



RESOURCE MANAGEMENT PLAN

*SANPETE COUNTY RESOURCE MANAGEMENT PLAN
AN ADDENDUM TO THE GENERAL PLAN
JULY 2017*

**ADOPTED INTO THE SANPETE COUNTY GENERAL PLAN ON
JULY 18, 2017 BY THE SANPETE COUNTY COMMISSION**

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INTRODUCTION

BACKGROUND

This resource management plan (RMP) is a component of the county's general plan. According to Utah state code a general plan is an advisory document that establishes a vision, influences growth, justifies ordinances, protects private property rights, and anticipates capital improvements. The Sanpete County Resource Management Plan (RMP) identifies local knowledge and develops management objectives and policies related to natural resources. The RMP is based on the needs and preferences of the county, the residents, and the property owners. It is the county's basic document for management of the federal public lands and the basis for communicating and coordinating with land management agencies on land planning and resource management issues.

The Utah State Legislature recently updated the state code regarding general plans (HB 323 in 2015, and HB 219 in 2016) and now requires every county to address natural resources on federal public lands within a county in a resource management plan. This legislation put forth 28 items or resources that must be addressed in the RMP, and the requirement to develop findings, objectives and policies for the management of these items and resources. Legislators allocated one-time funding for the initial county RMP process and Sanpete County began the process in 2016.

PROCESS

As previously described, in 2015 HB 323 was approved by the Utah Legislature mandating every county add to the general plan a resource management plan. The Six County Association of Governments contracted with resource experts to compile research and management suggestions for four of the mandated resources.

The county contracted with Rural Community Consultants to complete the research, engage the public, develop policy, and draft the resource management plan. A widely-accessible, public-facing website (SanpeteCountyPlan.org) was developed for the initiative and included background information, a survey, and drafts of the plan. The availability of the website and plan development process was advertised through the county's website and local newspaper articles and ads. The Planning Commission and County Commission held hearings and meetings that followed state noticing protocol. In the summer of 2017 the RMP was formally adopted by the Sanpete County Commission as part of the general plan.

CITIZEN INPUT

The values of Sanpete County residents and property owners are very important to the county commission, as are ecological and economic systems. Proper noticing procedures were followed throughout the process and a public open house was held in Fairview to publicize the initiative and garner input on resource management. Multiple meetings were held with the Planning Commission to review the findings, existing policies, and proposed policies. The consultant focused on creating access to the survey for all residents of Sanpete County by utilizing electronic and paper surveys. The county feels that the sentiments of residents were captured in the public outreach activities.

BEST AVAILABLE INFORMATION

The county recognizes that new data will always be forthcoming and future management and use decisions should be based on the latest, best available information. In using data to make evidence-based decisions it is in the best interest of Sanpete County residents, the economy, and the environment to analyze resource condition trends rather than singular points of data.

INTRODUCTION

GROWTH

In March of 2017 the Kem C. Gardner Policy Institute released county population estimates for each year from 2015 to 2065. Sanpete County, according to these projections, may grow to 56,540 people by the year 2065. Considering that many communities abut federal lands and all residents depend on natural resources to sustain life and their personal economy, environmental management decisions must carefully consider potential impacts to the growing human population in the county while also considering finite and sensitive natural resources. Residents of Sanpete County should involve themselves in all levels of resource management including, scoping, data gathering, delineation of goals, proposed management practices, and implementation. Cities, residents, and developers should educate themselves regarding the trade-offs of living at the wildland-urban interface. The county commissioners are elected to represent county citizens, as well as current and future interests; therefore, county officials should engaged themselves in decision making in regards to changes in management practices.

COORDINATION AND COOPERATION

This RMP outlines the county's objectives, policies, and desired management practices for the use and management of natural and cultural resources on federal public lands. It is the basic document for communicating county objectives and policies for public land resources to federal land management agencies in coordinating public land planning and resource management with the county plan.

Sanpete County expects that federal land management agencies to coordinate with Sanpete County's resource management plan, local officials and staff, and use the best available information in their planning and decision making. Coordination requires that federal plans be consistent with the county plan to the extent of federal law and agency regulations. Coordination also requires that federal agencies review and keep apprised of local government intentions and plans, and provide local government and citizens with opportunities for meaningful involvement in the development of federal plans.

Cooperation derives from the National Environmental Policy Act (NEPA) which provides for a federal agency to invite a local government to be a "cooperating agency" in the preparation of an Environmental Impact Statement (EIS) for a project or plan. County government has jurisdiction by law and/or special expertise on environmental issues that should be addressed in an environmental analysis and therefore qualifies as a cooperating agency.

Because of the legal requirement for coordination of federal plans with local plans, the county's status as a cooperating agency by legal jurisdiction and its expertise in the local custom and culture, it is Sanpete County's position that: federal agencies shall conduct a consistency analysis of their plans with the county plan and strive for consistency as allowed by law, and offer cooperating agency status to the county in all actions or efforts that are subject to compliance with NEPA as soon as possible in research and planning processes.

DECISION MAKING GUIDELINES

All decision-makers that affect local governments, county citizens, taxpayers, landowners, businessowners, ecological systems, natural resources, or landscapes should prioritize the following:

- Healthy, safety, and welfare of Sanpete County citizens
- Immediate and long term economic impacts
- Multiple use management for viability of multiple species and for the access and enjoyment of multiple users
- Sustained yield for producers

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LAND USES

- LAND USE***
- LAND ACCESS***
- FOREST MANAGEMENT***
- FIRE MANAGEMENT***
- WILDERNESS***

LAND USE

The purpose of this section is to outline the legal frameworks and county's positions associated with resource management planning and public lands issues.

This section of the is intended to provide a broad outline of the parameters for influence and should not be considered an exhaustive dissertation of all possibilities.

DEFINITION

The designation, modification and management of land for agricultural, environmental, industrial, recreational, residential, or any other purposes.

RELATED RESOURCES

Wilderness, Recreation and Tourism, Energy, Land Access, Wild and Scenic Rivers, Law Enforcement, Water Quality and Hydrology, Threatened, Endangered, and Sensitive Species, Cultural, Historical, Geological and Paleontological

FINDINGS

Overview

The majority of Sanpete County is public lands. These lands and the associated resources are managed by federal agencies including the U.S. Forest Service (USFS), and Bureau of Land Management (BLM). Traditionally, the residents of the county have used public lands and resources for economic growth and stability. These local associations with, and dependence on, public lands continues today. Specifically, local use of public lands and resources include, but are not limited to minerals, recreation, oil and gas, timber, water, agriculture, fisheries, and wildlife.

Due to the dependence of Sanpete County on public lands and resources, decisions made by public land management agencies directly impact local interests and economy. Over the last several decades, Sanpete County has attempted to improve relationships with federal land managers and in agency planning and decision-making processes. These efforts have had mixed results.

The BLM Resource Management Plans (RMPs) and the USFS Land and Resource Management Plans (LRMPs, also called forest plans) are the basis for nearly all natural resource management policy and decision-making activities that affect lands. Because the Federal Land Policy and Management Act (FLPMA) mandates that these RMPs are to be consistent with state and local plans "to the maximum extent...consistent with federal law...", it is essential that counties develop their own resource management plans to reflect local perspectives and positions regarding these interests (Utah CRMP Toolkit n.d.).

Control and Influence

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

Sanpete County

Utah Code § 17-27a-401 requires counties to create a general plan that includes findings, objectives, and policy statements for the resources within. It also allows Sanpete County to "define the county's local customs, local culture, and the components necessary for the county's economic stability."

BLM-administered Lands

The Richfield Field Office manages BLM-administered lands in Sanpete County. Land use decisions for all BLM-administered lands are made according to mandates defined by the FLPMA of 1976. FLPMA requires the BLM to manage lands under multiple use and sustained yield philosophy. A component of FLPMA is the requirement for an open and public land use planning process in the development of resource management plans (RMP). Each BLM Field Office must develop a RMP to guide future land use activities on public lands. The RMP defines goals, objectives, and rules for commercial and extractives industries, transportation, recreation, and conservation. To complete an RMP, the BLM follows planning procedures outlined at 43 Code of Federal Regulations 1600.

United States Forest Service

The US Forest Service follows procedures at 36 CFR 219 for developing forest plans. Forest plans provide strategic direction for management of all resources on a National Forest for ten to fifteen years. Forest plans require consideration of alternatives and public input under the National Environmental Policy Act (NEPA) process. Forest plans describe the desired conditions and provide guidance for projects. They do not make site-specific decisions or require any specific actions, but all projects conducted on a National Forest must be consistent with the strategic direction in its forest plan.

"Some of the Manti-La Sal National Forest is located in Sanpete County. The 1,413,111 acre forest is located in Southeastern Utah. It is managed for multiple uses, such as range, timber, minerals, water, wildlife, and recreation. The Manti Division of the national forest is part of the remnant Wasatch Plateau, exhibiting high elevation lakes, diverse vegetation, near vertical escarpments, and areas of scenic and geological interest" (Sanpete Conservation District 2013).

State Institutional Trust Lands Administration (SITLA)

Trust lands are parcels of land throughout the state that were granted by Congress to Utah at the time of statehood. Although trust lands support select public institutions, they are not public lands. Trust lands were allocated specifically to generate revenue to support designated state institutions, including public schools, hospitals, teaching colleges, and universities.

State Sovereign Lands

The State of Utah recognizes and declares that the beds of navigable waters within the state are owned by the state and are among the basic resources of the state, and that there exists, and has existed since statehood, a public trust over and upon the beds of these waters. It is also recognized that the public health, interest, safety and welfare require that all uses on, beneath or above the beds of navigable lakes and streams of the state be regulated, so that the protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation and water quality will be given due consideration and balanced against the navigational or economic necessity or justification for, or benefit to be derived from, any proposed use.

The Equal Footing Doctrine serves as the basis for Utah's claim to fee title ownership of sovereign lands (more widely known as submerged lands). The Equal Footing Doctrine is a principle of Constitutional law that requires that states admitted to the Union after 1789 be admitted as equals to the Original Thirteen Colonies in terms of power, rights, and sovereignty including sovereign rights over submerged lands. The Utah Enabling Act, enacted by the U.S. Congress on July 16, 1894, officially declared Utah as a state "to be admitted to the Union on an equal footing with the original States."

The Utah State Legislature has designated the Division of Forestry, Fire & State Lands as the executive authority for the management of sovereign lands, and the state's mineral estates on lands other than school and institutional trust lands. Sovereign lands are defined by the Utah State Legislature as "those lands lying below the ordinary high water mark of navigable bodies of water at the date of statehood and owned by the state by virtue of its sovereignty" (Utah Lake Commission 2009).

Custom and Culture

"The presence of national forest lands on watersheds above the Sanpete Valley is a reflection of the existence of land-use problems of a serious nature, most of which began during the 1870s. These problems were mainly ecological, but because people were involved, they ultimately became political and economic. Their complexity was suspected from the beginning, but they had to await years of scientific and political maturity for their solution. Despite scientific evidence of the success of

the forest service in handling most of the basic problems, there has always been some opposition to such management because it involved restrictive regulations" (Antrei and Roberts 1999).

"In Sanpete County the most hotly-debated political issues in the past twenty years deal with land use, such as environmental regulations and zoning/development. Interestingly, the first battle tends to be partisan, while the other is not" (Antrei and Roberts 1999).

"During the past twenty years, environmentalists and ranchers have argued bitterly over whether additional BLM lands in central and southern Utah ought to be declared "wilderness area." These two groups are philosophically at odds, with perceptions miles apart. One wants to protect land from disturbance, the other needs to disturb it. One sees environmental limitation as a given, while the other sees limitation as a sacrifice. Clearly the only solution is a compromise, but what's unclear is how "compromise" will be defined" (Antrei and Roberts 1999).

"When it comes to the grazing lands, Leonard Blackham speaks for many Sanpete ranchers. 'Environmentalists aren't pragmatic, they're idealistic because they don't farm the land. We farmers have to deal with the reality. They think they have a greater respect and love for resources, but we're trying to protect living things, too. When you have to scrape to make a living on the land, you don't want to see resources go to waste'" (Antrei and Roberts 1999).

Major land uses on public and state lands in Sanpete County include livestock grazing, harvesting of forest products, oil and gas exploration and production and associated development, mineral production, and recreation, which includes a broad spectrum from primitive use to developed-area recreation, both motorized and non-motorized. It is largely this myriad of land uses that form the custom and culture of the citizens of the county. The traditions of its citizens are based on continuing these land uses. Maintaining Sanpete County's custom and heritage will also include preserving historic agricultural activities, maintaining a rural atmosphere, creating innovative economic development opportunities, and continuing strong support of the recreational opportunities available in adjacent public lands.

OBJECTIVES

- a. Land is used for housing, infrastructure, and economic or commercial endeavors.
- b. Private property rights are not infringed upon.
- c. Specially designated land is only designated when it meets all standards and the intent of the law, and is only managed to those standards and intent after having been designated by Congress.

LAND USE

- d. Federal and state agencies include the county on land use and resource management decisions with the understanding that all decisions affect the greater ecological and economic system of the area.

POLICIES

1. The county supports utilizing public lands for multiple use, for the good of all the people. Vigorously pursue multiple use land policies on federal lands, where traditional and appropriate.
2. The county will ensure that no resource development activities take place on public lands within the county unless those activities are 100% bonded for estimated reclamation costs.
3. The county opposes additional lands administered under single management schemes.
4. The county will preserve and manage the natural environment and open spaces in such a way as to enhance the peaceful living of the residents and the image of Sanpete County, and which promote a diversity in land use planning that is responsive to the economy and reflects/supports the residential needs of Sanpete County's citizens.
5. The county supports agency-land exchanges that are advantageous to Sanpete County residents.
6. Work in cooperation with public land-management agencies to permit and promote special uses, events and activities, that support the local economy. Special uses, events and activities should mitigate adverse impacts.
7. Promote cooperation with federal and state agencies and neighboring counties to implement special control measures on public lands where illegal dumping and littering are occurring.
8. Consult with public land-management agencies to ensure dark skies are not compromised on public lands.
9. Encourage public lands agencies to implement measures to ensure natural quiet is not degraded.
10. Identify areas of high scenic, wildlife, or watershed value and protect these areas from further development. Endeavor to protect scenic and wildlife resources without unduly interfering with landowners' ability to utilize their lands.

Preserve scenic vistas and wildlife habitat by restricting hillside development.

11. Sanpete County shall remain active in federal land planning.
12. Support development that is sensitive to the individual needs of both residential and commercial uses and maintains appropriate buffers between diverse land uses.
13. Cooperate with land management agencies to preserve, in as near as natural condition as possible, areas or features of unique natural phenomenon.
14. Encourage the management of public lands in a manner that protects the quality of scenic values. Recognize and manage visual resources for overall multiple use, filming, and recreational opportunities for visitors to public lands.
15. Sanpete County supports new transmission lines and utilities within the county for the beneficial use of its residences and for future growth. All new transmission lines and utility corridors transecting Sanpete County shall align with existing utilities and affect the least number of residences, agricultural operations, scenic areas, and future Resource Development Areas referred to in this management plan, including: The Huntington-Eccles Scenic Byway, the Narrows Dam area, and water collection and containment areas located within the county. The preferred location for transmission lines entering the county from the north is the west side of the Indianola Valley.

DESIRED MANAGEMENT PRACTICES

1. Public land-management agencies should restore damaged areas.
2. Agencies advancing any proposal for an ACEC in the County should actively coordinate and seek approval of the County prior to any formal consideration for ACEC status.
3. Foster diversity and flexibility in land use planning that is responsive to the economic market, and sensitive to the residential and commercial needs of all citizens.
4. Manage scenic resources, integral vistas, and landscapes for the benefit of local residents and visitors.
5. Work with federal agencies to streamline the permitting process locally for extractive industries.

DEFINITION

Access to public and private lands.

RELATED RESOURCES

Recreation and Tourism, Land Use, Livestock and Grazing, Energy, Law Enforcement, Fire Management

FINDINGS

Overview

Land access refers to the ability to physically and legally access a given parcel of land, typically in the context of roads, right-of-ways (ROWs) and property inholdings. The term “access” also conveys administrative restrictions on the methods or timing of land access, as in non-motorized or seasonal. Finally, access can also refer to gaining access to lands via trails or other non-motorized methods.

Sanpete County land-ownership is largely public land with state lands checkerboarded within. Private lands tend to be in chunks. Concerns arise where recreational users once had access but now do not, or where land owned by an entity is surrounded by or accessible only by crossing land owned by a different entity (Utah School and Institutional Trust Lands Administration 2017).

Access to land for recreational traveling is especially important. Motorized and non-motorized vehicle access, as well as pedestrian and equestrian access, is an issue on and between, private, state, and public lands. Moreover, access and motorized access is important for resource extraction, search and rescue, emergency management, ranching, etc.

R.S. 2477 Roads

In 1866, the Revised Statute 2477 (commonly known as R.S. 2477) was enacted by the United States Congress. This revised statute encouraged the development of a highway network to facilitate western settlement. This formerly self-executed statute did not require a record of the roadway. Under the Federal Land Policy and Management Act (FLPMA), R.S. 2477 was repealed in 1976 subject to “valid existing rights”.

“The uncertainty surrounding R.S. 2477 rights-of-way continues today and has implications for a wide range of entities, including Interior and other federal agencies as well as state and local governments who assert title to R.S. 2477 rights-of-way, and those who favor or oppose continued use of these rights-of-way” (Department of Interior 2010).

Management Practices

Gaining or maintaining access to lands is typically accomplished through right-of-way (ROW) acquisition. The process for

obtaining a right-of-way is different for each land owner or management agency as each has unique administrative procedures and objectives.

Bureau of Land Management (BLM): The BLM manages ROWs through resource management plans authorized by the Federal Lands Policy and Management Act (FLPMA), established in 1976. Prior to FLPMA, ROWs on BLM-administered lands were enabled by Revised Statute 2477 (Section 8 of the Mining Act of 1866) and are generally considered to be available for accessing property within and across BLM-administered property, though this is not always the case. The Richfield Field Office manages the BLM-administered land within Sanpete County.

State of Utah School and Institutional Trust Lands Administration (SITLA):

SITLA is mandated by state law to maximize financial gain from their properties through sale, lease, or exchange (Utah Administrative Code Title R850). Originally allocated to western states upon statehood by the federal government to support state institutions like schools and hospitals, Utah was given sections 2, 16, 32, and 36 in each township. The resulting checkerboard pattern of ownership means many SITLA parcels are surrounded by public lands with limited or no access. Land transfers are a solution to this situation. SITLA has a successful track record of working with the BLM, USFS, and private landholders to enable mutually beneficial consolidations of property.

Private Property

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

Broadband Internet

As high speed Internet connections become an increasingly critical asset for economic development, education, healthcare, public safety, and general quality of life, the tech industry and governments must work collaboratively to prepare for the growing need. Zoning laws, right-of-ways, preferred corridors and infrastructure requirements, and coordination with federal land agencies all play a role in this issue (K. Cole, Governor’s Office of Economic Development, unpublished report).

LAND ACCESS

The county's role is to acquire and maintain ROWs or easements across property. The county may also acquire and enforce access by participating in planning processes of federal and state agencies and via litigation.

The landowner or manager generally controls land access. Some outside entities may influence access of lands that they do not control.

Economic Considerations

Sanpete County's economy is closely tied to accessing public lands for resource utilization and recreation. Physical access via roadways, especially for motorized vehicles, is required for the development and utilization of energy, mineral, recreation areas, or other resources. Of special concern are state inholdings managed by SITLA, and private lands surrounded by BLM-administered properties.

Custom and Culture

Access to lands is undoubtedly essential to their utilization. A History of Sanpete County (1999) explains the major importance of roads since the county's settlement. "Road-building expenditures seem to have been spent in a four-tiered priority. Of greatest importance were major routes from the county to the north and Salt Lake City. Second were roads connecting the settlements within the county. Next were roads leading out of the county to adjoining counties, especially to the east and south. Finally, roads were opened to the natural resources in the mountains, water courses, mines, quarries, agricultural areas, and recreation areas."

It is the custom and culture of Sanpete County to support and protect private property rights, including access to public and private lands. Historically and today, Sanpete County feels strongly that state and public landscapes and amenities should be accessible by multiple modes of transportation.

OBJECTIVES

- a. Access to public lands remains open for multiple uses.

POLICIES

1. Work with federal agencies to increase the use of existing trails.
2. Identify all county roads and public rights-of-way on public lands to protect the county's resources and promote public health and safety (i.e., search and rescue, fire protection, resource conservation, law enforcement, emergency medical services).
3. Work with U.S.D.A. Forest Service to upgrade certain Forest

Service roads in preparation for turning those roads, when necessary, into Class B County Roads.

4. Develop and promote a pedestrian and bicycle system within the county, providing access to outlying trails on public lands. Form a team with county or federal agencies in the creation of such trails.
5. The county supports the concept of motorized vehicles (excluding snowmobiles) being used only on designated roadways or routes in order to control erosion and other resource impacts.
6. Allow consideration of new roads and trails by working with the appropriate land management agency.
7. Assist county landowners to obtain rights-of-way/easements across federal lands when in the best interest of the county.
8. Enforce proper construction of roads and trails.
9. Continue to maintain all roads within the county system.
10. Maintain structures, bridges, cattleguards, etc., to be structurally sound and safe for use.
11. The county supports public lands management by federal agencies which provide opportunities for a range of motorized recreation experiences on public lands while protecting resources and minimizing conflicts among various users.
12. Pave the Ephraim Canyon Road to increase visibility, protect the health of the visitor, and decrease damage to forage and agricultural products caused by dust.

DESIRED MANAGEMENT PRACTICES

1. Any fire, military, emergency, or law enforcement vehicle being used for emergency or administrative purposes is exempt from OHV restrictions.
2. Roadless areas (designated roadless areas, inventoried roadless areas, or otherwise) should be eliminated in the county.
3. Dry Creek Canyon Forest Road 0217, near Milburn was closed with a mud slide around 1983. This route is still considered a stock trail. The route should be reopened to facilitate stock moving, as well as provide access to the forest via OHV's.
4. Forest roads near Fish Creek area numbers 0234, 0223, and 3220 need to remain open.
5. Forest Road 2336 should be connect to 2338 to provide access to Olsen Canyon.
6. The county supports widening 50" trails on the Forest to 60" or greater.

DEFINITION

The actions for the regeneration, use, and conservation of forests.

RELATED RESOURCES

Fire Management, Noxious Weeds, Wilderness, Wildlife, Water Quality and Hydrology, Livestock and Grazing, Recreation and Tourism, Agriculture

FINDINGS

Overview

“An overarching theme for any discussion of vegetation, particularly forest vegetation, in the Interior Western United States is disturbance. Forests in this region are fundamentally shaped by disturbances, both natural and those associated with human use. The long history of use, and in some cases abuse, of these forest resources have in many cases resulted in unwanted consequences that are a major challenge to resources managers (Long 2003)” (Six County Association of Local Governments 2016).

“Sanpete County has a great diversity of natural vegetation which is reflective of a broad range of environmental conditions. Different types of vegetation are associated with differences in elevation. Increasing elevation is associated with increasing precipitation and decreasing temperatures (both summer and winter). These strong environmental gradients result in zones of vegetation types ranging from hot/dry low elevation desert to cold/wet high elevation alpine communities” (Six County Association of Local Governments 2016).

The total area of Sanpete County is about 1.02 million acres. About 52.7% of this area is forested (i.e., vegetation dominated or potentially dominated by trees), with pinyon-juniper woodlands representing the largest proportion. Montane forests and woodlands (i.e. excluding P-J) occupy about 0.31 million acres in the county. Of this area, 53.3% of forest land is further classified as higher productivity timberland with the potential to produce at least 20 cubic feet per acre per year. None of the forest land within the county is in form of reserve (e.g., parks) (Six County Association of Local Governments 2016).

“Ownership and management of forests...in the county are dominated by the federal government (63.8% of total). Private ownership accounts for about 30.1% of the total montane forest and woodlands” (Six County Association of Local Governments 2016).

“A characteristic of many stands in Sanpete County is that they are dense, and high relative densities are associated with high

competitive stress and density-related mortality (Long et al. 2004). In the Dry frequent-fire forest type (ponderosa pine, Douglas-fir, and white fir) high relative densities potentially makes these stands susceptible to insect attack (e.g., Kolb et al. 1998; Fettig et al. 2007). It is not possible to predict with certainty when or even if a given stand will be attacked; however, once beetles enter a stand, denser stands can be expected to have greater beetle attack (Chojnack et al. 2000)” (Six County Association of Local Governments 2016).

Currently many, if not most, stands in the Spruce-fir forest type in the county have neither resistance nor resilience to attack by the spruce beetle (*Dendroctonus rufipennis*). More than 70.6% of stands in this forest type have a moderate to high risk rating for spruce beetle on the Engelmann spruce scale. Many of these stands also have limited resilience. In the event of what is probably the inevitable spruce beetle outbreak, the result would be the death of virtually all of the mature Engelmann spruce, and conversion of the stand to subalpine fir or even non-forest (Six County Association of Local Governments 2016).

“An appropriate management strategy would be to drastically reduce relative density. This would, at least to some extent, increase resistance (Fettig et al. 2007). The reduction in stand density would also create understory condition suitable for the regeneration (natural or by planting) of Engelmann spruce seedlings (as well as other tree species). Time is of the essence for this strategy to succeed – timely treatment to enhance age- and species-diversity will result in stands and watersheds that are much more resilient to a spruce beetle outbreak” (Six County Association of Local Governments 2016).

“Thinning can be used to fundamentally alter stand structure and species composition. Thinning can eliminate fuel ladders and favor the retention of large fire-resistant ponderosa pine and Douglas-fir. With this altered canopy fuels profile fire entering the stand even in extreme fire weather would be a low-severity surface fire. Many of the large trees retained in the post-thinning stand would survive such a fire” (Six County Association of Local Governments 2016).

“There is considerable consensus among scientists and forest resource managers in support of a combination of tools (thinning, mechanical treatments, and prescribed fire) to achieve forests which are resistant and resilient to a broad range of environmental challenges” (Six County Association of Local Governments 2016).

Utah Forests

Utah forests are as diverse as the landscape itself. Over 15.1 million acres of forests are administered by federal, state, and local agencies. Another 3 million acres are privately owned (Utah

FOREST MANAGEMENT

Division of Forestry, Fire & State Lands 2014).

Several factors have contributed to the decline in forest health including a decline in historic logging, grazing patterns, fire exclusion, and invasive or noxious weeds. Drought conditions can negatively affect forest health causing detrimental changes in vegetative conditions, especially if combined with these other management practices (Utah Division of Forestry, Fire & State Lands 2014).

Proper forest management techniques, such as selective harvest and thinning projects, create healthier forests that are more resistant to insect damage and less likely to contain fuel loads that can result in catastrophic wildfire.

Federal Management

“The presence of national forest lands on watersheds above the Sanpete Valley is a reflection of the existence of land-use problems of a serious nature, most of which began during the 1870s. These problems were mainly ecological, but because people were involved, they ultimately became political and economic” (Antrei and Roberts 1999).

Around the turn of the 20th century the Sanpete Valley was plagued by floods sweeping through most towns from the mountains and canyons in the east. The poor management of the forests and mountain vegetation was in part to blame. A Manti Forest Office was established in Ephraim and the creation of the Manti Forest Reserve brought full-time forest supervisors and managers who regulated use” (Antrei and Roberts 1999).

“Due to shrinking budgets and related consolidations, the Manti National Forest was joined with the La Sal National Forest of Grand and San Juan Counties in 1949-50. This was described as more of a “shotgun wedding” than a consensual union” (Antrei and Roberts 1999).

“As of 1999, the Manti-La Sal Forest contained 1,338,066 gross acres, of which 366,021 acres lay in Sanpete County. Of the 958,258 gross acres within Uinta National Forest, only 21,230 lay in Sanpete County, while 1,907 acres of the Fishlake National Forest are found in the county. Altogether, there are 389,158 acres of national forest lands in Sanpete, which is located in Region 4, Intermountain, of the National Forest system” (Antrei and Roberts 1999).

The National Forest administers lands within its jurisdiction including the Manti-La Sal National Forest. Forestry, Fire, and State Lands manages state lands and forests in Utah, while Utah State University contributes forestry research and the developing best practices for private landowners.

Economic Considerations

Visitors from around the world, together with Utah locals, enjoy

Utah’s renowned forests that span from Canyonlands to the alpine zone. While Utah is only 29% forested, these forests have high scenic, recreation, wildlife, and other forest use values that make forest health very important (Utah Division of Forestry, Fire & State Lands 2014).

The market for forest products is very small in Utah, but it does exist. Forest products may be sold by board feet, by volume, or by piecemeal, depending upon the product and the buyer. A professional forester can assist the seller in choosing the correct unit of measure and in determining value of the product.

The non-extractive products and benefits that come from Utah’s forests, such as recreation, water quality, wildlife habitat, and aesthetics are valuable and sometimes unquantifiable. These contribute to the quality of life in Utah and should be considered valuable.

Custom and Culture

Native Americans and white settlers alike used the forest’s natural resources. “Upon bringing water to the valley’s virgin earth and raising life-sustaining crops, and using the nearby ranges for foraging their animals, the early settlers took to the hills and mountains to discover and develop the county’s other natural resources. In the foothills they found usable coal, lime, clay, building stone, gravel, and other products of the earth. In the mountains they harvested timber, herbs, fish, and game. From 1849 until after 1890, when outside goods were imported via the railroad, the county’s residents relied almost entirely on what the land would give them” (Antrei and Roberts 1999).

It is the custom and culture of Sanpete County to use and manage landscapes and resources, including forests, for multiple uses. Logging has been a part of the custom and culture of the county.

Livestock and grazing in forests has always been part of the tradition of Sanpete County. Sustaining the overall agriculture industry in the region requires the use and good stewardship of forests in Sanpete County.

OBJECTIVES

- a. Healthy forests are managed for multiple uses, most importantly water quality and watershed protection.
- b. Visitors have safe access year-round to forests using multiple transportation methods.
- c. Forests and woodlands are managed for healthy conditions that contribute to healthy habitat for animal and plant species, proper watershed functioning conditions, and riparian restoration and enhancement.

POLICIES

1. The county supports prescribed burns as a fuels reduction management tool for resource enhancement when used in conjunction with forest thinning and post treatment salvage or in areas that physically cannot be mechanically thinned when such burns comply with air quality regulations.
2. The county supports the management of beetle-killed timber to protect local water resources, reduce fire hazards and protect soil and vegetation.
3. The county supports management of bark beetle impacts on forest and rangelands.
4. The county supports local manufacturing of forest products from public lands.

DESIRED MANAGEMENT PRACTICES

1. Sanpete County encourages federal and state agencies to adopt and maintain scientifically sound forest management policies based on high quality, recently acquired data and to pursue multiple use of public forest resources to provide sustainable and continuous yield of timber, forage, firewood, wildlife, fisheries, recreation and water.
2. Support the removal conifers as determined appropriate, and manage land to promote the establishment of aspen cover and attendant grass, brush and forbs. Stand Density index (SDI) of spruce fir/conifer communities should not exceed 359.
3. Encourage the removal of drought and beetle killed timber and the appropriate re-seeding as soon as practicable after the death of conifer populations to maintain the local timber harvest and production economy and to maintain healthy forests, while protecting our watersheds from catastrophic fires.
4. Encourage timber harvesting to prevent fuel load and biomass buildup.
5. Agencies should adopt policies that promote and facilitate early detection and control of insect infestations through the use of biological and chemical agents, including salvage of dead and dying forest stands.
6. Agencies should encourage and provide for the prompt salvage and replanting of forested areas and forest losses due

to fire, insect infestation, or other events.

7. Support the management of non-commercial aspen stands in mixed age groups to provide a source of forage.
8. Support the management of timberlands suitable for commercial harvest for timber or wood fiber productions.
9. Support the management of timberlands not suitable for commercial harvest to maintain forest cover species, but emphasis should be on production of other forest resources and uses.
10. Support the use of clearcuts as appropriate on any forest cover type with potential for impact, or impacted by insects or disease.
11. When supplemental planting, support the use of trees of the best genetic quality available which are adapted to the planting site.
12. Support the use of commercial tree sales, timber products and thinning for stocking control where the opportunity exists.
13. Support meeting as much of the demand for wood fiber and forest products as possible, consistent with multiple-use objectives.
14. Support planting new trees to provide desired cover when natural reproduction is insufficient.
15. Support the use of mechanical, chemical, prescribed fire, or wildland fire use to alter or perpetuate timber stands and increase herbaceous yield or cover as appropriate in areas where harvest methods are impractical or demand does not exist.
16. Support agencies in providing for harvest of forest products when the activity would improve water production and/or does not adversely affect water quality.
17. Encourage, where feasible, the harvest of forest products in areas of proposed or existing vegetation treatments to lessen the need for additional treatment or land disturbance, and in areas that need restoration for ecological benefits.
18. Support salvage harvest of wood in beetle-kill areas, when compatible with other resource objectives.
19. When a wildfire burns trees, a salvage sale need to take place within 90 days of fire.

FIRE MANAGEMENT

DEFINITION

The actions to control, extinguish, use, prevent, or influence fire for the protection or enhancement of resources as it pertains to wildlands.

RELATED RESOURCES

Recreation and Tourism, Land Use, Land Access, Energy, Law Enforcement, Air Quality, Floodplains and River Terraces, Water Quality and Hydrology, Wildlife, Noxious Weeds, Forest Management

FINDINGS

Overview

Wildfire is the most prevalent natural disturbance in the State of Utah, and it affects biotic communities statewide. It is an integral component of our forest, range, and desert lands and affects thousands of acres on an annual basis (National Interagency Fire Center 2016).

While primarily responsible for structure and accident response, city and town fire departments also provide wildland training and are often the first responders to fires at the wildland-urban interface within incorporated municipalities. These resources are often assigned to structure protection operations.

In less-developed areas at lower elevations, a key management concern is the spread of cheatgrass that predominantly invades semidesert shrub communities. Cheatgrass has been blamed for much of the reduction of fire return intervals and the occurrence of larger fires (Utah State University 2009).

“In efforts to decrease vulnerability to hazards, the Sanpete Fire District coordinates with various local agencies. These agencies include Sanpete County Emergency Management, Mt Pleasant Police Department, Moroni Police Department, Sanpete County Sheriff’s Office, Mt Pleasant Fire Department, Manti Fire Department, Ephraim Fire Department, Gunnison Fire Department, other local police and fire departments, local Public Works, and local Emergency Medical Services” (Six County Association of Local Governments 2015).

“The most extensive wildfire damage in Sanpete County has been caused by flooding as an after effect of a burn scar. Economic damage due to flooding after a fire occurred in 1983, 1984, 1998, and 2012. Recent wildfire history in Sanpete has proven that wildfires are a destructive hazard risk. The Wood Hollow wildfire of 2012 impacted 39,000 acres and was the cause of one death. Over 100 structures were destroyed from this fire. Two years later Ephraim had one houses and two damaged from wildfire. Overall the majority of wildfires that have happened are located

in the WUI area along Highway 89, and along Highway 28 just southeast of Yuba Reservoir” (Six County Association of Local Governments 2015).

Response to fire incidents, especially wildland fires, relies on proper oversight, guidance, and partnership among a variety of trained professional organizations. Establishing a fire management system is a critical step to the protection of both urban and rural communities. Fire management refers to the principles and actions to control, extinguish, use, or influence fire for the protection or enhancement of resources as it pertains to wildlands. It involves a multiple-objective approach strategy including ecosystem restoration, community preparedness, and wildfire response (U.S. Forest Service 2016).

Response to a wildland fire can involve a basic monitoring status placed on a remote wilderness fire, or involve multiple agencies overseen by an incident-management team encompassing hundreds of firefighters to manage. Numerous personnel are trained to respond to wildfires throughout the Sanpete area and the services they provide are dependent upon the role of their organization as assigned during an incident. At a basic level, firefighting resources can be grouped into two broad categories: ground resources and air resources. Often times, both types of resources are dispatched to a fire.

In Utah, the state legislature tasked the Utah Division of Forestry, Fire, and State Lands to devise a comprehensive statewide wildland fire prevention, preparedness, and suppression policy, which is now known as SB-56, 2015. Under this plan, a master cooperative wildland fire management and Stafford Act response agreement is signed each year between numerous federal land management agencies and the State of Utah for cooperation during wildland fire incidents that occur throughout the state (Utah Division of Forestry, Fire, & State Lands 2013).

Economic Considerations

Fire suppression is expensive to taxpayers. In the past 30 years money spent by federal agencies nationwide on firefighting has increased from \$2.5 million in 1985 to well over \$2 billion in 2015. With climate change and expected increase, in temperatures and drought periods, fire suppression costs are projected to rise. In Utah, fire suppression costs averaged \$33.4 million per year during the 10-year period from 2003–2012. One area of major concern is the wildland-urban interface (WUI). As development in this interface continues, firefighting costs will increase (Utah Division of Forestry, Fire, & State Lands 2013).

Wildfires come with serious costs; the cost of fire suppression is only a fraction of the true, total costs associated with a wildfire event. Some of the costs associated with wildfire suppression include the direct costs (resources lost and structures burned),

rehabilitation costs (post-fire floods and land restoration), indirect costs (lost sales and county taxes), and additional costs (loss of life and damage to air quality). A synthesis of case studies reveal a range of total wildfire costs anywhere from 2 to 30 times greater than the reported suppression costs (Western Forestry Leadership Coalition 2009).

“According to the 2014 State Hazard Assessment Update, Sanpete County has a total of 303.4 square miles in extreme risk area and 555 square miles in high hazard area. Total there are 8584 square miles in this extreme and high risk area. There is estimated to be 301 structures in this area. Replacement costs of residential units and annual sales of commercial units would be \$24,429,359 (inflation adjusted). This translates to a per capita loss of \$875.77” (Six County Association of Local Governments 2015).

Custom and Culture

“Shortly after the turn of the century, the various communities began organizing fire departments and purchasing equipment, but really effective fire-fighting efforts were slow to develop. Although Manti organized a ten-man fire department in 1900 and arranged for the purchase of hoses, buckets, and ladders, their effectiveness was minimal as late as the 1920s. Mount Pleasant organized a fire department in 1914, but Gunnison did not seriously propose one until 1925. As late as 1928, the water supply and equipment available at Gunnison were inadequate to stop a big fire” (Antrei and Roberts 1999).

As is cited in A History of Sanpete County (1999), fire fighting and management is, and always has been, important to citizens in Sanpete County. Proper fire prevention, management, and mitigation is critical to protecting the health, safety, and welfare of the county and its residents. As evidenced in historic documents, people in Sanpete County have been training and preparing for structure and wildland fires for more than a century.

OBJECTIVES

- a. Fires are managed to protect human life, private property, water quality, sensitive habitat or species, and the local economy.
- b. All fire management planning within the county, including planning by federal partners, involves active participation from Sanpete County.
- c. Fuels and fires are managed so that the county has no catastrophic wildfires.

POLICIES

1. The county will work together with partners and other affected

groups and individuals to reduce risks to communities and to restore ecosystems.

2. The county will assist in fighting fires through cooperating efforts between state and/or federal firefighting and forestry agencies.
3. The county will support projects that alleviate the possibilities of catastrophic wild fire.
4. Sanpete County will support pre-planned prescribed fire resulting from planned or unplanned ignitions to accomplish resource management objectives, such as reducing fuel load build-up, range or wildlife habitat improvement, etc.
5. Sanpete County will support watershed management and protection including using prescribed fire to avoid catastrophic fire, encourage aspen regeneration, remove dead standing trees, manage bark beetle impacts, and increase vegetation and diversity in plant communities.
6. The county supports comprehensive fire management that helps reduce catastrophic wildfires.
7. The county values fire management as a protection for water quality, the aesthetic beauty of the county, the local economy, and the citizens of the county.
8. Protection of human life should be the primary fire management priority. Establishing a priority among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources is based on human health and safety, the values to be protected, and the costs of protection. When firefighters and other personnel have been committed to an incident, these human resources become the highest values to be protected.

DESIRED MANAGEMENT PRACTICES

1. Implementation of fuels management actions should be prioritized using the following criteria:
 - a. Wildland-urban-interface areas.
 - b. Areas with fuel loading that could potentially result in the loss of ecosystem components following wildland fire.
 - c. Resource management goals and objectives.
2. Improved management of predator numbers to restore Agencies should coordinate planning, scheduling, implementation, and dissemination of public information concerning prescribed burns with Sanpete County.
3. Wildland fire should be utilized to protect, maintain and enhance resources and, when possible, will be allowed to function in its natural ecological role.

FIRE MANAGEMENT

4. Hazardous fuels reduction treatments should be used to restore ecosystems; protect human, natural and cultural resources; and reduce the threat of wildfire to communities.
5. Fuel reduction techniques such as conifer reduction, grazing, prescribed fire, chemical, biological, and mechanical treatments may be acceptable, given site-specific variables.
6. Agencies should avoid scheduling prescribed burns on or around major holiday weekends and whenever the region anticipates significant tourist inflows.
7. When a wildfire burns trees, a salvage sale need to take place within 90 days of fire.
8. Wildland fire use may be authorized, except when the following resources and values may be negatively impacted:
 - a. Wildland-Urban Interface (WUI) areas.
 - b. Areas that are known to be highly susceptible to post-fire cheatgrass or invasive weed invasion.
 - c. Important terrestrial and aquatic habitats.
 - d. Non-fire-adapted vegetation communities.
 - e. Sensitive cultural resources.
 - f. Areas of soil with high or very high erosion hazard.
 - g. Class I air attainment areas and PM-10 non-attainment areas.
 - h. Administrative sites.
 - i. Developed recreation sites.
 - j. Communication sites.
 - k. Oil, gas and mining facilities.
 - l. Above-ground utility corridors.
 - m. High-use travel corridors, such as interstates, railroads, and/or highways.



DEFINITION

Wilderness areas are special places where the earth and interconnected communities of life have been left relatively undisturbed. According to the Wilderness Act of 1964, public lands must have specific characteristics to be considered by Congress for wilderness preservation:

- *They must be in a generally natural condition. The Wilderness Act defines “natural condition” as, “generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable.”*
- *They must have outstanding opportunities for solitude or a primitive and unconfined type of recreation.*
- *They must be at least 5,000 acres or large enough to preserve and use as wilderness.*
- *They may also contain ecological, geological, or other features of scientific, scenic, or historical value.*

RELATED RESOURCES

Recreation and Tourism, Land Use, Livestock and Grazing, Fire Management, Noxious Weeds, Water Quality and Hydrology, Forest Management

FINDINGS

Overview

Many people use “wilderness” to describe any remote, rugged, and undeveloped land. The term “wilderness” is a legal definition created under the Wilderness Act of 1964 that is applied to specific parcels of public lands with certain characteristics, as designated by an Act of Congress. Wilderness designation enables preservation and protection of “Federal lands retaining primeval character and influence,” and as such severely limits consumptive, motorized, and mechanized uses. To qualify for wilderness designation, lands must be at least 5,000 acres of contiguous roadless area, or of sufficient size as to make practicable its preservation and use in an unimpaired condition, primarily natural in character with human impacts substantially unnoticeable, provide opportunities for solitude, and after the first three criteria are met, may contain other supplemental values such as ecological, educational, geological, historical, scenic, or scientific values.

Other public lands not officially designated as wilderness may be managed under similarly restrictive objectives. These include lands recommended for wilderness designation by the Bureau of Land Management (BLM) as Wilderness Study Areas (WSA). Other non-wilderness management prescriptions which have restrictive management objectives include USFS Roadless Areas

and BLM lands with wilderness characteristics (LWC), natural areas, Areas of Critical Environmental Concern (ACEC), and Special Recreation Management Areas (SRMA). Each of these management prescriptions has their own set of definitions and management guidelines, and are all significantly less restrictive than designated wilderness.

In Sanpete County no BLM or Forest Service lands have been designated by Congress as wilderness. In Sanpete all public lands are either BLM lands, national forest, or Division of Wildlife reserves. The closest WSAs and LWCs are Mt. Nebo in Juab County and the San Rafael Swell in Emery County. However, the wilderness debate can affect Sanpete ranchers in two ways. First, many Sanpete ranchers have grazing permits for their sheep and cattle in neighboring counties on BLM lands being contested, and thus are affected by the debate. Second, there is a chance more land may be designated as wilderness, outside as well as inside Sanpete County.

Economic Considerations

The economic effect of wilderness designation is the subject of ongoing debate. For example, when several proposals were made in the early 1990s to increase acres of wilderness in Utah, a 1992 Government Accountability Office (GAO) study investigated a claim that designating 3.2 million acres of land as wilderness in Utah would cost the state \$9.2 billion annually in future earnings. The debate over the economic impact of designating wilderness areas continues in Utah. An unpublished report from Utah State University in 2010 investigated contradictory claims about the economic impact of designating wilderness areas in Utah (Yonk et al. 2010).

Economic considerations of wilderness designation should include:

- Mineral and energy development potential
- Logging and forest products
- Livestock Grazing - grazing is allowed in wilderness areas but must meet wilderness guidelines established by congress.
- Private and State land inholdings
- Land transfers
- Motorized recreational uses

Wilderness designation on public lands has positive effects on:

- non-motorized and non-mechanized recreation
- wildlife habitat
- drinking water source protection
- watershed/water quality protection

Federal wilderness designation is a legislative action by Congress that sometimes follows a recommendation made by

WILDERNESS

a comprehensive National Environmental Policy Act (NEPA) land management planning process. Wilderness areas are designated by Congress and managed by federal land managers. While counties may have wilderness areas within their borders, they are not responsible for administration. The best way for counties to influence future wilderness designation is to enter into a memorandum of understanding with the agency that has the proposal (either USFS or BLM). Counties cannot influence current wilderness study areas except by contacting their congressional representative (P. Jarnecke, Bureau of Land Management, personal communication).

Custom and Culture

Part of Sanpete County's culture is outdoor oriented, with residents and visitors recreating in a variety of ways. This includes the use of motorized all-terrain vehicles where appropriate. Managing lands and providing adequate access for multiple uses has historically been, and continues to be, a tradition based on accommodating persons with disabilities and facilitating a diverse range of local values.

OBJECTIVES

- a. Existing wilderness is ecologically healthy and supports appropriate recreation.
- b. Land that is not designated as wilderness by Congress is not managed like wilderness.
- c. Roads, infrastructure corridors, and OHV trails, and land access is prioritized.

POLICIES

1. The county affirms the ability of the county property owners to use and enjoy private lands located adjacent to Wilderness, Wilderness Study Areas, buffer zones, and all other special designation public lands.
2. The county supports the continuation or reinstatement of prior existing lease rights in Wilderness Areas and Wilderness Study Areas (WSAs) as required by FLPMA.
3. The county opposes any attempt to curtail the installment or maintenance of rangeland improvements in Wilderness or Wilderness Study Areas (i.e., fences and water developments) to maintain and encourage continued use of the prior existing

rights in the area.

4. Special land use designations should only be used when they are consistent with surrounding management and contribute to the sound policy of multiple use, economic viability and community stability.
5. No change in access to water developments, fences, or other infrastructure located within designated Wilderness, Wilderness Study Areas, ACECs, roadless and other special status areas should be allowed.
6. Accurately represent potential wilderness areas by mapping known infrastructure or unnatural improvements such as roads, fences, rangeland improvements, habitat restoration, or water tanks.
7. Remove duplicative land use classifications (i.e., determine if an area should be ACEC or LWC).
8. Encourage historical access and uses on lands already designated as WSA, ACEC or LWC.
9. Support the inclusion by the BLM and USFS of District and/or county mapping efforts to document roads and range improvements in the county.
10. The county supports management of existing wilderness according to federal law.
11. The county opposes creation of new wilderness areas (Wilderness Study Areas, ACECs, roadless, National Monuments, or other special status areas) in the county.
12. The county favors management that maximizes the public's enjoyment of existing wilderness including maximum access.

DESIRED MANAGEMENT PRACTICES

1. No actual or de facto buffer zones should be established around special designation areas.
2. Land use classifications should not establish de facto wilderness management areas outside of the already-identified WAs.
3. Remove or release all WSAs from consideration that contain non-wilderness characteristics, such as roads or active oil/gas wells by December 2018.



AGRICULTURE

*AGRICULTURE
LIVESTOCK + GRAZING
NOXIOUS WEEDS*

AGRICULTURE

DEFINITION

Agriculture is the cultivation of plants or animals for fiber, food, fuel, or other products.

RELATED RESOURCES

Ditches and Canals, Irrigation, Water Quality, Water Rights, Livestock and Grazing, Land Use, Land Access, Noxious Weeds

FINDINGS

Overview

“Agriculture is a big part of Sanpete County. Livestock, Dairy, and poultry are the mainstays of Sanpete agriculture. Livestock is grazed on both private and public range land. The irrigated acreage is primarily devoted to raising feed for livestock. Vital to the economic well being of the Sanpete area is the production of turkeys for the national market. For many years Sanpete has ranked among the top 4 counties in the US based on total volume of turkey production. A typical year’s output of Moroni Feed Company, an integrated farmer’s cooperative which has been largely responsible for the rise of the turkey industry, is in excess of 80 million pounds of dressed turkey. Parts of Sanpete County have specialty agriculturists. There is a small population that sells native seeds to industries. Sanpete County also exports a lot of hay to the west coast as well as to some foreign countries” (National Resource Conservation Service 2005).

In the county, agriculture provides jobs, local tax base, a variety of environmental benefits, scenic beauty, food and fiber for human consumption.

In 2016, the primary crops in Sanpete County were western wheatgrass and crested wheat, for grazing purposes, followed by alfalfa, oats, yellow corn, and barley (USDA 2016).

A 2012 agriculture census determined that there were 284,311 acres in farms or ranches in Sanpete County. These farms and ranches averaged 316 acres, which made up a total of 901 farms. The county had 74,853 acres in cropland, and 163,073 acres in permanent pasture and rangeland (Economic Profile System 2017).

Typical Agronomy Cycle

“Typical ground preparation for planting alfalfa is begun by spraying Roundup in the fall or early spring to kill the quack grass prior to disking. The ground is then harrowed and planted. The procedure is the same for planting small grains except Roundup is not typically prior to planting grains. About 98% of all grain is planted in the spring of the year. The most prevalent crop rotation that producers practice is to leave alfalfa in for seven years, plant oats for two years, then replant alfalfa. Producers typically get

two to three cuttings of alfalfa each year. About 25% of all inputs (e.g., seed, fertilizer, pesticides, etc.) are purchased locally while the remaining 75% is bought in a neighboring county. Sources of irrigation water include the Sevier River and its tributaries” (Utah State University 2005).

State Trends

Although agriculture plays a significant role in the economic, environmental, and cultural well-being of the county, many farms are in jeopardy. According to the Utah Agriculture Sustainability Task Force (2012), “The number and size of farms and ranches has dramatically changed in Utah. From 1900 to 1990, the number of Utah farms decreased. Beginning in 1990 the number of farms began to increase again. The 2011 Utah Agricultural Statistics report recorded 16,600 farms” (UDAF 2012). The number of farms in Sanpete County increased from 981 in 2007 to 1,231 in 2012 according to the USDA Census of Agriculture. Most of the farms in the county are between 1-179 acres in size.

“Although the number of farms have increased through the 1990s, since 1997 the size of those farms has decreased. Twenty years ago, the average size of a Utah farm was approximately 200 hundred acres larger than it is today” (UDAF 2012).

“The average age of farmers continues to increase nationally and in Utah. Current farmers are aging while still working to maintain their lands. The average age of a Utah farmer is 57. Farming is losing its successors as many children are choosing other occupations. It is more difficult now to transfer the farm to the next generation” (UDAF 2012).

Soils

Three major soils exist in the county, called Entisols, Aridisols, and Mollisols. The most useful to farming, and least available soil is the younger Entisols on the valley bottoms and on river terraces, floodplains, and alluvial fans, along the Sanpitch and Sevier rivers. Entisols are typically present in the areas where pinyon pine and juniper grow. The darkest and thickest soils are the Mollisols found in the mountain ranges of Sanpete County, and are somewhat fertile. “They exist well above the 5,000 foot level in upper foothills, mountain slopes and high plateaus which enjoy greater precipitation. Sanpete’s stockmen have long fed their animals on these rangelands” (Antrei and Roberts 1999).

Control and Influence

In Sanpete County, private property owners and farm operators control this resource. Most crop farming happens on private land with little outside influence. The agency with the most influence on agriculture in the county is the Natural Resources Conservation Service. The county and municipalities have influence over land uses and zoning, which will impact agriculture.

Economic Considerations

In 2015, the gross cash receipts from marketing crops in the county totaled \$15.6 million, while livestock & associated products generated \$213.4 million (Economic Profile System 2017).

A recent report published by Utah State University (2016) showed that agriculture contributes more than 15% of the state's total economic output "Agriculture processing and production sectors combine to account for \$21.2 billion in total economic output in Utah after adjusting for multiplier effects (compared to \$15.2B in 2008)" (Ward and Salisbury 2016).

In terms of employment and taxes, the study found, "A total of 79,573 jobs are agriculture related generating compensation \$3.5 billion (compared to 66,500 jobs in 2008)," and that "The agriculture production and processing sectors generate \$497 million in state and local taxes (compared to \$350 million in 2008)" (Ward and Salisbury 2016).

Agriculture in Sanpete County is important for the natural, cultural, social, and economic benefits it provides. Agriculture successfully balances those benefits and continues to be a valuable source of jobs and income locally.

Custom and Culture

Since its settlement by Mormon pioneers in November 1849, Sanpete County has had depended on agriculture to sustain life and lifestyle. A History of Sanpete County (1999) recounts the following from the first year white settlers lived in the Sanpitch area: "As the snows melted under the spring sun, the settlers began to plant crops in the never-tilled earth. By May (1850) they had put in 250 acres of potatoes, wheat, barley, and oats. Another relief party from Salt Lake City arrived with ten loads of grain to tide the colonists over until their crops matured" (Antrei and Roberts 1999). Today, there are approximately 46 century farms in the county including the Mardell Jensen Ranch, Larsen Family Trust, Mower Ranch, Turpin Dairy, Fairview Land and Livestock Company, and the Moses Draper Farm (UDAF n.d.).

The 2015 Annual Report by the Utah Department of Agriculture and Food states that, "Nearly 95 percent of Utahns believe farming and ranching are important to the future of the state" (UDAF 2015). The preservation of agricultural lands and resources is seen by many to provide tangible value to the state and/or intrinsic character to the lifestyle of its communities.

Agriculture as a Land Use

Many people, including county officials, cringe at seeing development of farmlands. They fear losing the green belts around the towns. They don't want to see Sanpete highways become giant strip malls where storage units and businesses line the sides. But the social, environmental, and economic issues are complex. Commissioner Keller Christenson asked whose responsibility is it to provide the green space, explaining that economic considerations were important because "For farmers, the land IS our retirement." Ultimately, perhaps neither farming nor business will moderate itself. Both are ever-growing. Agriculture requires the use of open lands and resources to nurture the continual growth of plants, animals, and production. Development usually gets what it wants via money, persistence, and an overload of the procedural apparatus. Preservation may be the only guard against the excesses of both.

OBJECTIVES

- a. Rural communities have healthy economies that include the agricultural production of food, feed, and fiber.
- b. Best agricultural practices, including water saving measures, are standard within the county.
- c. Agricultural land in the county provides open space.
- d. Thriving agriculture helps preserve the culture of the county by providing exposure to traditional Western lifestyle and food production.

POLICIES

1. Support municipal planning which includes agricultural land preservation.
2. Support voluntary efforts initiated by agricultural landowners to create Agriculture Protection Areas covering their properties per state code.
3. Support the development of agricultural products and businesses.

DESIRED MANAGEMENT PRACTICES

1. Protect cropland by controlling noxious weeds within cropland boundaries and surrounding areas.
2. Educate the public regarding the needs of agriculture, grazing, and ranching enterprises.
3. Educate the agriculturalists and landowners on best management practices of nutrient application and soil sampling.

LIVESTOCK + GRAZING

DEFINITION

Livestock: domesticated animals raised in an agricultural setting to create food, fiber, labor, or other products.

Grazing: a method of feeding whereby domestic livestock consume plant material and then convert it into meat, milk, and other products.

RELATED RESOURCES

Land Use, Agriculture, Water Quality and Hydrology, Wilderness, Water Rights, Forest Management, Predator Control, Noxious Weeds, Wildlife, Threatened, Endangered and Sensitive Species

FINDINGS

Overview

“[Animal] agriculture is a big part of Sanpete County. Livestock, dairy, and poultry are the mainstays of Sanpete [animal] agriculture. Sanpete is the number one wool and sheep producer in Utah. Most Sanpete sheep produce high-quality wool that is used to weave fine wool fabrics. The county is number four in dairy and number seven in beef production in Utah. Around 7,500 dairy cows provide milk for families throughout Utah. Sanpete County is one of the top ten turkey producing counties in the United States and the top turkey county in Utah. Turkey farmers in Sanpete County raise around 4.8 million turkeys a year that each weigh 20 pounds or more” (Sanpete Conservation District 2013).

Sheep and cattle have been grazing in Sanpete County for over 100 years. Rangeland Resources of Utah (2009) describes historic trends of the 20th century this way: “The decline in the sheep industry in Utah, which has been dramatic in Iron, Sanpete, and Utah counties, reflects the decline in demand for wool, consumer preference for lamb, more restrictive predator control policies, and difficulties in obtaining labor. In addition, most sheep are no longer trailed to and from seasonal ranges and the cost of trucking has likely played a role in the decline of the sheep industry by increasing production costs. The steady decline in sheep numbers has also resulted in many federal grazing permits being transferred from sheep to cattle. Although actual numbers of sheep and lamb losses to predators have declined from about 53,000 animals in 1987 to 29,300 in 2007, the apparent decline in predation losses is confounded by the declining number of sheep. The percentage of losses has remained 10 to 12 percent over the past 20 years. Approximately 80 percent of the annual loss is from loss of lambs, the primary sale product, with the remainder of the loss occurring in breeding herds. The decline in the sheep industry and other factors, such as fire control policies of the past 100 years, are thought by some to have contributed to the gradual

increase in woody plant domination on Utah rangelands” (USU 2009).

“The increase in beef cow numbers in Utah has occurred in almost all Utah counties with Box Elder County having the highest numbers. . . It is apparent that some ranchers in counties, such as Utah, Sanpete, Summit, Carbon, Uintah, and Iron, as well as Box Elder (traditionally centers for sheep production), switched to or reallocated their resources to include cattle production” (USU 2009).

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 (Utah Department of Agriculture and Food n.d.).

The Livestock Grazing in Utah: History and Status (2008) report states, “Rangelands in Utah are primarily administered by the Bureau of Land Management (BLM) and Forest Service (FS). 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” (Godfrey 2008).

The practices of raising livestock and grazing animals are considered part of agriculture; please refer to the agriculture section in this plan for other information.

Permitting

The Livestock Grazing in Utah: History and Status (2008) report 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 these 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 was 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 public lands allows permittees to reduce their dependency on hay as a source of feed.
- The market for grazing permits is poorly understood and not well defined. As a result, little is known about the economic demand for grazing permits. Actual use of permits was generally less than permitted use in 2006, but this is not unusual. Many permittees have and continue to take voluntary non-use of public lands as a result of reduced forage availability (primarily associated with drought).
- Actual use of permits was generally less than permitted use in 2006, but this is not unusual. Many permittees have and continue to take voluntary non-use of public lands as a result of reduced forage availability (primarily associated with drought).
- Lands administered by the BLM provide the largest percentage of grazed forage by those having permits to graze federally or state administered lands. However, the percentage varies in the regions outlined in the study.
- The most critical period of use of public lands for most permittees was during the summer.

Source: (Godfrey 2008)

The amount of federally permitted animal unit months (AUMs) in Utah declined four fold between 1940 and 2005. On BLM-administered 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 by 2008. In response to these declines, 2016 House Bill 145 – the Rangeland Improvement Act was passed, and the Utah Grazing Improvement Program was established. The goals of the act are to strengthen Utah’s livestock industry, improve rural economies, and enhance the environment (Utah Department of Agriculture and Food n.d.).

In large part, Sanpete County private property owners and farm operators control this resource when occurring on private property. Where grazing takes place on public lands, federal land managers are responsible for the many regulations and restrictions.

Economic Considerations

Economic trends are described in Rangeland Resources of Utah (2009): “Utah agriculture is dominated by production of livestock, livestock products, and the production of feed crops utilized in

the livestock industry. In nominal terms, agricultural receipts in Utah have increased from \$588 million in 1984 to \$1.3 billion in 2007, a 128 percent increase, while Utah livestock and livestock product receipts have also more than doubled in the same period. The implication is that livestock and livestock receipts have fairly consistently contributed from 71 to 78 percent of all agricultural product receipts over the last 24 years. Beef cattle, dairy cattle, swine, and sheep, in decreasing order, contribute the majority of Utah livestock receipts. In terms of receipts from live animal sales, the cattle and sheep industries’ contributions vary from 68 to 79 percent, while the swine industry contributions vary from 20 to 30 percent” (USU 2009).

Farm business income is on the rise in the county. In 2015, the gross cash receipts from marketing crops was \$15.6 million, while livestock & associated products generated \$213.4 million (Economic Profile System 2017).

Custom and Culture

Since the 1840’s when Sanpete County first saw an influx of settlers, people have been raising cattle, sheep, turkeys and horses for food, fiber, labor, and recreation. Dozens of Century Farms have been designated in Sanpete County, including the Moses Draper Farm established in 1878 (UDAF n.d.). The county considers agriculture to be part of its history, custom, and culture. This tradition of ranching or raising poultry is still practiced professionally and celebrated locally.

In 1894, Sanpete County claimed 500,000 sheep, and two major “wool and livestock” companies. “By the end of the ‘Golden Fleece’ era (1921), sheep and wool sales completely dominated Sanpete’s income from range livestock. That, in turn amounted to 60 percent of the county’s total income” (Peterson and Bennion 1987).

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.”

OBJECTIVES

- a. Rural communities have healthy economies with livestock grazing as a contributor.
- b. All resource management planning within the county involves active participation from the county.
- c. AUMs within the county remain at or above current levels

LIVESTOCK + GRAZING

unless a scientific need for reduction is demonstrated to the satisfaction of the county.

- d. Livestock raising is a vibrant part of the agrarian, Western culture of the county.
- e. Grazing rights are managed under best grazing practices including the time/timing/intensity model.
- f. All grazing management plan acknowledge and consider the cultural and economic importance of the livestock industry to the county.
- g. Credible recent science is used to make management decisions.

POLICIES

1. Encourage the management of livestock grazing at the highest reasonably sustainable levels. Domestic livestock forage, expressed in animal unit Months (AUM's), for permitted active use as well as the wildlife forage included in that amount, should be no less than the maximum number of animal unit months sustainable by range conditions in grazing districts and allotments, based on an on-the-ground and scientific analysis.
2. Encourage livestock use to be compatible with recreation use.
3. Invest in range improvements where they will provide the greatest benefit.
4. Support the management of browsing and grazing, where authorized, to maintain or improve vegetative cover.
5. Encourage proper stocking and livestock distribution to protect riparian ecosystems.
6. Support the management of the range resource within its productive capabilities for grazing and browsing animals in harmony with other resources and activities to provide sustained yield and improvement of the forage resource. Encourage and coordinate other resource activities so as to maintain or enhance forage production.
7. Support restricting livestock use on units identified as having excessive soil erosion.

8. Support prohibiting livestock use on areas treated for watershed improvement until vegetation has become successfully established and watershed improvement objectives have been met. Determine suitability for use through Interdisciplinary team evaluation.
9. The county opposes any loss of AUMs absent scientific proof of resource degradation.
10. The county values the livestock industry as part of the local economy and as part of the local ranching heritage and culture.
11. Support the protection of regeneration from unacceptable livestock damage.
12. Encourage the appropriate agency to monitor data, including trend, utilization, actual use, and climate data to determine if existing livestock management practices are meeting land-use planning and resource objectives.
13. Support upward or stable trends in vegetation and soil condition and rangeland health, forage, and grazing stability on public lands.

DESIRED MANAGEMENT PRACTICES

1. Livestock grazing on public land should be managed and regulated by state and federal agencies so as to maintain and enhance desired plant communities for the benefit of watershed, wildlife, water quality, recreation, and livestock grazing as required by the applicable land use plans. Such management should be developed specifically and individually for each public land grazing allotment in order to achieve the desired result throughout the county.
2. Educate and assist livestock producers on proper grazing management practices.
3. Proper livestock management methods will be included in allotment management plans and annual operating plans to protect regeneration. Permittees should be held responsible for damages resulting from negligence.
4. Improve wildlife management to protect agriculture profitability and minimize depredation.

DEFINITION

Noxious weeds are plants that are considered harmful to agricultural or horticultural crops, natural habitats or ecosystems, or humans or livestock. Often times they are non-native species, which spread rapidly due to habitat disruption or poor land management.

RELATED RESOURCES

Forest Management, Fire Management, Agriculture, Livestock and Grazing, Riparian Areas

FINDINGS

Overview

There are many species of exotic and invasive weeds in Utah. Some species, have more potential to be “injurious to public health, crops, livestock, land, or other property” (Utah Administrative Code R89-9). The Utah Noxious Weed Act (2008) defined 28 noxious weed species in three prioritization categories. In 2015, the official State Noxious Weed list was updated to include 54 species and prioritization categories were modified.

“An increasing threat to rangeland biodiversity and health is the invasion by non-native plant species. Some of the most prevalent and problematic invasive plants include diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*Centaurea maculosa*), yellow starthistle (*Centaurea solstitialis*), leafy spurge (*Euphorbia esula*), and cheatgrass (*Bromus tectorum*). The vast majority of invasive plants have been introduced from other continents. Cheatgrass, the most widespread and dominant invasive plant in the Intermountain West, was introduced during the mid- to late-1800s by means of imported grain from Eurasia. The first records of cheatgrass in the Great Basin came from Provo, Utah, in 1894; Elko, Nevada, in 1905; and Reno, Nevada, in 1906” (Utah State University 2009).

According to the Noxious Weeds Field Guide of Utah, “Noxious weeds are currently spreading at a rate of more than 4,600 acres per day on federal lands in the United States” (Bellison et al. 2009).

“Invasive plants can have a significant impact on an array of ecological facets. Invasive plants have reduced species richness, plant diversity, and community productivity. Wildlife habitat and forage have been degraded; soil erosion and stream sedimentation have increased; soil moisture and nutrient levels have been depleted; and fire regimes have been altered. As cheatgrass has become a common component of sagebrush steppe vegetation communities, the nutritional quality of forage has been reduced, the intensity and frequency of fires have changed, and water cycles have been altered. Although many factors are involved,

several native animals, such as sage grouse, may have declined as a result of these changes” (Utah State University 2009).

“Attempts to manage and eradicate invasive plant species have been made utilizing various control methods. Historically, mechanical and chemical control techniques were the predominant invasive plant management methods; however, biological and cultural control techniques have been implemented and integrated with other practices. Mechanical control techniques include hand-pulling, hoeing, mowing, tilling, chaining, and bulldozing. Hand-pulling and hoeing are effective in controlling small infestations of shallow-rooted weeds in loose, moist soils. Mowing is commonly used to control invasive range annuals and some perennials; however, the success of mowing is highly dependent on timing. Annuals and some perennials can be suppressed and controlled if mowing occurs before viable seeds form. If not properly timed, mowing can promote the spread of invasive plants by encouraging the spread of seeds and stimulating the production of new stems from vegetative buds. Tilling practices can control annual species, but they rarely provide control of perennial species... More expensive mechanical control techniques, such as chaining and bulldozing, are effective in controlling invasive shrub and tree species. Although these methods require gentler terrain and are becoming increasingly expensive, they are effective in controlling shrubs and trees that do not readily resprout from root systems” (Utah State University 2009).

The Sanpete Integrated Weed Management Plan is followed in the county. The plan prescribes methods for weed management, including education/awareness, prevention/early detection, inventory, treatment (physical, chemical, cultural and biological), monitoring, and enforcement.

Managing Agencies

Cooperative weed management areas (CWMAs) can be an effective resource in the prevention, detection, and suppression of noxious and invasive weeds. The Sanpitch CWMA covers Sanpete County, and neighboring counties. Coordinated mechanical, chemical, and biological control over large areas by multiple landowners has proven successful for a variety of weed species. These areas replace jurisdictional boundaries in favor of natural boundaries that facilitate cooperation, coordination, and implementation of effective integrated weed management programs for listed noxious weeds (Utah Division of Wildlife Resources n.d.).

The Utah Noxious Weed Act (Title 4, Chapter 17, Rule R68-09) provides for the control and management of noxious weeds in Utah. Private property owners, municipalities, and state agencies are all subject to the provisions of the Utah Noxious Weed Act. Federal agencies are subject to the provisions of the Federal

NOXIOUS WEEDS

Noxious Weed Act of 1974 (P.L. 93-629) as amended in 1990 (Section 15, Management of Undesirable Plants on Federal Lands). Under the 1990 amendment to the Federal Noxious Weed Act, federal agencies are directed to enter into agreements with appropriate state and local agencies to coordinate the management of noxious weeds. All land owners/managers within the boundaries of Sanpete County are also subject to any applicable Sanpete County policies and ordinances.

“The Utah Noxious Weed Act requires landowners to control state-listed noxious weed species on their lands. The act stipulates that each county and municipality in Utah must adopt a noxious weed management plan for its jurisdiction and identify the plant species in its area that it considers noxious weeds. In addition, if landowners and managers fail to control weeds on their property, the county or municipality may legally enter the property, control weeds, and charge the landowner for the cost of control work. Enforcement of the Sanpete County Weed Management Plan will be executed through processes outlined in the Utah Noxious Weed Act. According to the Utah Noxious Weed Act, County Weed Control Boards, County Weed Supervisors and Field Representatives of the Utah Department of Agriculture’s Division of Plant Industry have authority for the enforcement of the provisions of the act. The specific duties of each of these parties will be as outlined in the Handbook for County Weed Boards” (Sanpete County Weed Department n.d.).

The USDA is a primary leader involved in preventing the introduction of invasive species, largely through the Animal and Plant Health Inspection Service (APHIS). The Natural Resource Conservation Service (NRCS) also contributes to preventative measures and education on plants that may pose a risk to cropland, rangeland, or wildlands.

Economic Considerations

“The invasion of non-native plant species not only produces various ecological modifications, but also results in substantial socioeconomic impacts, particularly to the livestock industry and land management agencies responsible for fire suppression. Invasive plant species cause more economic loss on rangeland than all other pests combined. Invasive plants reduce the carrying capacity for livestock by lowering the forage yield. Consequently, the costs of managing and producing livestock increase” (Utah State University 2009).

“The importance of herbicides in modern weed management is underscored by estimates that losses in the agricultural sector would increase about 500% from \$4.1 billion to \$20 billion per year without the use of herbicides” (Whitesides 2004).

“The implementation of one control method is rarely effective in achieving the desired results for curtailing the spread of

invasive plants. Successful long-term and cost effective management programs should integrate a variety of mechanical, chemical, biological, and cultural control techniques. Integrated management involves the deliberate selection, combination, and implementation of effective invasive plant management strategies with due consideration of economic, ecological, and sociological consequences... Presently, there are several examples of integrated strategies used to manage invasive plants and improve rangeland communities. Much attention has been focused on the integration of targeted or prescription grazing with other control methods, as the incorporation of grazing management is an essential component in successfully addressing invasive plant problems” (Utah State University 2009).

Custom and Culture

A History of Sanpete County (1999) states the following related to noxious weeds: “Meanwhile there are other environmental protections that directly affect Sanpete, such as increasing agricultural regulations and pesticide controls. Many farmers resist new controls. ‘If we don’t treat sick trees, then the beetles will spread,’ Leonard Blackham explains. ‘Our approach is to catch infestation early, control it, minimize its effects. We learn to act fast, then accept what comes. We’re realistic because we know we’re not in control of nature-it can throw you. We’re small, we’re just a part of it.’”

Weed control was a major concern of farmers in Sanpete during the 1980s and 1990s. In 1985, there were ten to fifteen prominent “noxious weeds” which posed a danger to farm crops and range, such as a serious musk thistle problem. The state created a weed law requiring farmers to remove weeds on their own land. After a long and concerted effort coordinated by Commissioner J. Keller Christenson, several noxious weeds in Sanpete, have been brought under better control. In fact, Christensen won the 1999 state award for “#1 Weed Control.”

OBJECTIVES

- a. Eliminate noxious weeds in the county.
- b. Comply with the Utah Noxious Weed Act and county ordinance.
- c. Noxious weed infestations are documented, mapped, and being actively managed.
- d. The public is aware of noxious weeds and educated about how to manage noxious weeds.
- e. The county works cooperatively with private, municipal, state, and federal partners to locate and manage noxious weeds.

POLICIES

1. The county supports comprehensive weed management that reduces or eradicates seed sources for noxious weed infestations.
2. The county encourages the Agencies to protect public lands bordering private lands from predatory animals, rodents, noxious weeds and vectors.
3. Assist federal land agencies in identifying, preventing and suppressing noxious weeds.
4. Develop cooperating agreements with other federal, state, local and private organizations to control invasive and noxious weed species.
5. The county supports wildfire suppression efforts through weed control.
6. In compliance with Utah Code 4-17-4, the county has a weed board to manage noxious weed control within the county.

DESIRED MANAGEMENT PRACTICES

1. Contain areas of infestation, prevent the establishment of new infestations and eradicate species of noxious weeds

where possible.

2. Prioritize riparian areas for weed management.
3. Prevention, early detection, and rapid response should contribute to an overall management strategy.
4. Use of herbicides, biological control agents, and/or mechanical or hand treatments is encouraged as a part of the overall management strategy.
5. Restoring native plants should contribute to an overall management strategy. Restoration and rehabilitation will use native seed-mixes wherever possible. Non-native species may be used as necessary for stabilization or to prevent invasion of noxious or invasive weed species.
6. Pack stock and riding stock users on public lands should use certified weed-free feed.
7. Educate landowners, land users, and recreational visitors about the impacts of noxious and invasive weeds on the land, as well as management, and prevention practices.
8. Support increased funding and training for federal land managers in the management, control and eradication of noxious weeds.





MINERAL RESOURCES

***MINERALS
MINING
ENERGY***

MINERALS

DEFINITION

Natural resources in the form of minerals (solid inorganic substances).

RELATED RESOURCES

Water Rights, Land Use, Air Quality, Water Quality and Hydrology, Energy, Mining, Cultural, Historical, Geological, and Paleontological, Land Access

FINDINGS

Overview

Mineral resources are deposits or occurrences of inorganic materials with intrinsic economic value (such as ore, aggregate, oil, and gas) that may be extracted from the earth's crust. Mineral resources are regulated and managed based on type, and are grouped into three categories: locatable, leasable, and saleable.

Mineral surveying and extraction on public land is regulated by the BLM and Forest Service.

Locatable Minerals

This category includes high-value minerals such as gold, silver, and copper (metallics and nonmetallics) that are subject to the Mining Law of 1872 as amended by 30 USC 2. Under the Mining Law, mining claims can be filed for these minerals. The category also includes certain industrial minerals such as gypsum, chemical grade limestone, and chemical grade silica sand. Uncommon varieties of mineral materials such as pozzolan, pumice, decorative rock, and cinders may also be regulated as locatable minerals if demonstrated to have unique market value.

Leasable Minerals

This category includes gas, oil, oil shale, coal, oil sands, phosphate, and geothermal resources, and are subject to the Mineral Leasing Act of 1920, as amended and supplemented (30 USC 181, et. seq.), the Mineral Leasing Act for Acquired Lands as amended (30 USC 351-359), and the Geothermal Steam Act of 1970 (30 USC 1001-1025). Examples of leasable minerals include coal bed methane, oil and gas, tar sands, and geothermal resources.

Saleable Minerals

This category includes more common mineral resources including sand, stone, gravel, pumice, clay, and petrified wood. Regulation of these minerals on public lands is authorized by 30 USC 601. State and private lands are regulated by state, county, and local jurisdiction and land use codes. Some saleable minerals include sand and gravel, clay, and stone.

Major commodities produced in Utah, in descending order of

value, include phosphate, gilsonite, expanded shale, common clay, bentonite, and gypsum. Within the next 25 years, future industrial mineral production is expected to continue to come predominantly from the areas of Utah that have had historic industrial mineral production (Boden et al. 2014).

Brine-derived products, including salt, were the largest contributors to the value of industrial-mineral production in Utah in 2009, with a combined value of \$445 million, about \$69 million (18%) more than in 2008. In addition to salt, brine-derived products include magnesium chloride and potash (potassium chloride and potassium sulfate). . .Salt production was estimated to be 3.0 million mt (3.3 million st) in 2009, about 0.18 million mt (0.20 million st) more than in 2008, with most of the production coming from three operators processing brine from Great Salt Lake. . . other companies produce salt and/or potash from operations not located on Great Salt Lake: (1) Intrepid Potash-Wendover, LLC near Wendover in Tooele County (salt and potash), (2) Intrepid Potash-Moab, LLC near Moab in Grand County (salt and potash), and (3) Redmond Minerals, Inc. near Redmond in Sanpete County (rock salt) (Bon and Krahulec 2009).

“Reflecting the county’s varied topography and climate, three predominant soils exist, called Entisols, Aridisols, and Mollisols....Surrounding the areas of Entisols are larger, higher areas of Aridisols, occurring in high valleys, terraces, and fan slopes where precipitation is less than twelve to fourteen inches per year. Shadscale, pinyon pine, and juniper grow here, and its bare rock outcroppings have been exploited with stone quarries” (Antrei and Roberts 1999).

“Although apparently not rich in rare minerals, minor amounts of silver, copper, lead, and zinc have been located and mined in Sanpete County. Other local minerals with commercial value include gypsum and anhydrite, fuller’s earth, aragonite and calcite, clay, beryllium, limestone and dolomite, and salt” (Antrei and Roberts 1999).

Oolitic Limestone

The Manti Latter-Day Saint Temple, Sanpete County Court House, Ephraim Co-op, and many other buildings and homes were built from Oolitic limestone found in the county.

Oil Shale

“Land in the western part of the planning area in Sevier and Sanpete Counties is subject to a withdrawal for oil shale” (BLM 2005).

Potash, Salt, and Magnesium Chloride

Utah salt production in 2014 increased to 3.65 million short tons (st), and has a production value estimated at \$209 million.

The 22% increase in value from 2013 was due to an increase in salt market price and more accurate reporting of production. Some 83% of the salt was produced from Great Salt Lake brine... The remaining 17% came from Redmond Minerals, Inc., near Redmond in Sanpete County, Intrepid Potash-Wendover near Wendover in Tooele County, and Intrepid Potash-Moab near Moab in Grand County (in descending production order) (Boden et al. 2014).

“Within the intensely deformed Arapien Shale of the Sevier and Sanpete Valleys, discontinuous beds and scattered pockets of red-to-white halite are common... Although extensive salt deposits are exposed at the surface in only a few locations, primarily in the Redmond Hills, it is assumed that they underlie extensive portions of the Sevier and Sanpete Valleys” (BLM 2005).

Coal

According to the BLM’s Richfield Mineral Potential Report (2005), there are four coal fields located in Sanpete County. . In 2003, there were 4,569 acres of federal mining leases, 75 acres of mineral leases, and no acres of federal coal leases. The coals of the Blackhawk Formation and the Ferron Sandstone in southeastern Sanpete County and eastern Sevier County have been studied the most for coalbed methane gas (CBM) gas.

Initial discoveries ranged farther afield, usually in conjunction with infant iron industries encouraged by the Saints’ drive toward self-sufficiency. From the 1850s through the 1870s several coal prospects opened: one in the southwestern corner of the state, others in centrally located Sanpete County, and one at Coalville, Summit County, forty miles from Salt Lake City (Powell 1994).

The county has extensive mineral resources, many of which are not economically viable at this time.

Economic Considerations

“Industrial-minerals production, with an estimated value of \$955 million was the second-largest contributor to the value of minerals produced in 2009. . . Industrial-mineral values have grown substantially over the past 10 years, increasing from \$500 million in 2000 to a record high of \$1053 million in 2008 (table 1), a 97% increase. Commodities or commodity groups that have realized the majority of these gains include sand and gravel and crushed stone; Portland cement and lime; salines, including salt, magnesium chloride, potash (potassium chloride), and sulfate of potash (SOP); and phosphate rock. These commodities account for about 90% of the total value of Utah’s industrial-minerals production” (Bon and Krahulec 2010).

All mineral resources have a large impact on our economy. state and federal government have control over the majority of these minerals, so how they manage them can affect the economy.

Custom and Culture

Approximately 72% of survey respondents’ in Sanpete, Sevier, and Piute Counties want mineral exploration and extraction activities on public lands to either staying the same, or see a moderate to major increase (Krannich 2008).

Utah’s growing population requires ever-increasing supplies of affordable industrial minerals for construction, agricultural, and industrial uses to maintain the present quality of life.

“Upon the arrival of the Rio Grande Western Railroad in the early 1890s, Spring City’s economic fortunes prospered. It exported local products, including native oolite stone, which was shipped to larger northern cities for use in the construction of fine buildings” (Antrei and Roberts 1999).

“From the earliest days of settlement, pioneers at the south end of the county quarried salt from the Redmond Hills, a low ridge in the middle of the Sevier valley. About 10,000 tons per year are removed from this source and sold in rough blocks for cattle” (Antrei and Roberts 1999).

OBJECTIVES

- a. All decision making regarding where mineral extraction is permitted within the county involves active participation from the county.
- b. The county’s minerals economy is stable and provides a steady tax base rather than unstable or fluctuating cycles.

POLICIES

1. It is the policy of Sanpete County to encourage responsible stewardship of the environment in conjunction with mineral exploration and development. The county supports mineral exploration and development on public lands that is:
 - a. conducted subject to permits issued by jurisdictional agencies;
 - b. consistent with county ordinances;
 - c. consistent with local history, customs, traditions and culture;
 - d. free from legally and scientifically invalid and unreasonable barriers;
 - e. is consistent with the 1872 mining law;
 - f. considers resource potential data that is available from industry, Utah Geologic Survey, Department of the Interior and Department of Agriculture; and
 - g. consistent with sound economic and environmental practices.

MINERALS

2. Encourage extractive industries to be in compliance with federal, state and county laws and regulations, while protecting multiple use concepts and rights to access.
3. Encourage managing agencies to ensure that all mineral development activities on public lands within the county are bonded to cover 100% of the reclamation costs.

DESIRED MANAGEMENT PRACTICES

1. Maintain a continuing yield of mineral resources in the Sanpete County region at the highest reasonable sustainable levels.
2. Lands shown to have reasonable mineral potential in the Public Lands Region should be open to oil and gas leasing with stipulations and conditions that will protect the lands against unreasonable and irreparable damage to other significant resource values. This should include reasonable and effective mitigation and reclamation measures and bonding for such where necessary.
3. Avoid or minimize significant and conflicting public or private investments near sites where mineral activities may occur within the foreseeable future.
4. Minimize or as appropriate prevent adverse impacts on surface resources.
5. Ensure that adequate reclamation of disturbed areas is accomplished.
6. Avoid and mitigate detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed sites.
7. Allow mineral leasing where it has been determined that stipulated methods of mining will not affect the watershed values to any significant degree.
8. Work with federal agencies to streamline the permitting process locally for extractive industries.



DEFINITION

The process or industry of extracting minerals or other geological materials from a mine or other extractive process.

RELATED RESOURCES

Water Rights, Land use, Air Quality, Water Quality and Hydrology, Energy, Mineral Resources, Cultural, Historical, Geological, and Paleontological, Land Access

FINDINGS

Overview

In 2003, there were 4,569 acres of federal mining leases, 75 acres of mineral leases, and no acres of federal coal leases in Sanpete County.

The State of Utah has primacy on regulation and reclamation of mining activities on all lands within the state, and the Utah Legislature assigned responsibility for administration of mining to the Utah Division of Oil, Gas, and Mining (DOGM).

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

For coal mining, the State of Utah obtained primacy for regulation and reclamation under the federal Surface Mining Control and Reclamation Act of 1977 (SMCRA).

The state of Utah, the Forest Service, and the BLM require land reclamation bonds on mining operations. The purpose of these bonds is to create a financial surety that the state or land management agency can use to reclaim the land if the operator is unable or unwilling to do so. Disturbances caused by the mining operation must be rehabilitated to either the original state, or a degree agreed upon by the company and the agency. Mining operations on public land need a bond which may be held by either the federal agency or the state (P. Baker, DOGM, personal communication).

Economic Considerations

According to the U.S. Department of Commerce (EPS 2017), mining made up 4.2% of Utah's gross domestic product (GDP) in 2012. In 2013, Utah produced 1.7% of the coal in the United

States; 27% of that production was shipped out of the state. Employment in mining especially has changed in recent years; as of March 2016, 9,500 miners are employed in Utah, down 12.8% from March 2015.

Custom and Culture

“A noticeable shift occurred around 1978, when three new coal mines opened in the mountains east of Sanpete Valley in Carbon and Emery counties providing hundreds of jobs. The Deer Creek and Valley Camp opened in 1975. Utah Fuel opened mining operations in 1980, hiring 400 employees. The new mining operations gave a huge boost to county employment” (Antrei and Roberts 1999).

Approximately 72% of survey respondents' in Sanpete, Sevier, and Piute Counties want mineral exploration and extraction activities on public lands to either staying the same, or see a moderate to major increase (Krannich 2008).

“Red sandstone and white oolitic limestone (found in Sanpete County) were popular building materials. In Sanpete County, the quarries near the Manti LDS Temple attest to the use of the oolitic limestone in the temple itself” (Powell 1994).

“Early quarries were generally developed by individuals and communities, with the stone quarried as it was needed. Stone was a popular building material in nineteenth-century Utah, especially after the initial settlement, when more permanent materials became desirable. Most of the masons involved in stonework were European: Danes and Swedes who had settled in Manti and Spring City, English in Heber City and Midway; and Italians and Greeks in Carbon County. Spring City in Sanpete County was built almost exclusively of stone--the light, cream-colored oolitic limestone quarried in the hills west of town. As brick became more available, the use of stone declined...the establishment of stone quarries in the nearby exposures of stone east and northeast of Ephraim followed soon after settlement” (Powell 1994).

“Coal was discovered in 1854 near Wales and mined from the Cretaceous and Paleocene formations on the east side of the Gunnison Plateau. Some of the coal was exported to markets in Salt Lake City. Later another coal deposit was discovered and mined in the Morrison area east of Sterling” (Antrei and Roberts 1999).

OBJECTIVES

- a. All existing federally listed species are recovered to the point All decision making regarding where mining is permitted within the county involves active participation from the county.
- b. The county's mining economy is stable and provides a steady

MINING

tax base rather than unstable or fluctuating cycles.

POLICIES

1. The county values mining as part of the local custom and culture.
2. The county encourages responsible mineral extraction.
3. The county supports the mining industry.
4. Support the long term viability of the coal industry, while also diversifying and strengthening other economic drivers.
5. Review cases of suspected abuse of the mining laws such as occupancy of the land for purposes other than prospecting, mining, and related activities. Initiate appropriate action to resolve abuses.



DEFINITION

Renewable or nonrenewable resources used to obtain energy.

RELATED RESOURCES

Mining, Mineral Resources, Cultural, Historical, Geological, and Paleontological, Water Quality and Hydrology, Water Rights, Air Quality, Land Use

FINDINGS

Oil, Oil Shale, Oil Sands

“Utah contains three of the 100 largest oil fields in the United States and five petroleum refineries. Currently, there are 355 million barrels of proven oil reserves in the state. Crude oil production in Utah has seen a substantial resurgence over the past 5 years with the discovery of the Covenant Field in central Utah and increased exploration and drilling in the Uinta Basin” (Utah State University 2009).

“In 2013, Utah ranked as the 11th largest producer of crude oil in the United States. In 2011, crude oil made up approximately 13% of Utah’s total produced energy resources. Crude oil also accounts for 33% of the energy consumed by Utahns” (Governor’s Office of Energy Development 2014).

“Oil shale and tar sands are two natural resources that can be converted into petroleum products. Utah contains some of the largest deposits in the world of both of these materials. It is estimated that the United States reserves of oil shale are 1.6 trillion barrels, with Utah reserves at approximately 499 billion barrels. The United States estimate for measured reserves of tar sands is 22.6 billion barrels, with 14 to 15 billion barrels of measured reserves in Utah... These oil substitutes become more financially-viable resources as the price of traditional oil goes up” (Utah State University 2009).

The cumulative lifetime production of oil in the county, as of 2016, was over 239,000 barrels. About 159,360 of these barrels were extracted between 2012-2016 (Utah Division of Oil, Gas, and Mining 2017).

Sanpete has limited accessible oil plays.

Natural Gas

“In 2012, Utah ranked as the 10th largest onshore producer of natural gas in the country. In 2012, Utah’s natural gas was mostly used for home heating (nearly 33%) and by the electric utility sector (nearly 26%). Natural gas makes up approximately 44% of Utah’s total produced energy resources. Natural gas also accounts for 25% of the energy consumed by Utahns. In 2012 there were estimated to be over 9,322 jobs in Utah’s oil

and gas industries, including direct and related support jobs of extraction, wells operations, distribution, transportation, refining, construction and manufacturing (this figure does not include induced jobs in electricity generation and other industries that exist because of natural gas production)” (Governor’s Office of Energy Development 2014).

As of 2016, Sanpete County has produced over 5,085,000 thousand cubic feet (MCF). Over 1,390,000 MCF were produced between 2012-2016 (Utah Division of Oil, Gas, and Mining 2017).

For oil and gas, DOGM obtained primacy in 1982 from the EPA for regulation of Class II Water Injection Wells; this program regulates disposal of produced water from oil and gas wells, and reinjection of fluids for pressure maintenance and secondary recovery operations in oil and gas fields.

Sanpete County has limited accessible natural gas reserves.

Nuclear

“Nuclear power is a source of energy derived from the fission (splitting) of atoms. It accounts for approximately 19 percent of total electricity generated in the United States. Utah neither generates nor imports power from nuclear power plants. By-products of nuclear energy are cleaner than those produced by burning fossil fuels for power (near-zero emissions of carbon dioxide, sulfur oxides, nitrogen oxides, and ash), but it does produce solid waste by-products that must be stored. While these waste products are small compared to the electricity produced, they require specific safety measures” (Utah State University 2009).

Sanpete has no nuclear power generation facilities.

Geothermal

“The western part of the Transition Zone in the planning area is characterized by high heat flow, thermal springs, seismic activity, Quaternary igneous features, and Quaternary faults (Blackett and Wakefield, 2002). Thermal springs and elevated temperatures in some wells and mine shafts are present at places in the Sanpete and Sevier Valleys and in the vicinity of Marysvale. The central part of Utah in the Transition Zone is one of the most seismically active regions in the state, as indicated by a northward-trending zone of relatively concentrated and frequent earthquakes of varying magnitudes, which is referred to as the Intermountain Seismic Belt. Earthquakes indicate active faulting, and the related faults are possible conduits for the migration of steam or heated water. Thermal springs and hydrothermal zones are surface indications of the subsurface migration of heated water. Quaternary volcanic centers may indicate relatively shallow magmatic bodies that may serve as sources for heat at relatively

ENERGY

shallow depths” (Bureau of Land Management 2005).

Geothermal resources are considered a leasable fluid mineral to the BLM. Leasing geothermal resources is similar to the oil and gas leasing process.

Coal

According to the BLM’s Richfield Mineral Potential Report (2005), there are three coal fields located in Sanpete County - Mt. Pleasant, Wales, and Sterling. In 2003, there were 4,569 acres of federal mining leases, 75 acres of mineral leases, and no acres of federal coal leases in Sanpete County.

Economic Considerations

“Employment directly related to energy produces earning at a rate almost twice that of other jobs in the state. Energy employment generated \$2.853 billion in wages in 2013. The energy sector generated state and local taxes, fees, and royalties of \$656 Million in FY2013” (Governor’s Office of Energy Development 2014).

“The energy sector in Utah is also responsible for considerable revenues for state and local governments. In total, approximately \$655.6 million was generated by the energy industry by way of taxes, fees, and federal government distributions. With an estimated \$15.8 billion in property value, the sector generates approximately \$189 million in annual property taxes for state and local governments. Notably, these revenues continued increasing throughout the Great Recession, a time when government revenues were declining and demand for services increased. The energy sector provided increased stability for the state’s finances during a challenging period in history” (Governor’s Office of Energy Development 2015).

Custom and Culture

Approximately 72% of survey respondents’ in Sanpete, Sevier, and Piute Counties support mineral exploration and extraction

activities on public lands staying the same, and seeing a moderate or major increase (Krannich 2008).

OBJECTIVES

- a. Responsible energy development is the standard in the county.
- b. Opportunity for energy development is created.

POLICIES

3. Support balanced and responsible natural-resource development that benefits the public and generates revenues for public service providers to help pay for public infrastructure improvements needed to achieve economic diversity.
4. Minimize impacts to ecology and scenery from fluid and solid mineral development while still allowing such development to continue to benefit the economy. Encourage oil, gas and mining companies to use the best technology and mitigation techniques to protect natural amenities and natural resources.
5. Support and participate in planning for locally produced sustainable energy and its local consumption and transport.
6. The county will encourage wind energy development in areas where impacts on vegetation coverage and other resources will be minimized.
7. The county will encourage solar energy development in areas where impacts on vegetation and other resources will be minimized through appropriate mitigation measures because of inherent properties of the site.
8. Extraction of coal should be by underground mining methods.
9. Both wind and solar energy development (renewable energy) should be considered wherever ROWs could be authorized.



WATER RESOURCES

FLOODPLAINS + RIVER TERRACES

IRRIGATION

DITCHES + CANALS

WATER QUALITY + HYDROLOGY

WATER RIGHTS

WETLANDS

RIPARIAN AREAS

WILD + SCENIC RIVERS

FLOODPLAINS + RIVER TERRACES

DEFINITION

A floodplain is the low-lying area near a river, stream, or drainage which floods when the water level reaches flood stage. A river terrace is the bench or step that extends along the side of a valley and represents a former floodplain.

RELATED RESOURCES

Fire Management, Livestock and Grazing, Land Use, Noxious Weeds, Fisheries, Wildlife, Water Quality and Hydrology, Wetlands, Wild and Scenic Rivers, Canals and Ditches, Irrigation, Riparian Areas, Recreation and Tourism, Agriculture

FINDINGS

Overview

Rivers are dynamic systems. River channels can migrate laterally as a result of bank erosion and deposition, and vertically as a result of bed aggradation or degradation. Floodplains, terraces, and other features are formed by these processes, and are therefore part of the river system.

When a river channel reaches its maximum capacity, often during times of heavy rain or snow melt, water overflows the river's streambanks and floods into nearby areas that would otherwise remain dry land. This is especially true when water is delivered at a rate faster than the associated soils can absorb. Floods also occur when a bank or dam gives way and large amounts of water are released. Under most circumstances, flooding is a natural process. Floodplains are considered a type of riparian zone, supporting rich ecosystems in both quantity and biodiversity. The overflowing water brings nutrients to the soil along the river bank, creating a fertile zone ideal for agriculture. Nevertheless, these areas must be included in resource planning conditions because floods can cause severe human impacts.

"Sanpete County's main flooding threat is from heavy snow melt runoff events, and flash floods from heavy monsoonal rains. As a whole, Sanpete County has limited flood threat, although this hazard does affect residences and agriculture every few years" (Six County Association of Local Governments 2015).

"The population of Sanpete County is primarily located within the Sanpete Valley, which is bordered on the east by the Wasatch Plateau and to the west by the San Pitch Mountains. Thus the Sanpete Valley is topographically low heightening residents risk to spring snowmelt flooding, coming from high mountain snowpack. Streams running through population centers and alluvial fan development are common in Sanpete County" (Six County Association of Local Governments 2015).

The National Flood Hazard Layer (NFHL) shows that the margins of South Creek in Manti would spill over its banks in a 100 year

flood event, although the maintenance of the coastal floodplain would mitigate the effects on populated areas. Gunnison Reservoir, and the low lying areas around it are also predicted to flood during a 100 year flood event (FEMA 2017).

At the federal level, the Federal Emergency Management Agency (FEMA) provides flood data that classifies areas based on their different flood hazards through the NFHL and National Flood Insurance Program (NFIP). This enables elected officials, emergency responders, and the public to be informed and to reduce, or avoid altogether, impacts from floods, guide development, and reduce risk of floods.

Flooding along major rivers is sometimes controlled at the discretion of the dam operators. Individual cities have floodplain ordinances that are supported by the county.

Economic Considerations

"Between 1980 and 2012 there has been a total property loss of \$7,489,103, and a crop loss of \$6,228,653. This is a total loss in these 32 years of being \$13,717,756. Sanpete County is ranked ninth out of 29 counties in terms of total monetary loss based on past flood events" (Six County Association of Local Governments 2015).

Best floodplain and river terrace management practices typically focus on avoiding structures and other development within these dynamic and sensitive areas. For flood hazards in these areas, officials often resort to designating setbacks between potential floodplains and the built environment.

Higher development costs to mitigate flood risks are the major economic consideration for floodplains. Flood-control costs may be passed on to municipal and county governments during emergencies. Another economic consideration is the cost of floodplain insurance to homeowners. Floods also have the potential to cause severe financial impacts in the form of damages to structures, transportation systems, and other infrastructure.

Custom and Culture

"Flooding has been a frequent a severe problem in Sanpete from the earliest days of settlement. As early as 30 July 1852, Manti was flooded with ten inches of water" (Antrei and Robert 1999).

Preventing floods and mitigating natural disasters has always been a priority for landowners in Sanpete County. The custom and culture of the area is to be responsible about structure and infrastructure placement, and respect the inevitable changes in flowing water.

OBJECTIVES

- a. Floodplains and river terraces are stable enough to withstand flooding events.

FLOODPLAINS + RIVER TERRACES

POLICIES

1. The county supports thoughtful management of floodplains and river terraces as a way to protect human health and safety.
2. The county opposes any management of floodplains and river terraces that violated private property rights.
3. The county values floodplains and river terraces as an important part of the local ecology.
4. Heighten flood control measures, especially with the abandonment of canals due to the sprinkler irrigation transitions which were previously used as flood control structures.

DESIRED MANAGEMENT PRACTICES

1. Floodplains should be identified and, as appropriate, and a risk/hazard analysis should be performed for project sites where long-term occupancy is proposed.
2. Protect present and necessary future facilities that cannot be located out of the 100-year floodplain by structural mitigation (deflection structures, riprap, etc.). Implement mitigation measures when present or unavoidable future facilities are located in active floodplain to ensure that public and facility safety requirements, State water quality standards, sediment threshold limits, bank stability criteria, flood hazard reduction and instream flow standards are met during and immediately after construction.



DITCHES + CANALS

DEFINITION

The man-made passageways to move water from one area to another.

RELATED RESOURCES

Land Use, Livestock and Grazing, Irrigation, Agriculture, Water Rights, Water Quality and Hydrology, Wetlands, Riparian Areas, Fisheries, Recreation and Tourism, Wild and Scenic Rivers, Wildlife, Fire Management, Threatened, Endangered, and Sensitive Species

FINDINGS

Overview

Water deliveries are an essential component of agricultural production, and may also be relied upon for urban landscape watering and gardens.

Canal and irrigation companies are outside of the county's control but could be influenced by private shareholders. According to the Utah Division of Water Rights, there are 82 companies in Sanpete County that provide irrigation, ditch, and canal services (Utah Division of Water Rights 2014).

Canal safety plans and rights of way are protected by law and held private by the irrigation companies (Utah Code Ann. § 73-1-6 (1953)). The canals generally are maintained by individual canal companies and a good amount of drainage water has unrestricted access to dump into canals.

Economic Considerations

Without ditches, canals, and irrigation pipelines, the county would have very little agriculture.

Many organizations holding water rights operate on finite budgets for which regular available funding is limited. These funds typically covers only basic maintenance and intermittent minor upgrades. Occasionally, such organizations can apply for and receive funding to accommodate more extensive upgrades. Funding sources are available for water delivery systems to pay for post-break repairs, maintenance, or the capital upgrades that are necessary to preserve public safety.

The Utah Legislature has made funding available to assist canal companies in developing and implementing canal safety management plans.

Custom and Culture

According to a 2008 survey, 92.2% of residents in Sanpete, Sevier, and Piute counties ranked the importance of water resources used to supply homes and businesses as "very important" for the overall quality of life for their community (Krannich 2008).

To sustain early farmers and settlers, canals and ditches were constructed throughout Utah, making agriculture possible despite the semi-arid climate. Subsequent development of agriculture brought further expansion of ditches and canals. Traditionally, irrigation water has been distributed via a network of canals and ditches from rivers and streams; with time and circumstances dictating, many have been piped.

A History of Sanpete County (1999) describes the historical need for engineered waterways. "In 1880 Mormon apostle Orson Pratt interviewed some of Sanpete's earliest settlers regarding their first impressions of the valley. C. W. Madsen responded that 'The appearance of the site of the settlement . . . was dry, barren and forbidding; but a canal 3-1/2 miles long would water the site, from the Sanpitch River; and it was made in 1863'" (Antrei and Roberts 1999).

"As [Manti] grew, settlers cut small ditches from Cottonwood Creek to their city lots to water their gardens. After a short time, they saw the advantage of working together cooperatively on ditch digging. As early as 17 May 1860, a committee was appointed during a church meeting to supervise the digging of irrigation ditches. The first cooperative effort was the City Ditch from the Sanpitch River. During that first year, water was also taken from Birch and Oak creeks. As the population grew, so did the number and size of canals and ditches" (Antrei and Roberts 1999).

"Given the low annual precipitation (the valley floors receive only twelve inches or less) irrigation is needed to support the more water consumptive crops. Each year about 57,000 acres of land are irrigated in Sanpete County" (Antrei and Roberts 1999).

The Desert Land Act (1877) allowed settlers to purchase up to 640 acres of land for \$1.25 per acre, provided that some irrigation structures were developed.

The use, upgrade, and maintenance of Utah's network of canals, ditches, and dams continues today.

OBJECTIVES

- a. Ditches and canals are protected, as needed, to deliver water to water rights holders.
- b. Ditches and canals are managed for the safety of the public.
- c. Ditches and canals are managed for optimum efficiency and conservation.

POLICIES

1. The County supports the use and maintenance of ditches and canals to access and use private water rights.

DEFINITION

Irrigation is the process in which water is supplied to plants at intervals for agriculture.

RELATED RESOURCES

Land Use, Agriculture, Water Quality and Hydrology, Wilderness, Water Rights, Forest Management, Predator Control, Noxious Weeds, Canal and Ditches

FINDINGS

Overview

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 to sustain additional vegetation growth throughout the landscape. Much of Utah's agriculture would not be possible if not for irrigation. Utah's arid climate provides limited and frequently unreliable annual rainfalls. Many of the canals and ditches remain open, but over time many have been lined or piped to improve operational efficiency.

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

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. The distribution of water is governed by state law and is based largely on geographic proximity, available supply, and ownership of the water rights.

"The county's water resources derive from both surface water and groundwater, the former consisting of rivers, streams, and reservoirs, and the latter of underground sources such as springs, drilled and artesian wells, and the basins they fill. The Sevier River near Gunnison provides an average flow of 157,800 acre-feet annually, while below the Sevier Bridge Reservoir the flow increases to 173,000 acre feet. Water from the Sanpitch drainage is diverted for irrigation purposes by the Moroni and Mount Pleasant Canal and water is stored in the Wales Reservoir, the Gunnison Reservoir, the Gunnison Highland Reservoir (also known as the 9 Mile Reservoir), and Funks Lake. Downstream and north of the mouth of the Sanpitch River near Gunnison, the Sevier River flows about seven miles northwest into the Sevier Bridge Reservoir. When filled to capacity, it is 80 feet deep and contains 235,962 acre-feet of water, making it the largest reservoir in the county, although most it lies in Juab County behind Yuba

Dam" (Antrei and Roberts 1999).

"Given the low annual precipitation (the valley floors receive only twelve inches or less) irrigation is needed to support the more water consumptive crops. Each year about 57,000 acres of land are irrigated in Sanpete County" (Antrei and Roberts 1999).

The 2002 Census of Agriculture indicated that the county had 113,647 acres in cropland, of which 48,892 were harvested and 65,367 were irrigated. The irrigated acreage is primarily devoted to raising feed for livestock (Utah State University 2005).

Canal and irrigation companies are outside of the county's control but could be influenced by private shareholders. "Other entities also have responsibilities for regulating and managing certain aspects of the water resources. These include mutual irrigation companies, water conservancy districts, special service districts, drainage districts, and cities and towns. These entities can levy taxes and assessments for maintenance and operation of their facilities" (Utah Division of Water Resources 1999). According to the Utah Division of Water Rights, there are 82 companies in Sanpete County that provide irrigation, ditch, and canal services (Utah Division of Water Rights 2014).

Economic Considerations

Without irrigation the agriculture in Sanpete County would be almost nonexistent.

Custom + Culture

According to a 2008 survey, 71.5% of residents in Sanpete, Sevier, and Piute counties ranked the importance of water resources for irrigating crops and pastures as "very important" for the overall quality of life for their community (Krannich 2008).

"The first Anglo settlers arrived in Sanpete County in 1849. They probably diverted water to irrigate their crops in the spring of 1850.

In the 1800s, each household in town had its own dam. In the spring, the Water Master provided each family with a list of water turns, carefully worked out (Peterson 1987).

"Flowing water from the mountain snowpack for irrigation initially regulated the movement of people in the valley, for the average rainfall did not provide enough moisture for the growing season. For about twenty years after the first settlement, no farm or ranch was possible unless it had some kind of access to a surface spring, creek, or lake" (Antrei and Roberts 1999).

The use, upgrade, and maintenance of Utah's network of canals, ditches, and irrigation systems continues today.

OBJECTIVES

- a. Agricultural industries dependent on irrigation are strong

IRRIGATION

and diverse.

- b. Efficiency innovations or advancements in technology of irrigation are used where appropriate.
- c. The public understands the importance of irrigation to agriculture.

POLICIES

- 1. Water is managed so that growth is not inhibited by water resources.
- 2. The county values irrigated agriculture as part of the local economy.
- 3. The county works cooperatively with partners, including

the water conservancy district, irrigation companies, the conservation districts, and municipalities, to plan for future water needs.

- 4. The county opposes any plans or policies on public land that might limit access to sources of irrigation water rights.
- 5. The county supports agricultural efficiency to conserve irrigation water.
- 6. The county supports efficiency in irrigation of yards and landscaping to conserve water.

DESIRED MANAGEMENT PRACTICES

- 1. All resource management planning within the county involves active participation from the county.



DEFINITION

Water quality is the condition of water based on biological, chemical, and physical properties. Hydrology is the science of the distribution, effects, and properties of water.

RELATED RESOURCES

Land Use, Fire Management, Wild and Scenic Rivers, Wetlands, Water Rights, Canals and Ditches, Irrigation, Livestock and Grazing, Riparian Areas, Recreation and Tourism, Fisheries, Threatened, Endangered and Sensitive Species, Agriculture

HYDROLOGY

The hydrologic cycle describes movement of water on earth. Some of the processes by which water moves include: precipitation, infiltration (soil moisture and groundwater), and streamflow. In order to account for the distribution of water within a specific area, it is necessary to consider these processes. The watershed is one measure used to quantify and analyze water and its effects at a specific location. A watershed, or drainage basin, is an area of land in which all water within drains to the same outlet. Watersheds are home to a variety of plant life including: bacteria, grasses, forbs, shrubs, and trees. Additionally, the watershed ecosystems in Utah support protozoa, invertebrates, amphibians, reptiles, fish, birds, and mammals.

“Sanpete’s semi-arid climate is affected by the distant Sierra-Nevada Mountain Range. Pacific storms on their way east must cross this range, but, heavy with moisture, they often lose their precipitation before reaching the intermountain region. The clouds reaching the Sanpete and Gunnison Valleys are thus often dry, giving the area an average of only twelve to fifteen inches of precipitation annually. Prolonged periods of extremely low temperatures are usually prevented by the Rocky Mountains which act as a barrier to continental arctic air masses approaching the area” (Antrei and Roberts 1999).

“Annual normal precipitation varies widely across the county from eight to ten inches in the lower, north central and west areas, to forty to fifty inches on the Wasatch Plateau, and more than fifty inches on the highest peaks. Much of the latter comes in the form of snow, which averages 150-200 inches in the northeast mountains, to only twenty to forty inches in the southern part of the county. The inhabited valleys receive an annual snowfall of forty to seventy inches. Depending on whether the snow is “dry” or “wet,” an inch of water equals fifteen to twenty inches of snow” (Antrei and Roberts 1999).

“The NRCS Snow Survey Program provides mountain snowpack data and streamflow forecasts for the western United States. Common applications of snow survey products include water

supply management, flood control, climate modeling, recreation, and conservation planning. The NRCS operates eleven SNOTEL (SNOWpack TELEmetry) sites within Sanpete County. The SNOTEL sites of Beaver Dams, Buck Flat, Dill’s Camp, Great Basin Research Center (GBRC) Headquarters, GBRC Meadows, Huntington Horseshoe, Mt. Baldy, Rees Flat, Seeley Creek, Thistle Flat, and Wrigley Creek are located in Sanpete County” (Sanpete Conservation District 2013).

As water enters and flows through a watershed, a fraction of the water infiltrates into the ground and recharges underground aquifers. Groundwater from wells is also a critical resource for culinary and agricultural water supplies.

“The county’s water resources derive from both surface water and groundwater, the former consisting of rivers, streams, and reservoirs, and the latter of underground sources such as springs, drilled and artesian wells, and the basins they fill. The Sevier River near Gunnison provides an average flow of 157,800 acre-feet annually, while below the Sevier Bridge Reservoir the flow increases to 173,000 acre feet” (Antrei and Roberts 1999).

“Sanpete County has several reservoirs of appreciable size: Fairview Lake, Twelve Mile Lake, Silver Creek, Funk’s Lake, Willow Creek, Chester Ponds, and Gunnison. Additional water has been made available through pumping from wells, and from diversions from the Colorado Basin” (Sanpete Conservation District 2013).

WATER QUALITY

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

Water quality characteristics include:

- Conductivity
- Dissolved oxygen
- Nutrients
- pH
- Suspended sediment
- Water temperature
- Turbidity

According to the Utah Department of Environmental Quality (2013), portions of the San Pitch River have been measured as

WATER QUALITY + HYDROLOGY

having impairments such as dissolved oxygen and dissolved solids. These pollutants must be monitored and managed to prevent fines.

“Many turkeys are produced in animal feeding operations (AFOs) in Sanpete County. The manure from these AFOs poses a water quality concern. A water quality plan has been developed for the San Pitch River Watershed, and federal, state, local, and private funding is being used to reduce non-point source pollution from AFO’s and soil erosion” (Sanpete Conservation District 2013).

Point source pollutants are highly regulated under the Clean Water Act of 1972 and Water Quality Act of 1987 through the issuance of permits and possible fines if permit requirements are not met. The EPA issues discharge permits within the National Pollutant Discharge Elimination System (NPDES). In Utah, the State of Utah was granted primacy by EPA to manage the NPDES permitting program as the Utah Pollution Discharge and Elimination System (UPDES) and is operated by the Utah Department of Environmental Quality (DEQ) Division of Water Quality (DWQ).

Economic Considerations

In 2011, recreational fishing in Utah’s lakes, streams, and rivers brought in \$259 million. This includes the cost of equipment and multipliers like lodging, retail purchases, and dining in restaurants. Fishing relies on good water quality and hydrology. In 2012, a study of outdoor recreation found that \$1.2 billion was spent for water related activities in Utah. It is more cost effective to protect the water resource at its source and prevent contamination than to treat it in a wastewater treatment plant. “Nationwide, every \$1 spent on source water protection saves an average of \$27 in wastewater treatment costs” (Utah Division of Water Quality 2013).

Prepare60, a center established by four water conservancy districts in Utah, published a 2014 report illustrating that \$17.9 billion spent on water infrastructure maintenance alone enables \$5.4 trillion in ongoing economic activity. An investment in water resources of \$15 billion would create 930,000 new jobs, \$93 billion in incremental economic output, and \$71 billion in additional personal income (Aguero 2014).

Custom and Culture

Water quality, hydrology, and watershed systems are essential to sustain life and industry, as well as the built and natural environments in Sanpete County. This precious resource has been, and always will be, the lifeblood of the county.

In a 2008 survey, Utah residents, “generally considered water resources used for agriculture, homes, and businesses, and that provide fish and wildlife habitat...to be most important for

local quality of life [compared to other public land resources]” (Krannich 2008).

OBJECTIVES

- a. Mitigate potential risks to the drinking-water supply.
- b. The county has an adequate supply of clean water to supply the domestic, recreational, and ecological needs of the residents and visitors.
- c. Hydrology in the county is understood and managed in order to meet water needs.
- d. The public understands the importance of managing water resources for future sustainability.
- e. Water quality plans are made in cooperation with state, federal, and other partners.
- f. Provide sufficient safe water resources and systems to support the future growth of the residents.

POLICIES

1. Protect groundwater and surface water.
2. Support projects that reduce or protect groundwater from all contaminants, including TDS, Selenium, and nitrogen.
3. Support projects to increase water quality and or quantity in the county.
4. Support determination of safe yield for both surface and groundwater sources in times of plenty and during droughts.
5. Support projects that reduce loading to surface water from constituents that are not meeting State numerical standards.
6. Sanpete County will participate in the management of watersheds on public and private lands watersheds to optimize quality and quantity of water.
7. Work with the federal government to promote conservation of water through such means as public education programs, the lining of canals, and the installation of pipelines.
8. Maintain and improve present watershed, storage capacities, and increase our watershed production capabilities.
9. Conserve/preserve water for agricultural uses in the county.
10. Review and evaluate new development projects and land use changes both inside and outside the county limits to protect the quality of the county’s water resources.
11. Encourage development and use of centralized sewage-treatment systems in and adjacent to populated areas.
12. Protect against contamination of the Sanpete aquifers by hazardous materials with land use standards and procedures

that align with state and federal water-quality regulations designed to mobilize state and federal water-quality enforcement.

13. Discourage the use of herbicides, pesticides and fertilizer where such use could adversely affect water quality.
14. The county values clean, healthy drinking water.
15. The county supports finding local solutions to water quality and hydrological concerns.
16. The county values encourages actions by individuals, groups, and local governments that are aimed at improving water quality and supporting the hydrology of the county.
17. The county values water quality for human health and safety as well as ecological health.

DESIRED MANAGEMENT PRACTICES

1. Maintain water storage capacity of reservoirs by reducing sedimentation loading and seek additional storage.
2. Adequate water quality and availability is the lifeblood of Sanpete County and is necessary for future residential, industrial, commercial, agricultural, and recreational development. Sanpete County will protect this valuable resource by promoting watershed protection measures and supporting the efficient management and use of water

resources. The county supports the development, adoption, and implementation of water storage, distribution, and conservation plans by irrigation companies, industrial users, and municipalities.

3. Increase water conservation in agricultural and residential areas by encouraging secondary water systems for irrigation in new residential subdivisions.
4. Municipalities, water districts and public water suppliers are encouraged to work in partnership with the agencies that govern land use in their drinking watersheds to enact agreements for long-term watershed management.
5. Promote water conservation practices to community leaders and citizens.
6. Manage municipal watersheds for multiple-use with mitigation measures to protect the water supply for intended purposes. Allow projects when the proposed mitigation measures provide adequate protection.
7. Rehabilitate disturbed areas, where feasible, that are eroding excessively and/or contributing significant sediment to perennial streams.
8. Stabilize streambanks which are damaged beyond natural recovery in a reasonable period with appropriate methods or procedures.

WATER RIGHTS

DEFINITION

The legal right to make use of water from a stream, lake, canal, impoundment, or groundwater.

RELATED RESOURCES

Water Quality and Hydrology, Canals and Ditches, Irrigation

FINDINGS

Overview

Water is a finite, but renewable resource, and because of varying annual supplies of water, its availability is subject to competition between stakeholders. The water budget for Sanpete County's various interests is expected to always be a complex issue for stakeholders. Water is a resource taken from a dynamic, natural system resulting from a fluctuating cycle. Networks of moving water, above and below ground, extend beyond obvious topographic or political boundaries. Therefore, management and use of water supplies requires coordination between the various jurisdictions of local, state, and federal entities.

"All waters in Utah are public property. A 'water right' is a right to divert (remove from its natural source) and beneficially use water. 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 by flow rate (cfs) and/or by volume (acre-feet);
- A specified point of diversion and source of water;
- A specified place of beneficial use."

Source: (Utah Division of Water Rights 2011)

"Rights for water diversion and use established prior to 1903 for surface water or prior to 1935 for ground water can be established by filing a 'diligence claim' with the Division. Such claims are subject to public notice and judicial review and may be barred by court decree in some areas of the state" (Utah Division of Water Rights 2011).

"Water appropriation issues in specific geographic areas of the state are often administered using policies and guidelines designed to address local conditions. These policies and guidelines are generally developed for all or part of a defined Drainage Basin" (Utah Division of Water Rights 2011).

As water supplies fluctuate from year to year, any water right is subject to available supply. The State of Utah follows the Prior Appropriation System, which grants priority to water rights based upon that water right's chronologic seniority.

"The State Engineer has adopted procedures for enforcing water

rights violations. Under the new enforcement procedure, an action is initiated by the Division of Water Rights (DWR) after a violation has been observed by an official working in the DWR or another capacity for the state, or after a complaint is received from a water user, government agency, or other interested party. Private water users can report violations" (Donaldson 2007).

Economic Considerations

Although water rights are the right to use appropriated water within the requirements of a given beneficial use, water rights are classified as "real property" in the State of Utah and are bought and sold much like real estate.

Custom and Culture

"Ample supplies of water exist in the county and are covered by water rights. Numerous permanent and intermittent streams descend from the mountains into the Sanpete and Upper Sevier valleys and the entire drainage from the Sanpitch River and a portion of the Sevier River drainage are found within the county" (Antrei and Roberts 1999).

"The Utah pioneers, in the late 1840's, were the first Anglo-Saxons to practice irrigation on an extensive scale in the United States. Being a desert, Utah contained much more cultivable land than could be watered from the incoming mountain streams. The principle was established that those who first made beneficial use of water should be entitled to continued use in preference to those who came later. This fundamental principle was later sanctioned in law, and is known as the Doctrine of Prior Appropriation. This means those holding water rights with the earliest priority dates, and who have continued beneficial use of the water, have the right to water from a certain source before others with water rights having later priority dates" (Utah Division of Water Rights 2011).

"In the early territorial days, rights to the use of public streams of water were acquired by physical diversion and application of water to beneficial use, or by legislative grant. A "county courts" water allocation system was enacted in 1852 and was in effect until 1880 when it was replaced by a statute providing for county water commissioners" (Utah Division of Water Rights 2011).

Immediately upon their arrival, pioneer settlers in Utah began diverting and damming water for agricultural cultivation. Brigham Young declared in 1848 that streams were not to be privately owned and that they belong to all people. Local church leaders, bishops, were responsible for diverting water equitably for the benefit of the community. Bishops often delegated water management to watermasters. Later, municipal and county governments assumed these responsibilities. "In 1852 the territorial legislature delegated control over streams to county governments" (Donaldson 2007).

It is the custom and culture of Sanpete County to protect and preserve water rights.

OBJECTIVES

- a. Water rights are managed according to Utah water law.
- b. Water is used wisely to sustain the population of the county.
- c. Water rights held by private parties, municipalities, the water conservancy district, and the county are protected by the law.

POLICIES

1. The county also feels that private water rights should be protected from federal and state encroachment and/or coerced acquisition.
2. Support projects that benefit in-stream uses and protect current water right holders.
3. Work to acquire more water rights for the county to permit county to recruit industries/businesses that are higher water users.
4. Work with the federal government to promote conservation of water through such means as public education programs, the lining of canals, and the installation of pipelines.

5. Prohibit new or expansion of existing spring or other water source development and related facilities when: loss of water results in unacceptable impacts on riparian, vegetation, fisheries, or other natural resources and uses; or development and/or facilities that would result in unacceptable erosion, road damage, land instability, or disruption or damage of other facilities or resources.
6. The county supports private water rights.
7. The county opposes federal policies that infringe on private water rights.
8. The county encourages water conservation to intelligently use the water that is available in this arid county.
9. The county values water rights as a necessary protection for growth and survival in our county.
10. The county values existing water rights as part of the local heritage and culture.

DESIRED MANAGEMENT PRACTICES

1. Cooperation between water user groups, energy development companies, land use agencies, and citizens to both protect water rights and ensure opportunities for energy development.

WETLANDS

DEFINITION

A wetland is a land area that is saturated with water, permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem.

RELATED RESOURCES

Livestock and Grazing, Land Use, Noxious Weeds, Wildlife, Water Quality and Hydrology, Wetlands, Wild and Scenic Rivers, Canals and Ditches, Irrigation, Riparian Areas, Recreation and Tourism, Agriculture, Water Rights

FINDINGS

Overview

Wetlands have been defined in different ways by numerous entities and agencies. However, the US Army Corps of Engineers (Corps) and the US Environmental Protection Agency (EPA) jointly define wetlands as: “Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that do under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” This definition of wetlands is perhaps the most relevant to local land managers and planners because the Corps and the EPA are the agencies that have legal jurisdiction over wetlands, including those wetlands on private property. Wetlands provide numerous benefits including wildlife habitat, aquifer recharge, and water quality improvements (U.S. Environmental Protection Agency 2015).

According to the Utah Wetland Information Center, 1% of Utah’s landscape is wetlands (Utah Geological Survey. n.d.). Wetlands are among the most productive ecosystems in the world, comparable to rainforests (U.S. Environmental Protection Agency 2015). The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants, adapted to the unique hydric soil. Wetlands have the ability to improve water quality by acting as filters. In addition, wetlands can lessen the effects of flooding by containing stormwater and releasing it gradually. Because these critically productive systems are a scarcity in the region, special emphasis is necessary for their management.

Best management practices for wetlands include protection of existing wetlands through zoning and other land-use designations, restoration of historic wetlands, proper management of wetlands, and creation of new wetlands in appropriate areas.

Sanpete County has 6,521 acres of nationally identified wetlands, making up 1% of the total land cover (US Fish and Wildlife Service 2016).

The Corps and the EPA have strict guidelines for any activities occurring on or near a wetland. Under Section 404 of the Clean Water Act (CWA), activities that involve excavation or placement of fill in jurisdictional waters or wetlands require a permit issued by the Corps and may be reviewed by EPA. Impacts to or near wetlands can require permits from federal, state, and local agencies.

Economic Considerations

Wetlands provide recreational value as well as ecological, social or economic value. Possibly the most significant economic and social benefit of wetlands is flood control, but wetlands also provide essential functions in filtering water/improving water quality and providing habitat for waterfowl and other wildlife (World Wildlife Fund 2004). Wetlands also recharge aquifers.

Custom and Culture

Wetlands are an integral part of Sanpete County. Culturally, wetlands are important beyond these traditions for the ecological and water quality value they add to the environment.

POLICIES

1. Support projects, land uses, and water allocation policy that protect wetlands.
2. It is the objective of Sanpete County to preserve wetland areas where possible. In some cases, however, the best course of action might be to consider development which will improve and enhance disturbed wetlands.
3. Obtain 404 permits when needed for proposed activities causing disturbance to floodplains and wetlands.
4. Prior to implementation of project activities, delineate and evaluate riparian areas and or wetlands that may be impacted.
5. Encourage the DWR to identify wetlands and riparian areas with significant wildlife values to aid in their protection.

DESIRED MANAGEMENT PRACTICES

1. Manage, maintain, protect, and restore riparian and wetland areas to the proper functioning condition and achieve an advanced riparian obligate vegetation community.
2. The water table in wetlands and riparian areas will be maintained or restored, when feasible.

DEFINITION

Riparian areas are ecosystems formed between the land and a stream or river; often composed of dense vegetation.

RELATED RESOURCES

Livestock and Grazing, Wild and Scenic Rivers, Canals and Ditches, Irrigation, Agriculture, Water Rights, Water Quality and Hydrology, Wetlands, Floodplains and River Terraces, Wildlife, Noxious Weeds, Fisheries, Recreation and Tourism, Fire Management, Land Use

FINDINGS

Overview

Riparian zones are important in ecology, environmental management, and civil engineering because of their role in soil conservation, their habitat biodiversity, and the influence they have on fauna and aquatic ecosystems, including grasslands, woodlands, wetlands, or even non-vegetative areas.

According to the Utah Wildlife Action Plan (2015), “riparian areas are the richest habitat type in terms of species diversity and wildlife abundance.” These areas provide habitat to a range of wildlife including amphibians, birds, mammals, fish, and insects. Riparian areas also play a significant role in the erosion processes by slowing water, trapping sediment, and stabilizing banks. Finally, riparian areas provide quality forage for livestock and are valued within grazing allotments.

The San Pitch River begins on the Wasatch Plateau north of Fairview and flows through the east branch of Sanpete Valley. The Sevier River and its tributaries also represent important riparian zones (NRCS 2005).

Many rivers, creeks, and streams flow through Sanpete County, supporting riparian vegetation along their banks. The cottonwoods, willows, and other vegetation create habitat for wildlife. In Sanpete County, certain state-sensitive or federally listed species require riparian habitat. The bald eagle, yellow-billed cuckoo, and western toad, all rely on the riparian areas of Sanpete County. Additionally, fish such as the Bonneville cutthroat trout and leatherside chub need the shade from trees along riverbanks to moderate the temperature of the stream (NRCS 2005).

Federal agencies manage riparian areas and floodplains under Executive Orders 11988 and 11990, Sections 303 and 404 of the Clean Water Act, and also the Endangered Species Act. Riparian areas are also managed under individual resource management plans and other agency policies and guidelines, such as the BLM’s Riparian Area Management Policy.

The Utah Comprehensive Wildlife Conservation Strategy prioritizes habitat categories based on several habitat criteria important to the species of greatest conservation need. The top key habitat statewide is Lowland Riparian (characterized by riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow), while the third most key habitat is Mountain Riparian (characterized by riparian areas >5,500 ft elevation; principal vegetation: narrowleaf cottonwood, willow, alder, birch and dogwood) (Sutter et al. 2005).

The Utah Division of Water Rights processes stream alteration permits in conjunction with the US Army Corps of Engineers.

Economic Considerations

It is difficult to quantify the economic benefits of riparian areas. They are intertwined with nonmarket ecosystems and services like clean water, wildlife habitat, recreation, and tourism. Pre- or post-water treatment methods that utilize passive bioengineering techniques, including riparian area management, can significantly reduce water treatment costs, thereby avoiding some of the costs associated with engineered water treatment plants, which are extremely expensive.

Custom and Culture

According to a 2008 survey, 74.4% of residents in Sanpete, Sevier, and Piute counties ranked the importance of water resources that provide habitat for fish and wildlife as “very important” for the overall quality of life for their community (Krannich 2008).

Over 46% of residents [the majority] in Sanpete, Sevier, and Piute County believe that the amount of protection of important fish and wildlife habitat on Utah’s public lands should stay the same (Krannich 2008).

It is the custom of the people in Sanpete County to conserve riparian areas for the good of natural ecosystems, and for the people that use and enjoy them.

OBJECTIVES

- a. Riparian areas are healthy and ecologically functional.
- b. Private property rights are balanced with the need to preserve and care for riparian areas.
- c. The public understands the importance of riparian areas and how to manage them.

POLICIES

1. The county values healthy, functional riparian areas.
2. The county opposes riparian policies that infringe on private property rights or state water law and policy.
3. The county supports finding local solutions to riparian

RIPARIAN AREAS

concerns.

4. The county values riparian areas for their ecological and aesthetic values.
5. The county values riparian areas for their bank stabilization functions.
6. Support projects and land uses that protect the riparian corridors and stream ecology.
7. Support Utah State University Extension and other experts in assisting permit holders and land users to monitor conditions in riparian areas, in both grazed and non-grazed areas.
8. Support giving preferential consideration to riparian area-dependent resources, especially water quality and quantity, in cases of unresolvable resource conflicts.

DESIRED MANAGEMENT PRACTICES

1. Trail design standards don't conflict with sensitive riparian corridors.
2. Support the use of good science by federal and state agencies to ensure that riparian areas are functioning on public lands.
3. Management of riparian areas should be sensitive to relevant component ecosystems. These components include the aquatic (including fish) ecosystem, the riparian (characterized by distinct vegetation), and adjacent ecosystems that remain within approximately 100 feet measured horizontally from

edge of all perennial streams and springs, and from the shores of lakes and other still water bodies, i.e., from seeps, bogs, and wet meadows. All of the components are managed together as a land unit comprising an integrated riparian area, and not a separate component.

4. Support integrated species management to accomplish riparian restoration through biological, chemical, mechanical, and manual methods (e.g., tamarisk control, willow plantings).
5. Minimize significant soil compaction and disturbance in riparian ecosystems. Allow use of heavy construction equipment during period when the soil is less susceptible to compaction or rutting.
6. Riparian areas on federal lands should be managed to protect vegetation characteristics. Conservation efforts include preserving existing riparian areas as well as restoring damaged ones. Preservation should also include the dedication of sufficient water and groundwater to support vegetation. Limiting the removal of water from the system is essential in maintaining the integrity of the riparian area. Restoration efforts must consider factors like hydrology, floodplain, and adjacent land use. Restoration design of riparian areas should follow a protocol that accounts for stream hydrology, soil characteristics, vegetation, adjacent land use, recreation, and other influences. Stream or river modifications may require permits.

DEFINITION

An administrative designation created under the National Wild and Scenic Rivers Act of 1968 applied to preserve certain free-flowing rivers that “possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.”

RELATED RESOURCES

Recreation and Tourism, Land Use, Livestock and Grazing, Irrigation, Canals and Ditches, Water Rights, Water Quality and Hydrology, Wetlands, Floodplains and River Terraces, Riparian Area, Fisheries, Wildlife, Threatened, Endangered and Sensitive Species

FINDINGS

Overview

The Wild and Scenic Rivers Act is notable for preserving the special character of 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 (Bureau of Land Management 2012).

Under the Wild and Scenic Rivers Act, rivers are classified into three categories:

- Wild rivers represent “vestiges of primitive America” in that they are free-flowing segments of rivers with undeveloped shorelines that typically can only be accessed via trail.
- Scenic rivers are dam-free river segments with undeveloped shorelines but accessible in places by roads.
- Recreational rivers are more developed than Wild or Scenic river segments and can be accessed by roads.

Source: (Bureau of Land Management 2012).

Section 5(d)(1) of the Wild and Scenic Rivers Act (1968) directs federal agencies to identify potential additions to the National Wild and Scenic Rivers System through federal agency plans. Under these provisions, federal agencies study the suitability of river sections they manage for designation under the Wild and Scenic Rivers Act. Sections that are determined to be suitable can be managed to preserve their suitability by an agency land management plan while awaiting congressional designation (National Wild and Scenic Rivers System 2017).

Designating river segments as wild, scenic, or recreational would restrict many activities related to the stream and other uses within 0.25 mile of it, and in some cases, these designations could be detrimental to users’ ability to develop and manage water

resources necessary to meet future growth needs. The ability to obtain approval for water right change applications on, or upstream of, designated streams by existing water users may also be limited. Similarly, federal permits cannot be issued for uses on a stream segment that would be in conflict with the wild and scenic designation.

Designation of wild and scenic rivers may result in non-use, restricted use, or environmental impacts on public and private lands. These restrictions may prohibit future uses that are necessary to continue to assure economic prosperity or may adversely affect the operation, management, and maintenance of existing facilities.

The USFS has determined that several segments of waterways in Sanpete County are suitable for Wild and Scenic designations. Several portions of Fish Creek and Gooseberry Creek, totalling 13.77 miles when inside of Sanpete, have been tentatively classified as suitable and scenic designation, respectively (U.S. Forest Service 2017).

Designated rivers are typically managed by federal agencies, but can also be managed by partnerships of adjacent communities, state governments, and the National Park Service, allowing communities to protect their own outstanding rivers.

Economic Considerations

At present, the economic implications of Wild and Scenic River designation are not totally understood, nor quantifiable. The tradeoff between increases in recreation and tourism sectors and the potential economic loss of future river development should be considered. An analysis of Wild and Scenic River designation conducted by Utah State University made some observations: primary impacts of designation relate to a reduction in the grazing in riparian areas; and other impacts include further regulations on adjacent public and private land uses (Keith J., et al. 2008).

Healthy rivers provide essential ecological services which would otherwise be engineered and paid for. These services include purification of water, nutrient banking in floodplains, unpolluted fisheries, flood protection, and groundwater recharge. Preserving certain stretches of a river as wild or scenic can “lock-in” these essential services for the good of the people (Wilson and Carpenter 1999).

Custom and Culture

Where citizens of Sanpete County are not responsible for the designation or management of Wild and Scenic Rivers, and as there is only a short history (since 1968) of this designation in the US, no custom or culture can be associated with the federal designation “Wild and Scenic Rivers” at this time; however, county residents maintain that rivers in general are an integral

WILD + SCENIC RIVERS

element of sustaining and improving the health of the regional economy and ecology. Citizens of Sanpete County have always prized rivers for their aesthetic, ecological, recreational, and hydropower value. Managing rivers for multiple uses has historically been, and continues to be, a tradition based on facilitating many users and values.

In a 2008 survey, Utah residents, “generally considered water resources used for agriculture, homes, and businesses, and that provide fish and wildlife habitat...to be most important for local quality of life [compared to other public land resources]” (Krannich 2008).

In the Piute/Sanpete/Sevier area, 46.8% [the majority] of respondents said that the amount of wild and scenic river designations should “stay about the same” on Utah public lands (Krannich 2008).

Custom and Culture

According to a 2008 survey, 74.4% of residents in Sanpete, Sevier, and Piute counties ranked the importance of water resources that provide habitat for fish and wildlife as “very important” for the overall quality of life for their community (Krannich 2008).

Over 46% of residents [the majority] in Sanpete, Sevier, and Piute County believe that the amount of protection of important fish and wildlife habitat on Utah’s public lands should stay the same (Krannich 2008).

It is the custom of the people in Sanpete County to conserve riparian areas for the good of natural ecosystems, and for the people that use and enjoy them.

OBJECTIVES

- a. River segments that have been designated as wild, scenic, or recreational are adequately protected and functioning.
- b. River segments that have not been designated as Wild and Scenic Rivers by Congress are not managed as de facto Wild and Scenic Rivers.

POLICIES

1. Sanpete County strictly oppose the designation of Fish Creek as a Wild and Scenic River, which would add a restrictive layer of regulation, limit management options and threaten water rights.
2. Should designations occur on any river segment as a result of Secretarial or congressional action, existing rights, privileges, and contracts will be protected. Under Section 12 of the Act, termination of such rights, privileges, and contracts may happen only with the consent of the affected non-federal party.

3. The County supports following federal law in the management of existing Wild and Scenic Rivers within the county.
4. The County opposes river management that exceeds the statutory authority of the Wild and Scenic Rivers Act.

DESIRED MANAGEMENT PRACTICES

1. The federal agencies will leave existing water rights undisturbed and recognize the lawful rights of private, municipal and state entities to manage water resources under state law to meet the needs of the community.
2. Federal agencies should work with the state, local and tribal governments, and the agencies involved, to coordinate its decision making on Wild and Scenic River issues and to achieve consistency wherever possible.
3. A determination by federal agencies of eligibility and suitability for the inclusion of rivers on public lands to the Wild and Scenic Rivers System does not create new water rights for the federal agencies. Federal reserved water rights for new components of the Wild and Scenic Rivers System are established at the discretion of Congress. If water is reserved by Congress when a river component is added to the Wild and Scenic rivers System, it will come from water that is not appropriated at the time of designation, in the amount necessary to protect features which led to the river’s inclusion into the system.
4. Regarding Wild and Scenic Rivers designations, federal agencies should work with affected local, state, federal and tribal partners to identify in-stream flows necessary to meet critical resource needs, including values related to the subject segment(s). Such quantifications will be included in any recommendation for designation.
5. It is the county’s position that no river segment should be included in the National Wild and Scenic River System unless:
 - a. Water is present and flowing at all times.
 - b. The water-related value is considered outstandingly remarkable within a region of comparison consisting of one of three physiographic provinces of the state, and that the rationale and justification for the conclusion are disclosed.
 - c. BLM fully disclaims in writing any interest in water rights with respect to the subject segment.
 - d. It is clearly demonstrated that including the segment in the NWSR system will not prevent, reduce, impair, or otherwise interfere with the state and its citizen’s

WILD + SCENIC RIVERS

enjoyment of complete and exclusive water rights in and to rivers of the state as determined by the laws of the state, nor interfere with or impair local, state, regional, or interstate water compacts to which the state or the county is a party.

- e. 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.
- f. It is clearly demonstrated that BLM does not intend to use such a designation to improperly impose Class I or II

Visual Resource Management prescriptions.

- g. It is clearly demonstrated that the proposed addition will not adversely impact the local economy agricultural and industrial operations, 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.
- h. The foregoing also summarizes the wild and scenic river criteria of the State of Utah, Utah Code § 63-38d-401(8) (a), as well as the criteria of the county.





WILDLIFE RESOURCES

WILDLIFE
THREATENED, ENDANGERED + SENSITIVE SPECIES
PREDATOR CONTROL
FISHERIES

WILDLIFE

DEFINITION

Undomesticated animals usually living in a natural environment, including both game and nongame species.

RELATED RESOURCES

Threatened, Endangered, and Sensitive Species, Predator Control, Agriculture, Livestock and Grazing, Land Use, Fisheries, Forest Management, Recreation and Tourism

FINDINGS

Overview

Sanpete County's size and biological diversity increase the importance of wildlife issues and the impact of management decisions.

"Populations of many species of wildlife have declined over the past 30 years due to a variety of manmade and natural factors. Unless adequate measures are taken to recover and conserve species populations and habitats, some of these species may become federally listed in the future" (Sutter et al. 2005).

Best management practices for wildlife focus on principles and actions that allow people and wildlife to coexist, and on creating or maintaining healthy wildlife populations and habitat.

Primary control of wildlife management and planning is given to the State of Utah. The Utah Division of Wildlife Resources (UDWR) conducts wildlife studies and issues hunting permits. The federal government issues grazing permits for areas in Sanpete County where grazing and wildlife compete for forage.

Species management plans provide guidance and direction for a number of species in Utah. These plans are taken through a public process to gather input from interested constituents and then presented to the Utah Wildlife Board for approval. Species covered by statewide plans include wild turkey, chukar, greater sage-grouse, mule deer, elk, moose, pronghorn, mountain goat, bighorn sheep, Utah prairie dog, beaver, northern river otter, black bear, cougar, bobcat, and wolf.

Greater Sage-Grouse

For the greater sage-grouse (*Centrocercus urophasianus*), the Conservation Plan for Greater Sage-grouse in Utah (UDWR 2013) was developed to help eliminate threats facing the greater sage-grouse while balancing the economic and social needs of Utahns through a coordinated program that provides for:

- voluntary programs for private, local government, and School and Institutional Trust Lands Administration lands; and
- cooperative regulatory programs on other state and

federally managed lands.

"Proposals which have completed environmental reviews, including the Narrows Project in Sanpete County and the Sigurd to Red Butte Transmission Line, are recognized as in compliance with this (Existing Uses) provision of the [State management plan]" (UDWR 2013).

Deer and Elk

Mule deer (*Odocoileus hemionus*) and elk (*Cervus canadensis nelsoni*) both have statewide management plans, as well as specific herd unit plans. Each of these unit plans have been reviewed and approved by the Utah Wildlife Board. In many cases, herd unit plans have been revised multiple times since their initial development in the mid-1990s. The plans establish target herd-size objectives for each herd unit, which DWR and the Utah Wildlife Board then strive to meet through harvest adjustment and other mechanisms. Habitat needs and other local management considerations are also addressed in these unit plans (UDWR 2014).

Several deer herd management plans intersect within the boundaries of Sanpete County. Deer herd unit #16, #18, and #21 are maintained as guiding documents for management of the animals in the county. On a seasonal basis, big-game animals migrate among public, and private lands. These movements can create game management issues as a result of damage to private property and consumption of livestock feed by wildlife. To address these issues, the UDWR plans seek to enhance forage production through direct range improvements on winter and summer deer range and to protect habitat using tools such as conservation easements, conservation agreements, and cooperative wildlife management units (UDWR 2015d). Utah Code 23-21-2.5 (2) states that, "When changing any existing right to use the land, the division shall seek to make uses of division-owned land compatible with local government general plans and zoning and land use ordinances."

Feral or Wild Horses

There are no herd areas or Herd Management Areas under BLM jurisdiction in Sanpete County (BLM 2008).

Moose

Viable moose habitat exists in the mountainous areas along the eastern edge of the county, although it is considered "marginal habitat" as opposed to ideal habitat (UDWR n.d.).

"In the more southern moose units in Utah, some natural expansion continues to occur, but it is relatively limited. Additionally, some remnant populations still exist on the Manti, but little to no growth is occurring, and it is unlikely that they will grow to viable populations" (UDWR n.d.).

“Although moose in Utah are also associated with riparian habitat types, they are not exclusively tied to them. Moose have done well in drier habitats in northern Utah which are dominated by mountain mahogany, Gambel oak, serviceberry, quaking aspen, and burned over coniferous forests” (UDWR n.d).

Black Bear

Many areas of the county are year-long, crucial and/or substantial habitat for the black bear.

“The black bear has been a protected species in Utah since 1967, when a group of sportsmen petitioned the Utah State Legislature to protect both cougar (*Puma concolor*) and bear” (UDWR 2011).

The management goal in Utah is to, “Maintain a healthy bear population in existing occupied habitat and expand distribution while considering human safety, economic concerns, and other wildlife species. A ‘healthy’ bear population is one that has a proportion of breeding age animals that will maintain population levels consistent with habitat, and that maintains genetic variability” (UDWR 2011).

The Black Bear Guidebook (2016a) distributed by UDWR details the rules, boundaries, and licenses required for hunting. The boundaries cover the Eastern parts of the county.

Other species present in Sanpete county that are part of statewide management plans include the golden eagle, burrowing owl, peregrine falcon, prairie-dog, American pika, kit fox, and many more (Utah Division of Wildlife Resources 2015e). For other information on threatened and endangered species, see the corresponding resource section.

Another tool for wildlife management is a cooperative wildlife management unit (CWMU). They can be created by the state as contiguous areas of land open for “hunting small game, waterfowl, cougar, turkey, or big game which is registered in accordance with...the Wildlife Board.” CWMUs can span over private, public, and state land, in an effort to manage based on an animal’s range, rather than man-made borders. These small management areas rely on local knowledge and stakeholder involvement to conserve wildlife and associated habitat. The Bear Mountain Cooperative Wildlife Management Unit consists of 7,700 acres of private property in the county. The area offers opportunities to hunt deer and elk with the appropriate permits (UDWR 2017).

Economic Considerations

The US Fish and Wildlife Service found that Utah residents and non-residents spent over \$1.5 billion dollars in 2011 in Utah on recreation activities associated with wildlife (U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau 2011).

Custom and Culture

It is believed the first inhabitants of the Sanpete region hunted animals and gathered edible plants. Mormon settlers lived off the land and hunted for food, fiber or clothing, predator or nuisance control, and sport.

One such example is illustrated in A History of Sanpete County (1999): “We watched the Indians sometimes hunting rabbits on the hill. They would first form a large circle. Then would ride round and round drawing nearer and nearer together until the poor bunnies were completely surrounded. Then they began shooting them with their bows and arrows... They would take them to their “wickieups” where the rabbits were thrown on the fire hide and all. When the meat was done what was left of the hide was stripped off and dinner was ready.”

These traditions are part of the custom and culture of Sanpete County and are honored today.

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 Utah, each consisting of a dozen or more individuals nominated by various interest groups and selected by the leadership of the Utah 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 Utah Wildlife Board.

Wildlife watching has grown in popularity in recent years. Additionally, hunting has always been a popular pastime in the area. Sanpete County is known for excellent hunting grounds for many species.

OBJECTIVES

- a. Healthy wildlife populations support local ecology.
- b. Thriving wildlife populations provide wildlife viewing and hunting experiences for residents and visitors to the county.
- c. Well managed wildlife populations that do not detract from the safety or economy of residents.
- d. Hunting continues to be part of the economy and traditions of the area.

POLICIES

1. Support hunting and wildlife photography in the area.
2. Sanpete County discourages wolf introduction/

WILDLIFE

reintroduction.

3. Support and cooperate with the Utah Division of Wildlife Resources for projects related to wildlife management decisions.
4. Encourage more public access to public lands in areas where elk can be taken without impacting the private property, and where elk hunting would be valuable to the land owners who provide guiding and outfitting.
5. Increase partnerships with private, federal, state, local, and wildlife interest groups.
6. The county recognizes the authority of the Utah Division of Wildlife Resources and wildlife board in managing the wildlife in the county.
7. The county supports wildlife management that seeks an optimal balance between wildlife populations and human needs.
8. The county opposes any federal land management that infringes on state jurisdiction over wildlife.
9. The county values wildlife as an important part of the ecology and beauty of the county.
10. The county values game hunting as part of the economy, custom, and culture of the county.
11. The county supports the control of raccoons.

DESIRED MANAGEMENT PRACTICES

1. Ensure the continued viability of the National Forest as big

game habitat.

2. Support responsible wildlife management; ensure that wildlife interests are considered in all public land use and resource development decisions. Encourage partnerships among County residents, the county, and federal and state agencies to improve wildlife and fish habitat.
3. The county encourages public land management agencies to develop biological resource management plans that provide for the enhancement of native fish, game and nongame species, promote fishing and hunting on public lands, and provide a private property compensation program for certain damages created by wildlife.
4. Agencies should coordinate with the county before eliminating, introducing or reintroducing any species onto public lands and address potential impacts of such an action on private lands, customary use and private property interests in the public land, and the local economy.
5. Balance elk numbers in order to protect private farming, grazing, and forest lands.
6. Continue efforts to improve and increase forage through habitat manipulation.
7. Provide compensation to landowners for crop depredation.
8. Improve management of wildlife on private land.
9. Support management of waters capable of supporting self-sustaining fish populations to provide for those populations.
10. Maintain or improve habitat capability through direct treatment of vegetation, soil, and/or water.

THREATENED, ENDANGERED + SENSITIVE SPECIES

DEFINITION

Species of plants, animals, and other living organisms which are, to some degree, threatened by extinction.

RELATED RESOURCES

Wildlife, Land Use, Fisheries, Livestock and Grazing, Noxious Weeds, Fire Management

FINDINGS

Overview

The Endangered Species Act (ESA) directs all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the ESA. Animal or plant species are classified as endangered, threatened, or candidate species.

BLM and USFS work with their partners like the US Fish and Wildlife Service (USFWS), the Division of Wildlife Resources (UDWR), universities, non-profits and native plant partnerships to conserve and recover federally-listed species and their habitat on public and forest lands. The program also provides support for conservation of non-listed rare plant species with a goal of avoiding the need to list them in the future.

The BLM, and the USFS both maintain their own lists of sensitive species for the lands they administer, using their own criteria, but oftentimes simply reflect the state's sensitive list. These agencies have their own policies and objectives for managing wildlife habitat and plant populations.

The State of Utah sensitive species list is prepared pursuant to Utah Administrative Code R657-48 (2016). By rule, wildlife or plant species that are federally listed candidates for federal listing, or for which a conservation agreement is in place, automatically qualify for the list. The additional species on the list—wildlife or plant species of concern—are those species for which there is credible scientific evidence to substantiate a threat to continued population viability. It is anticipated that wildlife or plant species of concern designations will act as an “early warning” system to identify species for which conservation actions are needed. Species on the State of Utah sensitive species list are not protected by any special state regulations.

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 and plant 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 of ESA listings on the people of Utah (Utah Division of Wildlife Resources 2015f).

According to the UDWR, there are 50 species of birds, fish, reptiles, mammals, and plants considered “sensitive” in the county. 17 of these sensitive species are specifically addressed in the Utah Wildlife Action plan (Utah Division of Wildlife Resources 2015e).

Sensitive Plants

“Utah is home to at least 600 rare vascular native plant species (and subspecies/varieties) including some 25 species that are federally listed as endangered or threatened under the Endangered Species Act of 1973. The 600 taxa represent almost 19% of our currently known flora. Of those, some 180 or almost 6% have been ranked by our rare plant committee as of “extremely high” or “high” concern. Many of these are highly restricted endemics (Utah has 475 endemics, i.e. geographically restricted, with 420 of those only occurring in Utah). Only a handful of states (Hawaii, California, Arizona, Florida, Texas and Oregon) are believed to have as many or more rare plant species as Utah. And this number is growing, since every year new species are still being discovered or recognized” (Utah Native Plant Society n.d.).

Economic Considerations

Much of the funding for conservation activities comes from hunter and angler license fees and habitat stamps, as well as federal excise taxes on shooting, boating, and fishing equipment. These sources may indirectly benefit some “non-game” species, but in general, funding is harder to come by for these species (Utah Division of Wildlife Resources 2015f).

The ESA prohibits consideration of economic impacts when determining whether to list a species, but it does require consideration of economic impacts when designating critical habitat.

Custom and Culture

Species extinctions in the late 19th century and early 20th century triggered national awareness and response in the form of active wildlife management.

For more than a century, local farmers, ranchers, and hunters have managed the lands of Sanpete County for long-term biological diversity.

OBJECTIVES

- a. All existing federally listed species are recovered to the point of being delisted.
- b. Residents are educated about and implementing best practices for protecting species.
- c. Local conservation efforts suffice to preclude the need for any future listings.

THREATENED, ENDANGERED + SENSITIVE SPECIES

- d. Lands and/or resources are managed for multiple species and the overall ecological health.

POLICIES

1. Support work that helps ensure that the Sage Grouse remains under the management of UDWR and does not become listed as threatened or endangered.
2. Support the de-listing of the wolf as an endangered species, so that proper control measures can be used in management of wolf populations by the UDWR.
3. Support the removal of Interstate 70 as the dividing line between Mexican and Northern wolf habitat.
4. Coordinate actions with USFWS and other involved entities. Support population and habitat monitoring.
5. Cooperate with the USFWS, other agencies, and universities to develop plans for federally listed T&E plant and animal species.
6. The county adheres to federal law and reasonable practices in protecting threatened, endangered, and sensitive species.
7. The county opposes listing any new species as threatened or endangered without proper scientific evidence.
8. The county opposes introducing any new protected species into the county without full cooperation and approval from the county.

9. The county support finding local solutions to protect sensitive species in an effort to prevent federal listing.
10. Oppose lands and/or resources management practices that manage for one species.

DESIRED MANAGEMENT PRACTICES

1. Protection of sensitive and endangered species on a multiple use basis with livestock and wildlife.
2. Maintain, protect, and enhance habitats (including but not limited to designated critical habitat) of federally listed Threatened, Endangered, or Candidate plant or animal species to actively promote recovery to the point that they no longer need protection or prevent the listing of species under the Endangered Species Act.
3. Develop and implement conservation measures to minimize long-term habitat fragmentation through avoidance and site-specific reclamation to provide habitat quality and quantity adequate to fulfill the life history requirements and to support a natural diversity of species.
4. Locations/habitats that currently do not have non-native plant problems remain free from the introduction and spread of invasive non-native plants.
5. Provide for the protection and perpetuation of unique plant species and communities (including rare, threatened, endangered and endemic species as well as pristine, disjunct and uncommon plant communities).

DEFINITION

The places where fish breed and live, or where people hunt for fish. The term also includes game and nongame fish species.

RELATED RESOURCES

Canals and Ditches, Irrigation, Floodplains and River Terraces, Riparian Areas, Water Quality and Hydrology, Water Rights, Wetlands, Wild and Scenic Rivers, Wildlife, Recreation and Tourism

FINDINGS

Overview

Statewide, Utah's current fish and wildlife resource is highly diverse. Approximately 647 vertebrate species inhabit the state; of these, 381 are considered permanent residents, including 78 species of fish (Powell 1994).

Sport Fishing

Sport or recreational fishing is an important part of the outdoor recreation industry. The Utah Division of Wildlife Resources (UDWR) is responsible for managing fisheries in Utah with the primary goal of providing quality recreational fishing opportunities. Assisting the UDWR in decision making and establishing management priorities are five Regional Advisory Councils (RACs) who provide local input on fisheries-related issues (Wildlife Resource Code of Utah, Ch14, Sec. 2.6). Rivers, lakes, and reservoirs that provide exceptional angling experiences are given Blue Ribbon Fisheries (BRF) status.

There are currently two blue ribbon fisheries in Sanpete County: one inside the Huntington Reservoir, and the other at Duck Fork Reservoir. These places were awarded for criteria such as water quality, quantity, accessibility, and natural reproduction capacity of the fish (Blue Ribbon Fisheries Advisory Council 2009, UDWR 2015a).

In Utah, sport fish species are usually grouped into 1) cold water species, which typically include whitefish, trout, char, and salmon; and 2) warm water-cool water species, which include sportfish such as bass, pike, walleye, perch, catfish, bluegill, and crappie. Rare fish species and those subject to federal listing under the Endangered Species Act (ESA) are referenced more fully in the Threatened, Endangered, and Sensitive Species section. In general, sport fishing for these species is not permitted.

"During calendar year 2011, DWR issued 483,806 Utah resident and non-resident fishing or combination hunting and fishing licenses, a 17% increase over the number of licenses sold in calendar year 2005 – the last year in which a statewide angler activity survey was conducted. [The data] estimated a total of

2,448,299 fishing trips by resident and non-resident anglers over the 2011-2012 study period. Statewide, trip numbers were highest during July and August, with over 350,000 trips estimated for each of those months" (Krannich et al. 2012).

UDWR stocks fish in many waters around the state. Utah's system of state fish hatcheries 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 and the population's demand for fishing opportunities.

Aquatic Invasive Species

Aquatic Invasive Species (AIS), also referred to as Aquatic Nuisance Species, are defined by the UDWR as nonnative species of aquatic plants and animals that cause harm to natural systems and/or human infrastructure. Not all nonnative fish species are considered AIS, such as those that are desirable for sport fishing. These may include nonnative Rainbow Trout, Largemouth Bass, and catfish (UDWR 2009).

Invasive mussels in Utah waters have no natural competitors, so once they are established, they spread quickly, colonizing nearly any and all underwater surfaces. They are currently impossible to remove from contaminated water bodies and are easily spread to other waterbodies. The mussels can clog water transmission and power generation infrastructure, harm water-based recreational equipment, and outcompete both native and nonnative game species for nutrients. All these impacts can have profound impacts on sportfish populations (UDWR 2009).

Preventing the spread of AIS is currently the most effective management action. The UDWR has a statewide system of boat cleaning/decontamination stations, inspection check-points, and angler education efforts.

The UDWR is responsible for managing fisheries in Utah. Fish habitats (that is the state's streams, rivers, lakes, ponds, and reservoirs) are managed by the underlying landowner, which can include state and federal agencies (Utah Division of Wildlife Resources n.d.).

Economic Considerations

"Recreational fishing provides a significant economic impact to the Utah economy and economic benefit to anglers" (Ward and Salisbury 2016).

"Economic impacts or contributions are based on anglers' expenditures associated with the fishing trips. Expenditures affect the local and regional economy through the interrelationships among different sectors of the economy. Input-output (IO) analysis of expenditure patterns traces the effects "upstream" and "downstream" through the economy, resulting in the multiplier

FISHERIES

effects. The angler survey, conducted in the months of March, April and May of 2012, revealed that a typical angler spent \$84 per trip on a fishing trip in Utah in 2011. Average expenditure to visit a BRF was estimated to be \$90 per trip” (Ward and Salisbury 2016).

Fishing of over 78 species in Utah represents a significant sector of Utah’s tourism economy. Almost \$400 million was spent in association with fishing, hunting, and wildlife appreciation activities in 1985 (Powell 1994).

Custom + Culture

According to a 2008 survey, 67.6% of residents in Sanpete, Sevier, and Piute counties ranked the importance of opportunities to fish in area lakes, streams, and rivers as “moderately” or “very important” for the overall quality of life for their community (Krannich 2008).

Over 42.8% of residents in Sanpete, Sevier, and Piute county believe that the amount of protection of important fish and wildlife habitat on Utah’s public lands should “stay the same” (Krannich 2008).

Recreational fishing has been part of the local custom and culture for more than 100 years.

OBJECTIVES

- a. Fisheries support healthy ecosystems and provide sport

fishing.

- b. Fishery management within the county involves active participation from the county.
- c. Fisheries play a role in getting listed species delisted and preventing listing of new species.

POLICIES

1. Coordinate with UDWR to establish and maintain Blue Ribbon fisheries.
2. The county values fisheries as part of the local ecology and economy.
3. The county supports efforts to maintain healthy fisheries within the county for biological diversity as well as recreation and tourism.
4. Support natural resource management entities within Utah to prevent invasion of Aquatic Invasive Species (AIS) into the state, and to contain AIS through accepted management practices to areas that are either already infested or become infested.

DESIRED MANAGEMENT PRACTICES

1. Support aquatic key habitats that contain sufficient water to maintain a functioning aquatic ecosystem, supporting the conservation target(s).

DEFINITION

The strategies and practices to control the actions of predators, or bringing into natural ecological balance predator populations, or reduce the number of conflicts with predator animals.

RELATED RESOURCES

Agriculture, Livestock and Grazing, Threatened, Endangered and Sensitive Species, Wildlife, Land Use

FINDINGS

Overview

Predators in Utah include raptors, mountain lions, bears, wolves, coyotes, foxes, weasels, and snakes.

One primary focus of predator control in Utah is protecting mule deer from coyotes. In 2012, the State established the Mule Deer Protection Act, which pays hunters a bounty fee for coyotes that are harvested. Predators can also be a significant threat to endangered species, and counties often support open hunting and taking by other means of predators as a support to other protection efforts.

Sanpete County has bear and cougar habitat. Cougar harvesting and pursuit (chasing, no-kill) is permitted in Utah and is managed by the Division of Wildlife Resources (UDWR 2015d).

In Utah, the primary agent for predator control is the Division of Wildlife Resources. They manage predator populations through hunting permits and reimbursement for livestock damaged by predators.

The Animal and Plant Health Inspection Service (APHIS) Wildlife Services (WS) also contributes to livestock resource protection. “WS personnel recommend and conduct wildlife damage management activities to protect many types of resources... WS personnel use an integrated wildlife damage management approach, in response to requests for assistance to protecting agriculture, natural resources, property, and human health & safety” (USDA 2015b).

All over the West, crows and ravens have affected sage-grouse populations by finding their nests and preying on their chicks. “Direct effects of nest predation on nesting productivity of birds are widely recognized, and even in high-quality sage-grouse habitat, most sage-grouse nests are lost to predators” (Dinkins et al. 2012). “An effort is underway to remove ravens from the Migratory Bird Treaty Act, which bans harming or killing the birds” (Gurrister 2014).

Economic Considerations

Losses due to predation can be significant. In 2014 in Utah, 5,200 sheep and 12,100 lambs were killed by predators for a total value loss of nearly \$3 million (USDA 2015a).

Coyotes were by far the largest contributor to predation deaths (2,800 sheep and 8,500 lambs), bears were second (1,100 sheep and 1,700 lambs), and mountain lions third (700 sheep and 900 lambs).

Utah cattle are also killed by predators, though not in as many numbers. In 2010 in Utah, 300 head of cattle and 2,300 calves were killed by predators for a total value loss of \$1.1 million (USDA 2011).

Coyotes are responsible for the majority of cattle predation, including 58% of calf losses and 44% of cows.

Bears were responsible for 43% of the cow losses.

Custom and Culture

Hunting and predator management has always been a way of life in Sanpete County. Early pioneers and Native Americans hunted predators for various reasons. This custom and culture is continued and celebrated today within state regulations.

When the pioneers arrived in Utah, wildlife represented both benefits and problems. Fish became a significant part of the pioneer diet, particularly when crop failures occurred. At other times, hunting parties were formed to rid the early settlers of “pest” species. One such hunting company reported the killing of “2 bears, 2 wolverines, 2 wild cats (bobcat), 783 wolves (probably both coyotes and wolves), 400 foxes, 31 mink, 9 eagles, 530 magpies, hawks, owls, and 1626 ravens” (Powell 1994).

A History of Sanpete County (1999) describes the conditions that met early settlers in the areas and their hunting and predator control: “The pioneer group fought off hundreds of rattlesnakes during their first spring in 1850. But the valley floor also contained numerous rabbits and hares, plus beavers, squirrels, gophers, deer, waterfowls, and ubiquitous mice. Their predators were there too: eagles, hawks and owls, skunks, weasels and mink, and competing at the top of the food chain, coyotes, bobcats, mountain lions, and bears. The presence of wolves in Sanpete is apparently debatable, but black and grizzly bears were common and hunted aggressively. Trappers captured silver and red foxes, bobcats, and pine martens in the canyons.”

“Carnivorous as well as herbivorous animals benefitted from the settlement of Sanpete County. The livestock, which the settlers grazed on the mountainsides and foothills, proved to be provender for the bears, wolves, coyotes, and mountain lions as the farmers’ grain was for the grasshoppers. Consequently, the livestock men began a program of extermination of predatory animals from the very outset of their grazing enterprises” (Antrei

PREDATOR CONTROL

and Roberts 1999).

“During the winter months, when farmers had little else to do and the coyote threat to livestock was greatest, coyotes became special targets for extermination efforts. Upwards of one hundred coyotes per month was not an uncommon toll, and the figures reached as high as 192 in March 1898, and 174 in December 1914. There were bounties on the rare predators as well: bears, mountain lions, and wildcats” (Antrei and Roberts 1999).

One of the reasons for creating the Forest Reserve Act of 1891 and Taylor Grazing Act 1934 was to address predator control and overgrazing.

OBJECTIVES

- a. Predators are managed to be balanced with native plants and animals along with private property rights and economic needs in the county.
- b. The public understands the importance controlling predators and actively participates in control programs.

POLICIES

1. Support maintaining a healthy cougar population within

their current distribution while considering human safety, economic concerns, other wildlife species, and maintaining hunting traditions in accordance with DWR goals and plans.

2. Support the DWR predator-control program, which provides incentives for hunters to remove coyotes.
3. The county supports efforts to control predators.
4. The county opposes allowing predators to infringe on private property rights.
5. The county supports finding local solutions to predator concerns.
6. The county opposes introducing any new predators into the ecosystem without consultation with and consent of the county commission.

DESIRED MANAGEMENT PRACTICES

1. Improved management of predator numbers to restore historic populations of wildlife, especially where habitat is sufficient.
2. Improve wildlife management to protect agriculture profitability and minimize depredation.





ECONOMICS + SOCIETY

AIR QUALITY

ECONOMIC CONSIDERATIONS

CULTURAL, HISTORICAL, GEOLOGICAL + PALEONTOLOGICAL

LAW ENFORCEMENT

RECREATION + TOURISM

AIR QUALITY

DEFINITION

The degree to which the ambient air is pollution-free, measured by a number of indicators of pollution.

RELATED RESOURCES

Fire Management, Energy, Mining

FINDINGS

Overview

Air pollutants are those substances present in ambient air that negatively affect human health and welfare, animal and plant life, property, and the enjoyment of life or use of property. Ambient pollutant concentrations result from interaction between meteorology and pollutant emissions. Because meteorology can't be controlled, emissions must be managed to control pollutant concentrations.

“The Clean Air Act (CAA) requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (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... 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... The Division of Air Quality monitors each of these criteria pollutants, as well as several non-criteria pollutants for special studies at various monitoring sites throughout the state” (Utah Division of Air Quality 2015).

The Clean Air Act (1970) and its amendments set the laws and regulations regarding air quality, give authority to the EPA to set standards and rules, and delegate regulatory authority to individual states with EPA oversight, provided certain standards are met. The purpose of air quality conformity regulations, enforced by the EPA and the Division of Air Quality (DAQ) in Utah, are to protect public health and welfare by decreasing pollutant concentrations through emissions reduction. Construction and mining projects require assessment of air quality impacts and may require an emissions permit and/or a fugitive dust control plan from the DAQ. Fines of up to \$10,000 per day may be issued if rules/laws are not properly followed.

The DAQ does not operate an air quality monitor in Sanpete County and the air quality is generally considered to be well below NAAQS thresholds for the amount of allowed pollutants.

This means air quality in the county is good.

Only relatively minor air quality concerns are present in the County. “The air quality in Sanpete County is affected by dust from dirt roads throughout the county, dust from poultry in north and central Sanpete County, and agricultural odors throughout the county from AFOs” (Sanpete Conservation District 2013).

Economic Considerations

Economic consequences of poor air quality may include:

- Increased time away from work and health care costs associated with stroke, heart disease, chronic and acute respiratory diseases, including asthma, and premature death.
- Decreased appeal of tourism.
- Deterring new businesses and industries from moving to the area.
- Increased operating expenses for significant pollutant sources due to pollution control measures as required by air quality management plans.
- Stunted growth and yield of agricultural crops.
- Threat of additional federal regulation and potentially reduced highway funding.

For these reasons, maintaining air quality is important to Sanpete County.

Custom and Culture

The county has always valued clean air and expansive viewsheds.

OBJECTIVES

- a. Air quality is well monitored by the State.
- b. Air is clear and clean and does not detract from the quality of life in Sanpete County.

POLICIES

1. Prescribed fires scheduled for completion should be coordinated with the State Smoke Coordinator prior to ignition and follow the requirements of the State's Enhanced Smoke Management Plan (https://smokemgt.utah.gov/static/pdf/SMP011606_Final.pdf).
2. Comply with all federal, state, and local air quality rules, regulations, and directives.
3. The county recognizes that one of the threats to the county's air quality is catastrophic wildfire and encourages Agencies to enact programs that allow prescribed burning, forest improvement techniques such as forest thinning, pruning, and removal of brush and insect-killed trees, and other methods for reducing fire hazard that ultimately protects air quality.

DESIRED MANAGEMENT PRACTICES

1. Prescribed burns should be consistent with the State of Utah Division of Environmental Quality (UDEQ) permitting process and timed in conjunction with meteorological conditions so as to minimize smoke impacts.



CULTURAL, HISTORICAL, GEOLOGICAL + PALEONTOLOGICAL

DEFINITION

Human and natural resources which have intrinsic value because of their age, anthropological, heritage, scientific, or other intangible significance.

- *Cultural: of or relating to culture; societal concern for what is regarded as important in arts.*
- *Historic: of, or pertaining to, history or past events.*
- *Geological: the study of the Earth, its rocks, and their changes.*
- *Paleontological: includes the study of non-human fossils to determine organisms' evolution and interactions with each other and their environments.*

RELATED RESOURCES

Recreation and Tourism, Land Use, Land Access, Energy, Law Enforcement, Mining, Mineral, Air Quality, Water Quality and Hydrology

CULTURAL AND HISTORICAL

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

“The Sanpitch-Sevier drainage offered a perfect location for inhabitants like Paleo-hunters, Archaic hunters, Fremont horticulturalists, and the later Paiute/Shoshoni gatherers. To date, archaeologists and interested scholars actually know little about the specifics of life along the Sanpitch River and the surrounding mountain areas. They want to know more, but necessary background work has not been done. However, what is known is fascinating, and the little work that has been carried out by professional archeologists over the years has given at least a skeleton to the pre-history. As early as 1852, army surveyor John W. Gunnison published drawings of petroglyphs (figurative drawings pecked in stone) by Sanpete’s early inhabitants” (Antrei and Roberts 1999).

“Laws are in place to make sure that federal and state projects don’t carelessly destroy cultural resources... State and federal agencies that undertake projects must “take into account” how their project activities will affect historic and archaeological resources. Common projects include construction, rehabilitation, demolition, licensing, permitting, or transfer of public lands... The State Historic Preservation Office (SHPO) provides guidance to agencies and governments who are affected by these laws” (Utah

Division of State History 2016). The SHPO also coordinates with the National Register of Historic Places to nominate properties, manage the statewide preservation plan, and educate and consult locals” (Utah Division of State History 2016).

The National Register of Historic Places is the official list of the Nation’s historic places worthy of preservation. “Authorized by the National Historic Preservation Act of 1966, the National Park Service’s National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America’s historic and archeological resources” (National Parks Service n.d.). As of March 2017, Sanpete County has 76 listed places or structures on the National Register of Historic Places listings, such as the Great Basin Research Station Historic District, Manti City Hall, and the Sanpete County Courthouse (National Parks Service n.d.).

GEOLOGICAL

“Sanpete’s surface geology is diverse and complex. Within the county are three major geologic areas, plus many other smaller, more anomalous features. Along the entire eastern edge of Sanpete is the cretaceous-born Wasatch Plateau. It is unique among Utah’s eight high plateaus as the only one capped entirely by sedimentary rocks” (Antrei and Roberts 1999).

“On the western side of the county are the Gunnison Plateau and the Valley Mountains, including the San Pitch Mountains, considered ‘two distinctly transitional features.’ They show both ‘resemblances to the Colorado Plateau in the age of formations, and to the Great Basin in their trends, dimensions, and relations to faults.’ The Valley Mountains are made mostly of Tertiary formations, while the Gunnison Plateau contains both Cretaceous and Jurassic deposits. Its east face is ‘abrupt and cut by several deep and scenic canyons that reveal a complicated history of deposition and deformation.’ The plateau’s summit is relatively flat, with peaks ranging from 8,000 to 9,500 feet in elevation” (Antrei and Roberts 1999).

“In between the two major north-to-south-running mountain ranges is the Sanpete-Sevier Valley Section, a long, narrow depression named for the two rivers (and counties) that traverse it. The depression is of primarily structural origin rather than being significantly river-cut. The average width of the lowlands along the rivers is ten to fifteen miles. The erosion-caused depression fill is of ‘unknown but vast’ depths” (Antrei and Roberts 1999).

SEISMICITY

“The central part of Utah in the Transition Zone is one of the most seismically active regions in the state, as indicated by a northward-trending zone of relatively concentrated and frequent earthquakes of varying magnitudes, which is referred to as the

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Intermountain Seismic Belt. Earthquakes indicate active faulting, and the related faults are possible conduits for the migration of steam or heated water. Thermal springs and hydrothermal zones are surface indications of the subsurface migration of heated water. Quaternary volcanic centers may indicate relatively shallow magmatic bodies that may serve as sources for heat at relatively shallow depths” (Bureau of Land Management 2005).

“Geologic studies and seismic records show that Sanpete County lies within the Intermountain Seismic Belt, a major zone of earthquake activity. Quakes of 4.3 to 5.0 on the Richter magnitude scale have been felt in the Manti-Ephraim area and near Moroni and Wales. No serious damage or loss of life has occurred during Sanpete’s historic period. However, geological evidence indicates that dangerous earthquakes of 7.5 have occurred in Utah within the last 300 years. Quakes of equal or greater magnitude may be expected in the future, portending problems for the county’s many non-reinforced historic buildings and their inhabitants” (Antrei and Roberts 1999).

“Earthquakes on the Gunnison Fault of a 6.5 rating or greater occur on average of once every 500 + years. Earthquakes on the Wasatch Fault that extends into Nephi appear to have a greater potential for being larger. It is estimated that 7 + rated quakes occur in this area every 1500 to 3000 years. Sanpete County is at risk from both faults” (Six County Association of Local Governments 2015).

“In the Sanpete County Assessment meetings several communities expressed concern for the protection of their critical facilities and public buildings. An especial concern is the protection of water resources. The probability of the event greater than 6.5 would be low, and the consequences to building loss to be high especially due to the large amount of mobile homes and non-reinforced block buildings in the area” (Six County Association of Local Governments 2015).

“The last large earthquake took place on the Nephi segment approximately 400 years ago. There is no other recorded damage due to earthquake in Sanpete County. There is no recorded history of earthquake events causing damage in recent history” (Six County Association of Local Governments 2015).

“The State of Utah ran a HAZUS (a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes) analysis for three different scenarios. They reported that HAZUS estimates fewer than five total annual casualties across all severity levels from earthquake in all three scenarios for Sanpete County. Direct economic building losses for the county would be \$843,000. \$120,000 of that would be building damage, and

\$376,000 of that would be non-structural damage. This equates to a total per capita loss of \$30.30. Overall Sanpete County is ranked 12 out of the 24 counties assessed. This is based off of chance of occurrence, projected loss, and population growth” (Six County Association of Local Governments 2015).

Earthquakes in the Wasatch Front will certainly impact the people, economy, and infrastructure of Sanpete County. Roads, pipelines, power lines, water resources, telecommunications, and food systems could all be disrupted in the event of a natural disaster in Utah.

Building codes that meet seismic standards are controlled by the county, and in some places the individual municipalities.

ARCHEOLOGICAL

The Utah Antiquities Act (UCA 9-8-404 et seq.) protects significant paleontological resources and applies to all paleontological resources that are on or eligible for inclusion in the State Paleontological Register.

“There is a total of only 91 recorded archeological sites in Sanpete County. When one considers that Sevier County to the south has recorded 1,400 sites, and other surrounding counties have listed hundreds of sites, the obvious conclusion is that there is great potential for more archeological work to be done in Sanpete County by supervised amateurs and professional archeologists” (Antrei and Roberts 1999).

Economic Considerations

Though unmeasured in the economy, the value brought to the county by paleontological research and tourism is important.

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.

Historic buildings and districts provide character, a sense of stability, and a unique marketing angle for businesses; thus, community planners can draw upon local historic resources to stimulate economic development.

A study by the Utah Heritage Foundation found that Utah benefited by \$717,811,000 in direct and indirect spending by visitors to Utah heritage sites and special events, and \$35,455,268 in investment that stayed in Utah rather than sent to Washington, D.C. because of projects that utilized the Federal Rehabilitation Tax Credit (Utah Heritage Foundation 2013).

“Historic preservation in Utah is not about putting a fence around monuments. 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

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health of this state” (Utah Heritage Foundation 2013).

Many individuals travel to experience someone else’s landscape, heritage, and way of life. The Utah Department of Community and Economic Development (DCED) defines these individuals as “cultural heritage tourists”. Cultural heritage tourism is a growing segment of the traveling public and often provides local communities with travel-related economic development while perpetuating local lifestyles and quality of life.

Custom and Culture

The custom and culture of Sanpete County is to respect all cultures and preserve or honor significant historical stories, figures, objects, structures, or events. It is the custom of the county and its residents to rely on the land and geology for fuel, fiber, food, and minerals. Mining, mineral extraction, and ranching have been a way of life for more than a century. Historic photos and accounts evidence the tradition of resource utilization and dependence in Sanpete County.

OBJECTIVES

- a. Protected resources contribute to cultural education of the county and also to the economy.
- b. Integrative multi-agency law enforcement to protect cultural resources.

POLICIES

1. Support agencies in managing cultural, historic, and

paleontological resources to allow research and/or interpretive activities, when possible, while protecting significant attributes of units from natural or human-caused degradation.

2. Support the management of selected historical and archeological sites for public use, while still protecting the values of the site.
3. Sanpete County views the preservation of its heritage and culture and its associated heritage and tourism industries, as a critical part of the planning process. The preservation of their heritage and cultural resources, including access to the sites and settings of local history, has great significance for the citizens of Sanpete County.
4. The county supports preserving cultural, historic, geological, and paleontological resources according to state and federal laws.
5. The county opposes public lands management that restricts public access to enjoy cultural, historic, geological, and paleontological resources except as required by law.
6. The county favors management that makes cultural, historic, geological, and paleontological resources available for educational purposes that can be enjoyed by the public.

DESIRED MANAGEMENT PRACTICES

1. Protect cultural, historical, and paleontological resources from theft and/or vandalism.

ECONOMIC CONSIDERATIONS

FINDINGS

Overview

“Since settlement, Sanpete’s economy has been agriculturally based. In its first few decades it served as Utah’s granary. Cattle have always been important, but currently, only a few large dairies survive. New beef breeds from Switzerland and France have joined the traditional Hereford and Angus breeds to produce lower fat, faster-growing animals. Sheep dominated the local economy from the 1880s through the 1920s, and Sanpete played a prominent part in world markets for a time. Turkeys, grown casually as a farmyard fowl, became a cooperative, integrated industry in response to the 1930s depression. Today, they rule the roost in Sanpete, which ranks among the top ten turkey-producing counties in the country. Snow College, a two-year institution in Ephraim, plays an important role in the local economy (NRCS 2013).”

“Today, 71 percent of all employment in Sanpete County is concentrated in service and retail, government, and manufacturing and construction industries. It is anticipated that these industries will continue to grow through 2030, while the agricultural industry will decline. However, the natural resource and mining industry may see increased growth through oil and gas exploration and production. Attracting and retaining business begins with having a job-ready workforce with the appropriate educational background and skills. The total number of jobs in Sanpete County over the last five years has increased by one percent. Current trends indicate that this rate of growth will continue over the next several years (NRCS 2013).”

Utah State Code (17-27a-401) states that a general plan “... may define the county’s local customs, local culture, and the components necessary for the county’s economic stability”. Because family and self-reliance are core values of county residents, family-sustaining jobs are essential to the custom, culture, and quality of life. Residents want jobs that are full-time, year-round, and pay enough to support an average household of 3.13 people (the average household size in Sanpete County according to the US Census).

Local or regional economic success touches individuals, families, business, and government organization. Strong economies create jobs and payrolls, and generate tax revenues to provide infrastructure and services. The number of jobs that depend on natural resources are disproportionately higher in rural areas than in urban areas and contribute to the County’s economic stability. Frequently, these jobs are the primary industries in rural areas (i.e. mining, tourism, ranching). Therefore, burdensome federal or state regulations are extremely undesirable when they could lead to lower employment opportunities in any industry.

Growing and sustaining a strong economy does not just happen. A comprehensive approach to planning and resource management should include economic considerations, local citizens’ health, safety, and welfare, as well as natural systems. Developing infrastructure, identifying resources, and preserving access to resources for commerce will require positive interagency cooperation.

If a high percentage of jobs in the region depend on one industry or resource it makes for unstable economic conditions. High unemployment rates have widespread consequences for the health, safety, and welfare of impacted individuals and families, and community services (e.g. poverty, domestic violence, lack of resources for health care, etc). The current trend of federal land regulations that discourages mineral extraction and grazing, if allowed to continue without a balanced employment growth component, will continue to strain the County’s ability to provide services and negatively impact the quality of life of citizens. The County desires to increase the number of quality jobs within its borders and champion employment opportunities for the current workforce and future generations.

Reaching economic and fiscal sustainability will require job creation in the local service sectors (agricultural, natural resources, retail and construction) and employment generation from the manufacturing and business-services sectors. Tourism is a desirable industry in moderation, and as a piece of a diversified economy, but long-term financial security is more attainable with full-time, year-round jobs.

Recent Trends in Labor and Non-Labor Earnings

From 1970 to 2015, labor earnings grew from \$145.6 million to \$473.6 million (in real terms), a 225% increase (U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington D.C.). This represents net earnings by place of residence, which is earnings by place of work (the sum of wage and salary disbursements, supplements to wages and salaries, and proprietors’ income) less contributions for government social insurance, plus an adjustment to convert earnings by place of work to a place of residence basis.

From 1970 to 2015, non-labor income grew from \$56 million to \$307.9 million (in real terms), a 450% increase (U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington D.C.). The Department of Commerce defines non-labor income as dividends, interest, and rent (money earned from investments), and transfer payments (includes government retirement and disability insurance benefits, medical payments such as mainly Medicare and Medicaid, income maintenance benefits, unemployment insurance benefits, etc.) make up non-labor income. Non-labor income is reported by

ECONOMIC CONSIDERATIONS

place of residence.

Average Earnings Per Job and Per Capita

From 1970 to 2015, average earnings per job grew in Sanpete County from \$29,870 to \$36,332 (in real terms), a 22% increase. In the same time period the State of Utah, average earnings per job grew from \$42,296 to \$48,989 (in real terms), a 16% increase.

From 1970, per capita income grew from \$18,309 to \$27,156 (in real terms), a 48% increase. The State as a whole saw per capita income grow from \$21,841 to \$39,819 (in real terms), a 82% increase.

OBJECTIVES

- a. A stable, diversified industrial and natural resource economic bases across the region.
- b. Growing opportunities for the region's travel and tourism industries.

- c. Expanded broadband telecommunication access and capacity.
- d. More options available to support business expansion and retention.

POLICIES

1. Encourage federal agencies to provide the opportunity for sustained economic growth of industries and communities dependent upon public lands outputs.
2. Establish an environment which is friendly to new industries that diversify the economic base, use local labor, and are sensitive to environmental concerns.

DESIRED MANAGEMENT PRACTICES

1. Promote tourism to the National Forest, BLM, and regional attractions.



DEFINITION

The designated personnel group who has federal, state, or local authority within a jurisdiction to enforce the law or respond to an emergency.

RELATED RESOURCES

Recreation and Tourism, Land Use, Land Access, Fire Management, Water Rights

FINDINGS

Overview

Law enforcement in Sanpete County includes many jurisdictions. “The mission of the Sanpete County Sheriff’s Office is to insure through our action that our county is a safer place to live, work, play and visit” (Sanpete County Sheriff’s Office 2017).

Key law enforcement issues related to natural resources management and public lands are coordination among jurisdictions of various law enforcement personnel and funding issues such as funding for search and rescue operations.

An example of law enforcement coordination involving public lands is livestock theft. The Livestock Inspection Bureau at the Utah Department of Agriculture and Food deals with cases of livestock theft, in close coordination with county sheriff’s offices. Cases of livestock theft are eventually prosecuted through the county attorney. Additionally, in situations of disease outbreak, the Livestock Inspection Bureau works with Sheriff’s offices to help enforce livestock quarantines. Brand Inspection and Registration Program, Livestock Inspection Bureau Information (UDAF 2017)

Most residents believe that Sanpete County is a relatively safe place to live and raise their families. In 2013, the Utah Association of Counties reported that there were 71 law enforcement employees for Sanpete County. There were 305 adult arrests and .053 violent crimes per 1,000 people in 2013 (Utah Association of Counties 2015).

Economic Considerations

An appropriate level of service for law enforcement is essential for all levels of government to protect the health, safety, and welfare of the county, which will in turn positively impact the local industry. Benefits are direct and indirect.

Annual operating costs for local law enforcement (County Sheriff’s departments) are influenced by public lands law enforcement activities, including coordination activities with state and federal law enforcement agencies. Costs associated with search and rescue operations are increasing in many areas of the

state, particularly with increased recreation use of remote lands. Utah counties have the option to charge people who are rescued and/or can receive reimbursement through the state’s Search and Rescue Financial Assistance Program.

The Utah Search and Rescue Assistance Card (USARA Card) offers expense-paid rescue to individuals (hunters, hikers, other backcountry enthusiasts) for an annual fee. Money raised by the program will support the State’s Search and Rescue Financial Assistance Program. County Search and Rescue teams will receive reimbursement for equipment, training, and rentals from the program. Such expenses are often borne by the counties.

Custom and Culture

Law enforcement has always been important to citizens in Sanpete County for the safety, protection, and security it provides.

As described in A History of Sanpete County (1999), enforcing the law has been a priority since settlement. “Beginning in the 1880s, most communities showed an inclination to support their police force more solidly and consistently. In 1883 Ephraim ordered that the police force be furnished with ‘some weapons of defence in the shape of 2 derringers and 4 clubs and also some marks of distinguishing the officers in the shape of stars or buttons also two jail locks.’ Later that year the Manti City Council hired six policemen (three in each ward) to serve under the supervision of the city marshal” (Antrei and Roberts 1999).

OBJECTIVES

- a. The Sheriff’s Office works cooperatively with state and federal law enforcement to protect the rights of the citizens of the county.
- b. All law enforcement activities in the county are directed by the Sheriff.
- c. Integrative multi-agency law enforcement to protect regional resources.

POLICIES

1. The county supports the county sheriff in protecting the public, enforcing the laws, and maintaining the peace.
2. Law enforcement should protect the rights of the citizens of the County.
3. Law enforcement should protect the health, safety, and welfare of the citizens of the County.

DESIRE MANAGEMENT PRACTICES

1. Federal and state law enforcement that needs to take place in the county should be coordinated through the the county sheriff’s office.

RECREATION + TOURISM

DEFINITION

Recreation is an activity done for enjoyment. Tourism is the social, cultural, and economic phenomenon of visiting places for pleasure.

RELATED RESOURCES

Land Access, Land Use, Cultural, Historical, Geological, and Paleontological, Wilderness

FINDINGS

Overview

Sanpete County is recognized for the Arapeen ATV Trail that winds through 350,000 acres of forest, climbing 6,000 to 10,000 feet in places and includes Skyline Drive. In addition to camping and fishing opportunities in Sanpete County's mountain forests, Mt. Nebo Scenic Byway is a popular drive in autumn, while Maple Canyon, near Moroni, draws rock climbers from all over the world. Yuba Lake State Park offers boating, fishing, swimming and a zip line, while Palisades State Park has a full golf course (Kem C. Gardner Policy Institute 2016).

Other means or sources of recreation and tourism include, but are not limited to: mountain biking, snowmobiling, Mormon Miracle Pageant, Scandinavian Days, canoeing, fishing, hunting, water sports, etc. Each one of these elements contributes to the economy of Sanpete County and the lifestyle of residents.

The county can influence recreation by providing adequate recreation infrastructure (showers, campsites, trails, etc) and advertising recreation resources. The county can not control consumers nor influence competing destinations.

Economic Considerations

According to the Utah State Tax Commission, in 2015, the Transient Room Tax collected \$108,311 in revenue for Sanpete County, which is a 23.6% increase from 2014. The Restaurant Tax collected \$141,888, a 7.8% increase from the previous year (Kem C. Gardner Policy Institute 2016).

According to the Department of Workforce Services, 12.1% of jobs in Sanpete County are considered private leisure and hospitality jobs (Kem C. Gardner Policy Institute 2015).

Custom and Culture

For more than a century, citizens and visitors have been taking advantage of the unique landscape in Sanpete County for recreation. Locals have always valued multiple-use management strategies as to accommodate as many interests and users as possible. A History of Sanpete County (1999) recounts, "In time Palisade Park became one of the most popular resorts in central

Utah. Shortly after 1873, Daniel B. Funk, one of the original settlers of Sterling, created a small lake dedicated entirely to recreational purposes."

These pastimes add to the quality of life for the area and are essential in attracting new residents and visitors.

OBJECTIVES

- a. Recreation and tourism is a valued and supported piece of the regional economy.
- b. Recreationalists are safe and respectful.
- c. Multiple uses are permitted in all reasonable natural public areas.
- d. Decisions are based on sound data and share good information with the public to promote safe and rewarding recreational experiences.

POLICIES

1. Sanpete County supports responsible public land recreation and tourism.
2. Sanpete County believes it is in the best interest of the forest, forest users (specifically the citizens of Sanpete County) to retain a diverse and adequate distribution of dispersed camp sites. An abundance of sites reduces the impact on any one individual site, mitigates the need for hardened and developed sites, limits the need for maintenance, reduces budget requirements and provides users with what they want. Sanpete County desires that dispersed camping be encouraged, maintained and even expanded where sensible on the forest.
3. The encouragement of water sports activity at reservoirs is to the advantage of the economy of the county and its residents.
4. Outdoor recreation is a significant part of Utah's culture and heritage which we want to protect and pass on to future generations. We will sustain and enhance recreational opportunities and heritage sites.
5. Decisions about outdoor recreation will affect our lands and livelihoods for generations. We make those decisions with a long-term view of impacts to communities, health, the environment, and Utah's economy. As our population continues to grow, the demand for both development and outdoor recreation will increase. Decisions are best made thoughtfully before pressures and conflicts intensify.
6. We provide opportunities and appropriate places for the full spectrum of recreational activities, interests, and abilities, including those that involve little or no cost to enjoy. We support responsible access to our recreational amenities.

7. Support land management agencies in temporarily closing dispersed area camping sites to recreation use where resource damage is occurring or management of livestock is seriously impaired.
8. Where soil erosion and/or compaction inhibits plant growth and ground cover is less than 30%.
9. Where dispersed camping prevents livestock watering and/or range use.
10. Participate as an active partner with public land management agencies to ensure that public land recreational resources are managed in ways that contribute to the protection of resources, the overall quality of life, and the recreational experience of county residents and visitors.
11. The county supports locating camping areas a reasonable distance from streams to protect water quality.
12. Work closely with the public lands agencies to provide, develop, and/or upgrade camping opportunities.
13. Work with the public lands agencies to develop mountain biking opportunities in the county.
14. Work closely with the public lands agencies to develop off road trails for ATV use.
15. Develop a system of recreational trails throughout the county. Coordinate with cities and other interested parties.
16. Limit use where the riparian area is being unacceptably damaged.

DESIRE MANAGEMENT PRACTICES

1. Snowmobile use should be allowed on all Forest Service or BLM lands except where specifically restricted or prohibited

by statute or land use designation.

2. The county views recreation and tourism as an additional economic opportunity. The county believes this opportunity may only be in its infant stage. The county will continue to assist the travel council in promoting the county's tourist industry. Sanpete County believes and encourages private sector development of recreational facilities and services. The county will also continue to support and work in partnership with agencies, entities and interest groups to promote recreation and tourism in Sanpete County.
3. Develop a positive working relationship between all interested and affected parties in public lands recreation.
4. Develop appropriate facilities on federal lands where the present facilities are not meeting the demand and where it meets the highest net public benefit.
5. Provide facilities which are accessible to handicapped persons in proportion to the anticipated number of users with handicaps.
6. Develop camping sites, both developed sites for cars and R.V.s, and remote sites for hikers, backpackers, and equestrians.
7. Provide a diversity of high-quality hunting and viewing opportunities for mule deer throughout the state.
8. Where unacceptable damage to natural or cultural resources by recreational use is anticipated or observed, federal agencies should seek to reduce or eliminate the adverse impact while maintaining the economic benefits associated with a wide range of recreation uses.
9. Provide for current recreation uses that do not conflict with watershed improvement objectives.



APPENDICES

<i>WORKS CITED</i>	<i>74-79</i>
<i>CITIZEN INPUT</i>	<i>80-87</i>
<i>MAPS</i>	<i>88-93</i>

WORKS CITED

- Agüero, J. 2014. Utah's water dependent economy. Prepare60. <<http://prepare60.com/Content/EconomicsWater.pdf>>. Accessed 5 Jan 2017.
- Antrei A. C. T., and A. D. Roberts. 1999. A history of Sanpete County. Utah State Historical Society. <<http://digitallibrary.utah.gov/awweb/awarchive?item=34355>>. Accessed 20 Oct 2016.
- Bellison, N., R. Whitesides, S. Dewey, J. Merritt, S. Burningham. 2009. Noxious weed field guide for Utah. Utah State University Cooperative Extension. <http://extension.usu.edu/files/publications/publication/pub__8746541.pdf>. Accessed 9 Jan 2017.
- Berry, J., D. Hurlbut, R. Simon, J. Moore, and R. Blackett. 2009. Utah renewable energy zones task force phase I report. Utah Geological Survey Miscellaneous publication 09-1. <<https://energy.utah.gov/wp-content/uploads/UREZ-Phase-I.pdf>>. Accessed 15 Oct 2016.
- Blue Ribbon Fisheries Advisory Council [BRFAC]. 2009. Blue ribbon fisheries advisory council handbook. <https://wildlife.utah.gov/blueribbon/pdf/council_handbook.pdf>. Accessed 15 Oct 2016.
- Boden, T., K. Krahulec, D. Tabet, A. Rupke, and M. Vanden Berg. 2014. Utah's extractive resource industries. Utah Geological Society Circular 120. <<http://files.geology.utah.gov/online/c/c-120.pdf>>. Accessed 3 Nov 2016.
- Bon, R. L., and K. Krahulec. 2010. Summary of mineral activity in Utah. Utah Geological Survey. Circular 111. <<http://files.geology.utah.gov/online/c/c-111.pdf>>. Accessed 28 Jan 2017.
- Bureau of Land Management [BLM]. 2005. Richfield mineral potential report. Richfield Field Office. <<https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=99311>>. Accessed 17 Jan 2017.
- Bureau of Land Management [BLM]. 2008. Richfield field office record of decision and approved resource management plan. <<https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=99311>>. Accessed 17 Apr 2017.
- Bureau of Land Management [BLM]. 2012. Manual Transmittal Sheet 6400 – Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management (Public). U.S. Department of the Interior. <https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.76771.File.dat/M6400_WildScenicRivers_Final%20071312.pdf>. Accessed 30 Oct 2016.
- Department of the Interior. 2010. Salazar lays groundwork for Utah pilot project to resolve old road claims on public land [Press release]. Retrieved from <<https://www.doi.gov/news/pressreleases/Salazar-Lays-Groundwork-for-Utah-Pilot-Project-to-Resolve-Old-Road-Claims-on-Public-Land>>. Accessed 2 Jan 2017.
- Dinkins, J. B., M. R. Conover, C. P. Kirol, and J. L. Beck. 2012. Greater sage grouse (*Centrocercus urophasianus*) select nest sites and brood sites away from avian predators. *The Auk*. <<http://www.bioone.org/doi/full/10.1525/auk.2012.12009>>. Accessed 2 Feb 2017.
- Donaldson, F. J. 2007. Farmer beware: water rights enforcement in Utah. *Journal of Land, Resources, and Environmental Law* 27:367-385. <<http://www.epubs.utah.edu/index.php/jlrel/article/viewFile/56/49>>. Accessed 30 Oct 2016.
- Economic Profile System [EPS]. 2017. A profile of agriculture. Headwaters Economics. <<https://headwaterseconomics.org/tools/economic-profile-system/>>. Accessed 20 Jan 2017.
- Economic Profile System [EPS]. 2017. A profile of mining, including oil & gas.. Headwaters Economics. <<https://headwaterseconomics.org/tools/economic-profile-system/>>. Accessed 10 Nov 2016.
- Federal Emergency Management Agency [FEMA]. 2017. National flood hazard layer (official). <<http://fema.maps.arcgis.com/home/item.html?id=cbe088e7c8704464aa0fc34eb99e7f30>>. Accessed 22 Jan 2017.
- Godfrey, B. E. 2008. Livestock grazing in Utah: history and status. Utah State University, Logan, Utah.
- Governor's Office of Energy Development. 2014. Utah's 10-year strategic energy plan 2.0. <http://energy.utah.gov/download/reports/10%20Year%20Strategy_2.0_03042014.pdf>. Accessed 9 Jan 2017.

WORKS CITED

- Governor's Office of Energy Development. 2015. Energy and energy-related mining in Utah. <https://energy.utah.gov/wp-content/uploads/UtahsEnergyEconomy_EconomicImpactAssessment.2015.compressed.pdf>. Accessed 9 Jan 2017.
- Gurrister T. 2014. Ravens ravaging sage grouse in Box Elder. Standard Examiner. <<http://www.standard.net/Environment/2014/05/29/Ravens-harassing-sage-grouse-in-Box-Elder-elsewhere>>. Accessed 2 Feb 2017.
- Keith J., P. Jakus, J. Larsen, S. Burr, D. Reiter, and J. Zeitlin. 2008. Impacts of wild and scenic rivers designation. Utah State University. <<http://digitallibrary.utah.gov/awweb/awarchive?type=file&item=27530>> . Accessed 15 Oct 2016.
- Kem C. Gardner Policy Institute. 2015. Utah tourism rankings by county. University of Utah. <<http://gardner.utah.edu/wp-content/uploads/2015/08/Rankings1.pdf>>. Accessed 17 Jan 2017.
- Kem C. Gardner Policy Institute. 2016. Utah travel & tourism profile: state and counties. University of Utah. <http://gardner.utah.edu/wp-content/uploads/2016/10/profiles_2015.pdf>. Accessed 18 Jan 2017.
- Kim, M., and P. M. Jakus. 2013. The economic contribution and benefits of Utah's blue ribbon fisheries. Utah State University. <http://csee.usu.edu/files/uploads/CSEE_RR_4_Kim_and_Jakus_Feb_2013.pdf>. Accessed 15 Oct 2016.
- Krannich, R. S. 2008. Public lands and Utah communities: a statewide survey of Utah residents. Utah State University. <<http://apecextension.usu.edu/files/uploads/Environment%20and%20Natural%20Resources/Public%20Lands/General%20Population%20Final%20Report.pdf>>. Accessed 25 Jan 2017.
- Krannich, R. S., Lilieholm, R. J., and Unger J. 2012. Utah angler survey. Utah State University. <https://csee.usu.edu/files/uploads/CSEE_RR_1_Krannich_et_al_Nov_2012.pdf>. Accessed 15 Oct 2016.
- National Interagency Fire Center. 2015. Federal firefighting costs (suppression only). U.S. Department of the Interior. <https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf>. Accessed 18 Jan 2017.
- National Interagency Fire Center. 2016. National report of wildland fires and acres burned by State. U.S. Department of the Interior. <https://www.nifc.gov/fireInfo/fireInfo_statistics.html>. Accessed 18 Jan 2017.
- National Parks Service. N.d. National register of historic places. Digital Archive on NPGallery. <<https://npgallery.nps.gov/nrhp>>. Accessed 18 Oct 2016.
- National Resource Conservation Service [NRCS]. 2005. Sanpete County resource assessment. U.S. Department of Agriculture. <https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_032731.pdf>. Accessed 3 Nov 2016.
- National Wild and Scenic Rivers System. 2017. A compendium of questions and answers relating to wild & scenic rivers. <<https://www.rivers.gov/documents/q-a.pdf>>. Accessed 17 Jan 2017.
- Peterson, G. B., and L. C. Bennion. 1987. Sanpete scenes: a guide to Utah's heart. Basin Plateau Press, Eureka, Utah, USA.
- Powell, A. K., editor. 1994. Utah history encyclopedia. Coal mining in Utah. The University of Utah Press. Salt Lake City.
- Powell, A. K., editor. 1994. Utah history encyclopedia. Mining in Utah. The University of Utah Press. Salt Lake City.
- Powell, A. K., editor. 1994. Utah history encyclopedia. Wildlife management in Utah. The University of Utah Press. Salt Lake City.
- Sanpete Conservation District. 2013. Sanpete County resource assessment. <http://media.wix.com/ugd/9bdf1b_db801599f1a483a8864b895b209a115.pdf>. Accessed 20 Dec 2016.
- Sanpete County Government. 2010. Sanpete County General Plan Update 2020. <http://sanpete.com/downloads/plan/Sanpete_General_Plan.pdf>. Accessed 17 Oct 2016.
- Sanpete County Government. 2012. Sanpete County resource management plan. <http://sanpete.com/downloads/plan/Resource_Management_Plan.pdf>. Accessed 17 Oct 2016.
- Sanpete County Sheriff's Office. 2017. Mission statement. <<http://www.sanpetesheriff.org/>>. Accessed 17 Jan 2017.

WORKS CITED

- Sanpete County Weed Department. n.d. Sanpete integrated weed management plan. <http://sanpete.com/downloads/weed_plan.pdf>. Accessed 17 Jan 2017.
- Six County Association of Local Governments. 2015. Natural hazard pre-disaster mitigation plan. <<http://sixcounty.com/wp-content/uploads/2016/01/Section-5-Sanpete-County.pdf>>. Accessed 3 Nov 2016.
- Six County Association of Local Governments. 2016. Forest resources of Sanpete County.
- Sutter, J. V., M. E. Andersen, K. D. Bunnell, M. F. Canning, A. G. Clark, D. E. Dolsen, and F. P. Howe. 2005. Utah comprehensive wildlife conservation strategy (CWCS). Utah Division of Wildlife Resources Publication Number 05-19. <http://iwjv.org/sites/default/files/utah_strategic_wildlife_action_plan.pdf>. Accessed 7 Jan 2017.
- U.S. Department of Agriculture [USDA]. 2011. Cattle and calves nonpredator death loss in the United States, 2010. USDA–APHIS–VS–CEAH. Fort Collins, CO. #631.1111. <https://www.aphis.usda.gov/animal_health/nahms/general/downloads/cattle_calves_nonpred_2010.pdf>. Accessed 5 Jan 2017.
- U.S. Department of Agriculture [USDA]. 2015a. Sheep and lamb predator and nonpredator death loss in the United States. USDA–APHIS–VS–CEAH–NAHMS Fort Collins, CO. #721.0915.. <https://www.aphis.usda.gov/animal_health/nahms/sheep/downloads/sheepdeath/SheepDeathLoss2015.pdf>. Accessed 7 Jan 2017.
- U.S. Department of Agriculture [USDA]. 2015b. Wildlife services protects resources. Animal and Plant Health Inspection Service. <https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/SA_Protected_Resources>. Accessed 7 Jan 2017.
- U.S. Department of Agriculture [USDA]. 2016. November 2016 crop acreage data. Farm Service Agency. <<https://www.fsa.usda.gov/news-room/efoia/electronic-reading-room/frequently-requested-information/crop-acreage-data/index>>. Accessed 29 Nov 2016.
- U.S. Environmental Protection Agency. 2015. What are wetland functions? <<https://www.epa.gov/wetlands/what-are-wetland-functions>>. Accessed 21 Oct 2016.
- U.S. Fish & Wildlife Service. 2015. Endangered species act: overview. U.S. Department of the Interior. <<https://www.fws.gov/engaged/laws-policies/>>. Accessed 7 Jan 2017.
- U.S. Fish & Wildlife Service. 2016. National wetlands inventory. U.S. Department of the Interior. <<https://www.fws.gov/wetlands/data/Mapper.html>>. Accessed 12 Oct 2016.
- U.S. Fish & Wildlife Service. 2017. Species by county report. <<https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=49039>>. Accessed 24 Jan 2017.
- U.S. Forest Service. 2016. Wildland fire touches every part of the nation. <<http://www.fs.fed.us/fire/management/index.html>>. Accessed 12 Oct 2016.
- U.S. Forest Service. 2017. Eligible wild and scenic rivers for the Manti-La Sal National Forest. <<https://www.fs.usda.gov/detailfull/mantilasal/landmanagement/gis/?cid=STELPRDB5292391>>. Accessed 17 Jan 2017.
- U.S. General Accounting Office. 1992. Wilderness : effects of designation on economy and grazing in Utah. <<http://www.gao.gov/assets/220/217154.pdf>>. Accessed 7 Apr 2017.
- Utah Association of Counties. 2015. 2015 Utah counties fact book. <<http://uacnet.org/wp-content/uploads/2014/08/2015-Utah-Counties-Fact-Book.pdf>>. Accessed 17 Jan 2017.
- Utah Department of Agriculture and Food [UDAF]. n.d. Animal agriculture. <<http://ag.utah.gov/animal.html>>. Accessed 3 Nov 2016.
- Utah Department of Agriculture and Food [UDAF]. n.d. Century Farm registration. <<http://ag.utah.gov/licenses-registrations/41-licenses-regulations-and-registration/201-century-farm-registration.html>>. Accessed 4 Jan 2017.
- Utah Department of Agriculture and Food [UDAF]. 2012. Planning for agriculture. Utah Agriculture Sustainability Task Force. <<http://ag.utah.gov/documents/Agtaskforce.pdf>>. Accessed 4 Jan 2017.

WORKS CITED

- Utah Department of Agriculture and Food [UDAF]. 2015. Annual report. <<http://ag.utah.gov/documents/annualreport2015web.pdf>>. Accessed 3 Nov 2016.
- Utah Department of Agriculture and Food [UDAF]. 2017. Band inspection & registration. <<http://ag.utah.gov/animal/animal-identification.html>>. Accessed 17 Jan 2017.
- Utah Department of Workforce Services. 2016. Utah's employment summary. <<http://jobs.utah.gov/blog/post/2016/04/15/utah-s-employment-summary-march-2016>>. Accessed Nov 1 2016.
- Utah Division of Air Quality. 2015. Annual report. Utah Department of Environmental Quality. <http://www.deq.utah.gov/Divisions/daq/info/annualreports/docs/2015/02Feb/Final_Annual_Report_2015.pdf>. Accessed 17 Jan 2017.
- Utah Division of Forestry, Fire, & State Lands. 2013. Master cooperative wildland fire management and Stafford Act response agreement. Utah Department of Natural Resources. <https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5409791.pdf>. Accessed 18 Jan 2017.
- Utah Division of Forestry, Fire & State Lands. 2014. Utah forest health highlights. Utah Department of Natural Resources. <<http://www.ffsl.utah.gov/images/forestry/health/StateHighlights2014.pdf>>. Accessed 18 Jan 2017.
- Utah Division of Oil, Gas, and Mining [DOG M]. 2017. Live data statistics. Utah Department of Natural Resources. <<http://www.oilgas.ogm.utah.gov/Statistics/Statistics.cfm>>. Accessed 3 Nov 2016.
- Utah Division of State History. 2016. SHPO compliance. Utah Department of Heritage & Arts. <<https://heritage.utah.gov/history/shpo-compliance>>. Accessed 10 Oct 2016.
- Utah Division of Water Resources. 1999. Utah State water plan: Sevier river basin. Utah Department of Natural Resources. <<http://www.water.utah.gov/planning/swp/sevier/SevRiv1999.pdf>>. Accessed 15 Oct 2016.
- Utah Division of Water Rights [UDWRi]. 2011. Water right information. Utah Department of Natural Resources. <<http://www.waterrights.utah.gov/wrinfo/>>. Accessed 15 Oct 2016.
- Utah Division of Water Rights [UDWRi]. 2014. Canal companies and contact information. Utah Department of Natural Resources. <https://www.waterrights.utah.gov/canalinfo/canal_owners.asp>. Accessed 15 Jan 2017.
- Utah Division of Water Quality. 2013. Nutrient pollution in Utah. Utah Department of Environmental Quality. <<http://www.deq.utah.gov/Topics/FactSheets/docs/handouts/nutrients.pdf>>. Accessed Jan 9 2017.
- Utah Division of Wildlife Resources [UDWR]. n.d. Goals and objectives. Utah Department of Natural Resources. <<http://wildlife.utah.gov/about/goals.php>>. Accessed 15 Oct 2016.
- Utah Division of Wildlife Resources [UDWR]. n.d. Participating CWMU properties. Utah Department of Natural Resources. <https://wildlife.utah.gov/maps/public/list_cwmus.php>. Accessed 18 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2009. Utah aquatic invasive species management plan. Utah Department of Natural Resources Publication No. 08-34.. <https://wildlife.utah.gov/pdf/AIS_plans_2010/AIS_mgt_plan_full.pdf>. Accessed 15 Oct 2016.
- Utah Division of Wildlife Resources [UDWR]. 2011. Utah black bear management plan v. 2.0 2011-2023. Utah Department of Natural Resources. <https://wildlife.utah.gov/bear/pdf/2011_bear_plan.pdf>. Accessed 7 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2013. Conservation plan for greater sage-grouse in Utah. <https://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater_sage_grouse_plan.pdf>. Accessed 2 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2014. Utah mule deer statewide management plan. <https://wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan.pdf>. Accessed 18 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2015(a). Blue ribbon. <<https://wildlife.utah.gov/hotspots/blueribbon.php>>. Accessed 17 Oct 2016.
- Utah Division of Wildlife Resources [UDWR]. 2015(b). Deer herd unit management plan - herd unit #21. <<https://wildlife.utah.gov/>>

WORKS CITED

- hunting/plans/deer_21.pdf>. Accessed 7 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2015(c). Goals and objectives. <<http://wildlife.utah.gov/about/goals.php>>. Accessed 17 Oct 2016.
- Utah Division of Wildlife Resources [UDWR]. 2015(d). Utah cougar management plan v. 3; 2015-2025. Utah Division of Wildlife Resources and the Cougar Advisory Group. DWR Publication No. 15-28. <<https://wildlife.utah.gov/pdf/cmgtplan.pdf>>. Accessed 7 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2015(e). Utah's state listed species by county. <<http://dwrcdc.nr.utah.gov/ucdc/ViewReports/sscounty.pdf>>. Accessed 7 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2015(f). Utah wildlife action plan; 2015-2025. Utah Department of Natural Resources. DWR publication 15-14. <https://wildlife.utah.gov/wap/Utah_WAP.pdf>. Accessed 3 Nov 2016
- Utah Division of Wildlife Resources [UDWR]. 2016a. 2016 Utah black bear guidebook. <https://wildlife.utah.gov/guidebooks/2016_pdfs/2016_bear_low.pdf>. Accessed 7 Jan 2017.
- Utah Division of Wildlife Resources [UDWR]. 2016b. What are Utah's community fisheries? <<https://wildlife.utah.gov/fishing-in-utah/community-fisheries.html>>. Accessed 18 Jan 2017.
- Utah Geological Survey. n.d. Wetland information center. Utah Department of Natural Resources. <<http://geology.utah.gov/resources/wetlands/>>. Accessed 12 Oct 2016.
- Utah Heritage Foundation. 2013. Profits through preservation: executive summary. <<http://www.utahheritagefoundation.com/preservation-resources/econstudy#.WH7MV1UrKpo>>. Accessed 3 Nov 2016.
- Utah Lake Commission. 2009. Procedures of sovereign land management. <<http://www.ffsl.utah.gov/images/statelands/utahlake/ProceduresOfSovereignLandMgmt.pdf>>. Accessed 17 Jan 2017.
- Utah Native Plant Society. n.d. Rare plants introduction. <<http://www.unps.org/index.html?PAGES/rare.html>>. Accessed 10 Jan 2017.
- Utah School and Institutional Trust Lands Administration [SITLA]. 2017. County surface land status and trust lands mineral map. <<http://trustlands.utah.gov/resources/maps/gis-data-and-maps/county-maps/>>. Accessed 17 Jan 2017.
- Utah State University [USU]. 2005. Sanpete County agricultural profile. USU Cooperative Extension Service. <https://extension.usu.edu/files/publications/publication/AG_Econ_county-2005-23.pdf>. Accessed 4 Jan 2017.
- Utah State University [USU]. 2009. Rangeland resources of Utah. USU Cooperative Extension Service. <https://extension.usu.edu/utahranglands/files/uploads/RRU_Final.pdf>. Accessed 3 Nov 2016.
- Utah State University Extension Service, Utah division of Wildlife, and U.S. Fish and Wildlife Service. 1998. Endangered and threatened animals of Utah. <<https://wildlife.utah.gov/habitat/pdf/endgspec.pdf>>. Accessed 1 Nov 2016.
- Utah Weed Control Association. 2017. Cooperative weed management areas. <<http://www.utahweed.org/cwma.htm>>. Accessed 4 Apr 2017.
- Ward, R. A. and K. Salisbury. 2016. The economic contribution of agriculture to the Utah economy in 2014. Utah State University. Economic Research Institute Report #2016-01. <<http://www.ag.utah.gov/documents/Economic%20Contribution%20of%20Agriculture%20to%20the%20Utah%20Economy%202014.pdf>>. Accessed 27 Jan 2017.
- Western Forestry Leadership Coalition. 2009. The true cost of wildfire in the Western US. Lakewood, Colorado. <https://www.blm.gov/or/districts/roseburg/plans/collab_forestry/files/TrueCostOfWilfire.pdf>. Accessed 18 Jan 2017.
- Whitesides, R. E. 2004. The Utah strategic plan for managing noxious and invasive weeds. Utah Weed Advisory Council and The Utah Weed Control Association. <http://www.utahweed.org/PDF/strategic_plan.pdf>. Accessed 31 Jan 2017.
- Wilson M. A., S. R. Carpenter. 1999. Economic Valuation of Freshwater Ecosystem Services in the US. Ecological Society of America (9)3. P. 772-783.

WORKS CITED

- World Wildlife Fund. 2004. The economic values of the world's wetlands. <<http://d2ouvy59p0dg6k.cloudfront.net/downloads/wetlandsbrochurefinal.pdf>>. Accessed 4 Jan 2017.
- Yonk, R., B. C. Steed, and R. Simmons. 2010. The local impact of wilderness: an overtime analysis of wilderness designation. Utah State University. <<http://www.usu.edu/ipe/wp-content/uploads/ipePublications/Local-Impact-of-Wilderness.pdf>>. Accessed 30 Oct 2016.

Desired Management of Inventoried Roadless Areas (IRA) on the National Forest

Amendment to the Sanpete County Resource Management Plan

Management Areas – Most Restrictive to Least Restrictive

1. Primitive Areas
2. Forest Restoration Areas
3. Active Management Areas
4. Re-Inventory/Boundary Adjustment Areas

Detailed Description of Management Areas

Management Area 1: Primitive Areas

Current Condition: Areas managed as Primitive Areas show little evidence of historical or human use. Natural processes are predominant. People visiting these areas can find outstanding opportunities for recreation, including exploration, solitude, risk, and challenge.

Desired Future Condition: Areas managed as Primitive Areas will continue to show little evidence of historical or human use. As such, the natural processes of the area will continue to predominate, which will allow visitors to enjoy the same type of primitive recreation opportunities they found in the past.

Management Focus: These areas shall be managed to protect the primitive recreation opportunities of the area. Only activities and management actions not deemed an irretrievable commitment of resources will be considered suitable uses.

Watershed and Vegetative Restoration: Watershed and vegetative restoration shall be accomplished strictly through passive, natural ecological processes.

Mechanized Uses: Mechanized uses (e.g. chainsaws, helicopters etc.) shall be allowed in these areas unless said use constitutes an irretrievable commitment of resources.

Primitive Area Suitable Uses and Activities

Available Use/Activity	Yes	No	Notes
Fire Management	X		Prescribed fire
Forest Health	X		
Intensive Timber Management		X	Personal use only
Grazing	X		
Motorized Travel	X		Currently existing routes
Minerals		X	
Recreation	X		Dispersed
Road Construction and/or Reconstruction		X	No Roads
Trail Construction and/or Reconstruction	X		
Weed/Pest Management	X		
Mechanized Equipment Use	X		Chainsaws, helicopters, etc.

Management Area 2: Forest Restoration Areas

Current Condition: Forest Restoration Areas includes areas where evidence of human use may or may not be present. Generally, few constructed features exist with the exception of trails and lookouts. These areas may also show some evidence of vegetative manipulation. Like the primitive areas, Forest Restoration Areas include a broad range of terrain and vegetative types.

Desired Future Condition: While areas managed as Forest Restoration Areas may display increased evidence of management activities, these areas will generally retain their roadless character.

Management Focus: Forest Restoration Areas will be managed to provide a variety of recreation opportunities, while also ensuring adequate flexibility to maintain forest health. These areas may include trailheads and recreational sites (developed and dispersed). Depending on specific National Forest Travel Plans, these areas may be managed for summer and/or winter motorized recreation opportunities. Lastly, due to the increased management flexibility afforded to these areas, fish and game can potentially benefit from carefully conducted habitat manipulation.

Watershed and Vegetative Restoration: Watershed and vegetative restoration will be accomplished through a combination of active management and natural processes. Both active and passive management restoration activities (and in some cases use restrictions) may occur to address specific habitat needs of fish and wildlife.

Forest Management Area Suitable Uses and Activities

Available Use/Activity	Yes	No	Notes
Fire Management	X		Prescribed Fire
Forest Health	X		Vegetation Treatments
Intensive Timber Management		X	Commercial use allowed for forest health reasons only
Grazing	X		
Motorized Travel	X		Preference toward temporary road construction with mitigation; however, permanent road construction
Minerals	X		
Recreation	X		
Road Construction and/or Reconstruction	X		Preference toward temporary road construction with mitigation; however, permanent road construction permissible based on long-term ecological need
Trail Construction and/or Reconstruction	X		
Weed/Pest Management	X		
Mechanized Equipment Use	X		

Management Area 3: Active Management Areas

Current Condition: Active Management areas include locations that may display high levels of human use including roads, facilities, evidence of vegetative manipulation (e.g. silvicultural treatments, grazing) and mineral exploration/extraction. These areas also encompass a broad range of terrain and vegetative types, and may be comprised of forest, grasslands, rangelands, or a combination thereof.

Desired Future Condition: These areas may over time display increased levels of human use including roads, facilities, and evidence of vegetative manipulation. Active Management areas will also include evidence of watershed restoration and/or mitigation activities. Despite higher levels of human use than Forest Restoration Areas, Active Management Areas will still retain some of their roadless qualities. In other words, an area designated as “Active Management” will not necessarily reflect all the characteristics of non-roadless forest lands.

Management Focus: Active Management areas will be managed to provide a variety of goods and services, broad range of recreational opportunities including both motorized and non-motorized, while also ensuring adequate flexibility to maintain forest, rangeland, and/or grassland health.

Watershed and Vegetative Restoration: Watershed and vegetative restoration shall be accomplished primarily through active management, including timber harvest, salvage, fuels reduction, projects, and grazing.

Active Management Area Suitable Uses and Activities

Available Use/Activity	Yes	No	Notes
Fire Management	X		
Forest Health	X		Full range of silviculture techniques
Intensive Timber Management	X		Full range of silviculture techniques
Grazing	X		
Motorized Travel	X		Subject to Forest Travel Plan
Minerals	X		
Recreation	X		Dispersed and/or developed
Road Construction and/or Reconstruction	X		New temporary roads are preferred, but permanent roads are compatible
Trail Construction and/or Reconstruction	X		
Weed/Pest Management	X		
Mechanized Equipment Use	X		

Management Area 4: Areas Recommended for Re-inventory or Boundary Adjustments

The State requests a re-inventory of those areas found not in conformity with the requirements for “roadless” designation as defined in the FEIS Nov. 2002, Volume 1 (i.e. “Undeveloped areas typically exceeding 5,000 acres that met the minimum criteria for wilderness consideration under the Wilderness Act . . .”) and/or areas which necessitate boundary correction based on new information. If the Forest Service finds after re-inventory that certain areas are not in conformity with the requirements for roadless designations, such areas should be managed in accordance with the relevant forest plan.

COUNTY	IRA- ID	NAME	FOREST	MGMT CATEGORY	COMMENTS
SANPETE	5709	White Knoll	Manti-La Sal	(2) Restoration	Forest Health, Fuel Management
SANPETE	5717	Big Bear Creek	Manti-La Sal	(3) Active Mgmt	Timber, Forest Health, Fuel Management, Motorized Use
SANPETE	6494	Musinia Peak	Manti-La Sal	(4) Reinventory	Roads, Historic Cabin, Motorized Trails
SANPETE	6617	Price River	Manti-La Sal	(3) Active Mgmt	Close to Private Cabins/Land, Forest Health, Fuel Management
SANPETE	6624	418021	Uinta	(2) Restoration	Forest Health, Fuel Management
SANPETE	6671	Levan Peak	Manti-La Sal	(4) Reinventory	Communication Towers, Roads, Forest Health, Fuel Management
SANPETE	6686	Musinia Peak	Fishlake	(1) Primitive	Primitive
SANPETE	6769	418028	Uinta	(2) Restoration	Forest Health, Fuel Management
SANPETE	6797	Price River	Manti-La Sal	(3) Active Mgmt	Forest Health, Fuel Management
SANPETE	6802	Price River	Manti-La Sal	(3) Active Mgmt	Forest Health, Fuel Management
SANPETE	6867	Oak Creek	Manti-La Sal	(3) Active Mgmt	Close to Private Cabins/Land, Forest Health, Fuel Management
SANPETE	6870	Price River	Manti-La Sal	(3) Active Mgmt	Close to Private Cabins/Land, Forest Health, Fuel Management
SANPETE	6872	Price River	Manti-La Sal	(3) Active Mgmt	Close to Private Cabins/Land, Forest Health, Fuel Management

SANPETE	6881	White Mountain	Fishlake	(2) Restoration	Forest Health, Fuel Management
SANPETE	6922	Big Horseshoe	Manti-La Sal	(2) Restoration	Watershed/Springs, Forest Health, Fuel Management, Roads
SANPETE	6973	Heliotrope	Manti-La Sal	(3) Active Mgmt	Timber, Forest Health, Fuel Management
SANPETE	6980	Twelve Mile Creek	Manti-La Sal	(4) Reinventory	Active Landslide Management, Watershed/Springs, Forest Health, Fuel Management, Roads
SANPETE	6981	Muddy Creek - Nelson Mt.	Manti-La Sal	(3) Active Mgmt	Active Landslide Management, Watershed/Springs, Timber, Forest Health, Fuel Management, Roads
SANPETE	7051	Oak Creek	Manti-La Sal	(3) Active Mgmt	Timber, Roads, Dispersed Recreation, Forest Health, Fuel Management
SANPETE	7095	Oak Creek	Manti-La Sal	(3) Active Mgmt	Timber, Historic Road, Forest Health, Fuel Management
SANPETE	7128	Boulger - Black Canyon	Manti-La Sal	(3) Active Mgmt	Timber, Watershed, Forest Health, Fuel Management
SANPETE	7140	White Knoll	Manti-La Sal	(3) Active Mgmt	Active Management Already Occurring, Forest Health, Fuel Management
SANPETE	7167	Rolfson - Staker	Manti-La Sal	(3) Active Mgmt	Timber, Dispersed Recreation, Forest Health, Fuel Management
SANPETE	7211	Big Bear Creek	Manti-La Sal	(2) Restoration	Forest Health, Fuel Management
SANPETE	7233	Black Mountain	Manti-La Sal	(3) Active Mgmt	Timber, Roads, Forest Health, Fuel Management

SANPETE	7276	Sanpitch	Manti-La Sal	(3) Active Mgmt	Timber, Watershed, Roads, Forest Health, Fuel Management
SANPETE	7366	Boulger - Black Canyon	Manti-La Sal	(3) Active Mgmt	Timber, Watershed, Forest Health, Fuel Management
SANPETE	7371	White Mountain	Manti-La Sal	(3) Active Mgmt	Timber, Roads, Forest Health, Fuel Management
SANPETE	7379	Price River	Manti-La Sal	(3) Active Mgmt	Road, Forest Health, Fuel Management
SANPETE	7386	Price River	Manti-La Sal	(3) Active Mgmt	Close to Private Cabins/Land, Forest Health, Fuel Management
SANPETE	7396	Boulger - Black Canyon	Manti-La Sal	(3) Active Mgmt	Timber, Watershed, Forest Health, Fuel Management
SANPETE	7421	Twelve Mile Creek	Manti-La Sal	(4) Reinventory	Active Landslide Management, Watershed/Springs, Forest Health, Fuel Management
SANPETE	7469	Birch Creek	Manti-La Sal	(4) Reinventory	Roads, Motorized Trails, Dispersed Recreation, Forest Health, Fuel Management

CITIZEN INPUT

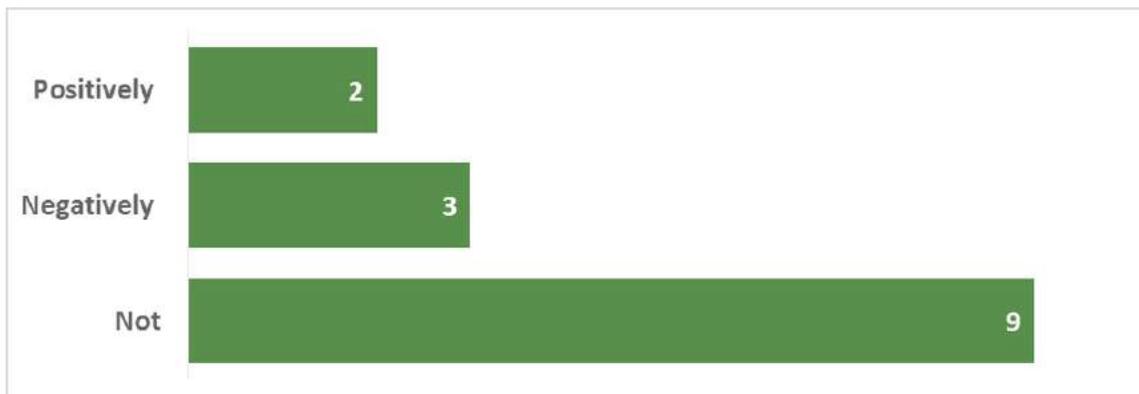
A total of 155 responses were recorded across 27 resource surveys from full-time residents of Sanpete County. The public survey was available online. An average of 6 responses per resource briefing were received. Results from briefings that received 10 or more responses are shown here as well as additional comments.

Agriculture

Residents were asked, “Are you satisfied with the current management practices of this resource in the County?”



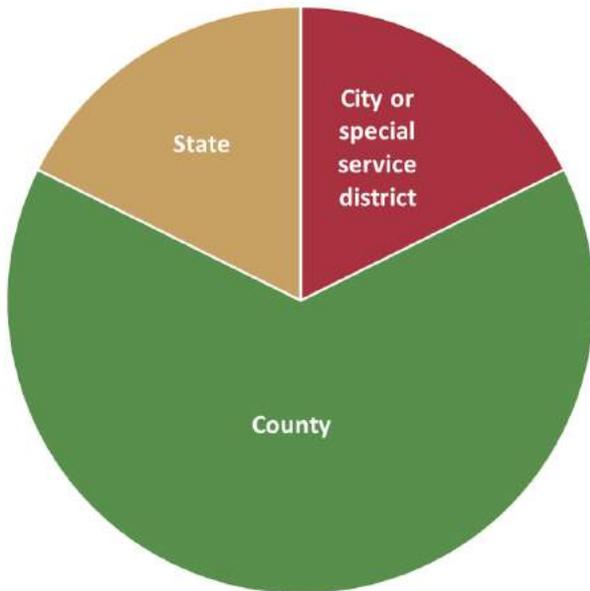
Residents were asked, “Regulations on this resource have _____ affected my employment.”



CITIZEN INPUT

Agriculture

Residents indicated, “The preferred management level for this resource includes _____ management and financial responsibility”



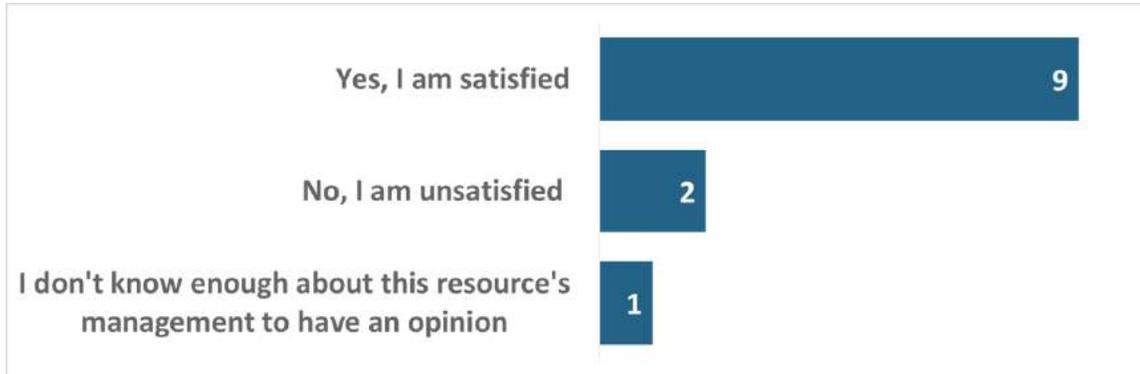
Respondents were given the opportunity to write, “What changes in current practices would improve the management of this resource?” Response length was limited to 140 characters. Responses are listed below in the order they were received:

- Need to keep recreation in the Manti La Sal from negatively impacting grazing permits there.
- Better county zoning that would push development to the municipalities, thus preventing urban spral and protecting agruculture.
- Crop efficiency
- Management by the land owner. In the case of Federal and state lands local control is always better.
- None
- Less government regulation and red tape. Better supply of labor force. More access to transportation and markets.

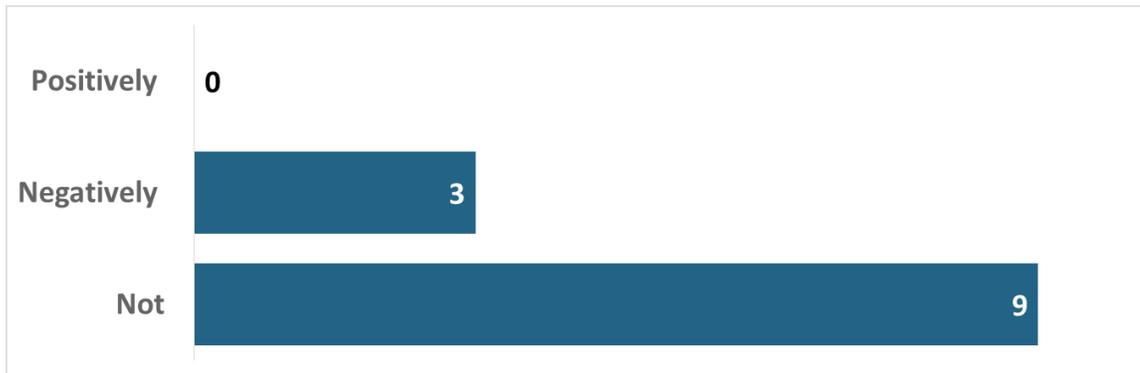
CITIZEN INPUT

Air Quality

Residents were asked, “Are you satisfied with the current management practices of this resource in the County?”



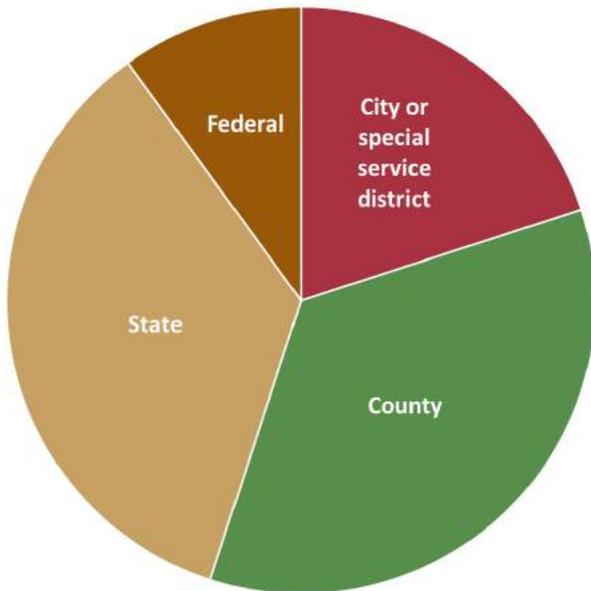
Residents were asked, “Regulations on this resource have _____ affected my employment.”



CITIZEN INPUT

Air Quality

Residents indicated, “The preferred management level for this resource includes _____ management and financial responsibility”



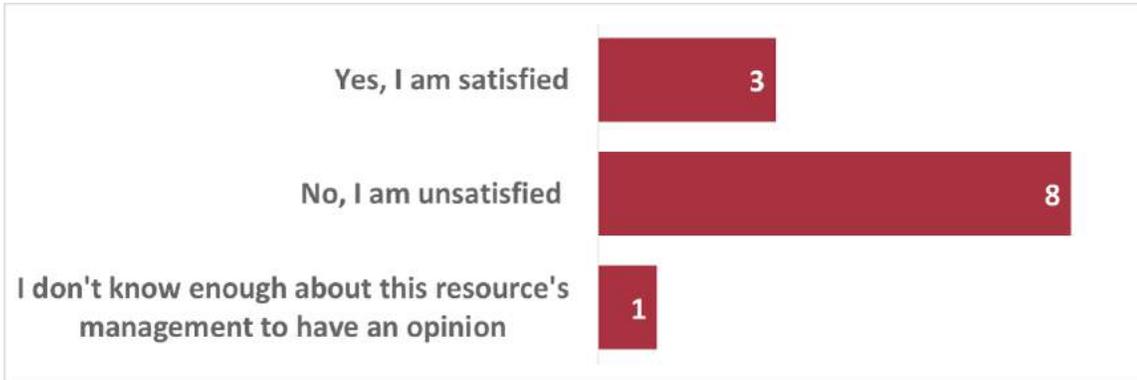
Respondents were given the opportunity to write, “What changes in current practices would improve the management of this resource?” Response length was limited to 140 characters. Responses are listed below in the order they were received:

- prohibit wood burning stoves in the winter
- Less wood stoves
- No home burning of trash that produces toxic pollution, such as plastics, batteries, electronics, etc.
- Less coal and coal mines. MORE SOLAR and wind power. More pressure on surrounding counties (esp Utah & Salt Lake) and state to improve air.
- None
- None I can think of.
- Common sense needs to be figured into any regulation or enforcement of this issue

CITIZEN INPUT

Energy

Residents were asked, “Are you satisfied with the current management practices of this resource in the County?”



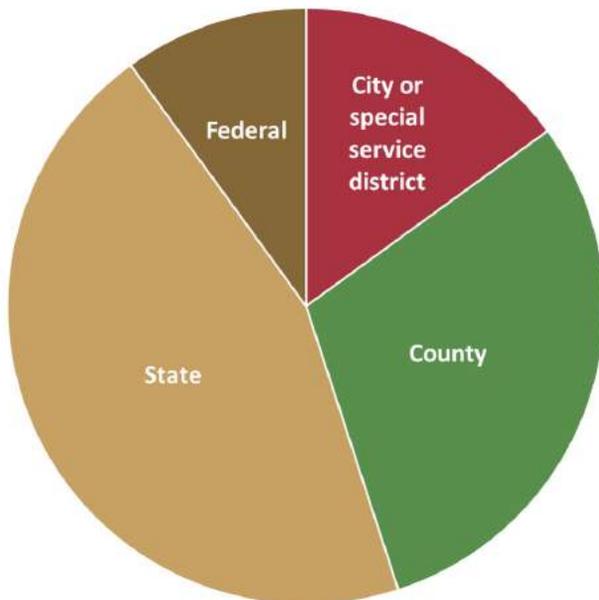
Residents were asked, “Regulations on this resource have _____ affected my employment.”



CITIZEN INPUT

Energy

Residents indicated, “The preferred management level for this resource includes _____ management and financial responsibility”



Respondents were given the opportunity to write, “What changes in current practices would improve the management of this resource?” Response length was limited to 140 characters. Responses are listed below in the order they were received:

- The war on coal must stop. This community relies on coal production from skyline mine.
- remove restrictions on energy development on federal lands.
- More Local control, less big brother
- Use renewable as much as possible
- Less coal. More solar and wind. Set a goal for having Ephraim and Snow College run totally on renewable energy sources (solar, wind, geo).
- Encouraging the development of the Sanpete counties oil and gas resources.
- Encourage oil and gas exploration and production.
- Common sense regulations not politically driven regulation. More common sense approach.
- Encourage energy development that leaves coal mining behind

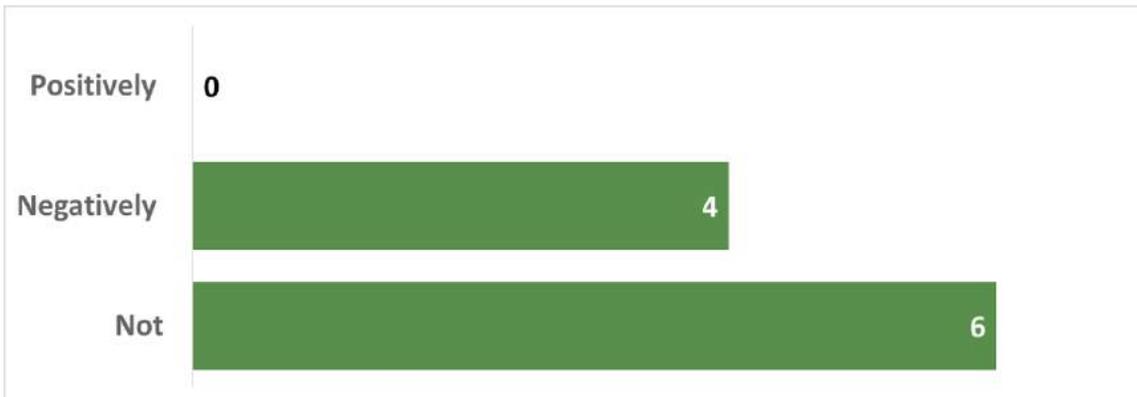
CITIZEN INPUT

Land Access

Residents were asked, “Are you satisfied with the current management practices of this resource in the County?”



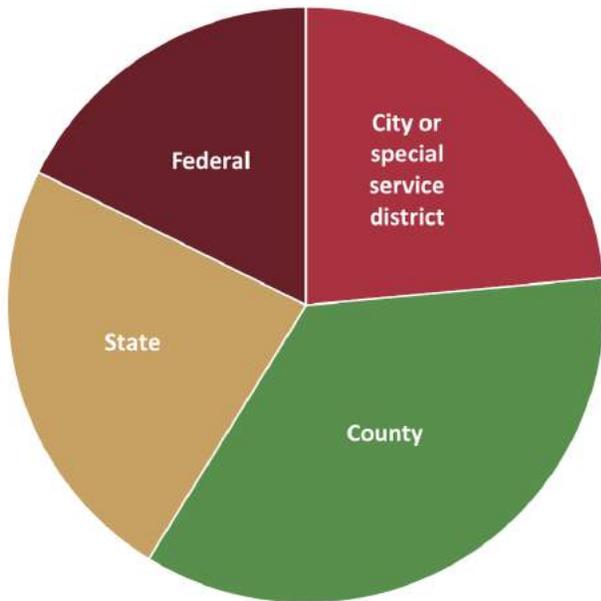
Residents were asked, “Regulations on this resource have _____ affected my employment.”



CITIZEN INPUT

Land Access

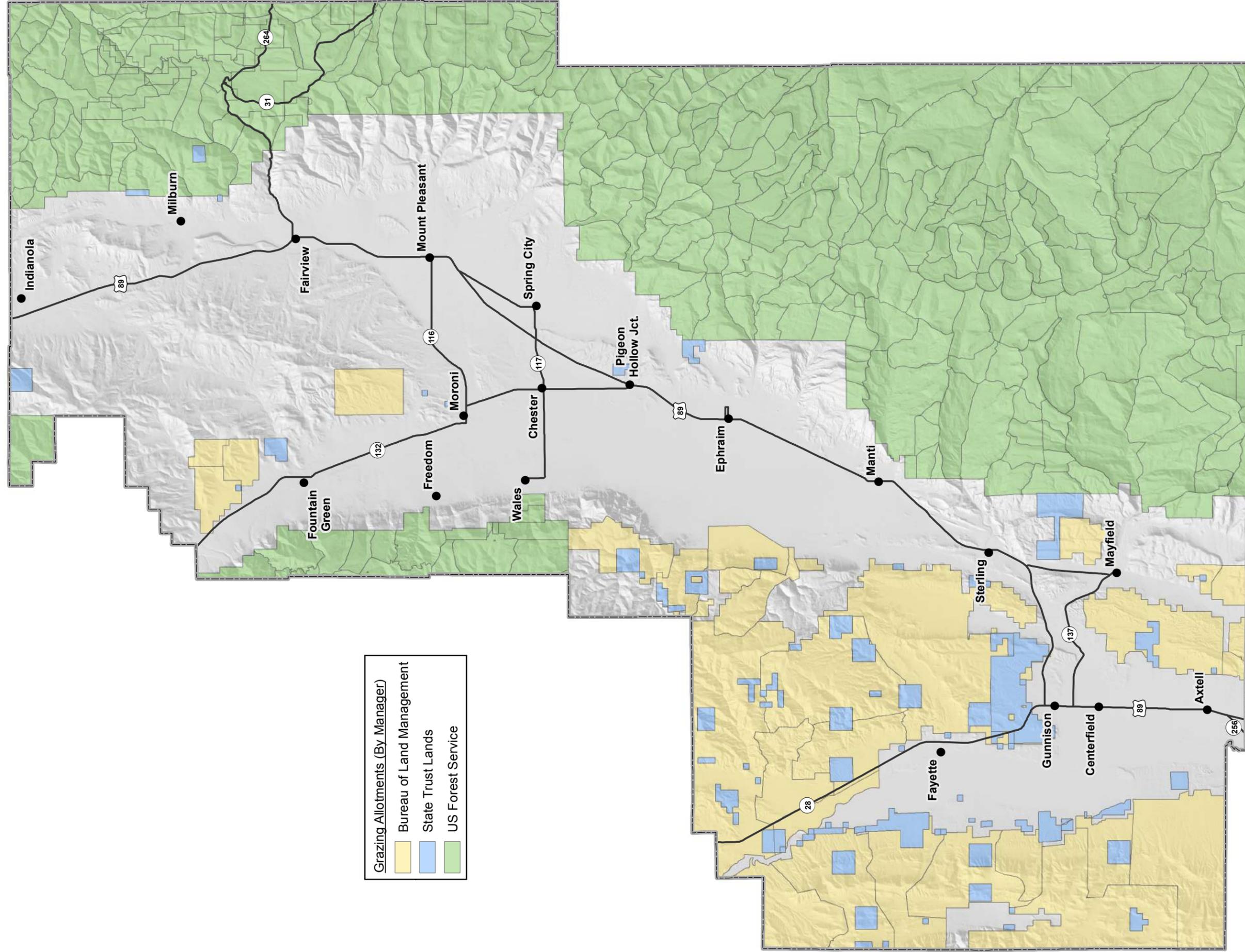
Residents indicated, “The preferred management level for this resource includes _____ management and financial responsibility”



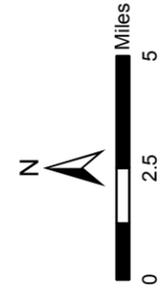
Residents were given the opportunity to write, “What changes in current practices would improve the management of this resource?” Response length was limited to 140 characters. Responses are listed below in the order they were received:

- county needs to complete and adopt the proposed public access road map.
- keep all roads open
- Please allow public hiking access like in the UK
- land managers who listen and implement local decisions. Hire locals with the proper education to oversee programs and make decisions.
- Quit closing every road in the forest
- Manage for everyone including locals. Don't cater to ATV's and build roads and trails for them while closing roads for fullsize vehicles.
- Continue to guard private property rights.
- Less roadless initiatives and no access wilderness. Historic access preserved and reestablished.

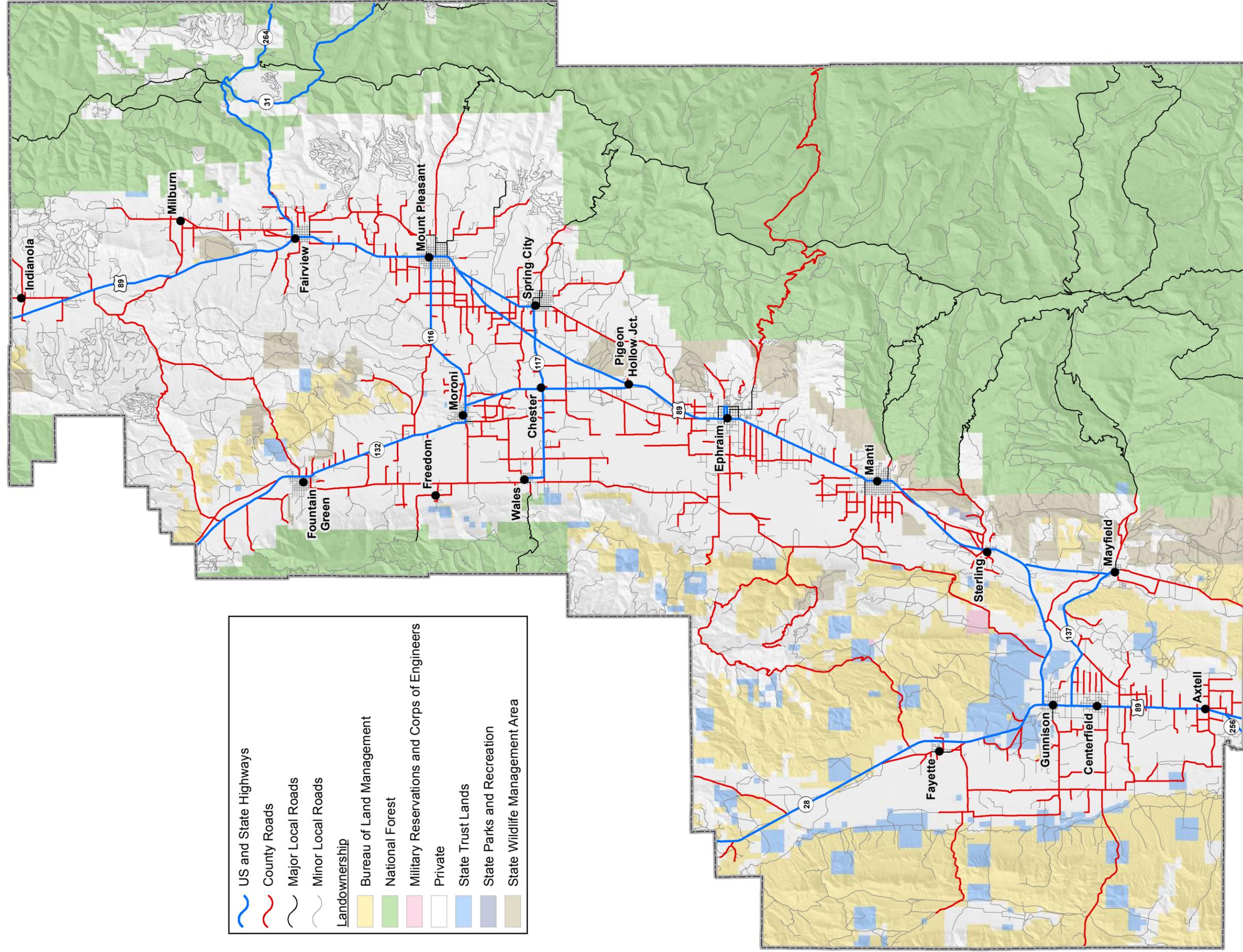
SANPETE COUNTY GRAZING



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SANPETE COUNTY LAND ACCESS

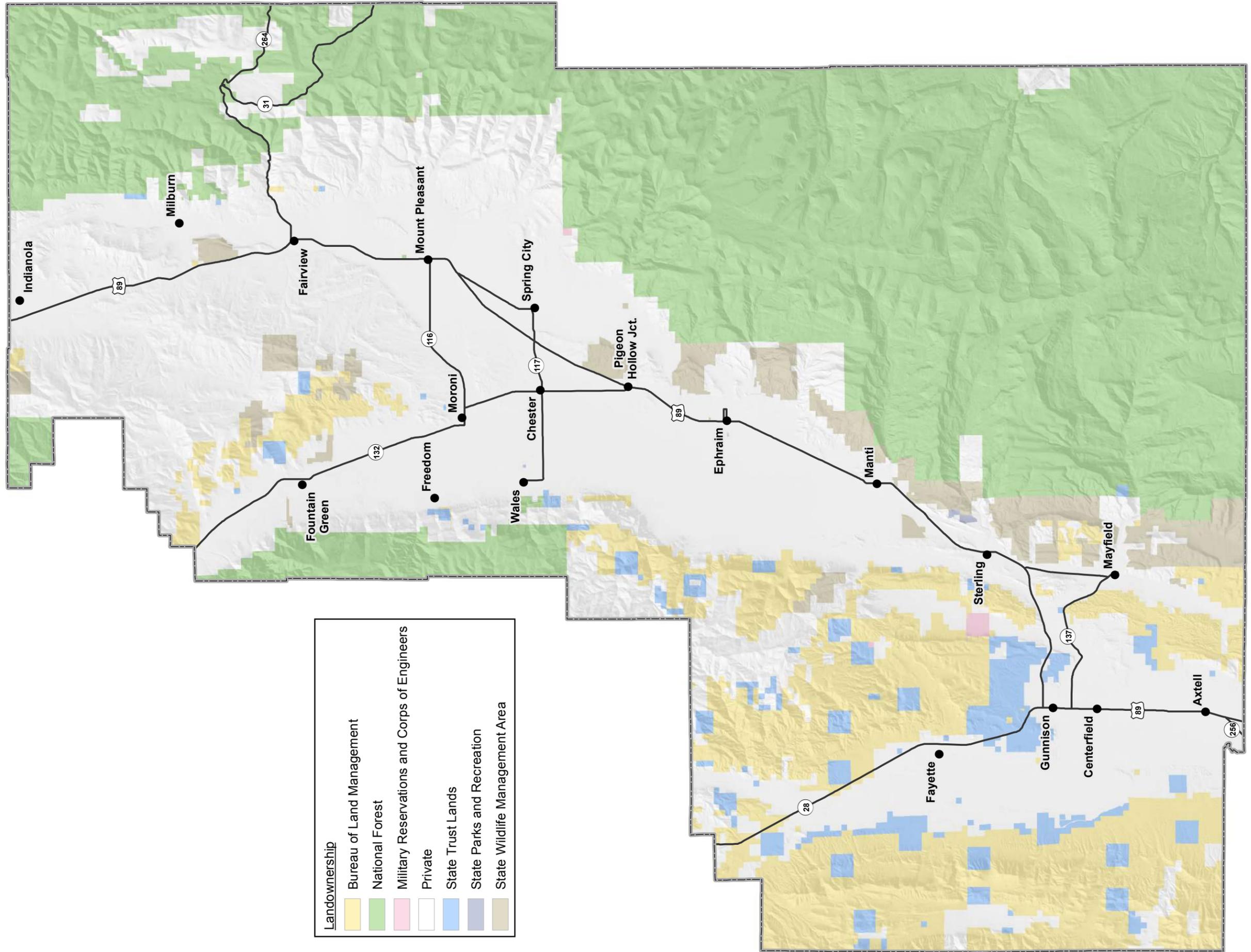


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SANPETE COUNTY LAND OWNERSHIP



Landownership
 Bureau of Land Management
 National Forest
 Military Reservations and Corps of Engineers
 Private
 State Trust Lands
 State Parks and Recreation
 State Wildlife Management Area

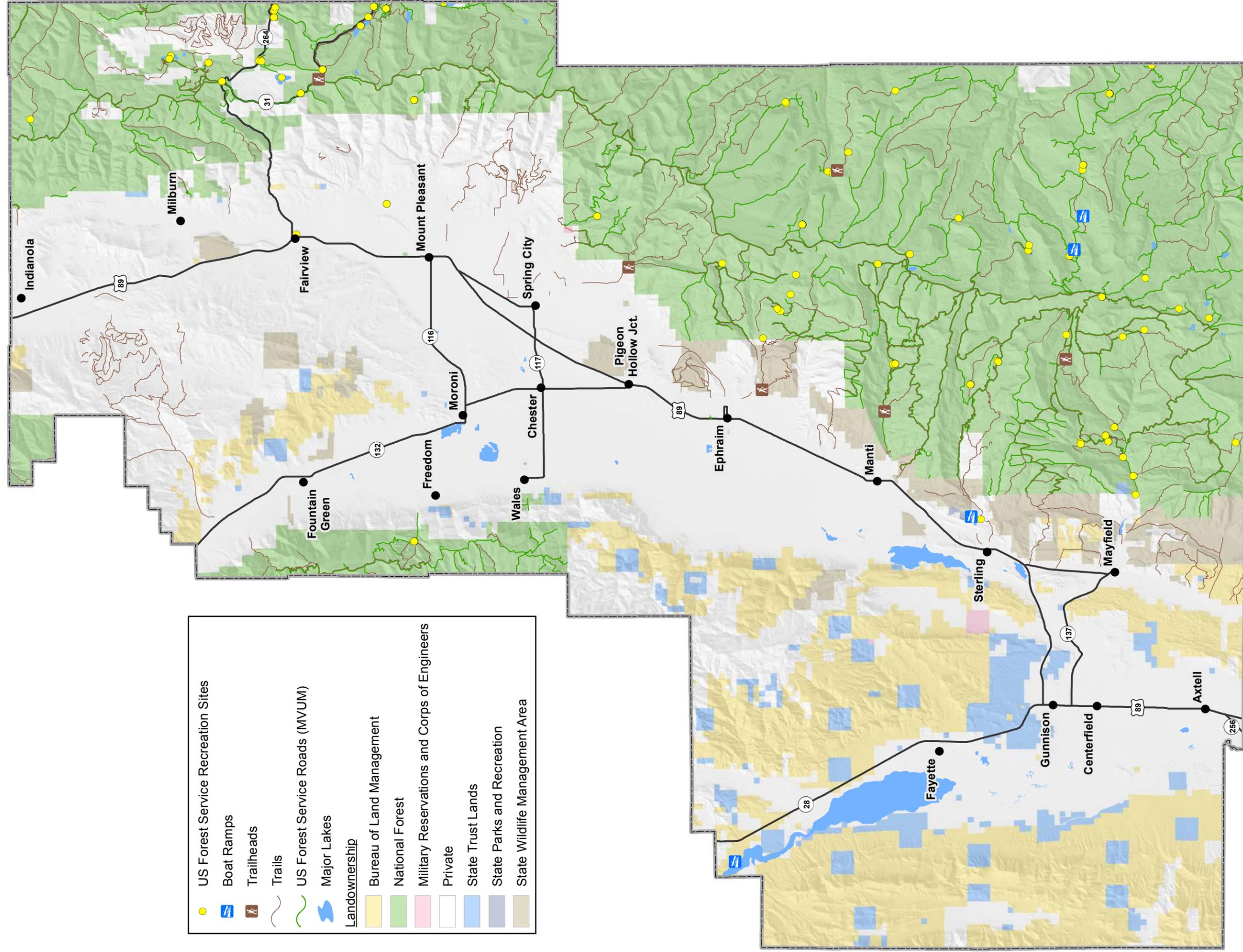


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SANPETE COUNTY RECREATION



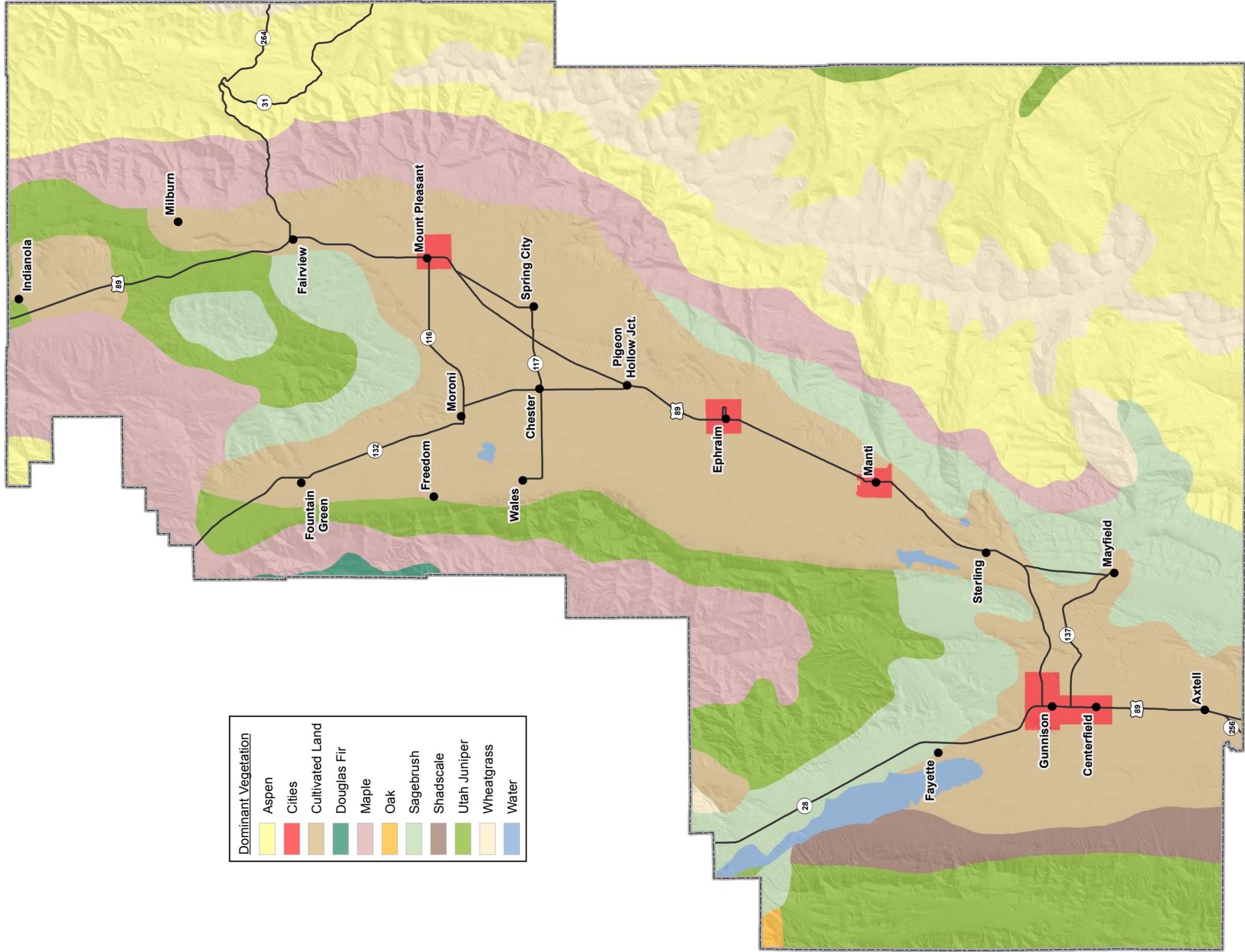
	US Forest Service Recreation Sites
	Boat Ramps
	Trailheads
	Trails
	US Forest Service Roads (MVUM)
	Major Lakes
Landownerships	
	Bureau of Land Management
	National Forest
	Military Reservations and Corps of Engineers
	Private
	State Trust Lands
	State Parks and Recreation
	State Wildlife Management Area



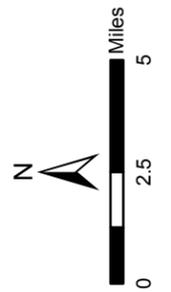
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SANPETE COUNTY VEGETATION



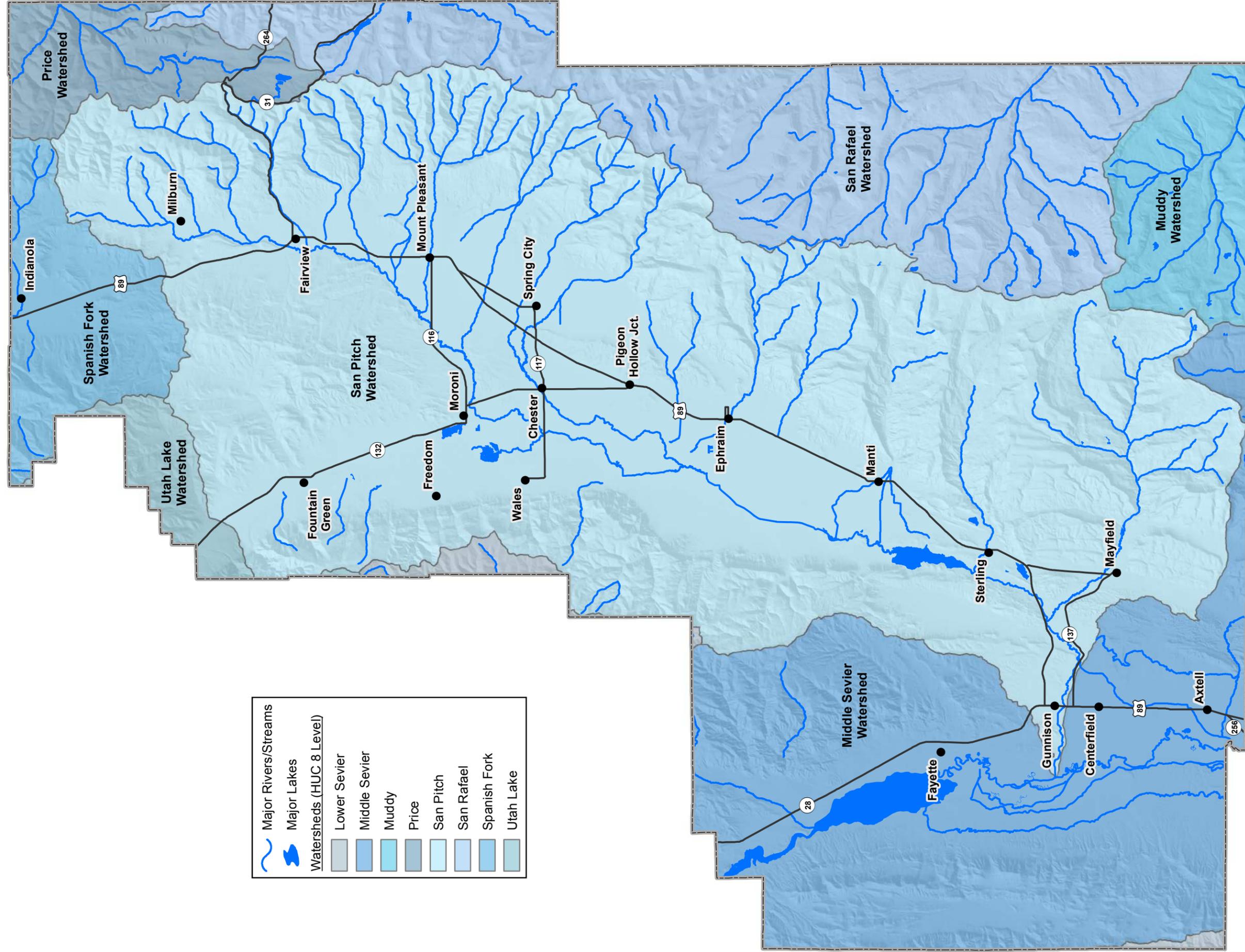
Dominant Vegetation	
	Aspen
	Cities
	Cultivated Land
	Douglas Fir
	Maple
	Oak
	Sagebrush
	Shadscale
	Utah Juniper
	Wheatgrass
	Water



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SANPETE COUNTY WATER RESOURCES



	Major Rivers/Streams
	Major Lakes
Watersheds (HUC 8 Level)	
	Lower Sevier
	Middle Sevier
	Muddy
	Price
	San Pitch
	San Rafael
	Spanish Fork
	Utah Lake

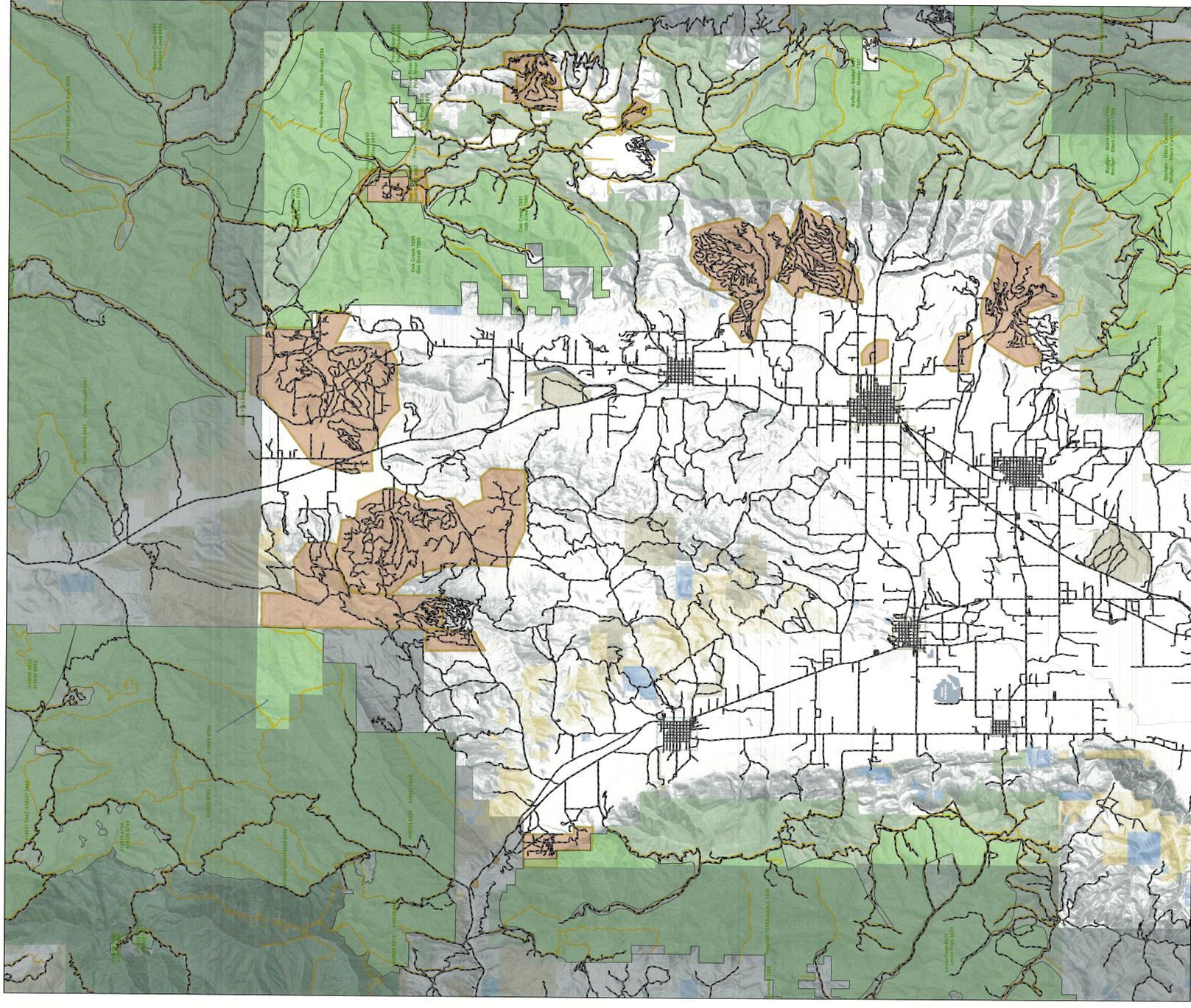
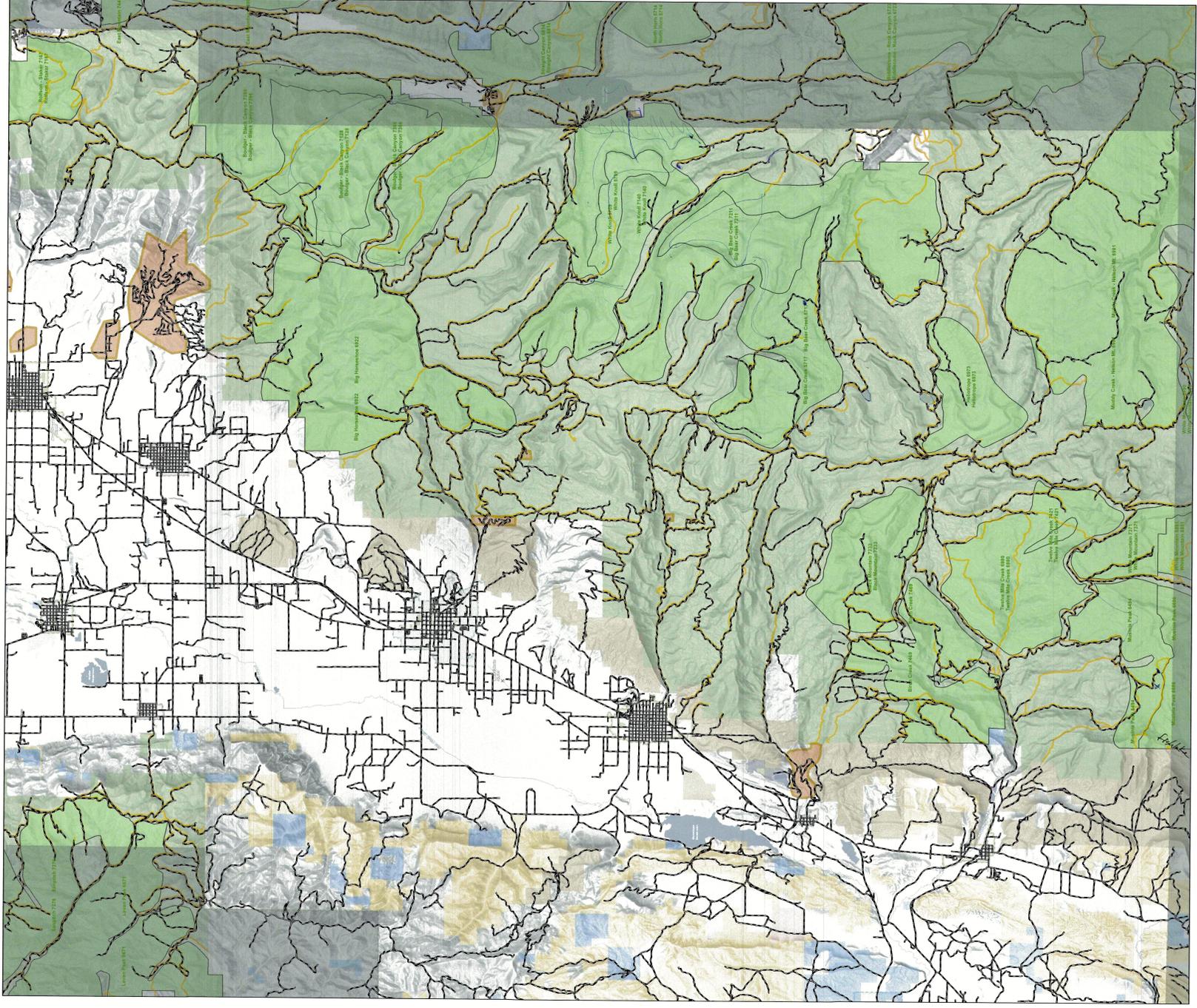


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Sanpete - Inventoried Roadless Areas



- Legend**
- Current 2018 Roads - AGRC
 - 1995 Utah Roads in USFS
 - National Monument
 - SITLA
 - Roadless Boundary
 - State Sovereign Land
 - Inventoried Roadless Area
 - US Forest Service
 - Wildlife Urban Interface
 - Wilderness
 - National Wildlife Refuge
 - Military
 - BLM
 - National Recreation Area
 - Private
 - State Parks
 - Wildlife Reserve
 - Other State
 - Tribal Lands

