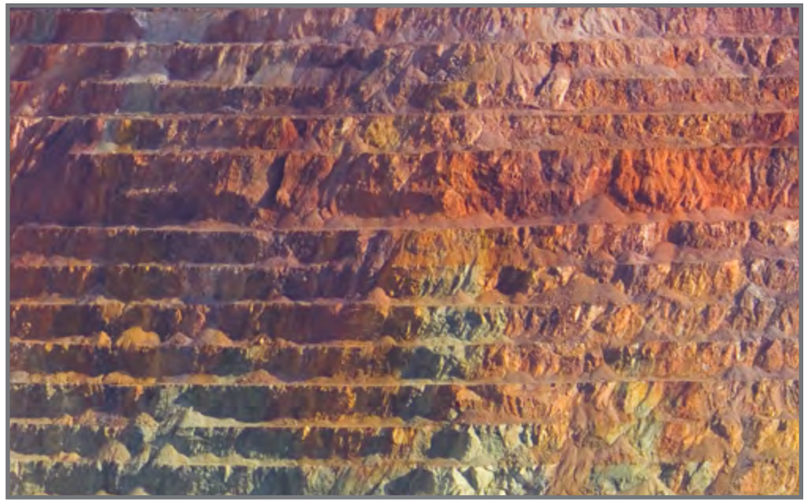
Utah will continue to regulate the exploration and development of coal and non-coal minerals in a manner which encourages responsible reclamation and development; prevents waste; and protects human health and safety, the environment, and the interests of the state and its citizens. The state will advance Utah's mineral development sectors through planning, policy, and engagement with the mining industries, the public, and interest stakeholders.

The Utah Governor's Office of Energy Development is dedicated to advancing all forms of responsible energy and minerals, The office is responsible for implementing the state energy policy (63M-4-301) by facilitating the development of the Utah's diverse energy and minerals sector. The OED provides industry assistance through the administration of state and federal tax incentives, fosters education and technological innovation, and collaborates with a variety of stakeholders in government, nonprofit and the private sector. The office is also dedicated to promoting responsible energy policies, and regularly handles public lands and environmental issues.

POLICIES AND GUIDELINES

The mining industry is integral to every Utahns' lifestyle and standard of living. Mining supports the very foundation of the nation's economy. From the stone and gravel used to build roads and lay foundations for homes and buildings, to coal and uranium used to generate more than half of the nation's electricity, to the copper wire that connects billions of computers to a global social and commercial network, this country's economy and way of life depend on the vital resources provided by mining. As the beginning of the supply chain for everything that society uses state policy supports the continued development of Utah's mineral resources.

[6] http://energy.utah.gov/category/non-fuel-minerals/ [7] http://gardner.utah.edu/wp-content/uploads/2017/03/2017ERGfullreportonline.pdf

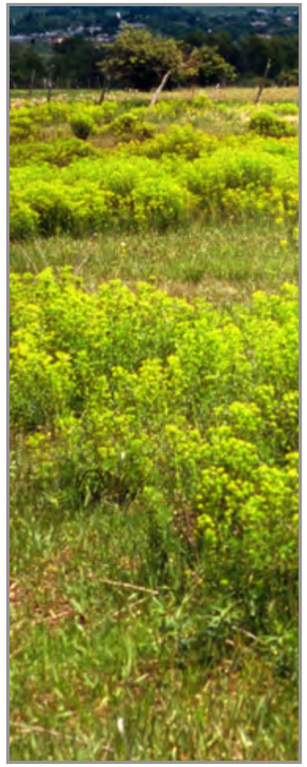


The state will engage with federal land management agencies on all mining related projects.

- The state supports responsible mining for mineral resources on lands managed by the Bureau of Land Management and the U.S. Forest Service.
- The State does not support the withdrawal of lands managed by the Bureau of Land Management or the U.S. Forest Service from available mineral extraction unless the proposed mineral withdrawal is coordinated with the state and counties within which the proposed mineral withdrawal is located.
- The state will engage with federal land management agencies on all mining related projects in order to promote the responsible mining of mineral resources.
- The state supports a positive working relationship between the federal land management agencies and the Utah Division of Oil, Gas, and Mining (DOGM) in order to promote responsible mining of mineral resources that supports Utah's economy and quality of life while protecting Utah's environment from undue degradation.
- Include state agency personnel as members ofinterdisciplinary teams.

Rules: *https://rules.utah.gov/publicat/code/r643/r643.htm*
https://rules.utah.gov/publicat/code/r645/r645.htm

Statutes: *https://le.utah.gov/xcode/Title40/C40_1800010118000101.pdf*



RELATED RESOURCES

Economic Considerations

Fire Management

Agriculture

Livestock and Grazing

Recreation and Tourism

In 1971, the Utah Legislature passed the Utah Noxious Weed Act, Title 4, Chapter 17 into law. After enactment of the law, the Department of Agriculture adopted rules and regulations to guide implementation of this law.[1] The noxious weed law is administered by the Utah Department of Agriculture and Food. The enforcement of the law is basically the responsibility of the individual county commissioners assisted by their respective, county weed boards, and the county weed supervisor.

Noxious weeds are very invasive, non-native plant species with undesirable biological characteristics that enable them to spread rapidly.

Giving enforcement authority to county weed boards establishes a bottom up approach, with the local elected officials and those assisting them being closest to the people making the majority of the decisions. The custom of maximizing local management to achieve the best results has proven extremely effective in the State of Utah and is part of the management and culture. Local elected officials and their respective weed boards and county supervisor have taken an educational and cooperative approach to assist landowners.

As defined by the Utah Noxious Weed Act a *"noxious weed"* is *"any plant the commissioner (Utah Commissioner of Ag and Food) determines to be especially injurious to public health, crops, livestock, land, or other property"*.[2] County commissioners also have authority and do declare plants as county "noxious weeds". Often noxious weeds are very invasive, non-native plant species with undesirable biological characteristics that enable them to spread rapidly on land that can be properly or poorly managed. Utah's noxious weed classes are: 1A - Early Detection Rapid Response (EDDR) watch list, 1B - Early Detection Rapid Response high priority control list, 2 - Control list, 3 - Containment list, 4 - Prohibited list.

[1] https://rules.utah.gov/publicat/code/r068/r068-009.htm [2] Utah Code Ann. §4-17-102

FINDINGS

Invasive noxious weeds are a threat to Utah's ecosystems, waterways, agricultural production, land health, and public safety. The areas of most concern are riparian areas, cropland, rangeland, and forestland. Development, global human travel, movement of equipment and animals, and various recreational activities continually bring new invasive weeds into the state.

Noxious weeds are easily spread through contaminated agricultural machinery, livestock feed, hay, straw, soils, sod, nursery stock, and manure. Preventive measures begin by thoroughly cleaning agriculture machinery and equipment (which has come in contact with weeds) before it is transported to another location. Vehicles transporting seed, feed, and other agricultural materials should take measures to prevent spilling and spreading materials during transport. Transportation of topsoil, fill materials, construction equipment, recreation, and wildlife can also spread weeds.

Land in all of Utah's twenty-nine counties is infested with at least one of the state-designated 54 noxious weeds. As new invasive species are found, they are mapped, classified, and added to an online mapping data base (https://www.eddmaps.org/) and are considered for designation as a "noxious weed". It is also likely that some potentially dangerous noxious weeds have, so far, escaped detection.

The official State Noxious Weed list of 54 species and prioritization categories is as follows:

CLASS 1A: EARLY DETECTION RAPID RESPONSE (EDRR) WATCH LIST
Declared noxious weeds and invasive weeds that are not native to the State of Utah, are not known to exist in the state but pose a serious threat, and should be considered a very high priority.

CLASS 1B: EDRR
Declared noxious and invasive weeds not native to the State of Utah that are known to exist in the state in very limited population, pose a serious threat to the state, and should be considered as a very high priority.

CLASS 2: CONTROL
Declared noxious and invasive weeds not native to the State of Utah that pose a threat to the state and should be considered a high priority for control. Weeds listed in the control list are known to exist in varying populations throughout the state. The concentration of these weeds is at a level where control or eradication may be possible.

CLASS 3: CONTAINMENT
Declared noxious and invasive weeds not native to the State of Utah that are widely spread. Weeds listed in the containment noxious weeds list are known to exist in various populations 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.[4]

CLASS 4: PROHIBITED
Declared noxious and invasive weeds, not native to the State of Utah, 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 commissioner designates as having the potential or are known to be detrimental to human or animal health, the environment, public roads, crops, or other property.

COUNTY LISTED WEEDS
Weeds in addition to the State Noxious Weeds declared noxious by local government weed control programs.

Negative impacts of noxious weeds on other resources are well known and significant:

- They can create monocultures that eliminate diverse plant communities.
- Watersheds dominated by noxious weeds are less efficient in absorbing and storing water resulting in increased runoff, flooding and soil erosion.
- Noxious weeds can reduce forage production and quality for all herbivores and habitat for small birds and animals.
- Some noxious weeds are poisonous or injurious to animals.
- Noxious aquatic weeds can obstruct irrigation systems, clog machinery, destroy fish habitat, that contributes to flooding and reduce recreational use.
- Cause physical injury or irritation to people, pets and livestock.
- Weed control impacts. Fire is a control method often used to treat phragmites, but smoke is a large air quality issue which must be considered.
- Increased wildfire risk and costs. Many noxious weeds, such as cheatgrass, are very flammable and increase the risk of wildfires. After a fire burns an area infested with noxious weeds, the weeds sprout before native plants and are able to dominate native plant species by quickly taking over water and soil resources.

If left unchecked, noxious weeds can spread at average rates from 3 to 60 percent annually.[5] In addition, new class 1B noxious weeds including: elongated mustard, garlic mustard, ventenata and viper grass have been recently found and declared noxious in the state. Because sixty-four percent of the state is federal land, a significant responsibility for noxious weed control and management rests with federal land management agencies. These federal agencies are required by the Utah Weed Control Act, their respective organic acts, and their management plans to take responsibility for and control invasive noxious weeds on lands they administer. They have not yet budgeted a reasonable amount of funding or allocate enough human resources necessary to adequately address the magnitude of their noxious weed problem.

Each of the State's 29 counties have an active Local Weed Control Program in place. These local programs are responsible for noxious weed management within their respected boundaries with help from partners such as the Utah Department of Agriculture and Food (UDAF). Examples of some Local Weed Control Programs Include:

- Davis County Public Works *(no online content)*
- *Morgan County* Weed Program
- *Salt Lake County* Weed Control Program
- *Tooele County* Road Department
- *Weber County* Weed Department

Cooperative Weed Management Areas (CWMAs): These provide weed control across large lands areas, like watersheds, without specific consideration of land ownership to more effectively treat weeds. CWMAs are also 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.

There are currently twenty CWMAs in the state of Utah divided by region. Some excellent examples of CWMAs and their partners within the WFRC area include:

- *Bonneville CWMA.* Tooele County, Salt Lake County, Utah Department of Transportation (UDOT), US Bureau of Land Management (BLM), and USFS
- *Weber River CWMA.* Weber County, Davis County, Antelope Island, Utah Department of Wildlife Resources (UDWR), UDOT, and BLM
- *Squarrose CWMA.* Tooele County, USFS, Utah School and Institutional Trust Lands Administration, and Utah State University, and BLM

[5] Smith, H. A., Johnson, W. S., Shonkwiler, J. S., and Swanson, R. S. 1999. The Implications of Variable or Constant Expansion Rates in Invasive Weed Infestations. Weed Science 47: 62-66.

ECONOMIC CONSIDERATIONS

Weeds create significant economic impacts. Weeds compete with crops and reduce the quality of food, feed, and fiber. During the 1950's, agricultural producers lost about $5.1 billion per year to reduced crop yield and quality and to the cost of weed control. This value doubled by 1979. During the 1980's, farmers spent over $3 billion annually for chemical weed control and about $2.6 billion for cultural, ecological, and biological methods of control. During this time, about 17 percent of crop value was being lost because of weed interference and the cost of weed control.[6]

More recently, in the United States agricultural sector, losses and control costs associated with weeds in crops, pasture, hay, and range, were estimated to be approximately $33 billion per. In non-crop sectors including golf, turf and ornamentals, losses and control costs totaled about $1.5 billion per year.[7]

Production agriculture and the associated processing sector accounts for over fifteen percent of the state's economy.[8] In addition, Utah's heritage as a western state has attracted countless visitors to experience the western lifestyle and see Utah's rangelands. The expansion of noxious weeds threatens the lifestyle, custom, and culture of Utah's people. Without active effective management, Utah's cropland, rangeland, forestland and private property will become much less productive and biologically diverse due to invasive noxious weeds.

The importance of herbicides as a weed control and weed management tool cannot be over stated. It is estimated that losses in the agricultural sector would increase about 500 percent without the use of herbicides.[9]

In Utah, the value of yield losses in crops due to weeds varies annually as the price of the commodity fluctuates. However, the percentage yield loss of some significant crops in the state has been estimated as:[10]

Crop	percent Yield Loss in Utah
Hay	11
Corn	13
Wheat	13
Barley	12
Potatoes	7
Onions	16
Oats	16
Dry Beans	14

The impact of noxious weeds is not restricted to cropland. An estimate of the impact of noxious weeds on the productivity of the rangeland follows:[11]

Weed	percent Reduction in Grazing
Dyer's Woad	38
Canada Thistle	42
Dalmatian Toadflax	46
Hoary Cress (whitetop)	55
Leafy Spurge	59
Yellow Starthistle	65
Spotted Knapweed	80
Medusahead	90

Although a total cost to manage noxious weeds in Utah is not known, noxious weeds have a severe impact on multiple industries in Utah including agriculture, tourism, and private property. The state legislature appropriates about $2.0 million annually for the Invasive species Mitigation program administered by the Utah Dept. of Agriculture and food to projects to control and manage noxious weeds.

Wildland Fire. Contiguous patches of weeds pose significant fire risks and seeding after wildfire is a necessity to recruit native species rather than weeds.

[6] https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1489&context=govdocs [7] http://www.sciencedirect.com/science/article/pii/S0921800904003027?via%3Dihub
[8] http://www.ag.utah.gov/documents/Economic%20Contribution%20of%20Agriclture%20to%20the%20Utah%20Economy%202014.pdf [9] https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1489&context=govdocs [10] http://www.utahweed.org/PDF/strategic_plan.pdf [11] http://www.utahweed.org/PDF/strategic_plan.pdf

OBJECTIVES

"The invasion of noxious weeds and undesirable invasive plant species into the state should be reversed, their presence eliminated, and their return prevented."[12] State land managers, local governments, and property owners are responsible for controlling weed species on the state's noxious weeds list, and local weed species of concern if necessary. Weed control includes both lands under local management (roads, right-of-ways, 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, and seek reimbursement or apply liens for the work.

Handling the issue of invasive plants in Utah is an ongoing effort. Non-native plants will be part of the landscape throughout our future. Strategies and tools can be implemented to reduce our susceptibility of new invasions and empower all of us to reduce the effects of weeds. The development of an invasive species program can be based on the application of Dr. Steve Dewey's Biological Wildfire Model as applied to weeds.[13] The key elements are:

1. Prevention
2. Early Detection and Rapid Response
3. Management of Established Populations
    - **a.** Identify the perimeter
    - **b.** Eradicate satellite populations
    - **c.** Contain and suppress main population
4. Revegetation or Rehabilitation
5. Protect Defensible Spaces

All federal agency resource management planning on public lands must involve active participation from state agencies, local government, and local property owners as contributing members.

When possible, state and local government must be included as members of the interdisciplinary teams for each project. All federal policies and management plans acknowledge and consider the cultural, economic, and environmental importance of agriculture and recreation on public lands and the threat that noxious weeds pose.

Increased education for recreation, tourism, and general public as well as K-12, elected officials, and state agencies concerning the harmful effects of noxious weeds and how to prevent their spread when vacationing and recreating is needed.

Further research is needed on cost effective ways to control and manage noxious weeds, track and monitor them, and rehabilitate treated areas.

Use EDD Maps *(eddmaps.org)*, which is the established comprehensive noxious weed mapping system broadly accepted by the State of Utah Weed Committee, used by the Utah Department of Agriculture and Food, and Utah's counties to map and assess the current condition of noxious weeds in Utah. Use EDD Maps to monitor, track, and document the spread of noxious weeds, by obtaining and inputting accurate data in a timely manner.

Additional mapping and monitoring information is needed to determine acreages infested with noxious weeds, what types of weeds are present in different locations, and the location of noxious weeds in the state. Improved monitoring will help the state improve an accurate on-line map database of noxious weeds in Utah.

- Identify and record GPS locations of noxious and invasive weed species.
- Accurately calculate the total number of acres for priority weeds.
- Determine how fast noxious weeds are spreading by comparing weed inventories over time.
- Identify boundaries of newly invading species.

Increase emphasis on prevention as a strategy to manage noxious weeds in the state. Prevention is the most effective tactic to fight noxious weeds. Healthy ecological systems with well-established native plants are much less susceptible to invasive and noxious plants. Consequently, proper and active land management to establish healthy ecosystems is one of the first steps to preventing noxious weeds.

- Track invasive species via EDD Maps in neighboring counties and states and share information through partnerships with Utah Weed Committee, Utah Weed Control Association and county weed supervisor association.
- Develop and use weed control and management guidelines, educational materials (public, highway and construction companies, nurseries, railroads, etc.).
- Regulate known pathways for invasive species, e.g. federal agencies requiring washing of equipment, requirements for rinsing boats/ watercraft when transporting between water bodies, weed-free seed and forage programs.
- Encourage development of weed invasion risk analysis in federal and statewide planning efforts. Encourage our project and land planning teams to include analysis of what potential new invaders are likely to occur and identify where, based on ecological conditions, the most susceptible areas for future invaders are.

Earlier detection and rapid response (EDRR) is vital as noxious weeds spread into new ecosystems. The earlier that county, state and federal agencies detect noxious weeds and treat infestation the better the management outcome will be. As noxious weeds become more established in new areas they destroy native ecosystems and are harder and more expensive to treat.

- Use and keep updated the 1A EDDR "watch" list for state and for counties of high probability new invasive noxious weeds.
- Use the establish EDD Map online network for reporting new invasive species.
- Encourage routine and systematic survey as part of all weed programs.
- Map invasive species and high-risk areas.
- Provide resources to land managers for proper identification.

Quicker responses to the presence of all noxious weeds in the state is necessary to minimize damage to ecosystems, efficiently used limited funds, and prevent land health degradation.

- Use the coordinated *"decision support system"* provided by the State of Utah Weed Committee, Utah Weed Supervisors Association (UWSA) Executive Committee, Utah Weed Control Association Executive (UWCA) Committee, county weed boards, USU Extension and CWMA's or other partner groups to help set noxious weed priority.
- "Weed Alerts" distributed through communication networks, mailings, and websites.

More integrated weed management is necessary to improve the management of noxious weeds. Because land in Utah is administered or owned by federal, state, and private owners effective weed management requires an integrated approach. Due to the nature of noxious weeds, management must occur on all land within the state or effective management will provide few results. The Utah strategic weed control plan promotes an integrated approach, where "prevention is the best method." of weed management. Consider each of the following action items when developing an integrated weed management plan.

- Weed reproduction and dispersal
- Weed ecology
- Plant competition
- Biological weed control
- Chemical weed control
- Preventive weed control
- Cultural weed control
- Mechanical (physical) weed control
- Integrated pest management
- Targeted livestock grazing

Establish immediate revegetation or rehabilitation after treatment. This is the only way that land will not continue to be susceptible to noxious weeds. Alongside treatment, the establishment of healthy ecosystems is the most effective way of preventing the spread of noxious weeds.

[12] Utah Code Ann. 63J-4-401 [13] https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=2352&context=extension_curall

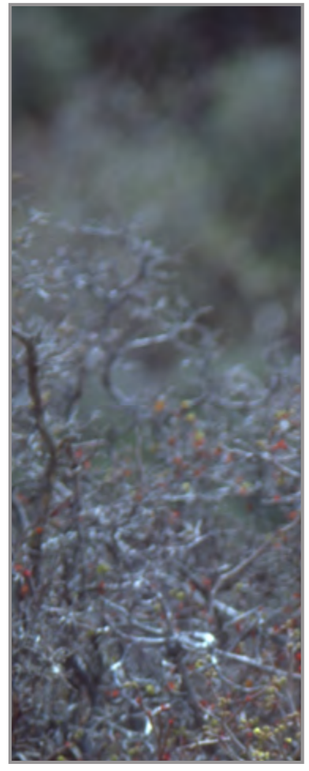
- Obtain a knowledge of the system
- Properly identify the problem weed
- Plant species with the end result in mind
- Develop a plan for each situation
- Evaluate yearly success

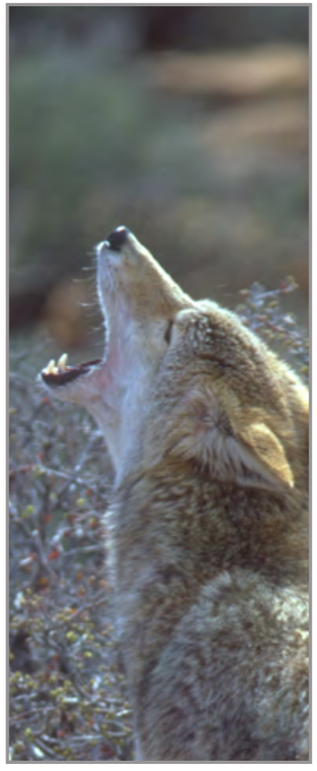
Improve education, regulation and enforcement of the Utah Noxious Weed Act. Proper education and enforcement is vital to ensure that effective management on state and private ground occurs.

Appropriate sufficient resources to adequately manage noxious weeds. Resource appropriation is vital to properly manage noxious weeds in the state. The state legislature appropriated $2.0 million to fight noxious weeds in 2017, which helps private land owners. Federal dollars must also prioritize effective weed management to maintain healthy public lands, manage the spread of noxious and invasive weeds, and reduce the risk of catastrophic wildfire.

POLICIES AND GUIDELINES

- The state of Utah supports efforts to improve education concerning noxious weeds. All industries including tourism, agriculture, government and elected officials, the general public, and youth need to understand the negative effects of noxious weeds and how to prevent their spread.
- The state of Utah supports collaboration between experts in the field and researchers. Through innovation and improved technology weed management techniques will improve and become more efficient.
  - Included among this research should be the use of integrated types of weed management. Only by utilizing every management tool will the state of Utah and its partners be able to effectively manage noxious and invasive weeds.
- The state of Utah supports the use of established on-line mapping database resource (EDD Maps) in order to better understand what areas of the state are afflicted with noxious weeds.
  - In addition to mapping, the state supports active monitoring to ensure that information is accurate and to ensure that priority is given to the right areas within the state.
- The state of Utah supports prevention as one of the best methods of managing noxious weeds.
- The state of Utah supports education is one of the key tools for prevention alongside healthy ecosystems. Managing land to ensure its health helps prevent the establishment of invasive and noxious species.
- The state of Utah supports proactive management of noxious weeds. Effective management by federal, state, and private entities is vital to protect agriculture, rangelands, and private property.
  - The state supports efforts to ensure that noxious weeds are detected early to reduce the risk of ecosystem degradation, crop and rangeland damage, and higher costs to manage established weed communities.
  - In addition to early detection, the state supports rapid response efforts on private, state, and federal land. Faster responses allow agencies to more effectively eliminate new invaders.
- The State of Utah supports adequate funding to combat the spread of noxious weeds. In addition, the state supports the removal of noxious weeds from affected areas and rehabilitation of effected areas post treatment. Weed treatments and rehabilitation must occur on federal land as well, to prevent the spread of weeds from public to private and state land.
- Post-treatment, areas that have been invaded by noxious weeds must be revegetated and rehabilitated. The goal after treatment is to return the area to a desirable species composition if possible. As native vegetation is re-established, the risk of future invasions of noxious weeds decreases.
- The State supports and values the agricultural industry as an integral part of its history, culture, and heritage. All types of agriculture are recognized as a cultural resource within the state of Utah that is threatened by noxious weeds.





RELATED RESOURCES

Economic Considerations

Livestock and Grazing

Wildlife

The Utah Division of Wildlife Resources (DWR) recognizes predator management as an important tool available to DWR staff, the Utah Department of Agriculture and Food (UDAF), and the U.S. Department of Agriculture-Wildlife Services personnel, when needed. Although predator management can be controversial, it is important under certain circumstances for the effective management of predators, prey populations, and to mitigate economic loss.

FINDINGS

Without management, predators may limit the growth of other wildlife populations and inflict significant economic losses to domestic livestock producers.

The primary agent for predator control to protect livestock from predation is UDAF in cooperation with the U.S. Department of Agriculture, Animal Plant Health Inspection Service, Wildlife Service's (WS).[1] This cooperative program protects livestock from coyotes, and in cooperation with DWR, includes mountain lion and black bear caused damage to livestock. In the absence of these protective programs, lamb losses are estimated to be as high as 30 percent while the WS program currently keeps lamb predation losses below 5 percent. For cattle, predator management keeps losses below 1 percent while an absence of these efforts would result in an expected 5 percent predation loss for cattle.Cougars and bears cause an estimated 40 percent of lamb predation in the state, which generally occurs during the summer when sheep are grazed in the mountains.Protecting wildlife species or property damaged by big game is the responsibility of the DWR. These types of predator damage are mostly managed through hunting permits and reimbursement for crop and livestock damage.[2] The DWR pays hunters to take coyotes from deer winter and fawning ranges as discussed below.

[1] https://www.aphis.usda.gov/wildlife_damage/informational_notebooks/2015/WS%20State%20Operations/Utah.pdf
[2] https://ag.utah.gov/documents/2017completeAnnualBulletin.pdf

ECONOMIC CONSIDERATIONS

Livestock production contributes significantly to the economy of the counties and communities throughout the state. Agriculture generated $2.3 billion in cash receipts in Utah in 2015.[3]

Livestock production, including cattle, domestic turkeys, and sheep, are the primary agricultural industries, and accounted for 77 percent of all agricultural cash receipts statewide in 2015.[4]

Utah cattle and calf inventory, as of January 1, 2016 totaled 830,000 head. Beef cow replacement heifers were estimated at 90,000 head and other heifers not intended for replacement totaled 70,000 in 2016. The January 1, 2016 inventory of steers weighing 500 pounds or more was 90,000 head. Calves weighing less than 500 pounds as of January 1, 2016 totaled 85,000 head and the 2015 calf crop was 390,000.The number of cattle lost to predators each year in unavailable, however calves are vulnerable when out on the range. The beef industry is Utah's largest agricultural economic driver bringing in over $642 million in cash receipts in 2015 alone.[5]

Because the livestock herds are migratory and use federal, state, and private lands, the numbers of livestock fluctuate by county and time of year.

The 2016 Utah breeding sheep inventory, including replacement lambs, totaled 285,000 head. The adult sheep inventory in 2016 was 265,000 head, and ewes for breeding, one-year-old and older totaled 215,000 head. The 2015 lamb crop was 230,000 head, and lambs for breeding replacement were estimated at 42,000 head in 2016, and rams one-year-old and older totaled 8,000 head. Market sheep and lambs were estimated at 20,000 head. Utah sheep ranchers lost 41,000 sheep and lambs to all causes during 2015. The largest single cause of death in lambs before docking was from coyotes, which killed 5,000 head accounting for about 68 percent of all lamb losses before docking from predators in 2015. Coyotes also accounted for the largest number of lambs killed after docking, totaling 7,800 head or about 70 percent of the after docking losses from predators. Losses of sheep one-year-old and older to coyotes were 2,400 head and the single largest cause at 52 percent of all losses to predators. Total losses to coyotes in FY15 were 15,200 head, which was 66 percent of all losses of sheep and lambs in Utah. Overall, predators were the cause for the loss of 23,000 sheep *(56.1 percent of total losses)* in 2015. The total loss of dollar value in the sheep industry caused by predators was $4.3 million in 2015 alone.[6]

OBJECTIVES

The primary focus of predator control in Utah is 1) protecting livestock from coyotes, black bear and mountain lion, and 2) protecting mule deer and other wildlife (T&E and other species) from coyotes, raptors, ravens, and small mammalian predators.

[3] http://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [4] https://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [5] https://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [6] https://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf

POLICIES AND GUIDELINES

Since 2012, predator control programs have been able to reduce sheep and lamb losses from 27,600 to 23,000, reducing the economic loss from $8.5 million in 2012 to $7.8 million in 2015. These successes are heartening for producers, however further progress needs to be made in protecting sheep bands as well as other livestock from predators.

Improve the efficiency of responses to predator attacks

Once predators begin to pray on domestic livestock they continue to follow the herd or band, which increases losses for specific producers. Sheep bands are especially vulnerable to predators. An increase in personnel and efficiency to reduce the response time in predator attacks is a necessity to prevent increasing economic losses for Utah's livestock producers. UDAF's trappers are currently spread thin due to unfilled positions and a lack of funding. Returning trappers to historic numbers in the state will help improve predator control within the state.

Predators are being managed under certain circumstances

If predator populations are limiting DWR's ability to reach other wildlife management objectives, wildlife officials may choose to implement predator management plans. DWR recently updated its approach to predator management, placing increased emphasis on the protection of mule deer.

The updated approach directs additional financial resources *($600,000 annually)* to the U.S. Department of Agriculture-Wildlife Services for coyote control, specifically to help reduce coyote populations in areas where deer fawn survival is low. Coyotes are not considered protected wildlife and there is a bounty program to encourage coyote control. In addition, targeted efforts using hunters and trappers helps ensure removal of coyotes from the right areas, during the right seasons to improve fawn survival.

DWR also is working to limit the impact of cougars on Utah's deer herds, while maintaining a healthy cougar population statewide. Cougar harvest has been liberalized where mule deer or bighorn sheep populations fall below the population management objective, and where adult deer or bighorn sheep survival is lower than normal. More detail can be found in the Utah Cougar Management Plan.

DWR implements predator management in certain units

DWR is managing predators in specific units, for the following species and situations:

- Ravens, coyotes, red foxes, and badgers that prey on sage-grouse/eggs
- Raccoons and red foxes that prey on waterfowl/eggs (foxes take nesting hens and eggs)
- Cougars that prey on adult mule deer or bighorn sheep
- Coyotes that prey on mule deer fawns or pronghorn fawns

Of these programs, the one that targets coyotes is the largest and most costly for DWR. Appropriately targeting and timing predator removal efforts is essential for reducing the impact that coyotes have on fawn survival. In Utah, targeted contracts allow removal of coyotes from fawning grounds from March through August, and the coyote bounty program is most effective during the coyote breeding season *(January–March).*

Coyote Bounty Program

Utah's Mule Deer Protection Act went into effect in July of 2012. The primary goal of the program was to remove coyotes from areas where they may prey on deer fawns. The Utah Legislature set aside $500,000 from the General Fund to pay individuals to kill coyotes in Utah. To process the payments and track harvest and participation, DWR created the General Predator Control Program. This took the place of previous coyote bounty programs administered by participating counties.

DWR established locations throughout the state where people can check-in coyotes for a $50 payment. Each participant is required to submit the scalp of the animal with both ears attached, the lower jaw, and a data sheet reporting where the coyote was killed. The coyote program does not have mandatory reporting requirements, meaning that it is legal to harvest coyotes and store them for indeterminate periods. One result of that choice is that coyotes harvested in one fiscal year may be submitted for payment in a different fiscal year. With that qualification, based on reported harvest, just over 7,000 coyotes were taken under the bounty program each year for the first two years of the program. In 2016, 9,728 coyotes were submitted for bounty payments.[8]

Coyote removal success varied across the state. Six mule deer management units (Box Elder, West Desert, SW Desert, Fillmore, Beaver, and Pine Valley) accounted for approximately 50 percent of all coyotes removed. The bounty program likely increased the number of coyotes killed in Utah and provided government-supplied economic rewards to individuals and businesses throughout the state. It may take several years of program implementation before improvements in fawn:doe ratios are observed. Both location and timing are essential in reducing the impact of coyote predation on mule deer fawn survival.

The Coyote Bounty Program is essential to protect wildlife and livestock. Increasing the efficiency of this program to mitigate losses is vital for the economic benefits that wildlife and livestock bring to the state. Improving both the efficiency and productivity of this program through improved marketing, increased funding, and a larger number of hunters is fully supported by the state of Utah.

Black bears and wolves present different management challenges

Two additional wildlife species can at times exhibit predatory behavior in Utah: black bears and wolves. Both of these species are managed under specific plans (Utah Black Bear Management Plan and Utah Wolf Management Plan), although wolves do not present predator-management challenges to Utah wildlife managers at this time.

Bears

Black bears occur in stable, healthy populations across certain parts of Utah. Normally, they don't occur in the mountain ranges of the western deserts. They are more of an omnivore, and the vast majority of their diet is composed of plant material and, at certain times of year, insects or insect larvae. Often when bears do eat meat, they are relying on carrion which they have happened upon, not fresh prey. Black bears have under certain conditions been known to take a significant number of newborn deer fawns and lambs.

Wolves

Wolves exhibit behavior patterns, such as cooperative hunting in packs, which clearly separate them from bears and other predators. By any measure, wolves are highly effective and efficient predators. Currently, there are not any established breeding populations of wolves in Utah. However, there are occasional transients and migrants.

Senate Bill 36 *(Utah Wolf Management Act)* from the 2010 General Session directed the Division of Wildlife Resources to prevent any wolf packs from establishing in the portion of the state where wolves are removed from the protection of the Endangered Species Act. That area includes only the portion of Utah located north of I-80 and east of I-84 *see map* DWR has given authority to the U.S. Department of Agriculture-Wildlife Services to act on our behalf to resolve livestock depredation incidents which involve wolves in this area.

For the remainder of the state, wolves are classified as a federally endangered species, and management authority lies with the U.S. Fish and Wildlife Service (FWS). The state law referenced above also directs the Division of Wildlife Resources to request that the FWS immediately remove any wolves discovered in areas of Utah where they are still protected under the Endangered Species Act. The Utah Wolf Management Act suspends the portion of the Utah Wolf Management Plan that would allow two packs to become established in Utah, although the remaining strategies of the plan are still in effect. If wolves are delisted across all of Utah, the management plan then would be fully implemented.

[8] https://wildlife.utah.gov/pdf/predator_program_summary_2016.pdf

Livestock depredation incidents are immediately referred to Wildlife Services staff specializing in removal of specific predators associated with depredation incidents.

Cougar and Bear Livestock Depredation

Black bears can cause site-specific depredation problems among livestock, especially domestic sheep bedded down for the night during the summer months. Black bears also were responsible for the loss of over 2,800 sheep and lambs in 2015, accounting for 6.8 percent of total predator related sheep losses and causing $547,000 in economic losses.[9] Although cougars prey primarily on adult deer, they are opportunistic predators, and can also cause site-specific livestock depredation problems. In 2015, Cougars caused the loss of 2,000 sheep and lambs or 5 percent of total predator losses, which resulted in economic losses of over $390,000.[10] Livestock depredation incidents are immediately referred to Wildlife Services staff specializing in removal of specific predators associated with depredation incidents. DWR provides compensation to ranchers with documented livestock losses attributed to cougar or bear. DWR also issues increased cougar and bear permits in areas with chronic livestock losses caused by predation from these species.

The State is fully committed to controlling predators in the state to improve the survival rates of Mule Deer and to reduce the number of livestock lost to predators. Increased efficiency and resources for wildlife services and other predator control programs are a priority to protect agriculture, wildlife, and the economic benefits that both bring to the State of Utah.

STATE CODE

Wildlife Resources Code of Utah

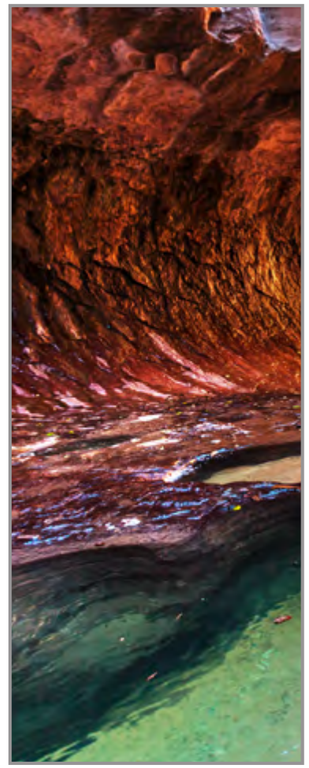
§ 23-18-6. Taking red fox or striped skunk

- Red fox or striped skunk may be taken anytime without a license as provided by this title or rules or a proclamation of the Wildlife Board.

§ 23-24-1. Procedure to obtain compensation for livestock damage done by bear, mountain lion, wolf, or eagle

§ 23-30-104. Rulemaking authority, coordination, and administration for predator control

[9] https://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf [10] https://ag.utah.gov/documents/AnnualReportWEBFinal2016.pdf



RELATED RESOURCES

Economic Considerations

Air

Land Access

Fisheries

Wildlife

Wetlands

Land Use

Wild and Scenic Rivers

Wilderness

In 2016, travelers spent $8.4 billion[1] in Utah, generating $665 million in state tax revenue and $561 million in local tax revenue, for a total of $1.2 billion.[2] Travel and tourism employs 144,200 Utahns[3] and generates $5.6 billion[4] in wages from tourism-related jobs. While many business travelers come to Utah for meetings and conventions, one of the main reasons tourists come to Utah is for outdoor recreation. Utah boasts 14 world-class ski and summer resorts featuring The Greatest Snow on Earth®, The Mighty Five® national parks, 8 national monuments, two national recreation areas, six national forests, 43 state parks, and nationally-recognized scenic byways.

The State's Office of Outdoor Recreation is the first office of its kind in the country.

Outdoor recreation contributes more than $12 billion to Utah's economy and employs more than 122,000 people. Recreation creates $856 million in state and local tax revenues and $3.6 billion in wages and salaries.[5] Many outdoor recreation equipment companies have relocated or formed in Utah due to Utah's friendly business climate and proximity to nearly all types of outdoor recreation.

The State's Office of Outdoor Recreation is the first office of its kind in the country. The office aims to establish a nationwide recreation management standard, and ensure that the state's natural assets can sustain economic growth for years to come. The Office administers the Utah Outdoor Recreation Grant, which helps build tourism in communities around the state with the construction and expansion of outdoor recreation amenities.

[1] https://www.ustravel.org/research/impact-travel-state-economies-2016-edition [2] http://gardner.utah.edu/wp-content/uploads/Traveland-TourismRepFinal.pdf [3] http://gardner.utah.edu/wp-content/uploads/Traveland-TourismRepFinal.pdf [4] http://gardner.utah.edu/wp-content/uploads/Traveland-TourismRepFinal.pdf [5] http://business.utah.gov/programs/outdoor/

FINDINGS

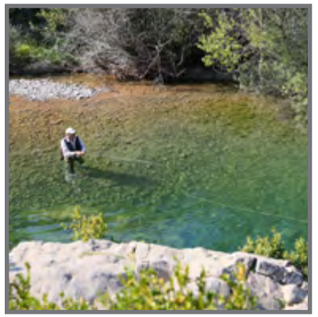
Utah's ski and snowboard industry achieved a record-setting 4.6 million skier days in the 2016-17 season, up 3 percent from the previous record of 4.5 million skier days which was set during the 20015-16 season.[6] Ten of Utah's resorts are located less than an hour from Salt Lake City International Airport. Accessibility of the resorts and the quality of the snow are the top two selling points for Utah's ski and snowboard industry. Utah's resorts undergo infrastructure improvements every year. Improved snowmaking capability has made many of the resorts less dependent on Mother Nature, but the number of skier visits is usually higher in positive snow years.

Utah's Mighty Five national parks received 10 million visits in 2016, a 20.5 percent increase over 2015.[7] Also in 2016, visits to Utah's state parks increased 8 percent to nearly 5.3 million visits.[8] Utah is unique in that it boasts so many national parks geographically close together. Utah's national parks are gems that drive both domestic and international visitation.

National parks nationwide are dealing with increased visitation and shrinking budgets. They have a backlog of maintenance and infrastructure projects, and they lack sufficient staffing. County and state tourism agencies and other stakeholders are working with the parks to encourage visitors to spread throughout the parks rather than only visit the most popular locations, visit during the shoulder season rather than peak months, and come better prepared for activities within the park. Stakeholders are also encouraging visitors to stop at national monuments, historic sites, state parks and scenic byways rather than only visit the national parks.

Visitors also come to Utah to participate in activities such as road cycling, mountain biking, fishing, OHV riding, rock climbing, hunting, and many other types of recreation that are available throughout the state. Many rural counties in Utah are more dependent on tourism than counties along the Wasatch Front, but some lack sufficient infrastructure (hotels, restaurants, signage, shopping, etc.) to provide the type of experience that would attract a larger number of visitors.

[6] http://gardner.utah.edu/wp-content/uploads/Traveland-TourismRepFinal.pdf [7] https://irma.nps.gov/Stats/
[8] https://site.utah.gov/stateparks/wp-content/uploads/sites/13/2015/03/Visitation-FY16-Periods-0-13.pdf



The tourism and recreation industries are major drivers for Utah's economy. Without Utah's travel and tourism industry, it is estimated that each Utah household would have had to pay an additional $1,200 in state and local taxes to maintain the same level of government services.[9] In 2016, visitor spending generated close to $200 million in total[10] income tax revenue that went towards Utah education funding. Approximately $65 million in total tourism-generated motor fuel tax revenue was directed to Utah's transportation system and its infrastructure. An additional $400 million in total state sales tax revenue was deposited in Utah's General Fund where it was used to pay for essential services including:

- Health and human services
- Corrections, courts and the justice system
- Public Safety
- Economic Development Programs

A healthy tourism and recreation economy benefits all of Utah's citizens.

Utah is the premier place for outdoor recreation. With its iconic red-rock deserts, mountain peaks capped with world-class snow, productive lands and waters, and active communities, Utah offers all families and individuals unparalleled outdoor recreational experiences—from the backyard to the backcountry—sustaining our prosperity and elevating our quality of life. For generations to come, Utah will continue to be recognized as "the right place" for accessible outdoor adventures.

The Utah Outdoor Recreation Grant administered by the Office of Outdoor Recreation helps build tourism in communities around the state with the construction and expansion of outdoor recreation amenities. New trails and other outdoor recreational opportunities aid in local economic development. Communities have found that having nearby recreation opportunities adds to the quality of life of local citizens, helps to attract new residents, and can lead to an increase in local property values. Businesses, especially high-tech firms, consider having nearby outdoor recreation amenities as "absolutely vital" to attracting and keeping high value employees.

[9] Utah Office of Tourism based on statistics provided by the U.S. Census Bureau and Kem C. Gardner Policy institute, University of Utah [10] Includes direct, indirect, and induced effects.

OBJECTIVES

The State's Outdoor Recreation Vision states:

- We want Utah to be prosperous. This requires a diversified and enduring economy. To get there, we need to pursue development and the recreational economy, and ensure that our efforts to promote one economic sector do not unduly constrain another.
- We want Utah to remain beautiful. This means we must care for and protect our natural treasures in appropriate balance with needed development.
- We want Utah to be healthy. Physical activity and stress relief—both associated with recreation—are keys to good health. Encouraging active lifestyles can reduce health care costs and increase personal well-being.
- We want Utah to be accessible. A range of outdoor amenities must be physically and financially accessible to people of diverse incomes, abilities, and interests. In addition, we must ensure Utahns' ability to access and enjoy traditional outdoor recreational areas is not unduly affected by commercial expansion.
- We want all of Utah to share a sense of community. The backpacker and the ATV rider, the rural rancher and the urban cyclist, the energy executive and the environmentalist—all are part of Utah and care about our future. What unites us is greater than what divides us. We can identify and build on our shared values and create a Utah where all can enjoy the elevated quality of life this state offers.

Resource management objectives that will benefit Utah's tourism and recreation industries include:

- Maintain easy access to Utah's ski and summer resorts and public lands
- Improve air quality
- Work with the National Park Service, Bureau of Land Management, U.S. Forest Service and other federal and state agencies and local stakeholders to provide a satisfying visitor experience on Utah's public lands
- Maintain clean lakes, reservoirs, rivers and streams while protecting riparian areas
- Assist communities in improving their tourism and outdoor recreation infrastructure
- Preserve Native American architecture, artifacts, pictographs and petroglyphs
- Conserve wildlife
- Seek input from key stakeholders
- Encourage Congress to provide more financial support to national parks and public lands and help eliminate maintenance backlogs.
- Encourage Congress to allow more flexibility for how funding can be spent.
- Plan for the future with a long-term outlook, rather than only having a short-term view
- Ensure Balanced and Responsible Use and Development of our Public Lands. Utahns value their public lands. These lands support a range of uses, including resource development, recreation, wildlife habitat, grazing, and environmental services. With diverse uses comes some conflict. The state should approach public land issues with a proactive, creative, and collaborative approach to find the right balance among the uses, all of which are important to the state.
- Encourage education on the benefits of multiple uses for public lands. Recreation and other public land uses are compatible and not exclusive.
- Through public processes, identify the most valued recreational areas in Utah and explore how to optimize the recreational experience in those areas.
- Resolve R.S. 2477 claims in Utah's counties as expeditiously as possible and with consideration for access to popular recreational areas.
- Participate actively in revisions to management plans for Forest Service and BLM lands, and other management processes, to seek to implement the State's recreational vision to the greatest extent possible. Seek wide support for the finished plans to minimize subsequent opposition.

- Encourage county or regional stakeholder processes to resolve many of the longstanding public lands issues in Utah, such as wilderness, infrastructure rights of way, water development, and more.
- While participation in outdoor recreation continues to climb, there are ample opportunities to engage more of our residents and visitors in these activities. With an eye to the state's changing demographics and future increased demand, we must think ahead, recognize coming challenges, and make outdoor recreation a part of our strategic thinking.
- Collaborate with the universities and colleges to expand the reach of these programs into the broader community, especially secondary schools, which would help strengthen and expand the workforce.
- The State supports linking communities through the creation of trail systems and aims to meet the recreational needs of its visitors and citizens, including youth and groups with special needs.The State supports the continuation of the Utah Outdoor Recreation Grant Program to promote and fund outdoor recreation infrastructure on Federal, State, and private land.

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    - (E) meet the recreational needs and the personal and business-related transportation needs of the citizens of the state by providing access throughout the state;
    - (F) meet the recreational needs of the citizens of the state;
    - (H) provide for the preservation of cultural resources, both historical and archaeological;
    - (I) meet the needs of economic development;
    - (J) meet the needs of community development; and
  - (h) the state should foster and support industries that take advantage of the state's outstanding opportunities for outdoor recreation;

- (8) The state planning coordinator shall recognize and promote the following findings in the preparation of any plans, policies, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (q) transportation and access provisions for all other existing routes, roads, and trails across federal, state, and school trust lands within the state should be determined and identified, and agreements should be executed and implemented, as necessary to fully authorize and determine responsibility for maintenance of all routes, roads, and trails;
  - (r) the reasonable development of new routes and trails for motorized, human, and animal-powered recreation should be implemented;

Utah Public Land Management Act

§ 63L-8-103. Principal or major use

Each parcel of public land in this state shall be managed, as much as possible, to promote the following principal or major uses of the land, consistent with the principles of multiple use and sustained yield:

- (**5**) outdoor recreation;

§ 63L-8-104. Declaration of policy--Sales and exchanges

The Legislature declares that it is the policy of the state that:

- (d) the public land be managed in a manner that will:
  - (iii) where appropriate, preserve and protect certain public land in its natural condition;
  - (iv) provide food and habitat for fish, wildlife, and domestic animals; and
  - (v) provide for hunting, fishing, trapping, outdoor recreation, human occupancy, and other human use, including the general enjoyment of nature and solitude.

State of Utah Resource Management Plan for Federal lands

§ 63J-8-104. State land use planning and management program

- (g) achieve and maintain traditional access to outdoor recreational opportunities available in the subject lands as follows:
  - (i) hunting, trapping, fishing, hiking, family and group parties, family and group campouts and campfires, rock hounding, OHV travel, geological exploring, pioneering, recreational vehicle parking, or just touring in personal vehicles are activities that are important to the traditions, customs, and character of the state and individual counties where the subject lands are located and should continue;
  - (ii) wildlife hunting, trapping, and fishing should continue at levels determined by the Wildlife Board and the Division of Wildlife Resources and traditional levels of group camping, group day use, and other traditional forms of outdoor recreation, both motorized and nonmotorized, should continue; and
  - (iii) the broad spectrum of outdoor recreational activities available on the subject lands should be available to citizens for whom a primitive, nonmotorized, outdoor experience is not preferred, affordable, or physically achievable;
  - (h)(i) keep open to motorized travel, any road in the subject lands that is part of the respective counties' duly adopted transportation plan;
  - (ii) provide that R.S. 2477 rights-of-way should be recognized by the BLM;
  - (iii) provide that a county road may be temporarily closed or permanently abandoned only by statutorily authorized action of the county or state;
- (iv) provide that the BLM and the Forest Service must recognize and not unduly interfere with a county's ability to maintain and repair roads and, where reasonably necessary, make improvements to the roads; and
- (v) recognize that additional roads and trails may be needed in the subject lands from time to time to facilitate reasonable access to a broad range of resources and opportunities throughout the subject lands, including livestock operations and improvements, solid, fluid, and gaseous mineral operations, recreational opportunities and operations, search and rescue needs, other public safety needs, access to public lands for people with disabilities and the elderly, and access to Utah school and institutional trust lands for the accomplishment of the purposes of those lands;

§ 63J-8-105.1. State of Utah Transportation Plan for the Cedar City, Powell, Escalante, and Fremont ranger districts of the Dixie National Forest

- (1)(a) The state of Utah designates this state of Utah transportation plan for the Cedar City, Powell, Escalante, and Fremont ranger districts of the Dixie National Forest.

Recreational, Tourist, and Convention Bureaus

§ 17-31-2. Purposes of transient room tax and expenditure of revenues--Purchase or lease of facilities--Mitigating impacts of recreation, tourism, or conventions--Issuance of bonds

Governor's Office of Economic Development

§ 63N-7-101. Board of Tourism Development

§ 63N-9-103. Policy

It is the declared policy of the state that outdoor recreation is vital to a diverse economy and a healthy community.

Natural Resources: Parks and Recreation

§ 79-4-201. Division of Parks and Recreation--Creation--Powers and authority

§ 79-4-605. Hole in the Rock included within state park system

- (2) The division may:
  - (a) enter into an agreement to acquire the Hole in the Rock area, or part of the area, as a state park with the United States Bureau of Land Management and the United States National Park Service; and
  - (b) receive donations of land or facilities at the Hole in the Rock area for inclusion within the state park.

§ 79-4-606. Little Sahara included within state park system

- (2) The division may:
  - (a) enter into an agreement for the use of the Little Sahara Recreation Area as a state park with the United States Bureau of Land Management; and

§ 79-4-901. Pioneer heritage of Utah--Acquisitions and operations by division

- The division may acquire, construct, maintain, and operate any land areas, objects, or structures as necessary to preserve, protect, display, and enhance any gifts and other historical objects or collections donated, loaned, or otherwise acquired that appropriately contribute to the pioneer heritage of Utah.

§ 79-4-1102. Contingency plan for federal property

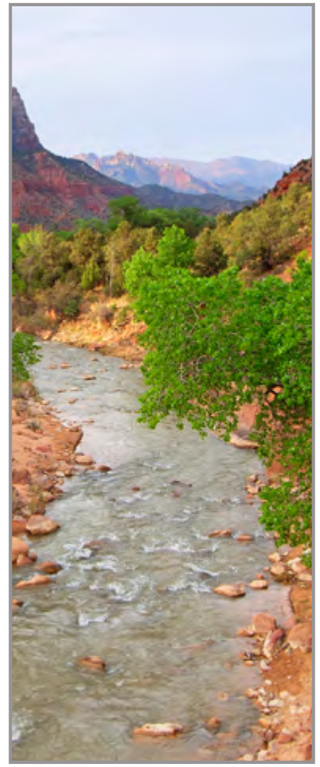
- (1) As used in this part, "fiscal emergency" means a major disruption in the operation of one or more national parks, national monuments, national forests, or national recreation areas in the state caused by the unforseen or sudden significant decrease or elimination of funding from the federal government.
- (2) During a fiscal emergency, and subject to congressional approval, the governor's agreement with the United States Department of the Interior, or a presidential executive order, the governor is authorized to enter into an agreement with the federal government to ensure that one or more national parks, national monuments, national forests, or national recreation areas in the state, according to the priority set under Section 79-4-1103, remain open to the public.

Natural Resources: Recreational Trails

§ 79-5-103. Division to plan and develop recreational trails in cooperation with public and private entities--Priorities

- (1)The division shall plan and develop a recreational trail system throughout the state that:
  - (a) provides for outdoor recreation needs; and
  - (b) facilitates access to, travel within, and enjoyment and admiration of the outdoors.
- (2) To assure that an integrated trails network is achieved, the division shall coordinate the planning and development of trails with:
  - (a) federal land management agencies ;
  - (b) local governments ;
  - (c) private landowners ; and
  - (d) state agencies.
- (3) The division shall give priority to establishing trails that:
  - (a) cross public lands;
  - (b) are in proximity or accessible to urban areas;
  - (c) implement rail-to-trail conversions pursuant to the National Trails System Act, 16 U.S.C. Sec. 1241 et seq.;
  - (d) provide linkage to existing trails; and
  - (e) provide linkage or access to natural, scenic, historic, or recreational areas of statewide significance.

§ 79-5-301. Guidelines for the establishment of trails



RELATED RESOURCES

Economic Considerations

Floodplains and River Terraces

Livestock and Grazing

Water Quality & Hydrology

Wildlife

Wetlands

Riparian areas are typically dependent on a natural hydrologic regime, especially annual to episodic flooding. Riparian occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediately adjacent to streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches.

Healthy riparian areas can improve fish and wildlife populations, which have an impact on recreational usage and economic benefits.

Riparian areas commonly contain specialized vegetation associated with surface or subsurface moisture. Riparian resources include wetland areas which require prolonged saturation of soils and contain certain vegetative species dependent upon saturation *(see Wetlands section)* Most of these resources are commonly located along major rivers, drainages, or spring sites with a higher density located in forests and areas of higher precipitation than in the arid lowlands.

FINDINGS

Properly functioning riparian areas help maintain the quality and quantity of water regularly used for both culinary and agricultural purposes. Riparian areas also support habitat for migratory birds, raptors, and fish; support forage and browse for wildlife, wild horses, and livestock; and provide numerous recreation opportunities.

Riparian areas occur as long strips of vegetation adjacent to streams, rivers, lakes, reservoirs, and other inland aquatic systems that affect or are affected by the presence of water. This vegetation contributes to unique ecosystems that perform a large variety of ecological functions. Riparian areas are classified as lotic riparian resources *(flowing water streams and rivers)* or lentic riparian resources *(non-flowing wetlands, meadows, lakes, and reservoirs)*.

Riparian resources are described through reference to the Properly Functioning Condition (PFC), which is a qualitative analysis used to assess the condition of riparian areas. The term is used to describe the assessment process and define the potential functional capacity a particular riparian area could reach with appropriate management practices. PFC is a state of resiliency that measures the potential for an area to produce anticipated ecologic values. Riparian areas that are not reaching the functional capacity determined to be PFC are at risk of losing these values. Functioning condition is rated by category to reflect ecosystem health as follows:

Proper Functioning Condition – When adequate vegetation, landform, or large woody debris is present to dissipate energy associated with high flow; filter sediment, capture bedload and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics; and support greater biodiversity.

Functioning at Risk – Riparian areas that are in functioning condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Nonfunctional – Riparian areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and therefore are not reducing erosion, improving water quality, etc.

Unknown – Riparian areas that have not been inventoried or where there is insufficient information to make any form of determination.

Riparian areas are meeting PFC when a stream channel exhibits morphology and functionality similar to riparian areas in the planning area that have not been substantially altered by outside influences. These areas would have vegetation capable of attenuating flood flows, reducing erosion, and creating conditions suitable for the long-term and vigorous occupation of native vegetation on streambanks or in wetlands.

Riparian areas also can be monitored using quantitative short-term and long-term indicators. This monitoring procedure evaluates indicators for long-term trend, including vegetative composition near the water's edge, woody species regeneration, streambank stability, channel and water width and depth, and substrate composition. The procedures also help determine if short-term management practices are meeting allowable-use criteria. Examples of short-term indicators include woody species use, stubble height, and streambank alteration.

Vegetation in riparian areas is a dominant characteristic and includes trees, shrubs, sedges, and grasses. Invasive vegetation is common within riparian areas and often consists of exotic trees *(Russian Olive and Tamarisk)* and other noxious species *(Russian Knapweed and Purple Loosestrife)*. Generally, the upland vegetation surrounding riparian systems is different and definable and ranges from grasslands to forests. In recent decades pinyon and juniper have also invaded riparian areas, putting additional pressure on limited water supplies.

Grass communities and species are a major component in most riparian and wetland areas. A mix of grasses can normally be found, with wide variability in the number of species, extent or location within the riparian area. Depending on the degree of inundation or saturation, grasses can include obligate wetland species where sufficient saturation occurs yearlong, facultative wetland grasses, or upland grass species.

This ecological system contains early, mid and late-seral riparian plant associations. It also contains non-obligate riparian species. Cottonwood communities are early, mid or late-seral, depending on the age class of the trees and the associated species of the occurrence. Mature cottonwood occurrences do not reach a climax stage and do not regenerate in place, but regenerate by "moving" up and down a river reach. Over time a healthy riparian area with appropriate ecological site conditions supports all stages

Property values in riparian areas have a significant price premium.

of cottonwood communities. Riparian ecosystems are extremely susceptible to fire, containing native woody species which are fire intolerant, often resulting in catastrophic loss to fire, especially when invaded by exotic species including tamarisk.

Associations in this ecological system are adapted to soils that may be flooded or saturated throughout the growing season. They may also occur on areas with soils that are only saturated early in the growing season, or intermittently. Typically these associations are tolerant of moderate-intensity ground fires and late-season livestock and wildlife grazing. Most appear to be relatively stable types, although in some areas these may be impacted temporarily by intensive livestock grazing.

Causal factors for riparian areas not meeting PFC vary. These factors are inside and outside management control; and in most cases, no single factor is responsible for conditions less than PFC. Common causal factors include (in no particular order of importance) dewatering, drought, incised channels, excessive erosion/sedimentation because of poor upland conditions *(i.e., pinyon-juniper woodland expansion)*, OHV use, wildlife & livestock grazing, and invasive species.

Land managers emphasize maintenance of riparian areas and wetlands. Management actions and projects have been implemented to improve riparian conditions include planting willows to reintroduce a native-woody species component, stream bank stabilization, sediment reduction, flood attenuation, and vegetative recovery in riparian areas and wetlands. Agencies have also initiated adaptive livestock and wildlife management actions to balance grazing and resource protection.

ECONOMIC CONSIDERATIONS

Riparian area vegetation is a key factor in reducing downstream flooding. As floodwater flows through a vegetated area, the plants resist the flow and dissipate the energy, increasing the time available for water to infiltrate into the soil and be stored for use by plants.

Healthy riparian areas can improve fish and wildlife populations, which have an impact on recreational usage and economic benefits. Increased vegetation can have impacts on grazing as a result of increased forage.

Property values in riparian areas have a significant price premium.

OBJECTIVES

- Active management should be used to improve and enhance riparian resources to provide for appropriate physical, biological, and chemical function.
- Meet or make progress toward attainment of the Utah Standards and Guidelines for Healthy Rangelands according to riparian site capability.
- Prioritize and manage riparian areas to attain desired future conditions for riparian-related resources (e.g. fishery habitat, water quality, wildlife and livestock forage, and soil stability).
- Riparian areas and wetlands ashould be managed for the mutual and maximum benefit of wildlife, livestock and special status species.

POLICIES AND GUIDELINES

- The State supports the use of structural and non-structural improvements in unstable water courses to restore riparian areas properly functioning/desired future conditions.
- The State will engage with federal land manage agencies to support active management of healthy riparian areas on federal land.
- The State finds that an optimal mix of native and desirable non-native species shall be used to support desired ecologic conditions and a properly functioning ecosystem.
- The State supports the removal of invasive species from riparian areas on public lands.
- The State will work cooperatively with federal land management agencies and livestock producers to determine the appropriate level and type of livestock grazing to occur in riparian areas on public land.
- The State will work cooperatively with federal land management agencies and livestock producers to determine the appropriate balance of uses in riparian areas between wildlife, domestic livestock, and feral animals such as wild horses.
- The State supports the responsible management of riparian areas to accommodate successful livestock production while protecting riparian health.
- The state requests monitoring protocol to identify which ungulates are impacting riparian zones.

The State supports the responsible management of riparian areas to accommodate successful livestock production while protecting riparian health.

RELATED RESOURCES

Economic Considerations

Land Use

Wildlife

Predator Control

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

In the United States of America, individual states hold primary management authority for fish and wildlife species found within their borders. However, once a species of plant or animal becomes federally listed under the Endangered Species Act (ESA), the federal government holds the primary management authority for those species. Congress passed the ESA in 1973, and recognized that our rich natural heritage is of *"esthetic, ecological, educational, recreational, and scientific value to our Nation and its people."* It further expressed concern that many of our nation's native plants and animals were in danger of becoming extinct.

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (USFWSS) and the Commerce Department's National Marine Fisheries Service (NMFS). The USFWS has primary responsibility for terrestrial and freshwater organisms found in Utah.

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend.

Under the ESA, species may be listed as either endangered or threatened. *"Endangered"* means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and, for vertebrates, distinct population segments.

Since conservation of species is important not only to our Nation, but to citizens of Utah, the state has compiled a Wildlife Action Plan to conserve threatened, endangered, and sensitive species. As part of the Wildlife Action Plan, the DWR Habitat Designation Advisory Committee divides species into three categories following an official Designation Process (DWR Administrative Rule R657-48). This ranking includes plants. Sensitive Species, include:

- ESA. Federally listed or candidate species under the ESA.
- Conservation Species. Species receiving special management under a Conservation Agreement in order to preclude the need for federal listing.
- Wildlife Species of Concern. Species where credible scientific evidence demonstrates a threat to continued population viability.

THREATENED, ENDANGERED, AND SENSITIVE 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 ESA". Once a species is listed under the ESA, a state's ability to manage listed species is diminished and the range of options for managing lands and waters where that species occur substantially narrows. The Endangered Species Mitigation Fund (ESMF) as part of the state water tax, is used as a major funding source in Utah to conserve Utah Sensitive Species or listed under the ESA. Another tool used by Utah to conserve sensitive species and their habitat is the Watershed Restoration Initiative. To date, the state and its partners have spent over $180 million dollars on conservation of wildlife habitat in Utah.

FINDINGS

There are currently 43 threatened and endangered species in Utah.[1] Of those species listed, 18 species are animals, and 25 species are plants.[2] Additionally, three plants species are listed as candidate species for potential listing in Utah.[3] An additional 90 plant and animal species are species of wildlife concern or conservation agreement species that currently face certain threats to persistence, in Utah.[4] Since the ESA became law in 1973, only one percent of listed species have been delisted due to recovery. That means that 99 percent of the species that become listed in Utah will likely remain as federally listed species. Further, for most federally listed species in Utah, the USFWS has yet to develop a recovery plan identifying what must occur to delist the species.

The parts or products of listed animals and plants cannot be possessed, taken or transported without special permission of USFWS. Section 9 prohibits *"taking"* of any endangered or threatened species.[5] This prohibition applies both to private and public actions or activities.[6] *"Take"* is defined as, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct.[7] *"Taking"* of a species includes willfully harming an endangered or threatened animal.[8] It also includes habitat destruction or degradation that significantly interferes with essential breeding, feeding, or seeking shelter.[9] However, Section 10 allows for non-federal entities to apply for permission to incidentally take a listed species in the course of an otherwise lawful activity.

When a species is listed, the USFWS is to designate *"critical habitat"* and develop a recovery plan.[10] Critical habitat is that specific area where the physical and biological features exist that are (1) essential to the conservation of a species, and (2) require special management considerations or protection. This usually includes not only occupied habitats but may also include areas outside the species' current range when they are considered to be important to the species survival and recovery. Critical habitat may be designated on federal, state or private lands. However, activities on state or private lands are not restricted by the ESA unless they directly harm the listed species or there is some type of federal involvement as discussed above under Section 7. Recovery plans are documents that list what should take place to recover a species to the point that they are no longer threatened or endangered under the ESA.

[1] https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=UT&status=listed [2] ID. [3] https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=UT&status=candidate [4] https://dwrcdc.nr.utah.gov/ucdc/viewreports/SS_List.pdf [5] SECTION 9. [6] ID. [7] ID. [8] ID> [9] ID> [10] ID>>>>

ECONOMIC CONSIDERATIONS

Species listing can have serious economic impacts to the state and its communities.

The U.S. Department of Interior estimated that the potential direct costs from the recovery plans of all listed species were about $4.6 billion in 1990.[11] Similarly, the federal government has spent at least a $1 billion dollars a year on ESA listing and delisting efforts each year since 2010.[12] In 2015, the USFW spent $745,774 on Utah Prairie Dog conservation efforts.[13]

From 2008 to 2012, the BLM spent an average of $2,347,795 on its threatened and endangered species program in Utah.[14] Similarly, the state has spent over $3 million on protection of sage grouse to prevent them from being federally listed. The Office of Energy Development estimated that federal listing of sage grouse as endangered could cost the state more than $41.4 billion in lost economic development. The State has also spent over $180 million dollars on restoring habitat that benefits many threatened, endangered, and sensitive species throughout Utah.

Due to the extensive cost of species conservation, the federal government has incorporated excise taxes on shooting, boating, and fishing equipment. These sources may indirectly benefit some "non- game" species. Similarly, much of the funding for conservation activities comes from hunter and angler license fees and habitat stamps. Very little general fund tax dollars are spent on species conservation.

Due to the cost of listing and their impacts on local communities, in 1997, as part of the state water tax, the Utah Legislature created the Endangered Species Mitigation Fund (ESMF) which significantly expanded the funding base for conservation of wildlife species which are designated as Utah Sensitive Species or are ESA-listed. The purpose of this fund is to avoid, reduce, and/or mitigate impacts and the costs of ESA listings on the people of Utah. The ESMF has contributed to the development, implementation, and continuance of sensitive species conservation in Utah, both directly and indirectly by supplying matching funds which enabled the funds to be leveraged for greater benefit to sensitive species management.

OBJECTIVES

Work with stakeholders and partners to continue to implement recommendations from the Utah Wildlife Action Plan 2015–2025 to conserve sensitive species and their habitat.

Identify and minimize the threats to sensitive or federally listed species to ensure healthy and robust populations of threatened, endangered, and sensitive species can exist in Utah.

Develop recovery plans, in conjunction with USFWS, for all listed species in Utah by 2025. . The recovery plans must contain specific goals for when and how the USFWS will determine that a species is recovered.

Work with DWR and USFWS to identify and maintain wildlife migration corridors for all threatened, endangered and sensitive species in Utah.

Work with USFWS to identify means of increasing the effectiveness of species recovery activities throughout the state.

Restore 75,000 acres of critical habitat for sensitive species each year through the Watershed Restoration Initiative and by partnering with other government and non-governmental entities.

In consultation with local governments, and state agencies, develop a list of priority ESA species to delist and work to eliminate threats to listed species, as soon as practicable. Engage with statewide and local efforts to ensure wildlife values are incorporated into planning efforts.

Encourage the USFWS to delist all currently listed species by no later than 2030 by addressing threats to species viability.

Develop a single website or tool for storing and sharing information relating to necessary steps for recovering threatened, endangered and sensitive species.

[11] (U.S. Fish and Wildlife Service 1990) [12] https://www.fws.gov/endangered/esa-library/index.html (expenditure reports) [13] https://www.fws.gov/endangered/esa-library/pdf/2015_Expenditures_Report.pdf [14] (Transfer Study, 2014, p. 20)

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

POLICIES AND GUIDELINES

- Decisions regarding management and recovery threatened, endangered and sensitive species should be based on the best available, site specific, biological and social scientific knowledge and information.
- The State, its resource agencies and local governments must be recognized as a full and vital partner with federal agencies in the management and recovery of federally listed species.
- Recovery Plans should be developed, in collaboration and consultation with state and local governments, within no more than a year after a listing determination occurs.
- Recovery Plans should contain specific and measurable goals and a timeline for recovering threatened, endangered and sensitive species.
- The State and federal government will consult with local governments and private citizens when developing Recovery Plans for listed or sensitive species.
- All actions taken under the ESA must be based on the best scientific information available.
- The State and its local governments will encourage and incentivize landowners, if possible, to enter into voluntary conservation agreements to conserve threatened, endangered and sensitive species. Successful completion of conservation agreements can eliminate the need for listing the species.
- The State will work with legislatures to identify potential funding sources for the recovery of Species of Greatest Conservation Need, as identified in the Wildlife Action Plan.
- The State does not support utilizing the state to recover species outside of the species historic range and habitat.
- Plans to reintroduce species into any portion of the state must occur in consultation, and only after authorization from, state and county officials.
- The State supports mitigation banking programs as a way to offset impacts to threatened and endangered species, species at risk of becoming threatened or endangered, and their habitats.
- The State does not support actions to list any species as a threatened or endangered species under the ESA until verifiable scientific data have been available to the public that demonstrate
    - the need for the designation;
    - that protections cannot be provided by other methods; and
    - that the area in question is truly unique compared to other area lands.
- For the most accurate population estimates, the State and Federal government must include in any population estimate or counts, sensitive, threatened, or endangered species found on both private and public land.

The State and federal government will consult to identify potential funding sources for the recovery of Species of Greatest Conservation Need.

RELATED RESOURCES

Economic Considerations

Minerals and Mining

Agricultural

Water Quality & Hydrology

Irrigation

Ditches and Canals

Geological

Water is both Utah's opportunity and its limitation, and must be managed intelligently. Utah's Water Rights Law, Title 73 states water is the *"property of the public"* and Rights are granted to put it to *"beneficial use."*[1] The code emphasizes *"Beneficial use is the basis, the measure and the limit to the use of water in this state."*[2] Utah water law is based on *"prior appropriation."* When several people use water from the same source, *"the one first in time is first in rights."*[3]

An extensive website allows access to all water rights, dam, stream alteration and well data bases with full GIS mapping and graphical search capabilities.

The Utah Division of Water Rights(UDWRi) administers Utah's Water Right laws such as appropriation, distribution and adjudication of surface and ground water.[4] In addition, dam safety, stream alterations, and well drilling are regulated by UDWRi.[5] An extensive website allows access to all water rights, dam, stream alteration and well data bases with full GIS mapping and graphical search capabilities.[6] The website is structured to reflect the office organization and is an excellent resource.

The State Engineer directs the Division of Water Rights. The State Engineer is appointed by the governor with consent of the Senate and serves a four-year term.[7] The code states "The state engineer shall be responsible for the general administrative supervision of the waters of the state and the measurement, appropriation, apportionment and distribution of those waters."[8]

[1] Utah Code Ann. § 73-1-5 [2] Utah Code Ann. §73-1-3 [3] Utah Code Ann. §73-3-1 [4] See Utah Code Ann. §73-3-1, §73-4-11, §73-5-15 [5] See Utah Code Ann. §73-5a-201, §73-3-29, §73-3-25.
[6] https://www.waterrights.utah.gov/ [7] Utah Code Ann. §73-2-1.2 [8] Utah Code Ann. §73-2-1

FINDINGS

All waters of the state are owned exclusively by the state in trust for its citizens. These waters are subject to appropriation for beneficial use; and are essential to the future prosperity of the state and the quality of life within the state. As set forth in Section 73-1-3, this beneficial use shall be the basis, the measure and the limit of all rights to the use of water in the state. A "water right" is a right to divert water from its natural source to use it beneficially. The defining elements of a typical water right will include:

- A defined nature and extent of beneficial use;
- A priority date;
- A defined quantity of water allowed for diversion;
- A specified point of diversion and source of water; and
- A specified place of beneficial use.

ECONOMIC CONSIDERATIONS

In July of 2017 at the request of the Governor, a Water Strategy Advisory Team proposed a recommended State Water Strategy. The Water Strategy states *"Utah faces a daunting challenge. We have the distinction of being both one of the driest states in the nation and one of the fastest growing. At the convergence of those two realities is the challenge of providing water for a population that is projected to nearly double by 2060 while maintaining strong farms and industries and healthy rivers, lakes, wetlands, and aquifers. This challenge is magnified by climate projections from the State Climatologist that show a significant decrease in Utah's snowpack, which presently provides more annual water storage capacity than all of Utah's human-made reservoirs combined."* A healthy economy is dependent on an available supply of water to meet future demands.

A healthy economy is dependent on an available supply of water to meet future demands.

OBJECTIVES

The Mission of UDWRi is to provide order and certainty in the beneficial use of Utah's water. The objective of UDWRi is to provide opportunity for waters of the state to be used beneficially in an orderly way. The State Engineer maintains records of water rights, accepts and approves applications for new water uses, and supervises the allocation of the existing water supply to the water right holders respective to each water right priority. In most populated areas of the state the water resources are fully allocated. New uses in these areas are accommodated by changing rights to existing uses to serve the new use. UDWRi has the authoritative role to administer the process of water transfers from current to future proposed uses. The State Engineer's objective in this process is to guarantee that hydrologic systems maintain balance and that existing water rights are not impaired by the new uses.

POLICIES AND GUIDELINES

- The State of Utah has the right to develop and use its entitlement to interstate rivers for the benefit of all citizens. All water rights desired by the federal government must be obtained through the state water appropriation system.
- Utah State Water Laws of Prior Appropriation Doctrine and Beneficial Use are recognized as the legal basis for perfecting all water rights for the use of all water within the state.
- Oppose federal agencies conditioning any permit, lease or other land use agreement on the permanent transfer, relinquishment or other impairment of any water right.
- The State supports voluntary projects that improve water quality and quantity, and increases the dependability of the water supply.
- Ensure any recovery plan, habitat management plan, critical habitat designation, or any other plan proposing an *"in stream flow"* requirement adequately considers local existing and anticipated future water uses, local custom and culture, and local economic and individual needs and follows **Utah Code Ann. §73-3-30.**
- Additional water storage facilities in the State that assures present and future growth and protection of Utah Water Rights pursuant to the Colorado River Compact should be considered.
- Locally-led efforts to monitor and improve water quality should be prioritized, and where feasible completed in conjunction with existing state and federal agencies with the same mandate.
- Use Utah Constitution and Utah statutes as the legal basis for the acquisition of water rights and water use in the State, including the right to divert unappropriated waters.
- Privately-held water rights should be protected from encroachment and/or coerced acquisition.
- Land use improvements and practices should be implemented which promote healthy drainages and watersheds.

The State of Utah will consider issuance of a water right after analysis of several factors, including the following:

- The availability of unappropriated water at the source;
- The proposed appropriation will not impair existing water rights;
- The proposed appropriation of water is physically and economically feasible at the location;
- The proposed appropriation is not monopolistic or based on speculation;
- Whether the proposed appropriation is in the public interest and promotes public welfare; and
- Whether the proposed appropriation will adversely affect the natural stream environment or public recreation.

RESPONSIBILITIES AND FUNCTIONS

The Division of Water Right's administrative responsibilities are divided into categories as follows:

Water Right Applications & Records The State Engineer approves all applications to use water in the state and maintains a comprehensive set of Water Right records, assembled from his application approval responsibility. Distribution. Water is distributed to water users by priority. Where many users are competing for water from the same source, the State Engineer appoints a water commissioner to oversee the day to day distribution of water.
Utah Code Ann. §73-5-3.

Adjudication. The courts have jurisdiction to adjudicate ownership and validity of Water Rights. The State Engineer assists in this effort through investigations that compile proposed determinations of Water Rights for decree by district courts. Utah Code Ann. §73-4-1.
Well Drilling. Regulates water well construction by licensing, registering and overseeing construction activities of water well drillers and drill rig operators.
Utah Code Ann. §73-3b-208.

Enforcement. Investigates and prosecutes violations of Water Right statutes with orders, fines, and litigation if necessary.
Utah Code Ann. §73-2-205.

Dam Safety. Approves construction and inspects public and private dams. Inspections are based on a dam's hazard rating for loss of life and property. Utah Code Ann. §73-5a-501.

Stream Channel Alterations. Administers alterations to natural streams under terms of the Utah Code in conjunction with a general regional permit from the US Army Corps of Engineers. **Utah Code Ann. §73-3-29.**

Water Resource Studies. Conducts quality/quantity studies of various river basins and hydrologic areas of the state in conjunction with the Utah Geological Survey, the U.S. Geological Service, Utah State University, and others.
Utah Code Ann. §73-10-19.

COMPACTS AND AGREEMENTS
https://www.waterrights.utah.gov/wrinfo/policy/compacts.asp

Groundwater Management Plans are created for areas throughout Utah to promote wise use of the ground-water, protect existing water rights, and address water quality issues and over-appropriation of ground water. The creation, requirements, management, purpose, and effects of these plans are explained in **Section 73-5-15** of the Utah State code.

The Division of Water Rights is the regulatory agency that oversees Groundwater Recharge and Recovery Projects in Utah. These projects are sometimes referred to as Aquifer Storage and Recovery (ASR). **Section 73-3b** of the Utah State code, the Groundwater Recharge and Recovery Act, details the application, monitoring, and reporting processes required to operate a recharge and recovery project.

WATER RIGHTS LAW
https://www.waterrights.utah.gov/wrinfo/policy/compacts.asp

ADMINISTRATIVE RULES
http://www.rules.utah.gov/publicat/code/r655/r655.htm

GROUNDWATER MANAGEMENT PLANS
https://www.waterrights.utah.gov/groundwater/ManagementReports/ground.asp

RELATED RESOURCES

Economic Considerations

Forest Management

Fire Management

Fisheries

Wetlands

Riparian Areas

Wildlife

Water quality is a vitally important natural resource in Utah owing to the state's uneven distribution of precipitation and reliance on clean water for municipal, industrial, and agricultural uses. The mountainous areas of the state receive the majority of precipitation falling as rain and snow while the populated areas in valley bottoms are relatively arid. Water quality is very good in the mountainous areas but tends to decline as it travels downstream due to impacts from a variety of sources including municipal, industrial, agricultural, and natural sources.

The goal of water quality protection and improvement programs is to preserve the use of water for all of its designated uses.

The goal of water quality protection and improvement programs is to preserve the use of water for all of its designated uses, as defined in Utah Administrative Code R317-2-6.[1] Designations include its use for domestic purposes (Class 1), recreational use and aesthetics (Class 2), use by aquatic wildlife (Class 3), agricultural use (Class 4), and a special designation for the Great Salt Lake (Class 5). Given that most high quality water has generally already been put to use, future demands will need to be met by ensuring that Utah waters are not degraded thus preventing their uses for other downstream purposes.

The Utah Department of Environmental Quality, Division of Water Quality (DWQ) is responsible for ensuring that pollutants from anthropogenic sources do not impair the designated uses of Utah's waters. DWQ's mission is *"to protect, maintain and enhance the quality of Utah's surface and underground waters for appropriate designated uses; and protect the public health through eliminating and preventing water related health hazards which can occur as a result of improper disposal of human, animal or industrial wastes while giving reasonable consideration to the economic impact"*. This is accomplished through several

[1] http://www.rules.utah.gov/publicat/code/r317/r317-002.htm#T8

WATER QUALITY AND HYDROLOGY

programs administered by DWQ and its partner agencies including permitting programs, enforcement activities, voluntary cleanup efforts, financial assistance programs, education and outreach activities, and scientific investigations as stipulated in the federal Clean Water Act and the Utah Water Quality Act.[2]

Ultimately it is the responsibility of individuals to ensure that water quality is protected including those who work for governmental agencies and elected officials who provide leadership in their communities. Highly visible actions, such as municipal and industrial discharges and construction projects, are closely regulated while it is the smaller yet widespread and numerous actions that can have the very significant effects on water quality. Therefore, promoting a culture of stewardship for Utah's streams and lakes is critical for sustaining one of our most precious resources.

FINDINGS

The Utah Department of Environmental Quality recently released its biennial report on the state of Utah's waters in 2016 and the results illustrate the challenges faced.[3] The report identifies new impairments in several waterbodies. Twenty percent of the assessed freshwater lake acreage failed to meet water quality standards for their designated uses, while four percent is meeting some designated uses. The high percentage of waters not fully assessed reflects the fact that the state's largest lake, the Great Salt Lake represents 74 percent of the lake acreage in the state and requires additional study to perform assessments. While 21 percent of the stream miles assessed met water quality standards, 47 percent did not. Another 32 percent had insufficient data to make a determination and will require additional monitoring.

DWQ compiles water quality data every two years in an Integrated Report (IR) to identify whether the water quality in Utah lakes, rivers, and streams supports a particular water's designated uses. These uses include drinking water, recreation, agriculture, waterfowl, fish, and other aquatic life. Data collected in the San Juan River, a Utah waterway impacted by the Gold King Mine spill, led DWQ to list two segments of the river as impaired for metals. Improved assessment methods for harmful algal blooms (HABs), a nutrient-fueled increase in toxic cyanobacteria that can harm people and pets, resulted in the listing of Utah Lake as impaired for recreation uses due to HABs.

The IR does contain some bright spots, including new sources of data, tailored strategies for restoring and protecting water quality that move beyond a *"one size fits all"* approach, and a draft methodology for analyzing high frequency dissolved oxygen data, a critical component of aquatic health.

While it is likely that new water quality concerns will be identified in the future as monitoring efforts expand and analyses improve we should also recognize our achievements in improving the health of our streams and lakes through responsible regulation and voluntary efforts. Rivers that were once used as open sewers and dumping grounds have been cleaned up and are now home to nature trails and boating activities. Reservoirs that had accumulated nutrients to the point that they turned bright green every summer are now supporting thriving fisheries. Water pollution incidents that used to go unreported and unresolved with long lasting public health and ecological impacts are now promptly responded to and appropriately resolved. Although many challenges remain, we have demonstrated that restoration efforts work and need to be expanded in light of increasing growth and development.

[2] http://www.le.utah.gov/xcode/Title19/Chapter5/19-5.html?v=C19-5_1800010118000101 [3] https://deq.utah.gov/ProgramsServices/programs/water/monitoring-reporting/assessment/currentIR2016.htm

ECONOMIC CONSIDERATIONS

A healthy environment is essential for continued growth and prosperity. But increased growth means increased amounts of pollution unless common pollution controls are put into place that entail additional costs. Balancing the cost of pollution controls versus the benefits to human health and the environment is an important consideration in any action undertaken by DWQ and the governor-appointed Utah Water Quality Board, which establishes water pollution control rules. As federal grant funds are generally no longer readily available to help construct new and replace outdated pollution control infrastructure, costs have shifted to the responsible entities. Therefore, it is imperative for DWQ to explain the need for pollution controls so that elected officials and their constituents are satisfied that expenditures for pollution controls are warranted.

A significant water quality concern identified both within Utah and nationally is phosphorus and nitrogen pollution that results from a variety of sources including agricultural land uses, urban stormwater, municipal wastewater treatment facilities, and air deposition. In 2010 these concerns led Utah, in tandem with many other states, to ban dishwashing detergents that contain high levels of phosphorus. This ban resulted in a noticeable decrease in effluent phosphorus concentrations from wastewater treatment facilities. Agricultural sources of nutrient pollution are also being addressed through the establishment of comprehensive nutrient management plans that provide for the proper means of storing and using fertilizers, including livestock manure, to ensure this valuable resource is put to good use rather than washed downstream where it can cause public health and environmental harm.

Discharges from wastewater treatment facilities remains one of the most significant sources of nutrient loading into Utah's surface waters, especially along the densely populated Wasatch Front. To begin addressing this issue the DWQ proposed an adaptive management approach that sets a technology based limit of 1 mg/L of total phosphorus in wastewater effluent.[4] This moderate level of phosphorus reduction was established after extensive research on what the estimated costs to communities and individual rate payers would be to achieve this limit. A companion study was also completed that demonstrated the restoration benefits of nutrient removal and the willingness of Utah citizens to pay for the benefit of improved water quality.[5]

The take home message from all of these analyses is that Utahns place a high priority on maintaining water quality for future generations and are willing to pay upwards of $271 million a year to improve waters threatened by increasing levels of nutrients. In terms of economic benefit, the economic study estimated that Utah residents spend from $1.4 to $2.4 billion a year on trips to the state's waters for recreational activities, making a significant contribution to the state's economy.[6]

[4] http://deq.utah.gov/Pollutants/N/nutrients/rule.htm [5] http://www.deq.utah.gov/Pollutants/N/nutrients/studies/economic.htm
[6] http://www.deq.utah.gov/Pollutants/N/nutrients/docs/2013/05May/UtahDWQ_NutrientBenefits_ExecSummary_Final.pdf

WATER QUALITY AND HYDROLOGY

OBJECTIVES

The objective of Utah's water quality program is to protect and improve the quality of Utah's water resources for the benefit of all who live, work and recreate here. Water quality is essential to sustain our health, our economy, and quality of life. Given the limited availability of water in many areas of the state and the potential for degradation arising from its use, it is important that everyone appreciate their role in ensuring this vital resource is available for current and future generations.

Water quality standards published in Utah Administrative Code R317-2-7 set the maximum concentration of pollutants that still support a waterbody's designated uses.[7] Standards are the metric used by DWQ to assess whether streams and lakes are supporting their designated uses or are impaired. Waters are assessed every two years and those that do not meet standards are listed as impaired and identified in the Integrated Report of Water Quality.[8] Impaired waters are required by Section 303(d) of the federal Clean Water Act to have a Total Maximum Daily Load (TMDL) analysis completed for the pollutant(s) of concern.

Utah prioritized its list of impaired waters for TMDL development to focus on water quality concerns that are most important to us. The primary goal was to identify impaired waters that have the greatest potential to impact public health.[9] A common measurement used to determine the potential for water to cause sickness is Escherichia coli, as its presence in water can indicate fecal contamination. Eleven waterbodies within the Jordan River watershed were identified with E. coli impairments that have been prioritized for TMDL development by 2022. Other priorities are waterbodies impaired by metals such as cadmium and arsenic that are toxic to aquatic life and impairments for low dissolved oxygen which is characteristic of nutrient enrichment that can eventually result in toxic algae blooms in lakes and reservoirs.

In conjunction with its Watershed Protection Program, which guides the watershed planning and TMDL process, DWQ maintains an MOU implementing the nonpoint source pollution water quality program. In addition to DWQ, signatories include the Utah Department of Agriculture and Food, Utah Division of Forestry Fire and State Lands, Utah Division of Wildlife Resources, USDA, Forest Service, Intermountain Region, US Department of the Interior, Bureau of Land Management and the National Park Service within Utah. The purpose of the MOU is to coordinate state and federal agency activities for nonpoint source water quality protection, monitoring, and improvement activities on state and federal lands.

In addition to identifying individual agency roles, responsibilities, and authorities, the Utah Nonpoint Source MOU commits to the following mutual agreements:

- Cooperate in the protection, restoration, enhancement and management of water resources in the State of Utah to the extent of each agency's authority, expertise, and resources.
- Comply with the Federal Water Pollution Control Act (Clean Water Act, Pub. L. No. 92-500, 86 Stat. 816 (1972)) Section 208, (33 U.S.C. § 1288) and with the nonpoint source control Sections (319 and others) of the Clean Water Act, (33 U.S.C. § 1329), and applicable executive orders.
- Implement the Standards of Quality for Waters of the State, Utah Admin. Code R. 317-2 on Federal Lands.
- Implement the Utah Nonpoint Source Pollution Management Plan (2013) *http://www.deq.utah.gov/ProgramsServices/programs/water/nps/mgmtplan2013/index.htm* and addendums and conduct applicable activities and programs consistent therewith. To participate with DWQ in updating such plans or developing new addendums.
- Coordinate pollution control and abatement programs particularly as they relate to implementation of Total Maximum Daily Loads (TMDLs) on impaired waterbodies.
- Develop cooperative and/or complementary water quality monitoring systems for water quality assessments and determination of TMDLs, share technical expertise, and promote research on water quality management practices.

[8] https://deq.utah.gov/ProgramsServices/programs/water/monitoring-reporting/assessment/currentIR2016.htm
[9] https://deq.utah.gov/ProgramsServices/programs/water/watersheds/docs/2016/303d-list-for%20tmdl-development.pdf

- Coordinate water quality monitoring activities and cooperate in the collection, analysis and processing of water quality samples when the efforts are mutually beneficial to the Federal Land Management Agencies and the State.
- Develop and implement Best Management Practices (BMP's) for activities and uses of forest and rangelands with intent to meet State water quality standards.
- Annually review selected projects for BMP implementation and effectiveness. A review team will include representatives from the DWQ, UDAF, FFSL and the relevant Federal Land Management Agencies.
- Cooperate across administrative boundaries to maintain or improve water quality where possible. Cooperative efforts include sharing data and collaborating on project planning and implementation efforts.

The ultimate goal of Utah's water quality program is to protect and improve water quality to the point that all designated uses are supported. We have made significant strides in many areas of the state but many challenges still exist. One of the most significant of these challenges is to maintain current levels of water quality, particularly within the rapidly urbanizing Wasatch Front, in the face of increasing pollution loads associated with development and population growth. Nevertheless, these challenges can be overcome by employing Low Impact Development principles to mitigate stormwater impacts associated with development and enhanced treatment technologies to offset increased quantities of wastewater.

POLICIES AND GUIDELINES

Utah's water quality policy is defined by statute in the Utah Code Section 19-5-103 which establishes the makeup and responsibilities of the Utah Water Quality Board.[10] The Board's membership is designed to represent various interest groups of the water quality community and members' terms are staggered. Voting members are appointed by the governor with the consent of the senate. The Board is comprised of a representative of special service districts, two government representatives who do not represent the federal government, one representative from the mineral industry, one representative from the manufacturing industry, one representative who represents agricultural and livestock interests, one representative from the public who represents an environmental nongovernmental organization or represents community interests and not industry, and one representative who is trained and experienced in public health. The ninth member of the Water Quality Board is the executive director, or a department employee designated by the director, who is a non-voting member except in order to break a tie among voting members.

DWQ is the administrative arm of the board. Rules governing how it administers programs delegated by the Environmental Protection Agency and responsibilities assigned by the Water Quality Board are identified in Utah Administrative Code, Title R317.[11] These programs include the Utah Pollution Discharge Elimination System and Ground Water Protection program which establish the regulation of point source discharges into surface and ground waters, respectively, the State Revolving Fund program which provides loans for wastewater collection and treatment systems, and certification programs for wastewater professionals.

Guidelines are also provided by the Environmental Protection Agency (EPA) for delegated programs that are negotiated and implemented through an annual Performance Partnership Agreement with the Department of Environmental Quality. These negotiations provide Utah an opportunity to communicate the state's priorities and how they correspond with federal law, federal priorities and funding requirements. Regular communication and coordination between DWQ and EPA on expectations and performance of Utah's water quality program is essential for maintaining the state's primacy in implementing these programs without undue oversight or interference at the federal level.

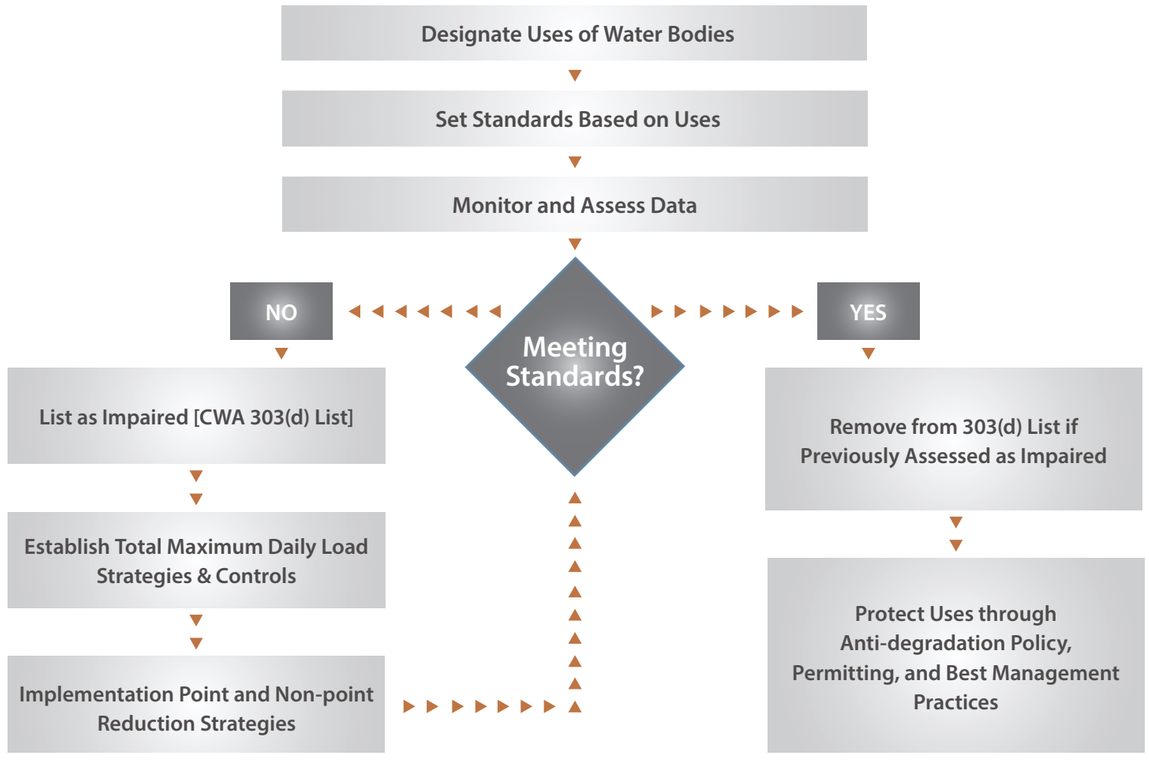
[10] https://le.utah.gov/xcode/Title19/Chapter5/19-5-S103.html?v=C19-5-S103_2015051220150512 [11] http://www.rules.utah.gov/publicat/code/r317/r317-002.htm#T8

WATER QUALITY AND HYDROLOGY

As Utah's population grows the demands on water quality also increase significantly. Utah's water quality program must seek to meet those demands while reducing the burden on taxpayers through continuous improvement of practices and procedures. To foster the public's trust and collaboration on protecting and improving water quality we must eliminate activities that don't advance our mission, and more effectively perform those activities that do by implementing innovations that advance quality, efficiency and effectiveness.

Utah has a long history of taking the initiative and working cooperatively to address difficult problems that benefit our communities and state as a whole. DWQ works diligently to ensure that all vested stakeholders have a seat at the table to cooperatively find pragmatic, collaborative, and fair solutions to modern environmental concerns. By assuring everyone affected by an issue has a voice in the process we will be more effective in achieving long lasting and meaningful results.

Clean Water Act Section 303



Flow diagram of Clean Water Act Section 303 actions

Wildlife Resources Code of Utah

§ 23-15-6. Pollution of waters unlawful

Safe Drinking Water Act

§ 19-4-103. Drinking Water Board--Members--Organization--Meetings--Per diem and expenses

§ 19-4-113. Water source protection ordinance required

Water Quality Act

§ 19-5-104. Powers and duties of board

§ 19-5-105.5. Agriculture water

- Gives the board power to make rules regulating agriculture water.

§ 19-4-110. Local jurisdiction over water supply systems

§ 19-4-112. Limit on authority of department and board to control irrigation facilities-- Precautions relating to nonpotable water systems

§ 19-4-113. Water source protection ordinance required

§ 19-5-105.5. Agriculture water

§ 19-5-107. Discharge of pollutants unlawful--Discharge permit required

§ 19–5–114. Spills or Discharges of Oil or Other Substance—Notice to Director

§ 19–5–116. Limitation on Effluent Limitation Standards for Bod, SS, Coliforms, and PH for Domestic or Municipal Sewage

§ 19-5-117. Purpose and construction of chapter

- (1) It is the purpose of this chapter to provide:
- (a) additional and cumulative remedies to prevent, abate, and control the pollution of the waters of the state; and
- (b) sufficient authority to allow the state to meet federal requirements for the state's assumption of primacy under the federal Water Pollution Control Act, as amended by the Water Quality Act of 1987, *33 U.S.C. Section 1251 et seq.*

§ 19-5-119. State permits not required where federal government has primary responsibility

Water and Irrigation

§ 73-1-1. Waters declared property of public

§ 73-2-1.1. Division of Water Rights--Creation--Power and authority

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. PLANNING DUTIES OF THE PLANNING COORDINATOR AND OFFICE

- (l) land management and resource-use decisions by federal land management and regulatory agencies concerning the vegetative resources within the state should reflect serious consideration of the proper optimization of the yield of water within the watersheds of the state;

Utah Public Land Management Act

§ 63L-8-104. Declaration of policy--Sales and exchanges

- (1) The Legislature declares that it is the policy of the state that:
  - (d) the public land be managed in a manner that will:
    - (i) recognize the state's need for domestic sources of minerals, food, timber, and fiber;
    - (ii) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;
    - (iii) where appropriate, preserve and protect certain public land in its natural condition;

State of Utah Resource Management Plan for Federal Lands

§ 63J-8-104. State land use planning and management program

- (f) manage the watershed in the subject lands to achieve and maintain water resources at the highest reasonably sustainable levels as follows:
  - (i) adhere to the policies, goals, and management practices set forth in Subsection 63J-4-401(6)(m);
  - (ii) deter unauthorized cross-country OHV use in the subject lands by establishing a reasonable system of roads and trails in the subject lands for the use of an OHV, as closing the subject lands to all OHV use will only spur increased and unauthorized use; and
  - (iii) keep open any road or trail in the subject lands that historically has been open to OHV use, as identified on respective county road maps;

Utah Forest Practices Act

§ 65A-8a-105. Division to promote implementation of Forest Water Quality Guidelines

- Water quality standards guidelines before, during, and after timber harvest operations.

Conservation Commission Act

§ 4-18-202. Salinity Offset Fund

- A fund exists as part of the Colorado River Salinity Offset Program to mitigate salinity problems throughout the state.

RELATED RESOURCES

Economic Considerations

Wildlife

Water Quality & Hydrology

Recreation and Tourism

Wetlands in Utah are overseen by multiple entities. The Division of Water Quality (UDWQ) and the Utah Geologic Survey (UGS) manage the Wetland Program for the state, conducting research and monitoring. Wildlife agencies manage the majority of wetlands – federal refuges are run by the U.S. Fish and Wildlife Service and state Waterfowl Management Areas are managed by the Utah Division of Wildlife Resources. The Utah Division of Forestry, Fire, and State Lands (FFSL) is also responsible a majority of the wetlands associated with the bed of the Great Salt Lake and riparian areas of larger rivers.

The **Utah Wetland Information Center** (UWIC) provides a broad spectrum of wetland-related resources from spatial data to outreach and educational materials. The goal of the UWIC is to enhance the wetland program in Utah and act as a catalyst to encourage collaboration across state and federal agencies, research institutions, private organizations, and the public. The UWIC is hosted by the Groundwater & Paleontology Program of the Utah Geological Survey with development funding from an EPA Wetland Program Development Grant.

Though wetlands constitute a minor component of the landscape, they provide diverse ecosystem services including flood attenuation, water-quality enhancement, sediment storage, and nutrient cycling, as well as providing critical habitat for wildlife and economic and aesthetic values for people.

FINDINGS

Wetlands occupy approximately one percent of the landscape in Utah. This relatively uncommon resource occurs in all ecosystems, creating a number of distinct wetland types including marshes, fens, playas, and lake-fringe wetlands. Though wetlands constitute a minor component of the landscape, they provide diverse ecosystem services including flood attenuation, water-quality enhancement, sediment storage, and nutrient cycling, as well as providing critical habitat for wildlife and economic and aesthetic values for people.

Utah's wetlands include mudflats and playas, depressional wetlands, potholes, riverine/riparian, wet meadows, wet lake meadows, subalpine/montane wetlands, and plunge pools.

Depending on how one defines wetlands, the state also has many lakes that could be classified as wetlands under some classification systems. Utah water quality rules state that "'waters of the State' includes 'wetlands' as defined in the federal Clean Water Act.".[1]

The Great Salt Lake ecosystem, a large inland basin that serves as a desert oasis for millions of migratory birds and other water-dependent wildlife contains extensive wetlands that span the transition between the lake and a mosaic of cold desert, rugged mountains, and urban areas. 75 - 85 percent of Utah's wetlands are located around Great Salt Lake. These wetlands provide essential ecosystem services that moderate surface water and ground water flows, and protect downstream aquatic systems by removing excess nutrients and other pollutants.

ECONOMIC CONSIDERATIONS

Utah's wetlands primary economic value comes from their support of migratory birds, especially waterfowl that are hunted. Utah's wetland water quality standards are based around ensuring the appropriate water quality to support migratory bird populations. Millions of migratory birds representing almost 260 species visit Great Salt Lake wetlands every year as they migrate between the arctic and South America. They feed and bulk up for their long migration in the wetlands, and many species actually nest in the wetlands during the spring.

Waterfowl hunting around the Great Salt Lake is estimated to generate $97 million in economic activity per year, support 1,600 jobs, and provides $37 million of income.[2]

Wetland management focuses on water management and invasive species control. Around Great Salt Lake, water supplies are scarce and managers impound water within wetlands to extend the amount of time they are flooded. Wetland managers expend significant resources trying to remove and prevent the spread of the invasive grass, Phragmites australis around the Great Salt Lake and Utah Lake.

Other economic considerations include habitat for other aquatic species, hunting and bird watching recreational spending, flood attenuation and groundwater recharge, water quality enhancement, and carbon sequestration.

[1] Utah Admin. Code R317-8-1.5-59
[2] https://www.fogsl.org/news-and-archives/executive-directors-message/item/459-fall-2015-finding-here-at-great-salt-lake-no-matter-where-you-go-there-you-are

OBJECTIVES

State agencies involved in Utah's wetland program are focused on developing an integrated wetland program that will improve wetland conservation, management, and protection efforts statewide. Both UGS and UDWQ are working to coordinate a comprehensive strategy for monitoring and managing wetlands consistent with state environmental and natural resource goals. Current efforts are focused toward developing a portfolio of scientifically validated tools to describe the abundance, health, and function of wetlands as well as updating Utah's water quality standards to effectively protect wetlands. These tools will be incorporated into wetland monitoring protocols, with the ultimate goal of assessing the ambient condition of a random selection of the state's wetlands every year. Wetland condition information will be made available to state and federal agencies to improve understanding of baseline wetland conditions, develop benchmarks for wetlands restoration and mitigation, prioritize wetland restoration and protection activities, and inform the development of wetland-specific water quality standards.

There are four main components to Utah's Wetlands program:

1. Mapping and Landscape Planning: Developing data, tools and methods that allow wetland data to be better incorporated into landscape-scale planning, including mapping to support planning and monitoring efforts.
2. Monitoring and Assessment: Developing and deploying methods to evaluate the condition, function, and beneficial use attainment of Utah's wetlands.
3. Water Quality Standards: Defining science-based beneficial uses for Utah's wetlands with appropriate criteria and assessment methods.
4. Outreach, Coordination and Data Dissemination: Increasing wetland awareness and use of wetland data through improved data accessibility, better outreach material, and continued collaboration with interested stakeholders.

POLICIES AND GUIDELINES

UDWQ and UGS have prepared "Utah's Wetland Program Plan- 2018 - 2023" to guide UGS and UDWQ's wetland program development activities over the next six years, and serve as a tool for communication and collaboration with other state and federal agencies, and non-governmental groups involved in wetland research, conservation, and protection. This plan will be used by UGS and UDWQ to secure financial resources, gain stakeholder acceptance, and organize partnerships to complete a wide range of statewide program development tasks.

Wetland Mapping and Spatial Data

Knowing the location and extent of wetland resources is the first step to implementing appropriate conservation and management strategies. Today, spatial datasets are fundamental research tools and though wetland spatial data are available now at the state scale in Utah, much of the data are dated and do not accurately represent existing wetland resources.

UGS is taking the lead in updating wetland spatial data following the National Wetland Inventory mapping guidelines. Spatial data, including a functional crosswalk between the more complex National Wetland Inventory classification and a more simplified classification schema, can be found on the UGS wetlands mapper *(https://geology.utah.gov/resources/data-databases/utah-wetlands/)*, and data can be downloaded from AGRC or the U.S. Fish and Wildlife Service's National Wetland Inventory webpage.

Wetland Monitoring and Assessment

Utah lost approximately 30 percent of its wetland acreage from the late 1700s to the 1980s. Many wetlands in the state continue to be at risk due to human-caused disturbances. Monitoring and assessment data are vital for understanding Utah's wetlands and supporting more focused conservation efforts by land managers.

Monitoring and assessment are core elements suggested by the Environmental Protection Agency (EPA) for the development and implementation of state and tribal wetland programs. The EPA suggests a three-tiered structure for monitoring and assessment activities.

- **Level 1** represents landscape-scale assessments. These assessments are typically implemented at the watershed scale using GIS and remotely sensed data to evaluate the condition and distribution of wetland resources.
    - The UGS is working on a variety of landscape assessment projects. They have an active wetland mapping program that is updating mapping using the U.S. Fish and Wildlife Service's National Wetland Inventory's mapping standards, and have developed a functional classification to translate the national wetland codes into more understandable wetland types, such as "open water" and "emergent marsh." UGS also created local and watershed wetland stress models to better understand the distribution of vulnerable wetlands in the state and conducted a pilot wetland prioritization project in the upper Bear River watershed.
- **Level 2** represents rapid site assessments that are used to provide a general understanding of the condition or function in a wetland using simple, observable metrics that reflect more complex processes.

  Rapid assessments are field surveys that are used to evaluate the condition or function of wetlands using simple observable metrics that reflect more complex processes. As the name implies, these assessments use a quick field survey to evaluate primarily qualitative features in wetlands. Rapid assessments can be used to understand current wetland condition, determine sites appropriate for conservation or restoration, and inform regulatory decision making.

  After field-testing, the UGS developed the Utah Rapid Assessment Procedure (URAP) to evaluate the condition of Utah's wetlands. URAP uses a series of metrics organized into five categories (landscape context, hydrologic condition, physical structure, vegetation structure, and vegetation composition) to evaluate wetland condition in the field. URAP has already been applied to wetlands in the Uinta Mountains and the Jordan River and Weber River watersheds. The UGS continues to work on calibrating and validating URAP and applying it to new areas of the state.
- **Level 3** assessments are intensive monitoring that provides quantitative data for developing a more detailed understanding of the relationship between the causes and responses of observed conditions.

  Intensive monitoring surveys are detailed, quantitative field evaluations that comprehensively determine wetland condition using measures such as invertebrate animal counts, plant community data, and water quality and quantity measurements. These assessments require professional expertise, substantial sampling time, and occasionally repeat visits to a site. Information from intensive monitoring can be used to develop performance standards for wetland mitigation and restoration, support development of wetland-specific water quality standards, determine causes of wetland degradation, and refine rapid assessment methods.

  UGS collects intensive monitoring data related to site hydrology, plant community composition, and water quality. Shallow wells equipped with pressure sensors have been installed in Snake Valley in Utah's west desert and at two wetland complexes in Juab County. Data on year-round water levels collected by these sensors can be used to better understand natural and artificial water fluctuations and ensure that wetlands maintain adequate water for sensitive species.

UGS also collects intensive plant community composition data and water quality samples at many of the same sites surveyed during rapid assessments. Plant communities respond to both past and ongoing disturbances that are often difficult to observe during single site visits, such as hydrological alterations, nutrient enrichment, and physical disturbance, making vegetation data useful as a monitoring tool. The UGS is working to compile up-to-date information on the distributions, tolerances to disturbance, and ecological associations of wetland plants in the state.

UDWQ has conducted Level 3 wetland assessments in two classes of wetlands around Great Salt Lake in order to understand how water quality in wetlands changes over time and with increases in human-caused stresses. The information from those surveys, along with assessments conducted by UGS, will be used to develop scientifically defensible water quality standards for Great Salt Lake wetlands.

- The State will work with federal land management agencies to implement the principles of the "Utah's Wetland Program Plan" on public lands managed by the federal government.
- The State supports using a combination of active water management where necessary *(e.g., Great Salt Lake)* and maintaining or restoring natural hydrology when possible to support wildlife habitat and healthy functioning of aquatic ecosystems.
- The State will cooperate and coordinate with federal land management agencies on all federal projects relating to the management of wetlands.
- The State supports the thoughtful management of the scope, intensity, duration and species of livestock grazing to minimize potential negative impacts and, in some cases, mimic natural ecological processes, to support sensitive aquatic wildlife species and aquatic habitats.
- The State supports the use of mechanical treatments, controlled burns, livestock grazing, and other tools to control invasive plants and other plant species that compromise wetland health, in accordance with best available practices.
- The State encourages avoidance of wetland impacts before mitigation and restoration is considered. If avoidance is not possible, mitigation of impacts to wetlands is required.
- The State will coordinate with groups responsible for protecting and managing wetlands, including public and private wildlife managers, regulatory agencies, and interested stakeholders.

RELATED RESOURCES

Economic Considerations

Recreation and Tourism

Water Quality & Hydrology

The National Wild and Scenic Rivers System was created by Congress in 1968 *(Public Law 90-542; 16 U.S.C. 1271 et seq.)* to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. *16 U.S.C.A §1271.* The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior.

Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska in order to protect river-related values.

Rivers are classified as wild, scenic, or recreational.

Wild River Areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic River Areas – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational River Areas – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases not all land within boundaries is, or will be, publicly owned, and the Act limits how much land the federal government is allowed to acquire from willing sellers. Visitors to these rivers are cautioned to be aware of and respect private property rights.

The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the federal government over waters as determined by established principles of law.[1]

FINDINGS

The Virgin River is the only designated Wild and Scenic River in the state, under the management of the National Park Service and the Bureau of Land Management. 145.4 miles are wild, 11.3 miles are scenic and 12.3 miles are recreational, for a total of 169.3 miles total. The Virgin River Wild and Scenic River was designated as part of the Omnibus Public Lands Management Act of 2009 (P.L. 111-11).

Federal land management agencies periodically analyze rivers and streams within their boundaries for inclusion into the national wild and scenic rivers system. Such considerations are open to comment from the state, local governments, and the public.

ECONOMIC CONSIDERATIONS

Considerations include the tradeoff between increases in recreation and tourism and the potential economic loss of future river development. *An analysis of Wild and Scenic River designation* done by Utah State University, made the following observations:

- Primary impacts of designation relate to a reduction in the grazing in riparian areas due to the associated reduction in water quality.
- Other impacts include those affecting public and private land uses.

[1] https://www.rivers.gov/wsr-act.php

Policies Pertaining to the Virgin River Wild and Scenic River

- The State will coordinate and cooperate with the Bureau of Land Management the National Park Service in the management of the designated wild, scenic, and recreational segments of the Virgin River and its tributaries.
- The State will advocate for the protection of the Virgin Rivers wild, scenic, and recreational qualities within the designated segments without infringing on private property rights or the sustained multiple use of public lands surrounding the Virgin River.
- The State will opposes the designations of new segments of the Virgin River as "*Wild and Scenic Rivers*" unless a proposed designation complies with Utah Code 63J-4-4-8(8).
- The State opposes any actions taken in the management of the Virgin River that would infringe on valid water rights or the jurisdiction of the Utah Division of Water Resources.

Policies Pertaining to Proposed Wild and Scenic Rivers

Official state policy regarding new Wild and Scenic Rivers is found in Utah Code 63J-4-401(8)(a) and 63j-4-401(8)(b).

The State will coordinate with federal land management agencies in order to ensure that the duly adopted policies contained in Utah Code 63j-4-401(8) are incorporated into the analysis and decision making of federal land management agencies.

Utah Code 63j-4-401(8)(a) and (b):

(8) The state planning coordinator shall recognize and promote the following findings in the preparation of any plans, policies, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:

(a) the state's support for the addition of a river segment to the National Wild and Scenic Rivers System, 16 U.S.C. Sec. 1271 et seq., will be withheld until:

(i) it is clearly demonstrated that water is present and flowing at all times;

(ii) it is clearly demonstrated that the required water-related value is considered outstandingly remarkable within a region of comparison consisting of one of the three physiographic provinces in the state, and that the rationale and justification for the conclusions are disclosed;

(iii) it is clearly demonstrated that the inclusion of each river segment is consistent with the plans and policies of the state and the county or counties where the river segment is located as those plans and policies are developed according to Subsection (3);

(iv) the effects of the addition upon the local and state economies, agricultural and industrial operations and interests, outdoor recreation, water rights, water quality, water resource planning, and access to and across river corridors in both upstream and downstream directions from the proposed river segment have been evaluated in detail by the relevant federal agency;

(v) it is clearly demonstrated that the provisions and terms of the process for review of potential additions have been applied in a consistent manner by all federal agencies;

(vi) the rationale and justification for the proposed addition, including a comparison with protections offered by other management tools, is clearly analyzed within the multiple-use mandate, and the results disclosed;

(vii) it is clearly demonstrated that the federal agency with management authority over the river segment, and which is proposing the segment for inclusion in the National Wild and Scenic River System will not use the actual or proposed designation as a basis to impose management standards outside of the federal land management plan;

(viii) it is clearly demonstrated that the terms and conditions of the federal land and resource management plan containing a recommendation for inclusion in the National Wild and Scenic River System:

(A) levaluates all eligible river segments in the resource planning area completely and fully for suitability for inclusion in the National Wild and Scenic River System;

(B) does not suspend or terminate any studies for inclusion in the National Wild and Scenic River System at the eligibility phase;

(C) fully disclaims any interest in water rights for the recommended segment as a result of the adoption of the plan; and

(D) fully disclaims the use of the recommendation for inclusion in the National Wild and Scenic River System as a reason or rationale for an evaluation of impacts by proposals for projects upstream, downstream, or within the recommended segment;

(ix) it is clearly demonstrated that the agency with management authority over the river segment commits not to use an actual or proposed designation as a basis to impose Visual Resource Management Class I or II management prescriptions that do not comply with the provisions of Subsection (8)(t); and

(x) it is clearly demonstrated that including the river segment and the terms and conditions for managing the river segment as part of the National Wild and Scenic River System will not prevent, reduce, impair, or otherwise interfere with:

(A) the state and its citizens' enjoyment of complete and exclusive water rights in and to the rivers of the state as determined by the laws of the state; or

(B) local, state, regional, or interstate water compacts to which the state or any county is a party;

(b) the conclusions of all studies related to potential additions to the National Wild and Scenic River System, 16 U.S.C. Sec. 1271 et seq., are submitted to the state for review and action by the Legislature and governor, and the results, in support of or in opposition to, are included in any planning documents or other proposals for addition and are forwarded to the United States Congress;

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (9) Notwithstanding any provision of Section 63J-8-105.5, the state is committed to establishing and administering an effective statewide conservation strategy for greater sage grouse.

§ 63J-4-401. Planning duties of the planning coordinator and office Utah Code Ann.

§ 63J-4-401 (West)

- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    1. (G) meet the needs of wildlife;

Wildlife Resource Code

§ 23-14-21. Transplants of big game, turkeys, wolves, or sensitive species

- Regulates the transplanting or reintroduction of sensitive or threatened species. Requires reintroduction to be consistent with resource management plans and also requires consultation with the public, RAC.

§ 23-15-5. Notice of intention to drain or divert waterway

- (c) 5 day notice required to divert water from water ways containing protected aquatic life.

§ 23-15-3. Diversion of water prohibited--Exception for flood control

- (a) Prohibits diversion or retention of water containing protected aquatic life.

§ 23-29-103. Legislative findings and declarations

- (a) Legislative Finding Regarding the Wolf
- (b) "It is the policy of the state to legally advocate and facilitate the delisting of wolves in Utah under the Endangered Species Act and to return wolf management authority to the state."

School Institutional Trust Lands Act

§ 53C-2-202. Endangered and threatened plant species

- The director may make determinations concerning the management, protection, and conservation of plant species officially designated as endangered or threatened under the federal Endangered Species Act of 1973, as amended,1 on trust lands.

RELATED RESOURCES

Economic Considerations

Recreation and Tourism

Land Access

Land use

Fire management

Forest management

In 1964, the passage of the Wilderness Act gave Congress the authority to declare wilderness areas as part of a National Wilderness Preservation System. The passage of the Wilderness Act gave the US Forest Service 10 years to review areas that might be eligible for designation as national wilderness areas and make recommendations to Congress. Similarly, the Bureau of Land Management ("BLM") had 15 years after the passage of the Federal Land Policy and Management Act of 1976 ("FLPMA") to make similar recommendations to Congress.

The Utah Wilderness Act of 1984 designated twelve Wilderness Areas within Utah's National Forests, and added these Wilderness Areas to the National Wilderness Preservation System.

Congress has generally not made designation decisions in most areas. Areas recommended for wilderness by the BLM are generally managed for nonimpairment of their wilderness characteristics and are known as *"Wilderness Study Areas" ("WSAs").* The BLM recommend approximately 86 WSAs to Congress in June, 1992, in accordance with FLPMA.

The Utah Wilderness Act of 1984 designated twelve Wilderness Areas within Utah's National Forests, and added these Wilderness Areas to the National Wilderness Preservation System. Public Law 98-428, §102(a). Congress declared that the U.S. Forest Service had completed the second roadless area review and evaluation program (better known as RARE II) with Utah. Id, at §201(a)(1). Due to the completion of RARE II, Congress found that areas not designated wilderness in the Utah Wilderness Act must be managed for multiple use in accordance with the National Forest Management Act of 1976 (Public Law 98-428, §201(b)(3). The Act required the U.S. Forest Service to review wilderness options under RARE II at the revisions of the forest management plans. Id, at §201(b)(2).

The Wilderness Act prescribes management to ensure that the land is *"unimpaired for the future use and enjoyment as wilderness"* (16 USC 1131). Only Congress may designate wilderness or change the status of wilderness areas. Wilderness areas are designated within existing federal public land.

Wilderness areas generally do not allow motorized equipment, motor vehicles, mechanical transport, temporary roads, permanent structures, or installations. Motorized equipment and equipment used for mechanical transport may be allowed in certain circumstances such as search and rescue. The Wilderness Act also prohibits permanent roads and commercial enterprises, although commercial services are allowed *"to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes"* of the wilderness area. Livestock grazing is allowed in wilderness areas. The Wilderness Act acknowledges the need to provide for human health and safety, protect private property, control insect infestations, and fight fires.

Over the years, the US Forest Service and BLM have repeatedly sought to manage additional areas as de facto wilderness areas using titles such as *"roadless areas," wildlands,"* and *"lands with wilderness characteristics,"* as well as others. These administrative actions to manage multiple use lands as de facto wilderness are outside the authority of the Wilderness Act and FLPMA.

FINDINGS

The State of Utah holds:

- 33 Wilderness Areas, covering approximately 800,000 acres.
- 86 BLM Wilderness Study Areas, covering approximately 3.2 million acres.

Large areas of Utah's national forests are managed as "roadless areas" under US Forest Service rules, while the US Forest Service continues to conduct "wilderness inventories" of multiple -use forest lands in search of additional lands with wilderness character.

Pursuant to BLM administrative guidance, the BLM periodically conducts inventories for "lands with wilderness characteristics" of BLM multiple-use land outside of Wilderness Areas and WSAs.

Economic Considerations

Wilderness Areas attract some recreational spending while prohibiting most forms of multiple-use. Economic impacts of specific wilderness areas depend on the size of the wilderness area and the forms of multiple-use that existed prior to the wilderness designation. Environmental and social benefits or costs of wilderness areas are typically not captured in economic data.

Management Objectives

The State of Utah recognizes that management of existing wilderness is defined by federal law as codified in the Wilderness Act. Management of wilderness areas should conform with the Wilderness Act without being more restrictive on human activities than the Wilderness Act requires. Management of WSAs is similarly codified in FLPMA, and management of WSA should conform with FLPMA without restricting human activities or mechanical activities more than FLPMA requires.

Management of Wilderness Areas and WSAs should provide for the public's enjoyment of existing Wilderness Areas and WSAs.

Forests and rangelands within Wilderness Areas and WSAs should be actively managed for forest and rangeland health as provided in the Wilderness Act and FLPMA.

POLICIES AND GUIDELINES

- The State of Utah supports the continued management of Wilderness Areas as wilderness, in accordance with the Wilderness Act and when management provides for public enjoyment and active management under the Act.
- The State of Utah recognizes BLM Wilderness Study Areas recommended by the BLM during or before June, 1992, in accordance with FLPMA.
- The State of Utah opposes the recommendation of new Wilderness Study Areas subsequent to June, 1992.
- The State of Utah will actively participate in all public land management planning activities.
- The State of Utah opposes any legislation introduced in Congress to designate additional Wilderness Areas except for legislation introduced by a member of Utah's congressional delegation.
- The State of Utah opposes any legislation introduced in Congress to designate additional Wilderness Areas unless such legislation is supported by the respective county commission or county council in the county impacted by the proposed legislation.
- The State of Utah will actively participate with federal partners in making wilderness management plans.
- The State of Utah opposes the management of non-wilderness federal lands as de facto wilderness, including *"wildlands," "lands with wilderness characteristics," "wilderness inventory areas,"* and other such administrative designations.
- The State of Utah opposes the review of additional U.S. Forest Service lands for wilderness, except for the reviews expressly provided for in the Utah Wilderness Act of 1984, §201(b).[1]

(a) secure for the people of Utah, present and future generations, as well as for visitors to Utah, the benefits of an enduring resource of wilderness on designated state-owned lands;

Utah Code 63L-7-101, the "Utah Wilderness Act"

(b) provide a window into the natural world, into which our pioneer forebears ventured and formed our collective story and character;

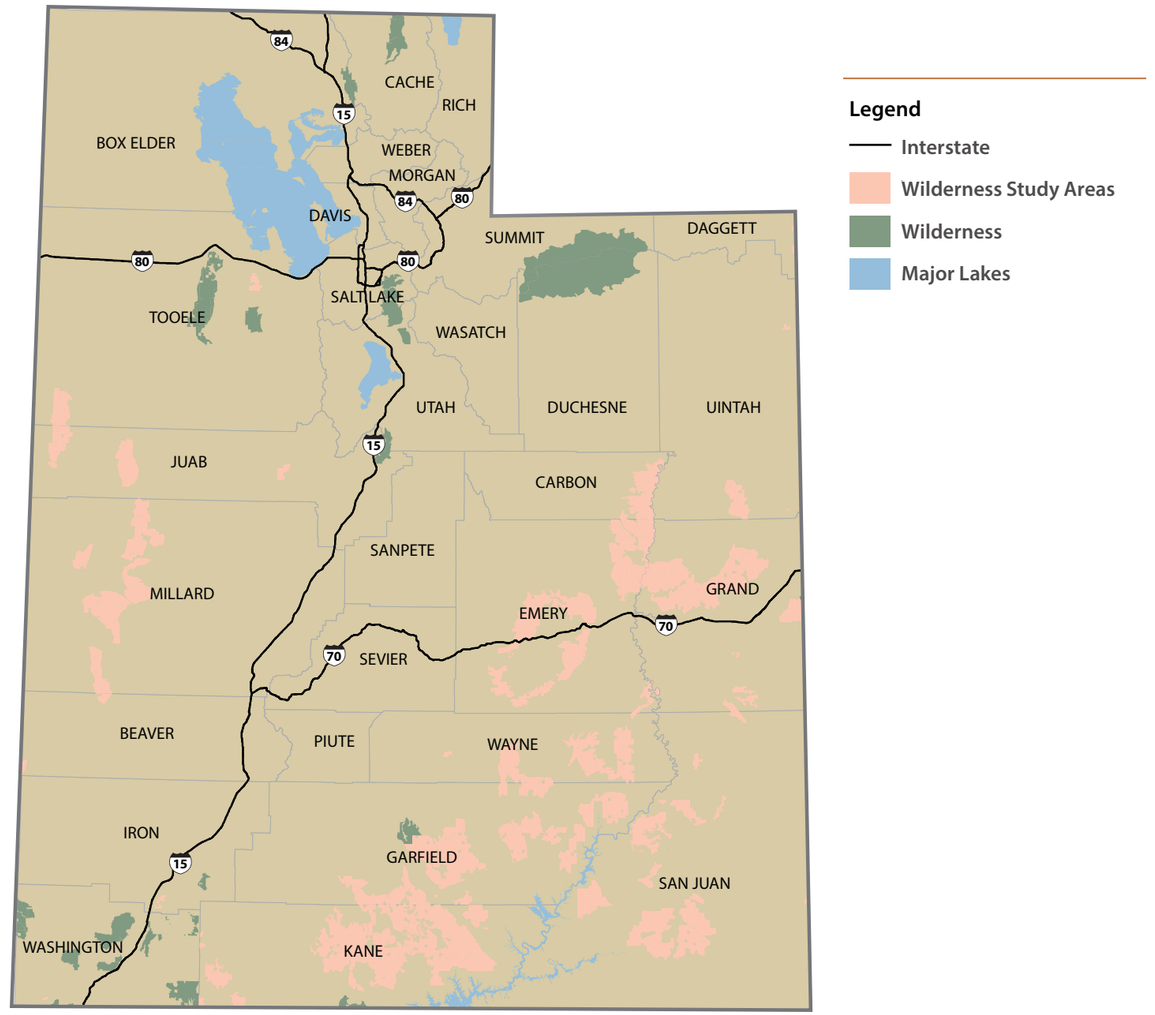
(c) recognize that the preservation of wilderness shall be part of a balanced pattern of multiple land uses;

(d) demonstrate the proper stewardship of certain primitive lands by providing the protection to allow natural forces to operate; and

(e) create a Utah wilderness preservation system.

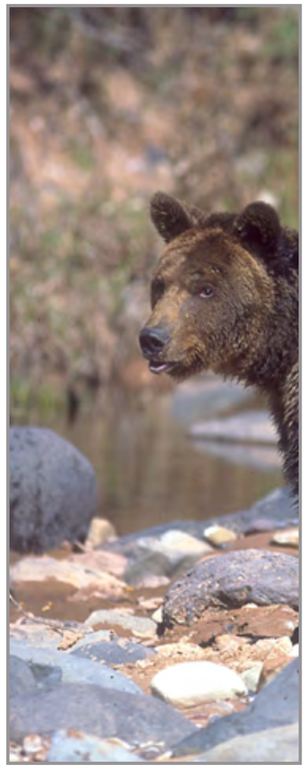
[1] Public Law 98-428, §201(b).

Wilderness Areas



Legend

- Interstate
- Wilderness Study Areas
- Wilderness
- Major Lakes



RELATED RESOURCES

Economic Considerations

Livestock and Grazing

Wetlands

Fisheries

Predator Control

Recreation and Tourism

In Utah, "wildlife" includes brine shrimp and crayfish; mollusks; and vertebrate animals *(fish, amphibians, reptiles, birds, and mammals)* living in nature, except for feral animals. Wildlife are protected,[1] except for: coyotes, field mice, gophers, ground squirrels, jack rabbits, muskrats, and raccoons. Rare species and those subject to federal listing under the Endangered Species Act are referenced more fully in the chapter entitled *"Threatened, Endangered, and Sensitive Species."* Although fish are legally considered *"wildlife,"* fisheries and angling-related benefits for local economies are addressed in the *"Fisheries"* chapter. Limited amounts of Geographic Information System (GIS) data on a number of common vertebrate wildlife species in Utah can be accessed *online*.

Wildlife management requires a balancing of divergent and, at times, conflicting interests.

Wildlife and their habitat contribute to a productive natural environment. They improve our quality of life, and provide a rich source of aesthetic enjoyment, inspiration, and outdoor recreation for many people. At the same time, we all need to recognize that that wildlife can have an impact on the economy, influencing how people experience the benefits of their private property. Most people support efforts to find a balance between the habitat requirements of wildlife populations and the economic activities of people. Wildlife are capable of yielding important social and economic values including: hunting, photography, and wildlife observation.

[1] See Utah Code 23-13-2 for definitions

FINDINGS

The State of Utah seeks to maintain sustainable, viable, and diverse wildlife populations that are valuable to all citizens of Utah. More than 600 vertebrate wildlife species currently occur in Utah. Many of those wildlife species are found on public lands throughout Utah.

The Utah Division of Wildlife Resources (UDWR) is the agency who manages wildlife species. Some of the larger wildlife species such as deer, elk, moose, antelope, bighorn sheep, and mountain goats provide public hunting and viewing opportunities on public and private land and are managed to provide hunting opportunity that seeks to manage species impacts to private and public lands. UDWR establishes management plans for individual big game species, some predator species, as well as upland game such as chukar and turkeys.[2]

ECONOMIC CONSIDERATIONS

Wildlife, and the associated recreation tied to wildlife in Utah, attracts many who enjoy fishing, hunting, and wildlife watching. According to a 2011 U.S. Fish and Wildlife Service survey, 91.1 million Americans 16 years and older, or nearly four out of ten people, participated in wildlife-related recreation in 2011 and spent $145 billion dollars.[3] In Utah, expenditures on wildlife-related recreation totaled $1.87 billion, with $1.17 billion spent on fishing and hunting and $701 million spent on wildlife watching.[4] Not only do these activities support thousands of jobs in industries and businesses connected to fishing, hunting, and wildlife watching, they also generate significant financial support to help manage wildlife and improve habitat.

Thriving populations of big game animals will, at times, cause some level of damage to farming and ranching operations, by competing with domestic livestock for available forage, or by damaging crops, fences, or irrigation equipment. A number of methods can be applied to mitigate the damage, including various forms of wildlife harvest and removal, issuance of landowner permits, development of a conservation lease which involves remuneration or other forms of compensation for depredation, and, finally, direct monetary compensation for agricultural damages. Although depredation mitigation review and appeal procedures apply, and are used as needed, the total amount of compensation that can be provided to landowners to prevent or compensate for damages may not exceed the funding amounts appropriated by the legislature for fencing material and compensation for damaged crops, fences, and irrigation equipment.[5]

Utah's Watershed Restoration Initiative[6] (WRI) provides a balancing influence that promotes wildlife values and supports agricultural needs. Significant investments have been made through WRI to improve rangeland health and watershed conditions. In fiscal year 2014, the Utah Legislature contributed $3.95 million to WRI. Ninety-one participating partners completed restoration of 112,987 acres of uplands and 55 miles of stream and riparian areas, leveraging the legislative funds by a factor of 7-to-1. Sportsman-generated funding plays an important role in the WRI. Counties in general appreciate the benefits which are enabled through WRI habitat restoration projects. The long-term results of the WRI will be measured in reduced wildfire acreage and suppression costs, reduced soil loss from erosion, reduced sedimentation and storage loss in reservoirs, improved water quality and yield, improved wildlife populations, reduced risk of additional federal listing

[2] https://wildlife.utah.gov/hunting/biggame/pdf/Statewide_prong_mgmt_2009.pdf https://wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan.pdf https://wildlife.utah.gov/hunting/biggame/pdf/moose_plan.pdf https://wildlife.utah.gov/hunting/biggame/pdf/elk_plan.pdf https://wildlife.utah.gov/hunting/biggame/pdf/bighorn-plan.pdf https://wildlife.utah.gov/hunting/biggame/pdf/mtn_goat_plan.pdf https://wildlife.utah.gov/pdf/cmgtplan.pdf https://wildlife.utah.gov/bear/pdf/2011_bear_plan.pdf https://wildlife.utah.gov/uplandgame/pdf/03_chukar_plan.pdf https://wildlife.utah.gov/hunting-in-utah/hunting-information/upland-game.html [3] U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation – Utah. Revised January 2014. https://www.census.gov/prod/2013pubs/fhw11-ut.pdf https://www.census.gov/prod/2013pubs/appd-er.pdf [4] Id.; see also, https://drive.google.com/file/d/0B9QagzA1MD3Sm84cjBETzVnelZneHNPeURQVEVncWhRanJj/view [5] See Utah Code 23-16-4. [6] WRI is a diverse partnership of state and federal agencies working together with private organizations, industry, local elected officials and stakeholders, coordinated by the Utah Department of Natural Resources.

of species under the Endangered Species Act, improved agricultural production, and resistance to invasive plant species. To participate effectively, counties need their staff to attend meetings of the WRI regional teams, expressing their views and advocating for the kinds of watershed restoration efforts they feel are most important.

Although predator management is discussed under a separate chapter entitled "Predator Management," the Wildlife Damage Compensation Act[7] should be mentioned because it provides a mechanism by which livestock owners may obtain compensation if livestock are damaged by a bear, mountain lion, wolf,[8] or eagle. In this case, "livestock" means cattle, sheep, goats, and turkeys.

OBJECTIVES

- Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat.
- Increase current populations or establish new populations of wildlife in all suitable habitat within the state as outlined in approved management plans.
- By 2019, increase mule deer populations within the state as conditions allow and bring all populations to 425,500.
- Conserve, improve, and restore 500,000 acres of mule deer habitat throughout the state with emphasis on crucial ranges.
- Provide a diversity of high-quality hunting and viewing opportunities for wildlife species throughout the state.
- Protect existing wildlife habitat and improve 500,000 acres of critical habitats and watersheds throughout the state by 2025.
- Increase fish and game populations to meet management plan objectives, and expand quality fishing and hunting opportunities.
- Conserve sensitive species to prevent them from becoming listed as threatened or endangered.
- Work with constituencies to achieve broad-based support for wildlife programs within the state by demonstrating the value of wildlife to all citizens of Utah.
- Increase public awareness of wildlife as a quality-of-life issue in order to expand our support base and achieve stable funding.
- Improve communications with wildlife organizations, public officials, private landowners and government agencies to obtain support for wildlife within the state.
- Expand programs to recruit and retain young hunters, anglers and wildlife watchers.
- Produce and maintain the desired vegetation for wildlife and domestic livestock forage on public and private lands.
- Avoid, minimize or compensate for damages to private land occurring when wildlife populations are above targeted management plan objectives.
- Work with landowners, federal government and private organizations to conserve valuable wildlife habitat and winter range along urban interface.
- Minimize negative impacts from wildlife on private lands.
- Work with local governments and federal agency to identify and conserve critical wildlife habits and migration corridors throughout Utah.
- Utilize the best available science and wildlife management techniques to manage wildlife populations throughout Utah.
- Work with Universities and constituency groups to study and better understand wildlife populations throughout the State.
- Develop mechanisms and policies to incentivize private landowners throughout Utah to conserve valuable wildlife habit throughout Utah.

[7] See Utah Code 23-24-1.
[8] Payments for wolf damage claims can only be made for damage that occurs in areas of the state where wolves are removed from the protection of the Endangered Species Act. Currently, that area includes only the portion of Utah located north of I-80 and east of I-84 *(see map)*.

POLICIES AND GUIDELINES

The process for determining the balance among competing uses and establishing the best wildlife management policies is described in state law. This process is founded on an open, public dialogue concerning wildlife issues. Five regional advisory councils (RACs) are active across the state, each consisting of a dozen or more individuals nominated by various interest groups and selected by the leadership of the Department of Natural Resources. Council members can include citizens, local elected officials, sportsmen, agriculturists, federal land managers, and members of the public at large. The duty of each RAC is to hear input and recommendations, to gather data and evaluate expert testimony, and then to make informed policy recommendations to the Wildlife Board.

The Wildlife Board is composed of individuals nominated by a committee selected by the governor, which reflects representation by diverse groups including non-consumptive wildlife interests, the agriculture industry, sportsmen groups, federal land management agencies, the Utah Association of Counties, and range management specialists. From this list of nominees the governor then appoints seven Wildlife Board members with the consent of the Utah Senate.

The Wildlife Board is responsible for considering RAC input and recommendations, to the extent that the Board must provide a written explanation if they reject recommendations or positions submitted by a RAC. The Wildlife Board uses public input, the recommendations of the RACs, and the assembled facts to make determinations and establish policies best designed to accomplish the purposes and fulfill the intent of the wildlife laws. The Wildlife Board generates wildlife management policy, and exercises its powers by promulgating administrative rules and issuing proclamations and orders under Utah Code.

Five regional advisory councils (RACs) are active across the state, each consisting of a dozen or more individuals nominated by various interest groups.

Policies

- Federal land management decisions should be coordinated and consistent with state wildlife management
- Agencies and should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically proven decline in numbers.
- The State encourages development of wildlife crossing structures to provide safe passage of roads or other movement barriers.
- The State supports the review development plans on private property to take wildlife movement corridors and wintering habitats into account in project design.

[9] See Utah Code 23-14-3.

STATE CODE

Governor's Office of Management and Budget

§ 63J-4-401. Planning duties of the planning coordinator and office

- (6) The state planning coordinator shall recognize and promote the following principles when preparing any policies, plans, programs, processes, or desired outcomes relating to federal lands and natural resources on federal lands pursuant to this section:
  - (a)(i) the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and
  - (ii) multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:
    - (D) are designed to produce and provide the desired vegetation for the watersheds, timber, food, fiber, livestock forage, and wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community expansion without permanent impairment of the productivity of the land;
    - (E) meet the recreational needs and the personal and business-related transportation needs of the citizens of the state by providing access throughout the state;
    - (F) meet the recreational needs of the citizens of the state;
    - (G) meet the needs of wildlife;
    - (H) provide for the preservation of cultural resources, both historical and archaeological;
    - (i) wildlife constitutes an important resource and provides recreational and economic opportunities for the state's citizens;

Utah Public Land Management Act

§ 63L-8-103. Principal or major use

Each parcel of public land in this state shall be managed, as much as possible, to promote the following principal or major uses of the land, consistent with the principles of multiple use and sustained yield:

- (2) fish and wildlife development and utilization, including hunting, fishing, and trapping;

§ 63L-8-104. Declaration of policy--Sales and exchanges

- a. The Legislature declares that it is the policy of the state that:
  - a. (d) the public land be managed in a manner that will:
    - i. (iv) provide food and habitat for fish, wildlife, and domestic animals; and
    - ii. (v) provide for hunting, fishing, trapping, outdoor recreation, human occupancy, and other human use, including the general enjoyment of nature and solitude.

Wildlife Resources Code of Utah

§ 23-16-2. Removal of big game animals doing damage

The director of the division of Wildlife Resources may authorize the removal of big game animals when they are doing actual damage. Animals so removed shall be sold or otherwise disposed of by the Division of Wildlife Resources, and any money derived from the sale of these animals shall be placed in the Wildlife Resources Account.

§ 23-16-3. Damage to cultivated crops, livestock forage, fences, or irrigation equipment by big game animals--Notice to division

§ 23-16-3.1. Crop owner authorized to kill animals

§ 23-16-7. Deer and elk management plans--Division to confer with others--Target herd size objectives--Completion date—Reports

Requires DWR to create a deer and elk management plan establishing target herd sizes and shall confer these plans with federal and state land managers, sportsmen, and ranchers.

§ 23-21-2.1. Management plans

DWR must create management plans for each wildlife management area.

§ 23-21-6. Acquisition of lands by United States for migratory bird refuges

Utah gives the U.S. authority to acquire land for migratory bird refuges as long as the county and the state agree to the acquisition.

§ 23-21a-2. Legislative findings and policy

The legislature of the state of Utah recognizes that the number of breeding sites of the American white pelican has been reduced from in excess of 50 prior to 1932 to only seven major sites in 1976 as a result of the removal of water barriers around breeding sites, loss of food supply, and human disturbance of nesting colonies. The legislature of the state of Utah further recognizes that Gunnison Island in the Great Salt Lake, one of the seven remaining pelican rookeries in North America, produces over 20 percent of the world's population of the American white pelican, and is the only remaining major pelican rookery that does not have refuge status. It is hereby declared to be the policy of the state of Utah that areas that will support certain threatened life forms shall be preserved for their benefit and for the benefit and enjoyment of present and future generations of people.

§ 23-22-1. Cooperative agreements and programs authorized Agriculture and Wildlife Damage Prevention Act

§ 4-23-102. Purpose declaration

The Legislature finds and declares that it is important to the economy of the state to maintain agricultural production at the highest possible level and at the same time, to promote, to protect, and preserve the wildlife resources of the state.

Utah Division of Indian Affairs Act

§ 9-9-213. Concurrent state and federal jurisdiction over hunting, trapping, or fishing offenses on reservations