1. **Agriculture**
    a. **County Policy**:
        i. Washington County supports the agriculture industry, including irrigated agriculture, livestock grazing, orchards, and other methods of food and fiber production.
        ii. Washington County balances the need to produce food, feed, and fiber with private property rights and the need to develop land for growth.
        iii. Washington County's agriculture nuisance policy reflects the state's policy as codified at Utah Code 76-10-803(3).
        iv. Washington County supports efforts to keep local agriculture sustainable into the future.
        v. Washington County supports economic and natural resource based conservation methods in local agriculture.
        vi. Washington County values agriculture as part of the local economy. Utah State Code 4-23-2 states that "…it is important to the economy of the state to maintain agricultural production at its highest possible level…" Accordingly, Washington County strives to protect its agricultural heritage to protect the economy.
        vii. Washington County values its agriculture heritage as an integral part of the local farming custom, culture, and heritage. Accordingly, we expect land managers to consider minimizing impacts to our agricultural custom, culture, and heritage when making land use and planning decisions.
        viii. As required by Utah Code 17-41-201 the county relies on the Agriculture Protection Advisory Board, made up of members of the local conservation district board to assist in creating agriculture protection zones.
    b. **Desired Future Conditions/Objectives**:
        i. Rural communities have healthy economies that include the agricultural production of food, feed, and fiber.
        ii. Agricultural communities within the county are thriving because of innovation and adaptation.
        iii. Best agricultural practices, including water saving measures, are standard within the county.
        iv. Agricultural land in the county provides open space.
        v. Thriving agriculture helps preserve the culture of the county by providing exposure to traditional Western lifestyle and food production.
        vi. Water yield from forest lands is maximized for optimum agricultural water production in the watershed.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans within or affecting Washington County.
        ii. The county will support and facilitate efforts by USU extension, state grazing programs, and any other helpful resources to educate agricultural producers and improve the health of the soil and natural resources.

iii. The county will consider the agricultural needs of the area when making zoning, taxing, and other administrative and legislative decisions.
iv. The county will support efforts to educate the public about the importance of agriculture in Washington County.

d. Background of resource use and development:

i. The early settlers of this area attempted to grow cotton to provide cloth for the growing Great Basin population. Part of the motivation to send settlers to Washington County was the potential to grow figs, citrus fruit, and other commodities that couldn't be grown on the Wasatch Front.

e. Detailed explanations:

i. Over the past several decades, much of the agricultural land in the county has been converted to allow growth of the communities. While the county strives to protect agriculture and maintain the farming and livestock grazing heritage of the area, the county also protects the rights of property owners to develop their property for other uses. No county agriculture policy should be construed as anti-growth or anti-development. Rather, the county strives to balance to need for growth with the need to preserve the Western agrarian culture of the area.

1. **Air Quality**
    a. **County Policy**:
        i. Washington County values the high quality air that we enjoy as a contributor to the lifestyle in the county.
        ii. Washington County adheres to the state's implementation plan as required by the Clean Air Act.
    b. **Desired Future Conditions/Objectives**:
        i. Air in Washington County is visually clear and healthy to breath.
        ii. The county meets or exceeds ambient air quality standards set by the state implementation plan (SIP).
        iii. Forests and rangelands are managed to minimize catastrophic wildfires that diminish air quality.
    c. **Management Actions**:
        i. The county will cooperate with the Utah Department of Environmental Quality to ensure that air quality within the county continues to meet the standards required by law.
    d. **Background of resource use and development**:
        i. The Clean Air Act authorized the Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS). In order to comply with NAAAQS, states develop state implementation plans (SIPs). Utah's Sip can be found at https://deq.utah.gov/Laws_Rules/daq/sip/index.htm
    e. **Detailed explanations**:
        i. Washington County meets or exceeds NAAQS

1. **Cultural, Historic, Geological, and Paleontological Resources**
    a. **County Policy**:
        i. Washington County supports preserving cultural, historic, geological, and paleontological resources according to state and federal laws.
        ii. Washington County opposes public lands management that restricts public access to enjoy cultural, historic, geological, and paleontological resources except as required by law.
        iii. Washington County favors management that makes cultural, historic, geological, and paleontological resources available for educational purposes that can be enjoyed by the public, preferably through accessible display in Washington County.
        iv. Whereas this land use document addresses such issues as roadways and trails access, wildlife, water, timber and range use, it shall be referred to on all matters regarding the use of natural resources as part of cultural identity. Traditional ways of life such as harvesting cedar posts, running cattle on the open range, and agriculture shall be protected.
        v. Any alteration of landforms, waterways, closure of roads and other such matters shall be carried out only after full consideration of the County's prehistoric and historical cultural heritage.
    b. **Desired Future Conditions/Objectives**:
        i. Cultural, historical, geological, and paleontological resources are identified and adequately protected.
        ii. Protected resources contribute to cultural education of the county and also to the economy.
        iii. All remnants of prehistoric life-forms, geological traces, and cultural elements shall be preserved in accordance with existing laws and shall remain within the county. These items shall be made available to the public in an appropriate setting of discovery and study.
    c. **Management Actions**:
        i. The county will support efforts to catalogue and protect cultural, historical, geological, and paleontological resources.
    d. **Background of resource use and development**:
        i. Washington County is rich with cultural resources.
            1. Native American artifacts
            2. Pioneer artifacts, trails, inscriptions
        ii. Washington County is rich with historic resources.
            1. Pioneer homes
            2. St. George historic district
            3. Silver Reef
            4. Harrisburg
        iii. Washington County has unique geology that is one of the defining characteristics of the area.
            1. Red Rock

2. Black Ridge

iv. Washington County is rich with paleontological resources
   1. Dinosaur tracks
   2. fossils

e. Detailed explanations:

i. As a public recognition of the importance of historic and archaeological resources to communities, large and small, the federal National Historic Preservation Act (NHPA) of 1966 set forth a process where any project involving federal lands, funds, permits, or licenses needs to take into account the action's effects on cultural resources. Similarly, Utah Code Annotated 9-8-404, established a similar process for any project involving state lands, funds, or permits in 1973. These two laws do not prevent the demolition or removal of cultural resources but require diligence in planning efforts involving cultural resources.

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

iii. To promote local preservation and historic revitalization, the Utah Division of State History (UDSH) oversees a Certified Local Government program backed with funding from the National Park Service. Washington County is not currently a CLG but there are nine communities within the county that meet those qualifications. CLGs within Washington County include Hurricane, Leeds, Rockville, Santa Clara, Springdale, St. George, Virgin, and Washington. If the county pursued a CLG designation with an ordinance and a commission, it opens the opportunity to apply for grants through UDSH to conduct historic preservation activities such as building rehabilitations, planning, and others.

iv. In a recent study promoted by the Utah Heritage Foundation and the Utah Division of State History, entitled “Profits through Preservation” (found here: utahheritagefoundation.org the economic benefits of historic preservation and tourism are significant. In this study, the researchers found that there 7.3 million visitors to Utah’s heritage sites and events with over $710 million in direct and indirect expenditures. Unfortunately, most of this heritage tourism is centered in communities outside Washington County.

v. Further, historic preservation rehabilitation projects (such as façade improvements) have far-reaching local effects where for every $1,000,000 spent on rehabilitation yields 10.2 direct jobs, 7.5 indirect jobs, more than $845,000 in local wages, and nearly $1 million in economic activity.

Through the proposed project, sub-grants to local communities for façade improvements and other historic preservation activities will increase the vitality of these commercial downtown districts and make the communities more attractive and visible for the proposed influx of heritage tourists. Jobs created through historic preservation could include the building trades, service industries, and educational and interpretive opportunities.

vi. Washington County is rich with historic resources. According to the publicly-accessible UDSH database (including GIS) for historic buildings, there have been 1,778 buildings and structures surveyed within the county, providing fundamental data on the county's historic architecture, including information such as when buildings were constructed, materials used, styles and types, and current and original uses. 887, or 50%, of the properties surveyed have been determined eligible for listing on the National Register, with 78 properties that have officially been listed. Notable listings on the National Register include the St. George Temple & Tabernacle, Old Washington County Courthouse, Grafton Historic District, Fort Pearce, and the Leeds Civilian Conservation Corps Camp Historic District. Washington County is also home to one of Utah's 14 National Historic Landmarks, the Mountain Meadows Massacre Site. National Historic Landmarks are the second-highest honor for historic places in the United States.

vii. Currently, in Washington County there are 4,699 known archaeological sites (5th highest number in the state) with just 14.9% of all lands in the county inventoried for those resources by professionals. This is the second highest number of known sites in Utah, largely due to oil and gas development. Of the 4,699 known sites, 90.1% are of the prehistoric period ranging from the earliest Paleoindians to the Fremont and Virgin Anasazi peoples, 6.6% are historic period much of it relating to the mining, homesteading, and grazing heritage of the county, and 3.3% of sites have both prehistoric and historic components. Finally, only 57.1% of those sites are eligible for the National Register of Historic Places, speaking to the number of impressive rock art panels and early human village sites.

viii. The National Historic Preservation Act of 1966 began requiring that any project with a federal undertaking (in very simplistic terms: federal funds or federal permitting) undergo a "Section 106" consultation.

ix. Utah Code 17-50-326 grants to counties the authority to preserve historical areas or sites.

x. Utah Code 76-6-902 makes it unlawful to "intentionally alter, remove, injure, or destroy antiquities" on state land. On private land, permission from the land owner is required.

xi. Utah Code 9-8-306 provides for designating sites of significance on state, SITLA, or private land.

xii. Utah Code 9-8-401 provides for the State Division of History to maintain a state register of places and sites that are significant in Utah history.

xiii. Utah Code 57-13b-201 provides for the preservation of historic livestock trails.

xiv. Utah Code 79-3-5 govern paleontological resources on state, SITLA, and private land.

1. **Ditches and Canals**
    a. **County Policy**:
        i. Washington County supports the use and maintenance of ditches and canals to access and use private water rights while encouraging using pipelines to conserve water during conveyance.
        ii. Existing ditches, pipelines, and canals are a valuable part of the local heritage and culture, of irrigated agriculture.
    b. **Desired Future Conditions/Objectives**:
        i. Ditches, canals, and irrigation pipelines are protected, as needed, to deliver water to water rights holders.
        ii. Ditches, canals, and irrigation pipelines are managed for the safety of the public.
        iii. Ditches, canals, and irrigation pipelines are managed for optimum efficiency and conservation.
    c. **Management Actions**:
        i. The county will plan for ditches, canals, and irrigation pipelines in county plans.
        ii. The county will support and facilitate efforts by Utah State University and local water managers, including Washington County Water Conservancy District, to ensure an adequate water supply.
    d. **Background of resource use and development (custom and culture)**:
        i. Historic ditches and canals moved precious water from the rivers and creeks in Washington County to the farms where irrigation was needed. For early settler, ditches and canals were necessary to enable development away from dangerous floodplains. Over the years most major canals have been converted to pipelines to conserve water and keep the public safe. (See the irrigation section for more information).
    e. **Detailed explanations**:
        i. The pipeline system in the county is more than 150 miles long with a network of lines connecting reservoirs to irrigation systems, municipal water systems, and hydroelectric power generation stations.

1. **Economics**
    a. **County Policy**:
        i. Washington County is the expert on our own economy. Any decisions made by federal or state land management agencies must give full consideration to economic input from the county.
        ii. Washington County values a vibrant economy that provides a high quality of life for our citizens.
        iii. Washington County opposes any federal land management decisions that threaten to harm the economy or lifestyle within the county and will use all means available to prevent implementation of such decisions.
    b. **Desired Future Conditions/Objectives**:
        i. Washington County's economy is strong based on an optimal mix of economic factors including natural resource based factors.
        ii. Resource allocations in the county reflect the values of Washington County as outlined by the county commission.
        iii. Resource planning protects the traditional resource based economies such as ranching, farming, timber harvest, recreation, fishing, and hunting.
    c. **Management Actions**:
        i. The county will seek cooperating agency status as economic experts on all federal resource management plans within or affecting Washington County.
        ii. The county will seek sound economic data upon which to make resource allocation, zoning, and funding decisions.
    d. **Background of resource use and development**:
        i. In the past, the county has signed cooperating agency agreements with federal agencies that manage public lands. In those agreements, Washington County has been designated an expert on the economy. Because the county commission is elected to represent the residents of the county, they have the obligation to act in the best interest of the health, safety, and welfare of the county. In that role, they have the right to represent what resource decisions are in the best interest of the county, the county's economy, and the custom and culture of the county.

1. **Fire Management**
    a. **County Policy**:
        i. Fire management decisions are based on, first protecting human health and safety, second infrastructure, and third, natural resources, i.e., forage and timber.
        ii. Washington County supports comprehensive fire management that helps reduce catastrophic wildfires.
        iii. Washington County values fire management as a protection for the aesthetic beauty of the county, the local economy, and the citizens of the county.
        iv. The county encourages active fire and fuels planning by municipalities within the county.
        v. The county encourages property owners in the county to become educated about defensible space and other fire risk reductions.
    b. **Desired Future Conditions/Objectives**:
        i. Fuels and fires are managed so that the county has no catastrophic wildfires.
        ii. All fire management planning within the county, including panning by federal partners, involves active participation from the county.
        iii. Fires are managed to protect human life, private property, sensitive species, and the local economy.
        iv. Controlled fire is a tool for managing fuels.
        v. Fire management is used as a tool to protect water quality and forage yield.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal fire and/or fuels management plans within or affecting Washington County.
        ii. The county will work cooperatively with state and local governments to continuously update and improve the county fire plan.
        iii. The county will use resources such as the Utah Division of Forestry Fire and State Land's risk management tool and the Utah Wildfire risk assessment portal.
    d. **Background of resource use and development**:
        i. Wildfire has always existed throughout history and is nature's way of cleaning landscapes and recycling resources. Wildfire has improved vegetative species abundance and diversity from the sage steppe of the western deserts to the high alpine peaks of the Rocky Mountains. Utah's landscapes have become dependent upon wildfire to maintain the health and vigor of the many ecosystems within the state. With the increase in the 1900's of fire suppression efforts and fire management objectives to keep all wildfires small, many of the ecosystems have departed from historic conditions. Fire has not been allowed to perform its natural role on the landscape and consequently, fuels have not been routinely consumed. As a

result, fuel loads are high and when wildfires occur, they are often more damaging with catastrophic consequences to ecosystems and have a greater negative impact on communities. Every year, hundreds of wildfires burn on private, state and federal land in Utah. Fires occurring on federal and tribal lands are managed by the US Forest Service, Bureau of Land Management, National Park Service, US Fish & Wildlife Service and the Bureau of Indian Affairs. Wildfires that occur on state and private lands that aren't inside city limits are managed by the Division of Forestry, Fire & State Lands and are coordinated through County Fire Wardens. County Fire Wardens work with federal agencies and local fire departments to coordinate the suppression effort. More than 95% of all wildfires in Utah are extinguished before they exceed 10 acres.

ii. Catastrophic wildfires significantly impact our landscapes, economy and infrastructure and are considered the most preventable natural disaster facing Utah. Reducing large fires in Utah will protect life, property, communities, economies, and our environment. In 2013, the State of Utah developed the Catastrophic Wildfire Reduction Strategy (Catfire) in response to the severe 2012 fire season. Reducing the catastrophic wildfire requires attention to three interdependent goals identified in the National Cohesive Wildfire Management Strategy -- Restore and Maintain Landscapes, Fire Adapted Communities, and Wildfire Response. Mitigation of hazardous fuels can change fire behavior making it easier to suppress. The effects of the mitigation, however, are not limited to life and property safety but will also affect forest health, water quality, vegetative species abundance, etc. As we continue to implement projects across the landscapes in Utah, the only way to truly be successful is to integrate existing programs, utilize local and federal partners and continue to educate the general public to create the desired shift towards more resilient communities and ecosystems. The goals of the Catastrophic Wildfire Reduction Strategy are:
    1. Resilient Landscapes
    2. Fire Adapted Communities and
    3. Strong & Effective Local Wildfire Response

iii. The Objectives and Strategies of the Catfire are:
    1. Reassess the existing education program to meet current and future needs
        a. Make sure literature is updated as necessary to incorporate current research information.
        b. Identify gaps in research and pursue funding to address research needs.
        c. Distribute materials to community members, individual landowners, public officials, interagency partners and media for further dissemination and outreach.

d. Maintain collaborative efforts with interagency partners to deliver and update information.

2. Increase participation in state and national programs including Utah Living With Fire, Ready, Set, Go!, Firewise USA and Fire-Adaptive Communities.

e. Detailed explanations as needed:

i. Municipalities within the county have created special service districts (SSDs) to manage fire. Those fire plans are incorporated into this plan by reference. Those plan include:

1. Apple Valley
2. Brookside
3. Central
4. Dammeron Valley
5. Diamond Valley
6. Enterprise
7. Gunlock
8. Hildale
9. Leeds
10. New Harmony
11. Pine Valley
12. Veyo
13. Winchester Hills

ii. The County Commission routinely identifies priority areas for focusing fire management resources. Fuels management and fire prevention efforts are carried out in those areas through cooperation between federal land management agencies, state partners, the county, and municipal partners.

iii. Firefighting Resources

1. 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. A basic overview of how a wildland fire is fought in the state can be found on the Utah Forestry, Fire and State Lands Site (http://ffsl.utah.gov/index.php/fire/how-is-wildfire-fought-in-utah)

2. When a fire is reported in Washington County, it is forwarded to the Color Country Interagency Fire Center (CCIFC). This multi-agency organization is tasked with keeping track of wildland firefighting resources throughout southwest Utah and coordinating the response of resources to wildfire incidents throughout their area of coverage.

3. Numerous federal, state and local personnel are trained to respond to wildfires throughout Washington County 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. Ground resources are provided by Local, State and federal agencies while air resources are primarily provided by federal agencies through agreements with the Utah Forestry, Fire and State Lands. Often times both types of resources are dispatched to a fire. Below is a brief outline of the available resources for each category.

iv. Ground Resources: Federal and State

1. There are two main firefighting groups that fall within this category; they include hand crews and engines. Hand crews are specifically trained to fight wildfires. They often consist of 18–20 individuals who are responsible for constructing fire lines. Hand crews use tools such as scrapes, pulaskis, chainsaws, and shovels to contain and stop fire. They are also well trained to execute backfire operations to prevent the spread of fire. Many supervisors of hand crews are qualified to be incident commanders and be in charge of protecting property and infrastructure (e.g., homes and buildings) and for implementing overall plans to extinguish fire.

2. Wildland engines are specially equipped fire engines, often with all-terrain capabilities, to transport water to fire lines. Engine crews consist of 3–5 individuals that use hoses, pumps to provide water support to extinguish fires. They can also be used to construct fire lines. Engine resources are categorized by size and water capacity, ranging from type 6 (which hold 150–400 gallons) to type 3 (which hold 500+ gallons).

3. Both hand crews and engine crews are sponsored by federal land management agencies such as the US Forest Service, US Bureau of Land Management, US National Park Service, US Fish and Wildlife Service, and the US Bureau of Indian Affairs. Although crews are attached to particular national forests, wildlife refuges, etc., almost all are considered national resources and may be dispatched to fires across the United States. For example, federal firefighters based outside of Utah can be sent to fight fires in Utah.

4. In addition to having access to federal crews, the State of Utah trains and provides both hand crews and engine crews that can be used both in Utah and also dispatched nationally through a cooperative agreement with other agencies.

5. Within Washington County wildland firefighters are provided training by their departments and ground resources are maintained by most local fire departments and fire special services districts.

6. Assisting with fire prevention and suppression are county fire wardens who work for the Utah Department of Forestry, Fire, and State Lands under agreement with Washington County.

v. Local firefighting organizations include:
    1. Interagency
    2. Color Country Interagency Fire Center
    3. Federal
    4. Dixie National Forrest
    5. Zion National Park
    6. US Bureau of Land Management-Arizona Strip District
    7. State
    8. Utah Division of Forestry, Fire, and State Lands

vi. Ground Resources: County, Municipal, and Rural
    1. 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 in the urban-interface within incorporated municipalities and adjacent federal and state lands. These resources are initiate initial fire attack and can be used in larger fires through agreement with Utah Forestry, Fire and State Lands. They are often assigned to structure protection operations, or utilize their hose/water capabilities to create wet lines to keep fire from spreading into neighborhoods. In rural, unincorporated areas, volunteer fire departments (VFDs) are often the first on the scene to local wildfires and have varying levels of wildland fire training depending on their department standards.

vii. Air Resources
    1. Often assigned to scout for new fires following lightning events, tracking active fire perimeters, or assisting ground resources with water or fire retardant drops, air resources include airplanes and helicopters. Airplanes range from single-engine air tankers that deliver small fire-retardant loads to large retardant bombers. In remote, inaccessible terrain, smokejumpers can be delivered via air to put combat fires. Helicopters are most often used to ferry supplies to crews and to deliver water drops using specially designed buckets. Helitack crews are trained to be transported to fires by helicopter, as well as to staff helicopter stations on larger fire incidents. Air resources are primarily provided thorough agreement with the state of Utah and participating federal partners.

viii. Hazard and Risk Reduction
    1. The following pre-suppression activities are use in Washington County:
        a. Public education, outreach, informing the public of how to be firewise.

b. Connecting professionals (e.g., country fire wardens and state foresters) with landowners who need assistance in obtaining grants and other resources for implementing defensible space around their properties.
c. The creation of defensible space around homes, outbuildings, campgrounds.
d. Fuel load reduction projects through thinning, harvesting, and other mechanical means.
e. Utilizing prescribed fire under the appropriate conditions to remove hazardous fuels.
f. Implement efforts to maintain or create healthy landscapes and ecosystems focused on native vegetation.
g. Working with community fire councils to develop Community Wildfire Protection Plans and to share information with the community.
h. Identifying high-wildland fire hazard areas within the county.
i. Adoption of wildland-urban interface (WUI) building ordinances to reduce fire risk.
j. Proactive outreach to citizens occupying WUI on preparing for wildfire events.
k. Including municipal and volunteer fire departments in wildland fire training for quicker response and maintain and add wildland fire resources.
l. Utilize smoking and fire bans when fire danger conditions become hazardous.
m. Educating and informing the public when fire danger rises throughout a fire season.

2. The Following Suppression and control tactic are used in Washington County:
    a. Ensuring firefighter training and certification.
    b. Working to insure adequate equipment and resources are identified and available.
    c. Utilization of the incident command system on all fires.
    d. Pre-identifying fire response staging areas and camp areas in high hazard areas.
    e. Ensuring interagency and governmental cooperation and interoperable communication.
    f. Seeking Government and leader support by providing situation reports to leaders in the community.
    g. Executing emergency and evacuation plans as needed.
    h. Employing flexibility to use the best firefighting strategies and tactics to address the given fire situation.

i. Implementing proper airspace restrictions to safely execute aerial firefighting response as needed.
j. Providing public information and outreach on road closures, trails and area closures and to better assist and safeguard firefighting personnel and the public**.**

3. The following Post-fire Actions are used in Washington County:
    a. Return residents to evacuated areas as soon as practical.
    b. Assess and document damage to private and government structures, farmland, and natural resources e.g. streams, campgrounds, trails
    c. Habitat and watershed damage assessment and protection.
    d. Provide erosion control measures. (e.g., native seeding, water bars)
    e. Minimize exposure to invasive species where practical.
    f. Allow salvage logging operations if applicable.
4. Our fire management plans consider:
    a. Prevention and hazard/risk reduction efforts.
    b. Firefighting personnel and resource preparedness.
    c. Using Incident Command and accountability.
    d. Conduct Risk assessment.
    e. Develop evacuation plans
    f. Develop funding strategies.

1. **Fisheries**
    a. **County Policy**:
        i. Fisheries are a valuable part of the local ecology and economy.
        ii. Washington County supports efforts to maintain healthy fisheries within the county for biological reasons, recreation, and tourism.
    b. **Desired Future Conditions/Objectives**:
        i. Fisheries support healthy ecosystems, enhance native fish populations, and provide sport fishing.
        ii. Fishery management within the county involves active participation from the county.
        iii. Fisheries play a role in getting listed species delisted and preventing listing of new species.
        iv. Native fish species are part of the tourism and recreation, enabling the local population and tourists to learn about the role of local fish species in the ecosystem.
    c. **Management Actions**:
        i. The county will facilitate and encourage use of fisheries to stabilize listed and sensitive species.
        ii. The county will encourage fisheries that provide sport fishing.
        iii. The county will work with state, federal, and local partners to manage existing fisheries.
    d. **Background of resource use and development**:
        i. Fishing has been part of the culture and custom of the county since before the pioneer settlers arrived. Native Americans and pioneers fished in the rivers and streams of the county for food sources.
    e. **Detailed explanations as needed**:
        i. The process for determining the balance among competing uses and establishing the best fishery and wildlife management policies is described in state law. This process is founded on an open, public dialogue concerning these issues. Five regional advisory councils (RACs) are active across the state, each consisting of a dozen or more individuals nominated by various interest groups. Council members can include citizens, local elected officials, sportsmen, agriculturists, federal land managers, and members of the public at large. The duty of each RAC is to hear input and recommendations, to gather data and evaluate expert testimony, and then to make informed policy recommendations to the Wildlife Board. The Wildlife Board uses public input, the recommendations of the RACs, and the assembled facts to make determinations and establish policies best designed to accomplish the purposes and fulfill the intent of the wildlife laws. The Wildlife Board generates wildlife management policy, and exercises its powers by promulgating administrative rules and issuing proclamations and orders under Utah Code.

ii. Kolob Reservoir, Sand Hollow Reservoir, and Quail Creek Reservoir are Blue Ribbon Fisheries.

1. **Flood Plains and River Terraces**
    a. **County Policy**:
        i. Washington County supports thoughtful management of flood plains and river terraces as a way to protect human health and safety.
        ii. Washington County supports management of flood plains and river terraces that recognizes and respects private property rights.
        iii. Washington County values functional flood plains and river terraces as an important part of the infrastructure.
        iv. Washington County supports management of tamarisk in the river corridor to improve river function, limit flooding damage, and improve habitat.
        v. Washington County supports holistic management of the river system and floodplain, especially through its membership and participation in the Washington County Flood Control Authority.
    b. **Desired Future Conditions/Objectives**:
        i. Flood plains and river terraces have the proper morphology and vegetative structure to withstand flooding events.
        ii. Development is planned in accordance with approved floodplain management ordinances to allow flood plains and river terraces to function.
        iii. Regulatory permitting programmatic agreements are established to allow for improved river function, ability to expeditiously obtain required permit authorization, and habitat can be managed through standard operation procedures to avoid adverse impacts.
    c. **Management Actions**:
        i. The county will support efforts by local municipalities and other entities to protect floodplains and river terraces and remove river debris.
        ii. The county will implement the river master plan developed after 2007 floods and subsequently codified into county ordinance wherever the county has jurisdiction. In areas where the county does not have jurisdiction, it will encourage other jurisdictions to follow the river master plan.
        iii. In flooding events, the county will act quickly to protect critical infrastructure or prevent negative impacts to the health, safety, and welfare of its citizens.
        iv. River debris will be removed when possible to mitigate damage to public infrastructure during high water events.
    d. **Background of resource use and development (custom and culture)**:
        i. Washington County's early history was determined by the presence of water and limited by flooding. The Virgin and Santa Clara Rivers that bring water to the area rapidly in discharge and energy when they are impacted by rainfall or snowmelt in their watersheds.
        ii. Early settlers battled the two extremes of drought and flooding while trying to establish new towns and farms in the county.

iii. In recent decades, the county, state, and federal partners have worked to stabilized river banks to avoid catastrophic flooding and allow floodplains to function normally.

iv.

e. Detailed explanations as needed:

i. Washington County adopted by ordinance a master river plan that was developed after the flooding events of 2007. Often the greatest impacts from high water events come from structures that are blocked by debris. Regularly checking fro and removing debris helps keep waterways functional and prevent unnecessary property damage.

ii. The lower Santa Clara River has an altered streamflow which precludes natural stream morphology and vegetative patterns. The absence of these natural conditions necessitates regular stream management.

iii. Quick action during and after flooding events requires state and federal permitting.

1. **Forest Management**
    a. **County Policy**:
        i. Washington County supports sustainable and functional forests for recreation, timber, hunting, water quality and yield, and grazing.
        ii. Washington County supports federal policies that maintain access to forests for recreation or natural resource commodities.
        iii. Washington County encourages forest management that values traditional forest commodity uses such as mining, timber, and livestock forage.
        iv. Washington County values forests as part of the local economy and the aesthetic qualities of the county.
        v. Washington County values forests as part of the local heritage and culture.
    b. **Desired Future Conditions/Objectives**:
        i. Forests are healthy and sustainable through management that responds to pest concerns and plans for responsible harvest.
        ii. Forest commodities contribute to the local economy.
        iii. Forest recreation contributes to the local economy and quality of life.
        iv. Traditional forest activities like hunting, timber harvest, and recreation are balanced with the need to protect the sustainable and functional forests.
        v. Forest are managed to avoid catastrophic fires.
        vi. Washington County has a working relationship with US Forest Service, including providing meaningful input on US Forest Service management plans.
        vii. Forestry activities on non-federal land are conducted in accordance with the state's forest water quality guidelines.
    c. **Management Actions**:
        i. The county will actively cooperate on all US Forest Service plans within or affecting Washington County.
        ii. The county will support and facilitate efforts by US Forest Service, state partners, and private landowners to maintain healthy forests through active and adaptive management.
        iii. The county will support efforts to manage fuels to reduce catastrophic wildfires in forests by identifying high priority areas for fuels management and actively participating in fuels decisions.
        iv. The county will oppose federal policies that limit access to forests for recreation or natural resource commodities
    d. **Background of resource use and development**:
        i. Explain that historic forest management included managing pest like bark beetle by logging out standing dead timber. Moving away from that model has caused ecological problems.
        ii. Dixie National Forest, with headquarters in St. George, Utah, was designated by Congress in 1903. The current Dixie National Forest, headquartered in Cedar City, Utah, is made up of a consolidation of several national forests in the area and has different boundaries that the

original designation. The Pine Valley Ranger District is the only one located in Washington County.

e. Detailed explanations as needed:

1. **Irrigation**
    a. **County Policy**:
        i. Washington County opposes any plans, policies, or other implements regarding public land that might limit or have the potential to limit access to sources of irrigation water rights in Washington County.
        ii. Washington County supports agricultural efficiency to conserve irrigation water.
        iii. Washington County supports the use of new technologies such as metering and waste water reuse to gain efficiency in residential and other landscaping irrigation to conserve water.
        iv. Irrigated agriculture is a critical element of the local economy of Washington County.
        v. Irrigated agriculture is a fundamental cornerstone of the heritage and culture of Washington County.
    b. **Desired Future Conditions/Objectives**:
        i. The county works cooperatively with partners, including the water conservancy district, irrigation companies, the conservation districts, and municipalities, to plan for future water needs.
        ii. All resource management planning within the county involves active participation from the county.
        iii. Water is managed so that water resources meet the demands of increased growth.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans within or affecting Washington County.
        ii. The county will zealously protect existing water sources and work to develop new ones.
        iii. The county will support and encourage water conservation and resue.
    d. **Background of resource use and development**:
        i. Pioneers came to Washington County to grow food, feed, and fiber for pioneer settlement. Growing anything in the arid region required irrigation. Rivers in Washington County could be used to provide irrigation water, but the early pioneers had no good way to capture the water as it moved downstream. Irrigation water shaped the settlement and development of the communities in the county. Farming, the planting of trees, and the growing of gardens were core tenets of the culture of the settlers of the county.
        ii. Irrigating in the desert was a matter of trial and error for early settlers. Drought in 1861 ended with 40 day flood. Large amounts of water wiped out irrigation infrastructure, and small amounts of water were insufficient to raise crops. Water was the key to life in the county, and either too little or too much threatened survival. Pioneer settlers struggled to establish

green areas in the desert that allowed them to support themselves and have agricultural commodities to sell.

iii. Another drought in 1864 killed crops and fruit trees. Pioneers and Native Americans worked together after this drought to develop and contain water sources so that floods and droughts could be more easily managed. High water could be stored against times of low water. Surviving the heat and low precipitation of Washington County required a more steady supply of water than that provided by rivers and creeks that ranged from trickles to torrents.

iv. The Virgin River was dammed at the current Washington Fields Diversion in 1893 after some experimentation with other, less suitable, locations. Having a diversion made the Washington Fields good farm ground. Irrigation and the resultant crops enabled permanent settlements in the area to keep growing. The Washington Fields diversion is still in place, but the water is in pipelines instead of open canals. Now much of the water that used to be diverted for farm irrigation is supplying parks, schools, and homes with the water they need.

v. Water serving the Washington Fields Diversion is limited in quality by the flows entering the river at the La Verkin hot springs, which contain 10,000 parts per million of dissolved salts and minerals that are harmful to many plant species.

vi. Conservation measures have been a key to growing the population in the county. Droughts in the 1960s resulted in restrictions on watering yards and gardens. Residents had learned how to store water and conserve, so they were able to survive through the dry period. Converting the early canals and ditches to pipelines resulted in conservation of water that had previously been lost to evaporation and seepage into the ditch banks. As populations have grown and irrigation technology has advanced, farming methods have become more and more efficient to help precious water resources stretch farther.

vii. Reservoirs like Gunlock Reservoir created the water reserves necessary to implement more efficient farming methods like timing irrigation based on crop needs. Other reservoirs (Sand Hollow, Quail Creek, and Kolob) are managed primarily for culinary water supply, but the stored water can also augment management for irrigation and other purposes.

viii. With the creation of the Washington County Water Conservancy District in 1962, the county had a county-level entity to conserve, develop, manage, and stabilize water supplies. Modern residents of Washington County are less drastically affected by the continuing cycles of high and low precipitation. Through careful planning and conservation, Washington County has continued to grow in population.

ix. In recent decades, some irrigation water in the county has been converted to municipal use and this trend is expected to continue through market

forces. Irrigation water rights can be bought, sold, or converted to non-irrigation uses by the holders of the rights. While irrigation water conversions can help meet the needs of growing municipal water demands, historic irrigation uses don't always convert directly to municipal uses because of return flows and other non-consumptive factors. One of the largest modern irrigation challenges is balancing the need to meet the demands of municipal growth with the need to increase agricultural production to meet those demands, conserve water, and keep open space such as farms.

e. Detailed explanations as needed:

i. Wells and aquifers that originate on or cross public land are allocated through the state's water rights procedures. Access to the water is an essential part of the water supply, including irrigation, in the county.

ii. Irrigation water rights are usually privately held by individuals or irrigation companies. As private property rights, the ability to buy, sell, and convert irrigation rights is protected by Utah law.

1. **Land Access**
    a. **County Policy**:
        i. Washington County values land access to the maximum extent that respects private property rights.
        ii. Washington County encourages federal land management agencies to ensure maximum access to public lands within the county.
        iii. Washington County maintains recognized roads within the county to ensure adequate access to private property and to protect the health, safety, and welfare of its residents.
        iv. Determinations about what constitutes a road or what roads will be maintained within the county will be made by the county public works director in accordance with state and federal laws.
        v. Washington County supports state efforts to establish title to RS2477 rights of way.
        vi. Washington County urges the protection of historic livestock trails in accordance with state law.
        vii. Washington County considers historic roads and trails to be part of the culture and heritage of the county and wants them to be preserved accordingly when doing so will not interfere with private property rights.
    b. **Desired Future Conditions**:
        i. RS2477 rights of way are open and maintained to the extent necessary to provide access to the public.
        ii. County roads are maintained to protect the health, safety, and welfare of the residents of the county.
        iii. Public lands are managed in coordination with the county to meet the demands for public access for multiple uses.
    c. **Management Actions**:
        i. The county will develop and adhere to a county road maintenance schedule that ensures access to lands within the county.
        ii. The county will support and facilitate efforts state and federal partners to provide access through road construction and maintenance.
    d. **Background of resource use and development**:
        i. Property necessarily includes access. Livestock trails, historic trails, historic roads, and any other similar access routes should be maintained wherever they don't interfere with private property rights.
        ii. The county and the state have worked together to protect the RS2477 rights of way within the county. It is important that the county establish title to the rights of way that were created prior to the passage of FLPMA.
    e. **Detailed explanations as needed**:
        i. RS 2477 was a provision in the 1866 Mining Act that provided for the creation of public rights of way across the public lands. It was repealed in 1976 by FLPMA, but existing RS2477 roads were still recognized. In order to establish a public right of way across the public lands, a road

needed to be used for at least 10 years before the statute was repealed. Washington County is involved in an ongoing lawsuit with the BLM to establish which routes in the county are RS2477 rights of way.

ii. Utah Code 72-3-1 governs highways in the state including county roads.

1. **Land Use**
    a. **County Policy**:
        i. Washington County supports land use planning to ensure thoughtful use of resources.
        ii. Washington County values land use planning as method of steering intelligent growth and economic development.
        iii. Land in the county outside of city and town limits is less intensively managed and allows greater flexibility in land uses.
        iv. Washington County has a not-net-gain policy for federally managed public lands. Land swaps and conservation should not result in an increase in federally managed acres within the county unless the County Commission makes a specific exception that is in the best interest of the County.
    b. **Desired Future Conditions/Objectives**:
        i. Utility routes are protected so that the growing population can be adequately and easily served.
        ii. Water resources are carefully planned for and protected to meet the needs of the current population and projected future populations.
        iii. Washington County continues to have a vibrant economy while maintaining the outdoor recreational opportunities, stunning views, and unique setting that make this an inviting place to live.
        iv. All resource management planning within the county involves active participation from the county.
        v. Economic development within the county is guided by land use planning.
        vi. The county works cooperatively with Washington County Water Conservancy District, the local municipalities, state and federal agencies, and other interested parties to continually update and reevaluate land use plans.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans within or affecting Washington County.
        ii. The county will maintain an up-to-date comprehensive resource management plan as a tool to guide local decision making and as a tool for working with federal and state partners.
        iii. The county will support and facilitate data gathering as well as studies of resources, economics, etc. that will improve the quality of land use planning decisions as determined by the county commission.
    d. **Background of resource use and development**:
        i. Washington County had participated in resource planning through Vision Dixie, the county general plan, and other efforts. Washington County aims to be forward looking in ensuring that the citizens of the county have adequate access to the land and resources in the county along with adequate access to utilities. As a subdivision of the state, Washington

County’s authority over land uses within the county comes from state code at U.C.A. 1953 17-27a.

1. **Law Enforcement**
    a. **County Policy**:
        i. Washington County supports the Washington County Sheriff in protecting the public, enforcing the laws, and maintaining the peace to the full extent authorized in Utah Code 17-22-1.5.
        ii. Law enforcement should protect the rights of the citizens of Washington County.
        iii. Law enforcement should protect the health, safety, and welfare of the citizens of Washington County.
        iv. Federal and state law enforcement that needs to take place in Washington County should be coordinated through the Washington County sheriff's office.
    b. **Desired Future Conditions/Objectives**:
        i. The Sheriff's Office works cooperatively with state and federal law enforcement to protect the rights of the citizens of the county.
        ii. The sheriff's office and the county commission have a close working relationship with open lines of communication.
        iii. Washington County citizens have a familiarity with law enforcement through public outreach by the sheriff's office.
        iv. All law enforcement activities in the county are directed by the Sheriff.
    c. **Management Actions**:
        i. The county will seek MOUs with state and federal law enforcement agencies to clarify the roles each entity plays in enforcing laws and maintaining peace in Washington County.
        ii. The county will support and facilitate outreach efforts by the sheriff's office.
    d. **Background of law enforcement concerning natural resources**:
        i. On public lands, law enforcement is generally handled cooperatively between the local sheriff's office and the federal agencies that manage the land. Historically, in Washington County, …. (I need help here. I just don't know.)
    e. **Detailed explanations as**:
        i. Within the wilderness areas in the county the Sheriff's Office works with BLM or Forest Service to determine appropriate equipment to adequately respond to needs without violating wilderness designations.
        ii. Within Zion National Park, the Sherriff's Office responds to emergencies, manages search and rescue efforts, and patrols the roads.
        iii. Within BLM managed public lands, the sheriff's office is responsible for all law enforcement activities.
        iv. Within the Shivwits reservation, the Sheriff's Office coordinates with BIA to enforce the laws and maintain the peace.
        v. The role of a county sheriff is codified at Utah Code 17-21a

1. **Livestock and Grazing**
    a. **County Policy**:
        i. Washington County supports the ranching industry.
        ii. Washington County opposes any loss of AUMs absent scientific proof of resource degradation.
        iii. Washington County values the livestock industry as part of the local economy.
        iv. Washington County values livestock grazing as part of the local ranching heritage and culture.
        v. Washington County recognizes the Utah grazing agricultural commodity zones created by Utah Code 63J-105.8.
        vi. Washington County encourages livestock operators to keep records of forage yield and utilization rates to help facilitate continued livestock grazing.
        vii. Washington County values livestock grazing as a tool for managing wildfire risk by reducing fine fuels and removing invasive species.
    b. **Desired Future Conditions/Objectives**:
        i. Rural communities have healthy economies with livestock grazing as a contributor.
        ii. Grazing is adaptively managed to fully utilize forage resources. Adjusting stocking rates to achieve proper stocking should be based on monitoring of actual stocking, utilization, and trends in range vegetation and soil. This is called the “stock and monitor” approach and is synonymous with adaptive management.
        iii. All resource management planning within the county involves active participation from the county.
        iv. AUMs within the county remain at or above current levels unless a scientific need for reduction is demonstrated to the satisfaction of the county.
        v. Livestock raising is a vibrant part of the agrarian, Western culture of the county.
        vi. Grazing rights are managed under best grazing practices including the time/timing/intensity model.
        vii. All grazing management plan acknowledge and consider the cultural and economic importance of the livestock industry to the county.
        viii. Utilization and stubble height guidelines are management tools useful for grazing management, analyzing grazing patterns, and helping interpret monitoring data. They should not be used as management objectives or as rigid limits to grazing use on an annual basis. Utilization and stubble height guidelines should be adapted to each local situation and management objective and should not be written into land management plans. Utilization and stubble height guidelines are meaningless unless the time, place, method and species to be measured are specified.

ix. Turnout dates on seasonal ranges should be flexible and determined as part of a year round plan to meet the needs of the rangeland, livestock and other uses, not rigid range readiness requirements. Pasture moves in rotational grazing management should be approximate and flexible to allow for adaptation to changes in availability of water and forage, and other factors which occur on the entire year round grazing operation.

c. Management Actions:

i. The county will seek cooperating agency status on all federal resource management plans within or affecting Washington County.

ii. The county will support and facilitate efforts by USU extension, state grazing programs, and any other helpful resources to educate grazers about best management practices and improve the health of the rangelands and grazing resources.

iii. The county will zealously advocate for the livestock industry with state and federal partners.

d. Background of Resources use and development

i. In the case of federal land management agencies requesting reductions of AUMs, the county will only consider supporting reductions when the following actions have been taken and they indicate the a reduction in AUMs would improve rangeland health:

1. Actual Use records are up to date for a full grazing cycle (which could be 4 to 5 years depending on the type of grazing system employed, i.e., Rest or deferred rotation) and those records indicate that the current stocking rate is too high;
2. Long Term trend studies have been collected for the same grazing cycle and show a significant downward trend. Significant is defined using a Chi Square table as 8 to 10 points of difference;
3. Utilization studies have been collected on each unit of the grazing system for a full cycle and show consistent overutilization; and
4. These studies were not collected only during a period of drought, defined by the Society for Range Management as 70% or less of normal precipitation.

ii. **Major Land Resource Areas and Climate Zones**

Major Land Resource Areas (MLRAs) are areas of similar patterns of climate, soils, topography and land use that have been described and mapped by the Natural Resources Conservation Service. Climatic zones are classifications of soil moisture and temperature regimes that are related to the ability of soils to produce distinctive types and amounts of vegetation. These are related to vegetation productivity, livestock carrying capacity and response to brush control and seeding. Both the MLRAs and climatic zones were described fully in the 5-6 County Description and Ecology of Rangeland Report.

Map 1 (appended) shows the extent of MLRAs and climatic zones in Washington County. The pattern of MLRAs and climatic zones is more complex than in any

other county in the 5-6 County Area. This is because Washington County lies in an east to west transition from the Colorado Plateau MLRA 35 (mainly summer precipitation) and the Mojave Desert MLRA 30 (mainly winter precipitation), and a north to south transition from the Great Salt Lake Area MLRA 28A (cold desert) to the Southern Nevada Basin and Range MLRA 29 and Mojave Basin and Range MLRA 30 (hot desert). Higher elevations are in the Wasatch and Uinta Mountains MLRA 47B. All five of these MLRAs occupy significant portions of the county – which does not occur in any other county. This also means that the areas within each of the MLRAs are on the extremes of the area and therefore may not always be typical of the general description for the MLRA as a whole. Environmental characteristics vary continuously in space and, therefore, any classification into "types" (including MLRAs) is to some extent arbitrary. In other words a line is drawn between two MLRAs but in fact there is a continuous gradation from one to another, so at the limits the distinction between them becomes obscured. This should be kept in mind when generalizing about these MLRAs and the ecological sites described within each.

There are also five climatic zones defined on the basis of soil moisture and temperature regimes. These overlap MLRA boundaries. The soil moisture and temperature regimes are major factors that determine the amount and timing of plant growth (along with soil depth, slope exposure, and vegetation types). The Desert Zone (TA) is found along the southern boundary of the county and represents the driest and hottest area. It is entirely within MLRA 30. The soil temperature regime is thermic (average soil temperature at 20 inches depth is 59-72^{o}F) and the moisture regime is aridic (mostly dry). Annual precipitation is about 4-7 inches with a tendency toward more winter than summer precipitation. Total annual dry matter production is about 250-400 pounds per acre. The main vegetation type is creosotebush and bursage with some perennial grasses, especially on sandier soils, and abundant winter annuals in wet years. Most of the winter annuals are introduced species. Brush control in this zone generally does not increase perennial grass production and seeding of perennials is generally not successful.

The Semidesert Zone makes up by far the largest portion of the county and is found in all the MLRAs. This zone includes three different soil moisture – temperature regimes (TAU, MAU, and MAX). TAU has a thermic temperature regime, which is the same as the Desert Zone, but the moisture regime is somewhat more favorable (aridic tending to ustic). This means condition for plant growth are somewhat more favorable than in the Desert Zone. The amount and timing of precipitation depends partly on elevation and partly on the MLRA where the zone occurs. In general, annual precipitation ranges from 6-12 inches. Vegetation types include creosotebush, bursage, blackbrush, Joshua tree, salt desert shrub and some other mixed shrub types.

MAU is characterized by a mesic temperature regime and a soil moisture regime of aridic tending to ustic. In other words it is somewhat cooler than the TAU type and the moisture regime is similar. This environment results in somewhat better

plant growth conditions than the TAU type. Vegetation types in this zone include pinyon-juniper, sagebrush, semidesert grass/shrub, and other types.

MAX also has a mesic temperature regime with a moisture regime of aridic tending to xeric. Xeric refers to predominately winter precipitation characteristic of the Great Basin, therefore it is found mainly in the MLRA 28A Great Salt Lake Area. Typical vegetation is pinyon-juniper and sagebrush.

Annual production in the Semidesert Zone varies from about 400-700 pounds of dry matter per acre. In general, MAX produces more than MAU which produces more than TAU. However, production in any given location is greatly influenced by soil depth, slope aspect, and vegetation type. Brush control will often increase forage production in this zone. Seeding of perennial grasses or shrubs may be successful at least in the higher precipitation areas (>10 inches), but there is a substantial risk of failure. This zone has a high risk of invasion (or increase) by annuals when shrubs are removed by wildfire or brush control treatments unless seeded with perennials. Dominance of annuals can result in an increased frequency of wildfire that may preclude re-establishment of natives.

The Upland Zone (FU) is characterized by a frigid temperature regime (32-46^{0}F at 20 inches depth) and a ustic moisture regime (dry but with significant periods of moisture for plant growth). This zone is mainly at higher elevations in the north central and northeastern parts of the county. Vegetation is mainly oak brush and browse types, with some aspen, ponderosa pine, mountain big sagebrush, and meadow types. Precipitation is about 12-16 inches, and somewhat higher in localized areas. Annual dry matter production is about 900-1200 pounds per acre, and higher in riparian or meadow areas. This area has a good potential for seeding when necessary due to favorable growing conditions. It is subject to annual invasions when competition from native vegetation is reduced. However, the oak and browse communities in particular are adapted to fire and therefore complete stand replacement is less probable than in dense pinyon-juniper or sagebrush types.

iii. **Land Cover Types** The SWReGAP land cover types were used as a basis for describing the range resources and their management in the 5-6 County Area. This mapping is the main one that covers all land ownerships using the same criteria and has been widely used by several of the federal and state agencies The mapping is based on remote sensing of currently existing vegetation and other land cover types; In other words it does not represent potential vegetation. GAP cover classes identified in the 11 County area include 72 cover types. For purposes of analysis, discussion and presentation, these were simplified into 18 cover types as shown in Table 4 of the 5-6 County Description and Ecology of Rangelands Report. These 18 types were developed by combining GAP cover types based on similarity of dominant vegetation, i.e. all the cover types described as Pinyon-Juniper were grouped into one Pinyon-Juniper type. The Forest Service, BLM, and Utah State University have also grouped GAP types

into fewer major types for discussion and reporting purposes. The various groupings are not exactly the same among these various entities because each used criteria to suit their own purposes. However, the groupings are very similar and are similar to the ones used in this report. Map 2 (appended) shows the GAP cover types for Washinton County. All 18 of the cover types are mapped, but the colors are combined for types representing similar ecological zones. For example, all the forest types and mountain grasslands are colored dark green. This was done to make the map more readable at a small scale. The map shows the oak/mountain brush and other higher elevation types mainly in the northcentral and northeastern parts of the county. Pinyon- juniper intermixed with sagebrush is prominent in the northern parts of the county in the Great Salt Lake MLRA. Pinyon-juniper is also found in the low hills and foothills in the central part of the county. A large portion of the county is a mixture of mixed shrub types at lower elevations including creosotebush/bursage, Joshua tree, blackbrush, and mixed desert shrubs. In the southeast there is considerable salt desert shrub and semidesert shrub/grass types. Table 1 (appended) shows the estimated acreage of each of the GAP land cover types in each of the major 18 types used for this report. The most extensive land cover types in the county are Pinyon-juniper (31%), Mojave Desert shrub (26%), oak/mountain brush (11%), sagebrush (8%), and barren (7%). The pinyon-juniper land cover type represents the current vegetation type, not the historic range of pinyon-juniper. Pinyon-juniper has invaded into other types, sagebrush, oak, etc., to a substantial degree, therefore the historic range of pinyon-juniper was substantially less than at present. The sagebrush type includes both mountain big sagebrush and lower elevation sagebrush types such as Wyoming big sagebrush, basin big sagebrush, and black sagebrush. Only 2% was mapped as the blackbrush/Mormon tea type, however it is likely that considerable portions of the Mojave desert shrub type also contain blackbrush.

iv. **Soils and Ecological Types** Washington County is completely covered by some sort of soil survey (Map 3 appended). Most of the county is covered by UT 641 Washington County and a minor portion in the northeast by UT 634 Iron-Washington County. Both of these soil surveys have maps and data available on Web Soil Survey (WSS), including data on ecological sites for rangelands. The rest of the county is covered by the Dixie National Forest survey. However, although the maps and data are available on the national forest website, this survey is not done to Cooperative Soil Survey standards and do not have ecological site information. Where data are available on WSS a map of ecological sites can be obtained and detailed information on each ecological site is available. The ecological site maps are generated from the soils maps

with each soil mapping unit assigned the corresponding ecological site name. It should be recognized that soil mapping units often contain a pattern of two or more soil series that cannot be mapped separately at map scale used, therefore the map unit is a complex or association of soil series. Therefore, a soil mapping unit may contain one ecological site (when both soil series are associated with the same site), or a mixture of two sites where each soil is associated with a different site. The ecological site map generated by WSS assign the entire mapping unit to the most extensive ecological site. Data available on WSS allow the actual acreages of each ecological site within the mapping unit to be calculated. Map 4 shows the ecological site map for UT 641 which covers most of Washington County. This map is included to illustrate the kind of map that can be generated. It is hard to interpret at a small scale due to the number of ecological sites that are mapped (27). If more detail is needed, smaller areas within the county can be delineated on WSS and an ecological site map generated at a larger scale. It is also possible to combine sites with similar dominant vegetation (e.g. all pinyon- juniper sites) and develop a less detailed map based on potential vegetation types. Table 2 (appended) shows data furnished by NRCS which includes the names and acreage of all ecological sites within the area covered by NRCS soil surveys in Washington County (UT 634 and UT 641). These data were obtained by NRCS by clipping the portions of surveys that extended into other counties. The total acreage of ecological sites mapped in Table 2 is 565,476 while the total acreage of land cover types shown in Table 1 is 1,706,063. This indicates that only 33% of Washington County has been classified into ecological sites. Part of this is due to the area occupied by the Dixie National Forest where no ecological site information is available. Also, Map4 shows that there is a considerable portion of the area covered by soil surveys that has not been classified into ecological sites. Presumably, these areas are mostly barren lands or other non-range categories. The data in Table 2 show that, in the soil survey areas, ecological sites characterized as “creosotebush” sites make up 27% of the area, pinyon-juniper sites make up 25%, blackbrush 17%, oak/mountain browse 13%, and sagebrush 13%. (total of 95%). These percentages are not the same as for the land cover types reported in Table 1. They would not be expected to be the same because they cover different proportions of the county area and presumably they represent the “potential” vegetation and not the actual cover. According to the NRCS the species names associated with each ecological site description are those that are most consistent identifiers of the site, not necessarily the most abundant species. These acreage figures only refer to the area covered by NRCS soil surveys and do not reflect the average distribution of ecological sites over the entire county. Ecological sites, or “disturbance

response groups" (groups of ecological sites that react similarly to land treatments), are the best and most widely used system for classifying, mapping, planning and assessing rangelands. BLM has used ecological sites as a basis for range inventory and condition assessment. Currently they base range health assessments on "reference conditions" developed for each ecological site, ecological site information over all allotments has not been developed due to lack of complete soil surveys. The BLM and NRCS should be encouraged to complete soil surveys on both public and private land as a high priority. The Forest Service has mapped all or most of the national forest lands, but has not incorporated their information into the online database (WSS) and has not developed ecological site descriptions and interpretations for their lands. The Forest Service should be encouraged to do so.

v. **Land Treatments** Map 5 (appended) shows land treatments applied by the BLM in Washington County. This map is based on shapefiles and tabular data furnished by the BLM office in Cedar City. A map of treatments applied in the St. George FO and a table listing acreage and type of all treatments is included in the St. George FO Section of the 5-6 County Range Management History Resource Condition and Trend Report. Data specific to Washington County can be obtained from the shapefiles.

vi. **Other Rangeland Information** The Washington County Resource Assessment by NRCS is a report that present some additional information on rangelands, croplands, and other resources. It can be accessed online. The three reports cited at the beginning of this paper describe rangeland types, condition, management history and management guidelines that apply to Washington County rangelands in general. More specific data on Washington County rangelands is not available from the Forest Service, BLM, or NRCS for administrative units larger than the ranch or allotment level. Ranch or allotment level data are not needed for a county plan, and to access these data and summarize them would require an effort beyond the scope of the current project.

vii. Historical Practices *"Survival was the Goal." – Heber Jones*[1]

Settlers began arriving in Washington County in the 1850's. The climate and terrain were rugged which made farming difficult. Because of this, most settlers turned to livestock production as a means of survival. In these early days of the county, livestock (mostly cattle and sheep) were the hub of the community. Nearly every family raised livestock for their own subsistence in addition to selling a few animals. By the 1870's, every family had at least one individual who became the rancher of the family.

[1] *Ranching on Utah Hill and the Beaver Dam Slope.* The Alder-Brooks Oral History Collect #94-013, Dixie State College of Utah, St. George, Utah. August 22, 1994. Pg. 9.

As a result of the desert climate, the settlers that came to the county could not obtain a sufficient amount of private land to support enough livestock for subsistence and commercial needs. Because of this, settlers who ranched had to rely heavily on public lands to graze their livestock, especially the Beaver Dam Slope in the winter and Pine Valley in the summer. From this period until 1934 when the Taylor Grazing Act was passed, there were no formal allotments or grazing fees. Instead the range was open but every rancher knew who had rights to which areas, usually tied to water rights and a history of grazing in that area. After 1934, the culture of ranching continued in the county but ranchers were required to have private base property in order to qualify for allotment rights to adjacent land. Unfortunately, this change forced some ranching families out of business but, ranching remained a central focus for many in the county.

Modern Practices

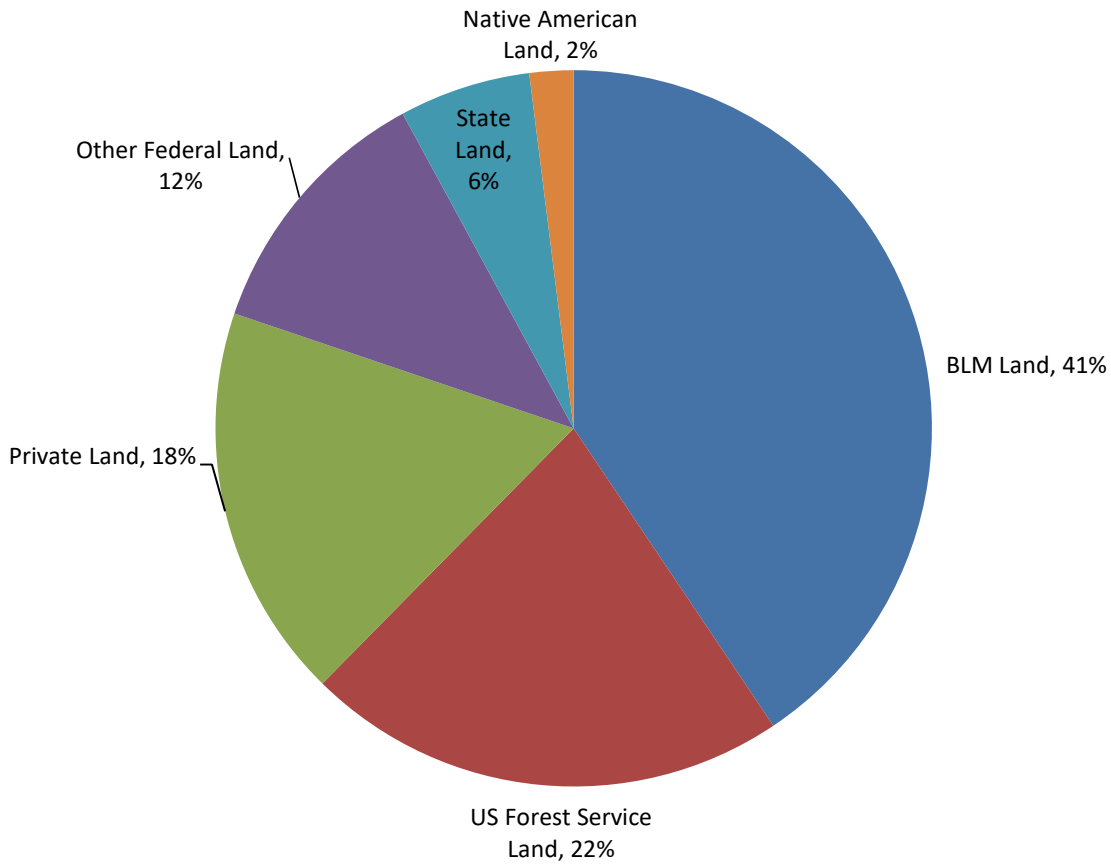
"[I] ranch[] because I like it. And, [it] is the way of life that I want." – Kelton Hafen[2]

Today ranching still plays an important and prominent role in Washington County. In 2006 livestock and livestock products constituted 84.31% of the total agricultural receipts in the county. [3] In addition to the economic importance, many ranchers continue to ranch to carry on the culture that the county was founded with and honor the heritage of settlers of the past. Currently, every rancher in the county has a Cow-Calf operation in which a cow raises a calf to seven or eight months old and then the calf is sold to a stocker operation which then raises the calf to market weight. The majority of these operations are run within immediate and extended families although the ranchers share fences and water with one another and trial animals across each other's land when needed.

Like early settlers, ranchers in Washington County still rely very heavily on grazing livestock on public lands, since only 18% of the county is held in private ownership, see Figure 1 below.[4]

Figure 1: Washington County Land Ownership Distribution

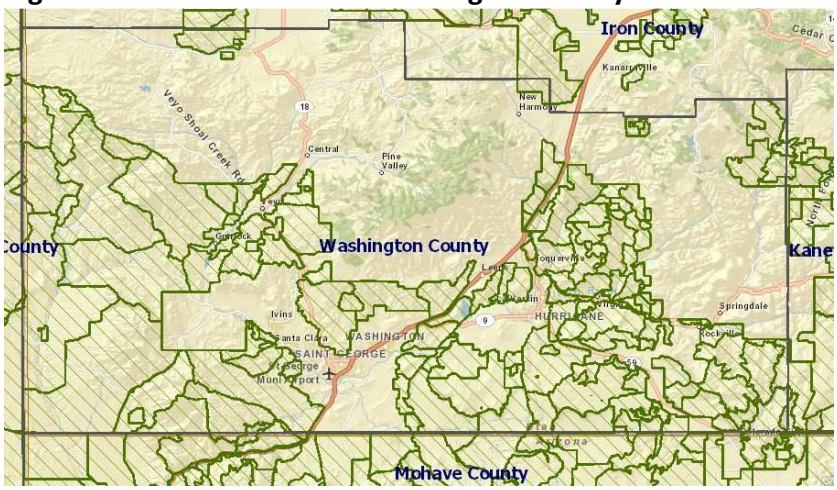
[2] Id. at 8.
[3] E. Bruce Godfrey. *Livestock Grazing in Utah: History and Status: A report for the Utah Governor's Public Lands Policy Coordination Office.* Utah State University. December 2008. Figure 5. Pg. 7.
[4] Data gathered from Id. at 16.



The Bureau of Land Management (BLM) is the largest land holder in the county (41% of land within the county) and the primary agency involved in fall, winter, and spring ranching. Most of this land is shrub and grassland on the west side of the county, see Figure 2 below.[5] The BLM administers 99 allotments within the county, consisting of approximately 560,000 acres.[6] These allotments are usually handed down generationally. More than half of the allotments hold ten cows or less, two hold horses, and no allotments hold sheep. Utilizing these allotments are 89 operators, including organizations which are counted as one operator. A total of 28,424 AUMs are authorized for livestock use, of which 30-40% are used yearly due to range conditions and operators' choice. AUMs that are suspended due to range conditions are rarely, if ever, reinstated.

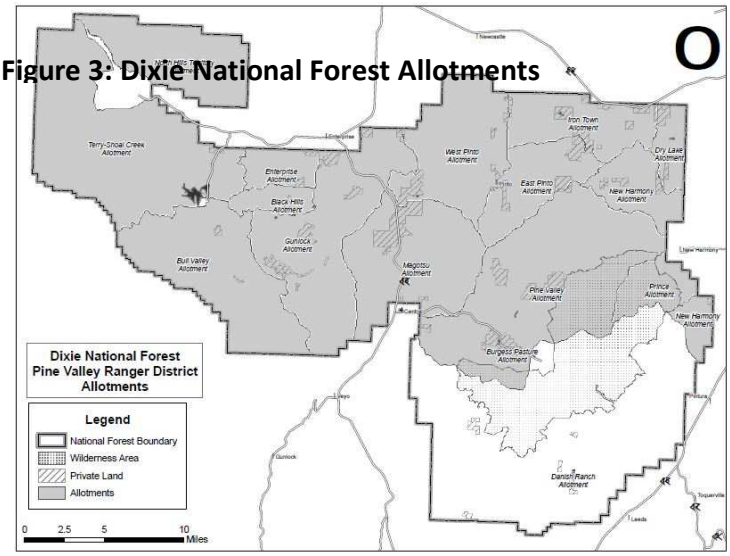
[5] Map generated from geocommunicator.gov. http://www.geocommunicator.gov/blmMap/Map.jsp?MAP=GA
[6] St. George Field Office, Bureau of Land Management. http://www.blm.gov/ut/st/en/fo/st__george/grazing_.html

Figure 2: BLM Allotments in Washington County



The United States Forest Service is the second largest land holder in the county at 22% of the land within the county. Ranchers utilize Forest Service land primarily in the summer in the Pine Valley area, see Figure 3 below.

Figure 3: Dixie National Forest Allotments



From the first settlers to modern ranchers, livestock grazing has been central to the culture and heritage of Washington County and will continue to be an integral part of the community for years to come.

1. **Mining and Mineral Resources**
    a. **County Policy**:
        i. Washington County supports the mining industry and recreational prospecting.
        ii. Washington County encourages responsible mineral extraction that enhances the quality of life within the county.
        iii. Washington County values mining and mineral exploration as part of the local custom and culture.
    b. **Desired Future Conditions/Objectives**:
        i. The county's mining economy is stable and provides a steady tax base rather than quick boom and bust cycle.
        ii. All decision making regarding where mineral extraction is permitted within the county involves active participation from the county.
        iii. Federally managed public lands remain open to mining and mineral claims, including claims for aggregate materials, sand, gravel, picture rock, and similar products except where the county agrees that extraction activities would be inappropriate.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans within or affecting Washington County to influence mineral zoning and permitting decisions.
        ii. The county will support efforts by mining companies to explore for minerals within the county and obtain required permits.
    d. **Background Mining and Mineral Development (Custom and Culture):**
        i. Silver Reef was the largest mining town in the county.
        ii. Gold mining the Bull Valley Mountains created pockets of private property in a part of the county that is mostly comprised of public land. Recently, the gold mining in that area has resumed again.
    e. **Detailed explanations**:
        i. The mineral resources of Washington County are visually presented on a series of maps. Each map displays the location of various mineral commodities found in the county. These commodities are grouped into three categories: metallic deposits, energy mineral occurrences and industrial mineral occurrences. These commodities are each discussed below. Individual mineral occurrences are marked on each map by small circles. The amoeboid shapes on the maps outline formally named mining districts, oil and gas fields (plays), coalfields, or informal groupings of similar minerals. Formations containing energy and industrial minerals that are widely distributed are also outlined on the appropriate maps. Each commodity is discussed in the following text. Economic potential of mineral extraction in the county.
        ii. The likely-hood for development of each mapped commodity and mineral occurrence is indicated by red, yellow and blue colors within the outlined

areas. This likely -hood is termed “potential” on the maps. “High potential” and the red color indicate that the community or element will likely be developed soon. “Moderate potential” and the yellow color show areas where development of the target commodity might occur in the future. “Low potential” and the blue color shows areas where the subject commodity occurs but is unlikely to be developed in the future. These determinations are based on the following objective and subjective criteria;

1. current geologic understanding of the deposit type,
2. quality of the resource or concentration of the subject element,
3. quantity of the resource thought to be present,
4. current and projected market conditions,
5. the opinion of the current author.

iii. The maps and written descriptions of the commodities are organized in three divisions. The first is a single map of both base and precious metal mineral deposits, such as gold, silver, copper, and zinc as well as the energy metal, uranium. These are formed by specific mineralizing events and can cross formational boundaries. Federal mineral rights for these commodities are acquired by staking mining claims. These minerals are marketed as commodities in world markets. Elements listed on the metal mining districts map are those where the Utah Geological Survey data base shows production in excess of 10% of the total reported production from the district. Other un-named elements may also be present in the deposits but due to concentration or market demand, were not recorded in the database. The second group of maps are of energy minerals which include coal, oil and gas, geothermal energy and tar sands. Federal mineral rights for these resources are acquired by lease. Oil and Gas are marketed as a commodity in international markets. Coal is sold by contract into national and international markets. Geothermal energy is used to generate electricity distributed through the electrical grid or for local space heating. Tar sands require a processing plant where they are converted into liquid oil and then sold through that market. The third and largest group of resources are termed industrial minerals. Theses minerals are those used in industrial processes. The right s to industrial minerals on federal lands can be acquired by claim, lease or purchase from the Bureau of Land Management. Manufacturing process that consume these minerals, produce products that are sold to consumers, usually located within a reasonable transportation distance of the mine site.

iv. DATA SOURCES

1. The mineral occurrences marked on the maps are found in the Utah Geological Survey’s Mineral Deposit Data Base that is available on line at http://geology.utah.gov/resources/data-database/utah-mining districts/. Outlines of the mining districts, coalfields, oil

and gas fields and geothermal fields are taken from the following publications:

2. The Mining District were taken from; Doelling, Hellmut H. and Tooker, Edwin W., August 1983, Utah Mining District Areas and Principal Metal Occurrences: Utah Geological and Mineralogical Survey Map 70.
3. Oil and Gas Fields were reproduced from; Wood, R. E., and Chidsey, T. C., Jr., 2015, Oil and Gas Fields Map of Utah: Utah Geological Survey, Circular 119.
4. The Coal Fields and Geothermal fields were copied from; Vandenberg, M. D., 2016, Utah's Energy Landscape, 4th edition: Utah Geological Survey, Map C-121.
5. Outlines of formation outcrop used in the maps to illustrate the location of formation favorable for the occurrence of a commodity are taken from Hintze, Lehi F., Willis, Grant L., Laes, Denis Y. M., Sprinkel, Douglas A. and Brown, Kent D., 2000, Digital Geological Map of Utah: Utah Geological Survey, 1:500,000.
6. Source for data quoted in the discussion of individual commodities is referenced in those discussions.

v. METALLIC MINERALS

1. Base and Precious Metals and Uranium: Metallic mineral deposits occur in several areas in western Washington County. The Mining District Map for the county shows the know mining district and the individual mineral occurrences in the resource data base kept by the Utah Geologic Survey The elements noted for each mining district are the most important. Other elements also have been found in the various districts but space limitation do not allow all of the these to be listed on the map. Gold is now being developed by an exploration company in the Goldstrike district where a significant resource is being developed. The nearby Mineral Mountain District is also the focus of exploration efforts. Gold exploration is active in adjacent Iron County at the writing of the report. The Tutsgubet is the location of the Apex Mine which is the only known deposit of primary germanium and gallium mineralization in previously mined copper deposits. Other similar deposits of similar mineralogy are also known in the district. The Silver Reef and the Washington Dome districts are known for silver mineralization in deposits geologically similar to uranium deposits on the Colorado Plateau to the east. Uranium identified on the Kolob Terrace is of a similar but lower in grade.

vi. ENERGY MINERALS

1. Coal: The Kolob Coalfield extends into the northeastern portion of the county, see Map. Past production from this field was used

for domestic heating, mining applications in the Silver Reef and Iron Hills Frisco and Horn Silver mines in adjacent counties and electrical power generation near Cedar City. At this time the coalfield is inactive. Original resources were estimated at 2.1 billion tons with over 7 million tons produced mostly from the Iron County portion of the Field. Coal seams cropping out along the north and east sides of the Pine Valley Mountains, sometimes called the Harmony Coalfield, are a down faulted portion of the Kolob Coalfield. (Doelling and Graham, 1972)

2. Geothermal Power: Washington County has one known geothermal springs at Veyo and Pah Tempe. These have been developed for bathing. The area about and between these occurrences has a larger area of elevated heat flow (greater than 90 mW/cubic meter) that is shown in blue on the map. This elevated heat flow may be developed in the distant future with additional research and increased market demand.
3. Oil and Gas Potential: The U. S. Geologic Survey (2007), Assessment of Undiscovered Oil and Gas Resources in the Eastern Great Basin shows potential for oil and gas development in the Sevier Thrust fault system. Inactive oils fields in Washington County include the Anderson Junction, and Virgin fields (See Map). The Virgin and Anderson Junction fields are sub-commercial due to poor success rates and low daily production from wells penetrating small isolated pools. Oil is found in the Timpoweap Member of the Moenkopi Formation and the Kaibab Formation (Blacket and others, 1992).

vii. INDUSTRIAL MINERALS

1. Alunite: One alunite, a potassium aluminum sulfate, occurrence is associate with gold mineralization in the Goldstrike mining district of Washington County. Evaluation of alunite occurrences were conducted during the First and Second World Wars to identify replacements for potassium and aluminum ores, which were limited by the conflicts. See Map.
2. Building Stone: Building stone is used for the support and ornamentation of buildings. This included stone used as facades, counter tops and other decorative uses. With the advent of concrete foundations, the use of stone for foundations has stopped. The market for various stones depends on architectural style and interior decor fashions. The appropriate Map shows the location of past production of building stone production and the extent of the Moenkopi Formation used for flagstone in Washington County.
3. Crushed Stone: Crushed stone is used in the construction of road beds, railroad beds and other applications where sized and

durability of the material are important criteria. Quartzite, basalt and intrusive igneous rocks all fulfill these criteria. The Map of building stone shows the location appropriate rocks in Iron County. No active crushed stone quarries operate in Iron County.

4. Clay: The term clay is both a particle size term and a group of crystalline minerals. As a rock type it is a very fine grained sedimentary rock where most of the grains are the composed of crystalline clay minerals and other detrital grains less than 4 microns in size. Clay behaves plastically when wet. Clay has an amazing variety of uses. The most common clay mineral types are a two-layer clay minerals called the kaolin group and a three-layer type called the montmorillonite group. The Montmorillonite group is the types that occur in Washington County. One Kaolin deposit is associated with the gold mineralization in the Goldstrike District. These are shown on the map. The kaolin clays are formed during hydrothermal alteration associated with base and precious metal deposition. Kaolin clays are refractory and are used in brick and pottery production. Sedimentary deposits of transported kaolin clays mixed with other minerals are termed ball clays and are used extensively in the manufacturing of ceramic pottery. The montmorillonite type clays expand when wet and are used in oil well drilling activities and in sealing water impoundments. See Map.
5. Dolomite and Limestone: Dolomite ($CaCO_3$ $MgCO_3$) and limestone ($CaCO_3$) are common stones that are chemically reactive, with uses in agriculture, and manufacturing. Agricultural uses include direct application to soils to improve acidity as well as, increase the calcium and/or magnesium content of the soil. Other uses include, as calcium supplements for livestock and in sugar refining. Manufacturing uses of limestone and dolomite include use in glass and paper production, lime production, as a flux in steel production and in coal fired power generation where it is burned in smoke stack scrubbers to reduce the emissions of sulfur and nitrogen gasses. Limestones with iron, silica and other impurities are used to make cement. Since transportation of the large volume of limestone and dolomite used in these applications, proximity to a railroad is critical. Two maps show the location of formations containing high quality (+90% carbonate content) limestone and dolomite in Washington County.
6. Gypsum: Gypsum is a calcium sulfate mineral use primarily in the manufacturing of wall board and plaster. Gypsum is broadcast onto agricultural fields to increase sulfate. High grade gypsum is used as food additives and in pharmacological applications.

Washington County has deposit of gypsum in the Moenkopi and Carmel formations shown on the map. Produced of gypsum used for domestic used have occurred in the past. A gypsum quarry is active south of Washington County in Arizona. The map shows the location of the known quarries.

7. Silica: Uses for silica include abrasive, glass and chemical, metallurgical, refractory, and electronic. Abrasive uses include stone cutting, glass grinding and blasting. Glass and chemical uses require extreme high purity and narrow size limits. Metallurgical silica is usually pebble in size but some modern smelters require a small size. Applications for metallurgical silica include the making of silica alloys and as a flux. Refractory uses include mold or cord sand in foundry operations, bottom sand in open hearth and electric steel furnaces and for patching or lining of furnaces and vessels. Other uses include as a filter media, hydraulic fracturing in the oil and gas industry and as a component of computer chips. Silica of high purity is found in the Navajo Formation outlined on the map.

1. **Noxious Weeds**
    a. **County Policy**:
        i. Washington County supports comprehensive weed management that reduces or eradicates seed sources for noxious weed infestations.
        ii. Washington County supports efforts to secure the agricultural commodities and aesthetic beauty of the county against weed infestations.
        iii. Washington County supports wildfire suppression efforts through weed control.
        iv. In compliance with Utah Code 4-17-4, Washington County has a weed board to manage noxious weed control within the county.
    b. **Desired Future Conditions/Objectives**:
        i. Noxious weed infestations are documented, mapped, and being actively managed.
        ii. The public is aware of noxious weeds and educated about how to manage noxious weeds.
        iii. The county works cooperatively with private, municipal, state, and federal partners to locate and manage noxious weeds.
    c. **Management Actions**:
        i. The county will maintain the county weed board.
        ii. The county will continue to support and be a member of the local Coordinated Weed Management Area (CWMA) along with state, federal, and private partners. The CWMA allows access to funding and helps prioritize weed management efforts.
        iii. The county will work cooperatively with state and local governments to continuously update and improve the county weed plan.
        iv. The county will support efforts by USU extension, private land owners, municipalities, and others to identify and control noxious weeds.
        v. The county will maintain a county noxious weed list which identifies plants that are harmful within the county.
        vi. County weed management will reflect state policy (codified at Utah Code 4-17-7) The county, through the county weed board, will determine whether land owners need to notified of noxious weed problems or declared nuisances.
    d. **Background of resource use and development**:
        i. Noxious weeds are identified on state and county noxious weed lists.
        ii. Noxious weeds interfere with the health, safety, and welfare of the residents of the county because they choke out native plants, interfere with agricultural production, create fire hazards, etc.
    e. **Detailed explanations as needed**:
        i. Utah's noxious weed list can be found at www.utahweed.org
        ii. Washington County's noxious weed list is maintained by the county weed board.

1. **Predator Control**
    a. **County Policy**:
        i. Washington County supports efforts to control predators so that predators will not limit the growth of other species.
        ii. Washington County opposes allowing predators to infringe on private property rights.
        iii. Washington County supports finding local solutions to predator concerns.
        iv. Washington County opposes introducing any new predators into the ecosystem without consultation with and consent of the county commission.
    b. **Desired Future Conditions/Objectives**:
        i. Predators are managed to be balanced with native plants and animals along with private property rights and economic needs in the county.
        ii. The public understands the importance controlling predators and actively participates in control programs.
    c. **Management Actions**:
        i. The county will work with federal, state, and municipal partners to manage predators.
        ii. The county will work with federal, state, and municipal partners to determine predator control needs.
    d. **Background of resource use and development**:
        i. Historically, settlers protected livestock by hunting predators. Over the years, government trappers, hunters, and residents have killed wild animals that were considered a threat to humans or domestic animals. Currently, predator control is mostly managed by the state or federal agencies.
        ii. Ravens eat tortoises
    e. **Detailed explanations**:
        i. Specific details about the state predator control program can be found at www.wildlifeutah.gov.
        ii. If predator populations are limiting DWR's ability to reach other wildlife management objectives, wildlife officials may choose to implement predator management plans. DWR recently updated its approach to predator management, placing increased emphasis on the protection of mule deer. The updated approach directs additional financial resources ($600,000 annually) to the U.S. Department of Agriculture-Wildlife Services for coyote control, specifically to help reduce coyote populations in areas where deer fawn survival is low. Coyotes are not considered protected wildlife and there is a bounty program to encourage coyote control. In addition, targeted efforts using hunters and trappers helps ensure removal of coyotes from the right areas, during the right seasons to improve fawn survival. DWR also is working to limit the impact of cougars on Utah's deer herds, while maintaining a healthy cougar

population statewide. Cougar harvest has been liberalized where mule deer or bighorn sheep populations fall below the population management objective, and where adult deer or bighorn sheep survival is lower than normal. More detail can be found in the Utah Cougar Management Plan.

iii. Utah's Mule Deer Protection Act went into effect in July of 2012. The primary goal of the program was to remove coyotes from areas where they may prey on deer fawns. The Utah Legislature set aside $500,000 from the General Fund to pay individuals to kill coyotes in Utah. To process the payments and track harvest and participation, DWR created the General Predator Control Program. This took the place of previous coyote bounty programs administered by participating counties. DWR established locations throughout the state where people can check-in coyotes for a $50 payment. Each participant is required to submit the scalp of the animal with both ears attached, the lower jaw, and a data sheet reporting where the coyote was killed. The coyote program does not have mandatory reporting requirements, meaning that it is legal to harvest coyotes and store them for indeterminate periods. One result of that choice is that coyotes harvested in one fiscal year may be submitted for payment in a different fiscal year. With that qualification, based on reported harvest, just over 7,000 coyotes were taken under the bounty program each year for the first two years of the program. In 2015, nearly 8,200 coyotes were submitted for bounty payments. To view completed reports, including maps of the results for the control program, please visit UDWR's website. Coyote removal success varied across the state. Six mule deer management units (Box Elder, West Desert, SW Desert, Fillmore, Beaver, and Pine Valley) accounted for approximately 50% of all coyotes removed. The bounty program likely increased the number of coyotes killed in Utah and provided government-supplied economic rewards to individuals and businesses throughout the state. It may take several years of program implementation before improvements in fawn:doe ratios are observed. Both location and timing are essential in reducing the impact of coyote predation on mule deer fawn survival.

iv. DWR is managing predators in specific units, for the following species and situations:

    1. Ravens, coyotes, red foxes, and badgers that prey on sage-grouse/eggs
    2. Raccoons and red foxes that prey on waterfowl/eggs (foxes take nesting hens and eggs)
    3. Cougars that prey on adult mule deer or bighorn sheep
    4. Coyotes that prey on mule deer fawns or pronghorn fawns

Of these programs, the one that targets coyotes is the largest and most costly for DWR. Appropriately targeting and timing predator removal efforts is essential for reducing the impact that coyotes have on fawn

survival. In Utah, targeted contracts allow removal of coyotes from fawning grounds from March through August, and the coyote bounty program is most effective during the coyote breeding season (January–March).

1. **Recreation and Tourism**
    a. **County Policy**:
        i. Washington County values the economy that tourism and recreation create.
        ii. Washington County supports thoughtful growth of the recreation and tourism economy, balanced with the values of other resources.
    b. **Desired Future Conditions/Objectives**:
        i. Recreation and tourism contribute to the quality of life in Washington County.
        ii. Recreation and tourism contribute to a robust economy.
        iii. Resources like water and space are managed to balance the demand for recreation and tourism with private property rights and the needs of the residents of Washington County.
        iv. Washington County residents enjoy an active and culturally rich lifestyle as a result of the tourism and recreational opportunities.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans within Washington County or affecting recreation within Washington County.
        ii. The county will continue to support the county tourism board in attracting tourism.
    d. **Background of resource use and development**:
        i. Recreation and tourism history to be further developed.
    e. **Detailed explanations as needed**:
        i. Recreation in the county is heavily dependent on access to public lands. Trails for hiking and biking along with open ride areas for OHV users are attractions that increase the quality of life for the county's residents and bring in tourists.

1. **Riparian Areas**
    a. **County Policy**:
        i. Washington County values healthy, functional riparian areas.
        ii. Washington County opposes riparian policies that infringe on private property rights or state water law and policy.
        iii. Washington County supports finding local solutions to riparian concerns.
        iv. Washington County values riparian areas for their ecological and aesthetic values.
        v. Washington County values riparian areas for their bank stabilization functions.
    b. **Desired Future Conditions/Objectives**:
        i. Riparian areas are healthy and ecologically functional, where functional is not defined us untouched, but rather as structurally stable and supporting riparian flora and fauna.
        ii. Private property rights are balanced with the need to care for riparian areas.
        iii. The public understands the importance of riparian areas and how to manage them.
    c. **Management Actions**:
        i. The county will encourage private landowners to maintain riparian areas for ecological function.
        ii. The county will work with federal, state, and municipal partners to manage existing riparian areas.
        iii. The county will encourage research into best riparian management practices.
        iv. The county will support efforts to educate the public on riparian health and best riparian management practices.
    d. **Background of resource use and development (custom and culture)**:
        i. Early settlement in Washington County developed near riparian areas of necessity. In this arid region, development of resources started near water. As infrastructure was built and installed for moving water away from riparian areas for agricultural and domestic uses, the pioneers could cultivate areas outside of the riparian areas.
        ii. Riparian health has always been important to the growth and stability of the county. Early pioneer settlers struggled with floods that ruined homes and crops. Maintaining a functional riparian system that could withstand high water has always been essential to improving bank stability and protecting property and human safety.
        iii. For more information on flooding issues in riparian areas, see flood plain and terrace section.
    e. **Detailed explanations as needed**:
        i. Virgin River Program

1. The Virgin River Program is a collaborative effort between local, state, and federal partners to balance human interests along the Virgin River with the conservation of this unique ecosystem for future generations. The goals of the Program are to:

    a. Implement actions to recover, conserve, enhance and protect native species in the Virgin River Basin.
    b. Enhance the ability to provide adequate water supplies for sustaining human needs.
2. The scope of the Program is broad, including species recovery, water management, floodplain protection, restoration, and community outreach.
3. The program produces materials that educate the public like the Landowners Handbook that provides a plan for reconstruction, management, and long term maintenance of the Virgin River riparian zone.

1. **Threatened and Endangered Species**
    a. **County Policy**:
        i. Washington County adheres to federal law and reasonable practices in protecting threatened, endangered, and sensitive species.
        ii. Washington County opposes listing any new species as threatened or endangered without proper scientific evidence.
        iii. Washington County opposes introducing any new protected species into the county without full cooperation and approval from the county.
        iv. Washington County support finding local solutions to protect sensitive species in an effort to prevent federal listing.
    b. **Desired Future Conditions/Objectives**:
        i. All existing federally listed species are recovered to the point of being delisted.
        ii. Residents are educated about and implementing best practices for protecting species.
        iii. Local conservation efforts suffice to preclude the need for any future listings.
    c. **Management Actions**:
        i. The county will work cooperatively with state wildlife agencies and the USFWS to determine and implement best management practices for protecting sensitive, threatened, and endangered species.
        ii. The county will support and facilitate efforts educate the public about best management practices.
        iii. The county will continue to manage the Red Cliffs Desert Reserve and the desert tortoise habitat conservation plan in the best interest of recovering the desert tortoise population.
    d. **Background of Resources use and development**

Washington County respects and values the diverse wildlife that is found within its borders. Because of this, the county follows the Endangered Species Act (ESA) of 1973, and all regulations relating to it, to ensure that sensitive, threatened, and endangered species can thrive in the county. According to the U.S. Fish & Wildlife Service, "under the ESA, species may be listed as either endangered or threatened. 'Endangered' means a species is in danger of extinction throughout all or a significant portion of its range. 'Threatened' means a species is likely to become endangered within the foreseeable future." U.S. Fish & Wildlife Service, *ESA Basics*, https://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf, accessed July 18, 2016.

Species found within the county that are federally listed as threatened or endangered:

Common Name	**Scientific Name**	**Federal Status**
California Condor	Gymnogyps Californianus	Experimental Population, Non-Essential
Desert Tortoise	Gopherus Agassizii	Threatened
Dwarf Bear-Poppy	Arctomecn Humilis	Endangered

Gierisch Mallow	Sphaeralcea Gierischii	Endangered
Holmgren Milk-Vetch	Astragalus Holmgreniorum	Endangered
Mexican Spotted Owl	Strix Occidentalis Lucida	Threatened
Shivwitz Milk-Vetch	Astragalus Ampullarioides	Endangered
Siler Pincushions Cactus	Pediocactus (=Echinocactus, =Utahia) Sileri	Threatened
Southwestern Willow Flycatcher	Empidonax Trailii Extimus	Endangered
Virgin River Chub	Gila Seminuda (=robusta)	Endangered
Woundfin	Plagopterus Argentissimus	Endangered
Yellow-billed Cuckoo	Cuccyzus americanus	Threatened

This data was collected from the U.S. Fish & Wildlife Service website, https://www.fws.gov/endangered/, on July 7, 2016.

The State of Utah also lists species classified as Wildlife Species of Concern (SPC) and Species Receiving Special Management under a Conservation Agreement in order to preclude the need for federal listing (CS). Species found within the county that are listed as SPC or CS:

Common Name	**Scientific Name**	**State Status**
Allen's Big-Eared Bat	Idionycteris phyllotis	SPC
American Three-Toed Woodpecker	Picoides dorsalis	SPC
American White Pelican	Pelecanus erythrorhynchos	SPC
Arizona Toad	Bufo microscaphus	SPC
Bald Eagle	Haliaeetus leucocephalus	SPC
Big Free-Tailed Bat	Nyctinomops macrotis	SPC
Black Swift	Cypseloides niger	SPC
Bluehead Sucker	Catostomus discobolus	CS
Bonneville Cutthroat Trout	Oncorhynchus clarkii Utah	CS
Burrowing Owl	Athene cunicularia	SPC
Common Chuckwalla	Sauromalus ater	SPC
Desert Iguana	Dipsosaurus dorsalis	SPC
Desert Night Lizard	Xantusia vigilis	SPC
Desert Springsnail	Pyrgulopsis deserta	SPC
Desert Sucker	Catostomus clarkia	SPC
Ferruginous Hawk	Buteo regalis	SPC
Flannelmouth Sucker	Catostomus latipinnis	CS
Fringed Myotis	Myotis thysanodes	SPC
Gila Monster	Heloderma suspectum	SPC
Greater Sage-Grouse	Centrocercus urophasianus	SPC
Kit Fox	Vulpes macrotis	SPC
Lewis's Woodpecker	Melanerpes lewis	SPC
Long-Billed Curlew	Numenius americanus	SPC

Mohave Rattlesnake	Crotalus scutulatus	SPC
Mountain Plover	Charadrius montanus	SPC
Northern Goshawk	Accipiter gentilis	CS
Pygmy Rabbit	Brachylagus idahoensis	SPC
Short-Earned Owl	Asio flammeus	SPC
Sidewinder	Crotalus cerastes	SPC
Speckled Rattlesnake	Crotalus mitchellii	SPC
Spotted Bat	Euderma maculatum	SPC
Townsend's Big-Eared Bat	Corynorhinus townsendii	SPC
Virgin Spinedace	Lepidomeda mollispinis	CS
Western Banded Gecko	Coleonyx variegatus	SPC
Western Red Bat	Lasiurus blossevillii	SPC
Western Threadsnake	Leptotyphlops humilis	SPC
Western Toad	Bufo boreas	SPC
Wet-Rock Physa	Physella zionis	SPC
Zebra-Tailed Lizard	Callisaurus draconoides	SPC

This data was collected from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS), which was last updated October 1, 2015.

Detailed Explanations

1. **Federally listed Species with special plans**

Washington County, under Section 10 of the ESA, is part of a Habitat Conservation Plan (HCP) in conjunction with the Bureau of Land Management, U.S. Fish and Wildlife Service, Department of Natural Resources, and School and Institutional Trust Lands Administration to protect the Desert Tortoise in the county. The HCP provides for protection of the Tortoise and allows for development that is vital to the people and economy of the county. Below is a summary of the status of the Desert Tortoise. The current HCP can be found at https://www.fws.gov/ecos/ajax/docs/plan_documents/thcp/thcp_355.pdf.

Desert Tortoise *Gopherus Agassizii* Tier I *Reptile*	**Biology and Life History**	**Population**	**Distribution**
	Frequents desert washes, riverbanks, dunes and rocky slopes. Requires firm ground for burrow construction. Also uses shelters among rocks and exposed, eroded caliche layers in wash walls. Herbivores must have adequate ground moisture for survival of eggs and	In 2003, desert tortoise density estimates showed a 47% population decline within Management Zone 3 of the Red Cliff Desert Reserve and a 41% decline throughout the Reserve since regional monitoring began in 1998. Both estimates indicate a biologically significant downward trend for 2003. This	Mojave and Sonora deserts. Southwest corner of Washington County, Utah; Southern Nevada; Southeastern California; southwestern

	young. A clutch of 1 to 12 eggs is deposited in ground in May-July. Usually one clutch is laid per year but two clutches are possible when conditions are favorable.	trend was influenced by the severe drought in 2002, which likely contributed to the 2003 tortoise decline.	Arizona; Mexico.

General Threats	Specific Threats	General Conservation Actions	Specific Conservation Actions	Priority
Development	Municipal development eliminates available habitat	Habitat Monitoring and Research	Construct road culverts along heavily used roads that bisect the Reserve. Monitor culvert use. Finalize and implement tortoise fencing standards across the range of the desert tortoise.	H
Disease	Upper Respiratory Track Disease	Test and Monitor	Assess health of populations across the range of the desert tortoise	H
Energy Development	Utility development impacts available habitat	Habitat Monitoring and Research	Monitor habitat degradation and fragmentation from utility development projects. Control/minimize impacts of utility development projects where feasible.	M
Habitat Loss	Habitat destruction and fragmentation	Permanent Conservation of Habitat	Acquire remaining habitat under federal ownership. Maintain habitat integrity.	M
Human Disturbance	Predation by domestic animals and human recreation	Control and Monitor Disturbance	Monitor recreation impacts within the Red Cliffs Desert Reserve and other areas	H
Invasive Animal Species	Predation by ravens and feral animals	Control and Monitor Invasive Species	Monitor raven predation within the Red Cliffs Desert Reserve	H

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf

2. State Listed Species with Special Plans

The State of Utah has classified five species as Species Receiving Special Management under a Conservation Agreement: Bluehead Sucker, Bonneville Cutthroat Trout, Flannelmouth Sucker, Northern Hoshawk, and Virgin Spinedace. Details of these five species and the methods being used to protect them can be found below.

Bluehead Sucker:

Bluehead Sucker *Catostomus Discobolus* Tier 1 Fish	**Biology and Life History**	**Population**	**Distribution**	
	Widely distributed in the Colorado River Basin. Occur in mainstem rivers and tributary streams from the mouth of the Grand Canyon upstream to headwater reaches of the Green and Colorado rivers. Large adults live in water as deep as 2 to 3 meters and commonly seek cover in the form of pools and undercut banks. Adults almost always found in areas with moderate to fast current and rocky substrates. Larval and juvenile forms use shallower, low-velocity shoreline and backwater areas. Bluehead suckers spawn in spring and early summer at lower elevations and into late summer at higher elevations.	Bluehead suckers are found in most historical habitats though declines have been noted in the White River and in the upper Green River into Wyoming. The species is locally abundant in all of the three major sub-drainages of the San Rafael River. In the Bonneville Basin, however, blueheads were only found in the Weber River in 2003 and 2004 and in no streams surveyed in 2005 (Bear, Ogden, and Weber).	Bluehead sucker are found in the mainstem Green, Colorado, and San Juan rivers and smaller tributaries including the Duchesne, White, Strawberry, Price, San Rafael, Fremont, and Escalante rivers and Muddy Creek. Bluehead sucker are also found in the Weber, Ogden, and Bear rivers in the Bonneville basin.	
General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Hybridization	Loss of genetic integrity through hybridization with white sucker and sometimes flannelmouth sucker	Control and Monitor Invasive Species	Remove nonnative white suckers from	H

			bluehead spawning locations	
Invasive Animal Species	Competition with and predation by a variety of introduced escocids, ictalurids, centrarchids, and cyprinids	Control and Monitor Invasive Species	Remove nonnative predators and competitors from important life history locations	H
Lack of Information	Population status and trends not fully known	Population Monitoring and Research	Determine population status and trends	H
Lack of Information	Life history and habitat needs not entirely known	Habitat Monitoring and Research	Determine habitat needs of all life history stages	H
Water Development	Habitat fragmentation due to development of streams and rivers (dams, diversions)	Determine and Map Distribution	Identify areas that need to be connected and implement appropriate actions	M

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For additional information on the Bluehead Sucker and efforts being made to protect the species, see the Division of Wildlife Resources' Range-wide Conservation Agreement and Strategy for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker, https://wildlife.utah.gov/pdf/UT_conservation_plan_5-11-07.pdf.

Bonneville Cutthroat Trout:

Bonneville Cutthroat Trout *Oncorhynchus Clarki Utah* Tier I	**Biology and Life History**	**Population**	**Distribution**
	Bonneville cutthroat trout historically occupied both streams and lakes within the Bonneville Basin. They need habitats with cool, well oxygenated water. Adults spawn in streams from April to July	In a recent status review biologists identified approximately 4,400 miles of stream as historic habitat and Bonneville cutthroat trout currently occupy 1,515 miles of stream or 34% of the historic range.	Bonneville cutthroat trout are native to the Bonneville Basin of Utah. Bonneville cutthroat trout are found in the Bear River, Provo, Weber, and Sevier River

Fish	depending on the elevation of occupied habitat. Stream populations typically mature at 2 – 3 years of age while some lake populations may mature later. Eggs are deposited in depressions dug in gravel-riffle areas. Fish less than 15 inches in length typically feed on insects or zooplankton while larger fish begin feeding more on small fish. Brown and brook trout compete with Bonneville cutthroat trout for food and space. Rainbow trout and other subspecies of cutthroat trout can hybridize with Bonneville cutthroat trout populations.	Approximately 1,000 stream miles were identified as having population expansion potential. Twenty miles had high potential and 34 miles had intermediate potential for restoration and expansion.	drainages as well as some other smaller drainages.	
General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Habitat Loss	Loss and fragmentation of streams and riparian habitats form dams, diversions, channelization, grazing, recreation, fire and agriculture	Conserve Suitable Habitat	Work with land management agencies and private landowners to conserve remaining good habitat	H
Habitat Loss	Loss and fragmentation of streams and riparian habitats form dams, diversions, channelization, grazing, recreation, fire and agriculture	Restore Degraded Habitats	Work with land management agencies and private landowners to restore habitat	H
Habitat Loss	Loss and fragmentation of streams and riparian habitats form dams, diversions, channelization, grazing, recreation, fire and	Habitat Monitoring and Research	Monitor habitat to establish trends in condition and	M

	agriculture		management	
Invasive Animal Species	Stocking of non-native species where Bonneville cutthroat trout exist or where stocked fish can migrate into occupied areas	Control and Monitor Invasive Species	Discontinue direct stocking of non-native, especially fertile non-natives	H
Invasive Animal Species	Stocking of non-native species where Bonneville cutthroat trout exist or where stocked fish can migrate into occupied areas	Control and Monitor Invasive Species	Produce sterile non-natives for stocking where they produce important sport fisheries but have contact with native cutthroat trout populations	H
Hybridization	Hybridization and competition with non-native species	Control and Monitor Invasive Species	Chemically or physically remove non-native salmonids	H
Harvest	Over harvest of adults from existing population	Control and Monitor Disturbance	Place special fishing regulations on waters if needed	M
Disease	Loss of significant numbers of Bonneville cutthroat trout due to various diseases	Test and Monitor Disease	All hatcheries stocking fish into Utah waters must be disease certified	M
Disease	Loss of significant number of Bonneville cutthroat trout due to various diseases	Education and Outreach	Educate anglers and the public about how they can help reduce the spread of disease	M

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For additional information on the Bonneville Cutthroat Trout and efforts being made to protect the species, see the Division of Wildlife Resources' Range-wide Conservation Agreement and Strategy for Bonneville Cutthroat Trout, https://wildlife.utah.gov/pdf/cacs7.pdf.

Flannelmouth Sucker:

Flannelmouth Sucker	**Biology and Life History**	**Population**	**Distribution**
Catostomus Latipinnis Tier I Fish	Typically inhabit pools and deeper runs of larger rivers in the Colorado River Basin. Range thought to be limited by cool water temperatures as they are not usually found above 1,880 meters elevation. Substrate preferences appear to vary from mud and silt to cobble and gravel, though adults appear to prefer hard substrates. Spawn in May and June in Utah and are thought to time spawning on a variety of environmental cues. Young fish appear to use lower velocity habitats than adults and are frequently found in backwaters, eddies, side channels, and shallow riffles. Are thought to have large home ranges and to need both mainstem and tributary habitats for their various life	Flannelmouth sucker appear to be persisting in almost all historical habitats. Most populations have likely experienced declines; however, accurate estimates are not available for most populations of the species. Flannelmouth were thought to be common in the mainstem Green River in 2004, though population estimates from 2001 to 2004 display a possible declining trend, though not statistically significant. In the San Rafael River, flannelmouth are thought to be experiencing a lack of successful spawning. This inability to pull off a successful spawn could be the result of limited or reduced nursery habitat. Flannelmouth are considered common in the mainstem Escalante.	Flannelmouth are found in the Virgin, White, middle and lower Green, Duchesne, Strawberry, Price, San Rafael, San Juan, Colorado, Fremont, Dolores, and Escalante rivers in Utah.

	stages.			
General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Hybridization	Loss of genetic integrity through hybridization with white sucker and sometimes bluehead or razorback sucker	Control and Monitor Invasive Species	Remove nonnative whitefish from flannelmouth spawning locations	H
Invasive Animal Species	Competition with and predation by a variety of introduced escocids, ictalurids, centrarchids, and cyprinids	Control and Monitor Invasive Species	Remove nonnative predators and competitors from important life history locations	H
Lack of Information	Population status and trends not fully known	Population Monitoring and Research	Determine population status and trends	H
Lack of Information	Life history and habitat needs not entirely known	Habitat Monitoring and Research	Determine habitat needs of all life history stages	H
Water Development	Habitat fragmentation due to development of streams and rivers (dams, diversions)	Determine and Map Distribution	Identify areas that need to be connected and implement appropriate actions	M

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For additional information on the Flannelmouth Sucker and efforts being made to protect the species, see the Division of Wildlife Resources' Range-wide Conservation Agreement and Strategy for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker, https://wildlife.utah.gov/pdf/UT_conservation_plan_5-11-07.pdf.

Northern Goshawk:

Northern	**Biology and Life**	**Population**	**Distribution**

Goshawk *Accipiter Gentillis* Tier I Bird	**History**		
	Goshawks nest in large diameter trees (primarily coniferous and aspen forests in Utah) but require relatively open understories in which to forage (primarily for birds)	Information on population trend is limited and controversial. Kennedy (1997) found that goshawk densities (abundance) are highly variable, and show no downward trend. There are no reliable statewide trend estimates for Utah.	In the West, goshawks are patchily distributed; in Utah, the species is limited primarily to conifer and aspen forests. Goshawk habitat patches appear to be fairly well connected and allow for goshawk dispersal

General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Habitat Loss	Changes in connectivity among suitable habitat stands	Conserve suitable habitat	Maintain and strengthen connectivity of habitat	H
Habitat Loss	Loss of large diameter trees (conifers and aspen) to fire, insects, harvest	Restore degraded habitat	Increase number and distribution of large diameter trees	H
Habitat Loss	Loss of large diameter trees (conifers and aspen) to fire, insects, harvest	Protect significant areas	Avoid removal of existing nest trees and stands	H
Lack of Information	Limited knowledge of statewide population trends and productivity	Population monitoring and research	Monitor populations and productivity	H

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For additional information on the Northern Goshawk and efforts being made to protect the species, see the U.S. Forest Service's Conservation Assessment of the Northern Goshawk, Black-Backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5130737.pdf.

Virgin Spinedace:

Virgin	**Biology and Life**	**Population**	**Distribution**

Spinedace *Lepidomeda Mollispinis* Tier I Fish	**History**			
	The Virgin Spinedace life span can be as long as three years. Spawning season extends through most of the spring and continues into early summer. The primary factors affecting the reproductive cycle are photoperiod and water temperature. Sexual dimorphism is slight, but is most pronounced during the peak spawning period. Based on collections, age 1 fish ranged between 55-76 mm SL and age 2 fish ranged between 76-85 mm SL. The largest collected fish during the sampling period was 128 mm SL. Virgin Spinedace rarely exceed 88 mm SL.	Virgin Spinedace is confined to the Virgin River Basin, inhabiting the Virgin River mainstem and several tributary streams. Population is stable in the mainstem above the Quail Creek Diversion. Current tributary population status: North Fork, (population stable), East Fork (population stable), North Creek (population increasing since augmentation), La Verkin Creek (population low but stable), Ash Creek (populations extirpated), Moody Wash (populations fluctuating), Santa Clara (population low but re-introduction projects underway), Lytle Ranch (population stable), and Motoqua (populations fluctuating).	Historically, Virgin Spinedace distribution included the mainstem Virgin River and several tributaries in southwestern Utah, northwestern Arizona, and southeastern Nevada. In Utah, Virgin Spinedace are monitored along the mainstem Virgin River and several tributaries to the Virgin River since 1994. Tributaries include the following: North Fork, East Fork, North Creek, La Verkin Creek, Ash Creek, Moody Wash, Santa Clara and Lytle Ranch. Limited Virgin Spinedace populations occur in the Virgin River and Beaver Dam Wash in Nevada and Arizona.	
General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Invasive Animal Species	Competition with and predation by a variety of introduced escocids, ictalurids, centrarchids, and cyprinids	Control and Monitor Invasive Species	Chemical and mechanical removal of red shiner and other species	H
Water Development	Habitat fragmentation due to development of streams and rivers (dams, diversions).	Restore Degraded Habitats	Protect and conserve flows and riparian habitat. Re-establish permanent flows	H

			and Virgin Spinedace population in the Santa Clara River below Gunlock Reservoir; provide fish passage/screening at diversion structures	
Water Development	Diversions causing entrapment	Control and Monitor Disturbance	Modify diversions	M
Limited Distribution	Occurs in limited area and number	Restore Degraded Habitats	Maintain Virgin spinedace refuge populations and implement re-introduction projects (Santa Clara, Beaver Dam Wash, North Creek); implement Zion Canyon floodplain/riparian corridor restoration and associated Virgin Spinedace monitoring	M
Habitat Loss	Degradation and fragmentation of habitat. Flow depletions degrade water quality (temp., turbidity, dissolved oxygen), during summer low flow periods.	Conserve Suitable Habitat	Evaluate and assess population status and trends. Implement limiting factors, studies, sediment management, and flow augmentation studies.	H

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For additional information on the Virgin Spinedace and efforts being made to protect the species, see the Division of Wildlife Resources' Virgin Spinedace Conservation Strategy, https://wildlife.utah.gov/pdf/spinedace_strategy.pdf.

In addition to the five species classified as Species Receiving Special Management under a Conservation Agreement, special attention is being paid in Washington County to protect the Gila Monster.

Gila Monster:

Gila Monster *Heloderma Suspectum* *Tier II* *Reptile*	**Biology and Life History**	**Population**	**Distribution**	
	Inhabits rocky canyon bottoms or washes.	Population size and trends unknown.	Found in localized portions of Washington County	
General Threats	**Specific Threats**	**General Conservation Actions**	**Specific Conservation Actions**	**Priority**
Human Disturbance	Predation by domestic animals and human recreation	Protect significant areas	Prioritize and protect undisturbed areas with fencing or other restrictions	H
Development	Municipal and industrial development eliminating available habitat	Protect significant areas	Prioritize and protect undisturbed areas with zoning and/or acquisitions; seek habitat restoration opportunities.	M
Harvest	Subject to illegal collection	Education and Outreach	Complete and distribute educational brochure	M

Data gathered on July 18, 2016 from Utah Division of Wildlife Resources, Utah Comprehensive Wildlife Conservation Strategy, Publication Number 05-19, https://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf. For more information on the Gila Monster, visit the Red Cliffs Desert Reserve website, http://www.redcliffsdesertreserve.com/wildlife/banded-gila-monster-heloderma-suspectum.

1. **Water Quality and Hydrology**
    a. **County Policy**:
        i. Washington County values clean, healthy drinking water.
        ii. Washington County supports finding local solutions to water quality and hydrological concerns.
        iii. Washington County values encourages actions by individuals, groups, and local governments that are aimed at improving water quality and supporting the hydrology of the county.
        iv. Washington County values water quality for human health and safety as well as ecological health.
    b. **Desired Future Conditions/Objectives**:
        i. The county has an adequate supply of clean water to supply the domestic, recreational, and ecological needs of the residents and visitors.
        ii. Hydrology in the county is understood and managed in order to meet water needs.
        iii. The public understands the importance of managing water resources for future sustainability.
        iv. Water quality plans are made in cooperation with state, federal, and other partners.
        v. Water wells are protected through groundwater quality.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal plans that affect the water quality or hydrology of the area.
        ii. The county will work with federal, state, and municipal partners to manage existing sources of drinking water for water quality.
        iii. The county will encourage research into best hydrological management practices.
        iv. The county will support efforts to educate the public on water quality and hydrology.
    d. **Background of resource use and development (custom and culture)**:
        i. Nearly all cities in the county have their own drinking water wells. Water quality assessments are required for all new municipal wells.
        ii. State law establishes zones around wells and dictates what uses are allowed in the zones to protect drinking water sources. Source water protection zones are filed with the county.
        iii. The county has a source protection ordinance in place to enact upstream protections for drinking water.
        iv. All surface water in Washington County is secondary water.
        v. Virgin River water below Pah Tempe hot springs is naturally polluted through geological formations. Pollution of the river means that the water is unavailable for domestic use.

vi. The county works with WCWCD to manage waste water in unincorporated parts of the county. Individual municipalities handle their own waste water, sometimes through contracting.

e. **Detailed explanations**:
    i. The Navajo Sandstone aquifer provides more than 10% of the drinking water and is one of the cleanest sources of drinking water. Protection of the resource and access to the wells are important to health and welfare of the county's residents.
    ii. Public lands play in important role in the hydrology of the county. Management of public lands that protects the water resources of the county is necessary to maintaining water quality.

1. **Water Rights**
    a. **County Policy**:
        i. Washington County supports the management of all water rights pursuant to the state system of water rights.
        ii. Washington County opposes any plans, policies, or other instruments regarding federally managed public land that infringe on the state system of private water rights.
        iii. Washington County encourages intelligent water conservation including the use of technology in measurement and application to maximize wise use available water resources.
        iv. Washington County values water rights as a necessary protection for growth and survival in our county.
        v. Existing water rights are a valuable part of the local heritage and culture.
        vi. Washington County supports water rights maximized for groundwater development, including ground water recharge.
    b. **Desired Future Conditions/Objectives**:
        i. Water rights held by private parties, municipalities, the water conservancy district, and the county are protected by the law.
        ii. Federal laws, plans, and policies do not interfere with the state system of water rights.
        iii. Water is used wisely to sustain the population of Washington County.
        iv. Water rights are managed according to Utah water law.
        v. Water use policies are developed that allow for the flexible planning, development, use, and re-use of all available resources.
    c. **Management Actions**:
        i. The county will work to ensure that state and federal actions support a water supply that is adequate for the population.
        ii. The county will support and facilitate efforts by Utah State University and local water managers, including Washington County Water Conservancy District, to ensure an adequate water supply.
        iii. The county will zealously advocate for the protection of water rights.
    d. **Background of resource use and development**:
        i. Utah water rights are established through prior appropriation, also known as “fist in time, first in right” appropriation. The first user to appropriate the water and put it to beneficial use owns a right to the water.
        ii. Historically water rights in the West developed without any statutory guidelines; prior appropriation was a part of the mining culture of the area. The Mining Act of 1877 acknowledged the existing system of appropriating water in the West to the first users and also acknowledged the state’s jurisdiction to allocate water within their borders.
        iii. Water rights in Utah are allocated by the state according to priority date, type of use, point of diversion, and place of use. This means that earlier priority dates have seniority over later priority dates, and that water is tied

to a specific acreage. Priority dates cannot be changed, but type and place of use and point of diversion can be changed through application to the state water engineer.

iv. Failure to use a water right can result in forfeiture of the water right.

v. The federal government cannot hold, create, or interfere with established water rights within states except through advocacy for reserved water rights associated with some reservations for Native Americans or public lands that are set aside for specific purposes that require a reservation of water to fulfill their purpose.

vi. Historically water rights have been bought and sold as property separately from land. All water in Utah is considered public in that it is allocated by the state and private users only hold rights regulated by the state.

vii. Utah law forbids public land management agencies from requiring livestock grazers to transfer water rights to agencies. Livestock watering rights are tied to grazing allotments and are for the beneficial use of the livestock.

e. Detailed explanations as needed:

i. Lake Powel Pipeline

1. The proposed Lake Powell Pipeline is one example of planning to meet the water needs of projected future growth in the county.
2. The Lake Powell Pipeline Project is a state project for which the state, county, and WCWCD are exploring design and funding options to bring a portion of Utah's share of the Colorado River (determined in the Colorado River Compact) to Washington County to supplement Virgin River Basin water sources.
3. As planned, the pipeline would be a 138-mile underground pipeline from Lake Powell to Sand Hollow Reservoir in Hurricane, Utah. It would deliver 86,249 acre feet of water a year to serve the growing populations and economies of Washington and Kane counties.
4. Legislation authorizing the pipeline passed in the 2006 Utah General Legislative Session with a 25 aye, 0 nay vote in the Senate and a 71 aye, 1 nay vote in the House of Representatives.
5. The estimated cost of the project is approximately $1 billion.

ii. Washington County Water Conservancy District

1. The district is a not-for-profit public agency governed by an appointed board of trustees in accordance with the Utah law. Board members are county-wide representatives who oversee district activities.

2. The purpose of the water conservancy district is to conserve, develop, manage and stabilize water supplies within the country in an ongoing effort to provide a safe, sustainable water supply for current and future generations.

3. The district manages reservoirs, pipelines, wells, water storage tanks, treatment plants, hydropower plants, diversion dams and more. The facilities are currently capable of producing more than 35 million gallons of water a day.
4. The majority of the district's water is sold wholesale to its municipal customers including the cities of St. George, Washington, Hurricane, Santa Clara, Ivins, Toquerville, La Verkin and the town of Virgin. Providing wholesale water to municipalities is the district's central operation, but the district also manages small retail, secondary and wastewater systems.
5. The district was formed at the request of local property owners, who signed a petition authorizing the district to develop and manage the county's water supplies, including taxing their properties to accomplish these goals. During its 50-plus year history, the district has significantly expanded its infrastructure, services and capabilities in an ongoing effort to serve the county's growing population.
6. The district is planning and constructing new water projects in the Virgin River basin, including a regional pipeline to carry culinary water from the Sand Hollow Reservoir well field to interconnect with the existing regional pipeline and municipal service areas, the Ash Creek Pipeline and Toquer Reservoir, the Warner Valley Reservoir project, groundwater recharge recovery wells, and additional well drilling at various locations.

iii. Fish Conservation Pools
    1. District reservoirs are managed for delivery for intended uses, i.e., municipal, institutional, industrial and agricultural uses. Recreation and other incidental uses are allowed where they do not interfere with the intended uses. There are two dedicated fish conservation pools:
        a. Gunlock Reservoir (1,014 acre feet)
        b. Sand Hollow Reservoir (1,086 acre feet)

iv. Most of the County is fully allocated and parts are adjudicated
    1. Rights in the Virgin River and its tributaries have been fully allocated and most of the county has been closed to new appropriations of water. The Virgin River adjudication has not been completed, although water rights have been determined in accordance with certain decrees entered by courts over the years. http://www.waterrights.utah.gov/wrinfo/policy/wrareas/area81.asp
    2. Water rights in this area are currently being compiled into Proposed Determinations of Water Rights under the court ordered general adjudication of the Virgin River. The Beaver Dam Wash and Santa Clara River Proposed Determination (Book 1) was

submitted to the court in 1988 while the North Fork and East Fork of the Virgin River Proposed Determination (Book 2) was submitted in 1992. No comprehensive pre- trial orders have been issued on either Book 1 or Book 2.

3. An Addendum to Book 1 was distributed in September 1999 in anticipation of a pre-trial order that will affirm all rights excepting those on which objections have been properly filed. In February of 2002, a "Partial Interlocutory Decree" was entered by the Fifth District Court affirming a number of water rights from Book 1. The rights affirmed are those related to a series of agreements designed to create a federal reserved water right for the Shivwits Band of Paiute Indians, whose reservation lands are located in the Santa Clara River drainage.

1. **Wetlands**
    a. **County Policy**:
        i. Washington County supports local wetlands conservation and management.
        ii. Washington County values wetlands as part of the local hydrology.
        iii. Washington County recognizes that only federal agencies can designate wetlands, and that a wetland designation requires 3 elements: hydrophytic soils, hydrophytic vegetation, and hydrology. This means that the county will not recognize as wetlands areas that are not designated by an agency tasked with designation and that are only temporarily inundated with water.
    b. **Desired Future Conditions/Objectives**:
        i. Wetlands in Washington County are ecologically functional and stable with no net loss of wetlands.
        ii. Residents are aware of the functions and importance of wetlands so that they act to effectively manage them.
    c. **Management Actions**:
        i. The county will cooperate with federal agencies tasked with identifying and managing wetlands to ensure that wetlands are conserved according to federal law.
    d. **Background of resource use and development**:
        i. Federal agencies are required to conserve and protect wetlands on land they manage. Section 404 of the Clean Water Act requires a federal permit for dredging or filling of “waters of the US”, thus regulating most wetland related construction activities. The Food Security Act of 1985, known as Swampbuster, protects wetlands on some private property by denying USDA assistance to private landowners who destroy wetlands.
    e. **Detailed explanations as needed**:
        i. In accordance with Utah Code 17-27a-520 and 521 neither the county nor local municipalities designate wetlands to be protected by federal law. Wetlands are designated by federal agencies.

1. **Wilderness**
    a. **County Policy**:
        i. Washington County recognizes that management of existing wilderness is defined by federal law as codified in the Wilderness Act. Management of wilderness areas should conform with the Wilderness Act without being more restrictive on human activities than the Act requires.
        ii. Washington County opposes creation of new wilderness areas in the county.
        iii. Washington County favors management that maximizes the public's enjoyment of existing wilderness including maximum access.
    b. **Desired Future Conditions/Objectives**:
        i. Existing wilderness is ecologically healthy and supports appropriate recreation.
        ii. Land that is not designated as wilderness by Congress is not managed like wilderness.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans that relate to Washington County.
        ii. The county will actively participate with federal partners in making wilderness management plans.
        iii. The county will actively oppose the creation of new wilderness areas inside the county.
    d. **Background of resource use and development**:
        i. In 1964, the passage of the Wilderness Act gave Congress the authority to declare wilderness areas as part of a National Wilderness Preservation System. The Wilderness Act gave the Forest Service 10 years to review areas that might be eligible for designation as national wilderness areas and make recommendations to Congress.
        ii. In 1976, when FLPMA was passed, BLM was given 15 years to study possible wilderness areas (WSAs) and make recommendations to the President who would then make a recommendation to Congress for designation. In the interim between wilderness study and designation decisions by Congress, wilderness study areas were to be managed so as not to impair the wilderness characteristics. Because of controversy surrounding the process and results of BLM inventories, Congress has not made designation decisions in most areas. Lands determined to be WSAs are being managed for nonimpariment pending designation decisions.
        iii. Washington County, largely to settle the wilderness question, entered into a cooperative process to create a lands bill that could be passed by Congress. After several years of participation by local, state, and federal governments as well as landowners, environmental groups, etc., Washington County's lands bill was passed by Congress and signed by the

President in 2009 as part of the Omnibus Public Lands Management Act (OPLMA).

e. OPLMA designated over a quarter of a million acres as wilderness areas and released all undesignated lands from further study. As a result of this legislation, Washington County does not have WSAs. Designated wilderness is managed by the agency that managed the land before designation, either Forest Service or BLM.

f. Because of the lands bill and the release language, Washington County will adamantly oppose any new wilderness areas in the county as well as any management of any undesignated areas in a way that amounts to wilderness management.

g. **Detailed explanations**:

i. Designated Wilderness Areas (see maps):

1. Beartrap Canyon, approximately 40 acres, BLM
2. Blackridge, approximately 13015 acres, BLM
3. Canaan Mountain, approximately 44531 acres, BLM
4. Cottonwood Canyon, approximately 11712 acres, BLM
5. Cottonwood Forest, approximately 2643 acres, USFS
6. Cougar Canyon, approximately 10409 acres, BLM
7. Deep Creek, approximately 3284 acres, BLM
8. Deep Creek North, approximately 4262 acres, BLM
9. Doc's Pass, approximately 17294 acres, BLM
10. Goose Creek, approximately 98 acres, BLM
11. LaVerkin Creek, approximately 445 acres, BLM
12. Red Butte, approximately 1537 acres, BLM
13. Red Mountain, approximately 1829 acres, BLM
14. Slaughter Creek, approximately 3901 acres, BLM
15. Taylor Creek, approximately 32 acres, BLM
16. Red Butte, approximately 1537 acres, BLM
17. Zion, approximately 124406 acres, ZNP

1. **Wildlife**
    a. **County Policy**:
        i. Washington County supports wildlife management that seeks an optimal balance between wildlife populations and human needs.
        ii. Washington County opposes any federal land management that infringes on state jurisdiction over wildlife.
        iii. Washington County values game hunting as part of the economy of the county.
        iv. Washington County values game hunting as part of the custom and culture of the county.
    b. **Desired Future Conditions/Objectives**:
        i. Healthy wildlife populations are appropriately managed.
        ii. Thriving wildlife populations provide wildlife viewing and hunting experiences for residents and visitors to the county.
        iii. Hunting continues to be part of the economy and traditions of the area.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans that relate to Washington County to ensure that state jurisdiction over wildlife is preserved.
        ii. The county will actively participate with state partners in making wildlife management plans.
        iii. The county will cooperate with all partners to avoid listing of any wildlife species in the county.
    d. **Background of resource use and development**:
        i. Washington County recognizes the authority of the Utah Division of Wildlife Resources and wildlife board in managing the wildlife in the county.
        ii. Hunting provides food and recreation for Washington County families and visitors who come from other areas to enjoy hunting in the county. Licensed hunting, during hunting season, is an important tradition in this area. Lawful hunting of rabbits, coyotes, and other small game makes are also important parts of the local culture. Hunting also contributes to the economy of the county by bringing in hunters and supporting the sporting goods industry.
    e. **Detailed explanations**:
        i. The state's Wildlife Board establishes seasons, limits, and other wildlife regulations. The Wildlife Board is composed of individuals nominated by a committee selected by the governor, which reflects representation by diverse groups including non-consumptive wildlife interests, the agriculture industry, sportsmen groups, federal land management agencies, the Utah Association of Counties, and range management specialists. From this list of nominees the governor then appoints seven Wildlife Board members with the consent of the Utah Senate. The Wildlife Board

is responsible for considering RAC input and recommendations, to the extent that the Board must provide a written explanation if they reject recommendations or positions submitted by a RAC. The Wildlife Board uses public input, the recommendations of the RACs, and the assembled facts to make determinations and establish policies best designed to accomplish the purposes and fulfill the intent of the wildlife laws. The Wildlife Board generates wildlife management policy, and exercises its powers by promulgating administrative rules and issuing proclamations and orders under Utah Code. Utah Code 23-15-2 establishes that the state has jurisdiction of all wildlife in the state, including aquatic wildlife, whether on public or private land. Utah Code 23-14-1 the power to manage wildlife is in the Utah Department of Wildlife Resources.

ii. Utah Code 4-23-2 declares that preserving the wildlife resources of the state is important to the economy of the state.

iii. Thriving populations of big game animals will, at times, cause some level of damage to farming and ranching operations, by competing with domestic livestock for available forage, or by damaging crops, fences, or irrigation equipment. A number of methods can be applied to mitigate the damage, including review and appeal procedures apply, and are used as needed, the total amount of compensation that can be provided to landowners to prevent or compensate for damages may not exceed the funding amounts appropriated by the legislature for fencing material and compensation for damaged crops, fences, and irrigation equipment.

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

v. Although predator management is dealt with under a separate chapter entitled “Predator Management,” the Wildlife Damage Compensation Act should be mentioned because it provides a mechanism by which livestock owners may obtain compensation if livestock are damaged by a bear, mountain lion, wolf , or eagle. In this case, “livestock” means cattle, sheep, goats, and turkeys.

vi. 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 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.

vii. In the case of mule deer and elk, in addition to the statewide plans required by state law, herd unit plans also have been developed for each mule deer and elk herd unit across the state. Each of these unit plans have been reviewed and approved by the 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 the Division of Wildlife Resources and the 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.

1. **Wild and Scenic Rivers**
    a. **County Policy**:
        i. Washington County supports following federal law in the management of wild and scenic rivers.
        ii. Washington County values wild and scenic rivers as contributors to the aesthetic beauty of the county.
        iii. Washington County opposes river management that exceeds the statutory authority of the Wild and Scenic Rivers Act.
        iv. Washington County supports a balanced approach to preserving, enhancing and protecting the natural resources, scenic value and recreational uses of the wild and scenic rivers while protecting the adjacent owners' rights; the ability of citizens, utilities and public entities to make use of reasonable options for rights of way over public lands; and the ability to develop an adequate water supply for human use.
    b. **Desired Future Conditions/Objectives**:
        i. River segments that Congress has designated as wild, scenic, or recreational are adequately managed and functioning.
        ii. In accordance with the express terms of the Wild and Scenic Rivers Act of 1968 (WSRA), river segments that Congress has not designated as Wild and Scenic Rivers are not managed as de facto wild and scenic rivers.
    c. **Management Actions**:
        i. The county will seek cooperating agency status on all federal resource management plans that relate to Washington County.
        ii. The county will actively participate with state and federal partners and consult with Washington County Water Conservancy District.
    d. **Background of resource use and development**:
        i. The WSRA was intended to preserve certain rivers designated by Congress or the legislature of the state with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Segments of rivers can be designated if other stretches of a river are not eligible.
        ii. In creating the wild and scenic rivers system, Congress did not provide that river segments that might be eligible for designation must be managed for non-impairment of the wild and scenic qualities of the river. Only river segments designated in accordance with the terms of the WSRA come under this protection.
        iii. Through the Washington County Lands Bill (OPLMA), the rivers in Washington County were evaluated and Congress designated segments as wild and scenic. River segments not designated are not to be managed as wild and scenic.
    e. **Detailed explanations**:
        i. The WSRA at 16 USC 1281 (a) and 1281 (e) provides that the secretary tasked with managing wild and scenic river segments can "enter into written

cooperative agreements with the appropriate State or local official for the planning, administration, and management" of the land surrounding the designated segments.

ii. WSRA provides that it shall not be construed to "abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without the consent of said party". 16 USC 1283 (b).

iii. WSRA section 1284 recognizes the jurisdiction of state water law over wild and scenic rivers and states that any taking of a water right will be justly compensated. 16 USC 1248 (c).

iv. Designation of a stream segment as wild and scenic implies no reservation of water except to preserve the wild and scenic nature of the stream segment.

v. Designation as a wild and scenic river does not affect access to the segment. 16 USC 1248 (f).

vi. Pursuant to OPLMA, the Zion National Park Water Rights Settlement Agreement of December 4, 1996 is unaffected by the designations in OPLMA.

vii. Wild and scenic river segments in Washington County were designated in the Omnibus Public Lands Act of 2009 as follows:

A	TAYLOR CREEK	The 4.5–mile segment from the junction of the north, middle, and south forks of Taylor Creek, west to the park boundary and adjacent land rim-to-rim, as a scenic river.
B	NORTH FORK OF TAYLOR CREEK	The segment from the head of North Fork to the junction with Taylor Creek and adjacent land rim-to-rim, as a wild river
C	MIDDLE FORK OF TAYLOR CREEK	The segment from the head of Middle Fork on Bureau of Land Management land to the junction with Taylor Creek and adjacent land rim-to-rim, as a wild river.
D	SOUTH FORK OF TAYLOR CREEK	The segment from the head of South Fork to the junction with Taylor Creek and adjacent land rim-to-rim, as a wild river
E	TIMBER CREEK AND TRIBUTARIES	The 3.1–mile segment from the head of Timber Creek and tributaries of Timber Creek to the junction with LaVerkin Creek and adjacent land rim-to-rim, as a wild river
F	LAVERKIN CREEK	The 16.1–mile segment beginning in T. 38 S., R. 11 W., sec. 21, on Bureau of Land Management land, southwest through Zion National Park, and ending at the south end of T. 40 S., R. 12 W., sec. 7, and adjacent land ½ -mile wide, as a wild river.
G	WILLIS CREEK	The 1.9–mile segment beginning on Bureau of Land Management land in the SWSW sec. 27, T. 38 S., R. 11 W., to the junction with LaVerkin Creek in Zion National Park and adjacent land rim-to-rim, as a wild river
H	BEARTRAP CANYON	The 2.3–mile segment beginning on Bureau of Management land in the SWNW sec. 3, T. 39 S., R. 11 W., to the junction with LaVerkin Creek and the segment from the headwaters north of Long Point to the junction with LaVerkin Creek and adjacent land rim-to-rim, as a wild river
I	HOP VALLEY CREEK	The 3.3–mile segment beginning at the southern boundary of T. 39 S., R. 11 W., sec. 20, to the junction with LaVerkin Creek and adjacent land ½ -

		mile wide, as a wild river.
J	CURRENT CREEK	The 1.4–mile segment from the head of Current Creek to the junction with LaVerkin Creek and adjacent land rim-to-rim, as a wild river.
K	CANE CREEK	The 0.6–mile segment from the head of Smith Creek to the junction with LaVerkin Creek and adjacent land ½ -mile wide, as a wild river.
L	SMITH CREEK	The 1.3–mile segment from the head of Smith Creek to the junction with LaVerkin Creek and adjacent land ½ -mile wide, as a wild river.
M	NORTH CREEK LEFT AND RIGHT FORKS	The segment of the Left Fork from the junction with Wildcat Canyon to the junction with Right Fork, from the head of Right Fork to the junction with Left Fork, and from the junction of the Left and Right Forks southwest to Zion National Park boundary and adjacent land rim-to-rim, as a wild river.
N	WILDCAT CANYON (BLUE CREEK)	The segment of Blue Creek from the Zion National Park boundary to the junction with the Right Fork of North Creek and adjacent land rim-to-rim, as a wild river.
O	LITTLE CREEK	The segment beginning at the head of Little Creek to the junction with the Left Fork of North Creek and adjacent land ½ -mile wide, as a wild river.
P	RUSSELL GULCH	The segment from the head of Russell Gulch to the junction with the Left Fork of North Creek and adjacent land rim-to-rim, as a wild river
Q	GRAPEVINE WASH	The 2.6–mile segment from the Lower Kolob Plateau to the junction with the Left Fork of North Creek and adjacent land rim-to-rim, as a scenic river.
R	PINE SPRING WASH	The 4.6–mile segment to the junction with the left fork of North Creek and adjacent land ½ -mile, as a scenic river
S	WOLF SPRINGS WASH	The 1.4–mile segment from the head of Wolf Springs Wash to the junction with Pine *1087 Spring Wash and adjacent land ½ -mile wide, as a scenic river.
T	KOLOB CREEK	The 5.9–mile segment of Kolob Creek beginning in T. 39 S., R. 10 W., sec. 30, through Bureau of Land Management land and Zion National Park land to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
U	OAK CREEK	The 1–mile stretch of Oak Creek beginning in T. 39 S., R. 10 W., sec. 19, to the junction with Kolob Creek and adjacent land rim-to-rim, as a wild river
V	GOOSE CREEK	The 4.6–mile segment of Goose Creek from the head of Goose Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river
W	DEEP CREEK	The 5.3–mile segment of Deep Creek beginning on Bureau of Land Management land at the northern boundary of T. 39 S., R. 10 W., sec. 23, south to the junction of the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
X	NORTH FORK OF THE VIRGIN RIVER	The 10.8–mile segment of the North Fork of the Virgin River beginning on Bureau of Land Management land at the eastern border of T. 39 S., R.

		10 W., sec. 35, to Temple of Sinawava and adjacent land rim-to-rim, as a wild river.
Y	NORTH FORK OF THE VIRGIN RIVER	The 8–mile segment of the North Fork of the Virgin River from Temple of Sinawava south to the Zion National Park boundary and adjacent land ½ -mile wide, as a recreational river.
Z	IMLAY CANYON	The segment from the head of Imlay Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river
AA	ORDERVILLE CANYON	The segment from the eastern boundary of Zion National Park to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
BB	MYSTERY CANYON	The segment from the head of Mystery Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
CC	ECHO CANYON	The segment from the eastern boundary of Zion National Park to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
DD	BEHUNIN CANYON	The segment from the head of Behunin Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
EE	HEAPS CANYON	The segment from the head of Heaps Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a wild river.
FF	BIRCH CREEK	The segment from the head of Birch Creek to the junction with the North Fork of the Virgin River and adjacent land ½ -mile wide, as a wild river.
GG	OAK CREEK	The segment of Oak Creek from the head of Oak Creek to where the forks join and adjacent land ½ -mile wide, as a wild river.
HH	OAK CREEK	The 1–mile segment of Oak Creek from the point at which the 2 forks of Oak Creek join to the junction with the North Fork of the Virgin River and adjacent land ½ -mile wide, as a recreational river
II	CLEAR CREEK	The 6.4–mile segment of Clear Creek from the eastern boundary of Zion National Park to the junction with Pine Creek and adjacent land rim-to-rim, as a recreational river.
JJ	PINE CREEK	The 2–mile segment of Pine Creek from the head of Pine Creek to the junction with Clear Creek and adjacent land rim-to-rim, as a wild river.
KK	PINE CREEK	The 3–mile segment of Pine Creek from the junction with Clear Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim, as a recreational river.
LL	EAST FORK OF THE VIRGIN RIVER	The 8–mile segment of the East Fork of the Virgin River from the eastern boundary of Zion National Park through Parunuweap Canyon to the western boundary of Zion National Park and adjacent land ½ -mile wide, as a wild river.
MM	SHUNES CREEK	The 3–mile segment of Shunes Creek from the dry waterfall on land administered by the Bureau of Land Management through Zion National Park to the western boundary of Zion National Park and adjacent land ½ -mile wide as a wild river.

OMNIBUS PUBLIC LAND MANAGEMENT ACT OF 2009, PL 111-11, March 30, 2009.